```
function out = model
%
% Covid_vaccine_model.m
%
% Model exported on Dec 23 2022, 08:32 by COMSOL 6.0.0.318.


model = ModelUtil.create('Model');

model.modelPath('C:\Users\valan\Dropbox (Personal)\Univercity of Cyprus\3.c. ↙
Project\43. Covid vaccine');

model.comments(['Untitled\n\n']);


model.geom.create('geom1', 3);

model.mesh.create('mesh1', 'geom1');

model.physics.create('dode', 'DomainODE', 'geom1', {'lg'});
model.physics('dode').prop('Units').set('CustomSourceTermUnit', '1/s');

model.study.create('std1');
model.study('std1').create('time', 'Transient');
model.study('std1').feature('time').activate('dode', true);

model.geom('geom1').create('blk1', 'Block');
model.geom('geom1').feature('blk1').set('size', {'0.02 [m]' '0.02 [m]' '1'});
model.geom('geom1').feature('blk1').setIndex('size', '0.02 [m]', 2);
model.geom('geom1').runPre('fin');
model.geom('geom1').run('blk1');
model.geom('geom1').create('sph1', 'Sphere');
model.geom('geom1').feature('sph1').set('r', '500e-6[m]');
model.geom('geom1').feature('sph1').set('pos', {'0.02 [m]/2' '0' '0'});
model.geom('geom1').feature('sph1').setIndex('pos', '0.02 [m]/2', 1);
model.geom('geom1').feature('sph1').setIndex('pos', '0.02 [m]/2', 2);
model.geom('geom1').run('sph1');
model.geom('geom1').create('uni1', 'Union');
model.geom('geom1').feature('uni1').selection('input').set({'blk1'});

model.view('view1').hideObjects.create('hide1');
model.view('view1').hideObjects('hide1').init;
model.view('view1').hideObjects('hide1').add({'blk1'});

model.geom('geom1').feature('uni1').selection('input').set({'blk1' 'sph1'});

model.view('view1').hideObjects.clear;
model.view('view1').hideObjects.clear;
model.view('view1').hideObjects.clear;
```

```
50
51 model.geom('geom1').runPre('fin');
52 model.geom('geom1').run('fin');
53
54 model.physics('dode').selection.set([2]);
55 model.physics('dode').feature('dode1').setIndex('f', 'alpha*ATR', 0);
56
57 model.mesh('mesh1').create('ftet1', 'FreeTet');
58 model.mesh('mesh1').feature('ftet1').create('size1', 'Size');
59 model.mesh('mesh1').create('ftet2', 'FreeTet');
60 model.mesh('mesh1').feature('size').set('hauto', '1');
61 model.mesh('mesh1').feature('ftet1').feature('size1').selection.geom('geom1', 3);
62 model.mesh('mesh1').feature('ftet1').feature('size1').selection.set([1]);
63 model.mesh('mesh1').feature('ftet2').create('size1', 'Size');
64 model.mesh('mesh1').feature('ftet2').feature('size1').selection.geom('geom1', 3);
65 model.mesh('mesh1').feature('ftet2').feature('size1').selection.all;
66 model.mesh('mesh1').feature('ftet2').feature('size1').selection.set([2]);
67 model.mesh('mesh1').feature('ftet2').feature('size1').set('hauto', '2');
68 model.mesh('mesh1').run;
69
70 model.variable.create('var1');
71 model.variable('var1').model('comp1');
72 model.variable('var1').set('AGT', '483.9[pmol/ml]');
73 model.variable('var1').set('AngI', '7.5[fmol/ml]');
74 model.variable('var1').set('AngII', '4.75[fmol/ml]');
75 model.variable('var1').set('Ang17', '14[fmol/ml]');
76 model.variable('var1').set('AngIV', '1.29[fmol/ml]');
77 model.variable('var1').set('AT1bAngII', '16.2[fmol/ml]');
78 model.variable('var1').set('AT2bAngII', '5.4[fmol/ml]');
79 model.variable('var1').set('hAGT', '16[h]');
80 model.variable('var1').set('hAngI', '0.5[min]');
81 model.variable('var1').set('hAngII', '0.5[min]');
82 model.variable('var1').set('hAng17', '29[min]');
83 model.variable('var1').set('AGTsy', '34620[fmol/ml/h]');
84 model.variable('var1').set('ACE', '54.1[1/h]');
85 model.variable('var1').set('Chymase', '1.1[1/h]');
86 model.variable('var1').set('NEP_AngI17', '1.1[1/h]');
87 model.variable('var1').set('ACE2', '2.4[1/h]');
88 model.variable('var1').set('AngIIctAngIV', '23.5[1/h]');
89 model.variable('var1').set('AngIIAt1br', '11.8[1/h]');
90 model.variable('var1').set('AngIIAt2br', '39[1/h]');
91
92 model.physics.create('dode2', 'DomainODE', 'geom1', {'u2'});
93
94 model.study('std1').feature('time').activate('dode2', true);
95
96 model.variable('var1').remove('AGT');
97
98 model.physics('dode2').prop('Units').set('CustomSourceTermUnit', '1/s');
99 model.physics('dode2').field('dimensionless').component(1, 'AGT');
```

```
  100 model.physics('dode2').feature('dode1').setIndex('f', 'kAGT-PRA-(ln(2)/hAGT) ↙
*AGT', 0);
  101
  102 model.variable('var1').rename('AGTsy', 'kAGT');
  103 model.variable('var1').set('PRA', '0.97[ng/ml/h]');
  104
  105 model.physics('dode2').prop('Units').set('CustomSourceTermUnit', 'g/ml/h');
  106 model.physics('dode2').prop('Units').set('DependentVariableQuantity', 'none');
  107 model.physics('dode2').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
  108 model.physics('dode2').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
  109
  110 model.variable('var1').set('PRA', '0.97[ng/ml/h]*1[mol/kg]');
  111
  112 model.physics.create('dode3', 'DomainODE', 'geom1', {'u3'});
  113
  114 model.study('std1').feature('time').activate('dode3', true);
  115
  116 model.physics('dode3').prop('Units').set('DependentVariableQuantity', 'none');
  117 model.physics('dode3').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
  118 model.physics('dode3').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
  119 model.physics('dode3').field('dimensionless').component(1, 'Ang1');
  120 model.physics('dode3').feature('dode1').setIndex('f', 'PRA-(cACE+cChym+cNEP) ↙
*AngI', 0);
  121 model.physics('dode3').field('dimensionless').component(1, 'AngI');
  122
  123 model.variable('var1').rename('ACE', 'cACE');
  124 model.variable('var1').rename('ACE2', 'cACE2');
  125 model.variable('var1').rename('Chymase', 'cChym');
  126 model.variable('var1').rename('NEP_AngI17', 'NEP');
  127 model.variable('var1').rename('NEP', 'cNEP');
  128
  129 model.physics.create('dode4', 'DomainODE', 'geom1', {'u4'});
  130
  131 model.study('std1').feature('time').activate('dode4', true);
  132
  133 model.physics('dode4').prop('Units').set('DependentVariableQuantity', 'none');
  134 model.physics('dode4').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
  135 model.physics('dode4').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
  136 model.physics('dode4').field('dimensionless').component(1, 'AngII');
  137 model.physics('dode4').feature('dode1').setIndex('f', '(cACE+cChym)[ANGI]', 0);
  138 model.physics('dode4').feature('dode1').setIndex('f', '(cACE+cChym)[AngI]', 0);
  139 model.physics('dode4').feature('dode1').setIndex('f', '(cACE+cChym)', 0);
  140 model.physics('dode4').feature('dode1').setIndex('f', '(cACE+cChym)*AngI', 0);
  141 model.physics('dode4').feature('dode1').setIndex('f', '(cACE+cChym)*AngI- ↙
(cACE2-', 0);
  142 model.physics('dode4').feature('dode1').setIndex('f', '(cACE+cChym)*AngI-(cACE2- ↙
cAngIIAngIV', 0);
```

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  143
  144 model.variable('var1').rename('AngIIctAngIV', 'cAngIIAngIV');
  145
  146 model.physics('dode4').feature('dode1').setIndex('f', '(cACE+cChym)*AngI-(cACE2- ↙
cAngIIAngIV-cAT1-cAT2)*AngII-(ln(2)/)', 0);
  147 model.physics('dode4').feature('dode1').setIndex('f', '(cACE+cChym)*AngI-(cACE2- ↙
cAngIIAngIV-cAT1-cAT2)*AngII-(ln(2)/hAngII)*AngII', 0);
  148
  149 model.variable('var1').rename('AT1bAngII', 'cAT1');
  150 model.variable('var1').rename('AT2bAngII', 'cAT2');
  151 model.variable('var1').rename('AngII', 'cAngII');
  152 model.variable('var1').rename('AngI', 'cAngI');
  153
  154 model.physics('dode4').feature('dode1').setIndex('f', '(cACE+cChym)*AngI', 0);
  155 model.physics('dode4').feature('dode1').setIndex('f', '(cACE+cChym)*AngI-(cACE2- ↙
cAngIIAngIV-cAT1-cAT2)*AngII', 0);
  156 model.physics('dode4').feature('dode1').setIndex('f', '(cACE+cChym)*AngI-(cACE2- ↙
cAngIIAngIV-cAT1-cAT2)*AngII-(ln(2)/hAngII)*AngII', 0);
  157 model.physics('dode4').feature('dode1').setIndex('f', '(cACE+cChym)*AngI-(ln(2) ↙
/hAngII)*AngII', 0);
  158 model.physics('dode4').feature('dode1').setIndex('f', '(cACE+cChym)*AngI-(cACE2- ↙
cAngIIAngIV-cAT1-cAT2)*AngII-(ln(2)/hAngII)*AngII', 0);
  159
  160 model.variable('var1').rename('cAT1', 'cAT1_');
  161 model.variable('var1').rename('cAT2', 'cAT2_');
  162 model.variable('var1').rename('AngIIAt1br', 'cAT1');
  163 model.variable('var1').rename('AngIIAt2br', 'cAT2');
  164
  165 model.label('Untitled.mph');
  166
  167 model.physics.create('dode5', 'DomainODE', 'geom1', {'u5'});
  168
  169 model.study('std1').feature('time').activate('dode5', true);
  170
  171 model.physics('dode5').prop('Units').set('DependentVariableQuantity', 'none');
  172 model.physics('dode5').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
  173 model.physics('dode5').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
  174 model.physics('dode5').field('dimensionless').component(1, 'Ang17');
  175
  176 model.variable('var1').rename('Ang17', 'cAng17');
  177
  178 model.physics('dode5').feature('dode1').setIndex('f', 'cNEP*AngI+cACE2*AngII-(ln ↙
(2)/hAng17)*Ang17', 0);
  179 model.physics.create('dode6', 'DomainODE', 'geom1', {'u6'});
  180
  181 model.study('std1').feature('time').activate('dode6', true);
  182
  183 model.physics('dode6').prop('Units').set('DependentVariableQuantity', 'none');
  184 model.physics('dode6').prop('Units').set('CustomDependentVariableUnit', ↙
```

```
'mol/ml');
  185 model.physics('dode6').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
  186 model.physics('dode6').field('dimensionless').component(1, 'AngIV');
  187 model.physics('dode6').feature('dode1').setIndex('f', 'cAngIIAngIV', 0);
  188 model.physics('dode6').feature('dode1').setIndex('f', 'cAngIIAngIV*AngII-(ln(2) ↙
/hAngIV)*AngIV', 0);
  189
  190 model.variable('var1').set('hAngIV', '0.5[min]');
  191
  192 model.physics.create('dode7', 'DomainODE', 'geom1', {'u7'});
  193
  194 model.study('std1').feature('time').activate('dode7', true);
  195
  196 model.physics('dode7').prop('Units').set('DependentVariableQuantity', 'none');
  197 model.physics('dode7').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
  198 model.physics('dode7').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
  199 model.physics('dode7').field('dimensionless').component(1, 'AT1bAngII');
  200 model.physics('dode7').feature('dode1').setIndex('f', 'cAT1', 0);
  201 model.physics('dode7').feature('dode1').setIndex('f', 'cAT1*AngII-(ln(2)/hAT1)', ↙
0);
  202 model.physics('dode7').feature('dode1').setIndex('f', 'cAT1*AngII-(ln(2)/hAT1) ↙
*AT1bAngII', 0);
  203
  204 model.variable('var1').set('hAT1', '12[min]');
  205
  206 model.physics.create('dode8', 'DomainODE', 'geom1', {'u8'});
  207
  208 model.study('std1').feature('time').activate('dode8', true);
  209
  210 model.physics('dode8').prop('Units').set('DependentVariableQuantity', 'none');
  211 model.physics('dode8').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
  212 model.physics('dode8').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
  213 model.physics('dode8').field('dimensionless').component(1, 'AT2bAngII');
  214 model.physics('dode8').feature('dode1').setIndex('f', 'cAT2*AngII', 0);
  215 model.physics('dode8').feature('dode1').setIndex('f', 'cAT2*AngII-(ln(2)/hAT2) ↙
*AT2bAngII', 0);
  216
  217 model.variable('var1').set('hAT2', '12[min]');
  218 model.variable('var1').rename('kAGT', 'kAGT_');
  219 model.variable('var1').rename('kAGT_', 'kAGT');
  220
  221 model.physics('dode').feature('dode1').setIndex('f', 'alpha*AT1', 0);
  222 model.physics('dode').feature('dode1').setIndex('f', 'AT1', 0);
  223 model.physics('dode').feature('dode1').setIndex('f', 'AT1bAngII', 0);
  224 model.physics('dode').feature('dode1').setIndex('f', '1[m^3/mole/s]AT1bAngII', ↙
0);
  225 model.physics('dode').feature('dode1').setIndex('f', '1[m^3/mole/s]*AT1bAngII', ↙
0);
```

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  226
  227 model.sol.create('sol1');
  228 model.sol('sol1').study('std1');
  229
  230 model.study('std1').feature('time').set('notlistsolnum', 1);
  231 model.study('std1').feature('time').set('notsolnum', '1');
  232 model.study('std1').feature('time').set('listsolnum', 1);
  233 model.study('std1').feature('time').set('solnum', '1');
  234
  235 model.sol('sol1').create('st1', 'StudyStep');
  236 model.sol('sol1').feature('st1').set('study', 'std1');
  237 model.sol('sol1').feature('st1').set('studystep', 'time');
  238 model.sol('sol1').create('v1', 'Variables');
  239 model.sol('sol1').feature('v1').set('control', 'time');
  240 model.sol('sol1').create('t1', 'Time');
  241 model.sol('sol1').feature('t1').set('tlist', 'range(0,0.1,1)');
  242 model.sol('sol1').feature('t1').set('plot', 'off');
  243 model.sol('sol1').feature('t1').set('plotgroup', 'Default');
  244 model.sol('sol1').feature('t1').set('plotfreq', 'tout');
  245 model.sol('sol1').feature('t1').set('probesel', 'all');
  246 model.sol('sol1').feature('t1').set('probes', {});
  247 model.sol('sol1').feature('t1').set('probefreq', 'tsteps');
  248 model.sol('sol1').feature('t1').set('control', 'time');
  249 model.sol('sol1').feature('t1').create('se1', 'Segregated');
  250 model.sol('sol1').feature('t1').feature('se1').feature.remove('ssDef');
  251 model.sol('sol1').feature('t1').feature('se1').create('ss1', 'SegregatedStep');
  252 model.sol('sol1').feature('t1').feature('se1').feature('ss1').set('segvar', ↙
{'comp1_lg'});
  253 model.sol('sol1').feature('t1').feature('se1').feature('ss1').set('linsolver', ↙
'dDef');
  254 model.sol('sol1').feature('t1').feature('se1').create('ss2', 'SegregatedStep');
  255 model.sol('sol1').feature('t1').feature('se1').feature('ss2').set('segvar', ↙
{'comp1_AGT'});
  256 model.sol('sol1').feature('t1').feature('se1').feature('ss2').set('linsolver', ↙
'dDef');
  257 model.sol('sol1').feature('t1').feature('se1').create('ss3', 'SegregatedStep');
  258 model.sol('sol1').feature('t1').feature('se1').feature('ss3').set('segvar', ↙
{'comp1_AngI'});
  259 model.sol('sol1').feature('t1').feature('se1').feature('ss3').set('linsolver', ↙
'dDef');
  260 model.sol('sol1').feature('t1').feature('se1').create('ss4', 'SegregatedStep');
  261 model.sol('sol1').feature('t1').feature('se1').feature('ss4').set('segvar', ↙
{'comp1_AngII'});
  262 model.sol('sol1').feature('t1').feature('se1').feature('ss4').set('linsolver', ↙
'dDef');
  263 model.sol('sol1').feature('t1').feature('se1').create('ss5', 'SegregatedStep');
  264 model.sol('sol1').feature('t1').feature('se1').feature('ss5').set('segvar', ↙
{'comp1_Ang17'});
  265 model.sol('sol1').feature('t1').feature('se1').feature('ss5').set('linsolver', ↙
'dDef');
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  266 model.sol('sol1').feature('t1').feature('se1').create('ss6', 'SegregatedStep');
  267 model.sol('sol1').feature('t1').feature('se1').feature('ss6').set('segvar', ↙
{'comp1_AngIV'});
  268 model.sol('sol1').feature('t1').feature('se1').feature('ss6').set('linsolver', ↙
'dDef');
  269 model.sol('sol1').feature('t1').feature('se1').create('ss7', 'SegregatedStep');
  270 model.sol('sol1').feature('t1').feature('se1').feature('ss7').set('segvar', ↙
{'comp1_AT1bAngII'});
  271 model.sol('sol1').feature('t1').feature('se1').feature('ss7').set('linsolver', ↙
'dDef');
  272 model.sol('sol1').feature('t1').feature('se1').create('ss8', 'SegregatedStep');
  273 model.sol('sol1').feature('t1').feature('se1').feature('ss8').set('segvar', ↙
{'comp1_AT2bAngII'});
  274 model.sol('sol1').feature('t1').feature('se1').feature('ss8').set('linsolver', ↙
'dDef');
  275 model.sol('sol1').feature('t1').feature.remove('fcDef');
  276 model.sol('sol1').attach('std1');
  277
  278 model.physics('dode').tag('growth');
  279 model.physics('dode2').tag('AGT');
  280 model.physics('growth').feature('init1').set('lg', '1');
  281 model.physics('AGT').feature('init1').set('AGT', '483.9[pmol/ml]');
  282 model.physics('dode3').tag('AngI');
  283 model.physics('AngI').feature('init1').set('AngI', '7.5[fmol/ml]');
  284 model.physics('dode4').tag('AngII');
  285 model.physics('AngII').feature('init1').set('AngII', '4.75[fmol/ml]');
  286 model.physics('dode5').tag('Ang17');
  287 model.physics('Ang17').feature('init1').set('Ang17', '14[fmol/ml]');
  288 model.physics('dode6').tag('AngIV');
  289 model.physics('AngIV').feature('init1').set('AngIV', '1.29');
  290 model.physics('dode7').tag('AT1bAngII');
  291 model.physics('AT1bAngII').feature('init1').set('AT1bAngII', '16.2[fmol/ml]');
  292 model.physics('dode8').tag('AT2bAngII');
  293 model.physics('AT2bAngII').feature('init1').set('AT2bAngII', '5.4[fmol/ml]');
  294
  295 model.sol('sol1').feature('t1').feature('dDef').set('linsolver', 'pardiso');
  296 model.sol('sol1').feature('t1').create('fc1', 'FullyCoupled');
  297
  298 model.result.create('pg1', 3);
  299 model.result('pg1').set('data', 'dset1');
  300 model.result('pg1').create('slc1', 'Slice');
  301 model.result('pg1').feature('slc1').set('expr', 'lg');
  302 model.result.create('pg2', 3);
  303 model.result('pg2').set('data', 'dset1');
  304 model.result('pg2').create('slc1', 'Slice');
  305 model.result('pg2').feature('slc1').set('expr', 'AGT');
  306 model.result.create('pg3', 3);
  307 model.result('pg3').set('data', 'dset1');
  308 model.result('pg3').create('slc1', 'Slice');
  309 model.result('pg3').feature('slc1').set('expr', 'AngI');
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310 model.result.create('pg4', 3);
311 model.result('pg4').set('data', 'dset1');
312 model.result('pg4').create('slc1', 'Slice');
313 model.result('pg4').feature('slc1').set('expr', 'AngII');
314 model.result.create('pg5', 3);
315 model.result('pg5').set('data', 'dset1');
316 model.result('pg5').create('slc1', 'Slice');
317 model.result('pg5').feature('slc1').set('expr', 'Ang17');
318 model.result.create('pg6', 3);
319 model.result('pg6').set('data', 'dset1');
320 model.result('pg6').create('slc1', 'Slice');
321 model.result('pg6').feature('slc1').set('expr', 'AngIV');
322 model.result.create('pg7', 3);
323 model.result('pg7').set('data', 'dset1');
324 model.result('pg7').create('slc1', 'Slice');
325 model.result('pg7').feature('slc1').set('expr', 'AT1bAngII');
326 model.result.create('pg8', 3);
327 model.result('pg8').set('data', 'dset1');
328 model.result('pg8').create('slc1', 'Slice');
329 model.result('pg8').feature('slc1').set('expr', 'AT2bAngII');
330 model.result.remove('pg8');
331 model.result.remove('pg7');
332 model.result.remove('pg2');
333 model.result.remove('pg1');
334 model.result.remove('pg4');
335 model.result.remove('pg3');
336 model.result.remove('pg6');
337 model.result.remove('pg5');
338
339 model.variable('var1').rename('AngIV', 'cAngIV');
340
341 model.result.create('pg1', 3);
342 model.result('pg1').set('data', 'dset1');
343 model.result('pg1').create('slc1', 'Slice');
344 model.result('pg1').feature('slc1').set('expr', 'lg');
345 model.result.create('pg2', 3);
346 model.result('pg2').set('data', 'dset1');
347 model.result('pg2').create('slc1', 'Slice');
348 model.result('pg2').feature('slc1').set('expr', 'AGT');
349 model.result.create('pg3', 3);
350 model.result('pg3').set('data', 'dset1');
351 model.result('pg3').create('slc1', 'Slice');
352 model.result('pg3').feature('slc1').set('expr', 'AngI');
353 model.result.create('pg4', 3);
354 model.result('pg4').set('data', 'dset1');
355 model.result('pg4').create('slc1', 'Slice');
356 model.result('pg4').feature('slc1').set('expr', 'AngII');
357 model.result.create('pg5', 3);
358 model.result('pg5').set('data', 'dset1');
359 model.result('pg5').create('slc1', 'Slice');
```

```
model.result('pg5').feature('slc1').set('expr', 'Ang17');
model.result.create('pg6', 3);
model.result('pg6').set('data', 'dset1');
model.result('pg6').create('slc1', 'Slice');
model.result('pg6').feature('slc1').set('expr', 'AngIV');
model.result.create('pg7', 3);
model.result('pg7').set('data', 'dset1');
model.result('pg7').create('slc1', 'Slice');
model.result('pg7').feature('slc1').set('expr', 'AT1bAngII');
model.result.create('pg8', 3);
model.result('pg8').set('data', 'dset1');
model.result('pg8').create('slc1', 'Slice');
model.result('pg8').feature('slc1').set('expr', 'AT2bAngII');

model.sol('sol1').runFromTo('st1', 'v1');

model.result('pg1').run;

model.study('std1').feature('time').set('tunit', 'min');
model.study('std1').feature('time').set('tlist', 'range(0,0.1,12)');

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'log(1)');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'log(10)');
model.result('pg1').run;

model.physics('AT2bAngII').feature('dode1').setIndex('f', 'cAT2*AngII-(log(2) ↙
/hAT2)*AT2bAngII', 0);
model.physics('AT1bAngII').feature('dode1').setIndex('f', 'cAT1*AngII-(log(2) ↙
/hAT1)*AT1bAngII', 0);
model.physics('AngIV').feature('dode1').setIndex('f', 'cAngIIAngIV*AngII-(log(2) ↙
/hAngIV)*AngIV', 0);
model.physics('Ang17').feature('dode1').setIndex('f', 'cNEP*AngI+cACE2*AngII-(log ↙
(2)/hAng17)*Ang17', 0);
model.physics('AngII').feature('dode1').setIndex('f', '(cACE+cChym)*AngI-(cACE2- ↙
cAngIIAngIV-cAT1-cAT2)*AngII-(log(2)/hAngII)*AngII', 0);

model.sol('sol1').runFromTo('st1', 'v1');

model.result('pg1').run;

model.physics('AGT').feature('dode1').setIndex('f', 'kAGT-PRA-(log(2)/hAGT)*AGT', ↙
0);

model.sol('sol1').runFromTo('st1', 'v1');

model.result('pg1').run;
```

```
404 model.sol('sol1').runAll;
405
406 model.result('pg1').run;
407 model.result('pg1').run;
408 model.result('pg1').feature('slc1').set('expr', 'AngI');
409 model.result('pg1').run;
410 model.result('pg1').run;
411 model.result('pg1').setIndex('looplevel', '121', 0);
412 model.result('pg1').run;
413 model.result.create('pg9', 'PlotGroup1D');
414 model.result('pg9').run;
415 model.result('pg9').create('ptgr1', 'PointGraph');
416 model.result.dataset.create('cpt1', 'CutPoint3D');
417 model.result.dataset('cpt1').set('pointx', '0.02 [m]/2');
418 model.result.dataset('cpt1').set('pointy', '0.02 [m]/2');
419 model.result.dataset('cpt1').set('pointz', '0.02 [m]/2');
420 model.result.dataset('cpt1').run;
421 model.result('pg9').run;
422 model.result('pg9').feature('ptgr1').set('data', 'cpt1');
423 model.result('pg9').feature('ptgr1').set('expr', 'AngI');
424 model.result('pg9').run;
425 model.result('pg9').feature('ptgr1').set('unit', 'fmol/m^3');
426 model.result('pg9').run;
427 model.result('pg9').feature('ptgr1').set('unit', 'fmol/ml');
428 model.result('pg9').run;
429 model.result('pg9').feature('ptgr1').set('expr', 'AngII');
430 model.result('pg9').run;
431 model.result('pg9').feature('ptgr1').set('expr', 'AngI');
432 model.result('pg9').run;
433
434 model.label('Untitled.mph');
435
436 model.result('pg9').run;
437 model.result('pg9').run;
438 model.result('pg9').run;
439 model.result.create('pg10', 'PlotGroup1D');
440 model.result('pg10').run;
441 model.result('pg10').create('ptgr1', 'PointGraph');
442 model.result('pg10').feature('ptgr1').set('data', 'cpt1');
443 model.result('pg10').run;
444 model.result('pg10').feature('ptgr1').set('expr', 'AngI');
445 model.result('pg10').run;
446 model.result('pg10').run;
447
448 model.sol('sol1').runAll;
449
450 model.result('pg1').run;
451 model.result('pg10').run;
452 model.result('pg10').feature('ptgr1').set('unit', 'fmol/ml');
453 model.result('pg10').run;
```

```
model.result('pg10').feature('ptgr1').set('expr', 'AngII');
model.result('pg10').run;

model.physics('AGT').feature('init1').set('AGT', '0*483.9[pmol/ml]');
model.physics('AngI').feature('init1').set('AngI', '0*7.5[fmol/ml]');
model.physics('AngII').feature('init1').set('AngII', '0*4.75[fmol/ml]');
model.physics('Ang17').feature('init1').set('Ang17', '0*14[fmol/ml]');
model.physics('AngIV').feature('init1').set('AngIV', '0*1.29');
model.physics('AT1bAngII').feature('init1').set('AT1bAngII', '0*16.2[fmol/ml]');
model.physics('AT2bAngII').feature('init1').set('AT2bAngII', '0*5.4[fmol/ml]');

model.result('pg10').run;

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngII');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngI');
model.result('pg1').run;
model.result('pg10').run;
model.result('pg10').feature('ptgr1').set('expr', 'AngI');
model.result('pg10').run;

model.variable('var1').remove('cAngI');
model.variable('var1').remove('cAngII');
model.variable('var1').remove('cAng17');
model.variable('var1').remove('cAngIV');
model.variable('var1').remove('cAT1_');
model.variable('var1').remove('cAT2_');
model.variable('var1').set('hAGT', '10[h]');
model.variable('var1').set('hAngII', '0.66[min]');
model.variable('var1').set('hAng17', '30[min]');
model.variable('var1').set('cAT2', '3.9[1/h]');

model.physics('AngI').feature('dode1').setIndex('f', 'PRA-(cACE+cChym+cNEP)*AngI-↙
(log(2)/hAngI)*AngI', 0);
model.physics('AngI').feature('dode1').setIndex('f', 'PRA-(cACE+cChym+cNEP)*AngI-↙
(log(2)/hAngI)*AngI+23.1[fmol/ml/h]', 0);

model.sol('sol1').clearSolutionData;
model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg10').run;
model.result('pg10').feature('ptgr1').set('expr', 'AngII');
model.result('pg10').run;
```

```
model.result('pg10').feature('ptgr1').set('expr', 'AngI');

model.variable('var1').set('PRA', '0.97[ng/ml/h]*0.0033[fmol/kg]');

model.sol('sol1').runFromTo('st1', 'v1');

model.result('pg1').run;

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '120', 0);
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '121', 0);
model.result('pg1').run;
model.result('pg10').run;
model.result('pg10').feature('ptgr1').set('expr', 'AngII');
model.result('pg10').run;

model.variable('var1').set('PRA', '0.97[ng/ml/h]*0.0033[fmol/ng]');

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg10').run;
model.result('pg10').run;

model.variable('var1').set('PRA', '0.97[ng/ml/h]*740.74[fmol/ng]');

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg10').run;

model.physics('AngI').feature('dode1').setIndex('f', 'PRA-(cACE+cChym+cNEP)*AngI-↙
(log(2)/hAngI)*AngI+0*23.1[fmol/ml/h]', 0);

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg10').run;
model.result('pg10').feature('ptgr1').set('expr', 'lg');
model.result('pg10').run;
model.result('pg10').run;
model.result('pg10').feature('ptgr1').set('expr', 'AT1bAngII');
model.result('pg10').run;
model.result('pg10').feature('ptgr1').set('unit', 'fmol/ml');
model.result('pg10').run;

model.physics.create('solid', 'SolidMechanics', 'geom1');
```

```
  551
  552 model.study('std1').feature('time').activate('solid', true);
  553
  554 model.physics('solid').create('hmm1', 'HyperelasticModel', 3);
  555 model.physics('solid').feature('hmm1').set('lambLame_mat', 'userdef');
  556 model.physics('solid').feature('hmm1').set('muLame_mat', 'userdef');
  557 model.physics('solid').feature('hmm1').set('rho_mat', 'userdef');
  558 model.physics('solid').feature('hmm1').set('muLame', 'mi');
  559 model.physics('solid').feature('hmm1').set('lambLame', 'l');
  560
  561 model.variable.create('var2');
  562 model.variable('var2').model('comp1');
  563 model.variable('var2').set('solid.kappa', '2*solid.muLame*(1+poissonr)/(3*(1- ↙
2*poissonr))');
  564 model.variable('var2').set('ri', 'sqrt(x^2+y^2+z^2)');
  565 model.variable('var2').set('phi', 'atan2(y,x)');
  566 model.variable('var2').set('th', 'acos(z/ri)');
  567 model.variable('var2').set('Smat11', '2*solid.Ji*d(Wmat,solid.Cl11)');
  568 model.variable('var2').set('Smat12', 'solid.Ji*d(Wmat,solid.Cl12)');
  569 model.variable('var2').set('Smat13', 'solid.Ji*d(Wmat,solid.Cl13)');
  570 model.variable('var2').set('Smat22', '2*solid.Ji*d(Wmat,solid.Cl22)');
  571 model.variable('var2').set('Smat23', 'solid.Ji*d(Wmat,solid.Cl23)');
  572 model.variable('var2').set('Smat33', '2*solid.Ji*d(Wmat,solid.Cl33)');
  573 model.variable('var2').set('smat11', '(Smat11*(solid.Fdlx1)^2+Smat22*(solid. ↙
Fdlx2)^2+2*Smat23*solid.Fdlx2*solid.Fdlx3+Smat33*(solid.Fdlx3)^2+2*solid.Fdlx1* ↙
(Smat12*solid.Fdlx2+Smat13*solid.Fdlx3))/solid.J');
  574 model.variable('var2').set('smat12', '(solid.Fdlx1*(Smat11*solid. ↙
Fdly1+Smat12*solid.Fdly2+Smat13*solid.Fdly3)+solid.Fdlx2*(Smat12*solid. ↙
Fdly1+Smat22*solid.Fdly2+Smat23*solid.Fdly3)+solid.Fdlx3*(Smat13*solid. ↙
Fdly1+Smat23*solid.Fdly2+Smat33*solid.Fdly3))/solid.J');
  575 model.variable('var2').set('smat13', '(solid.Fdlx1*(Smat11*solid. ↙
Fdlz1+Smat12*solid.Fdlz2+Smat13*solid.Fdlz3)+solid.Fdlx2*(Smat12*solid. ↙
Fdlz1+Smat22*solid.Fdlz2+Smat23*solid.Fdlz3)+solid.Fdlx3*(Smat13*solid. ↙
Fdlz1+Smat23*solid.Fdlz2+Smat33*solid.Fdlz3))/solid.J');
  576 model.variable('var2').set('smat22', '(Smat11*(solid.Fdly1)^2+Smat22*(solid. ↙
Fdly2)^2+2*Smat23*solid.Fdly2*solid.Fdly3+Smat33*(solid.Fdly3)^2+2*solid.Fdly1* ↙
(Smat12*solid.Fdly2+Smat13*solid.Fdly3))/solid.J');
  577 model.variable('var2').set('smat23', '(solid.Fdly1*(Smat11*solid. ↙
Fdlz1+Smat12*solid.Fdlz2+Smat13*solid.Fdlz3)+solid.Fdly2*(Smat12*solid. ↙
Fdlz1+Smat22*solid.Fdlz2+Smat23*solid.Fdlz3)+solid.Fdly3*(Smat13*solid. ↙
Fdlz1+Smat23*solid.Fdlz2+Smat33*solid.Fdlz3))/solid.J');
  578 model.variable('var2').set('smat33', '(Smat11*(solid.Fdlz1)^2+Smat22*(solid. ↙
Fdlz2)^2+2*Smat23*solid.Fdlz2*solid.Fdlz3+Smat33*(solid.Fdlz3)^2+2*solid.Fdlz1* ↙
(Smat12*solid.Fdlz2+Smat13*solid.Fdlz3))/solid.J');
  579 model.variable('var2').set('smatrr', 'smat33*cos(th)*cos(th)+smat11*cos(phi)*cos ↙
(phi)*sin(th)*sin(th)+smat13*cos(phi)*sin(2*th)+2*smat12*cos(phi)*sin(th)*sin(th)*sin ↙
(phi)+smat23*sin(2*th)*sin(phi)+smat22*sin(th)*sin(th)*sin(phi)*sin(phi)');
  580 model.variable('var2').set('smattt', 'smat11*cos(th)*cos(th)*cos(phi)*cos(phi) ↙
+smat33*sin(th)*sin(th)-smat13*cos(phi)*sin(2*th)-smat23*sin(2*th)*sin(phi)+smat22*cos ↙
(th)*cos(th)*sin(phi)*sin(phi)+smat12*cos(th)*cos(th)*sin(2*phi)');
```

```
  581 model.variable('var2').set('smatpp', 'smat22*cos(phi)*cos(phi)-2*smat12*cos(phi) ↙
*sin(phi)+smat11*sin(phi)*sin(phi)');
  582 model.variable('var2').set('srr', 'solid.sz*cos(th)*cos(th)+solid.sx*cos(phi)*cos ↙
(phi)*sin(th)*sin(th)+solid.sxz*cos(phi)*sin(2*th)+2*solid.sxy*cos(phi)*sin(th)*sin(th) ↙
*sin(phi)+solid.syz*sin(2*th)*sin(phi)+solid.sy*sin(th)*sin(th)*sin(phi)*sin(phi)');
  583 model.variable('var2').set('stt', 'solid.sx*cos(th)*cos(th)*cos(phi)*cos(phi) ↙
+solid.sz*sin(th)*sin(th)-solid.sxz*cos(phi)*sin(2*th)-solid.syz*sin(2*th)*sin(phi) ↙
+solid.sy*cos(th)*cos(th)*sin(phi)*sin(phi)+solid.sxy*cos(th)*cos(th)*sin(2*phi)');
  584 model.variable('var2').set('spp', 'solid.sy*cos(phi)*cos(phi)-2*solid.sxy*cos ↙
(phi)*sin(phi)+solid.sx*sin(phi)*sin(phi)');
  585 model.variable('var2').set('smatbulk', '(smatrr+smattt+smatpp)/3');
  586 model.variable('var2').set('sbulk', '(srr+stt+spp)/3');
  587 model.variable('var2').set('Wmat', '0.5*(solid.muLame*(solid.I1CIel-3)+solid. ↙
kappa*(solid.Jel-1)^2)');
  588 model.variable.create('var3');
  589 model.variable('var3').model('comp1');
  590 model.variable('var3').selection.geom('geom1', 3);
  591 model.variable('var3').selection.set([1]);
  592 model.variable.duplicate('var4', 'var3');
  593 model.variable('var4').selection.all;
  594 model.variable('var4').selection.set([2]);
  595 model.variable('var4').set('poissonr', '0.45');
  596 model.variable('var4').set('solid.muLame', '70e3 [Pa]');
  597 model.variable('var3').set('poissonr', '0.2');
  598 model.variable('var3').set('solid.muLame', '21e3 [Pa]');
  599
  600 model.physics('solid').feature('hmm1').set('MaterialModel', 'userDefined');
  601 model.physics('solid').feature('hmm1').set('Ws', 'Wmat');
  602
  603 model.sol('sol1').clearSolutionData;
  604
  605 model.physics('solid').feature('hmm1').selection.all;
  606 model.physics('solid').create('roll1', 'Roller', 2);
  607 model.physics('solid').feature('roll1').selection.all;
  608 model.physics('solid').feature('roll1').selection.set([1 2 3 4 5 14]);
  609
  610 model.variable('var3').set('lg', '1');
  611
  612 model.physics('solid').feature('hmm1').featureInfo('info').set('solid.Fiil11', 0, ↙
{'1/lg'});
  613 model.physics('solid').feature('hmm1').featureInfo('info').set('solid.Fiil33', 0, ↙
{'1/lg'});
  614 model.physics('solid').feature('hmm1').featureInfo('info').set('solid.Fiil22', 0, ↙
{'1/lg'});
  615
  616 model.sol('sol1').runFromTo('st1', 'v1');
  617
  618 model.result('pg1').run;
  619
  620 model.physics('AGT').prop('ShapeProperty').set('order', '1');
```

```
  621 model.physics('AngI').prop('ShapeProperty').set('order', '1');
  622 model.physics('AngII').prop('ShapeProperty').set('order', '1');
  623 model.physics('Ang17').prop('ShapeProperty').set('order', '1');
  624 model.physics('AngIV').prop('ShapeProperty').set('order', '1');
  625 model.physics('AT1bAngII').prop('ShapeProperty').set('order', '1');
  626 model.physics('AT2bAngII').prop('ShapeProperty').set('order', '1');
  627 model.physics('growth').feature('dode1').setIndex('f', '1[ml/fmole/h]*AT1bAngII', ↙
0);
  628 model.physics('growth').feature('dode1').setIndex('f', '1[ml/fmol/h]*AT1bAngII', ↙
0);
  629
  630 model.sol('sol1').runAll;
  631
  632 model.result('pg1').run;
  633 model.result('pg1').setIndex('looplevel', '121', 0);
  634 model.result('pg1').run;
  635 model.result('pg10').run;
  636 model.result('pg10').feature('ptgr1').set('expr', 'lg');
  637 model.result('pg10').run;
  638 model.result('pg1').run;
  639 model.result('pg1').feature('slc1').set('quickxnumber', '1');
  640 model.result('pg1').run;
  641 model.result('pg1').feature('slc1').set('expr', 'sbulk');
  642 model.result('pg1').run;
  643 model.result.dataset('dset1').set('frametype', 'spatial');
  644 model.result('pg1').run;
  645 model.result('pg1').set('allowtableupdate', false);
  646 model.result('pg1').set('allowevalintitle', false);
  647 model.result('pg1').set('title', 'Time=12 min Slice:  (N/m<sup>2</sup>)');
  648 model.result('pg1').set('hasbeenplotted', true);
  649 model.result('pg1').feature('slc1').set('rangeunit', 'N/m^2');
  650 model.result('pg1').feature('slc1').set('rangecolormin', -26916.52945040293);
  651 model.result('pg1').feature('slc1').set('rangecolormax', 6596.770525324385);
  652 model.result('pg1').feature('slc1').set('rangecoloractive', 'off');
  653 model.result('pg1').feature('slc1').set('rangedatamin', -26916.52945040293);
  654 model.result('pg1').feature('slc1').set('rangedatamax', 6596.770525324385);
  655 model.result('pg1').feature('slc1').set('rangedataactive', 'off');
  656 model.result('pg1').feature('slc1').set('rangeactualminmax', [-26916.52945040293 ↙
6596.770525324385]);
  657 model.result('pg1').feature('slc1').set('hasbeenplotted', true);
  658 model.result('pg1').set('renderdatacached', false);
  659 model.result('pg1').set('allowtableupdate', true);
  660 model.result('pg1').set('renderdatacached', true);
  661 model.result.table.create('evl3', 'Table');
  662 model.result.table('evl3').comments('Interactive 3D values');
  663 model.result.table('evl3').label('Evaluation 3D');
  664 model.result.table('evl3').addRow([0.01 0.010376455800678534 0.009382228151963492 ↙
-26276.16492716103], [0 0 0 0]);
  665
  666 model.variable('var3').set('solid.muLame', '4e3 [Pa]');
```

```
model.variable('var3').set('poissonr', '0.35');
model.variable('var4').set('solid.muLame', '40e3 [Pa]');

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').set('looplevel', {'89'});
model.result('pg1').run;

model.variable('var4').set('solid.muLame', '14e3 [Pa]');

model.result('pg1').run;
model.result('pg1').set('looplevel', {'95'});
model.result('pg1').run;
model.result('pg1').set('looplevel', {'96'});
model.result('pg1').run;
model.result('pg1').set('looplevel', {'95'});
model.result('pg1').run;

model.sol('sol1').feature('t1').set('initialstepbdfactive', 'on');
model.sol('sol1').feature('t1').set('maxstepbdfactive', 'on');
model.sol('sol1').feature('t1').set('maxstepbdf', '0.01');
model.sol('sol1').feature('t1').set('initialstepbdf', '0.01');
model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '121', 0);
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngI');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
model.result('pg1').run;

model.label('RAS model check_zero initial_newPRA solid_real mechanics.mph');

model.result('pg1').run;

model.physics('AT1bAngII').feature('dode1').setIndex('f', '(1-b)cAT1*AngII-(log ↙
(2)/hAT1)*AT1bAngII', 0);
model.physics('AT1bAngII').feature('dode1').setIndex('f', '(1-b)*cAT1*AngII-(log ↙
(2)/hAT1)*AT1bAngII', 0);

model.variable('var1').set('b', '0.9');

model.sol('sol1').clearSolutionData;
model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').run;
```

```
model.result('pg1').feature('slc1').set('expr', 'AngII');
model.result('pg1').run;
model.result.numerical.create('int1', 'IntVolume');
model.result.numerical('int1').set('expr', {});
model.result.numerical('int1').set('descr', {});
model.result.numerical('int1').setIndex('expr', '1', 0);
model.result.numerical('int1').selection.all;
model.result.numerical('int1').selection.set([2]);
model.result.numerical('int1').setIndex('unit', 'mm^3', 0);
model.result.table.create('tbl1', 'Table');
model.result.table('tbl1').comments('Volume Integration 1 (1)');
model.result.numerical('int1').set('table', 'tbl1');
model.result.numerical('int1').setResult;
model.result.create('pg11', 1);
model.result('pg11').set('data', 'none');
model.result('pg11').create('tblp1', 'Table');
model.result('pg11').feature('tblp1').set('table', 'tbl1');
model.result('pg11').run;
model.result('pg1').run;

model.view('view1').set('scenelight', 'off');

model.result('pg1').set('allowtableupdate', false);
model.result('pg1').set('allowevalintitle', false);
model.result('pg1').set('title', 'Time=12 min Slice: Dependent variable AngII ↙
(fmol/ml)');
model.result('pg1').set('hasbeenplotted', true);
model.result('pg1').feature('slc1').set('rangeunit', 'fmol/ml');
model.result('pg1').feature('slc1').set('rangecolormin', 10.777358856309176);
model.result('pg1').feature('slc1').set('rangecolormax', 10.777358899536353);
model.result('pg1').feature('slc1').set('rangecoloractive', 'off');
model.result('pg1').feature('slc1').set('rangedatamin', 10.777358856309176);
model.result('pg1').feature('slc1').set('rangedatamax', 10.777358899536353);
model.result('pg1').feature('slc1').set('rangedataactive', 'off');
model.result('pg1').feature('slc1').set('rangeactualminmax', [10.777358856309176 ↙
10.777358899536353]);
model.result('pg1').feature('slc1').set('hasbeenplotted', true);
model.result('pg1').set('renderdatacached', false);
model.result('pg1').set('allowtableupdate', true);
model.result('pg1').set('renderdatacached', true);
model.result.table('evl3').addRow([0.01 0.00880883672263116 0.010187157908603972 ↙
10.777358857531839], [0 0 0 0]);
model.result('pg10').run;
model.result('pg10').feature('ptgr1').set('expr', 'AngI');
model.result('pg10').run;
model.result.export.create('plot1', 'pg10', 'ptgr1', 'Plot');
model.result('pg10').set('window', 'graphics');
model.result('pg10').run;
model.result('pg10').set('window', 'graphics');
model.result('pg10').set('windowtitle', '');
```

```
  762 model.result.export('plot1').set('header', 'off');
  763 model.result('pg10').run;
  764 model.result('pg10').feature('ptgr1').set('unit', 'fmol/ml');
  765 model.result('pg10').run;
  766 model.result.export.create('plot2', 'pg10', 'ptgr1', 'Plot');
  767 model.result('pg10').set('window', 'graphics');
  768 model.result('pg10').run;
  769 model.result('pg10').set('window', 'graphics');
  770 model.result('pg10').set('windowtitle', '');
  771 model.result.export('plot2').set('header', 'off');
  772 model.result.export('plot2').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\block_AngI.↙
txt');
  773 model.result.export('plot2').run;
  774 model.result('pg10').run;
  775 model.result('pg10').feature('ptgr1').set('expr', 'AngII');
  776 model.result('pg10').run;
  777 model.result('pg10').set('window', 'graphics');
  778 model.result('pg10').run;
  779 model.result('pg10').set('window', 'graphics');
  780 model.result('pg10').set('windowtitle', '');
  781 model.result.export('plot2').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\block_AngII.↙
txt');
  782 model.result.export('plot2').run;
  783 model.result('pg10').run;
  784 model.result('pg10').feature('ptgr1').set('expr', 'AT1bAngII');
  785 model.result('pg10').run;
  786 model.result('pg10').set('window', 'graphics');
  787 model.result('pg10').run;
  788 model.result('pg10').set('window', 'graphics');
  789 model.result('pg10').set('windowtitle', '');
  790 model.result.export('plot2').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-↙
19\Model\block_AT1bAngII.txt');
  791 model.result.export('plot2').run;
  792 model.result('pg10').run;
  793 model.result('pg10').feature('ptgr1').set('expr', 'AT2bAngII');
  794 model.result('pg10').run;
  795 model.result('pg10').set('window', 'graphics');
  796 model.result('pg10').run;
  797 model.result('pg10').set('window', 'graphics');
  798 model.result('pg10').set('windowtitle', '');
  799 model.result.export('plot2').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-↙
19\Model\block_AT2bAngII.txt');
  800 model.result.export('plot2').run;
  801 model.result('pg11').run;
  802 model.result.export.create('plot3', 'pg11', 'tblp1', 'Plot');
  803 model.result('pg11').set('window', 'graphics');
```

```
  804 model.result('pg11').run;
  805 model.result('pg11').set('window', 'graphics');
  806 model.result('pg11').set('windowtitle', '');
  807 model.result.export('plot3').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\block_block.↙
txt');
  808 model.result.export('plot3').set('header', 'off');
  809 model.result.export('plot3').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-↙
19\Model\block_volume.txt');
  810 model.result.export('plot3').run;
  811
  812 model.study('std1').feature('time').set('tunit', 'd');
  813 model.study('std1').feature('time').set('tlist', 'range(0,0.1,20)');
  814
  815 model.sol('sol1').clearSolutionData;
  816 model.sol('sol1').runAll;
  817
  818 model.result('pg1').run;
  819
  820 model.label('RAS model_ block AT1irbesartan_20d.mph');
  821
  822 model.result('pg1').run;
  823
  824 model.geom('geom1').feature.clear;
  825
  826 model.mesh('mesh1').feature.clear;
  827
  828 model.geom('geom1').run;
  829
  830 model.mesh('mesh1').create('imp1', 'Import');
  831 model.mesh('mesh1').feature('imp1').set('filename', 'C:\Users\cvouto01.↙
UCY\Downloads\one_lung.mphtxt');
  832 model.mesh('mesh1').feature('imp1').set('facepartition', 'minimal');
  833 model.mesh('mesh1').feature('imp1').importData;
  834 model.mesh('mesh1').feature('imp1').importData;
  835 model.mesh('mesh1').run;
  836
  837 model.physics('growth').selection.all;
  838 model.physics('growth').selection.set([2]);
  839
  840 model.variable('var3').selection.set([1]);
  841 model.variable('var4').selection.all;
  842 model.variable('var4').selection.set([2]);
  843
  844 model.sol('sol1').clearSolutionData;
  845
  846 model.study('std1').feature('time').set('tunit', 'min');
  847 model.study('std1').feature('time').set('tlist', 'range(0,0.1,12)');
  848
```

```
849 model.result('pg2').run;
850 model.result('pg1').run;
851 model.result('pg1').run;
852 model.result('pg1').set('looplevel', {'3'});
853 model.result('pg1').run;
854
855 model.mesh('mesh1').run;
856
857 model.physics('solid').feature('roll1').selection.set([1]);
858 model.physics('solid').feature('roll1').selection.all;
859 model.physics('solid').feature('roll1').selection.set([1]);
860
861 model.sol('sol1').runAll;
862
863 model.result('pg1').run;
864
865 model.view('view1').set('showgrid', false);
866
867 model.result('pg1').run;
868 model.result('pg1').run;
869 model.result('pg1').setIndex('looplevel', '121', 0);
870 model.result('pg1').run;
871 model.result('pg1').run;
872 model.result('pg1').run;
873 model.result('pg1').feature('slc1').set('expr', 'sbulk');
874 model.result('pg1').run;
875 model.result.table('tbl1').clearTableData;
876 model.result.table('tbl1').clearTableData;
877 model.result.numerical('int1').selection.all;
878 model.result.numerical('int1').selection.set([2]);
879 model.result.numerical('int1').set('table', 'tbl1');
880 model.result.numerical('int1').setResult;
881 model.result('pg11').run;
882 model.result.numerical('int1').setIndex('unit', 'm^3', 0);
883 model.result.numerical('int1').set('table', 'tbl1');
884 model.result('pg1').run;
885 model.result.create('pg12', 'PlotGroup3D');
886 model.result('pg12').run;
887 model.result('pg12').create('vol1', 'Volume');
888 model.result('pg12').run;
889 model.result('pg12').feature('vol1').set('expr', 'sbulk');
890 model.result('pg12').run;
891
892 model.view('view1').set('scenelight', 'on');
893 model.view('view1').set('transparency', 'on');
894 model.view('view1').set('scenelight', 'on');
895 model.view('view1').set('transparency', 'off');
896
897 model.result('pg12').set('allowtableupdate', false);
898 model.result('pg12').set('allowevalintitle', false);
```

```
  899 model.result('pg12').set('title', 'Time=12 min Volume:  (N/m<sup>2</sup>)');
  900 model.result('pg12').set('hasbeenplotted', true);
  901 model.result('pg12').feature('vol1').set('hasbeenplotted', true);
  902 model.result('pg12').set('renderdatacached', false);
  903 model.result('pg12').set('allowtableupdate', true);
  904 model.result('pg12').set('renderdatacached', true);
  905 model.result('pg1').run;
  906 model.result('pg1').feature('slc1').set('expr', 'AngI');
  907 model.result('pg1').run;
  908
  909 model.mesh('mesh1').run;
  910 model.mesh('mesh1').run;
  911
  912 model.variable('var1').set('b', '0');
  913
  914 model.sol('sol1').clearSolutionData;
  915 model.sol('sol1').feature('t1').set('maxstepbdf', '0.1');
  916 model.sol('sol1').feature('t1').set('initialstepbdf', '0.1');
  917
  918 model.result.table('tbl1').clearTableData;
  919
  920 model.label('RAS model_ control_realgeo.mph');
  921
  922 model.mesh('mesh1').feature.remove('imp1');
  923 model.mesh('mesh1').create('imp1', 'Import');
  924 model.mesh('mesh1').feature('imp1').set('filename', 'C:\Users\cvouto01. ↙
UCY\Desktop\one_lung_m.mphtxt');
  925 model.mesh('mesh1').feature('imp1').importData;
  926 model.mesh('mesh1').feature('imp1').set('facepartition', 'minimal');
  927 model.mesh('mesh1').feature('imp1').importData;
  928 model.mesh('mesh1').run;
  929 model.mesh('mesh1').run;
  930 model.mesh('mesh1').run;
  931
  932 model.physics('growth').selection.all;
  933 model.physics('growth').selection.set([2]);
  934 model.physics('solid').feature('roll1').selection.set([1]);
  935
  936 model.sol('sol1').clearSolutionData;
  937
  938 model.variable('var3').selection.set([1]);
  939 model.variable('var4').selection.all;
  940 model.variable('var4').selection.set([2]);
  941
  942 model.result('pg1').run;
  943
  944 model.view('view1').set('showgrid', true);
  945
  946 model.result.dataset('cpt1').set('pointx', '0.075');
  947 model.result.dataset('cpt1').set('pointy', '0.08');
```

```
948 model.result.dataset('cpt1').set('pointz', '-1.265');
949 model.result.dataset('cpt1').run;
950 model.result('pg11').run;
951 model.result('pg10').run;
952 model.result('pg10').run;
953 model.result('pg10').feature('ptgr1').set('expr', 'AngII');
954 model.result('pg10').run;
955
956 model.label('RAS model_ control_realgeo_new.mph');
957
958 model.result('pg10').run;
959
960 model.sol('sol1').clearSolutionData;
961
962 model.physics.create('dode', 'DomainODE', 'geom1', {'u10'});
963
964 model.study('std1').feature('time').activate('dode', true);
965
966 model.mesh('mesh1').run;
967
968 model.physics.create('ge', 'GlobalEquations', 'geom1');
969
970 model.study('std1').feature('time').activate('ge', true);
971
972 model.physics.remove('ge');
973 model.physics.create('dode2', 'DomainODE', 'geom1', {'u11'});
974
975 model.study('std1').feature('time').activate('dode2', true);
976
977 model.physics.create('dode3', 'DomainODE', 'geom1', {'u12'});
978
979 model.study('std1').feature('time').activate('dode3', true);
980
981 model.physics.create('dode4', 'DomainODE', 'geom1', {'u13'});
982
983 model.study('std1').feature('time').activate('dode4', true);
984
985 model.physics.create('dode5', 'DomainODE', 'geom1', {'u14'});
986
987 model.study('std1').feature('time').activate('dode5', true);
988
989 model.physics.create('dode6', 'DomainODE', 'geom1', {'u15'});
990
991 model.study('std1').feature('time').activate('dode6', true);
992
993 model.physics('dode').tag('Cb');
994 model.physics('Cb').field('dimensionless').component(1, 'Cb');
995 model.physics('Cb').prop('ShapeProperty').set('order', '1');
996 model.physics('dode2').tag('H');
997 model.physics('H').field('dimensionless').component(1, 'H');
```

```
  998 model.physics('H').prop('ShapeProperty').set('order', '1');
  999 model.physics('dode3').tag('m');
 1000 model.physics('m').field('dimensionless').component(1, 'm');
 1001 model.physics('m').prop('ShapeProperty').set('order', '1');
 1002 model.physics('dode4').tag('p');
 1003 model.physics('p').field('dimensionless').component(1, 'p');
 1004 model.physics('p').prop('ShapeProperty').set('order', '1');
 1005 model.physics('dode5').tag('s');
 1006 model.physics('s').field('dimensionless').component(1, 's');
 1007 model.physics('s').prop('ShapeProperty').set('order', '1');
 1008 model.physics('dode6').tag('In');
 1009 model.physics('In').field('dimensionless').component(1, 'In');
 1010 model.physics('In').prop('ShapeProperty').set('order', '1');
 1011 model.physics.create('cdeq', 'ConvectionDiffusionEquation', 'geom1');
 1012
 1013 model.study('std1').feature('time').activate('cdeq', true);
 1014
 1015 model.physics('cdeq').tag('Ci');
 1016 model.physics('Ci').prop('ShapeProperty').set('order', '1');
 1017 model.physics('Ci').field('dimensionless').field('Ci');
 1018 model.physics('Cb').prop('Units').set('DependentVariableQuantity', 'none');
 1019 model.physics('Cb').prop('Units').set('CustomDependentVariableUnit', 'mol');
 1020 model.physics('Cb').prop('Units').set('CustomSourceTermUnit', 'mol/s');
 1021 model.physics('Cb').feature('dode1').setIndex('f', 'Kon*Ci*(Chs-alp*Cb)/phi- ↙
Koff*Cb-Kd*Cb-Kint*Cb', 0);
 1022 model.physics('H').feature('dode1').setIndex('f', 'rH-((Kb*H*Ci)/(Sv+Ci))', 0);
 1023 model.physics('m').feature('dode1').setIndex('f', 'Kr*Cb-Kb*m', 0);
 1024 model.physics('p').feature('dode1').setIndex('f', 'Kp*m-Ka*p', 0);
 1025 model.physics('s').feature('dode1').setIndex('f', 'ss*m/(m+Km)-ds*s', 0);
 1026 model.physics('In').feature('dode1').setIndex('f', 'Kb*H*Ci/(Sv+Ci)-Di*In*s/ ↙
(In+Ki)', 0);
 1027 model.physics('Ci').feature('cdeq1').setIndex('c', {'Dci' '0' '0' '0' 'Dci' '0' ↙
'0' '0' 'Dci'}, 0);
 1028 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb)/phi', ↙
0);
 1029
 1030 model.variable('var1').set('Dci', '5e-10[cm^2/s]');
 1031 model.variable('var1').set('Kon', '5e3[1/M/s]');
 1032 model.variable('var1').set('Chs', '1.74e-5[M]');
 1033 model.variable('var1').set('alp', '1e3');
 1034 model.variable('var1').set('phi', '0.05');
 1035 model.variable('var1').set('Koff', '8e-3[1/s]');
 1036 model.variable('var1').set('Kd', '4.8e-5[1/s]');
 1037 model.variable('var1').set('Kint', '5.78e-4[1/s]');
 1038
 1039 model.physics('Ci').prop('Units').set('DependentVariableQuantity', 'none');
 1040 model.physics('Ci').prop('Units').set('CustomDependentVariableUnit', 'M');
 1041 model.physics('Ci').prop('Units').set('CustomSourceTermUnit', 'M/s');
 1042 model.physics('Cb').prop('Units').set('CustomDependentVariableUnit', 'M');
 1043 model.physics('Cb').prop('Units').set('CustomSourceTermUnit', 'M/s');
```

```
 1044
 1045 model.variable('var1').set('r', '0.927[1/d]');
 1046 model.variable('var1').set('Kb', '0.038[1/d]');
 1047 model.variable('var1').set('Sv', '1[1]');
 1048 model.variable('var1').set('Kr', 'Ka');
 1049 model.variable('var1').set('Kp', 'Ka');
 1050 model.variable('var1').set('Ka', '1.36e5[1/s]');
 1051 model.variable('var1').set('ss', '1[1/s]');
 1052 model.variable('var1').set('ds', '0.133[1/d]');
 1053 model.variable('var1').set('di', '1.8[1/d]');
 1054 model.variable('var1').set('Ki', '40[1]');
 1055
 1056 model.physics('H').prop('Units').set('CustomSourceTermUnit', '1/s');
 1057
 1058 model.variable('var1').rename('r', 'rH');
 1059 model.variable('var1').set('Sv', '1[M]');
 1060
 1061 model.physics('m').prop('Units').set('CustomSourceTermUnit', '1/s');
 1062
 1063 model.variable('var1').set('Kr', '1.36e5[1/M/s]');
 1064
 1065 model.physics('p').prop('Units').set('CustomSourceTermUnit', '1/s');
 1066 model.physics('s').prop('Units').set('CustomSourceTermUnit', '1/s');
 1067
 1068 model.variable('var1').set('Km', '40[1]');
 1069
 1070 model.physics('In').prop('Units').set('CustomSourceTermUnit', 'M/s');
 1071 model.physics('In').prop('Units').set('DependentVariableQuantity', 'none');
 1072 model.physics('In').prop('Units').set('CustomDependentVariableUnit', 'M');
 1073
 1074 model.variable('var1').rename('di', 'Di');
 1075
 1076 model.physics('In').prop('Units').set('CustomDependentVariableUnit', '1');
 1077 model.physics('In').prop('Units').set('CustomSourceTermUnit', '1/s');
 1078 model.physics('H').feature('init1').set('H', '1');
 1079 model.physics('Cb').feature('init1').set('Cb', '0');
 1080 model.physics('Ci').feature('init1').set('Ci', '100*(z>-1.2[m])');
 1081
 1082 model.variable('var1').rename('phi', 'ph');
 1083
 1084 model.physics('Cb').feature('dode1').setIndex('f', 'Kon*Ci*(Chs-alp*Cb)/ph- ↙
Koff*Cb-Kd*Cb-Kint*Cb', 0);
 1085 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb)/ph', 0);
 1086 model.physics('s').field('dimensionless').component(1, 'S');
 1087 model.physics('s').feature('dode1').setIndex('f', 'ss*m/(m+Km)-ds*S', 0);
 1088 model.physics('In').feature('dode1').setIndex('f', 'Kb*H*Ci/(Sv+Ci)-Di*In*S/ ↙
(In+Ki)', 0);
 1089
 1090 model.sol('sol1').runFromTo('st1', 'v1');
 1091
```

```
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').set('looplevel', {'11'});
model.result('pg1').run;
model.result('pg1').set('looplevel', {'1'});
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').set('looplevel', {'11'});
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Cb');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'In');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'm');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'p');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'S');
model.result('pg1').run;

model.mesh('mesh1').run;

model.physics('Ci').feature('init1').set('Ci', '10*(z>-1.2[m])');
model.physics('Cb').feature('init1').set('Cb', '1');
model.physics('Ci').feature('init1').set('Ci', '10*(z>-1.2[m])+1');
model.physics('Cb').feature('init1').set('Cb', '0');

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').set('looplevel', {'109'});
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Cb');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'In');
model.result('pg1').run;

model.study('std1').feature('time').set('tunit', 'h');

model.mesh('mesh1').run;
```

```
 1142
 1143 model.sol('sol1').feature('t1').set('initialstepbdf', '0.001');
 1144 model.sol('sol1').feature('t1').set('maxstepbdf', '0.01');
 1145 model.sol('sol1').clearSolutionData;
 1146
 1147 model.result('pg1').run;
 1148 model.result('pg1').run;
 1149 model.result('pg1').run;
 1150 model.result('pg1').feature('slc1').set('expr', 'lg');
 1151 model.result('pg1').run;
 1152 model.result('pg1').feature('slc1').set('expr', 'AngI');
 1153 model.result('pg1').run;
 1154 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 1155 model.result('pg1').run;
 1156
 1157 model.mesh('mesh1').run;
 1158
 1159 model.physics('growth').feature('dode1').setIndex('f', '0.1[ml/fmol/h] ↙
*AT1bAngII', 0);
 1160
 1161 model.result('pg1').run;
 1162 model.result('pg1').run;
 1163 model.result('pg1').set('looplevel', {'5'});
 1164 model.result('pg1').run;
 1165 model.result('pg1').set('looplevel', {'4'});
 1166 model.result('pg1').run;
 1167 model.result('pg1').run;
 1168 model.result('pg1').feature('slc1').set('expr', 'Cb');
 1169 model.result('pg1').run;
 1170 model.result('pg1').feature('slc1').set('expr', 'Ci');
 1171 model.result('pg1').run;
 1172
 1173 model.mesh('mesh1').run;
 1174
 1175 model.physics('growth').feature('dode1').setIndex('f', '0.1[ml/fmol/d] ↙
*AT1bAngII', 0);
 1176
 1177 model.sol('sol1').runAll;
 1178
 1179 model.result('pg1').run;
 1180 model.result('pg1').setIndex('looplevel', '121', 0);
 1181 model.result('pg1').run;
 1182 model.result('pg10').run;
 1183
 1184 model.mesh('mesh1').run;
 1185
 1186 model.result('pg1').run;
 1187 model.result('pg1').run;
 1188 model.result('pg1').setIndex('looplevel', '1', 0);
 1189 model.result('pg1').run;
```

```
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', 'mol/m^3');
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '121', 0);
model.result('pg1').run;

model.mesh('mesh1').run;

model.study('std1').feature('time').set('tunit', 'd');

model.sol('sol1').clearSolutionData;

model.result.table('tbl1').clearTableData;
model.result.numerical('int1').set('table', 'tbl1');
model.result.numerical('int1').setResult;

model.physics('growth').feature('dode1').setIndex('f', '0.01[ml/fmol/d] ↙
*AT1bAngII', 0);

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '121', 0);
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'lg');
model.result('pg1').run;
model.result.table('tbl1').clearTableData;
model.result.numerical('int1').selection.all;
model.result.numerical('int1').selection.set([2]);
model.result.numerical('int1').set('table', 'tbl1');
model.result.numerical('int1').setResult;
model.result('pg11').run;

model.mesh('mesh1').run;
model.mesh('mesh1').run;

model.physics('Ci').feature('cdeq1').setIndex('c', {'Dci*1000' '0' '0' '0' ↙
'Dci*1000' '0' '0' '0' 'Dci*1000'}, 0);

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;

model.mesh('mesh1').run;

model.physics('AngII').feature('dode1').setIndex('f', '(cACE+cChym)*AngI-(cACE2* ↙
(vi)-cAngIIAngIV-cAT1-cAT2)*AngII-(log(2)/hAngII)*AngII', 0);

```

```
model.variable('var4').set('vi', '((H-In)/H)*(H>In)+0*(H<In)');

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'In');
model.result('pg1').run;

model.sol('sol1').clearSolutionData;

model.mesh('mesh1').run;

model.variable('var1').set('vi', '((H-In)/H)*(H>In)+0*(H<In)');
model.variable('var4').remove('vi');

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '121', 0);
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;
model.result('pg10').run;
model.result.numerical('int1').set('table', 'tbl1');
model.result.numerical('int1').appendResult;

model.mesh('mesh1').run;

model.result('pg11').run;
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Cb');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'In');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'p');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'm');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'S');
model.result('pg1').run;

model.mesh('mesh1').run;
```

```
model.mesh('mesh1').run;

model.variable('var1').set('Dci', '5e-10[m^2/s]');

model.sol('sol1').clearSolutionData;
model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '51', 0);
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '46', 0);
model.result('pg1').setIndex('looplevel', '2', 0);
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '3', 0);
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Cb');
model.result('pg1').run;
model.result('pg1').set('allowtableupdate', false);
model.result('pg1').set('allowevalintitle', false);
model.result('pg1').set('title', 'Time=0.2 d Slice: Dependent variable Cb ↙
(mol/m<sup>3</sup>)');
model.result('pg1').set('hasbeenplotted', true);
model.result('pg1').feature('slc1').set('rangeunit', 'mol/m^3');
model.result('pg1').feature('slc1').set('rangecolormin', 1.739924640963283E-5);
model.result('pg1').feature('slc1').set('rangecolormax', 1.740095075898345E-5);
model.result('pg1').feature('slc1').set('rangecoloractive', 'off');
model.result('pg1').feature('slc1').set('rangedatamin', 1.739924640963283E-5);
model.result('pg1').feature('slc1').set('rangedatamax', 1.740095075898345E-5);
model.result('pg1').feature('slc1').set('rangedataactive', 'off');
model.result('pg1').feature('slc1').set('rangeactualminmax', [1.739924640963283E- ↙
5 1.740095075898345E-5]);
model.result('pg1').feature('slc1').set('hasbeenplotted', true);
model.result('pg1').set('renderdatacached', false);
model.result('pg1').set('allowtableupdate', true);
model.result('pg1').set('renderdatacached', true);
model.result.table('evl3').addRow([0.07635006713867096 0.11235861059456634 ↙
-1.3230521197302894 1.7400126003816982E-5], [0 0 0 0]);

model.mesh('mesh1').run;

model.physics('growth').active(false);
model.physics('solid').active(false);

model.sol('sol1').clearSolutionData;
```

```
 1334 model.sol('sol1').feature('t1').set('maxstepbdfactive', 'off');
 1335 model.sol('sol1').runAll;
 1336
 1337 model.result('pg1').run;
 1338 model.result('pg1').setIndex('looplevel', '11', 0);
 1339 model.result('pg1').run;
 1340 model.result('pg1').run;
 1341 model.result('pg1').feature('slc1').set('expr', 'Ci');
 1342 model.result('pg1').run;
 1343 model.result('pg1').feature('slc1').set('expr', 'AngI');
 1344 model.result('pg1').run;
 1345 model.result('pg1').feature('slc1').set('expr', 'AngII');
 1346 model.result('pg1').run;
 1347 model.result('pg1').run;
 1348 model.result('pg1').run;
 1349 model.result('pg1').run;
 1350 model.result('pg1').setIndex('looplevel', '1', 0);
 1351 model.result('pg1').run;
 1352 model.result('pg1').setIndex('looplevel', '2', 0);
 1353 model.result('pg1').run;
 1354 model.result('pg1').run;
 1355 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 1356 model.result('pg1').run;
 1357 model.result('pg1').run;
 1358 model.result('pg1').run;
 1359 model.result('pg1').feature('slc1').set('expr', 'Ci');
 1360 model.result('pg1').run;
 1361 model.result('pg1').feature('slc1').set('expr', 'Cb');
 1362 model.result('pg1').run;
 1363 model.result('pg1').feature('slc1').set('expr', 'H');
 1364 model.result('pg1').run;
 1365 model.result('pg1').feature('slc1').set('expr', 'In');
 1366 model.result('pg1').run;
 1367 model.result('pg1').run;
 1368 model.result('pg1').setIndex('looplevel', '4', 0);
 1369 model.result('pg1').run;
 1370
 1371 model.mesh('mesh1').run;
 1372
 1373 model.physics('Ci').feature('cdeq1').setIndex('c', {'Dci*10' '0' '0' '0' 'Dci*10' ↙
'0' '0' '0' 'Dci*10'}, 0);
 1374
 1375 model.result('pg1').run;
 1376 model.result('pg1').feature('slc1').set('expr', 'H');
 1377 model.result('pg1').run;
 1378 model.result('pg1').run;
 1379 model.result('pg1').setIndex('looplevel', '121', 0);
 1380 model.result('pg1').run;
 1381 model.result('pg1').setIndex('looplevel', '2', 0);
 1382 model.result('pg1').run;
```

```
 1383 model.result('pg1').run;
 1384 model.result('pg1').feature('slc1').set('expr', 'Ci');
 1385 model.result('pg1').run;
 1386 model.result('pg1').feature('slc1').set('expr', 'rH');
 1387 model.result('pg1').run;
 1388 model.result('pg1').feature('slc1').set('expr', 'Cb');
 1389 model.result('pg1').run;
 1390 model.result('pg1').run;
 1391 model.result('pg1').setIndex('looplevel', '121', 0);
 1392 model.result('pg1').run;
 1393
 1394 model.mesh('mesh1').run;
 1395
 1396 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb)/ph-Kb', ↙
0);
 1397 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb)/ph- ↙
Kb*H*Ci/(SH+H)', 0);
 1398 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb)/ph- ↙
Kb*H*Ci/(sH+H)', 0);
 1399 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb)/ph- ↙
Kb*H*Ci/(sH+H)-dv*Ci*S/(Kv+Ci)', 0);
 1400
 1401 model.variable('var1').set('SH', '1[M]');
 1402 model.variable('var1').rename('SH', 'sH');
 1403 model.variable('var1').set('sH', 'Ki');
 1404
 1405 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb)/ph- ↙
Kb*H*Ci/(sH+H)', 0);
 1406 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb)/ph- ↙
Kb*H*Ci/(sH+H)-dv*Ci*S/(Kv+Ci)', 0);
 1407
 1408 model.variable('var1').set('dV', 'Di');
 1409 model.variable('var1').rename('dV', 'dv');
 1410 model.variable('var1').set('Kv', 'Sv');
 1411 model.variable('var1').set('dv', 'Di*1[M]');
 1412
 1413 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb) ↙
/ph+Koff*Cb-Kd*Ci', 0);
 1414 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb) ↙
/ph+Koff*Cb-Kd*Ci+Ka*P', 0);
 1415 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb) ↙
/ph+Koff*Cb-Kd*Ci+Ka*p', 0);
 1416 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb) ↙
/ph+Koff*Cb-Kd*Ci+Ka*p*1[M]', 0);
 1417 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb) ↙
/ph+Koff*Cb-Kd*Ci+Ka*p*1[M]-dv*Ci*S', 0);
 1418
 1419 model.variable('var1').set('dv', 'Di');
 1420
 1421 model.physics('AngII').feature('dode1').setIndex('f', '(cACE+cChym)*AngI-(cACE2- ↙
```

```
cAngIIAngIV-cAT1-cAT2)*AngII-(log(2)/hAngII)*AngII', 0);
 1422
 1423 model.variable('var1').set('cACE2', '2.4[1/h]*vi');
 1424
 1425 model.physics('H').feature('dode1').setIndex('f', 'kH-((Kb*H*Ci)/(Sv+Ci))', 0);
 1426 model.physics('H').feature('dode1').setIndex('f', 'kH*H-((Kb*H*Ci)/(Sv+Ci))', 0);
 1427
 1428 model.variable('var1').set('kH', '1[1/s]');
 1429
 1430 model.physics('H').feature('dode1').setIndex('f', 'kH*H-((Kb*H*Ci)', 0);
 1431 model.physics('H').feature('dode1').setIndex('f', 'kH*H-(Kb*H*Ci)', 0);
 1432
 1433 model.sol('sol1').clearSolutionData;
 1434
 1435 model.label('RAS model_add virus_day_intragro_diffusion meter_disebe solid_new ↙
eq.mph');
 1436
 1437 model.physics('H').prop('Units').set('DependentVariableQuantity', 'none');
 1438 model.physics('H').prop('Units').set('CustomDependentVariableUnit', '1/mm^3');
 1439 model.physics('H').prop('Units').set('CustomSourceTermUnit', '1/mm^3/s');
 1440 model.physics('H').feature('dode1').setIndex('f', 'kH*H-(Kb*H*Ci)-phi1*H*n', 0);
 1441 model.physics('In').prop('Units').set('CustomDependentVariableUnit', '1/mm^3');
 1442 model.physics('In').prop('Units').set('CustomSourceTermUnit', '1/mm^3/s');
 1443 model.physics('In').feature('dode1').setIndex('f', 'Kb*H*Ci-Di*In*S/(In+Ki)', 0);
 1444 model.physics('In').feature('dode1').setIndex('f', 'Kb*H*Ci+phi1*H*n', 0);
 1445 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb) ↙
/ph+Koff*Cb-Kd*Ci+Ka*p-dv*Ci*S', 0);
 1446 model.physics('m').prop('Units').set('DependentVariableQuantity', 'none');
 1447 model.physics('m').prop('Units').set('CustomDependentVariableUnit', 'M');
 1448 model.physics('m').prop('Units').set('CustomSourceTermUnit', 'M/s');
 1449 model.physics('p').prop('Units').set('DependentVariableQuantity', 'none');
 1450 model.physics('p').prop('Units').set('CustomDependentVariableUnit', 'M');
 1451 model.physics('p').prop('Units').set('CustomSourceTermUnit', 'M/s');
 1452 model.physics('m').feature('dode1').setIndex('f', 'Kr*Cb-Kp*m', 0);
 1453 model.physics('s').active(false);
 1454 model.physics.create('dode', 'DomainODE', 'geom1', {'u16'});
 1455
 1456 model.study('std1').feature('time').activate('dode', true);
 1457
 1458 model.physics('dode').tag('n');
 1459 model.physics('n').field('dimensionless').component(1, 'n');
 1460 model.physics('n').prop('Units').set('DependentVariableQuantity', 'none');
 1461 model.physics('n').prop('Units').set('CustomDependentVariableUnit', '1/mm^3');
 1462 model.physics('n').prop('Units').set('CustomSourceTermUnit', '1/mm^3/s');
 1463 model.physics('n').feature('dode1').setIndex('f', 'xn*c-gan*n', 0);
 1464 model.physics('n').feature('dode1').setIndex('f', 'xn*c-gam_n*n', 0);
 1465 model.physics.create('dode', 'DomainODE', 'geom1', {'u17'});
 1466
 1467 model.study('std1').feature('time').activate('dode', true);
 1468
```

```
 1469 model.physics('dode').tag('ma');
 1470 model.physics('ma').field('dimensionless').component(1, 'ma');
 1471 model.physics('ma').prop('Units').set('DependentVariableQuantity', 'none');
 1472 model.physics('ma').prop('Units').set('CustomDependentVariableUnit', '1/mm^3');
 1473 model.physics('ma').prop('Units').set('CustomSourceTermUnit', '1/mm^3/s');
 1474 model.physics('ma').feature('dode1').setIndex('f', 'xm*c-gam_m*ma', 0);
 1475 model.physics.create('dode', 'DomainODE', 'geom1', {'u18'});
 1476
 1477 model.study('std1').feature('time').activate('dode', true);
 1478
 1479 model.physics('dode').tag('c');
 1480 model.physics('c').field('dimensionless').component(1, 'c');
 1481 model.physics('c').prop('Units').set('DependentVariableQuantity', 'none');
 1482 model.physics('c').prop('Units').set('CustomDependentVariableUnit', 'pg/mm^3');
 1483 model.physics('c').prop('Units').set('CustomSourceTermUnit', 'pg/mm^3/s');
 1484 model.physics('c').feature('dode1').setIndex('f', 'Sc*ma+SAT1R*AT1bAngII', 0);
 1485 model.physics('c').feature('dode1').setIndex('f', 'Sc*ma+SAT1R*AT1bAngII+Sn*n- ↙
ds*c', 0);
 1486
 1487 model.variable('var1').set('kH', '0.00275[1/h]');
 1488 model.variable('var1').set('Kb', '1*Kon');
 1489 model.variable('var1').set('phi1', '1e-6[mm^3/s]');
 1490 model.variable('var1').set('dv', '1e-6[mm^3/s]');
 1491 model.variable('var1').set('Kr', '1*gam_c');
 1492 model.variable('var1').set('Kp', '1*gam_c');
 1493 model.variable('var1').set('xn', '1[1/s/pg]');
 1494 model.variable('var1').set('gam_n', '1*gam_c');
 1495 model.variable('var1').set('xm', '1[1/s/pg]');
 1496 model.variable('var1').set('gam_m', 'o.o1*gam_c');
 1497 model.variable('var1').set('gam_c', '3[1/d]');
 1498 model.variable('var1').set('gam_m', '0.01*gam_c');
 1499 model.variable('var1').set('Sc', '1*Sgen');
 1500 model.variable('var1').set('SAT1R', '1*Sgen');
 1501 model.variable('var1').set('Sn', '1*Sgen');
 1502 model.variable('var1').set('ds', '1*gam_c');
 1503 model.variable('var1').set('Sgen', '1[pg/mol/s]');
 1504 model.variable('var1').set('SAT1R', '1[pg/mole/s]');
 1505
 1506 model.physics('c').feature('dode1').setIndex('f', 'Sc*ma', 0);
 1507 model.physics('c').feature('dode1').setIndex('f', 'Sc*ma+SAT1R*AT1bAngII+Sn*n- ↙
ds*c', 0);
 1508
 1509 model.variable('var1').set('Sgen', '1[pg/s]');
 1510
 1511 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb) ↙
/ph+Koff*Cb-Kd*Ci+Ka*p-dv*Ci*n', 0);
 1512
 1513 model.label('RAS model_add virus_day_intragro_diffusion meter_disebe solid_new ↙
eq_1.mph');
 1514
```

```
model.physics('n').prop('ShapeProperty').set('order', '1');
model.physics('ma').prop('ShapeProperty').set('order', '1');
model.physics('c').prop('ShapeProperty').set('order', '1');

model.sol('sol1').feature('t1').set('initialstepbdf', '0.01');
model.sol('sol1').feature('t1').set('maxstepbdfactive', 'on');
model.sol('sol1').feature('t1').set('maxstepbdf', '0.5');
model.sol('sol1').runFromTo('st1', 'v1');

model.result('pg1').run;

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '4', 0);
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '11', 0);
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'In');
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '31', 0);
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'n');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'c');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'm');
model.result('pg1').run;

model.mesh('mesh1').run;

model.physics('H').feature('dode1').setIndex('f', 'kH*10*H-(Kb*H*Ci)-phi1*H*n', ↙
0);
model.physics('H').feature('dode1').setIndex('f', 'kH*10*H-(Kb*H*Ci)-↙
phi1*H*n/10', 0);

model.sol('sol1').runAll;

model.result('pg1').run;
```

```
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '121', 0);
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'In');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'ma');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Cb');
model.result('pg1').run;

model.mesh('mesh1').run;

model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb) ↙
/ph+Koff*10*Cb-Kd*Ci+Ka*10*p-dv*Ci*n', 0);

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AgnI');

model.mesh('mesh1').run;

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngI');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngII');
model.result('pg1').run;

model.mesh('mesh1').run;

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'In');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Cb');
model.result('pg1').run;

model.mesh('mesh1').run;

```

```
 1612 model.physics('H').feature('dode1').setIndex('f', 'kH*10*H-(Kb*H*Ci)-phi1*H*n*0', ↙
0);
 1613
 1614 model.result('pg1').run;
 1615 model.result('pg1').feature('slc1').set('expr', 'H');
 1616 model.result('pg1').run;
 1617 model.result('pg1').feature('slc1').set('expr', 'Ci');
 1618 model.result('pg1').run;
 1619 model.result('pg1').run;
 1620 model.result('pg1').feature('slc1').set('expr', 'In');
 1621 model.result('pg1').run;
 1622
 1623 model.mesh('mesh1').run;
 1624
 1625 model.physics('In').feature('init1').set('In', '0.01');
 1626
 1627 model.result('pg2').run;
 1628 model.result('pg1').run;
 1629 model.result('pg1').feature('slc1').set('expr', 'H');
 1630 model.result('pg1').run;
 1631
 1632 model.mesh('mesh1').run;
 1633
 1634 model.physics('H').feature('dode1').setIndex('f', 'kH*10*H-(Kb*H*Ci)*0- ↙
phi1*H*n*0', 0);
 1635
 1636 model.sol('sol1').runAll;
 1637
 1638 model.result('pg1').run;
 1639 model.result('pg1').run;
 1640 model.result('pg1').feature('slc1').set('expr', 'In');
 1641 model.result('pg1').run;
 1642 model.result('pg1').feature('slc1').set('expr', 'Ci');
 1643 model.result('pg1').run;
 1644 model.result('pg1').feature('slc1').set('expr', 'Cb');
 1645 model.result('pg1').run;
 1646 model.result('pg1').feature('slc1').set('expr', 'ma');
 1647 model.result('pg1').run;
 1648 model.result('pg1').feature('slc1').set('expr', 'n');
 1649 model.result('pg1').run;
 1650 model.result('pg1').feature('slc1').set('expr', 'p');
 1651 model.result('pg1').run;
 1652 model.result('pg1').feature('slc1').set('expr', 'c');
 1653 model.result('pg1').run;
 1654 model.result('pg1').feature('slc1').set('expr', 'AngII');
 1655 model.result('pg1').run;
 1656 model.result('pg11').run;
 1657 model.result('pg9').run;
 1658 model.result('pg9').run;
 1659 model.result('pg9').feature('ptgr1').set('expr', 'AngII');
```

```
model.result('pg9').run;

model.mesh('mesh1').run;

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'In');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Cb');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;

model.mesh('mesh1').run;

model.variable('var1').set('Kon', '5e3[1/M/s]');

model.physics('Cb').feature('dode1').setIndex('f', 'Kon*Ci*(Chs-alp*Cb)/ph- ↙
Koff*Cb-Kd*Cb*0-Kint*Cb*0', 0);
model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb) ↙
/ph+Koff*10*Cb-Kd*Ci+Ka*10*p-dv*Ci*n/10', 0);
model.physics('Cb').feature('dode1').setIndex('f', 'Kon*Ci*(Chs-alp*Cb)/ph- ↙
Koff*Cb-Kd*Cb-Kint*Cb', 0);

model.variable('var1').set('Kd', '4.8e-5[1/s]/100');
model.variable('var1').set('Kint', '5.78e-4[1/s]/100');
model.variable('var1').set('dv', '1e-6[mm^3/s]/100');
model.variable('var1').set('SAT1R', '1[pg/mole/s]*100');

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'c');
model.result('pg1').run;

model.mesh('mesh1').run;

model.variable('var1').set('gam_c', '3[1/d]/100');

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'p');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'm');
model.result('pg1').run;

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').run;
```

```
 1707 model.result('pg1').feature('slc1').set('expr', 'ma');
 1708 model.result('pg1').run;
 1709 model.result('pg1').feature('slc1').set('expr', 'c');
 1710 model.result('pg1').run;
 1711 model.result('pg1').feature('slc1').set('expr', 'n');
 1712 model.result('pg1').run;
 1713 model.result('pg1').feature('slc1').set('expr', 'Cb');
 1714 model.result('pg1').run;
 1715 model.result('pg1').feature('slc1').set('expr', 'Ci');
 1716 model.result('pg1').run;
 1717 model.result('pg1').run;
 1718 model.result('pg1').feature('slc1').set('expr', 'H');
 1719 model.result('pg1').run;
 1720 model.result('pg1').feature('slc1').set('expr', 'In');
 1721 model.result('pg1').run;
 1722
 1723 model.label('RAS model_add virus_day_intragro_diffusion meter_disebe solid_new ↙
eq_2.mph');
 1724
 1725 model.result('pg1').run;
 1726 model.result('pg1').feature('slc1').set('expr', 'H');
 1727 model.result('pg1').run;
 1728 model.result('pg1').feature('slc1').set('expr', 'Cb');
 1729 model.result('pg1').run;
 1730 model.result('pg1').feature('slc1').set('expr', 'Ci');
 1731 model.result('pg1').run;
 1732 model.result('pg1').feature('slc1').set('expr', 'm');
 1733 model.result('pg1').run;
 1734 model.result('pg1').feature('slc1').set('expr', 'p');
 1735 model.result('pg1').run;
 1736 model.result('pg1').feature('slc1').set('expr', 'n');
 1737 model.result('pg1').run;
 1738
 1739 model.mesh('mesh1').run;
 1740
 1741 model.physics('H').feature('dode1').setIndex('f', 'kH*10*H-(Kb*H*Ci)-phi1*H*n*0', ↙
0);
 1742 model.physics('In').feature('dode1').setIndex('f', 'Kb*H*Ci+phi1*H*n*0', 0);
 1743 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb) ↙
/ph+Koff*Cb-Kd*Ci+Ka*10*p-dv*Ci*n', 0);
 1744 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb) ↙
/ph+Koff*Cb-Kd*Ci+Ka*p-dv*Ci*n*0', 0);
 1745
 1746 model.variable('var1').set('Kd', '4.8e-5[1/s]');
 1747 model.variable('var1').set('Kint', '5.78e-4[1/s]');
 1748 model.variable('var1').set('dv', '1e-6[mm^3/s]');
 1749 model.variable('var1').set('gam_c', '3[1/d]');
 1750 model.variable('var1').set('SAT1R', '1[pg/mole/s]');
 1751 model.variable('var1').set('Kr', 'Kint');
 1752
```

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model.sol('sol1').runAll;

model.result('pg1').run;

model.label('RAS model_add virus_day_intragro_diffusion meter_disebe solid_new eq_6 - Copy.mph');

model.result('pg1').run;

model.mesh('mesh1').run;

model.param.set('a', '1[cfu]');

model.physics('H').feature('dode1').setIndex('f', 'RH*H-(Kb*H*Ci)-phic*H*n', 0);
model.physics('H').feature('init1').set('H', '7.23e8[1/ml]');
model.physics('m').field('dimensionless').component(1, 'Cint');
model.physics('m').feature('dode1').setIndex('f', 'Kint*Cb-Ka*Vint', 0);
model.physics('p').active(false);
model.physics('In').feature('dode1').setIndex('f', 'Kb*H*Ci+phic*H*n', 0);
model.physics('In').feature('init1').set('In', '0');
model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb)/ph+Koff*Cb-Kd*Ci+Ka*Vint', 0);
model.physics('Ci').feature.duplicate('init2', 'init1');
model.physics('Ci').feature('init2').set('Ci', '1.27e-9[M]*(z>-1.2[m])');
model.physics('n').feature('dode1').setIndex('f', 'xn*c-gam_n*n-gam_m*n*ma-gam_v*n*V', 0);
model.physics('ma').feature('dode1').setIndex('f', 'xm*c-gam_n1*ma', 0);
model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint+SAT1R*AT1bAngII+Sn*n-ds*c', 0);

model.variable('var1').set('Dci', '5e-7[cm^2/s]');

model.physics('Ci').feature('cdeq1').setIndex('c', {'Dci' '0' '0' '0' 'Dci' '0' '0' '0' 'Dci'}, 0);

model.variable('var1').set('Kb', 'Kon');
model.variable('var1').set('Ka', '1000[1/d]');
model.variable('var1').set('RH', '0.00275[1/h]');
model.variable('var1').set('Sc', '2.9e-2[pg/ml/h]');
model.variable('var1').set('Sn', '2.1e-2[pg/ml/h]');
model.variable('var1').remove('Sgen');
model.variable('var1').set('dc', '3[1/d]');
model.variable('var1').set('xn', '13.3e-1[ml/pg/h]');
model.variable('var1').set('xm', 'xn');
model.variable('var1').set('gam_n', '6.3e-2[1/h]');
model.variable('var1').set('gam_n1', '0.03[1/d]');
model.variable('var1').set('gam_m', '0.07[pg/d]');
model.variable('var1').set('gam_v', '2.5e-7[ml/h/mole]');
model.variable('var1').remove('rH');
model.variable('var1').remove('Sv');
```

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 1798 model.variable('var1').remove('Kr');
 1799 model.variable('var1').remove('Kp');
 1800 model.variable('var1').remove('ss');
 1801 model.variable('var1').remove('ds');
 1802 model.variable('var1').remove('Di');
 1803 model.variable('var1').remove('Ki');
 1804 model.variable('var1').remove('Km');
 1805 model.variable('var1').remove('sH');
 1806 model.variable('var1').remove('dv');
 1807 model.variable('var1').remove('Kv');
 1808 model.variable('var1').remove('kH');
 1809 model.variable('var1').set('phi_c', '0[mm^3/s]');
 1810 model.variable('var1').rename('phi_c', 'phic');
 1811
 1812 model.physics('m').tag('Vint');
 1813 model.physics('Vint').field('dimensionless').component(1, 'Vint');
 1814
 1815 model.sol('sol1').clearSolutionData;
 1816
 1817 model.physics('n').feature('dode1').setIndex('f', 'xn*1000[mm3/ml]c-gam_n*n- ↙
gam_m*n*ma-gam_v*n*V', 0);
 1818 model.physics('n').feature('dode1').setIndex('f', 'xn*1000[mm3/ml]*c-gam_n*n- ↙
gam_m*n*ma-gam_v*n*V', 0);
 1819 model.physics('n').feature('dode1').setIndex('f', 'xn*1000[mm3/ml]*c', 0);
 1820 model.physics('n').feature('dode1').setIndex('f', 'xn*1000[mm^3/ml]*c', 0);
 1821 model.physics('n').feature('dode1').setIndex('f', 'xn*1000[1/ml]*c', 0);
 1822 model.physics('n').feature('dode1').setIndex('f', 'xn*1000[1/ml]*c-gam_n*n- ↙
gam_m*n*ma-gam_v*n*V', 0);
 1823 model.physics('n').feature('dode1').setIndex('f', 'xn*1000[1/ml]*c-gam_n*1 ↙
[mm^3/pg]*n-gam_m*n*ma-gam_v*n*V', 0);
 1824 model.physics('n').feature('dode1').setIndex('f', 'xn*1000[1/ml]*c-gam_n*1 ↙
[mm^3/pg]*n', 0);
 1825 model.physics('n').feature('dode1').setIndex('f', 'xn*1000[1/ml]*c-gam_n*1 ↙
[mm^3/pg]*n-gam_m*n*ma-gam_v*n*V', 0);
 1826 model.physics('n').feature('dode1').setIndex('f', 'xn*1000[1/ml]*c-gam_n*n- ↙
gam_m*1[mm^3/pg]*n*ma-gam_v*n*V', 0);
 1827 model.physics('n').feature('dode1').setIndex('f', 'xn*1000[1/ml]*c-gam_n*n- ↙
gam_m*1[mm^3/pg]*n*ma', 0);
 1828 model.physics('n').feature('dode1').setIndex('f', 'xn*1000[1/ml]*c-gam_n*n- ↙
gam_m*1[mm^3/pg]*n*ma-gam_v*n*V', 0);
 1829 model.physics('n').feature('dode1').setIndex('f', 'xn*1000[1/ml]*c-gam_n*n- ↙
gam_m*1[mm^3/pg]*n*ma-gam_v*1[mole]*n*V', 0);
 1830 model.physics('n').feature('dode1').setIndex('f', 'xn*1000[1/ml]*c-gam_n*n- ↙
gam_m*1[mm^3/pg]*n*ma-gam_v*1[mole]*n*Ci', 0);
 1831
 1832 model.param.set('a', '1[M]');
 1833
 1834 model.physics('n').feature('dode1').setIndex('f', 'xn*1000[1/ml]*c-gam_n*n- ↙
gam_m*1[mm^3/pg]*n*ma-gam_v*1[mol]*n*Ci', 0);
 1835
```

```
 1836 model.variable('var1').set('gam_v', '2.5e-7[ml/h/mol]');
 1837
 1838 model.physics('n').feature('dode1').setIndex('f', 'xn*1000[1/ml]*c-gam_n*n- ↙
gam_m*1[mm^3/pg]*n*ma-gam_v*n*Ci', 0);
 1839 model.physics('ma').feature('dode1').setIndex('f', 'xm*1000[1/ml]*c-gam_n1*ma', ↙
0);
 1840 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-9[M] ↙
+SAT1R*AT1bAngII+Sn*n-ds*c', 0);
 1841 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-9[M]', 0);
 1842 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-9[M] ↙
+SAT1R*AT1bAngII/1.27e-9[M]+Sn*n-ds*c', 0);
 1843
 1844 model.variable('var1').set('SAT1R', '2.1e-2[pg/ml/h]');
 1845
 1846 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-9[M] ↙
+SAT1R*AT1bAngII/1.27e-9[M]', 0);
 1847 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-9[M] ↙
+SAT1R*AT1bAngII/1.27e-9[M]+Sn*n', 0);
 1848 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-9[M] ↙
+SAT1R*AT1bAngII/1.27e-9[M]+Sn*n*1[ml]', 0);
 1849 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-9[M] ↙
+SAT1R*AT1bAngII/1.27e-9[M]+Sn*n*1[ml]-ds*c', 0);
 1850 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-9[M] ↙
+SAT1R*AT1bAngII/1.27e-9[M]+Sn*n*1[ml]-dscc', 0);
 1851 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-9[M] ↙
+SAT1R*AT1bAngII/1.27e-9[M]+Sn*n*1[ml]-dc*c', 0);
 1852
 1853 model.label('RAS model_add virus_day_intragro_diffusion meter_disebe solid_new ↙
eq_new parameter.mph');
 1854
 1855 model.sol('sol1').runFromTo('st1', 'v1');
 1856
 1857 model.result('pg1').run;
 1858
 1859 model.sol('sol1').runAll;
 1860
 1861 model.result('pg1').run;
 1862 model.result('pg1').setIndex('looplevel', '121', 0);
 1863 model.result('pg1').run;
 1864 model.result('pg1').run;
 1865 model.result('pg1').feature('slc1').set('expr', 'H');
 1866 model.result('pg1').run;
 1867 model.result('pg1').feature('slc1').set('expr', 'In');
 1868 model.result('pg1').run;
 1869 model.result('pg1').feature('slc1').set('expr', 'Ci');
 1870 model.result('pg1').run;
 1871 model.result('pg1').feature('slc1').set('expr', 'Cb');
 1872 model.result('pg1').run;
 1873 model.result('pg1').feature('slc1').set('expr', 'Vint');
 1874 model.result('pg1').run;
```

```
model.result('pg1').feature('slc1').set('expr', 'c');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Cb');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'In');
model.result('pg1').run;

model.mesh('mesh1').run;

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;

model.mesh('mesh1').run;

model.result('pg9').run;
model.result('pg9').feature('ptgr1').set('expr', 'Ci');
model.result('pg9').run;
model.result('pg9').feature('ptgr1').set('expr', 'Cb');
model.result('pg9').run;
model.result('pg9').feature('ptgr1').set('expr', 'Vint');
model.result('pg9').run;
model.result('pg9').feature('ptgr1').set('expr', 'c');
model.result('pg9').run;
model.result('pg9').feature('ptgr1').set('expr', 'AngII');
model.result('pg9').run;
model.result('pg9').feature('ptgr1').set('expr', 'AT1bAngII');
model.result('pg9').run;

model.param.set('b', '1000[1/d]');
model.param.set('c', '0.00275[1/d]');
model.param.remove('c');
model.param.remove('a');
model.param.remove('b');

model.mesh('mesh1').run;

model.variable('var1').set('RH', '1000[1/d]');
model.variable('var1').set('gam_v', '2.5e-7[ml/h/fmol]');

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;

model.mesh('mesh1').run;

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
```

```
 1925 model.result('pg1').feature('slc1').set('unit', '1/ml');
 1926 model.result('pg1').run;
 1927 model.result('pg1').feature('slc1').set('expr', 'In');
 1928 model.result('pg1').run;
 1929 model.result('pg1').feature('slc1').set('expr', 'Ci');
 1930 model.result('pg1').run;
 1931 model.result('pg1').feature('slc1').set('unit', 'M');
 1932 model.result('pg1').run;
 1933 model.result('pg1').feature('slc1').set('unit', 'mol/ml');
 1934 model.result('pg1').run;
 1935 model.result('pg1').feature('slc1').set('unit', 'mole/ml');
 1936 model.result('pg1').run;
 1937 model.result('pg1').feature('slc1').set('unit', 'M');
 1938 model.result('pg1').run;
 1939 model.result('pg1').feature('slc1').set('unit', 'mol/ml');
 1940 model.result('pg1').run;
 1941 model.result('pg1').feature('slc1').set('unit', 'mol/m^3');
 1942 model.result('pg1').run;
 1943 model.result('pg1').feature('slc1').set('unit', 'mol/mm^3');
 1944 model.result('pg1').run;
 1945 model.result('pg1').feature('slc1').set('unit', 'mol/cm^3');
 1946 model.result('pg1').run;
 1947 model.result('pg1').feature('slc1').set('unit', 'mol/m^3');
 1948 model.result('pg1').run;
 1949 model.result('pg1').feature('slc1').set('unit', 'mol/l');
 1950 model.result('pg1').run;
 1951 model.result('pg1').run;
 1952 model.result('pg1').setIndex('looplevel', '1', 0);
 1953 model.result('pg1').run;
 1954 model.result('pg1').setIndex('looplevel', '2', 0);
 1955 model.result('pg1').run;
 1956
 1957 model.mesh('mesh1').run;
 1958
 1959 model.result('pg1').run;
 1960 model.result('pg1').feature('slc1').set('expr', '-Kon*Ci*(Chs-alp*Cb)/ph+Koff*Cb- ↙
Kd*Ci+Ka*Vint');
 1961 model.result('pg1').run;
 1962 model.result('pg1').feature('slc1').set('expr', '-Kon*Ci*(Chs-alp*Cb)/ph');
 1963 model.result('pg1').run;
 1964 model.result('pg1').feature('slc1').set('expr', '-Kon*Ci*(Chs-alp*Cb) ↙
/ph+Koff*Cb');
 1965 model.result('pg1').run;
 1966
 1967 model.mesh('mesh1').run;
 1968
 1969 model.variable('var1').set('vt', '1*(Ci>Cb)+0');
 1970
 1971 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb) ↙
*vt/ph+Koff*Cb-Kd*Ci+Ka*Vint', 0);
```

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 1972 model.physics('Cb').feature('dode1').setIndex('f', 'Kon*Ci*(Chs-alp*Cb)*vt/ph- ↙
Koff*Cb-Kd*Cb-Kint*Cb', 0);
 1973
 1974 model.result('pg1').run;
 1975 model.result('pg1').run;
 1976
 1977 model.mesh('mesh1').run;
 1978
 1979 model.study('std1').feature('time').set('tunit', 'min');
 1980
 1981 model.physics('ma').feature('dode1').setIndex('f', 'xm*1[1/ml]*c-gam_n1*ma', 0);
 1982 model.physics('n').feature('dode1').setIndex('f', 'xn*1[1/ml]*c-gam_n*n-gam_m*1 ↙
[mm^3/pg]*n*ma-gam_v*n*Ci', 0);
 1983 model.physics('AGT').active(false);
 1984 model.physics('AngI').active(false);
 1985 model.physics('AngII').active(false);
 1986 model.physics('Ang17').active(false);
 1987 model.physics('AngIV').active(false);
 1988 model.physics('AT1bAngII').active(false);
 1989 model.physics('AT2bAngII').active(false);
 1990
 1991 model.study('std1').feature('time').set('tunit', 'd');
 1992
 1993 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-9[M] ↙
+SAT1R*AT1bAngII*0/1.27e-9[M]+Sn*n*1[ml]-dc*c', 0);
 1994 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-9[M]+Sn*n*1[ml]- ↙
dc*c', 0);
 1995
 1996 model.sol('sol1').runFromTo('st1', 'v1');
 1997
 1998 model.result('pg1').run;
 1999
 2000 model.mesh('mesh1').run;
 2001
 2002 model.physics('H').active(false);
 2003 model.physics('n').active(false);
 2004 model.physics('ma').active(false);
 2005 model.physics('c').active(false);
 2006 model.physics('In').active(false);
 2007
 2008 model.sol('sol1').runFromTo('st1', 'v1');
 2009
 2010 model.result('pg1').run;
 2011
 2012 model.mesh('mesh1').run;
 2013
 2014 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb) ↙
/ph+Koff*Cb-Kd*Ci+Ka*Vint', 0);
 2015 model.physics('Cb').feature('dode1').setIndex('f', 'Kon*Ci*(Chs-alp*Cb)/ph- ↙
Koff*Cb-Kd*Cb-Kint*Cb', 0);
```

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2016
2017 model.sol('sol1').runAll;
2018
2019 model.result('pg1').run;
2020 model.result('pg1').run;
2021 model.result('pg1').feature('slc1').set('expr', 'Vint');
2022 model.result('pg1').run;
2023 model.result('pg1').run;
2024 model.result('pg1').setIndex('looplevel', '121', 0);
2025 model.result('pg1').run;
2026 model.result('pg1').run;
2027 model.result('pg1').feature('slc1').set('expr', 'Ci');
2028 model.result('pg1').run;
2029 model.result('pg1').run;
2030
2031 model.mesh('mesh1').run;
2032
2033 model.variable('var1').set('Ka', 'Kint/100');
2034
2035 model.sol('sol1').runAll;
2036
2037 model.result('pg1').run;
2038 model.result('pg1').run;
2039 model.result('pg1').feature('slc1').set('expr', 'Cb');
2040 model.result('pg1').run;
2041 model.result('pg1').feature('slc1').set('expr', 'Vint');
2042 model.result('pg1').run;
2043
2044 model.mesh('mesh1').run;
2045
2046 model.physics('In').active(true);
2047 model.physics('H').active(true);
2048 model.physics('H').feature('dode1').setIndex('f', 'RH*H-(Kb*H*Ci)', 0);
2049 model.physics('In').feature('dode1').setIndex('f', 'Kb*H*Ci', 0);
2050
2051 model.result('pg1').run;
2052 model.result('pg1').feature('slc1').set('expr', 'H');
2053 model.result('pg1').run;
2054 model.result('pg1').feature('slc1').set('expr', 'In');
2055 model.result('pg1').run;
2056
2057 model.mesh('mesh1').run;
2058
2059 model.result('pg1').run;
2060 model.result('pg1').run;
2061 model.result('pg1').set('looplevel', {'1'});
2062 model.result('pg1').run;
2063 model.result('pg1').run;
2064 model.result('pg1').feature('slc1').set('unit', '1/ml');
2065 model.result('pg1').run;
```

```
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;

model.mesh('mesh1').run;

model.physics('Ci').feature('cdeq1').setIndex('c', {'Dci*100' '0' '0' '0' ↙
'Dci*100' '0' '0' '0' 'Dci*100'}, 0);

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').set('looplevel', {'2'});
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;

model.mesh('mesh1').run;

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').set('looplevel', {'4'});
model.result('pg1').run;

model.mesh('mesh1').run;

model.variable('var1').set('Kb', '1.36e5[1/M/s]');
model.variable('var1').set('RH', '0.002751[1/h]');

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '121', 0);
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'In');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', '1/ml');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;

model.mesh('mesh1').run;

model.physics('n').active(true);
model.physics('ma').active(true);
model.physics('c').active(true);
model.physics('H').feature('dode1').setIndex('f', 'RH*H-(Kb*H*Ci)-phic', 0);
model.physics('H').feature('dode1').setIndex('f', 'RH*H-(Kb*H*Ci)-phic*H*n', 0);
```

```
 2115
 2116 model.variable('var1').set('phic', '1[mm^3/s]');
 2117
 2118 model.physics('In').feature('dode1').setIndex('f', 'Kb*H*Ci+phic*H*n', 0);
 2119
 2120 model.result('pg1').run;
 2121 model.result('pg1').run;
 2122 model.result('pg1').feature('slc1').set('expr', 'Ci');
 2123
 2124 model.mesh('mesh1').run;
 2125
 2126 model.variable('var1').set('phic', '0[mm^3/s]');
 2127
 2128 model.result('pg1').run;
 2129 model.result('pg1').feature('slc1').set('expr', 'H');
 2130 model.result('pg1').run;
 2131 model.result('pg1').feature('slc1').set('expr', 'In');
 2132 model.result('pg1').run;
 2133 model.result('pg1').feature('slc1').set('expr', 'n');
 2134
 2135 model.mesh('mesh1').run;
 2136
 2137 model.result('pg1').run;
 2138 model.result('pg1').run;
 2139 model.result('pg1').set('looplevel', {'51'});
 2140 model.result('pg1').run;
 2141 model.result('pg1').set('looplevel', {'61'});
 2142 model.result('pg1').run;
 2143 model.result('pg1').run;
 2144 model.result('pg1').feature('slc1').set('expr', 'ma');
 2145 model.result('pg1').run;
 2146 model.result('pg1').feature('slc1').set('expr', 'c');
 2147 model.result('pg1').run;
 2148
 2149 model.mesh('mesh1').run;
 2150
 2151 model.result('pg1').run;
 2152 model.result('pg1').feature('slc1').set('expr', 'Sc*Vint/1.27e-9[M]+Sn*n*1[ml]- ↙
dc*c');
 2153 model.result('pg1').run;
 2154 model.result('pg1').run;
 2155 model.result('pg1').set('looplevel', {'51'});
 2156 model.result('pg1').run;
 2157 model.result('pg1').set('looplevel', {'61'});
 2158 model.result('pg1').run;
 2159 model.result('pg1').run;
 2160 model.result('pg1').feature('slc1').set('expr', 'Vint');
 2161 model.result('pg1').run;
 2162 model.result('pg1').feature('slc1').set('expr', 'Ci');
 2163 model.result('pg1').run;
```

```
 2164 model.result('pg1').feature('slc1').set('expr', 'Cb');
 2165 model.result('pg1').run;
 2166 model.result('pg1').feature('slc1').set('expr', 'Sc*Vint/1.27e-9[M]+Sn*n*1[ml]- ↙
dc*c');
 2167 model.result('pg1').run;
 2168 model.result('pg1').feature('slc1').set('expr', 'Sc*Vint');
 2169 model.result('pg1').run;
 2170 model.result('pg1').feature('slc1').set('expr', 'Sc*Vint1.27e-9[M]');
 2171 model.result('pg1').set('allowtableupdate', false);
 2172 model.result('pg1').set('allowevalintitle', false);
 2173 model.result('pg1').set('title', 'Time=6 d Slice: Sc*Vint1.27e-9[M]');
 2174 model.result('pg1').set('hasbeenplotted', true);
 2175 model.result('pg1').set('renderdatacached', false);
 2176 model.result('pg1').set('allowtableupdate', true);
 2177 model.result('pg1').set('renderdatacached', true);
 2178 model.result('pg1').feature('slc1').set('expr', 'Sc*Vint/1.27e-9[M]');
 2179 model.result('pg1').run;
 2180 model.result('pg1').feature('slc1').set('expr', 'Sc*Vint/1.27e-10[M]');
 2181 model.result('pg1').run;
 2182 model.result('pg1').run;
 2183 model.result('pg1').feature('slc1').set('expr', 'Sc*Vint/1.27e-9[M]');
 2184 model.result('pg1').run;
 2185 model.result('pg1').feature('slc1').set('expr', 'Sc*Vint/1.27e-10[M]');
 2186 model.result('pg1').run;
 2187 model.result('pg1').feature('slc1').set('expr', 'Sc*Vint/1.27e-13[M]');
 2188 model.result('pg1').run;
 2189
 2190 model.mesh('mesh1').run;
 2191
 2192 model.result('pg1').run;
 2193 model.result('pg1').feature('slc1').set('expr', 'Sc*Vint/1.27e-9[M]+Sn*n*1[ml]- ↙
dc*c');
 2194 model.result('pg1').run;
 2195 model.result('pg1').feature('slc1').set('expr', 'Sc*Vint/1.27e-9[M]+Sn*n*1e4[ml]- ↙
dc*c');
 2196 model.result('pg1').run;
 2197 model.result('pg1').run;
 2198 model.result('pg1').feature('slc1').set('expr', 'Sc*Vint/1.27e-9[M]+Sn*n*1e8[ml]- ↙
dc*c');
 2199 model.result('pg1').run;
 2200 model.result('pg1').run;
 2201 model.result('pg1').feature('slc1').set('expr', 'Sc*Vint/1.27e-12[M]+Sn*n*1e8[ml] ↙
-dc*c');
 2202 model.result('pg1').run;
 2203
 2204 model.mesh('mesh1').run;
 2205
 2206 model.variable('var1').set('dc', '8.3e-1[1/h]');
 2207
 2208 model.param.set('a', '3[1/d]');
```

```
 2209 model.param.set('b', '8.3e-1[1/h]');
 2210 model.param.remove('a');
 2211 model.param.remove('b');
 2212
 2213 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-12[M]+Sn*n*1[ml] ↙
-dc*c', 0);
 2214 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-12[M]+Sn*n*100 ↙
[ml]-dc*c', 0);
 2215
 2216 model.result('pg1').run;
 2217 model.result('pg1').run;
 2218 model.result('pg1').feature('slc1').set('expr', 'xm*1[1/ml]*c-gam_n1*ma');
 2219 model.result('pg1').run;
 2220 model.result('pg1').feature('slc1').set('expr', 'xm*100[1/ml]*c-gam_n1*ma');
 2221 model.result('pg1').run;
 2222 model.result('pg1').run;
 2223 model.result('pg1').feature('slc1').set('expr', 'xm*1e10[1/ml]*c-gam_n1*ma');
 2224 model.result('pg1').run;
 2225 model.result('pg1').feature('slc1').set('expr', 'xm*1[1/ml]*c-gam_n1*ma');
 2226
 2227 model.mesh('mesh1').run;
 2228
 2229 model.variable('var1').set('gam_n1', 'gam_n');
 2230
 2231 model.physics('ma').feature('dode1').setIndex('f', 'xm*100[1/ml]*c-gam_n1*ma', ↙
0);
 2232 model.physics('n').feature('dode1').setIndex('f', 'xn*100[1/ml]*c-gam_n*n- ↙
gam_m*1e-5[mm^3/pg]*n*ma-gam_v*n*Ci', 0);
 2233
 2234 model.variable('var1').set('gam_v', '2.5e-7[ml/h/mol]');
 2235
 2236 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-12[M]+Sn*n*1[ml] ↙
-dc*c', 0);
 2237 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-11[M]+Sn*n*1[ml] ↙
-dc*c', 0);
 2238 model.physics('n').feature('dode1').setIndex('f', 'xn*100[1/ml]*c-gam_n*n-gam_m*1 ↙
[mm^3/g]*n*ma-gam_v*n*Ci', 0);
 2239 model.physics('Ci').feature('cdeq1').setIndex('c', {'Dci' '0' '0' '0' 'Dci' '0' ↙
'0' '0' 'Dci'}, 0);
 2240
 2241 model.result('pg1').run;
 2242 model.result('pg1').set('looplevel', {'14'});
 2243 model.result('pg1').run;
 2244 model.result('pg1').run;
 2245 model.result('pg1').feature('slc1').set('expr', 'n');
 2246 model.result('pg1').run;
 2247 model.result('pg1').feature('slc1').set('expr', 'c');
 2248 model.result('pg1').run;
 2249 model.result('pg1').feature('slc1').set('expr', 'ma');
 2250 model.result('pg1').run;
```

```
 2251
 2252 model.mesh('mesh1').run;
 2253
 2254 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-11[M]+Sn*n*1[ml] ↙
*0-dc*c*0', 0);
 2255 model.physics('ma').active(false);
 2256 model.physics('n').active(false);
 2257 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-11[M]+Sn*0*1[ml] ↙
*0-dc*c*0', 0);
 2258 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-11[M]', 0);
 2259 model.physics('In').feature('dode1').setIndex('f', 'Kb*H*Ci', 0);
 2260 model.physics('H').feature('dode1').setIndex('f', 'RH*H-(Kb*H*Ci)', 0);
 2261
 2262 model.sol('sol1').runAll;
 2263
 2264 model.mesh('mesh1').run;
 2265
 2266 model.result('pg1').run;
 2267 model.result('pg1').feature('slc1').set('expr', 'Vint');
 2268 model.result('pg1').run;
 2269 model.result('pg1').feature('slc1').set('expr', 'Ci');
 2270 model.result('pg1').run;
 2271 model.result('pg1').feature('slc1').set('expr', 'Vint');
 2272 model.result('pg1').run;
 2273 model.result('pg1').feature('slc1').set('expr', 'Cb');
 2274 model.result('pg1').run;
 2275 model.result('pg1').feature('slc1').set('expr', 'c');
 2276 model.result('pg1').run;
 2277 model.result('pg1').run;
 2278 model.result('pg1').setIndex('looplevel', '121', 0);
 2279 model.result('pg1').run;
 2280 model.result('pg1').run;
 2281 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
 2282 model.result('pg1').run;
 2283
 2284 model.mesh('mesh1').run;
 2285
 2286 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-11[M]-dc*c', 0);
 2287
 2288 model.sol('sol1').runAll;
 2289
 2290 model.result('pg1').run;
 2291
 2292 model.mesh('mesh1').run;
 2293
 2294 model.physics('AGT').active(true);
 2295 model.physics('AngI').active(true);
 2296 model.physics('AngII').active(true);
 2297 model.physics('Ang17').active(true);
 2298 model.physics('AngIV').active(true);
```

```
 2299 model.physics('AT1bAngII').active(true);
 2300 model.physics('AT2bAngII').active(true);
 2301
 2302 model.result('pg1').run;
 2303 model.result('pg1').feature('slc1').set('expr', 'H');
 2304 model.result('pg1').run;
 2305 model.result('pg1').feature('slc1').set('expr', 'In');
 2306 model.result('pg1').run;
 2307
 2308 model.mesh('mesh1').run;
 2309
 2310 model.sol('sol1').runAll;
 2311
 2312 model.result('pg1').run;
 2313 model.result('pg1').run;
 2314 model.result('pg1').feature('slc1').set('expr', 'c');
 2315 model.result('pg1').run;
 2316 model.result('pg1').feature('slc1').set('unit', 'kpg/mm^3');
 2317 model.result('pg1').run;
 2318 model.result('pg1').run;
 2319 model.result('pg1').feature('slc1').set('unit', 'pg/mm^3');
 2320 model.result('pg1').run;
 2321 model.result('pg1').feature('slc1').set('expr', 'AT1bAngII');
 2322 model.result('pg1').run;
 2323 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 2324 model.result('pg1').run;
 2325
 2326 model.mesh('mesh1').run;
 2327
 2328 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-11[M]- ↙
dc*c+SAT1', 0);
 2329 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-11[M]- ↙
dc*c+SAT1R*AT1bAngII', 0);
 2330
 2331 model.result('pg1').run;
 2332 model.result('pg1').feature('slc1').set('expr', 'c');
 2333 model.result('pg1').run;
 2334 model.result('pg1').feature('slc1').set('unit', 'pg/mm^3');
 2335 model.result('pg1').run;
 2336
 2337 model.mesh('mesh1').run;
 2338
 2339 model.variable('var1').set('SAT1R', '2.1e2[pg*ml/mm^3/h/fmol]');
 2340
 2341 model.result('pg1').run;
 2342
 2343 model.mesh('mesh1').run;
 2344
 2345 model.result('pg1').run;
 2346
```

```
 2347 model.mesh('mesh1').run;
 2348
 2349 model.result('pg1').run;
 2350
 2351 model.sol('sol1').runAll;
 2352
 2353 model.result('pg1').run;
 2354 model.result('pg1').run;
 2355 model.result('pg1').feature('slc1').set('expr', 'In');
 2356 model.result('pg1').run;
 2357 model.result('pg1').set('allowtableupdate', false);
 2358 model.result('pg1').set('allowevalintitle', false);
 2359 model.result('pg1').set('title', 'Time=12 d Slice: Dependent variable In ↙
(1/m<sup>3</sup>)');
 2360 model.result('pg1').set('hasbeenplotted', true);
 2361 model.result('pg1').feature('slc1').set('rangeunit', '1/m^3');
 2362 model.result('pg1').feature('slc1').set('rangecolormin', -4.643523359614433E9);
 2363 model.result('pg1').feature('slc1').set('rangecolormax', 7.464577783893565E12);
 2364 model.result('pg1').feature('slc1').set('rangecoloractive', 'off');
 2365 model.result('pg1').feature('slc1').set('rangedatamin', -4.643523359614433E9);
 2366 model.result('pg1').feature('slc1').set('rangedatamax', 7.464577783893565E12);
 2367 model.result('pg1').feature('slc1').set('rangedataactive', 'off');
 2368 model.result('pg1').feature('slc1').set('rangeactualminmax', [-4.643523359614433 ↙
E9 7.464577783893565E12]);
 2369 model.result('pg1').feature('slc1').set('hasbeenplotted', true);
 2370 model.result('pg1').set('renderdatacached', false);
 2371 model.result('pg1').set('allowtableupdate', true);
 2372 model.result('pg1').set('renderdatacached', true);
 2373 model.result('pg1').feature('slc1').set('expr', 'c');
 2374 model.result('pg1').run;
 2375 model.result('pg1').feature('slc1').set('unit', 'pg/mm^3');
 2376 model.result('pg1').run;
 2377
 2378 model.mesh('mesh1').run;
 2379
 2380 model.result('pg1').run;
 2381 model.result('pg1').run;
 2382
 2383 model.mesh('mesh1').run;
 2384
 2385 model.variable('var1').set('SAT1R', '2.1[pg*ml/mm^3/h/fmol]');
 2386
 2387 model.result('pg1').run;
 2388
 2389 model.mesh('mesh1').run;
 2390
 2391 model.physics('ma').active(true);
 2392
 2393 model.result('pg1').run;
 2394
```

```
model.mesh('mesh1').run;

model.variable('var1').set('xn', '1e2[1/pg/h]');

model.physics('ma').feature('dode1').setIndex('f', 'xm*c-gam_n1*ma', 0);

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'ma');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', '1/mm^3');
model.result('pg1').run;

model.mesh('mesh1').run;

model.variable('var1').set('xn', '2.1[1/pg/h]');

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'c');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', 'pg/mm^3');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'ma');
model.result('pg1').feature('slc1').set('unit', '1/mm^3');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', '1/ml');
model.result('pg1').run;

model.mesh('mesh1').run;

model.variable('var1').set('xn', '2.1e-2[1/pg/h]');

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', '1/mm^3');
model.result('pg1').run;

model.mesh('mesh1').run;

model.physics('n').feature('dode1').setIndex('f', 'xn*c-gam_n*n-gam_m*1[mm^3/g] ↙
*n*ma-gam_v*n*Ci', 0);
model.physics('n').active(true);
model.physics('n').feature('dode1').setIndex('f', 'xn*c-gam_n*n-gam_m*n*ma- ↙
```

```
gam_v*n*Ci', 0);
 2444 model.physics('n').feature('dode1').setIndex('f', 'xn*c-gam_n*n-gam_m*n*ma', 0);
 2445 model.physics('n').feature('dode1').setIndex('f', 'xn*c-gam_n*n-gam_m*n*ma- ↙
gam_v*n*Ci', 0);
 2446
 2447 model.variable('var1').set('gam_n', '6.3e-4[1/h]');
 2448 model.variable('var1').set('gam_m', '2.1e-6[1/mm^3/h]');
 2449
 2450 model.physics('n').feature('dode1').setIndex('f', 'xn*c-gam_n*n-gam_m*n*ma', 0);
 2451 model.physics('n').feature('dode1').setIndex('f', 'xn*c-gam_n*n', 0);
 2452 model.physics('n').feature('dode1').setIndex('f', 'xn*c-gam_n*n-gam_m*n*ma- ↙
gam_v*n*Ci', 0);
 2453
 2454 model.variable('var1').set('gam_m', '2.1e-6[mm^3/h]');
 2455
 2456 model.result('pg1').run;
 2457 model.result('pg1').feature('slc1').set('expr', 'Ci');
 2458 model.result('pg1').feature('slc1').set('unit', 'M');
 2459 model.result('pg1').run;
 2460 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 2461 model.result('pg1').run;
 2462
 2463 model.mesh('mesh1').run;
 2464
 2465 model.variable('var1').set('gam_v', '2.5e-12[ml/h/fmol]');
 2466
 2467 model.result('pg1').run;
 2468 model.result('pg1').run;
 2469 model.result('pg1').feature('slc1').set('expr', 'Ci*gam_v');
 2470 model.result('pg1').run;
 2471 model.result('pg1').feature('slc1').set('unit', '1/h');
 2472 model.result('pg1').run;
 2473
 2474 model.mesh('mesh1').run;
 2475
 2476 model.variable('var1').set('gam_v', '2.5e-4[ml/h/fmol]');
 2477
 2478 model.result('pg1').run;
 2479 model.result('pg1').run;
 2480 model.result('pg1').run;
 2481 model.result('pg1').feature('slc1').set('expr', 'Ci*gam_v');
 2482 model.result('pg1').run;
 2483 model.result('pg1').feature('slc1').set('unit', '1/h');
 2484 model.result('pg1').run;
 2485
 2486 model.mesh('mesh1').run;
 2487
 2488 model.result('pg1').run;
 2489 model.result('pg1').feature('slc1').set('expr', 'Ci*2.5e-4[ml/h/fmol]');
 2490 model.result('pg1').run;
```

```
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '2', 0);
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci*2.5e-2[ml/h/fmol]');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'n');

model.mesh('mesh1').run;

model.variable('var1').set('gam_v', '2.5e-2[ml/h/fmol]');

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'ma');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'gam_m*ma');
model.result('pg1').run;

model.mesh('mesh1').run;

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', '2.1e-6[mm^3/h]*ma');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', '2.1e-3[mm^3/h]*ma');
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', '2.1e-1[mm^3/h]*ma');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', '2.1e2[mm^3/h]*ma');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', '2.1e-1[mm^3/h]*ma');
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '121', 0);
model.result('pg1').run;
model.result('pg1').run;

model.mesh('mesh1').run;

model.variable('var1').set('gam_m', '2.1e-2[mm^3/h]');

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'xn*c');
model.result('pg1').run;

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').run;
```

```
 2541 model.result('pg1').feature('slc1').set('expr', 'n');
 2542 model.result('pg1').run;
 2543 model.result('pg1').feature('slc1').set('unit', '1/mm^3');
 2544 model.result('pg1').run;
 2545 model.result('pg1').feature('slc1').set('expr', 'ma');
 2546 model.result('pg1').run;
 2547
 2548 model.mesh('mesh1').run;
 2549
 2550 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-11[M]- ↙
dc*c+SAT1R*AT1bAngII+Sn*n', 0);
 2551
 2552 model.result('pg1').run;
 2553 model.result('pg1').feature('slc1').set('expr', '2.1e-2[pg/ml/h]*n');
 2554 model.result('pg1').run;
 2555
 2556 model.mesh('mesh1').run;
 2557
 2558 model.result('pg1').run;
 2559 model.result('pg1').run;
 2560 model.result('pg1').feature('slc1').set('expr', '2.1e-2[pg/h]*n');
 2561 model.result('pg1').run;
 2562 model.result('pg1').feature('slc1').set('unit', 'pg/(mm^3*s)');
 2563 model.result('pg1').run;
 2564
 2565 model.mesh('mesh1').run;
 2566
 2567 model.variable('var1').set('Sn', '2.1e-2[pg/h]');
 2568
 2569 model.result('pg1').run;
 2570
 2571 model.mesh('mesh1').run;
 2572
 2573 model.result('pg1').run;
 2574 model.result('pg1').feature('slc1').set('expr', 'phic');
 2575 model.result('pg1').run;
 2576
 2577 model.mesh('mesh1').run;
 2578
 2579 model.variable('var1').set('phic', '1e-3[mm^3/s]');
 2580
 2581 model.physics('H').feature('dode1').setIndex('f', 'RH*H-(Kb*H*Ci)-phic*H', 0);
 2582 model.physics('H').feature('dode1').setIndex('f', 'RH*H-(Kb*H*Ci)-phic*H8n', 0);
 2583 model.physics('H').feature('dode1').setIndex('f', 'RH*H-(Kb*H*Ci)-phic*H*n', 0);
 2584
 2585 model.result('pg1').run;
 2586 model.result('pg1').feature('slc1').set('expr', 'phic*H*n');
 2587 model.result('pg1').run;
 2588
 2589 model.mesh('mesh1').run;
```

```
2590
2591 model.result('pg1').run;
2592 model.result('pg1').feature('slc1').set('expr', '1e-3[mm^3/s]*H*n');
2593 model.result('pg1').run;
2594 model.result('pg1').feature('slc1').set('expr', '1e-3[mm^3/h]*H*n');
2595 model.result('pg1').run;
2596 model.result('pg1').feature('slc1').set('unit', '1/(mm^3*s)');
2597 model.result('pg1').run;
2598 model.result('pg1').feature('slc1').set('expr', '2.3e-4[mm^3/h]*H*n');
2599 model.result('pg1').run;
2600
2601 model.mesh('mesh1').run;
2602
2603 model.result('pg1').run;
2604
2605 model.mesh('mesh1').run;
2606
2607 model.variable('var1').set('phic', '2.3e-4[mm^3/h]');
2608
2609 model.physics('In').feature('dode1').setIndex('f', 'Kb*H*Ci+-phic*H*n', 0);
2610 model.physics('In').feature('dode1').setIndex('f', 'Kb*H*Ci+phic*H*n', 0);
2611
2612 model.sol('sol1').runAll;
2613
2614 model.result('pg1').run;
2615 model.result('pg1').run;
2616 model.result('pg1').feature('slc1').set('expr', 'n');
2617 model.result('pg1').run;
2618 model.result('pg1').feature('slc1').set('unit', '1/mm^3');
2619 model.result('pg1').run;
2620 model.result('pg1').feature('slc1').set('expr', 'ma');
2621 model.result('pg1').run;
2622 model.result('pg1').feature('slc1').set('expr', 'c');
2623 model.result('pg1').run;
2624 model.result('pg1').feature('slc1').set('unit', 'pg/mm^3');
2625 model.result('pg1').run;
2626 model.result('pg1').feature('slc1').set('expr', 'H');
2627 model.result('pg1').feature('slc1').set('unit', '1/mm^3');
2628 model.result('pg1').run;
2629 model.result('pg1').feature('slc1').set('expr', 'In');
2630 model.result('pg1').run;
2631 model.result('pg1').feature('slc1').set('expr', 'H-In');
2632 model.result('pg1').run;
2633 model.result('pg1').feature('slc1').set('expr', '(H-In)/H');
2634 model.result('pg1').run;
2635 model.result('pg1').feature('slc1').set('expr', 'Ci');
2636 model.result('pg1').run;
2637 model.result('pg1').feature('slc1').set('expr', 'Cb');
2638 model.result('pg1').run;
2639 model.result('pg1').feature('slc1').set('expr', 'Vint');
```

```
model.result('pg1').run;

model.physics.create('ge', 'GlobalEquations', 'geom1');

model.study('std1').feature('time').activate('ge', true);

model.mesh('mesh1').run;

model.physics.remove('ge');
model.physics.create('dode', 'DomainODE', 'geom1', {'u19'});

model.study('std1').feature('time').activate('dode', true);

model.physics.create('dode2', 'DomainODE', 'geom1', {'u20'});

model.study('std1').feature('time').activate('dode2', true);

model.physics('dode').field('dimensionless').component(1, 'Ctl');
model.physics('dode').prop('Units').set('CustomSourceTermUnit', '1/mm^3');
model.physics('dode').prop('ShapeProperty').set('order', '1');
model.physics('dode').tag('Ctl');
model.physics('Ctl').feature('dode1').setIndex('f', 'pv*In*(t>5[d])', 0);
model.physics('Ctl').feature('dode1').setIndex('f', 'pv*In*(t>5[d])-d', 0);
model.physics('Ctl').feature('dode1').setIndex('f', 'pv*In*(t>5[d])-dcl*Ctl', 0);
model.physics('dode2').active(false);

model.variable('var1').set('pv', '0.05[1/h]');

model.physics('Ctl').feature('dode1').setIndex('f', 'pv*In*(t>5[d])', 0);
model.physics('Ctl').feature('dode1').setIndex('f', 'pv*In', 0);
model.physics('Ctl').prop('Units').set('CustomSourceTermUnit', '1/mm^3/s');
model.physics('Ctl').prop('Units').set('DependentVariableQuantity', 'none');
model.physics('Ctl').prop('Units').set('CustomDependentVariableUnit', '1/mm^3');
model.physics('Ctl').feature('dode1').setIndex('f', 'pv*In*(t>5[d])-dcl*Ctl', 0);

model.variable('var1').set('dcl', '5.54e-3[1/h]');

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ctl');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', '1/mm^3');
model.result('pg1').run;

model.mesh('mesh1').run;

model.physics('In').feature('dode1').setIndex('f', 'Kb*H*Ci+phic*H*n-↙
phictl*In*Ctl', 0);
```

```
 2689
 2690 model.variable('var1').set('phictl', '1[mm^3/s]');
 2691
 2692 model.result('pg1').run;
 2693 model.result('pg1').feature('slc1').set('expr', '1[mm^3/s]*Ctl*In');
 2694 model.result('pg1').run;
 2695 model.result('pg1').feature('slc1').set('unit', '1/(mm^3*s)');
 2696 model.result('pg1').run;
 2697 model.result('pg1').feature('slc1').set('expr', '1[mm^3/h]*Ctl*In');
 2698 model.result('pg1').run;
 2699 model.result('pg1').feature('slc1').set('expr', '2.1e-3[mm^3/h]*Ctl*In');
 2700
 2701 model.mesh('mesh1').run;
 2702
 2703 model.variable('var1').set('phictl', '2.1e-3[mm^3/h]');
 2704
 2705 model.sol('sol1').runAll;
 2706
 2707 model.result('pg1').run;
 2708 model.result('pg1').run;
 2709 model.result('pg1').feature('slc1').set('expr', 'In');
 2710 model.result('pg1').run;
 2711 model.result('pg1').feature('slc1').set('unit', '1/mm^3');
 2712 model.result('pg1').run;
 2713 model.result('pg1').feature('slc1').set('expr', 'H');
 2714 model.result('pg1').run;
 2715
 2716 model.mesh('mesh1').run;
 2717
 2718 model.variable('var1').set('phictl', '2.1e-5[mm^3/h]');
 2719
 2720 model.physics('dode2').tag('a');
 2721 model.physics('a').field('dimensionless').component(1, 'a');
 2722 model.physics('a').prop('Units').set('DependentVariableQuantity', 'none');
 2723 model.physics('a').prop('Units').set('CustomDependentVariableUnit', 'pg/mm^3');
 2724 model.physics('a').prop('Units').set('CustomSourceTermUnit', 'pg/mm^3/s');
 2725 model.physics('a').active(true);
 2726 model.physics('a').feature('dode1').setIndex('f', 'Kg*phi_a*ma*n+Sang17*Ang17- ↙
gam_a*a', 0);
 2727
 2728 model.variable('var1').set('Kg', 'Sn');
 2729 model.variable('var1').set('phi_a', '2.1e-2[1/h]');
 2730
 2731 model.physics('a').feature('dode1').setIndex('f', 'Kg*phi_a*ma*n', 0);
 2732
 2733 model.variable('var1').set('phi_a', '2.1e-2[mm^3]');
 2734
 2735 model.physics('a').feature('dode1').setIndex('f', 'Kg*phi_a*ma*n+Sang17*Ang17- ↙
gam_a*a', 0);
 2736
```

```
 2737 model.result('pg1').run;
 2738 model.result('pg1').run;
 2739 model.result('pg1').feature('slc1').set('expr', 'Sn*phi_a*ma*n');
 2740
 2741 model.mesh('mesh1').run;
 2742
 2743 model.result('pg1').feature('slc1').set('expr', 'Sn*2.1e-2[mm^3]*ma*n');
 2744 model.result('pg1').run;
 2745 model.result('pg1').feature('slc1').set('unit', 'pg/(mm^3*s)');
 2746 model.result('pg1').run;
 2747 model.result('pg1').feature('slc1').set('expr', 'Sn*1[mm^3]*ma*n');
 2748 model.result('pg1').run;
 2749 model.result('pg1').feature('slc1').set('expr', 'Sn*2.1e5[mm^3]*ma*n');
 2750 model.result('pg1').run;
 2751 model.result('pg1').feature('slc1').set('expr', 'Sn*2.1e3[mm^3]*ma*n');
 2752 model.result('pg1').run;
 2753
 2754 model.mesh('mesh1').run;
 2755
 2756 model.variable('var1').set('phi_a', '2.1e3[mm^3]');
 2757 model.variable('var1').set('SAng17', '2.1[pg*ml/mm^3/h/fmol]');
 2758 model.variable('var1').rename('SAng17', 'Sang17');
 2759
 2760 model.physics('a').feature('dode1').setIndex('f', 'Kg*phi_a*ma*n+Sang17*Ang17', ↙
0);
 2761 model.physics('a').feature('dode1').setIndex('f', 'Kg*phi_a*ma*n+Sang17*Ang17- ↙
gam_a*a', 0);
 2762
 2763 model.variable('var1').set('gam_a', '8.3e-1[1/h]');
 2764
 2765 model.result('pg1').run;
 2766 model.result('pg1').run;
 2767 model.result('pg1').feature('slc1').set('expr', 'Sc*Vint/1.27e-11[M]');
 2768 model.result('pg1').run;
 2769 model.result('pg1').feature('slc1').set('expr', 'c');
 2770 model.result('pg1').run;
 2771 model.result('pg1').feature('slc1').set('unit', 'pg/mm^3');
 2772 model.result('pg1').run;
 2773
 2774 model.mesh('mesh1').run;
 2775
 2776 model.variable('var1').set('phi_a', '2.1e-3[mm^3]');
 2777
 2778 model.sol('sol1').runAll;
 2779
 2780 model.result('pg1').run;
 2781 model.result('pg1').run;
 2782 model.result('pg1').feature('slc1').set('expr', 'a');
 2783 model.result('pg1').run;
 2784 model.result('pg1').feature('slc1').set('expr', 'Ctl');
```

```
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', '1/mm^3');
model.result('pg1').run;

model.mesh('mesh1').run;

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'a');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', 'pg/mm^3');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'a/57.85[pg/mm^3]');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', '1+a/57.85[pg/mm^3]');
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '2', 0);
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '11', 0);
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', '(1+a/57.85[pg/mm^3])');

model.mesh('mesh1').run;

model.variable('var1').set('xn', '2.1e-2[1/pg/h]/(1+a/57.85[pg/mm^3])');
model.variable('var1').set('xm', '2.1e-2[1/pg/h]');

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'n');
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '106', 0);
model.result('pg1').run;

model.mesh('mesh1').run;

model.physics('a').prop('ShapeProperty').set('order', '1');

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '121', 0);
model.result('pg1').run;

model.sol('sol1').clearSolutionData;

model.label('Full run_clear.mph');
```

```
 2835
 2836 model.result('pg1').run;
 2837
 2838 model.mesh('mesh1').run;
 2839
 2840 model.physics('AGT').feature('dode1').setIndex('f', 'kAGT-Crenin*AGT-(log(2) ↙
/hAGT)*AGT', 0);
 2841 model.physics('AGT').feature('init1').set('AGT', '1.7e7[nmol/l]');
 2842 model.physics.create('dode', 'DomainODE', 'geom1', {'u21'});
 2843
 2844 model.study('std1').feature('time').activate('dode', true);
 2845
 2846 model.physics.move('dode', 2);
 2847 model.physics('dode').tag('Renin');
 2848 model.physics('Renin').prop('ShapeProperty').set('order', '1');
 2849 model.physics('Renin').field('dimensionless').component(1, 'Renin');
 2850 model.physics('Renin').prop('Units').set('DependentVariableQuantity', 'none');
 2851 model.physics('Renin').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
 2852 model.physics('Renin').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 2853 model.physics('Renin').feature('dode1').setIndex('f', 'Srenin+Kf*(AngII0-AngII)* ↙
(1-((AngII0-AngII)/f))-(Log(2)/hrenin)*Renin', 0);
 2854 model.physics('Renin').feature('init1').set('Renin', '2.06e-4[nmol/L]');
 2855 model.physics('AngI').feature('dode1').setIndex('f', 'cRenin*AGT+Krenin*(Renin- ↙
Renin0)--(cACE+cChym+cNEP)*AngI-(log(2)/hAngI)*AngI+0*23.1[fmol/ml/h]', 0);
 2856 model.physics('AGT').feature('dode1').setIndex('f', 'kAGT-cRenin*AGT-(log(2) ↙
/hAGT)*AGT', 0);
 2857 model.physics('AngI').feature('dode1').setIndex('f', 'cRenin*AGT+Krenin*(Renin- ↙
Renin0)-cACE*AngI-(cNEP+cACE2)*AngI-(log(2)/hAngI)*AngI', 0);
 2858 model.physics('AngI').feature('init1').set('AngI', '271[nmol/L]');
 2859 model.physics('AngII').feature('dode1').setIndex('f', '(cACE)*AngI-(cACE2- ↙
cAngIIAngIV-cAT1-cAT2)*AngII-(log(2)/hAngII)*AngII', 0);
 2860 model.physics('AngI').feature('dode1').setIndex('f', 'KRenin*AGT+Krenin*(Renin- ↙
Renin0)-cACE*AngI-(cNEP+cACE2)*AngI-(log(2)/hAngI)*AngI', 0);
 2861 model.physics('AngI').feature('dode1').setIndex('f', 'cRenin*AGT+Krenin*(Renin- ↙
Renin0)-cACE*AngI-(KNEP+KACE2)*AngI-(log(2)/hAngI)*AngI', 0);
 2862 model.physics('AngII').feature('dode1').setIndex('f', '(cACE)*AngI- ↙
(cAT1+KAT2+KAPA+KACE2)*AngII-(log(2)/hAngII)*AngII', 0);
 2863 model.physics('AngII').feature('init1').set('AngII', '21[nmol/L]');
 2864 model.physics('Ang17').feature('init1').set('Ang17', '1.2e-7[mol/L]');
 2865 model.physics.create('dode', 'DomainODE', 'geom1', {'u22'});
 2866
 2867 model.study('std1').feature('time').activate('dode', true);
 2868
 2869 model.physics.move('dode', 6);
 2870 model.physics('dode').tag('Ang19');
 2871 model.physics('Ang19').prop('ShapeProperty').set('order', '1');
 2872 model.physics('Ang19').prop('Units').set('DependentVariableQuantity', 'none');
 2873 model.physics('Ang19').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
```

```
 2874 model.physics('Ang19').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 2875 model.physics('Ang19').feature('dode1').setIndex('f', 'cACE2*AngI-(log(2)/hANg19) ↙
*Ang19', 0);
 2876 model.physics('Ang19').field('dimensionless').component(1, 'Ang19');
 2877 model.physics.create('dode', 'DomainODE', 'geom1', {'u23'});
 2878
 2879 model.study('std1').feature('time').activate('dode', true);
 2880
 2881 model.physics.move('dode', 7);
 2882 model.physics('dode').tag('AngIII');
 2883 model.physics('AngIII').prop('Units').set('DependentVariableQuantity', 'none');
 2884 model.physics('AngIII').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
 2885 model.physics('AngIII').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 2886 model.physics('AngIII').prop('ShapeProperty').set('order', '1');
 2887 model.physics('AngIII').field('dimensionless').component(1, 'u23');
 2888 model.physics('AngIII').field('dimensionless').component(1, 'ANGIII');
 2889 model.physics('AngIII').field('dimensionless').component(1, 'AngIII');
 2890 model.physics('AngIII').feature('dode1').setIndex('f', 'cAPA*AngII-(log(2) ↙
/hAngIII)*AngIII', 0);
 2891 model.physics('AngIII').feature('init1').set('AngIII', '1.3e-8[mol/L]');
 2892 model.physics('AngIV').feature('dode1').setIndex('f', 'cAPM*AngIII-(log(2) ↙
/hAngIV)*AngIV', 0);
 2893 model.physics('AngIV').feature('init1').set('AngIV', '0.7e-8[mol/L]');
 2894 model.physics('AT1bAngII').feature('dode1').setIndex('f', 'cAT1*AngII-(log(2) ↙
/hAT1)*AT1bAngII', 0);
 2895 model.physics.create('dode', 'DomainODE', 'geom1', {'u24'});
 2896
 2897 model.study('std1').feature('time').activate('dode', true);
 2898
 2899 model.physics.move('dode', 11);
 2900 model.physics('dode').prop('Units').set('DependentVariableQuantity', 'none');
 2901 model.physics('dode').prop('Units').set('CustomDependentVariableUnit', 'mol/ml');
 2902 model.physics('dode').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 2903 model.physics('dode').prop('ShapeProperty').set('order', '1');
 2904 model.physics('dode').tag('AT4bAngIV');
 2905 model.physics('AT4bAngIV').feature('dode1').setIndex('f', 'cAT4*AngIV-(log ↙
(20/hAT4)*AT4bAngIV', 0);
 2906 model.physics('AT4bAngIV').field('dimensionless').component(1, 'AT4bAngIV');
 2907 model.physics('AT4bAngIV').feature('dode1').setIndex('f', 'cAT4*AngIV-(log(2) ↙
/hAT4)*AT4bAngIV', 0);
 2908 model.physics.create('dode', 'DomainODE', 'geom1', {'u25'});
 2909
 2910 model.study('std1').feature('time').activate('dode', true);
 2911
 2912 model.physics('dode').prop('Units').set('DependentVariableQuantity', 'none');
 2913 model.physics('dode').prop('Units').set('CustomDependentVariableUnit', 'mol/ml');
 2914 model.physics('dode').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 2915 model.physics('dode').prop('ShapeProperty').set('order', '1');
 2916 model.physics('dode').field('dimensionless').component(1, 'MAsbAng17');
```

```
 2917 model.physics('dode').tag('MAsbAng17');
 2918 model.physics('MAsbAng17').feature('dode1').setIndex('f', 'cMAs*Ang17-(log(2) ↙
/hMAs)*MAsbAng17', 0);
 2919 model.physics.move('MAsbAng17', 12);
 2920 model.physics('AT1bAngII').feature('init1').set('AT1bAngII', '4.1e-8[mol/L]');
 2921 model.physics('AT2bAngII').feature('init1').set('AT2bAngII', '2.1e-8[mol/L]');
 2922 model.physics('AT4bAngIV').feature('init1').set('AT4bAngIV', '1.05e-8[mol/L]');
 2923 model.physics('MAsbAng17').feature('init1').set('MAsbAng17', '4.1e-8[mol/L]');
 2924
 2925 model.variable('var1').set('hAngI', '1.72e-4[h]');
 2926 model.variable('var1').set('hAngII', '5e-3[h]');
 2927 model.variable('var1').set('kAGT', '2.27e6[nmol/L/h]');
 2928
 2929 model.param.set('as', '11.8[1/h]');
 2930
 2931 model.variable('var1').set('KRenin', '6.44e4[1/h]');
 2932 model.variable('var1').set('KNEP', '0.583[1/h]');
 2933 model.variable('var1').set('KACE2', '0.382[1/h]');
 2934 model.variable('var1').set('KAT2', '25.1[1/h]');
 2935 model.variable('var1').set('KAPA', '43.6[1/h]');
 2936 model.variable('var1').set('hRenin', '0.25[h]');
 2937 model.variable('var1').set('hANGIII', '30[s]');
 2938 model.variable('var1').rename('hANGIII', 'hAngIII');
 2939 model.variable('var1').set('hAng19', '24[min]');
 2940 model.variable('var1').set('cAPA', '1.2e-2[1/s]');
 2941 model.variable('var1').set('cRenin', '1.8e-14[1/s]');
 2942 model.variable('var1').set('cAPM', 'cAPA');
 2943 model.variable('var1').set('hAT1', '1.5[min]');
 2944 model.variable('var1').set('hAT2', '1.5[min]');
 2945 model.variable('var1').set('hAT4', 'hAT1');
 2946 model.variable('var1').set('hMAs', 'hAT1');
 2947 model.variable('var1').set('cAT4', 'cAT2/3');
 2948 model.variable('var1').set('cMAs', 'cAT4/2');
 2949 model.variable('var1').set('sRenin', '(log(2)/hRenin)/Renin0');
 2950 model.variable('var1').set('Renin0', '2.06e-4[nmol/L]');
 2951 model.variable('var1').set('AngII0', '21[nmol/L]');
 2952
 2953 model.physics('Renin').feature('dode1').setIndex('f', 'sRenin+Kf*(AngII0-AngII)* ↙
(1-((AngII0-AngII)/f))-(Log(2)/hrenin)*Renin', 0);
 2954
 2955 model.variable('var1').set('Kf', 'Kfsys*AngII0sysNRF/AngII0');
 2956 model.variable('var1').set('f', 'fsys*AngII0/AngII0sysNRF');
 2957 model.variable('var1').set('Kfsys', '6.25e-2[1/h]');
 2958 model.variable('var1').set('fsys', '0.397[nmol/L]');
 2959 model.variable('var1').set('AngII0sysNRF', '1.65e-2[nmol/L]');
 2960
 2961 model.physics('Ang19').feature('dode1').setIndex('f', 'cACE2*AngI-(log(2)/hAng19) ↙
*Ang19', 0);
 2962 model.physics('Renin').feature('dode1').setIndex('f', 'sRenin', 0);
 2963 model.physics('Renin').feature('dode1').setIndex('f', 'sRenin+Kf*(AngII0-AngII)* ↙
```

```
(1-((AngII0-AngII)/f))-(Log(2)/hrenin)*Renin', 0);
 2964
 2965 model.variable('var1').set('sRenin', '(log(2)/hRenin)*Renin0');
 2966
 2967 model.physics('Renin').feature('dode1').setIndex('f', 'sRenin', 0);
 2968 model.physics('Renin').feature('dode1').setIndex('f', 'sRenin+Kf*(AngII0-AngII)* ↙
(1-((AngII0-AngII)/f))', 0);
 2969 model.physics('Renin').feature('dode1').setIndex('f', 'sRenin+Kf*(AngII0-AngII)* ↙
(1-((AngII0-AngII)/f))-(Log(2)/hrenin)*Renin', 0);
 2970 model.physics('Renin').feature('dode1').setIndex('f', 'sRenin+Kf*(AngII0-AngII)* ↙
(1-((AngII0-AngII)/f))-(Log(2)/hRenin)*Renin', 0);
 2971 model.physics('AngI').feature('dode1').setIndex('f', 'cRenin*AGT+KRenin*(Renin- ↙
Renin0)-cACE*AngI-(KNEP+KACE2)*AngI-(log(2)/hAngI)*AngI', 0);
 2972
 2973 model.variable('var1').set('InACE1', '0');
 2974 model.variable('var1').set('InARBs', '0');
 2975 model.variable('var1').set('cACE', '54.1[1/h]*(1-InACE1)');
 2976 model.variable('var1').set('cAT1', '11.8[1/h]*(1-InARBs)');
 2977
 2978 model.label('Full run_clear.mph');
 2979
 2980 model.sol('sol1').runFromTo('st1', 'v1');
 2981
 2982 model.result('pg1').run;
 2983
 2984 model.mesh('mesh1').run;
 2985
 2986 model.physics('Renin').feature('dode1').setIndex('f', 'sRenin+Kf*(AngII0-AngII)* ↙
(1-((AngII0-AngII)/f))-(log(2)/hRenin)*Renin', 0);
 2987
 2988 model.sol('sol1').runAll;
 2989
 2990 model.result('pg1').run;
 2991 model.result('pg2').run;
 2992 model.result('pg1').run;
 2993 model.result('pg1').feature('slc1').set('expr', 'Ang19');
 2994 model.result('pg1').run;
 2995 model.result('pg1').run;
 2996 model.result('pg1').setIndex('looplevel', '121', 0);
 2997 model.result('pg1').run;
 2998 model.result('pg9').run;
 2999 model.result('pg9').feature('ptgr1').set('expr', 'Ang19');
 3000 model.result('pg9').run;
 3001 model.result('pg9').feature('ptgr1').set('expr', 'AngI');
 3002 model.result('pg9').run;
 3003 model.result('pg1').run;
 3004 model.result('pg1').feature('slc1').set('expr', 'AngII');
 3005 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 3006 model.result('pg1').run;
 3007 model.result('pg1').feature('slc1').set('expr', 'AngI');
```

```
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngIII');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngIV');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ang17');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ang19');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT4bAngIV');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT2bAngII');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT1bAngII');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Cb');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Vint');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Cb');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'In');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', '1/ml');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'In');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'n');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'ma');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'c');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ctl');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', '1/mm^3');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'a');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', 'pg/ml');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Renin');
```

```
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;

model.mesh('mesh1').run;

model.physics('Ci').feature('cdeq1').setIndex('c', {'Dci*1000' '0' '0' '0' ↙
'Dci*1000' '0' '0' '0' 'Dci*1000'}, 0);

model.sol('sol1').feature('t1').feature('fc1').set('dtech', 'auto');
model.sol('sol1').feature('t1').set('initialstepbdfactive', 'on');
model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Cb');
model.result('pg1').run;

model.mesh('mesh1').run;

model.sol('sol1').feature('t1').set('initialstepbdfactive', 'off');

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AGT');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Renin');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngI');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngII');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngIII');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngIV');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT1bAngII');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT2bAngII');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT4bAngIV');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'MAsbAng17');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'In');
```

```
 3107 model.result('pg1').run;
 3108 model.result('pg1').feature('slc1').set('expr', 'Vint');
 3109 model.result('pg1').run;
 3110 model.result('pg1').feature('slc1').set('expr', 'n');
 3111 model.result('pg1').run;
 3112 model.result('pg1').feature('slc1').set('expr', 'ma');
 3113 model.result('pg1').run;
 3114 model.result('pg1').feature('slc1').set('expr', 'c');
 3115 model.result('pg1').run;
 3116 model.result('pg1').feature('slc1').set('expr', 'Ctl');
 3117 model.result('pg1').run;
 3118 model.result('pg1').feature('slc1').set('expr', 'a');
 3119 model.result('pg1').run;
 3120
 3121 model.mesh('mesh1').run;
 3122
 3123 model.physics('Ci').feature('cdeq1').setIndex('c', {'Dci*1000000' '0' '0' '0' ↙
'Dci*1000000' '0' '0' '0' 'Dci*1000000'}, 0);
 3124
 3125 model.sol('sol1').runAll;
 3126
 3127 model.result('pg1').run;
 3128 model.result('pg1').run;
 3129 model.result('pg1').feature('slc1').set('expr', 'Ci');
 3130 model.result('pg1').run;
 3131 model.result('pg1').feature('slc1').set('expr', 'AngI');
 3132 model.result('pg1').run;
 3133 model.result('pg9').run;
 3134 model.result('pg9').feature('ptgr1').setIndex('looplevelinput', 'manual', 0);
 3135 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2', 0);
 3136 model.result('pg9').feature('ptgr1').setIndex('looplevel', '1,2', 0);
 3137 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2', 0);
 3138 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2,3', 0);
 3139 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2,3,4', 0);
 3140 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2,3,4,5', 0);
 3141 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2,3,4,5,6', 0);
 3142 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2,3,4,5,6,7', 0);
 3143 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2,3,4,5,6,7,8', 0);
 3144 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2,3,4,5,6,7,8,9', 0);
 3145 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2,3,4,5,6,7,8,9,10', ↙
0);
 3146 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11', 0);
 3147 model.result('pg9').run;
 3148 model.result.create('pg13', 'PlotGroup1D');
 3149 model.result('pg13').run;
 3150 model.result('pg13').create('lngr1', 'LineGraph');
 3151 model.result.dataset.create('cln1', 'CutLine3D');
 3152 model.result.dataset('cln1').setIndex('genpoints', '0.075', 0, 0);
 3153 model.result.dataset('cln1').setIndex('genpoints', '0.075', 1, 0);
```

```
model.result.dataset('cln1').setIndex('genpoints', '0.1', 1, 1);
model.result.dataset('cln1').setIndex('genpoints', '0.1', 0, 1);
model.result.dataset('cln1').setIndex('genpoints', '-1.45', 0, 2);
model.result.dataset('cln1').setIndex('genpoints', '-1.1', 1, 2);
model.result.dataset('cln1').run;
model.result('pg13').run;
model.result('pg13').feature('lngr1').set('data', 'cln1');
model.result('pg13').feature('lngr1').setIndex('looplevelinput', 'manual', 0);
model.result('pg13').feature('lngr1').setIndex('looplevel', '1', 0);
model.result('pg13').feature('lngr1').setIndex('looplevel', '2', 0);
model.result('pg13').feature('lngr1').setIndex('looplevel', '2,71', 0);
model.result('pg13').feature('lngr1').setIndex('looplevel', '2,71,121', 0);
model.result('pg13').run;
model.result('pg13').feature('lngr1').setIndex('looplevel', '2,11,71,121', 0);
model.result('pg13').run;
model.result('pg13').set('showlegends', true);
model.result('pg13').run;
model.result('pg13').run;
model.result('pg13').feature('lngr1').set('expr', 'Ci');
model.result('pg13').run;
model.result('pg13').run;
model.result('pg13').set('showlegends', 'on');
model.result('pg13').set('showlegendsmaxmin', 'off');
model.result('pg13').set('legendpos', 'middleright');
model.result('pg13').run;
model.result('pg13').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '2', 0);
model.result('pg1').run;
model.result('pg9').run;
model.result('pg13').run;
model.result('pg13').feature('lngr1').setIndex('looplevel', '1,2,11,71,121', 0);
model.result('pg13').run;
model.result('pg13').feature('lngr1').setIndex('looplevel', '2,11,71,121', 0);
model.result('pg13').run;
model.result('pg13').feature('lngr1').set('expr', 'AGT');
model.result('pg13').run;
model.result('pg13').feature('lngr1').set('expr', 'Renin');
model.result('pg13').run;
model.result('pg13').feature('lngr1').set('expr', 'AngI');
model.result('pg13').run;
model.result('pg13').feature('lngr1').set('expr', 'AngII');
model.result('pg13').run;
model.result('pg13').feature('lngr1').set('expr', 'AngIII');
model.result('pg13').run;
model.result('pg13').feature('lngr1').set('expr', 'Cb');
model.result('pg13').run;
```

```
 3204 model.result('pg13').feature('lngr1').set('expr', 'H');
 3205 model.result('pg13').run;
 3206 model.result('pg13').feature('lngr1').set('expr', 'In');
 3207 model.result('pg13').run;
 3208 model.result('pg13').set('showlegends', true);
 3209 model.result('pg13').feature('lngr1').set('legend', 'on');
 3210 model.result('pg13').feature('lngr1').set('expr', 'Vint');
 3211 model.result('pg13').run;
 3212 model.result('pg13').feature('lngr1').set('expr', 'ma');
 3213 model.result('pg13').run;
 3214 model.result('pg13').feature('lngr1').set('expr', 'n');
 3215 model.result('pg13').run;
 3216 model.result('pg13').feature('lngr1').set('expr', 'Ctl');
 3217 model.result('pg13').run;
 3218 model.result('pg13').feature('lngr1').set('expr', 'a');
 3219 model.result('pg13').run;
 3220
 3221 model.mesh('mesh1').run;
 3222 model.mesh('mesh1').run;
 3223
 3224 model.result('pg9').run;
 3225 model.result('pg9').feature('ptgr1').setIndex('looplevel', '1', 0);
 3226 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32↙
,33,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61↙
,62,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90↙
,91,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114↙
,115,116,117,118,119,120,121', 0);
 3227 model.result('pg9').feature('ptgr1').set('expr', 'vi');
 3228 model.result('pg9').run;
 3229 model.result('pg9').feature('ptgr1').setIndex('looplevel', '3', 0);
 3230 model.result('pg9').feature('ptgr1').setIndex('looplevel', '121', 0);
 3231 model.result('pg9').feature('ptgr1').set('expr', 'AGT');
 3232 model.result('pg9').run;
 3233 model.result('pg13').run;
 3234 model.result('pg13').feature('lngr1').set('expr', 'AGT');
 3235 model.result('pg13').run;
 3236 model.result('pg13').feature('lngr1').set('unit', 'fmol/ml');
 3237 model.result('pg13').feature('lngr1').setIndex('looplevel', '3', 0);
 3238 model.result('pg13').feature('lngr1').setIndex('looplevel', '121', 0);
 3239 model.result('pg13').run;
 3240 model.result.export.create('plot4', 'pg13', 'lngr1', 'Plot');
 3241 model.result('pg13').set('window', 'graphics');
 3242 model.result('pg13').run;
 3243 model.result('pg13').set('window', 'graphics');
 3244 model.result('pg13').set('windowtitle', '');
 3245 model.result.export('plot4').set('header', 'off');
 3246 model.result.export('plot4').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results↙
Line\AGT.txt');
```

```
 3247 model.result.export('plot4').run;
 3248 model.result('pg13').run;
 3249 model.result('pg13').feature('lngr1').setIndex('looplevel', '2,121', 0);
 3250 model.result('pg13').feature('lngr1').setIndex('looplevel', '2,21,121', 0);
 3251 model.result('pg13').feature('lngr1').setIndex('looplevel', '2,21,41,121', 0);
 3252 model.result('pg13').feature('lngr1').setIndex('looplevel', '2,21,41,61,121', 0);
 3253 model.result('pg13').feature('lngr1').setIndex('looplevel', '2,21,41,61,81,121', ↙
0);
 3254 model.result('pg13').feature('lngr1').setIndex('looplevel', ↙
'2,21,41,61,81,101,121', 0);
 3255 model.result('pg13').run;
 3256 model.result.export.create('plot5', 'pg13', 'lngr1', 'Plot');
 3257 model.result('pg13').set('window', 'graphics');
 3258 model.result('pg13').run;
 3259 model.result('pg13').set('window', 'graphics');
 3260 model.result('pg13').set('windowtitle', '');
 3261 model.result.export('plot5').set('header', 'off');
 3262 model.result.export('plot5').set('filename', 'C: ↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results ↙
Line\AGT_full.txt');
 3263 model.result.export('plot5').run;
 3264 model.result('pg13').run;
 3265 model.result('pg13').feature('lngr1').set('expr', 'Renin');
 3266 model.result('pg13').run;
 3267 model.result('pg13').run;
 3268 model.result('pg13').run;
 3269 model.result.export.create('plot6', 'pg13', 'lngr1', 'Plot');
 3270 model.result('pg13').set('window', 'graphics');
 3271 model.result('pg13').run;
 3272 model.result('pg13').set('window', 'graphics');
 3273 model.result('pg13').set('windowtitle', '');
 3274 model.result.export('plot6').set('header', 'off');
 3275 model.result.export('plot6').set('filename', 'C: ↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results ↙
Line\Renin.txt');
 3276 model.result.export('plot6').run;
 3277 model.result('pg13').run;
 3278 model.result('pg13').feature('lngr1').set('expr', 'AngI');
 3279 model.result('pg13').run;
 3280 model.result.export.create('plot7', 'pg13', 'lngr1', 'Plot');
 3281 model.result('pg13').set('window', 'graphics');
 3282 model.result('pg13').run;
 3283 model.result('pg13').set('window', 'graphics');
 3284 model.result('pg13').set('windowtitle', '');
 3285 model.result.export('plot7').set('header', 'off');
 3286 model.result.export('plot7').set('filename', 'C: ↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results ↙
Line\AngI.txt');
 3287 model.result('pg13').run;
 3288 model.result('pg13').feature('lngr1').set('expr', 'AngII');
```

```
 3289 model.result('pg13').run;
 3290 model.result.export.create('plot8', 'pg13', 'lngr1', 'Plot');
 3291 model.result('pg13').set('window', 'graphics');
 3292 model.result('pg13').run;
 3293 model.result('pg13').set('window', 'graphics');
 3294 model.result('pg13').set('windowtitle', '');
 3295 model.result.export('plot8').set('header', 'off');
 3296 model.result.export('plot8').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results↙
Line\AngII.txt');
 3297 model.result.export('plot8').run;
 3298 model.result('pg13').run;
 3299 model.result('pg13').feature('lngr1').set('expr', 'AngI');
 3300 model.result('pg13').run;
 3301 model.result.export.create('plot9', 'pg13', 'lngr1', 'Plot');
 3302 model.result('pg13').set('window', 'graphics');
 3303 model.result('pg13').run;
 3304 model.result('pg13').set('window', 'graphics');
 3305 model.result('pg13').set('windowtitle', '');
 3306 model.result.export('plot9').set('header', 'off');
 3307 model.result.export('plot9').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results↙
Line\AngI.txt');
 3308 model.result.export('plot9').run;
 3309 model.result('pg13').run;
 3310 model.result('pg13').feature('lngr1').set('expr', 'AngIII');
 3311 model.result('pg13').run;
 3312 model.result('pg13').run;
 3313 model.result('pg13').run;
 3314 model.result.export.create('plot10', 'pg13', 'lngr1', 'Plot');
 3315 model.result('pg13').set('window', 'graphics');
 3316 model.result('pg13').run;
 3317 model.result('pg13').set('window', 'graphics');
 3318 model.result('pg13').set('windowtitle', '');
 3319 model.result.export('plot10').set('header', 'off');
 3320 model.result.export('plot10').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results↙
Line\AngIII.txt');
 3321 model.result.export('plot10').run;
 3322 model.result('pg13').run;
 3323 model.result('pg13').feature('lngr1').set('expr', 'Ang17');
 3324 model.result('pg13').run;
 3325 model.result.export.create('plot11', 'pg13', 'lngr1', 'Plot');
 3326 model.result('pg13').set('window', 'graphics');
 3327 model.result('pg13').run;
 3328 model.result('pg13').set('window', 'graphics');
 3329 model.result('pg13').set('windowtitle', '');
 3330 model.result.export('plot11').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results↙
Line\Ang17.txt');
```

```
 3331 model.result.export('plot11').set('header', 'off');
 3332 model.result.export('plot11').run;
 3333 model.result('pg13').run;
 3334 model.result('pg13').feature('lngr1').set('expr', 'Ang19');
 3335 model.result('pg13').run;
 3336 model.result.export.create('plot12', 'pg13', 'lngr1', 'Plot');
 3337 model.result('pg13').set('window', 'graphics');
 3338 model.result('pg13').run;
 3339 model.result('pg13').set('window', 'graphics');
 3340 model.result('pg13').set('windowtitle', '');
 3341 model.result.export('plot12').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results ↙
Line\Ang19.txt');
 3342 model.result.export('plot12').set('header', 'off');
 3343 model.result.export('plot12').run;
 3344 model.result('pg13').run;
 3345 model.result('pg13').feature('lngr1').set('expr', 'AngIV');
 3346 model.result('pg13').run;
 3347 model.result.export.create('plot13', 'pg13', 'lngr1', 'Plot');
 3348 model.result('pg13').set('window', 'graphics');
 3349 model.result('pg13').run;
 3350 model.result('pg13').set('window', 'graphics');
 3351 model.result('pg13').set('windowtitle', '');
 3352 model.result.export('plot13').set('header', 'off');
 3353 model.result.export('plot13').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results ↙
Line\AngIV.txt');
 3354 model.result.export('plot13').run;
 3355 model.result('pg1').run;
 3356 model.result('pg13').run;
 3357 model.result('pg13').feature('lngr1').set('expr', 'AT1bAngII');
 3358 model.result('pg13').run;
 3359 model.result.export.create('plot14', 'pg13', 'lngr1', 'Plot');
 3360 model.result('pg13').set('window', 'graphics');
 3361 model.result('pg13').run;
 3362 model.result('pg13').set('window', 'graphics');
 3363 model.result('pg13').set('windowtitle', '');
 3364 model.result.export('plot14').set('header', 'off');
 3365 model.result.export('plot14').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results ↙
Line\AT1bAngII.txt');
 3366 model.result.export('plot14').run;
 3367 model.result.export('plot14').run;
 3368 model.result('pg13').run;
 3369 model.result('pg13').feature('lngr1').set('expr', 'AT2bAngII');
 3370 model.result('pg13').run;
 3371 model.result.export.create('plot15', 'pg13', 'lngr1', 'Plot');
 3372 model.result('pg13').set('window', 'graphics');
 3373 model.result('pg13').run;
 3374 model.result('pg13').set('window', 'graphics');
```

```
 3375 model.result('pg13').set('windowtitle', '');
 3376 model.result.export('plot15').set('header', 'off');
 3377 model.result.export('plot15').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results↙
Line\AT2bAngII.txt');
 3378 model.result.export('plot15').run;
 3379 model.result('pg13').run;
 3380 model.result('pg13').feature('lngr1').set('expr', 'AT4bAngIV');
 3381 model.result('pg13').run;
 3382 model.result.export.create('plot16', 'pg13', 'lngr1', 'Plot');
 3383 model.result('pg13').set('window', 'graphics');
 3384 model.result('pg13').run;
 3385 model.result('pg13').set('window', 'graphics');
 3386 model.result('pg13').set('windowtitle', '');
 3387 model.result.export('plot16').set('header', 'off');
 3388 model.result.export('plot16').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results↙
Line\AT4bAngIV.txt');
 3389 model.result.export('plot16').run;
 3390 model.result('pg13').run;
 3391 model.result('pg13').feature('lngr1').set('expr', 'MAsbAng17');
 3392 model.result('pg13').run;
 3393 model.result.export.create('plot17', 'pg13', 'lngr1', 'Plot');
 3394 model.result('pg13').set('window', 'graphics');
 3395 model.result('pg13').run;
 3396 model.result('pg13').set('window', 'graphics');
 3397 model.result('pg13').set('windowtitle', '');
 3398 model.result.export('plot17').set('header', 'off');
 3399 model.result('pg13').run;
 3400 model.result('pg13').run;
 3401 model.result('pg13').set('window', 'graphics');
 3402 model.result('pg13').run;
 3403 model.result('pg13').set('window', 'graphics');
 3404 model.result('pg13').set('windowtitle', '');
 3405 model.result.export('plot17').set('header', 'off');
 3406 model.result.export('plot17').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results↙
Line\MAsbAng17.txt');
 3407 model.result.export('plot17').run;
 3408 model.result('pg13').run;
 3409 model.result('pg13').feature('lngr1').set('expr', 'Ci');
 3410 model.result('pg13').run;
 3411 model.result.export.create('plot18', 'pg13', 'lngr1', 'Plot');
 3412 model.result('pg13').set('window', 'graphics');
 3413 model.result('pg13').run;
 3414 model.result('pg13').set('window', 'graphics');
 3415 model.result('pg13').set('windowtitle', '');
 3416 model.result.export('plot18').set('header', 'off');
 3417 model.result.export('plot18').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results↙
```

```
Line\Ci.txt');
 3418 model.result.export('plot18').run;
 3419 model.result('pg13').run;
 3420 model.result('pg13').feature('lngr1').set('expr', 'Cb');
 3421 model.result('pg13').run;
 3422 model.result.export.create('plot19', 'pg13', 'lngr1', 'Plot');
 3423 model.result('pg13').set('window', 'graphics');
 3424 model.result('pg13').run;
 3425 model.result('pg13').set('window', 'graphics');
 3426 model.result('pg13').set('windowtitle', '');
 3427 model.result.export('plot19').set('header', 'off');
 3428 model.result.export('plot19').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results ↙
Line\Cb.txt');
 3429 model.result.export('plot19').run;
 3430 model.result('pg13').run;
 3431 model.result('pg13').feature('lngr1').set('expr', 'Vint');
 3432 model.result('pg13').run;
 3433 model.result('pg13').run;
 3434 model.result('pg13').run;
 3435 model.result.export.create('plot20', 'pg13', 'lngr1', 'Plot');
 3436 model.result('pg13').set('window', 'graphics');
 3437 model.result('pg13').run;
 3438 model.result('pg13').set('window', 'graphics');
 3439 model.result('pg13').set('windowtitle', '');
 3440 model.result.export('plot20').set('header', 'off');
 3441 model.result.export('plot20').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results ↙
Line\Vint.txt');
 3442 model.result.export('plot20').run;
 3443 model.result('pg13').run;
 3444 model.result('pg13').feature('lngr1').set('expr', 'H');
 3445 model.result('pg13').feature('lngr1').set('unit', '1/mm^3');
 3446 model.result('pg13').run;
 3447 model.result.export.create('plot21', 'pg13', 'lngr1', 'Plot');
 3448 model.result('pg13').set('window', 'graphics');
 3449 model.result('pg13').run;
 3450 model.result('pg13').set('window', 'graphics');
 3451 model.result('pg13').set('windowtitle', '');
 3452 model.result.export('plot21').set('header', 'off');
 3453 model.result.export('plot21').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results ↙
Line\Healthy cell.txt');
 3454 model.result.export('plot21').run;
 3455 model.result('pg13').run;
 3456 model.result('pg13').feature('lngr1').set('expr', 'In');
 3457 model.result('pg13').run;
 3458 model.result.export.create('plot22', 'pg13', 'lngr1', 'Plot');
 3459 model.result('pg13').set('window', 'graphics');
 3460 model.result('pg13').run;
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 3461 model.result('pg13').set('window', 'graphics');
 3462 model.result('pg13').set('windowtitle', '');
 3463 model.result.export('plot22').set('header', 'off');
 3464 model.result.export('plot22').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results ↙
Line\Infected Cell.txt');
 3465 model.result.export('plot22').run;
 3466 model.result('pg13').run;
 3467 model.result.export.create('plot23', 'pg13', 'lngr1', 'Plot');
 3468 model.result('pg13').set('window', 'graphics');
 3469 model.result('pg13').run;
 3470 model.result('pg13').set('window', 'graphics');
 3471 model.result('pg13').set('windowtitle', '');
 3472 model.result.export('plot23').set('header', 'off');
 3473 model.result('pg13').run;
 3474 model.result('pg13').feature('lngr1').set('expr', 'n');
 3475 model.result('pg13').run;
 3476 model.result.export.create('plot24', 'pg13', 'lngr1', 'Plot');
 3477 model.result('pg13').set('window', 'graphics');
 3478 model.result('pg13').run;
 3479 model.result('pg13').set('window', 'graphics');
 3480 model.result('pg13').set('windowtitle', '');
 3481 model.result.export('plot24').set('header', 'off');
 3482 model.result.export('plot24').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results ↙
Line\neutrophils.txt');
 3483 model.result.export('plot24').run;
 3484 model.result('pg13').run;
 3485 model.result('pg13').feature('lngr1').set('expr', 'ma');
 3486 model.result('pg13').run;
 3487 model.result.export.create('plot25', 'pg13', 'lngr1', 'Plot');
 3488 model.result('pg13').set('window', 'graphics');
 3489 model.result('pg13').run;
 3490 model.result('pg13').set('window', 'graphics');
 3491 model.result('pg13').set('windowtitle', '');
 3492 model.result.export('plot25').set('header', 'off');
 3493 model.result.export('plot25').set('alwaysask', 'off');
 3494 model.result.export('plot25').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results ↙
Line\macrophages.txt');
 3495 model.result.export('plot25').run;
 3496 model.result('pg13').run;
 3497 model.result('pg13').feature('lngr1').set('expr', 'c');
 3498 model.result('pg13').run;
 3499 model.result('pg13').feature('lngr1').set('unit', 'pg/ml');
 3500 model.result('pg13').run;
 3501 model.result.export.create('plot26', 'pg13', 'lngr1', 'Plot');
 3502 model.result('pg13').set('window', 'graphics');
 3503 model.result('pg13').run;
 3504 model.result('pg13').set('window', 'graphics');
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 3505 model.result('pg13').set('windowtitle', '');
 3506 model.result.export('plot26').set('header', 'off');
 3507 model.result.export('plot26').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results ↙
Line\cytokines.txt');
 3508 model.result.export('plot26').run;
 3509 model.result('pg13').run;
 3510 model.result('pg13').feature('lngr1').set('expr', 'Ctl');
 3511 model.result('pg13').feature('lngr1').set('unit', '1/mm^3');
 3512 model.result('pg13').run;
 3513 model.result.export.create('plot27', 'pg13', 'lngr1', 'Plot');
 3514 model.result('pg13').set('window', 'graphics');
 3515 model.result('pg13').run;
 3516 model.result('pg13').set('window', 'graphics');
 3517 model.result('pg13').set('windowtitle', '');
 3518 model.result.export('plot27').set('header', 'off');
 3519 model.result.export('plot27').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results ↙
Line\T cells.txt');
 3520 model.result.export('plot27').run;
 3521 model.result('pg13').run;
 3522 model.result('pg13').feature('lngr1').set('expr', 'a');
 3523 model.result('pg13').feature('lngr1').set('unit', 'pg/ml');
 3524 model.result('pg13').run;
 3525 model.result.export.create('plot28', 'pg13', 'lngr1', 'Plot');
 3526 model.result('pg13').set('window', 'graphics');
 3527 model.result('pg13').run;
 3528 model.result('pg13').set('window', 'graphics');
 3529 model.result('pg13').set('windowtitle', '');
 3530 model.result.export('plot28').set('header', 'off');
 3531 model.result.export('plot28').set('filename', 'C:↙
\Users\cvouto01\Dropbox\Univercity of Cyprus\3a.Project\34. Covic-19\Model\results ↙
Line\antiflamatori.txt');
 3532 model.result.export('plot28').run;
 3533 model.result.export('plot28').run;
 3534 model.result('pg9').run;
 3535 model.result('pg9').feature('ptgr1').setIndex('looplevel', '1', 0);
 3536 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2', 0);
 3537 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2,3', 0);
 3538 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2,3,4', 0);
 3539 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2,3,4,5', 0);
 3540 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2,3,4,5,6', 0);
 3541 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2,3,4,5,6,7', 0);
 3542 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2,3,4,5,6,7,8', 0);
 3543 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2,3,4,5,6,7,8,9', 0);
 3544 model.result('pg9').feature('ptgr1').setIndex('looplevel', '2,3,4,5,6,7,8,9,10', ↙
0);
 3545 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'2,3,4,5,6,7,8,9,10,11', 0);
 3546 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
```

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'2,3,4,5,6,7,8,9,10,11,12', 0);
 3547 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13', 0);
 3548 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14', 0);
 3549 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15', 0);
 3550 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16', 0);
 3551 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17', 0);
 3552 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18', 0);
 3553 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19', 0);
 3554 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20', 0);
 3555 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21', 0);
 3556 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22', 0);
 3557 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23', 0);
 3558 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24', 0);
 3559 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25', 0);
 3560 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26', 0);
 3561 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27', 0);
 3562 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28', 0);
 3563 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29', 0);
 3564 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30', 0);
 3565 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31', ↙
0);
 3566 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32', ↙
0);
 3567 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3', 0);
 3568 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34', 0);
 3569 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
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'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35', 0);
 3570 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36', 0);
 3571 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37', 0);
 3572 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38', 0);
 3573 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39', 0);
 3574 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40', 0);
 3575 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41', 0);
 3576 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42', 0);
 3577 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43', 0);
 3578 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44', 0);
 3579 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45', 0);
 3580 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46', 0);
 3581 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47', 0);
 3582 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48', 0);
 3583 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49', 0);
 3584 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50', 0);
 3585 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51', 0);
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 3586 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52', 0);
 3587 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53', 0);
 3588 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54', 0);
 3589 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55', 0);
 3590 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56', 0);
 3591 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57', 0);
 3592 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58', 0);
 3593 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59', 0);
 3594 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60', ↙
0);
 3595 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61', ↙
0);
 3596 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2', 0);
 3597 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63', 0);
 3598 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64', 0);
 3599 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65', 0);
 3600 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
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3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66', 0);
 3601 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67', 0);
 3602 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68', 0);
 3603 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69', 0);
 3604 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70', 0);
 3605 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71', 0);
 3606 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72', 0);
 3607 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73', 0);
 3608 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74', 0);
 3609 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75', 0);
 3610 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76', 0);
 3611 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77', 0);
 3612 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78', 0);
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 3613 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79', 0);
 3614 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80', 0);
 3615 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81', 0);
 3616 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82', 0);
 3617 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83', 0);
 3618 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84', 0);
 3619 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85', 0);
 3620 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86', 0);
 3621 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87', 0);
 3622 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88', 0);
 3623 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89', ↙
0);
 3624 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90', ↙
0);
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 3625 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1', 0);
 3626 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92', 0);
 3627 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93', 0);
 3628 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94', 0);
 3629 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95', 0);
 3630 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96', 0);
 3631 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97', 0);
 3632 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98', 0);
 3633 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99', 0);
 3634 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100', 0);
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 3635 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101', 0);
 3636 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102', 0);
 3637 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103', 0);
 3638 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104', 0);
 3639 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105', 0);
 3640 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106', 0);
 3641 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107', 0);
 3642 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108', 0);
 3643 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109', 0);
 3644 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110', 0);
```

```
 3645 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111', 0);
 3646 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112', 0);
 3647 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113', 0);
 3648 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114', ↙
0);
 3649 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114,1 ↙
15', 0);
 3650 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114,1 ↙
15,116', 0);
 3651 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114,1 ↙
15,116,117', 0);
 3652 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114,1 ↙
15,116,117,118', 0);
 3653 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114,1 ↙
```

```
15,116,117,118,119', 0);
 3654 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114,1 ↙
15,116,117,118,119,120', 0);
 3655 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25,26,27,28,29,30,31,32,3 ↙
3,34,35,36,37,38,39,40,41,42,43,44,45,46,47,48,49,50,51,52,53,54,55,56,57,58,59,60,61,6 ↙
2,63,64,65,66,67,68,69,70,71,72,73,74,75,76,77,78,79,80,81,82,83,84,85,86,87,88,89,90,9 ↙
1,92,93,94,95,96,97,98,99,100,101,102,103,104,105,106,107,108,109,110,111,112,113,114,1 ↙
15,116,117,118,119,120,121', 0);
 3656 model.result('pg1').run;
 3657 model.result('pg1').run;
 3658 model.result('pg1').setIndex('looplevel', '121', 0);
 3659 model.result('pg1').run;
 3660 model.result('pg1').run;
 3661 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 3662 model.result('pg1').run;
 3663 model.result('pg1').feature('slc1').set('expr', 'Cb');
 3664 model.result('pg1').run;
 3665 model.result('pg1').feature('slc1').set('expr', 'Vint');
 3666 model.result('pg1').run;
 3667 model.result('pg1').feature('slc1').set('expr', 'c');
 3668 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
 3669 model.result('pg1').run;
 3670 model.result('pg1').feature('slc1').set('expr', 'a');
 3671 model.result('pg1').run;
 3672 model.result('pg1').feature('slc1').set('expr', 'Ctl');
 3673 model.result('pg1').run;
 3674 model.result('pg1').feature('slc1').set('unit', '1/mm^3');
 3675 model.result('pg1').run;
 3676 model.result('pg1').feature('slc1').set('expr', 'ma');
 3677 model.result('pg1').run;
 3678 model.result('pg1').feature('slc1').set('expr', 'n');
 3679 model.result('pg1').run;
 3680 model.result('pg1').feature('slc1').set('expr', 'In');
 3681 model.result('pg1').run;
 3682 model.result('pg1').run;
 3683 model.result('pg1').feature('slc1').set('expr', 'H');
 3684 model.result('pg1').run;
 3685 model.result('pg1').feature('slc1').set('expr', 'AT1bAngII');
 3686 model.result('pg1').run;
 3687 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 3688 model.result('pg1').run;
 3689 model.result('pg1').feature('slc1').set('expr', 'AT2bAngII');
 3690 model.result('pg1').run;
 3691 model.result('pg1').run;
 3692 model.result('pg1').feature('slc1').set('expr', 'AT4bAngIV');
```

```
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'MAsbAng17');
model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;

model.mesh('mesh1').run;

model.variable('var1').set('InACE1', '0.98');

model.sol('sol1').runAll;

model.result('pg1').run;

model.mesh('mesh1').run;

model.variable('var1').set('InACE1', '0');
model.variable('var1').set('InARBs', '0.98');

model.sol('sol1').runAll;

model.result('pg1').run;

model.mesh('mesh1').run;

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'c');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', 'pg/ml');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ctl');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', '1/mm^3');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngII');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ang17');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
```

```
 3743 model.result('pg1').feature('slc1').set('unit', '1/mm^3');
 3744 model.result('pg1').run;
 3745 model.result('pg1').feature('slc1').set('expr', 'In');
 3746 model.result('pg1').run;
 3747 model.result('pg1').feature('slc1').set('expr', 'c');
 3748 model.result('pg1').run;
 3749 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
 3750 model.result('pg1').run;
 3751 model.result('pg1').feature('slc1').set('expr', 'n');
 3752 model.result('pg1').feature('slc1').set('unit', '1/m');
 3753 model.result('pg1').feature('slc1').set('expr', 'AngII');
 3754 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 3755 model.result('pg1').run;
 3756 model.result('pg1').feature('slc1').set('expr', 'Ang17');
 3757 model.result('pg1').run;
 3758
 3759 model.mesh('mesh1').run;
 3760
 3761 model.variable('var1').set('Kint', '5.78e-4[1/s]/2');
 3762 model.variable('var1').set('Ka', 'Kint/10');
 3763 model.variable('var1').set('InARBs', '0');
 3764
 3765 model.sol('sol1').runAll;
 3766
 3767 model.result('pg1').run;
 3768 model.result('pg1').run;
 3769 model.result('pg1').feature('slc1').set('expr', 'Ci');
 3770 model.result('pg1').run;
 3771 model.result('pg1').feature('slc1').set('expr', 'Cb');
 3772 model.result('pg1').run;
 3773 model.result('pg1').feature('slc1').set('expr', 'Vint');
 3774 model.result('pg1').run;
 3775 model.result('pg1').feature('slc1').set('expr', 'Ci');
 3776 model.result('pg1').run;
 3777
 3778 model.mesh('mesh1').run;
 3779
 3780 model.physics('Ci').feature('init2').set('Ci', '1.27e-8[M]*(z>-1.2[m])');
 3781 model.physics('Ci').feature('cdeq1').setIndex('c', {'Dci*10000' '0' '0' '0' ↙
'Dci*10000' '0' '0' '0' 'Dci*10000'}, 0);
 3782
 3783 model.variable('var1').set('pv', '0.05[1/h]/2');
 3784 model.variable('var1').set('dcl', '5.54e-3[1/h]*2');
 3785 model.variable('var1').set('dc', '8.3e-1[1/h]*2');
 3786
 3787 model.physics('Ci').feature('init2').set('Ci', '1.27e-9[M]*(z>-1.2[m])');
 3788
 3789 model.variable('var1').set('pv', '0.05[1/h]');
 3790
 3791 model.sol('sol1').runAll;
```

```
 3792
 3793 model.result('pg1').run;
 3794 model.result('pg1').setIndex('looplevel', '121', 0);
 3795 model.result('pg1').run;
 3796 model.result('pg1').feature('slc1').set('expr', 'Cb');
 3797 model.result('pg1').run;
 3798 model.result('pg1').feature('slc1').set('expr', 'Vint');
 3799 model.result('pg1').run;
 3800
 3801 model.mesh('mesh1').run;
 3802
 3803 model.physics('Ci').feature('cdeq1').setIndex('c', {'Dci*1000000' '0' '0' '0' ↙
'Dci*1000000' '0' '0' '0' 'Dci*1000000'}, 0);
 3804
 3805 model.variable('var1').set('Kint', '5.78e-4[1/s]/3');
 3806 model.variable('var1').set('Ka', 'Kint');
 3807 model.variable('var1').set('Kint', '5.78e-4[1/s]/4');
 3808
 3809 model.result('pg1').run;
 3810 model.result('pg1').run;
 3811 model.result('pg1').run;
 3812 model.result('pg1').run;
 3813 model.result('pg1').feature('slc1').set('expr', 'c');
 3814 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
 3815 model.result('pg1').run;
 3816 model.result('pg1').feature('slc1').set('expr', 'Ctl');
 3817 model.result('pg1').run;
 3818 model.result('pg1').feature('slc1').set('unit', '1/mm^3');
 3819 model.result('pg1').run;
 3820 model.result('pg1').run;
 3821 model.result('pg1').feature('slc1').set('expr', 'c');
 3822 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
 3823 model.result('pg1').run;
 3824
 3825 model.mesh('mesh1').run;
 3826
 3827 model.variable('var1').set('dc', '8.3e-1[1/h]*4');
 3828 model.variable('var1').set('dcl', '5.54e-3[1/h]*8');
 3829
 3830 model.sol('sol1').runAll;
 3831
 3832 model.result('pg1').run;
 3833 model.result('pg1').run;
 3834 model.result('pg1').feature('slc1').set('expr', 'Ctl');
 3835 model.result('pg1').feature('slc1').set('unit', '1/mm^3');
 3836 model.result('pg1').run;
 3837 model.result('pg1').feature('slc1').set('unit', '1/L');
 3838 model.result('pg1').run;
 3839 model.result('pg1').feature('slc1').set('expr', 'AngII');
 3840 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
```

```
model.result('pg1').run;

model.mesh('mesh1').run;

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'c');
model.result('pg1').feature('slc1').set('unit', 'pg/ml');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ctl');
model.result('pg1').feature('slc1').set('unit', '1/l');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ctl/1e6');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'c');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', 'pg/ml');
model.result('pg1').run;
model.result('pg1').run;

model.mesh('mesh1').run;

model.variable('var1').set('KAT2', '25.1[1/h]/4');
model.variable('var1').set('KAPA', '43.6[1/h]/4');
model.variable('var1').set('KACE2', '0.382[1/h]/4');
model.variable('var1').set('dc', '8.3e-1[1/h]*10');

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').set('inherithide', 'off');
model.result('pg1').run;
model.result('pg1').set('allowtableupdate', false);
model.result('pg1').set('allowevalintitle', false);
model.result('pg1').set('title', 'Time=12 d Slice: Dependent variable c ↙
(pg/ml)');
model.result('pg1').set('hasbeenplotted', true);
model.result('pg1').feature('slc1').set('rangeunit', 'pg/ml');
model.result('pg1').feature('slc1').set('rangecolormin', 195.2891737157793);
model.result('pg1').feature('slc1').set('rangecolormax', 195.2891740136277);
model.result('pg1').feature('slc1').set('rangecoloractive', 'off');
model.result('pg1').feature('slc1').set('rangedatamin', 195.2891737157793);
model.result('pg1').feature('slc1').set('rangedatamax', 195.2891740136277);
model.result('pg1').feature('slc1').set('rangedataactive', 'off');
model.result('pg1').feature('slc1').set('rangeactualminmax', [195.2891737157793 ↙
195.2891740136277]);
model.result('pg1').feature('slc1').set('hasbeenplotted', true);
model.result('pg1').set('renderdatacached', false);
model.result('pg1').set('allowtableupdate', true);
model.result('pg1').set('renderdatacached', true);
model.result('pg1').feature('slc1').set('expr', 'AngII');
```

```
 3889 model.result('pg1').run;
 3890 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 3891 model.result('pg1').run;
 3892 model.result('pg1').feature('slc1').set('expr', 'Ctl');
 3893 model.result('pg1').run;
 3894 model.result('pg1').feature('slc1').set('unit', '1/mm^3');
 3895 model.result('pg1').run;
 3896 model.result('pg1').feature('slc1').set('expr', 'c');
 3897 model.result('pg1').run;
 3898 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
 3899 model.result('pg1').run;
 3900 model.result('pg1').feature('slc1').set('expr', 'Ci');
 3901 model.result('pg1').run;
 3902 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 3903 model.result('pg1').run;
 3904 model.result('pg1').feature('slc1').set('expr', 'Cb');
 3905 model.result('pg1').run;
 3906 model.result('pg1').feature('slc1').set('expr', 'Vint');
 3907 model.result('pg1').run;
 3908 model.result('pg1').feature('slc1').set('expr', 'H');
 3909 model.result('pg1').run;
 3910 model.result('pg1').feature('slc1').set('expr', 'In');
 3911 model.result('pg1').run;
 3912 model.result('pg1').feature('slc1').set('expr', 'H');
 3913 model.result('pg1').run;
 3914 model.result('pg1').feature('slc1').set('expr', 'Ci');
 3915 model.result('pg1').run;
 3916 model.result('pg1').run;
 3917 model.result('pg1').setIndex('looplevel', '81', 0);
 3918 model.result('pg1').run;
 3919 model.result('pg1').run;
 3920 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 3921 model.result('pg1').run;
 3922 model.result('pg1').feature('slc1').set('expr', 'Cb');
 3923 model.result('pg1').run;
 3924 model.result('pg1').feature('slc1').set('expr', 'Vint');
 3925 model.result('pg1').run;
 3926 model.result('pg1').feature('slc1').set('expr', 'AngII');
 3927 model.result('pg1').set('allowtableupdate', false);
 3928 model.result('pg1').set('allowevalintitle', false);
 3929 model.result('pg1').set('title', 'Time=8 d Slice: Dependent variable AngII ↙
(fmol/ml)');
 3930 model.result('pg1').set('hasbeenplotted', true);
 3931 model.result('pg1').feature('slc1').set('actuallevels', [0.07635006713867086]);
 3932 model.result('pg1').feature('slc1').set('rangeunit', 'fmol/ml');
 3933 model.result('pg1').feature('slc1').set('rangecolormin', 1.8131619003189927);
 3934 model.result('pg1').feature('slc1').set('rangecolormax', 1.8131619003189927);
 3935 model.result('pg1').feature('slc1').set('rangecoloractive', 'off');
 3936 model.result('pg1').feature('slc1').set('rangedatamin', 1.8131619003189927);
 3937 model.result('pg1').feature('slc1').set('rangedatamax', 1.8131619003189927);
```

```
 3938 model.result('pg1').feature('slc1').set('rangedataactive', 'off');
 3939 model.result('pg1').feature('slc1').set('rangeactualminmax', [1.8131619003189927 ↙
1.8131619003189927]);
 3940 model.result('pg1').feature('slc1').set('hasbeenplotted', true);
 3941 model.result('pg1').set('renderdatacached', false);
 3942 model.result('pg1').set('allowtableupdate', true);
 3943 model.result('pg1').set('renderdatacached', true);
 3944 model.result('pg1').run;
 3945 model.result('pg1').run;
 3946 model.result('pg1').setIndex('looplevel', '121', 0);
 3947 model.result('pg1').run;
 3948 model.result('pg1').setIndex('looplevel', '81', 0);
 3949 model.result('pg1').run;
 3950 model.result('pg1').feature('slc1').set('expr', 'AngII*1.7*100');
 3951 model.result('pg1').run;
 3952 model.result('pg1').feature('slc1').set('expr', 'AngII*1.5*100');
 3953 model.result('pg1').run;
 3954 model.result('pg1').run;
 3955 model.result('pg1').feature('slc1').set('expr', 'AngII*1.5*100*1046.2[g/mol] ↙
/1000');
 3956 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
 3957 model.result('pg1').run;
 3958 model.result('pg1').feature('slc1').set('expr', 'AngII*1.5*100*1046.2[g/mol]');
 3959 model.result('pg1').run;
 3960 model.result('pg1').feature('slc1').set('expr', 'c');
 3961 model.result('pg1').run;
 3962 model.result('pg1').feature('slc1').set('expr', 'Ctl');
 3963 model.result('pg1').run;
 3964 model.result('pg1').feature('slc1').set('unit', '1/l');
 3965 model.result('pg1').run;
 3966 model.result('pg1').feature('slc1').set('expr', 'Ctl/1000000');
 3967 model.result('pg1').run;
 3968 model.result('pg1').run;
 3969 model.result('pg1').setIndex('looplevel', '121', 0);
 3970 model.result('pg1').run;
 3971 model.result('pg1').run;
 3972 model.result('pg1').feature('slc1').set('expr', 'c');
 3973 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
 3974 model.result('pg1').run;
 3975 model.result('pg1').feature('slc1').set('expr', 'AngII*1046[g/mol]*1.5*100');
 3976 model.result('pg1').run;
 3977 model.result('pg1').feature('slc1').set('expr', 'Ci');
 3978 model.result('pg1').run;
 3979 model.result('pg1').run;
 3980 model.result('pg1').setIndex('looplevel', '81', 0);
 3981 model.result('pg1').run;
 3982 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 3983 model.result('pg1').run;
 3984 model.result('pg1').feature('slc1').set('expr', 'Cb');
 3985 model.result('pg1').run;
```

```
 3986 model.result('pg1').feature('slc1').set('expr', 'Vint');
 3987 model.result('pg1').run;
 3988 model.result('pg1').feature('slc1').set('expr', 'Cb');
 3989 model.result('pg1').run;
 3990 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 3991 model.result('pg1').run;
 3992 model.result('pg1').feature('slc1').set('expr', 'Cb*1e4');
 3993 model.result('pg1').run;
 3994 model.result('pg1').feature('slc1').set('expr', 'Ci*1e4');
 3995 model.result('pg1').run;
 3996 model.result('pg1').feature('slc1').set('expr', 'Vint*1e4');
 3997 model.result('pg1').run;
 3998 model.result('pg1').feature('slc1').set('expr', 'H');
 3999 model.result('pg1').feature('slc1').set('unit', '1/l');
 4000 model.result('pg1').run;
 4001 model.result('pg1').feature('slc1').set('expr', 'H/1e6');
 4002 model.result('pg1').run;
 4003 model.result('pg1').feature('slc1').set('expr', 'In/1e6');
 4004 model.result('pg1').run;
 4005 model.result('pg1').feature('slc1').set('expr', 'a/1e6');
 4006 model.result('pg1').run;
 4007 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
 4008 model.result('pg1').run;
 4009 model.result('pg1').feature('slc1').set('expr', 'a');
 4010 model.result('pg1').run;
 4011 model.result('pg1').feature('slc1').set('expr', 'a/100');
 4012 model.result('pg1').run;
 4013 model.result('pg1').feature('slc1').set('expr', 'a/200');
 4014 model.result('pg1').run;
 4015 model.result('pg1').feature('slc1').set('expr', 'H');
 4016 model.result('pg1').feature('slc1').set('unit', '1/l');
 4017 model.result('pg1').run;
 4018 model.result('pg1').feature('slc1').set('unit', '1/mm^3');
 4019 model.result('pg1').run;
 4020 model.result('pg1').run;
 4021
 4022 model.mesh('mesh1').run;
 4023
 4024 model.variable('var1').set('gam_a', '8.3e-1[1/h]/100');
 4025 model.variable('var1').set('Koff', '8e-3[1/s]*100');
 4026 model.variable('var1').set('Kint', '5.78e-4[1/s]/10');
 4027
 4028 model.physics('Ang17').feature('dode1').setIndex('f', 'KNEP*AngI+cACE2*AngII-(log ↙
(2)/hAng17)*Ang17', 0);
 4029 model.physics('Ang17').feature('dode1').setIndex('f', 'KNEP*AngI+KACE2*AngII- ↙
cMAs-(log(2)/hAng17)*Ang17', 0);
 4030 model.physics('Ang17').feature('dode1').setIndex('f', 'KNEP*AngI+KACE2*AngII- ↙
cMAs*Anh17-(log(2)/hAng17)*Ang17', 0);
 4031 model.physics('Ang17').feature('dode1').setIndex('f', 'KNEP*AngI+KACE2*AngII- ↙
cMAs*Ang17-(log(2)/hAng17)*Ang17', 0);
```

```
 4032 model.physics('Ang19').feature('dode1').setIndex('f', 'KACE2*AngI-(log(2)/hAng19) ↙
*Ang19', 0);
 4033 model.physics('AngIII').feature('dode1').setIndex('f', 'KAPA*AngII-(log(2) ↙
/hAngIII)*AngIII', 0);
 4034 model.physics('AngIII').feature('dode1').setIndex('f', 'KAPA*AngII-KAPM-(log(2) ↙
/hAngIII)*AngIII', 0);
 4035 model.physics('AngIII').feature('dode1').setIndex('f', 'KAPA*AngII-kAPM-(log(2) ↙
/hAngIII)*AngIII', 0);
 4036 model.physics('AngIII').feature('dode1').setIndex('f', 'KAPA*AngII-KAPM*AngII- ↙
(log(2)/hAngIII)*AngIII', 0);
 4037
 4038 model.variable('var1').set('KAPM', 'cAPM');
 4039
 4040 model.physics('AngIII').feature('dode1').setIndex('f', 'KAPA*AngII-KAPM*AngIII- ↙
(log(2)/hAngIII)*AngIII', 0);
 4041 model.physics('AngIV').feature('dode1').setIndex('f', 'KAPM*AngIII-(log(2) ↙
/hAngIV)*AngIV', 0);
 4042 model.physics('AngIV').feature('dode1').setIndex('f', 'KAPM*AngIII-KAT4-(log(2) ↙
/hAngIV)*AngIV', 0);
 4043
 4044 model.variable('var1').set('KAT4', 'cAT4');
 4045
 4046 model.physics('AngIV').feature('dode1').setIndex('f', 'KAPM*AngIII-KAT4*AngIV- ↙
(log(2)/hAngIV)*AngIV', 0);
 4047
 4048 model.sol('sol1').runAll;
 4049
 4050 model.result('pg1').run;
 4051 model.result('pg1').setIndex('looplevel', '121', 0);
 4052 model.result('pg1').run;
 4053 model.result('pg1').run;
 4054 model.result('pg1').feature('slc1').set('expr', 'In');
 4055 model.result('pg1').run;
 4056 model.result('pg1').feature('slc1').set('expr', 'Ci');
 4057 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 4058 model.result('pg1').run;
 4059 model.result('pg1').feature('slc1').set('expr', 'Cb');
 4060 model.result('pg1').run;
 4061 model.result('pg1').feature('slc1').set('expr', 'Vint');
 4062 model.result('pg1').run;
 4063 model.result('pg1').feature('slc1').set('expr', 'a');
 4064 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
 4065 model.result('pg1').run;
 4066
 4067 model.mesh('mesh1').run;
 4068
 4069 model.variable('var1').set('gam_a', '8.3e-1[1/h]*100');
 4070 model.variable('var1').set('Kon', '5e3[1/M/s]/100');
 4071
 4072 model.sol('sol1').runAll;
```

```
 4073
 4074 model.result('pg1').run;
 4075 model.result('pg1').run;
 4076 model.result('pg1').feature('slc1').set('expr', 'Ci');
 4077 model.result('pg1').run;
 4078 model.result('pg1').feature('slc1').set('expr', 'Cb');
 4079 model.result('pg1').run;
 4080 model.result('pg1').feature('slc1').set('expr', 'Vint');
 4081 model.result('pg1').run;
 4082 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 4083 model.result('pg1').run;
 4084 model.result('pg1').feature('slc1').set('expr', 'a');
 4085 model.result('pg1').run;
 4086 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
 4087 model.result('pg1').run;
 4088 model.result('pg1').feature('slc1').set('expr', 'Ci');
 4089 model.result('pg1').run;
 4090 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 4091 model.result('pg1').run;
 4092 model.result('pg1').run;
 4093 model.result('pg1').feature('slc1').set('expr', 'Cb');
 4094 model.result('pg1').run;
 4095 model.result('pg1').feature('slc1').set('expr', 'Vint');
 4096 model.result('pg1').run;
 4097 model.result('pg1').feature('slc1').set('expr', 'Cb');
 4098 model.result('pg1').run;
 4099
 4100 model.mesh('mesh1').run;
 4101
 4102 model.physics('a').feature('dode1').setIndex('f', ↙
'Kg*phi_a*ma*n+Sang17*MAsbAng17-gam_a*a', 0);
 4103 model.physics('Ctl').feature('dode1').setIndex('f', 'pv*In*(t>5[d])-dcl*Ctl- ↙
gam_v*n*Ci', 0);
 4104
 4105 model.sol('sol1').clearSolutionData;
 4106 model.sol('sol1').runAll;
 4107
 4108 model.result('pg1').run;
 4109 model.result('pg1').run;
 4110 model.result('pg1').feature('slc1').set('expr', 'Ci');
 4111 model.result('pg1').run;
 4112 model.result('pg1').feature('slc1').set('expr', 'Vint');
 4113 model.result('pg1').run;
 4114
 4115 model.label('Full run_new eq.mph');
 4116
 4117 model.result('pg1').run;
 4118 model.result('pg1').feature('slc1').set('expr', 'n');
 4119 model.result('pg1').feature('slc1').set('unit', '1/L');
 4120 model.result('pg1').run;
```

```
4121 model.result('pg1').feature('slc1').set('expr', 'n*1e5');
4122 model.result('pg1').run;
4123 model.result('pg1').feature('slc1').set('rangecoloractive', 'on');
4124 model.result('pg1').feature('slc1').set('rangecolormin', '2.45833120578347E9');
4125 model.result('pg1').feature('slc1').set('rangecolormax', '2.45833120578347E9');
4126 model.result('pg1').feature('slc1').set('rangecoloractive', 'off');
4127 model.result('pg1').feature('slc1').set('expr', 'Ctl');
4128 model.result('pg1').run;
4129 model.result('pg1').feature('slc1').set('expr', 'Ctl*4');
4130 model.result('pg1').run;
4131 model.result('pg1').feature('slc1').set('expr', 'Ctl');
4132 model.result('pg1').run;
4133 model.result('pg1').feature('slc1').set('expr', 'Ctl*3');
4134 model.result('pg1').run;
4135 model.result('pg1').feature('slc1').set('expr', 'Ctl*3.2');
4136 model.result('pg1').run;
4137 model.result('pg1').feature('slc1').set('expr', 'Ctl*3.1');
4138 model.result('pg1').run;
4139 model.result('pg1').feature('slc1').set('expr', 'Ctl*3.15');
4140 model.result('pg1').run;
4141 model.result('pg1').feature('slc1').set('expr', 'c');
4142 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
4143 model.result('pg1').run;
4144 model.result('pg1').feature('slc1').set('expr', 'c*0.4');
4145 model.result('pg1').run;
4146 model.result('pg1').feature('slc1').set('expr', 'c*0.4/4');
4147 model.result('pg1').run;
4148 model.result('pg1').feature('slc1').set('expr', 'c*0.4/10');
4149 model.result('pg1').run;
4150 model.result('pg1').feature('slc1').set('rangecoloractive', 'on');
4151 model.result('pg1').feature('slc1').set('rangecolormax', '7.81218759770573');
4152 model.result('pg1').feature('slc1').set('rangecolormin', '7.81218759770573');
4153 model.result('pg1').feature('slc1').set('expr', 'AngII*1046.2[g/mol]');
4154 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
4155 model.result('pg1').run;
4156 model.result('pg1').run;
4157 model.result('pg1').feature('slc1').set('expr', 'AngII*1046.2[g/mol]*38.5');
4158 model.result('pg1').run;
4159 model.result('pg1').feature('slc1').set('expr', 'AngII*1046.2[g/mol]');
4160 model.result('pg1').feature('slc1').set('rangecoloractive', 'off');
4161 model.result('pg1').run;
4162 model.result('pg1').run;
4163 model.result('pg1').feature('slc1').set('expr', 'AngII*1046.2[g/mol]*100');
4164 model.result('pg1').run;
4165 model.result('pg1').feature('slc1').set('expr', 'AngII*1046.2[g/mol]*150');
4166 model.result('pg1').run;
4167 model.result('pg1').feature('slc1').set('expr', 'a');
4168 model.result('pg1').run;
4169 model.result('pg1').feature('slc1').set('expr', 'a*10');
4170 model.result('pg1').run;
```

```
4171 model.result('pg1').feature('slc1').set('expr', 'cRenin');
4172 model.result('pg1').run;
4173 model.result('pg1').feature('slc1').set('unit', '1/h');
4174 model.result('pg1').run;
4175
4176 model.mesh('mesh1').run;
4177
4178 model.result('pg1').run;
4179 model.result('pg1').feature('slc1').set('expr', 'Kf');
4180 model.result('pg1').run;
4181 model.result('pg1').feature('slc1').set('expr', 'f');
4182
4183 model.mesh('mesh1').run;
4184
4185 model.result('pg1').run;
4186 model.result('pg1').feature('slc1').set('unit', 'nmol/l');
4187 model.result('pg1').run;
4188 model.result('pg1').feature('slc1').set('unit', 'nmol/ml');
4189 model.result('pg1').run;
4190 model.result('pg1').feature('slc1').set('expr', 'cACE');
4191 model.result('pg1').feature('slc1').set('unit', '1/h');
4192 model.result('pg1').run;
4193 model.result('pg1').feature('slc1').set('expr', 'cAT1');
4194 model.result('pg1').feature('slc1').set('unit', '1/h');
4195 model.result('pg1').run;
4196
4197 model.mesh('mesh1').run;
4198
4199 model.result('pg1').run;
4200 model.result('pg1').feature('slc1').set('expr', 'cMAs');
4201 model.result('pg1').run;
4202
4203 model.mesh('mesh1').run;
4204
4205 model.result('pg1').run;
4206 model.result('pg1').feature('slc1').set('expr', 'SAT1R');
4207 model.result('pg1').run;
4208 model.result('pg1').feature('slc1').set('unit', 'pg/(h*fmol)');
4209 model.result('pg1').run;
4210 model.result('pg1').feature('slc1').set('expr', 'Sn');
4211 model.result('pg1').run;
4212 model.result('pg1').feature('slc1').set('unit', 'pg/s');
4213 model.result('pg1').run;
4214 model.result('pg1').feature('slc1').set('unit', 'pg/h');
4215 model.result('pg1').run;
4216
4217 model.mesh('mesh1').run;
4218
4219 model.result('pg1').run;
4220 model.result('pg1').feature('slc1').set('expr', 'Kg');
```

```
4221 model.result('pg1').run;
4222 model.result('pg1').feature('slc1').set('expr', 'phi_a');
4223 model.result('pg1').feature('slc1').set('unit', 'ml');
4224 model.result('pg1').run;
4225 model.result('pg1').feature('slc1').set('expr', 'SAng17');
4226
4227 model.mesh('mesh1').run;
4228
4229 model.result('pg1').feature('slc1').set('expr', 'Sang17');
4230 model.result('pg1').feature('slc1').set('unit', 'pg/(h*fmol)');
4231 model.result('pg1').run;
4232 model.result('pg1').feature('slc1').set('expr', 'Kb');
4233 model.result('pg1').run;
4234 model.result('pg1').feature('slc1').set('unit', '1/M/s');
4235 model.result('pg1').run;
4236 model.result('pg1').feature('slc1').set('expr', 'phic');
4237 model.result('pg1').run;
4238
4239 model.mesh('mesh1').run;
4240
4241 model.result('pg1').run;
4242 model.result('pg1').feature('slc1').set('unit', 'ml/h');
4243 model.result('pg1').run;
4244 model.result('pg1').feature('slc1').set('expr', 'phim');
4245
4246 model.mesh('mesh1').run;
4247
4248 model.result('pg1').feature('slc1').set('expr', 'phictl');
4249 model.result('pg1').run;
4250 model.result('pg1').feature('slc1').set('unit', 'ml/h');
4251 model.result('pg1').run;
4252
4253 model.mesh('mesh1').run;
4254
4255 model.result('pg1').run;
4256 model.result('pg1').feature('slc1').set('expr', 'RH');
4257 model.result('pg1').run;
4258 model.result('pg1').feature('slc1').set('unit', '1/h');
4259 model.result('pg1').run;
4260 model.result('pg1').feature('slc1').set('expr', 'xn');
4261 model.result('pg1').run;
4262 model.result('pg1').feature('slc1').set('unit', '1/(pg*h)');
4263 model.result('pg1').run;
4264 model.result('pg1').feature('slc1').set('expr', 'gam_n');
4265 model.result('pg1').run;
4266
4267 model.mesh('mesh1').run;
4268
4269 model.result('pg1').run;
4270 model.result('pg1').feature('slc1').set('unit', '1/h');
```

```
4271 model.result('pg1').run;
4272 model.result('pg1').feature('slc1').set('expr', 'gam_m');
4273 model.result('pg1').run;
4274
4275 model.mesh('mesh1').run;
4276
4277 model.result('pg1').run;
4278 model.result('pg1').feature('slc1').set('unit', 'ml/h');
4279 model.result('pg1').run;
4280
4281 model.mesh('mesh1').run;
4282
4283 model.result('pg1').run;
4284 model.result('pg1').feature('slc1').set('expr', 'gam_v');
4285 model.result('pg1').run;
4286 model.result('pg1').feature('slc1').set('unit', 'ml/(h*fmol)');
4287 model.result('pg1').run;
4288 model.result('pg1').feature('slc1').set('expr', 'xm');
4289 model.result('pg1').feature('slc1').set('unit', '1/(pg*h)');
4290 model.result('pg1').run;
4291 model.result('pg1').feature('slc1').set('expr', 'gam');
4292
4293 model.mesh('mesh1').run;
4294
4295 model.result('pg1').feature('slc1').set('expr', 'gam_n1');
4296 model.result('pg1').feature('slc1').set('unit', '1/h');
4297 model.result('pg1').run;
4298 model.result('pg1').feature('slc1').set('expr', 'pv');
4299 model.result('pg1').run;
4300 model.result('pg1').feature('slc1').set('expr', 'dv');
4301
4302 model.mesh('mesh1').run;
4303
4304 model.result('pg1').feature('slc1').set('expr', 'dcl');
4305 model.result('pg1').feature('slc1').set('unit', '1/h');
4306 model.result('pg1').run;
4307
4308 model.mesh('mesh1').run;
4309 model.mesh('mesh1').feature('imp1').active(false);
4310 model.mesh('mesh1').feature.clear;
4311 model.mesh('mesh1').clearMesh;
4312
4313 model.geom('geom1').create('blk1', 'Block');
4314 model.geom('geom1').feature('blk1').set('size', {'0.1' '0.1' '0.1'});
4315 model.geom('geom1').run('blk1');
4316 model.geom('geom1').runPre('fin');
4317 model.geom('geom1').feature('blk1').set('size', {'0.1' '0.1' '0.1'});
4318 model.geom('geom1').runPre('fin');
4319 model.geom('geom1').run('fin');
4320
```

```
 4321 model.physics('Ci').feature('init2').set('Ci', '1.27e-9[M]*(z>0.9[m])');
 4322
 4323 model.sol('sol1').runFromTo('st1', 'v1');
 4324
 4325 model.result('pg1').run;
 4326 model.result('pg1').run;
 4327 model.result('pg1').feature('slc1').set('expr', 'Ci');
 4328 model.result('pg1').run;
 4329 model.result('pg1').run;
 4330
 4331 model.physics('Ci').feature('init2').set('Ci', '1.27e-9[M]*(z>0.09[m])');
 4332
 4333 model.sol('sol1').runFromTo('st1', 'v1');
 4334
 4335 model.result('pg1').run;
 4336
 4337 model.label('Full run new geometry_new eq - Copy.mph');
 4338
 4339 model.result('pg1').run;
 4340
 4341 model.physics('AngI').feature('dode1').setIndex('f', 'cRenin*AGT+KRenin*(Renin- ↙
Renin0)-cACE*AngI-(KNEP)*AngI-KonACE2AngI*AngI*ACE2+KoffACE2AngI*ACE2AngI-(log(2) ↙
/hAngI)*AngI', 0);
 4342 model.physics('AngII').feature('dode1').setIndex('f', '(cACE)*AngI- ↙
KonAT1*AngII*AT1R+KoffAT1*AT1RAngII-KonAT2AngII*AT2R+KoffAT2*AT2RAngII-(KAPA)*AngII- ↙
KonACE2AngII*AngII*ACE2+KoffACE2AngII*ACE2AngII-(log(2)/hAngII)*AngII', 0);
 4343 model.physics('Ang17').feature('dode1').setIndex('f', ↙
'KNEP*AngI+KACE2*ACE2AngII+KAng17Ang19*Ang19-KonMAs*Ang17*MAs+KoffMAs*MAsAng17-(log(2) ↙
/hAng17)*Ang17', 0);
 4344 model.physics('AngI').feature('dode1').setIndex('f', 'cRenin*AGT+KRenin*(Renin- ↙
Renin0)-cACE*AngI-(KNEP)*AngI-KonACE2AngI*AngI*ACE2+KoffACE2AngI*ACE2bAngI-(log(2) ↙
/hAngI)*AngI', 0);
 4345 model.physics('AngII').feature('dode1').setIndex('f', '(cACE)*AngI- ↙
KonAT1*AngII*AT1R+KoffAT1*AT1bAngII-KonAT2AngII*AT2R+KoffAT2*AT2bAngII-(KAPA)*AngII- ↙
KonACE2AngII*AngII*ACE2+KoffACE2bAngII*ACE2AngII-(log(2)/hAngII)*AngII', 0);
 4346 model.physics('Ang17').feature('dode1').setIndex('f', ↙
'KNEP*AngI+KACE2*ACE2bAngII+KAng17Ang19*Ang19-KonMAs*Ang17*MAs+KoffMAs*MAsbAng17-(log ↙
(2)/hAng17)*Ang17', 0);
 4347 model.physics('Ang19').feature('dode1').setIndex('f', 'KACE2*ACE2bAngI-(log(2) ↙
/hAng19)*Ang19', 0);
 4348 model.physics('AT1bAngII').feature('dode1').setIndex('f', ↙
'KonAT1AngII*AT1R*AngII-(log(2)/hAT1)*AT1bAngII-KoffAT1*AT1bAngII', 0);
 4349 model.physics('AT2bAngII').feature('dode1').setIndex('f', 'KonAt2*AngII*AT2R-(log ↙
(2)/hAT2)*AT2bAngII-KoffAT2*AT2bAngII', 0);
 4350 model.physics('AT4bAngIV').feature('dode1').setIndex('f', 'KonAT4R*AngIV*AT4R- ↙
(log(2)/hAT4)*AT4bAngIV-KoffAT4*AT4bAngIV', 0);
 4351 model.physics('MAsbAng17').feature('dode1').setIndex('f', 'KonMAs*Ang17*MAs-(log ↙
(2)/hMAs)*MAsbAng17-KoffMAs*AT4bAngI17', 0);
 4352 model.physics.create('dode', 'DomainODE', 'geom1', {'u26'});
 4353
```

```
 4354 model.study('std1').feature('time').activate('dode', true);
 4355
 4356 model.physics.create('dode2', 'DomainODE', 'geom1', {'u27'});
 4357
 4358 model.study('std1').feature('time').activate('dode2', true);
 4359
 4360 model.physics.create('dode3', 'DomainODE', 'geom1', {'u28'});
 4361
 4362 model.study('std1').feature('time').activate('dode3', true);
 4363
 4364 model.physics.create('dode4', 'DomainODE', 'geom1', {'u29'});
 4365
 4366 model.study('std1').feature('time').activate('dode4', true);
 4367
 4368 model.physics.create('dode5', 'DomainODE', 'geom1', {'u30'});
 4369
 4370 model.study('std1').feature('time').activate('dode5', true);
 4371
 4372 model.physics.create('dode6', 'DomainODE', 'geom1', {'u31'});
 4373
 4374 model.study('std1').feature('time').activate('dode6', true);
 4375
 4376 model.physics.create('dode7', 'DomainODE', 'geom1', {'u32'});
 4377
 4378 model.study('std1').feature('time').activate('dode7', true);
 4379
 4380 model.physics('dode').prop('ShapeProperty').set('order', '1');
 4381 model.physics('dode').field('dimensionless').component(1, 'AT1R');
 4382 model.physics('dode').tag('AT1R');
 4383 model.physics('AT1R').prop('Units').set('DependentVariableQuantity', 'none');
 4384 model.physics('AT1R').prop('Units').set('CustomDependentVariableUnit', 'mol/ml');
 4385 model.physics('AT1R').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 4386 model.physics('AT1R').feature('dode1').setIndex('f', 'SAT1R-KonAT1', 0);
 4387 model.physics('AT1R').feature('dode1').setIndex('f', 'SAT1R-KonAT1*AngII*AT1R- ↙
KAT1RMAsR*MAsR+KoffAT1*AT1bAngII-KAT1RAT2R*AT2R', 0);
 4388 model.physics('dode2').prop('ShapeProperty').set('order', '1');
 4389 model.physics('dode2').field('dimensionless').component(1, 'AT2R');
 4390 model.physics('dode2').tag('AT');
 4391 model.physics('AT').tag('AT2R');
 4392 model.physics('AT2R').prop('Units').set('DependentVariableQuantity', 'none');
 4393 model.physics('AT2R').prop('Units').set('CustomDependentVariableUnit', 'mol/ml');
 4394 model.physics('AT2R').prop('Units').set('CustomSourceTermUnit', 'mol/ml/H');
 4395 model.physics('AT2R').feature('dode1').setIndex('f', 'SAT2R- ↙
KonAT2*AngII*AT2R+KoffAT2*AT2BAngII', 0);
 4396 model.physics('dode3').field('dimensionless').component(1, 'MAsR');
 4397 model.physics('dode3').tag('MAsR');
 4398 model.physics('MAsR').prop('Units').set('DependentVariableQuantity', 'none');
 4399 model.physics('MAsR').prop('Units').set('CustomDependentVariableUnit', 'mol/ml');
 4400 model.physics('MAsR').prop('Units').set('CustomSourceTermUnit', 'mol/ml/H');
 4401 model.physics('MAsR').prop('ShapeProperty').set('order', '1');
```

```
 4402 model.physics('MAsR').feature('dode1').setIndex('f', 'SMAsR-↙
KoffMAs*Ang17*MAsR+KoffMAs', 0);
 4403 model.physics('MAsR').feature('dode1').setIndex('f', 'SMAsR-↙
KonMAs*Ang17*MAsR+KoffMAs*MAsBAng17', 0);
 4404 model.physics('dode4').prop('Units').set('DependentVariableQuantity', 'none');
 4405 model.physics('dode4').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
 4406 model.physics('dode4').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 4407 model.physics('MAsR').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 4408 model.physics('AT2R').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 4409 model.physics('dode4').field('dimensionless').component(1, 'AT4R');
 4410 model.physics('dode4').tag('AT4R');
 4411 model.physics('AT4R').feature('dode1').setIndex('f', 'SAT4R-↙
KonAT4*AngIV*AT4R+KoffAT4*AT4bAngIV', 0);
 4412 model.physics('dode5').field('dimensionless').component(1, 'ACE2');
 4413 model.physics('dode5').tag('ACE2');
 4414 model.physics('ACE2').prop('Units').set('DependentVariableQuantity', 'none');
 4415 model.physics('ACE2').prop('Units').set('CustomDependentVariableUnit', 'mol/ml');
 4416 model.physics('ACE2').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 4417 model.physics('ACE2').feature('dode1').setIndex('f', 'SACE2-KonACE2V*Ci*ACE2-↙
KonACE2AngI*AngI*ACE2-KonACE2AngII*AngII*ACE2+KoffACE2V*Cb+KonACE', 0);
 4418 model.physics('ACE2').feature('dode1').setIndex('f', 'SACE2-KonACE2V*Ci*ACE2-↙
KonACE2AngI*AngI*ACE2-↙
KonACE2AngII*AngII*ACE2+KoffACE2V*Cb+KoffACE2AngI*ACE2BAngI+KoffACE2AngII*ACE2bAngII', ↙
0);
 4419 model.physics('dode6').prop('Units').set('DependentVariableQuantity', 'none');
 4420 model.physics('dode6').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
 4421 model.physics('dode6').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 4422 model.physics('dode6').field('dimensionless').component(1, 'ACE2bAngI');
 4423 model.physics('dode6').tag('ACE2bAngI');
 4424 model.physics('ACE2bAngI').feature('dode1').setIndex('f', 'KonACE2AngI*AngI*ACE2-↙
(log(2)/hACE2AngI)*ACE2bAngI-KoffACE2AngI-', 0);
 4425 model.physics('ACE2bAngI').feature('dode1').setIndex('f', 'KonACE2AngI*AngI*ACE2-↙
(log(2)/hACE2AngI)*ACE2bAngI-KoffACE2AngI-KoffACE2AngI*ACE2AngI', 0);
 4426 model.physics('dode7').prop('Units').set('DependentVariableQuantity', 'none');
 4427 model.physics('dode7').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
 4428 model.physics('dode7').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 4429 model.physics('dode7').feature('dode1').setIndex('f', 'KonACE2AngII*AngII*ACE2-↙
(log(2)/hACE2AngII)*ACE2bAngII-KoffACE2AngII*ACE2AngII', 0);
 4430 model.physics('ACE2bAngI').feature('dode1').setIndex('f', 'KonACE2AngI*AngI*ACE2-↙
(log(2)/hACE2AngI)*ACE2bAngI-KoffACE2AngI*ACE2AngI', 0);
 4431
 4432 model.variable('var1').set('KonACE2AngI', 'gam_v');
 4433 model.variable('var1').set('KoffACE2AngI', 'KACE2');
 4434 model.variable('var1').set('KonAT1', 'gam_v');
 4435 model.variable('var1').set('KoffAT1', 'KACE2');
 4436 model.variable('var1').set('KonAT2', 'gam_v');
 4437 model.variable('var1').set('KoffAT2', 'KACE2');
```

```
 4438 model.variable('var1').set('KonACE2AngII', 'gam_v');
 4439 model.variable('var1').set('KoffACE2AngII', 'KACE2');
 4440 model.variable('var1').rename('KonAT1', 'KonAT1AngII');
 4441 model.variable('var1').rename('KoffAT1', 'KoffAT1AngII');
 4442 model.variable('var1').rename('KonAT2', 'KonAT2AngII');
 4443 model.variable('var1').rename('KoffAT2', 'KoffAT2AngII');
 4444
 4445 model.physics('AngII').feature('dode1').setIndex('f', '(cACE)*AngI-↙
KonAT1AngII*AngII*AT1R+KoffAT1*AT1bAngII-KonAT2AngII*AT2R+KoffAT2*AT2bAngII-(KAPA) ↙
*AngII-KonACE2AngII*AngII*ACE2+KoffACE2bAngII*ACE2AngII-(log(2)/hAngII)*AngII', 0);
 4446 model.physics('AngII').feature('dode1').setIndex('f', '(cACE)*AngI-↙
KonAT1AngII*AngII*AT1R+KoffAT1AngII*AT1bAngII-KonAT2AngII*AT2R+KoffAT2*AT2bAngII-(KAPA) ↙
*AngII-KonACE2AngII*AngII*ACE2+KoffACE2bAngII*ACE2AngII-(log(2)/hAngII)*AngII', 0);
 4447 model.physics('AngII').feature('dode1').setIndex('f', '(cACE)*AngI-↙
KonAT1AngII*AngII*AT1R+KoffAT1AngII*AT1bAngII-KonAT2AngII*AT2R*AngII+KoffAT2*AT2bAngII- ↙
(KAPA)*AngII-KonACE2AngII*AngII*ACE2+KoffACE2bAngII*ACE2AngII-(log(2)/hAngII)*AngII', ↙
0);
 4448 model.physics('AngII').feature('dode1').setIndex('f', '(cACE)*AngI-↙
KonAT1AngII*AngII*AT1R+KoffAT1AngII*AT1bAngII-↙
KonAT2AngII*AT2R*AngII+KoffAT2AngII*AT2bAngII-(KAPA)*AngII-↙
KonACE2AngII*AngII*ACE2+KoffACE2bAngII*ACE2AngII-(log(2)/hAngII)*AngII', 0);
 4449 model.physics('AngII').feature('dode1').setIndex('f', '(cACE)*AngI-↙
KonAT1AngII*AngII*AT1R+KoffAT1AngII*AT1bAngII-↙
KonAT2AngII*AT2R*AngII+KoffAT2AngII*AT2bAngII-(KAPA)*AngII-↙
KonACE2AngII*AngII*ACE2+KoffACE2AngII*ACE2AngII-(log(2)/hAngII)*AngII', 0);
 4450 model.physics('AngII').feature('dode1').setIndex('f', '(cACE)*AngI-↙
KonAT1AngII*AngII*AT1R+KoffAT1AngII*AT1bAngII-↙
KonAT2AngII*AT2R*AngII+KoffAT2AngII*AT2bAngII-(KAPA)*AngII-↙
KonACE2AngII*AngII*ACE2+KoffACE2AngII*ACE2bAngII-(log(2)/hAngII)*AngII', 0);
 4451 model.physics('dode7').field('dimensionless').component(1, 'ACE2bAngII');
 4452 model.physics('dode7').tag('ACE2bAngII');
 4453 model.physics('ACE2bAngII').prop('ShapeProperty').set('order', '1');
 4454
 4455 model.variable('var1').set('KAng17Ang19', 'KACE2');
 4456 model.variable('var1').set('KonMAs', 'gam_v');
 4457 model.variable('var1').set('KoffMAs', 'KACE2');
 4458
 4459 model.physics('Ang17').feature('dode1').setIndex('f',↙
'KNEP*AngI+KACE2*ACE2bAngII+KAng17Ang19*Ang19-KonMAs*Ang17*MAsR+KoffMAs*MAsbAng17-(log ↙
(2)/hAng17)*Ang17', 0);
 4460 model.physics('AT1bAngII').feature('dode1').setIndex('f',↙
'KonAT1AngII*AT1R*AngII-(log(2)/hAT1)*AT1bAngII-KoffAT1AngII*AT1bAngII', 0);
 4461 model.physics('AT2bAngII').feature('dode1').setIndex('f',↙
'KonAT2AngII*AngII*AT2R-(log(2)/hAT2)*AT2bAngII-KoffAT2*AT2bAngII', 0);
 4462 model.physics('AT2bAngII').feature('dode1').setIndex('f',↙
'KonAT2AngII*AngII*AT2R-(log(2)/hAT2)*AT2bAngII-KoffAT2AngII*AT2bAngII', 0);
 4463 model.physics('AT4bAngIV').feature('dode1').setIndex('f', 'KonAT4R*AngIV*AT4R- ↙
(log(2)/hAT4)*AT4bAngIV-KoffAT4R*AT4bAngIV', 0);
 4464 model.physics('AT4bAngIV').feature('dode1').setIndex('f', 'KonAT4R*AngIV*AT4R- ↙
(log(2)/hAT4R)*AT4bAngIV-KoffAT4R*AT4bAngIV', 0);
```

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 4465 model.physics('AngIV').feature('dode1').setIndex('f', 'KAPM*AngIII-↙
KonAT4R*AngIV*AT4R-(log(2)/hAngIV)*AngIV', 0);
 4466 model.physics('AngIV').feature('dode1').setIndex('f', 'KAPM*AngIII-↙
KonAT4R*AngIV*AT4R-(log(2)/hAngIV)*AngIV+KoffAT4R*AT4bAngIV', 0);
 4467
 4468 model.variable('var1').set('KonAT4R', 'gam_v');
 4469 model.variable('var1').set('KoffAT4R', 'KACE2');
 4470 model.variable('var1').set('hAT4R', 'hAT1');
 4471
 4472 model.physics('MAsbAng17').feature('dode1').setIndex('f', 'KonMAs*Ang17*MAsR-(log↙
(2)/hMAs)*MAsbAng17-KoffMAs*AT4bAngI17', 0);
 4473 model.physics('AT1R').feature('dode1').setIndex('f', 'SAT1R-↙
KonAT1AngII*AngII*AT1R-KAT1RMAsR*MAsR+KoffAT1*AT1bAngII-KAT1RAT2R*AT2R', 0);
 4474 model.physics('AT1R').feature('dode1').setIndex('f', 'SAT1-↙
KonAT1AngII*AngII*AT1R-KAT1RMAsR*MAsR+KoffAT1*AT1bAngII-KAT1RAT2R*AT2R', 0);
 4475
 4476 model.variable('var1').set('SAT1', 'sRenin');
 4477
 4478 model.physics('MAsbAng17').feature('dode1').setIndex('f', 'KonMAs*Ang17*MAsR-(log↙
(2)/hMAs)*MAsbAngIV-KoffMAs*AT4bAngI17', 0);
 4479 model.physics('MAsbAng17').feature('dode1').setIndex('f', 'KonMAs*Ang17*MAsR-(log↙
(2)/hMAs)*MAsbAng17-KoffMAs*AT4bAngI17', 0);
 4480 model.physics('MAsbAng17').feature('dode1').setIndex('f', 'KonMAs*Ang17*MAsR-(log↙
(2)/hMAs)*MAsbAng17-KoffMAs*AT4bAng17', 0);
 4481 model.physics('MAsbAng17').feature('dode1').setIndex('f', 'KonMAs*Ang17*MAsR-(log↙
(2)/hMAs)*MAsbAng17-KoffMAs*AT4bAngIV', 0);
 4482 model.physics('AT1R').feature('dode1').setIndex('f', 'SAT1-↙
KonAT1AngII*AngII*AT1R-KAT1RMAsR*MAsR+KoffAT1AngII*AT1bAngII-KAT1RAT2R*AT2R', 0);
 4483
 4484 model.variable('var1').set('KAT1RMAsR', 'KACE2');
 4485 model.variable('var1').set('KAT1RAT2R', 'KACE2');
 4486
 4487 model.physics('AT2R').feature('dode1').setIndex('f', 'SAT2R-↙
KonAT2AngII*AngII*AT2R+KoffAT2AngII*AT2bAngII', 0);
 4488
 4489 model.variable('var1').set('SAT2R', 'SAT1');
 4490
 4491 model.physics('MAsR').feature('dode1').setIndex('f', 'SMAsR-↙
KonMAs*Ang17*MAsR+KoffMAs*MAsbAng17', 0);
 4492
 4493 model.variable('var1').set('SMAsR', 'SAT1');
 4494 model.variable('var1').set('SAT4R', 'SAT1');
 4495
 4496 model.physics('AT4R').feature('dode1').setIndex('f', 'SAT4R-↙
KonAT4R*AngIV*AT4R+KoffAT4R*AT4bAngIV', 0);
 4497
 4498 model.variable('var1').set('SACE2R', 'SAT1');
 4499
 4500 model.physics('ACE2').feature('dode1').setIndex('f', 'SACE2R-KonACE2V*Ci*ACE2-↙
KonACE2AngI*AngI*ACE2-↙
```

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KonACE2AngII*AngII*ACE2+KoffACE2V*Cb+KoffACE2AngI*ACE2BAngI+KoffACE2AngII*ACE2bAngII', ↙
0);
 4501
 4502 model.variable('var1').set('KonACE2V', 'gam_v');
 4503 model.variable('var1').set('KoffACE2V', 'KACE2');
 4504
 4505 model.physics('ACE2').feature('dode1').setIndex('f', 'SACE2R-KonACE2V*Ci*ACE2- ↙
KonACE2AngI*AngI*ACE2-↙
KonACE2AngII*AngII*ACE2+KoffACE2V*Cb+KoffACE2AngI*ACE2bAngI+KoffACE2AngII*ACE2bAngII', ↙
0);
 4506 model.physics('ACE2bAngI').prop('ShapeProperty').set('order', '1');
 4507 model.physics('ACE2').prop('ShapeProperty').set('order', '1');
 4508 model.physics('AT4R').prop('ShapeProperty').set('order', '1');
 4509
 4510 model.variable('var1').set('hACE2AngI', 'hAT1');
 4511 model.variable('var1').set('hACE2AngII', 'hAT1');
 4512
 4513 model.physics('ACE2bAngI').feature('dode1').setIndex('f', 'KonACE2AngI*AngI*ACE2- ↙
(log(2)/hACE2AngI)*ACE2bAngI-KoffACE2AngI*ACE2bAngI', 0);
 4514 model.physics('ACE2bAngII').feature('dode1').setIndex('f',↙
'KonACE2AngII*AngII*ACE2-(log(2)/hACE2AngII)*ACE2bAngII-KoffACE2AngII*ACE2bAngII', 0);
 4515
 4516 model.label('Full run new geometry_new eq - Copynew receptor.mph');
 4517
 4518 model.sol('sol1').runFromTo('st1', 'v1');
 4519
 4520 model.result('pg1').run;
 4521
 4522 model.sol('sol1').runAll;
 4523
 4524 model.result('pg1').run;
 4525
 4526 model.label('Full run new geometry_new eq - Copynew receptor.mph');
 4527
 4528 model.result('pg1').run;
 4529
 4530 model.physics('AngI').feature('dode1').setIndex('f', 'cRenin*AGT+KRenin*(Renin- ↙
Renin0)-KACE*AngI-(KNEP)*AngI-KonACE2AngI*AngI*ACE2+KoffACE2AngI*ACE2bAngI-(log(2) ↙
/hAngI)*AngI', 0);
 4531 model.physics('AngI').feature('dode1').setIndex('f', 'cRenin*AGT+KRenin*(Renin- ↙
Renin0)-kACE*AngI-(KNEP)*AngI-KonACE2AngI*AngI*ACE2+KoffACE2AngI*ACE2bAngI-(log(2) ↙
/hAngI)*AngI', 0);
 4532 model.physics('AngI').feature('dode1').setIndex('f', 'cRenin*AGT+KRenin*(Renin- ↙
Renin0)-KACE*AngI-(KNEP)*AngI-KonACE2AngI*AngI*ACE2+KoffACE2AngI*ACE2bAngI-(log(2) ↙
/hAngI)*AngI', 0);
 4533
 4534 model.variable('var1').set('KACE', 'cACE');
 4535
 4536 model.physics('AngII').feature('dode1').setIndex('f', '(KACE)*AngI- ↙
KonAT1AngII*AngII*AT1R+KoffAT1AngII*AT1bAngII-↙
```

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KonAT2AngII*AT2R*AngII+KoffAT2AngII*AT2bAngII-(KAPA)*AngII- ↙
KonACE2AngII*AngII*ACE2+KoffACE2AngII*ACE2bAngII-(log(2)/hAngII)*AngII', 0);
 4537 model.physics('Cb').feature('dode1').setIndex('f', 'Kon*Ci*(Chs-alp*Cb)/ph- ↙
KoffACE2V-Kd*Cb-Kint*Cb', 0);
 4538 model.physics('Cb').feature('dode1').setIndex('f', 'Kon*Ci*(Chs-alp*Cb)/ph- ↙
KoffACE2V*Cb-Kd*Cb-Kint*Cb', 0);
 4539 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb) ↙
/ph+KoffACE2V*Cb-Kd*Ci+Ka*Vint', 0);
 4540 model.physics('n').feature('dode1').setIndex('f', 'xn*c/(1+a_n)-gam_n*n- ↙
gam_m*n*ma-gam_v*n*Ci', 0);
 4541
 4542 model.variable('var1').set('a_n', '1e-3');
 4543
 4544 model.physics('n').feature('dode1').setIndex('f', 'xn*c/(1+a_n)-gam_n*n- ↙
gam_m*n*ma-gam_v*n*Ci+xIL6*IL6RbIL6', 0);
 4545 model.physics('ma').feature('dode1').setIndex('f', 'xm*c-gam_n1*ma+gam_v*ma*Ci', ↙
0);
 4546 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-11[M]- ↙
dc*c+SAT1R*AT1bAngII+Sn*(n+ma+In)', 0);
 4547 model.physics('Ctl').feature('dode1').setIndex('f', 'pv*In*(t>5[d])*(t-5[d])- ↙
dcl*Ctl-gam_v*n*Ci', 0);
 4548 model.physics('Ctl').feature('dode1').setIndex('f', 'pv*In-dcl*Ctl-gam_v*n*Ci', ↙
0);
 4549 model.physics('Ci').feature('cdeq1').setIndex('f', '-Kon*Ci*(Chs-alp*Cb) ↙
/ph+KoffACE2V*Cb-KonACE2V*Ci*ACE2+Ka*Vint', 0);
 4550 model.physics.create('dode', 'DomainODE', 'geom1', {'u33'});
 4551
 4552 model.study('std1').feature('time').activate('dode', true);
 4553
 4554 model.physics.create('dode2', 'DomainODE', 'geom1', {'u34'});
 4555
 4556 model.study('std1').feature('time').activate('dode2', true);
 4557
 4558 model.physics.create('dode3', 'DomainODE', 'geom1', {'u35'});
 4559
 4560 model.study('std1').feature('time').activate('dode3', true);
 4561
 4562 model.physics('dode').prop('Units').set('DependentVariableQuantity', 'none');
 4563 model.physics('dode').prop('Units').set('CustomDependentVariableUnit', 'mol/ml');
 4564 model.physics('dode').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 4565 model.physics('dode').prop('ShapeProperty').set('order', '1');
 4566 model.physics('dode').field('dimensionless').component(1, 'IL6');
 4567 model.physics('dode').tag('IL6');
 4568 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci-gam_IL6*IL6- ↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6', 0);
 4569 model.physics('dode2').field('dimensionless').component(1, 'IL6r');
 4570 model.physics('dode2').tag('IL');
 4571 model.physics('IL').tag('IL6R');
 4572 model.physics('IL6R').prop('Units').set('DependentVariableQuantity', 'none');
 4573 model.physics('IL6R').prop('Units').set('CustomDependentVariableUnit', 'mol/ml');
```

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 4574 model.physics('IL6R').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 4575 model.physics('IL6R').feature('dode1').setIndex('f', 'SIL6-↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6', 0);
 4576 model.physics('IL6R').prop('ShapeProperty').set('order', '1');
 4577 model.physics('dode3').tag('IL6RbIL6');
 4578 model.physics('IL6RbIL6').prop('Units').set('DependentVariableQuantity', 'none');
 4579 model.physics('IL6RbIL6').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
 4580 model.physics('IL6RbIL6').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 4581 model.physics('IL6RbIL6').prop('ShapeProperty').set('order', '1');
 4582 model.physics('IL6RbIL6').field('dimensionless').component(1, 'IL6RbIL6');
 4583 model.physics('IL6RbIL6').feature('dode1').setIndex('f', 'KonIL6*IL6*IL6R-↙
KoffIL6*IL6RbIL6-(log(2)/hIL6R)*IL6bIL6', 0);
 4584
 4585 model.variable('var1').set('xIL6', 'SAT1');
 4586
 4587 model.physics('n').feature('dode1').setIndex('f', 'xn*c/(1+a_n)-gam_n*n-↙
gam_m*n*ma-gam_v*n*Ci', 0);
 4588 model.physics('n').feature('dode1').setIndex('f', 'xn*c/(1+a_n)-gam_n*n-↙
gam_m*n*ma-gam_v*n*Ci+xIL6*IL6RbIL6', 0);
 4589
 4590 model.variable('var1').set('xIL6', '10[fmol/h/mm^3]');
 4591 model.variable('var1').set('aa', 'xIL6*IL6RbIL6');
 4592 model.variable('var1').set('xIL6', '10[1/fmol/h]');
 4593 model.variable('var1').remove('aa');
 4594 model.variable('var1').set('KIL6', '10[1/h/mm^3]');
 4595
 4596 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci', 0);
 4597 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci-gam_IL6*IL6-↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6', 0);
 4598
 4599 model.variable('var1').set('KIL6', '10[mm^3/h]');
 4600
 4601 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci', 0);
 4602 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci-gam_IL6*IL6-↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6', 0);
 4603
 4604 model.variable('var1').set('gam_IL6', 'KACE2');
 4605
 4606 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci-gam_IL6*IL6', 0);
 4607 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci-gam_IL6*IL6-↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6', 0);
 4608
 4609 model.variable('var1').set('KonIL6', 'gam_v');
 4610 model.variable('var1').set('KoffIL6', 'KACE2');
 4611 model.variable('var1').set('SIL6', 'SAT1');
 4612 model.variable('var1').set('hIL6', 'hAT1');
 4613
 4614 model.physics('IL6R').field('dimensionless').component(1, 'IL6R');
 4615
```

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 4616 model.variable('var1').rename('hIL6', 'hIL6R');
 4617
 4618 model.physics('IL6RbIL6').feature('dode1').setIndex('f', 'KonIL6*IL6*IL6R- ↙
KoffIL6*IL6RbIL6-(log(2)/hIL6R)*IL6RbIL6', 0);
 4619
 4620 model.sol('sol1').clearSolutionData;
 4621
 4622 model.label('Full run new geometry_new eq_new receptor_addIL6.mph');
 4623
 4624 model.physics.remove('solid');
 4625 model.physics.remove('p');
 4626 model.physics.remove('s');
 4627 model.physics.remove('growth');
 4628 model.physics('Ang19').feature('init1').set('Ang19', '1.2e-7[mol/L]');
 4629 model.physics('IL6').feature('init1').set('IL6', '1.2e-7[mol/L]');
 4630 model.physics('IL6RbIL6').feature('init1').set('IL6RbIL6', '1.05e-8[mol/L]');
 4631
 4632 model.result('pg1').run;
 4633 model.result('pg1').run;
 4634 model.result('pg1').set('looplevel', {'53'});
 4635 model.result('pg1').run;
 4636 model.result('pg1').run;
 4637 model.result('pg1').feature('slc1').set('expr', 'Cb');
 4638 model.result('pg1').run;
 4639 model.result('pg1').run;
 4640 model.result('pg1').run;
 4641 model.result('pg1').feature('slc1').set('expr', 'AGT');
 4642 model.result('pg1').run;
 4643 model.result('pg1').feature('slc1').set('expr', 'Renin');
 4644 model.result('pg1').run;
 4645 model.result('pg1').feature('slc1').set('expr', 'AngI');
 4646 model.result('pg1').run;
 4647 model.result('pg1').run;
 4648 model.result('pg1').feature('slc1').set('expr', 'AngII');
 4649 model.result('pg1').run;
 4650 model.result('pg1').feature('slc1').set('expr', 'Ang17');
 4651 model.result('pg1').run;
 4652 model.result('pg1').feature('slc1').set('expr', 'Ang19');
 4653 model.result('pg1').run;
 4654 model.result('pg1').feature('slc1').set('expr', 'AngII');
 4655 model.result('pg1').run;
 4656 model.result('pg1').feature('slc1').set('expr', 'AngIII');
 4657 model.result('pg1').run;
 4658 model.result('pg1').feature('slc1').set('expr', 'AngIV');
 4659 model.result('pg1').run;
 4660 model.result('pg1').feature('slc1').set('expr', 'AT1bAngII');
 4661 model.result('pg1').run;
 4662 model.result('pg1').feature('slc1').set('expr', 'AT2bAngII');
 4663 model.result('pg1').run;
 4664 model.result('pg1').feature('slc1').set('expr', 'AT4bAngIV');
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4665 model.result('pg1').run;
4666 model.result('pg1').feature('slc1').set('expr', 'MAsbAng17');
4667 model.result('pg1').run;
4668 model.result('pg1').feature('slc1').set('expr', 'Cb');
4669 model.result('pg1').run;
4670 model.result('pg1').feature('slc1').set('expr', 'H');
4671 model.result('pg1').run;
4672 model.result('pg1').feature('slc1').set('expr', 'Vint');
4673 model.result('pg1').run;
4674 model.result('pg1').feature('slc1').set('expr', 'In');
4675 model.result('pg1').run;
4676 model.result('pg1').feature('slc1').set('expr', 'Ci');
4677 model.result('pg1').run;
4678 model.result('pg1').feature('slc1').set('expr', 'n');
4679 model.result('pg1').run;
4680 model.result('pg1').feature('slc1').set('expr', 'ma');
4681 model.result('pg1').run;
4682 model.result('pg1').feature('slc1').set('expr', 'c');
4683 model.result('pg1').run;
4684 model.result('pg1').feature('slc1').set('expr', 'Ctl');
4685 model.result('pg1').run;
4686 model.result('pg1').feature('slc1').set('expr', 'a');
4687 model.result('pg1').run;
4688 model.result('pg1').feature('slc1').set('expr', 'AT1R');
4689 model.result('pg1').run;
4690 model.result('pg1').feature('slc1').set('expr', 'AT2R');
4691 model.result('pg1').run;
4692 model.result('pg1').feature('slc1').set('expr', 'AT4R');
4693 model.result('pg1').run;
4694 model.result('pg1').feature('slc1').set('expr', 'MAsR');
4695 model.result('pg1').run;
4696 model.result('pg1').feature('slc1').set('expr', 'ACE2');
4697 model.result('pg1').run;
4698 model.result('pg1').feature('slc1').set('expr', 'ACE2bAngI');
4699 model.result('pg1').run;
4700 model.result('pg1').feature('slc1').set('expr', 'ACE2bAngII');
4701 model.result('pg1').run;
4702 model.result('pg1').feature('slc1').set('expr', 'IL6');
4703 model.result('pg1').run;
4704 model.result('pg1').feature('slc1').set('expr', 'IL6R');
4705 model.result('pg1').run;
4706 model.result('pg1').feature('slc1').set('expr', 'IL6RbIL6');
4707 model.result('pg1').run;
4708
4709 model.physics('Ang19').feature('init1').set('Ang19', '5.9e-8[mol/L]');
4710 model.physics('ACE2bAngI').feature('init1').set('ACE2bAngI', '04.1e-8[mol/L]');
4711 model.physics('ACE2bAngII').feature('init1').set('ACE2bAngII', '2.1e-8[mol/L]');
4712 model.physics('IL6').feature('init1').set('IL6', '2.7e-7[mol/L]');
4713 model.physics('IL6RbIL6').feature('init1').set('IL6RbIL6', '2.1e-8[mol/L]');
4714 model.physics('IL6R').feature('init1').set('IL6R', '8e-8[mol/L]');
```

```
 4715 model.physics('AT1R').feature('init1').set('AT1R', '8e-8[mol/L]');
 4716 model.physics('AT2R').feature('init1').set('AT2R', '8e-8[mol/L]');
 4717 model.physics('MAsR').feature('init1').set('MAsR', '8e-8[mol/L]');
 4718 model.physics('AT4R').feature('init1').set('AT4R', '8e-8[mol/L]');
 4719 model.physics('ACE2').feature('init1').set('ACE2', '8e-8[mol/L]');
 4720 model.physics('n').feature('dode1').setIndex('f', 'xn*c-gam_n*n-gam_m*n*ma- ↙
gam_v*n*Ci+xIL6*IL6RbIL6', 0);
 4721 model.physics('Ctl').feature('dode1').setIndex('f', 'pv*In*(t>5[d])-dcl*Ctl- ↙
gam_v*n*Ci', 0);
 4722 model.physics('AT1R').feature('init1').set('AT1R', '0');
 4723 model.physics('AT2R').feature('init1').set('AT2R', '0');
 4724 model.physics('MAsR').feature('init1').set('MAsR', '0');
 4725 model.physics('AT4R').feature('init1').set('AT4R', '0');
 4726 model.physics('ACE2').feature('init1').set('ACE2', '0');
 4727 model.physics('IL6R').feature('init1').set('IL6R', '0');
 4728
 4729 model.sol('sol1').runAll;
 4730
 4731 model.result('pg1').run;
 4732 model.result('pg1').run;
 4733 model.result('pg1').run;
 4734 model.result('pg1').setIndex('looplevel', '121', 0);
 4735 model.result('pg1').run;
 4736 model.result('pg1').run;
 4737 model.result('pg1').feature('slc1').set('expr', 'AGT');
 4738 model.result('pg1').run;
 4739 model.result('pg1').feature('slc1').set('expr', 'Renin');
 4740 model.result('pg1').run;
 4741 model.result('pg1').feature('slc1').set('expr', 'AngI');
 4742 model.result('pg1').run;
 4743 model.result('pg1').feature('slc1').set('expr', 'AngII');
 4744 model.result('pg1').run;
 4745 model.result('pg1').feature('slc1').set('expr', 'Ang17');
 4746 model.result('pg1').run;
 4747 model.result('pg1').feature('slc1').set('expr', 'Ang19');
 4748 model.result('pg1').run;
 4749 model.result('pg1').feature('slc1').set('expr', 'AngIII');
 4750 model.result('pg1').run;
 4751 model.result('pg1').feature('slc1').set('expr', 'AngIV');
 4752 model.result('pg1').run;
 4753 model.result('pg1').feature('slc1').set('expr', 'AT1bAngII');
 4754 model.result('pg1').run;
 4755 model.result('pg1').feature('slc1').set('expr', 'AT2bAngII');
 4756 model.result('pg1').run;
 4757 model.result('pg1').feature('slc1').set('expr', 'AT4bAngIV');
 4758 model.result('pg1').run;
 4759 model.result('pg1').feature('slc1').set('expr', 'MAsbAng17');
 4760 model.result('pg1').run;
 4761 model.result('pg1').feature('slc1').set('expr', 'Cb');
 4762 model.result('pg1').run;
```

```
 4763 model.result('pg1').feature('slc1').set('expr', 'H');
 4764 model.result('pg1').run;
 4765 model.result('pg1').feature('slc1').set('expr', 'In');
 4766 model.result('pg1').run;
 4767 model.result('pg1').feature('slc1').set('expr', 'Ci');
 4768 model.result('pg1').run;
 4769 model.result('pg1').feature('slc1').set('expr', 'n');
 4770 model.result('pg1').run;
 4771 model.result('pg1').feature('slc1').set('expr', 'ma');
 4772 model.result('pg1').run;
 4773 model.result('pg1').feature('slc1').set('expr', 'c');
 4774 model.result('pg1').run;
 4775 model.result('pg1').feature('slc1').set('expr', 'Ctl');
 4776 model.result('pg1').run;
 4777 model.result('pg1').run;
 4778 model.result('pg1').run;
 4779 model.result('pg1').feature('slc1').set('expr', 'AT1R');
 4780 model.result('pg1').run;
 4781 model.result('pg1').feature('slc1').set('expr', 'a');
 4782 model.result('pg1').run;
 4783 model.result('pg1').feature('slc1').set('expr', 'AT2R');
 4784 model.result('pg1').run;
 4785 model.result('pg1').feature('slc1').set('expr', 'MAsR');
 4786 model.result('pg1').run;
 4787 model.result('pg1').feature('slc1').set('expr', 'AT4R');
 4788 model.result('pg1').run;
 4789 model.result('pg1').feature('slc1').set('expr', 'ACE2');
 4790 model.result('pg1').run;
 4791 model.result('pg1').feature('slc1').set('expr', 'ACE2bAngI');
 4792 model.result('pg1').run;
 4793 model.result('pg1').feature('slc1').set('expr', 'ACE2bAngII');
 4794 model.result('pg1').run;
 4795 model.result('pg1').feature('slc1').set('expr', 'IL6');
 4796 model.result('pg1').run;
 4797 model.result('pg1').feature('slc1').set('expr', 'IL6R');
 4798 model.result('pg1').run;
 4799 model.result('pg1').feature('slc1').set('expr', 'IL6RbIL6');
 4800 model.result('pg1').run;
 4801
 4802 model.physics('AT1R').feature('dode1').setIndex('f', 'SAT1*100- ↙
KonAT1AngII*AngII*AT1R-KAT1RMAsR*MAsR+KoffAT1AngII*AT1bAngII-KAT1RAT2R*AT2R', 0);
 4803 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci-gam_IL6*IL6/100- ↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6', 0);
 4804 model.physics('IL6R').feature('dode1').setIndex('f', 'SIL6*100- ↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6', 0);
 4805
 4806 model.sol('sol1').runAll;
 4807
 4808 model.result('pg1').run;
 4809 model.result('pg1').run;
```

```
 4810 model.result('pg1').feature('slc1').set('expr', 'IL6');
 4811 model.result('pg1').run;
 4812 model.result('pg1').feature('slc1').set('expr', 'AT1R');
 4813 model.result('pg1').run;
 4814 model.result('pg1').feature('slc1').set('expr', 'c');
 4815 model.result('pg1').run;
 4816 model.result('pg1').feature('slc1').set('expr', 'Ctl');
 4817 model.result('pg1').run;
 4818 model.result('pg1').feature('slc1').set('expr', 'n');
 4819 model.result('pg1').run;
 4820 model.result('pg1').feature('slc1').set('expr', 'In');
 4821 model.result('pg1').run;
 4822 model.result('pg1').feature('slc1').set('expr', 'H');
 4823 model.result('pg1').run;
 4824
 4825 model.label('Full run new geometry_new eq_new receptor_addIL6_parameter_run - ↙
Copy.mph');
 4826
 4827 model.result('pg1').run;
 4828
 4829 model.physics('Ci').feature('cdeq1').setIndex('f', '+KoffACE2V*Cb- ↙
KonACE2V*Ci*ACE2+Ka*Vint-Kd*Ci', 0);
 4830 model.physics('Ci').feature('cdeq1').setIndex('f', '+KoffACE2V*Cb- ↙
KonACE2V*Ci*ACE2+Ka*Vint-Kd*Ci-KsACE2*sACE2*Ci', 0);
 4831 model.physics('Cb').feature('dode1').setIndex('f', '-KoffACE2V*Cb-Kd*Cb- ↙
Kint*Cb+KonACE2V*Ci*ACE2', 0);
 4832 model.physics('ma').feature('dode1').setIndex('f', 'xm*c- ↙
gam_n1*ma+gam_v*ma*Ci+xIL6ma*IL6bIl6', 0);
 4833 model.physics('ma').feature('dode1').setIndex('f', 'xm*c- ↙
gam_n1*ma+gam_v*ma*Ci+xIL6ma*IL6RbIL6', 0);
 4834 model.physics('Ctl').feature('dode1').setIndex('f', 'pv*In*(t>5[d])-dcl*Ctl- ↙
gam_v*n*Ci+xIL6ctl*IL6RbIL6', 0);
 4835 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci-gam_IL6*IL6/100- ↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6+KsIL6R*sIL6RbIL6', 0);
 4836 model.physics.create('dode', 'DomainODE', 'geom1', {'u'});
 4837
 4838 model.study('std1').feature('time').activate('dode', true);
 4839
 4840 model.physics('dode').prop('Units').set('DependentVariableQuantity', 'none');
 4841 model.physics('dode').prop('Units').set('CustomDependentVariableUnit', 'mol/ml');
 4842 model.physics('dode').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 4843 model.physics('dode').prop('ShapeProperty').set('order', '1');
 4844 model.physics('dode').field('dimensionless').component(1, 'sIL6RbIL6');
 4845 model.physics('dode').tag('sIL6RbIL6');
 4846 model.physics('sIL6RbIL6').feature('dode1').setIndex('f', ↙
'SsIL6R+KonsIL6R*sIL6RbIL6', 0);
 4847 model.physics.create('dode2', 'DomainODE', 'geom1', {'u9'});
 4848
 4849 model.study('std1').feature('time').activate('dode2', true);
 4850
```

```
 4851 model.physics('dode2').identifier('dode2');
 4852 model.physics('dode2').prop('Units').set('DependentVariableQuantity', 'none');
 4853 model.physics('dode2').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
 4854 model.physics('dode2').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 4855 model.physics('dode2').prop('ShapeProperty').set('order', '1');
 4856 model.physics('dode2').field('dimensionless').component(1, 'VEGF');
 4857 model.physics('dode2').tag('VEGF');
 4858 model.physics('VEGF').feature('dode1').setIndex('f', 'SVEGF+KVEGF*sIL6bIL6', 0);
 4859 model.physics.create('dode', 'DomainODE', 'geom1', {'u13'});
 4860
 4861 model.study('std1').feature('time').activate('dode', true);
 4862
 4863 model.physics('dode').field('dimensionless').component(1, 'sIL6R');
 4864 model.physics('dode').tag('sIL6R');
 4865 model.physics('sIL6R').prop('Units').set('DependentVariableQuantity', 'none');
 4866 model.physics('sIL6R').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
 4867 model.physics('sIL6R').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 4868 model.physics('sIL6R').prop('ShapeProperty').set('order', '1');
 4869 model.physics('sIL6R').feature('dode1').setIndex('f', 'Ssil6R', 0);
 4870 model.physics('sIL6RbIL6').feature('dode1').setIndex('f', ↙
'SsIL6RbIL6+KonsIL6R*sIL6RbIL6', 0);
 4871 model.physics('sIL6R').feature('dode1').setIndex('f', 'SsIL6R', 0);
 4872 model.physics('sIL6R').feature('dode1').setIndex('f', 'SsIL6R+KsIL6R*IL6R- ↙
KsIL6rbIL6*sIL6RbIL6', 0);
 4873 model.physics('sIL6R').feature('dode1').setIndex('f', 'SsIL6R+KsIL6R*IL6R- ↙
KsIL6RbIL6*sIL6RbIL6', 0);
 4874 model.physics.create('dode2', 'DomainODE', 'geom1', {'u14'});
 4875
 4876 model.study('std1').feature('time').activate('dode2', true);
 4877
 4878 model.physics('dode2').identifier('dode2');
 4879 model.physics('dode2').prop('ShapeProperty').set('order', '1');
 4880 model.physics('dode2').prop('Units').set('DependentVariableQuantity', 'none');
 4881 model.physics('dode2').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
 4882 model.physics('dode2').prop('Units').set('CustomSourceTermUnit', 'mol/ml/h');
 4883 model.physics('dode2').field('dimensionless').component(1, 'sACE2');
 4884 model.physics('dode2').feature('dode1').setIndex('f', 'SsACE2- ↙
KsACE2*sACE2*Ci+KAdam17*ACE2', 0);
 4885 model.physics('dode2').tag('sACE2');
 4886
 4887 model.variable('var1').set('KsACE2', 'gam_v');
 4888 model.variable('var1').set('xIL6ma', 'xIL6');
 4889 model.variable('var1').set('xIL6ctl', 'xIL6');
 4890 model.variable('var1').set('KsIL6R', 'KACE2');
 4891 model.variable('var1').set('KonsIL6R', 'KACE2');
 4892 model.variable('var1').set('KsIL6RbIL6', 'KACE2');
 4893 model.variable('var1').set('KAdam17', 'KACE2');
```

```
 4894 model.variable('var1').set('SIL6RbIL6', 'SAT1');
 4895 model.variable('var1').set('SsIL6R', 'SAT1');
 4896 model.variable('var1').set('SVEGF', 'SAT1');
 4897 model.variable('var1').set('SsIL6RbIL6', 'SAT1');
 4898 model.variable('var1').set('SsACE2', 'SAT1');
 4899 model.variable('var1').set('KVEGF', 'KACE2');
 4900
 4901 model.physics('VEGF').feature('dode1').setIndex('f', 'SVEGF+KVEGF*sIL6RbIL6', 0);
 4902
 4903 model.sol('sol1').clearSolutionData;
 4904
 4905 model.label('Full run new geometry_addsIL6R_sACE2.mph');
 4906
 4907 model.result('pg1').run;
 4908 model.result('pg1').feature('slc1').set('expr', 'In');
 4909 model.result('pg1').run;
 4910 model.result('pg1').feature('slc1').set('expr', 'H');
 4911 model.result('pg1').run;
 4912 model.result('pg1').feature('slc1').set('expr', 'In');
 4913 model.result('pg1').run;
 4914 model.result('pg1').feature('slc1').set('expr', 'Ci');
 4915 model.result('pg1').run;
 4916 model.result('pg1').feature('slc1').set('expr', 'Cb');
 4917 model.result('pg1').run;
 4918 model.result('pg1').feature('slc1').set('expr', 'Vint');
 4919 model.result('pg1').run;
 4920 model.result('pg1').feature('slc1').set('expr', 'Ci');
 4921 model.result('pg1').run;
 4922 model.result('pg1').feature('slc1').set('expr', 'Cb');
 4923 model.result('pg1').run;
 4924 model.result('pg1').feature('slc1').set('expr', 'VEGF');
 4925 model.result('pg1').run;
 4926 model.result('pg1').feature('slc1').set('expr', 'sACE2');
 4927 model.result('pg1').run;
 4928 model.result('pg1').feature('slc1').set('expr', 'sIL6R');
 4929 model.result('pg1').run;
 4930
 4931 model.physics('sIL6R').feature('dode1').setIndex('f', 'SsIL6R+KsIL6R*IL6R- ↙
KsIL6RbIL6*sIL6RbIL6/100', 0);
 4932
 4933 model.result('pg1').run;
 4934 model.result('pg1').feature('slc1').set('expr', 'sIL6RbIL6');
 4935 model.result('pg1').run;
 4936 model.result('pg1').feature('slc1').set('expr', 'IL6RbIL6');
 4937 model.result('pg1').run;
 4938 model.result('pg1').feature('slc1').set('expr', 'ACE2bAngII');
 4939 model.result('pg1').run;
 4940 model.result('pg1').feature('slc1').set('expr', 'ACE2bAngI');
 4941 model.result('pg1').run;
 4942 model.result('pg1').feature('slc1').set('expr', 'ACE2');
```

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 4943 model.result('pg1').run;
 4944 model.result('pg1').feature('slc1').set('expr', 'AT4R');
 4945 model.result('pg1').run;
 4946 model.result('pg1').feature('slc1').set('expr', 'MAsR');
 4947 model.result('pg1').run;
 4948 model.result('pg1').feature('slc1').set('expr', 'AT2R');
 4949 model.result('pg1').run;
 4950 model.result('pg1').feature('slc1').set('expr', 'AT1R');
 4951 model.result('pg1').run;
 4952 model.result('pg1').feature('slc1').set('expr', 'a');
 4953 model.result('pg1').run;
 4954 model.result('pg1').feature('slc1').set('expr', 'Ctl');
 4955 model.result('pg1').run;
 4956 model.result('pg1').feature('slc1').set('expr', 'c');
 4957 model.result('pg1').run;
 4958 model.result('pg1').feature('slc1').set('expr', 'ma');
 4959 model.result('pg1').run;
 4960 model.result('pg1').feature('slc1').set('expr', 'sIL6R');
 4961 model.result('pg1').run;
 4962 model.result('pg1').feature('slc1').set('expr', 'n');
 4963 model.result('pg1').run;
 4964 model.result('pg1').feature('slc1').set('expr', 'MAsbAng17');
 4965 model.result('pg1').run;
 4966
 4967 model.physics('ma').feature('dode1').setIndex('f', 'xm*c- ↙
gam_n1*ma+gam_v*ma*Ci+xIL6ma*IL6RbIL6/100', 0);
 4968 model.physics('ma').feature('dode1').setIndex('f', 'xm*c- ↙
gam_n1*ma+gam_v*ma*Ci+xIL6ma*IL6RbIL6/1000', 0);
 4969 model.physics('Ci').feature('cdeq1').setIndex('f', '+KoffACE2V*Cb- ↙
KonACE2V*Ci*ACE2+Ka*Vint*1000-Kd*Ci-KsACE2*sACE2*Ci/100', 0);
 4970 model.physics('Cb').feature('dode1').setIndex('f', '-KoffACE2V*Cb-Kd*Cb- ↙
Kint*Cb+KonACE2V*Ci*ACE2/100', 0);
 4971
 4972 model.result('pg1').run;
 4973 model.result('pg1').feature('slc1').set('expr', 'AngI');
 4974 model.result('pg1').run;
 4975 model.result('pg1').feature('slc1').set('expr', 'AngII');
 4976 model.result('pg1').run;
 4977 model.result('pg1').feature('slc1').set('expr', 'AngIV');
 4978 model.result('pg1').run;
 4979
 4980 model.physics('sIL6R').feature('dode1').setIndex('f', 'SsIL6R+KsIL6R*IL6R- ↙
KsIL6RbIL6*sIL6RbIL6', 0);
 4981 model.physics('ma').feature('dode1').setIndex('f', 'xm*c- ↙
gam_n1*ma+gam_v*ma*Ci+xIL6ma*IL6RbIL6', 0);
 4982 model.physics('Ci').feature('cdeq1').setIndex('f', '+KoffACE2V*Cb- ↙
KonACE2V*Ci*ACE2+Ka*Vint-Kd*Ci-KsACE2*sACE2*Ci', 0);
 4983 model.physics('Cb').feature('dode1').setIndex('f', '-KoffACE2V*Cb-Kd*Cb- ↙
Kint*Cb+KonACE2V*Ci*ACE2', 0);
 4984 model.physics('sIL6R').feature('dode1').setIndex('f', 'SsIL6R+KsIL6R*IL6R- ↙
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KsIL6RbIL6*sIL6RbIL6/100', 0);
 4985 model.physics('ma').feature('dode1').setIndex('f', 'xm*c- ↙
gam_n1*ma+gam_v*ma*Ci+xIL6ma*IL6RbIL6/100', 0);
 4986 model.physics('sIL6R').feature('dode1').setIndex('f', 'SsIL6R*100+KsIL6R*IL6R- ↙
KsIL6RbIL6*sIL6RbIL6', 0);
 4987
 4988 model.sol('sol1').runAll;
 4989
 4990 model.result('pg1').run;
 4991
 4992 model.label('Full run new geometry_addsIL6R_sACE2_run.mph');
 4993
 4994 model.physics('AT1bAngII').feature('dode1').setIndex('f', ↙
'KonAT1AngII*AT1R*AngII-KoffAT1AngII*AT1bAngII-(log(2)/hAT1)*AT1bAngII', 0);
 4995 model.physics('AT2bAngII').feature('dode1').setIndex('f', ↙
'KonAT2AngII*AngII*AT2R-KoffAT2AngII*AT2bAngII-(log(2)/hAT2)*AT2bAngII', 0);
 4996 model.physics('MAsbAng17').feature('dode1').setIndex('f', 'KonMAs*Ang17*MAsR- ↙
KoffMAs*MAsbAng17-(log(2)/hMAs)*MAsbAng17', 0);
 4997 model.physics('AngIV').feature('dode1').setIndex('f', 'KAPM*AngIII- ↙
KonAT4R*AngIV*AT4R+KoffAT4R*AT4bAngIV-(log(2)/hAngIV)*AngIV', 0);
 4998 model.physics('AT4bAngIV').feature('dode1').setIndex('f', 'KonAT4R*AngIV*AT4R- ↙
KoffAT4R*AT4bAngIV-(log(2)/hAT4R)*AT4bAngIV', 0);
 4999 model.physics('ACE2bAngI').feature('dode1').setIndex('f', 'KonACE2AngI*AngI*ACE2- ↙
KoffACE2AngI*ACE2bAngI-KACE2*ACE2bAngI', 0);
 5000 model.physics('ACE2bAngII').feature('dode1').setIndex('f', ↙
'KonACE2AngII*AngII*ACE2-KoffACE2AngII*ACE2bAngII-KACE2*ACE2bANgII', 0);
 5001 model.physics('ACE2bAngII').feature('dode1').setIndex('f', ↙
'KonACE2AngII*AngII*ACE2-KoffACE2AngII*ACE2bAngII-KACE2*ACE2bAngII', 0);
 5002 model.physics('AT1R').feature('dode1').setIndex('f', 'SAT1*100- ↙
KonAT1AngII*AngII*AT1R+KoffAT1AngII*AT1bAngII-KAT1RMAsR*MAsR-KAT1RAT2R*AT2R', 0);
 5003 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci-gam_IL6*IL6/100- ↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6+KsIL6R*sIL6RbIL6-KsIL6R*sIL6R*IL6', 0);
 5004 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci-gam_IL6*IL6/100- ↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6+KsIL6R*sIL6RbIL6-K1sIL6R*sIL6R*IL6', 0);
 5005
 5006 model.variable('var1').set('K1sIL6R', 'gam_v');
 5007
 5008 model.physics('IL6R').feature('dode1').setIndex('f', 'SIL6*100- ↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6-KsIL6R*IL6R', 0);
 5009 model.physics('sIL6R').feature('dode1').setIndex('f', 'SsIL6R*100+KsIL6R*IL6R- ↙
KsIL6R*sIL6RbIL6', 0);
 5010 model.physics('sIL6RbIL6').feature('dode1').setIndex('f', 'KonsIL6R*sIL6RbIL6- ↙
KsIL6R*sIL6RbIL6', 0);
 5011 model.physics('ACE2').feature('dode1').setIndex('f', 'SACE2R- ↙
KonACE2V*Ci*ACE2+KoffACE2V*Cb-KAdam17*ACE2-KonACE2AngI*AngI*ACE2- ↙
KonACE2AngII*AngII*ACE2+KoffACE2AngI*ACE2bAngI+KoffACE2AngII*ACE2bAngII', 0);
 5012 model.physics('ACE2').feature('dode1').setIndex('f', 'SACE2R- ↙
KonACE2V*Ci*ACE2+KoffACE2V*Cb-KAdam17*ACE2- ↙
KonACE2AngI*AngI*ACE2+KoffACE2AngI*ACE2bAngI- ↙
KonACE2AngII*AngII*ACE2+KoffACE2AngII*ACE2bAngII', 0);
```

```
 5013 model.physics('Ci').feature('cdeq1').setIndex('f', '-KsACE2*sACE2*Ci-↙
KonACE2V*Ci*ACE2+KoffACE2V*Cb-Kd*Ci+Ka*Vint', 0);
 5014 model.physics('Cb').feature('dode1').setIndex('f', '+KonACE2V*Ci*ACE2-↙
KoffACE2V*Cb-Kd*Cb-Kint*Cb', 0);
 5015 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint/1.27e-11[M]↙
+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c', 0);
 5016
 5017 model.sol('sol1').clearSolutionData;
 5018
 5019 model.label('Full run new geometry_addsIL6R_sACE2_check.mph');
 5020
 5021 model.sol('sol1').runAll;
 5022
 5023 model.result('pg1').run;
 5024 model.result('pg1').setIndex('looplevel', '121', 0);
 5025 model.result('pg1').run;
 5026 model.result('pg1').feature('slc1').set('expr', 'AngIV*1046.2 [g/mol]');
 5027 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
 5028 model.result('pg1').feature('slc1').set('expr', 'AngII*1046.2 [g/mol]');
 5029 model.result('pg1').run;
 5030
 5031 model.variable('var1').set('KACE', '54.1[1/h]*(1-InACE1)');
 5032
 5033 model.physics('Cb').active(false);
 5034 model.physics('Vint').active(false);
 5035 model.physics('Ci').active(false);
 5036
 5037 model.variable('var1').set('Cb', '0');
 5038 model.variable('var1').set('Ci', '0');
 5039 model.variable('var1').set('Vint', '0');
 5040
 5041 model.sol('sol1').runAll;
 5042
 5043 model.result('pg1').run;
 5044 model.result('pg1').setIndex('looplevel', '121', 0);
 5045 model.result('pg1').run;
 5046 model.result('pg1').run;
 5047 model.result('pg1').run;
 5048 model.result('pg1').run;
 5049 model.result('pg1').feature('slc1').set('expr', 'AngI');
 5050 model.result('pg1').run;
 5051 model.result('pg1').feature('slc1').set('expr', 'AngII*1046.2 [g/mol]');
 5052 model.result('pg1').run;
 5053 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
 5054 model.result('pg1').run;
 5055
 5056 model.variable('var1').set('KACE', '54.1[1/h]*(1-InACE1)*100');
 5057 model.variable('var1').set('cRenin', '1.8e-14[1/s]*100');
 5058
 5059 model.result('pg1').run;
```

```
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Renin');
model.result('pg1').run;

model.variable('var1').set('kAGT', '2.27e6[nmol/L/h]*100');

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngII');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngII*1046.2 [g/mol]');
model.result('pg1').feature('slc1').set('unit', 'pg/ml');
model.result('pg1').run;

model.variable('var1').set('cRenin', '1.8e-14[1/s]*50');
model.variable('var1').set('kAGT', '2.27e6[nmol/L/h]*50');

model.sol('sol1').runAll;

model.result('pg1').run;

model.variable('var1').set('KACE', '54.1[1/h]*(1-InACE1)*70');
model.variable('var1').set('cRenin', '1.8e-14[1/s]*40');
model.variable('var1').set('KACE', '54.1[1/h]*(1-InACE1)*100');
model.variable('var1').set('kAGT', '2.27e6[nmol/L/h]*40');

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '121', 0);
model.result('pg1').run;

model.physics('Cb').active(true);
model.physics('Vint').active(true);
model.physics('Ci').active(true);

model.variable('var1').remove('Cb');
model.variable('var1').remove('Ci');
model.variable('var1').remove('Vint');

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'IL6');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'n');
model.result('pg1').feature('slc1').set('unit', '1/L');
model.result('pg1').feature('slc1').set('expr', 'n/1e6');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ctl/1e6');
```

```
5110 model.result('pg1').run;
5111 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9');
5112 model.result('pg1').run;
5113 model.result('pg1').run;
5114
5115 model.variable('var1').set('pv', '0.05[1/h]*10');
5116
5117 model.result('pg1').run;
5118 model.result('pg1').feature('slc1').set('expr', 'n/1e9');
5119 model.result('pg1').run;
5120
5121 model.physics('Cb').active(false);
5122 model.physics('Vint').active(false);
5123 model.physics('Ci').active(false);
5124
5125 model.variable('var1').set('Ci', '0');
5126 model.variable('var1').set('Cb', '0');
5127 model.variable('var1').set('Vint', '0');
5128 model.variable('var1').set('Ci', '0[M]');
5129 model.variable('var1').set('Cb', '0[M]');
5130 model.variable('var1').set('Vint', '0[M]');
5131 model.variable('var1').set('xn', '2.1e-2[1/pg/h]/(1+a/57.85[pg/mm^3])*100');
5132 model.variable('var1').set('gam_m', '2.1e-2[mm^3/h]/10');
5133 model.variable('var1').set('gam_v', '2.5e-2[ml/h/fmol]/10');
5134
5135 model.sol('sol1').runAll;
5136
5137 model.result('pg1').run;
5138 model.result('pg1').run;
5139 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9');
5140 model.result('pg1').run;
5141 model.result('pg1').run;
5142 model.result('pg1').feature('slc1').set('expr', 'IL6RbIL6');
5143 model.result('pg1').run;
5144
5145 model.variable('var1').set('dcl', '5.54e-3[1/h]/10');
5146
5147 model.result('pg1').run;
5148 model.result('pg1').feature('slc1').set('expr', 'c');
5149 model.result('pg1').run;
5150 model.result('pg1').feature('slc1').set('expr', 'c/1e6');
5151 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
5152 model.result('pg1').run;
5153
5154 model.variable('var1').set('gam_n', '6.3e-4[1/h]/10');
5155 model.variable('var1').set('Sn', '2.1e-2[pg/h]*10');
5156 model.variable('var1').set('Sc', '2.9e-2[pg/ml/h]*10');
5157
5158 model.sol('sol1').runAll;
5159
```

```
5160 model.result('pg1').run;
5161 model.result('pg1').run;
5162 model.result('pg1').feature('slc1').set('expr', 'n/1e9');
5163 model.result('pg1').run;
5164 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9');
5165 model.result('pg1').run;
5166 model.result('pg1').feature('slc1').set('expr', 'c/1e9');
5167 model.result('pg1').run;
5168 model.result('pg1').feature('slc1').set('expr', 'c/1e6');
5169 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
5170 model.result('pg1').run;
5171 model.result('pg1').feature('slc1').set('expr', 'n/1e9');
5172 model.result('pg1').feature('slc1').set('unit', '1/L');
5173 model.result('pg1').run;
5174 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9');
5175 model.result('pg1').run;
5176
5177 model.variable('var1').set('pv', '0.05[1/h]');
5178
5179 model.result('pg1').run;
5180 model.result('pg1').run;
5181
5182 model.variable('var1').set('dcl', '5.54e-3[1/h]');
5183
5184 model.result('pg1').run;
5185 model.result('pg1').feature('slc1').set('expr', 'n/1e9');
5186 model.result('pg1').run;
5187
5188 model.variable('var1').set('xn', '2.1e-2[1/pg/h]/(1+a/57.85[pg/mm^3])*100');
5189 model.variable('var1').set('gam_m', '2.1e-2[mm^3/h]/100');
5190 model.variable('var1').set('gam_n', '6.3e-4[1/h]/100');
5191 model.variable('var1').set('gam_v', '2.5e-2[ml/h/fmol]/100');
5192
5193 model.sol('sol1').runAll;
5194
5195 model.result('pg1').run;
5196 model.result('pg1').setIndex('looplevel', '121', 0);
5197 model.result('pg1').run;
5198 model.result('pg1').run;
5199 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9');
5200 model.result('pg1').run;
5201 model.result('pg1').feature('slc1').set('expr', 'n/1e9');
5202 model.result('pg1').run;
5203
5204 model.variable('var1').set('pv', '0.05[1/h]/2');
5205 model.variable('var1').set('gam_a', '8.3e-1[1/h]*1000');
5206 model.variable('var1').set('gam_m', '2.1e-2[mm^3/h]/1000');
5207 model.variable('var1').set('gam_v', '2.5e-2[ml/h/fmol]/1000');
5208
5209 model.result('pg1').run;
```

```
5210 model.result('pg1').feature('slc1').set('expr', 'c/1e6');
5211 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
5212 model.result('pg1').run;
5213 model.result('pg1').feature('slc1').set('expr', 'n/1e9');
5214 model.result('pg1').feature('slc1').set('unit', '1/L');
5215 model.result('pg1').run;
5216
5217 model.variable('var1').set('xn', '2.1e-2[1/pg/h]/(1+a/57.85[pg/mm^3])*200');
5218
5219 model.sol('sol1').runAll;
5220
5221 model.result('pg1').run;
5222 model.result('pg1').run;
5223 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9');
5224 model.result('pg1').run;
5225 model.result('pg1').feature('slc1').set('expr', 'c/1e6');
5226 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
5227 model.result('pg1').run;
5228 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9');
5229 model.result('pg1').feature('slc1').set('unit', '1/L');
5230 model.result('pg1').run;
5231
5232 model.variable('var1').set('pv', '0.05[1/h]/10');
5233
5234 model.sol('sol1').runAll;
5235
5236 model.result('pg1').run;
5237
5238 model.variable('var1').set('pv', '0.05[1/h]/30');
5239
5240 model.sol('sol1').runAll;
5241
5242 model.result('pg1').run;
5243 model.result('pg1').run;
5244 model.result('pg1').feature('slc1').set('expr', 'AngII*1046.2 [g/mol]');
5245 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
5246 model.result('pg1').run;
5247 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9');
5248 model.result('pg1').feature('slc1').set('unit', '1/L');
5249 model.result('pg1').run;
5250 model.result('pg1').run;
5251 model.result('pg1').run;
5252 model.result('pg1').run;
5253 model.result('pg1').feature('slc1').set('expr', 'n/1e9');
5254 model.result('pg1').run;
5255 model.result('pg1').run;
5256 model.result('pg1').feature('slc1').set('expr', 'a');
5257 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
5258 model.result('pg1').run;
5259 model.result('pg1').run;
```

```
5260 model.result('pg1').feature('slc1').set('expr', 'IL6');
5261 model.result('pg1').feature('slc1').set('unit', '');
5262 model.result('pg1').feature('slc1').set('expr', 'IL6*23717.965 [g/mol]');
5263 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
5264 model.result('pg1').run;
5265 model.result('pg1').run;
5266 model.result('pg1').setIndex('looplevel', '60', 0);
5267 model.result('pg1').run;
5268 model.result('pg1').setIndex('looplevel', '121', 0);
5269 model.result('pg1').run;
5270 model.result('pg1').set('showhiddenobjects', 'on');
5271 model.result('pg1').run;
5272 model.result('pg1').feature('slc1').set('expr', 'Ctl');
5273 model.result('pg1').feature('slc1').set('unit', '1/ml');
5274 model.result('pg1').run;
5275 model.result('pg1').feature('slc1').set('unit', '1/L');
5276 model.result('pg1').run;
5277 model.result('pg1').feature('slc1').set('expr', 'n');
5278 model.result('pg1').run;
5279 model.result('pg1').feature('slc1').set('expr', 'a');
5280 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
5281 model.result('pg1').run;
5282
5283 model.variable('var1').set('pv', '0.05[1/h]/60');
5284 model.variable('var1').set('xn', '2.1e-2[1/pg/h]/(1+a/57.85[pg/mm^3])*400');
5285
5286 model.physics('IL6').feature('init1').set('IL6', '27[pg/ml]/23717.965 [g/mol]');
5287
5288 model.variable('var1').set('Kg', '2.1e-2[pg/h]/10');
5289 model.variable('var1').set('phi_a', '2.1e-3[mm^3]/10');
5290
5291 model.sol('sol1').runAll;
5292
5293 model.result('pg1').run;
5294 model.result('pg1').run;
5295 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9');
5296 model.result('pg1').feature('slc1').set('unit', '1/L');
5297 model.result('pg1').run;
5298 model.result('pg1').feature('slc1').set('expr', 'n/1e9');
5299 model.result('pg1').run;
5300 model.result('pg1').run;
5301 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9');
5302 model.result('pg1').run;
5303
5304 model.variable('var1').set('pv', '0.05[1/h]/80');
5305 model.variable('var1').set('xn', '2.1e-2[1/pg/h]/(1+a/57.85[pg/mm^3])*300');
5306
5307 model.result('pg1').run;
5308 model.result('pg1').run;
5309 model.result('pg1').feature('slc1').set('expr', 'IL6');
```

```
5310 model.result('pg1').run;
5311
5312 model.physics('IL6').feature('init1').set('IL6', '100[pg/ml]/23717.965 [g/mol]');
5313
5314 model.result('pg1').run;
5315 model.result('pg1').feature('slc1').set('expr', 'a');
5316 model.result('pg1').run;
5317 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
5318 model.result('pg1').run;
5319
5320 model.variable('var1').set('Kg', '2.1e-2[pg/h]/30');
5321 model.variable('var1').set('phi_a', '2.1e-3[mm^3]/30');
5322 model.variable('var1').set('Sang17', '2.1[pg*ml/mm^3/h/fmol]/5');
5323
5324 model.sol('sol1').runAll;
5325
5326 model.result('pg1').run;
5327 model.result('pg1').run;
5328 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9');
5329 model.result('pg1').feature('slc1').set('unit', '1/L');
5330 model.result('pg1').run;
5331 model.result('pg1').feature('slc1').set('expr', 'n/1e9');
5332 model.result('pg1').run;
5333 model.result('pg1').feature('slc1').set('expr', 'IL6');
5334 model.result('pg1').feature('slc1').set('unit', 'mol/ml');
5335 model.result('pg1').feature('slc1').set('expr', 'IL6*23717.965 [g/mol]');
5336 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
5337 model.result('pg1').run;
5338 model.result('pg1').feature('slc1').set('expr', 'a');
5339 model.result('pg1').run;
5340
5341 model.variable('var1').set('Kg', '2.1e-2[pg/h]/80');
5342 model.variable('var1').set('phi_a', '2.1e-3[mm^3]/50');
5343
5344 model.result('pg1').run;
5345 model.result('pg1').feature('slc1').set('expr', 'n/1e9');
5346 model.result('pg1').feature('slc1').set('unit', '1/L');
5347 model.result('pg1').run;
5348
5349 model.variable('var1').set('xn', '2.1e-2[1/pg/h]/(1+a/57.85[pg/mm^3])*350');
5350
5351 model.sol('sol1').runAll;
5352
5353 model.result('pg1').run;
5354 model.result('pg1').run;
5355 model.result('pg1').feature('slc1').set('expr', 'a');
5356 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
5357 model.result('pg1').run;
5358
5359 model.variable('var1').set('xn', '2.1e-2[1/pg/h]/(1+a/57.85[pg/mm^3])*450');
```

```
5360 model.variable('var1').set('Kg', '2.1e-2[pg/h]/100');
5361 model.variable('var1').set('phi_a', '2.1e-3[mm^3]/80');
5362
5363 model.sol('sol1').runAll;
5364
5365 model.result('pg1').run;
5366 model.result('pg1').run;
5367 model.result('pg1').feature('slc1').set('expr', 'n/1e9');
5368 model.result('pg1').feature('slc1').set('unit', '1/L');
5369 model.result('pg1').run;
5370 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9');
5371 model.result('pg1').run;
5372 model.result('pg1').feature('slc1').set('expr', 'a');
5373 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
5374 model.result('pg1').run;
5375 model.result('pg1').feature('slc1').set('expr', 'IL6*23717.965 [g/mol]');
5376 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
5377 model.result('pg1').run;
5378
5379 model.physics('Cb').active(true);
5380 model.physics('Vint').active(true);
5381 model.physics('Ci').active(true);
5382
5383 model.variable('var1').remove('Ci');
5384 model.variable('var1').remove('Cb');
5385 model.variable('var1').remove('Vint');
5386 model.variable('var1').set('Ka', '5.78e-4[1/s]*1e6');
5387
5388 model.result('pg1').run;
5389 model.result('pg1').feature('slc1').set('expr', 'AngII*1046.2 [g/mol]');
5390 model.result('pg1').run;
5391 model.result('pg1').run;
5392 model.result('pg1').feature('slc1').set('expr', 'Ci');
5393 model.result('pg1').run;
5394 model.result('pg1').feature('slc1').set('expr', 'Cb');
5395 model.result('pg1').run;
5396 model.result('pg1').feature('slc1').set('expr', 'Vint');
5397 model.result('pg1').run;
5398 model.result('pg1').run;
5399 model.result('pg1').feature('slc1').set('expr', 'AngII');
5400 model.result('pg1').run;
5401 model.result('pg1').feature('slc1').set('expr', 'IL6');
5402 model.result('pg1').run;
5403 model.result('pg1').feature('slc1').set('expr', 'AngII');
5404
5405 model.variable('var1').set('KonACE2V', 'gam_v/1000');
5406 model.variable('var1').set('KIL6', '10[mm^3/h]/100');
5407 model.variable('var1').set('KoffACE2V', 'KACE2/100');
5408 model.variable('var1').set('KonACE2V', 'gam_v/100');
5409
```

```
 5410 model.result('pg1').run;
 5411 model.result('pg1').feature('slc1').set('expr', 'c');
 5412 model.result('pg1').run;
 5413
 5414 model.variable('var1').set('Sc', '2.9e-2[pg/ml/h]/100');
 5415
 5416 model.result('pg1').run;
 5417 model.result('pg1').feature('slc1').set('expr', 'Ctl');
 5418 model.result('pg1').run;
 5419 model.result('pg1').run;
 5420 model.result('pg1').set('looplevel', {'48'});
 5421 model.result('pg1').run;
 5422
 5423 model.physics('Ctl').feature('dode1').setIndex('f', 'pv*In*(t>5[d])*(t-5[d])/1[d] ↙
-dcl*Ctl-gam_v*n*Ci+xIL6ctl*IL6RbIL6', 0);
 5424
 5425 model.result('pg1').run;
 5426 model.result('pg1').feature('slc1').set('expr', 'IL6RbIL6');
 5427 model.result('pg1').run;
 5428 model.result('pg1').feature('slc1').set('expr', 'Ci');
 5429 model.result('pg1').run;
 5430 model.result('pg1').feature('slc1').set('expr', 'Cb');
 5431 model.result('pg1').run;
 5432 model.result('pg1').feature('slc1').set('expr', 'Vint');
 5433 model.result('pg1').run;
 5434 model.result('pg1').run;
 5435
 5436 model.physics('IL6RbIL6').feature('dode1').setIndex('f', 'KonIL6*IL6*IL6R- ↙
KoffIL6*IL6RbIL6-(log(2)/hIL6R)*IL6RbIL6/100', 0);
 5437
 5438 model.result('pg1').run;
 5439 model.result('pg1').feature('slc1').set('expr', 'IL6RbIL6');
 5440 model.result('pg1').run;
 5441 model.result('pg1').run;
 5442 model.result('pg1').set('looplevel', {'51'});
 5443 model.result('pg1').run;
 5444 model.result('pg1').run;
 5445 model.result('pg1').feature('slc1').set('expr', 'IL6');
 5446 model.result('pg1').run;
 5447
 5448 model.variable('var1').set('KIL6', '10[mm^3/h]/10');
 5449
 5450 model.result('pg1').run;
 5451 model.result('pg1').run;
 5452 model.result('pg1').set('looplevel', {'44'});
 5453 model.result('pg1').run;
 5454 model.result('pg1').run;
 5455 model.result('pg1').feature('slc1').set('expr', 'AGT');
 5456 model.result('pg1').run;
 5457 model.result('pg1').feature('slc1').set('expr', 'Renin');
```

```
5458 model.result('pg1').run;
5459 model.result('pg1').feature('slc1').set('expr', 'AngI');
5460 model.result('pg1').run;
5461 model.result('pg1').feature('slc1').set('expr', 'AngII');
5462 model.result('pg1').run;
5463 model.result('pg1').feature('slc1').set('expr', 'Ang17');
5464 model.result('pg1').run;
5465 model.result('pg1').feature('slc1').set('expr', 'Ang19');
5466 model.result('pg1').run;
5467 model.result('pg1').feature('slc1').set('expr', 'AngIII');
5468 model.result('pg1').run;
5469 model.result('pg1').feature('slc1').set('expr', 'AngIV');
5470 model.result('pg1').run;
5471 model.result('pg1').feature('slc1').set('expr', 'AT1bAngII');
5472 model.result('pg1').run;
5473 model.result('pg1').feature('slc1').set('expr', 'AT2bAngII');
5474 model.result('pg1').run;
5475 model.result('pg1').feature('slc1').set('expr', 'AT4bAngIV');
5476 model.result('pg1').run;
5477 model.result('pg1').feature('slc1').set('expr', 'MAsbAng17');
5478 model.result('pg1').run;
5479 model.result('pg1').feature('slc1').set('expr', 'Cb');
5480 model.result('pg1').run;
5481 model.result('pg1').feature('slc1').set('expr', 'H');
5482 model.result('pg1').run;
5483 model.result('pg1').feature('slc1').set('expr', 'Vint');
5484 model.result('pg1').run;
5485 model.result('pg1').feature('slc1').set('expr', 'In');
5486 model.result('pg1').run;
5487 model.result('pg1').feature('slc1').set('expr', 'Ci');
5488 model.result('pg1').run;
5489 model.result('pg1').feature('slc1').set('expr', 'n');
5490 model.result('pg1').run;
5491 model.result('pg1').feature('slc1').set('expr', 'ma');
5492 model.result('pg1').run;
5493 model.result('pg1').feature('slc1').set('expr', 'c');
5494 model.result('pg1').run;
5495 model.result('pg1').feature('slc1').set('expr', 'Ctl');
5496 model.result('pg1').run;
5497 model.result('pg1').feature('slc1').set('expr', 'a');
5498 model.result('pg1').run;
5499 model.result('pg1').feature('slc1').set('expr', 'AT1R');
5500 model.result('pg1').run;
5501 model.result('pg1').feature('slc1').set('expr', 'AT2R');
5502 model.result('pg1').run;
5503 model.result('pg1').feature('slc1').set('expr', 'MAsR');
5504 model.result('pg1').run;
5505 model.result('pg1').feature('slc1').set('expr', 'AT4R');
5506 model.result('pg1').run;
5507 model.result('pg1').feature('slc1').set('expr', 'ACE2');
```

```
5508 model.result('pg1').run;
5509 model.result('pg1').feature('slc1').set('expr', 'ACE2bAngI');
5510 model.result('pg1').run;
5511 model.result('pg1').feature('slc1').set('expr', 'ACE2bAngII');
5512 model.result('pg1').run;
5513 model.result('pg1').feature('slc1').set('expr', 'IL6');
5514 model.result('pg1').run;
5515 model.result('pg1').feature('slc1').set('expr', 'IL6RbIL6');
5516 model.result('pg1').run;
5517 model.result('pg1').feature('slc1').set('expr', 'sIL6RbIL6');
5518 model.result('pg1').run;
5519 model.result('pg1').feature('slc1').set('expr', 'VEGF');
5520 model.result('pg1').run;
5521 model.result('pg1').feature('slc1').set('expr', 'sIL6R');
5522 model.result('pg1').run;
5523 model.result('pg1').feature('slc1').set('expr', 'sACE2');
5524 model.result('pg1').run;
5525
5526 model.variable('var1').set('KsIL6R', 'KACE2/100');
5527 model.variable('var1').set('KonIL6', 'gam_v/100');
5528
5529 model.physics('IL6').feature('init1').set('IL6', '0');
5530
5531 model.variable('var1').set('K1sIL6R', 'gam_v/100');
5532 model.variable('var1').set('xIL6ctl', 'xIL6*10');
5533 model.variable('var1').set('phic', '2.3e-4[mm^3/h]/10');
5534 model.variable('var1').set('KsACE2', 'gam_v/10');
5535 model.variable('var1').set('KonACE2V', 'gam_v/10');
5536
5537 model.sol('sol1').runAll;
5538
5539 model.result('pg1').run;
5540 model.result('pg1').setIndex('looplevel', '121', 0);
5541 model.result('pg1').run;
5542 model.result('pg1').run;
5543 model.result('pg1').feature('slc1').set('expr', 'AGT');
5544 model.result('pg1').run;
5545 model.result('pg1').feature('slc1').set('expr', 'Renin');
5546 model.result('pg1').run;
5547 model.result('pg1').feature('slc1').set('expr', 'AngI');
5548 model.result('pg1').run;
5549 model.result('pg1').feature('slc1').set('expr', 'AngII');
5550 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
5551 model.result('pg1').run;
5552 model.result('pg1').feature('slc1').set('expr', 'AngII*1046.2[g/mol]');
5553 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
5554 model.result('pg1').run;
5555 model.result('pg1').feature('slc1').set('expr', 'Ang17');
5556 model.result('pg1').run;
5557 model.result('pg1').feature('slc1').set('expr', 'Ang19');
```

```
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngIII');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngIV');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT1bAngII');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT2bAngII');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT4bAngIV');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'MAsbAng17');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Cb');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Vint');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'In');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'n');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', '1/L');
model.result('pg1').feature('slc1').set('expr', 'n/1e9');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'ma');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'c');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('unit', 'pg/ml');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'a');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT1R');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT2R');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT4R');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'MAsR');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'ACE2');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'ACE2bAngI');
model.result('pg1').run;
```

```
 5608 model.result('pg1').feature('slc1').set('expr', 'ACE2bAngII');
 5609 model.result('pg1').run;
 5610 model.result('pg1').feature('slc1').set('expr', 'IL6');
 5611 model.result('pg1').run;
 5612 model.result('pg1').feature('slc1').set('expr', 'IL6*23717.965 [g/mol]');
 5613 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
 5614 model.result('pg1').run;
 5615 model.result('pg1').feature('slc1').set('expr', 'IL6R');
 5616 model.result('pg1').run;
 5617 model.result('pg1').feature('slc1').set('expr', 'IL6RbIL6');
 5618 model.result('pg1').run;
 5619 model.result('pg1').feature('slc1').set('expr', 'sIL6RbIL6');
 5620 model.result('pg1').run;
 5621 model.result('pg1').feature('slc1').set('expr', 'VEGF');
 5622 model.result('pg1').run;
 5623 model.result('pg1').feature('slc1').set('expr', 'sIL6R');
 5624 model.result('pg1').run;
 5625 model.result('pg1').feature('slc1').set('expr', 'sACE2');
 5626 model.result('pg1').run;
 5627 model.result('pg1').feature('slc1').set('expr', 'Ci');
 5628 model.result('pg1').run;
 5629 model.result('pg1').run;
 5630 model.result('pg1').setIndex('looplevel', '71', 0);
 5631 model.result('pg1').setIndex('looplevel', '70', 0);
 5632 model.result('pg1').run;
 5633 model.result('pg1').run;
 5634 model.result('pg1').feature('slc1').set('expr', 'Cb');
 5635 model.result('pg1').run;
 5636 model.result('pg1').run;
 5637 model.result('pg1').setIndex('looplevel', '36', 0);
 5638 model.result('pg1').run;
 5639 model.result('pg1').setIndex('looplevel', '4', 0);
 5640 model.result('pg1').run;
 5641 model.result('pg1').setIndex('looplevel', '12', 0);
 5642 model.result('pg1').run;
 5643 model.result('pg1').setIndex('looplevel', '21', 0);
 5644 model.result('pg1').run;
 5645 model.result('pg1').setIndex('looplevel', '41', 0);
 5646 model.result('pg1').run;
 5647 model.result('pg1').setIndex('looplevel', '62', 0);
 5648 model.result('pg1').run;
 5649 model.result('pg1').setIndex('looplevel', '60', 0);
 5650 model.result('pg1').run;
 5651 model.result('pg1').setIndex('looplevel', '52', 0);
 5652 model.result('pg1').run;
 5653
 5654 model.variable('var1').set('Kd', '4.8e-5[1/s]*0');
 5655
 5656 model.physics('sIL6RbIL6').feature('dode1').setIndex('f', 'KonsIL6R*sIL6R*IL6- ↙
KsIL6R*sIL6RbIL6', 0);
```

```
5657
5658 model.variable('var1').set('KonsIL6R', 'gam_v');
5659
5660 model.result('pg1').run;
5661 model.result('pg1').feature('slc1').set('expr', 'sIL6R');
5662 model.result('pg1').run;
5663
5664 model.variable('var1').set('KonsIL6R', 'gam_v*100');
5665
5666 model.result('pg1').run;
5667 model.result('pg1').run;
5668 model.result('pg1').run;
5669 model.result('pg1').feature('slc1').set('expr', 'Ci');
5670 model.result('pg1').run;
5671 model.result('pg1').feature('slc1').set('expr', 'Cb');
5672 model.result('pg1').run;
5673 model.result('pg1').feature('slc1').set('expr', 'Vint');
5674 model.result('pg1').run;
5675 model.result('pg1').feature('slc1').set('expr', 'AGT');
5676 model.result('pg1').run;
5677 model.result('pg1').feature('slc1').set('expr', 'Renin');
5678 model.result('pg1').run;
5679 model.result('pg1').feature('slc1').set('expr', 'AngI');
5680 model.result('pg1').run;
5681 model.result('pg1').feature('slc1').set('expr', 'AngII');
5682 model.result('pg1').run;
5683 model.result('pg1').feature('slc1').set('expr', 'Ang17');
5684 model.result('pg1').run;
5685 model.result('pg1').feature('slc1').set('expr', 'Ang19');
5686 model.result('pg1').run;
5687 model.result('pg1').feature('slc1').set('expr', 'AngIII');
5688 model.result('pg1').run;
5689 model.result('pg1').feature('slc1').set('expr', 'AngIV');
5690 model.result('pg1').run;
5691 model.result('pg1').run;
5692 model.result('pg1').run;
5693 model.result('pg1').feature('slc1').set('expr', 'AT1bAngII');
5694 model.result('pg1').run;
5695 model.result('pg1').feature('slc1').set('expr', 'AT2bAngII');
5696 model.result('pg1').run;
5697 model.result('pg1').feature('slc1').set('expr', 'AT4bAngIV');
5698 model.result('pg1').run;
5699 model.result('pg1').feature('slc1').set('expr', 'MAsbAng17');
5700 model.result('pg1').run;
5701 model.result('pg1').feature('slc1').set('expr', 'Cb');
5702 model.result('pg1').run;
5703 model.result('pg1').feature('slc1').set('expr', 'Ci');
5704 model.result('pg1').run;
5705 model.result('pg1').feature('slc1').set('expr', 'Cb');
5706 model.result('pg1').run;
```

```
5707 model.result('pg1').feature('slc1').set('expr', 'Ci');
5708 model.result('pg1').run;
5709 model.result('pg1').feature('slc1').set('expr', 'H');
5710 model.result('pg1').run;
5711 model.result('pg1').feature('slc1').set('expr', 'Vint');
5712 model.result('pg1').run;
5713 model.result('pg1').feature('slc1').set('expr', 'H');
5714 model.result('pg1').run;
5715
5716 model.variable('var1').set('phic', '2.3e-4[mm^3/h]/100');
5717 model.variable('var1').set('RH', '0.002751[1/h]*10');
5718
5719 model.result('pg1').run;
5720 model.result('pg1').feature('slc1').set('expr', 'In');
5721 model.result('pg1').run;
5722
5723 model.variable('var1').set('Kb', '1.36e5[1/M/s]/100');
5724 model.variable('var1').set('phictl', '2.1e-5[mm^3/h]/100');
5725
5726 model.result('pg1').run;
5727 model.result('pg1').feature('slc1').set('expr', 'n');
5728 model.result('pg1').run;
5729 model.result('pg1').feature('slc1').set('expr', 'ma');
5730 model.result('pg1').run;
5731 model.result('pg1').feature('slc1').set('expr', 'c');
5732 model.result('pg1').run;
5733 model.result('pg1').feature('slc1').set('expr', 'Ctl');
5734 model.result('pg1').run;
5735
5736 model.variable('var1').set('dcl', '5.54e-3[1/h]/10');
5737
5738 model.result('pg1').run;
5739 model.result('pg1').feature('slc1').set('expr', 'a');
5740 model.result('pg1').run;
5741 model.result('pg1').feature('slc1').set('expr', 'AT1R');
5742 model.result('pg1').run;
5743 model.result('pg1').feature('slc1').set('expr', 'AT2R');
5744 model.result('pg1').run;
5745 model.result('pg1').feature('slc1').set('expr', 'MAsR');
5746 model.result('pg1').run;
5747 model.result('pg1').feature('slc1').set('expr', 'AT4R');
5748 model.result('pg1').run;
5749 model.result('pg1').feature('slc1').set('expr', 'ACE2');
5750 model.result('pg1').run;
5751 model.result('pg1').feature('slc1').set('expr', 'ACE2bAngI');
5752 model.result('pg1').run;
5753 model.result('pg1').feature('slc1').set('expr', 'ACE2bAngII');
5754 model.result('pg1').run;
5755 model.result('pg1').feature('slc1').set('expr', 'IL6');
5756 model.result('pg1').run;
```

```
5757 model.result('pg1').run;
5758 model.result('pg1').run;
5759 model.result('pg1').run;
5760 model.result('pg1').feature('slc1').set('expr', 'IL6*23717.965[g/mol]');
5761 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
5762 model.result('pg1').run;
5763
5764 model.variable('var1').set('KIL6', '10[mm^3/h]/1000');
5765
5766 model.result('pg1').run;
5767 model.result('pg1').feature('slc1').set('expr', 'IL6R');
5768 model.result('pg1').run;
5769 model.result('pg1').feature('slc1').set('expr', 'IL6RbIL6');
5770 model.result('pg1').run;
5771 model.result('pg1').feature('slc1').set('expr', 'sIL6RbIL6');
5772 model.result('pg1').run;
5773 model.result('pg1').feature('slc1').set('expr', 'VEGF');
5774 model.result('pg1').run;
5775 model.result('pg1').feature('slc1').set('expr', 'sIL6R');
5776 model.result('pg1').run;
5777 model.result('pg1').feature('slc1').set('expr', 'sACE2');
5778 model.result('pg1').run;
5779
5780 model.sol('sol1').runAll;
5781
5782 model.result('pg1').run;
5783 model.result('pg1').run;
5784 model.result('pg1').run;
5785 model.result('pg1').setIndex('looplevel', '120', 0);
5786 model.result('pg1').run;
5787 model.result('pg1').feature('slc1').set('expr', 'Ci');
5788 model.result('pg1').run;
5789 model.result('pg1').feature('slc1').set('expr', 'Cb');
5790 model.result('pg1').run;
5791 model.result('pg1').feature('slc1').set('expr', 'Vint');
5792 model.result('pg1').run;
5793 model.result('pg1').feature('slc1').set('expr', 'IL6');
5794 model.result('pg1').run;
5795 model.result('pg1').run;
5796 model.result('pg1').setIndex('looplevel', '121', 0);
5797 model.result('pg1').run;
5798 model.result('pg1').feature('slc1').set('expr', 'IL6*23717.965 [g/mol]');
5799 model.result('pg1').run;
5800 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
5801 model.result('pg1').run;
5802 model.result('pg1').feature('slc1').set('expr', 'IL6*23717.965 [g/mol]*4e-6');
5803 model.result('pg1').run;
5804 model.result('pg1').set('allowtableupdate', false);
5805 model.result('pg1').set('allowevalintitle', false);
5806 model.result('pg1').set('title', 'Time=12 d Slice: IL6*23717.965 [g/mol]*4e-6 ↙
```

```
(pg/ml)');
 5807 model.result('pg1').set('hasbeenplotted', true);
 5808 model.result('pg1').feature('slc1').set('rangeunit', 'pg/ml');
 5809 model.result('pg1').feature('slc1').set('rangecolormin', 45.01202833915263);
 5810 model.result('pg1').feature('slc1').set('rangecolormax', 45.014634521382334);
 5811 model.result('pg1').feature('slc1').set('rangecoloractive', 'off');
 5812 model.result('pg1').feature('slc1').set('rangedatamin', 45.01202833915263);
 5813 model.result('pg1').feature('slc1').set('rangedatamax', 45.014634521382334);
 5814 model.result('pg1').feature('slc1').set('rangedataactive', 'off');
 5815 model.result('pg1').feature('slc1').set('rangeactualminmax', [45.01202833915263 ↙
45.014634521382334]);
 5816 model.result('pg1').feature('slc1').set('hasbeenplotted', true);
 5817 model.result('pg1').set('renderdatacached', false);
 5818 model.result('pg1').set('allowtableupdate', true);
 5819 model.result('pg1').set('renderdatacached', true);
 5820 model.result('pg1').run;
 5821 model.result('pg1').setIndex('looplevel', '50', 0);
 5822 model.result('pg1').setIndex('looplevel', '41', 0);
 5823 model.result('pg1').run;
 5824 model.result('pg1').setIndex('looplevel', '61', 0);
 5825 model.result('pg1').run;
 5826 model.result('pg1').setIndex('looplevel', '11', 0);
 5827 model.result('pg1').run;
 5828 model.result('pg1').run;
 5829 model.result('pg1').run;
 5830 model.result('pg1').setIndex('looplevel', '121', 0);
 5831 model.result('pg1').run;
 5832 model.result('pg1').run;
 5833 model.result('pg1').feature('slc1').set('expr', 'a');
 5834 model.result('pg1').run;
 5835 model.result('pg1').feature('slc1').set('expr', 'a*0.4');
 5836 model.result('pg1').run;
 5837 model.result('pg1').feature('slc1').set('unit', 'pg/ml');
 5838 model.result('pg1').run;
 5839 model.result('pg1').feature('slc1').set('expr', 'a*0.6');
 5840 model.result('pg1').run;
 5841 model.result('pg1').feature('slc1').set('expr', 'a*0.3');
 5842 model.result('pg1').run;
 5843 model.result('pg1').set('allowtableupdate', false);
 5844 model.result('pg1').set('allowevalintitle', false);
 5845 model.result('pg1').set('title', 'Time=12 d Slice: a*0.3 (pg/ml)');
 5846 model.result('pg1').set('hasbeenplotted', true);
 5847 model.result('pg1').feature('slc1').set('rangeunit', 'pg/ml');
 5848 model.result('pg1').feature('slc1').set('rangecolormin', 10.44709394905868);
 5849 model.result('pg1').feature('slc1').set('rangecolormax', 10.447534320182758);
 5850 model.result('pg1').feature('slc1').set('rangecoloractive', 'off');
 5851 model.result('pg1').feature('slc1').set('rangedatamin', 10.44709394905868);
 5852 model.result('pg1').feature('slc1').set('rangedatamax', 10.447534320182758);
 5853 model.result('pg1').feature('slc1').set('rangedataactive', 'off');
 5854 model.result('pg1').feature('slc1').set('rangeactualminmax', [10.44709394905868 ↙
```

```
10.447534320182758]);
 5855 model.result('pg1').feature('slc1').set('hasbeenplotted', true);
 5856 model.result('pg1').set('renderdatacached', false);
 5857 model.result('pg1').set('allowtableupdate', true);
 5858 model.result('pg1').set('renderdatacached', true);
 5859 model.result('pg1').run;
 5860 model.result('pg1').setIndex('looplevel', '11', 0);
 5861 model.result('pg1').run;
 5862 model.result('pg1').run;
 5863 model.result('pg1').feature('slc1').set('expr', 'a*0.8');
 5864 model.result('pg1').run;
 5865 model.result('pg1').feature('slc1').set('expr', 'a*0.1');
 5866 model.result('pg1').run;
 5867 model.result('pg1').feature('slc1').set('expr', 'a*0.05');
 5868 model.result('pg1').run;
 5869 model.result('pg1').feature('slc1').set('expr', 'a*0.01');
 5870 model.result('pg1').run;
 5871 model.result('pg1').feature('slc1').set('expr', 'a*0.02');
 5872 model.result('pg1').run;
 5873 model.result('pg1').run;
 5874 model.result('pg1').setIndex('looplevel', '121', 0);
 5875 model.result('pg1').run;
 5876 model.result('pg1').feature('slc1').set('expr', 'AngII*1046.2[g/mol]');
 5877 model.result('pg1').run;
 5878 model.result('pg1').feature('slc1').set('expr', 'AngII*1046.2[g/mol]*3');
 5879 model.result('pg1').run;
 5880 model.result('pg1').feature('slc1').set('expr', 'Ctl');
 5881 model.result('pg1').feature('slc1').set('unit', '1/L');
 5882 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9');
 5883 model.result('pg1').run;
 5884 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9*0.002');
 5885 model.result('pg1').run;
 5886 model.result('pg1').run;
 5887 model.result('pg1').setIndex('looplevel', '11', 0);
 5888 model.result('pg1').run;
 5889 model.result('pg1').run;
 5890 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9*0.02');
 5891 model.result('pg1').run;
 5892 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9*0.03');
 5893 model.result('pg1').run;
 5894 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9*0.025');
 5895 model.result('pg1').run;
 5896 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9*0.015');
 5897 model.result('pg1').run;
 5898 model.result('pg1').set('allowtableupdate', false);
 5899 model.result('pg1').set('allowevalintitle', false);
 5900 model.result('pg1').set('title', 'Time=1 d Slice: Ctl/1e9*0.015 (1/L)');
 5901 model.result('pg1').set('hasbeenplotted', true);
 5902 model.result('pg1').feature('slc1').set('rangeunit', '1/L');
 5903 model.result('pg1').feature('slc1').set('rangecolormin', -1.0402210841761927);
```

```
 5904 model.result('pg1').feature('slc1').set('rangecolormax', -1.0401384690751407);
 5905 model.result('pg1').feature('slc1').set('rangecoloractive', 'off');
 5906 model.result('pg1').feature('slc1').set('rangedatamin', -1.0402210841761927);
 5907 model.result('pg1').feature('slc1').set('rangedatamax', -1.0401384690751407);
 5908 model.result('pg1').feature('slc1').set('rangedataactive', 'off');
 5909 model.result('pg1').feature('slc1').set('rangeactualminmax', [-1.0402210841761927 ↙
-1.0401384690751407]);
 5910 model.result('pg1').feature('slc1').set('hasbeenplotted', true);
 5911 model.result('pg1').set('renderdatacached', false);
 5912 model.result('pg1').set('allowtableupdate', true);
 5913 model.result('pg1').set('renderdatacached', true);
 5914 model.result('pg1').run;
 5915 model.result('pg1').setIndex('looplevel', '121', 0);
 5916 model.result('pg1').run;
 5917 model.result('pg1').feature('slc1').set('expr', 'n/1e9');
 5918 model.result('pg1').run;
 5919 model.result('pg1').feature('slc1').set('expr', 'n/1e9*0.6');
 5920 model.result('pg1').run;
 5921 model.result('pg1').set('allowtableupdate', false);
 5922 model.result('pg1').set('allowevalintitle', false);
 5923 model.result('pg1').set('title', 'Time=12 d Slice: n/1e9*0.6 (1/L)');
 5924 model.result('pg1').set('hasbeenplotted', true);
 5925 model.result('pg1').feature('slc1').set('rangeunit', '1/L');
 5926 model.result('pg1').feature('slc1').set('rangecolormin', 7.070785252294278);
 5927 model.result('pg1').feature('slc1').set('rangecolormax', 7.07081608944477);
 5928 model.result('pg1').feature('slc1').set('rangecoloractive', 'off');
 5929 model.result('pg1').feature('slc1').set('rangedatamin', 7.070785252294278);
 5930 model.result('pg1').feature('slc1').set('rangedatamax', 7.07081608944477);
 5931 model.result('pg1').feature('slc1').set('rangedataactive', 'off');
 5932 model.result('pg1').feature('slc1').set('rangeactualminmax', [7.070785252294278 ↙
7.07081608944477]);
 5933 model.result('pg1').feature('slc1').set('hasbeenplotted', true);
 5934 model.result('pg1').set('renderdatacached', false);
 5935 model.result('pg1').set('allowtableupdate', true);
 5936 model.result('pg1').set('renderdatacached', true);
 5937 model.result('pg1').run;
 5938 model.result('pg1').setIndex('looplevel', '11', 0);
 5939 model.result('pg1').run;
 5940 model.result('pg1').run;
 5941 model.result('pg1').feature('slc1').set('expr', 'n/1e9*0.006');
 5942 model.result('pg1').run;
 5943 model.result('pg1').feature('slc1').set('expr', 'n/1e9*0.002');
 5944 model.result('pg1').run;
 5945 model.result('pg1').set('allowtableupdate', false);
 5946 model.result('pg1').set('allowevalintitle', false);
 5947 model.result('pg1').set('title', 'Time=1 d Slice: n/1e9*0.002 (1/L)');
 5948 model.result('pg1').set('hasbeenplotted', true);
 5949 model.result('pg1').feature('slc1').set('rangeunit', '1/L');
 5950 model.result('pg1').feature('slc1').set('rangecolormin', 2.609412112184766);
 5951 model.result('pg1').feature('slc1').set('rangecolormax', 2.609944321569946);
```

```
 5952 model.result('pg1').feature('slc1').set('rangecoloractive', 'off');
 5953 model.result('pg1').feature('slc1').set('rangedatamin', 2.609412112184766);
 5954 model.result('pg1').feature('slc1').set('rangedatamax', 2.609944321569946);
 5955 model.result('pg1').feature('slc1').set('rangedataactive', 'off');
 5956 model.result('pg1').feature('slc1').set('rangeactualminmax', [2.609412112184766 ↙
2.609944321569946]);
 5957 model.result('pg1').feature('slc1').set('hasbeenplotted', true);
 5958 model.result('pg1').set('renderdatacached', false);
 5959 model.result('pg1').set('allowtableupdate', true);
 5960 model.result('pg1').set('renderdatacached', true);
 5961
 5962 model.physics('IL6R').feature('dode1').setIndex('f', 'SIL6*100*4e-6- ↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6-KsIL6R*IL6R', 0);
 5963 model.physics('a').feature('dode1').setIndex('f', ↙
'Kg*phi_a*ma*n/10+Sang17*MAsbAng17/10-gam_a*a', 0);
 5964 model.physics('AngII').feature('dode1').setIndex('f', '(KACE)*AngI- ↙
KonAT1AngII*AngII*AT1R+KoffAT1AngII*AT1bAngII- ↙
KonAT2AngII*AT2R*AngII+KoffAT2AngII*AT2bAngII-(KAPA)*AngII- ↙
KonACE2AngII*AngII*ACE2+KoffACE2AngII*ACE2bAngII-(log(2)/hAngII)*AngII/3', 0);
 5965 model.physics('AngII').feature('dode1').setIndex('f', '(KACE)*AngI- ↙
KonAT1AngII*AngII*AT1R+KoffAT1AngII*AT1bAngII- ↙
KonAT2AngII*AT2R*AngII+KoffAT2AngII*AT2bAngII-(KAPA)*AngII- ↙
KonACE2AngII*AngII*ACE2+KoffACE2AngII*ACE2bAngII-(log(2)/hAngII)*AngII', 0);
 5966
 5967 model.variable('var1').set('KoffACE2AngII', 'KACE2*3');
 5968 model.variable('var1').set('pv', '0.05[1/h]/80/20');
 5969
 5970 model.physics('n').feature('dode1').setIndex('f', 'xn*c*0.6-gam_n*n-gam_m*n*ma- ↙
gam_v*n*Ci+xIL6*IL6RbIL6', 0);
 5971 model.physics('n').feature('dode1').setIndex('f', 'xn*c*0.2-gam_n*n-gam_m*n*ma- ↙
gam_v*n*Ci+xIL6*IL6RbIL6', 0);
 5972
 5973 model.sol('sol1').runAll;
 5974
 5975 model.result('pg1').run;
 5976 model.result('pg1').setIndex('looplevel', '121', 0);
 5977 model.result('pg1').run;
 5978 model.result('pg1').feature('slc1').set('expr', 'n/1e9');
 5979 model.result('pg1').run;
 5980 model.result('pg1').feature('slc1').set('expr', 'Ctl/1e9');
 5981 model.result('pg1').run;
 5982 model.result('pg1').feature('slc1').set('expr', 'AngII');
 5983 model.result('pg1').run;
 5984
 5985 model.label('Full run_without virus_ ANGII and neutrophils and Lymphocyte ↙
validation and IL6 10_virus_fulRun2.mph');
 5986
 5987 model.result('pg1').run;
 5988
 5989 model.physics.create('dode', 'DomainODE', 'geom1', {'u36'});
```

```
 5990
 5991 model.study('std1').feature('time').activate('dode', true);
 5992
 5993 model.physics('dode').prop('ShapeProperty').set('order', '1');
 5994 model.physics('dode').prop('Units').set('DependentVariableQuantity', 'none');
 5995 model.physics('dode').prop('Units').set('CustomDependentVariableUnit', '1/mm^3');
 5996 model.physics('dode').prop('Units').set('CustomSourceTermUnit', '1/mm^3/h');
 5997 model.physics('dode').field('dimensionless').field('ec');
 5998 model.physics('dode').field('dimensionless').component(1, 'ec');
 5999 model.physics('dode').tag('ec');
 6000 model.physics('ec').feature('dode1').setIndex('f', 'Kec*ec-Kiec*Ci*ec', 0);
 6001 model.physics.create('dode2', 'DomainODE', 'geom1', {'u36'});
 6002
 6003 model.study('std1').feature('time').activate('dode2', true);
 6004
 6005 model.physics('dode2').identifier('dode2');
 6006 model.physics('dode2').prop('Units').set('DependentVariableQuantity', 'none');
 6007 model.physics('dode2').prop('Units').set('CustomDependentVariableUnit', ↙
'1/mm^3');
 6008 model.physics('dode2').prop('Units').set('CustomSourceTermUnit', '1/mm^3/h');
 6009 model.physics('dode2').prop('ShapeProperty').set('order', '1');
 6010 model.physics('dode2').field('dimensionless').field('iec');
 6011 model.physics('dode2').field('dimensionless').component(1, 'iec');
 6012 model.physics('dode2').feature('dode1').setIndex('f', 'Kiec*Ci*ec', 0);
 6013
 6014 model.variable('var1').set('Kec', 'KACE2');
 6015 model.variable('var1').set('Kiec', 'gam_v');
 6016 model.variable('var1').set('Sv', '(ec/ec0)*Sv0');
 6017 model.variable('var1').set('ec0', '7.23e8[1/ml]');
 6018 model.variable('var1').set('Sv0', '70[1/cm]');
 6019
 6020 model.physics.create('cdeq', 'ConvectionDiffusionEquation', 'geom1');
 6021
 6022 model.study('std1').feature('time').activate('cdeq', true);
 6023
 6024 model.physics('cdeq').prop('Units').set('CustomSourceTermUnit', '1/s');
 6025 model.physics('cdeq').prop('ShapeProperty').set('order', '1');
 6026 model.physics('cdeq').field('dimensionless').field('cox');
 6027 model.physics('cdeq').feature('cdeq1').setIndex('c', {'Dox' '0' '0' '0' 'Dox' '0' ↙
'0' '0' 'Dox'}, 0);
 6028 model.physics('cdeq').feature('cdeq1').setIndex('c', {'Dox-cells*' '0' '0' '0' ↙
'Dox-cells*' '0' '0' '0' 'Dox-cells*'}, 0);
 6029 model.physics('cdeq').feature('cdeq1').setIndex('c', {'Dox-cells*(k18cox/)' '0' ↙
'0' '0' 'Dox-cells*(k18cox/)' '0' '0' '0' 'Dox-cells*(k18cox/)'}, 0);
 6030 model.physics('cdeq').feature('cdeq1').setIndex('c', {'Dox-cells*(k1+cox/)' '0' ↙
'0' '0' 'Dox-cells*(k1+cox/)' '0' '0' '0' 'Dox-cells*(k1+cox/)'}, 0);
 6031 model.physics('cdeq').feature('cdeq1').setIndex('c', {'Dox-cells*(k1*cox/)' '0' ↙
'0' '0' 'Dox-cells*(k1*cox/)' '0' '0' '0' 'Dox-cells*(k1*cox/)'}, 0);
 6032 model.physics('cdeq').feature('cdeq1').setIndex('c', {'Dox-cells*(k1*cox/k2-)' ↙
'0' '0' '0' 'Dox-cells*(k1*cox/k2-)' '0' '0' '0' 'Dox-cells*(k1*cox/k2-)'}, 0);
```

```
 6033 model.physics('cdeq').feature('cdeq1').setIndex('c', {'Dox-cells*(k1*cox/k2- ↙
cov*cox)' '0' '0' '0' 'Dox-cells*(k1*cox/k2-cov*cox)' '0' '0' '0' 'Dox-cells* ↙
(k1*cox/k2-cov*cox)'}, 0);
 6034 model.physics('cdeq').feature('cdeq1').setIndex('c', {'Dox-cells*(k1*cox/k2- ↙
cov*cox)+Per*Sv' '0' '0' '0' 'Dox-cells*(k1*cox/k2-cov*cox)+Per*Sv' '0' '0' '0' 'Dox- ↙
cells*(k1*cox/k2-cov*cox)+Per*Sv'}, 0);
 6035 model.physics('cdeq').feature('cdeq1').setIndex('c', {'Dox-cells*(k1*cox/k2- ↙
cov*cox)+Per*Sv*(1-co)' '0' '0' '0' 'Dox-cells*(k1*cox/k2-cov*cox)+Per*Sv*(1-co)' '0' ↙
'0' '0' 'Dox-cells*(k1*cox/k2-cov*cox)+Per*Sv*(1-co)'}, 0);
 6036 model.physics('cdeq').feature('cdeq1').setIndex('c', {'Dox' '0' '0' '0' 'Dox' '0' ↙
'0' '0' 'Dox'}, 0);
 6037 model.physics('cdeq').feature('cdeq1').setIndex('f', '-cells*(k1*cox/k2-cov*cox) ↙
+Per*Sv*(1-cox)', 0);
 6038
 6039 model.sol('sol1').clearSolutionData;
 6040
 6041 model.variable('var1').set('cells', 'H+In+n+ec+iec');
 6042 model.variable('var1').set('Dox', '1.78e-9 [m^2/s]');
 6043 model.variable('var1').set('k1', '2200 [mole/m^3/d]');
 6044 model.variable('var1').set('k2', '0.00464 [mole/m^3]');
 6045 model.variable('var1').set('Per', '3.58e-4 [m/s]');
 6046
 6047 model.physics('cdeq').feature('cdeq1').setIndex('f', '-cells*(k1*cox/k2-coxv*cox) ↙
+Per*Sv*(1-cox)', 0);
 6048
 6049 model.variable('var1').set('cox', '0.2 [mole/m^3]');
 6050 model.variable('var1').rename('cox', 'coxv');
 6051 model.variable('var1').set('coxv', '6.4 [g/m^3]');
 6052
 6053 model.physics('cdeq').feature('cdeq1').setIndex('f', '-cells*(k1*cox/(k2- ↙
coxv*cox))+Per*Sv*(1-cox)', 0);
 6054 model.physics('cdeq').feature('cdeq1').setIndex('f', '-(cells/ec0)*(k1*cox/(k2- ↙
coxv*cox))+Per*Sv*(1-cox)', 0);
 6055 model.physics('cdeq').feature('cdeq1').setIndex('f', '-(cells/ec0)*(k1*cox/(k2- ↙
coxv*cox))', 0);
 6056 model.physics('cdeq').feature('cdeq1').setIndex('f', 'Per*Sv*(1-cox)', 0);
 6057 model.physics('cdeq').feature('cdeq1').setIndex('f', '-(cells/ec0)*(k1*cox/(k2- ↙
coxv*cox))+Per*Sv*(1-cox)', 0);
 6058
 6059 model.variable('var1').set('coxv', '0.2 [mole/m^3]');
 6060
 6061 model.mesh('mesh1').autoMeshSize(6);
 6062
 6063 model.sol('sol1').feature('t1').set('maxstepbdfactive', 'off');
 6064 model.sol('sol1').runAll;
 6065
 6066 model.result('pg1').run;
 6067 model.result('pg1').run;
 6068 model.result('pg1').feature('slc1').set('expr', 'cox');
 6069 model.result('pg1').run;
```

```
 6070
 6071 model.physics('ec').feature('init1').set('ec', 'ec0');
 6072
 6073 model.result('pg1').run;
 6074 model.result('pg1').feature('slc1').set('expr', 'ec');
 6075 model.result('pg1').run;
 6076
 6077 model.sol('sol1').runAll;
 6078
 6079 model.result('pg1').run;
 6080 model.result('pg1').run;
 6081 model.result('pg1').feature('slc1').set('unit', '1/mm^3');
 6082 model.result('pg1').run;
 6083 model.result('pg1').feature('slc1').set('expr', 'cox');
 6084 model.result('pg1').run;
 6085 model.result('pg1').run;
 6086 model.result('pg1').feature('slc1').set('expr', 'ec');
 6087 model.result('pg1').run;
 6088 model.result('pg1').feature('slc1').set('expr', 'cells');
 6089 model.result('pg1').run;
 6090 model.result('pg1').run;
 6091 model.result('pg1').run;
 6092 model.result('pg1').feature('slc1').set('expr', 'cox');
 6093 model.result('pg1').run;
 6094 model.result('pg1').run;
 6095 model.result('pg1').setIndex('looplevel', '3', 0);
 6096 model.result('pg1').setIndex('looplevel', '2', 0);
 6097 model.result('pg1').run;
 6098 model.result('pg1').setIndex('looplevel', '15', 0);
 6099 model.result('pg1').run;
 6100 model.result('pg1').setIndex('looplevel', '34', 0);
 6101 model.result('pg1').run;
 6102 model.result('pg1').setIndex('looplevel', '90', 0);
 6103 model.result('pg1').run;
 6104 model.result('pg1').setIndex('looplevel', '121', 0);
 6105 model.result('pg1').run;
 6106
 6107 model.physics('cdeq').feature('cdeq1').setIndex('f', '-(cells/ec0)*(k1*100*cox/ ↙
(k2-coxv*cox))+Per*Sv*(1-cox)', 0);
 6108
 6109 model.sol('sol1').runAll;
 6110
 6111 model.result('pg1').run;
 6112 model.result('pg1').run;
 6113
 6114 model.label('basline_oxygen1.mph');
 6115
 6116 model.result('pg1').run;
 6117 model.result('pg1').feature('slc1').set('expr', 'ec');
 6118 model.result('pg1').run;
```

```
 6119 model.result('pg1').feature('slc1').set('expr', 'cox');
 6120 model.result('pg1').run;
 6121
 6122 model.physics('dode2').tag('iec');
 6123 model.physics('cdeq').tag('cox_oxygen');
 6124 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', '-(cells/ec0)* ↙
(k1*10*cox/(k2-coxv*cox))+Per*Sv*(1-cox)', 0);
 6125
 6126 model.sol('sol1').runAll;
 6127
 6128 model.result('pg1').run;
 6129 model.result('pg1').run;
 6130
 6131 model.physics('ec').feature('dode1').setIndex('f', 'Kec*ec/100-Kiec*Ci*ec', 0);
 6132 model.physics('ec').feature('dode1').setIndex('f', 'Kec*ec/1000-Kiec*Ci*ec', 0);
 6133
 6134 model.sol('sol1').runAll;
 6135
 6136 model.result('pg1').run;
 6137 model.result('pg1').run;
 6138
 6139 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', '-(cells/ec0)* ↙
(k1*100*cox/(k2-coxv*cox))+Per*Sv*(1-cox)', 0);
 6140
 6141 model.sol('sol1').runAll;
 6142
 6143 model.result('pg1').run;
 6144
 6145 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', '-(cells/ec0)* ↙
(k1*30*cox/(k2-coxv*cox))+Per*Sv*(1-cox)', 0);
 6146
 6147 model.study('std1').feature('time').set('tlist', 'range(0,0.5,12)');
 6148
 6149 model.sol('sol1').runAll;
 6150
 6151 model.result('pg1').run;
 6152 model.result('pg1').setIndex('looplevel', '25', 0);
 6153 model.result('pg1').run;
 6154 model.result('pg1').run;
 6155
 6156 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', '-(cells/ec0)* ↙
(k1*90*cox/(k2-coxv*cox))+Per*Sv*(1-cox)', 0);
 6157
 6158 model.sol('sol1').runAll;
 6159
 6160 model.result('pg1').run;
 6161
 6162 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', '-(cells/ec0)* ↙
(k1*80*cox/(k2-coxv*cox))+Per*Sv*(1-cox)', 0);
 6163
```

```
 6164 model.sol('sol1').runAll;
 6165
 6166 model.result('pg1').run;
 6167
 6168 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', '-(cells/ec0)* ↙
(k1*70*cox/(k2-coxv*cox))+Per*Sv*(1-cox)', 0);
 6169
 6170 model.sol('sol1').runAll;
 6171
 6172 model.result('pg1').run;
 6173 model.result('pg1').run;
 6174
 6175 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', '-(cells/ec0)* ↙
(k1*60*cox/(k2-coxv*cox))+Per*Sv*(1-cox)', 0);
 6176
 6177 model.sol('sol1').runAll;
 6178
 6179 model.result('pg1').run;
 6180 model.result('pg1').run;
 6181
 6182 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', '-(cells/ec0)* ↙
(k1*50*cox/(k2-coxv*cox))+Per*Sv*(1-cox)', 0);
 6183
 6184 model.sol('sol1').runAll;
 6185
 6186 model.result('pg1').run;
 6187
 6188 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', '-(cells/ec0)* ↙
(k1*55*cox/(k2-coxv*cox))+Per*Sv*(1-cox)', 0);
 6189
 6190 model.sol('sol1').runAll;
 6191
 6192 model.result('pg1').run;
 6193
 6194 model.label('basline_oxygen1_k155.mph');
 6195
 6196 model.result('pg1').run;
 6197 model.result('pg1').set('allowtableupdate', false);
 6198 model.result('pg1').set('allowevalintitle', false);
 6199 model.result('pg1').set('title', 'Time=12 d Slice: Dependent variable cox (1)');
 6200 model.result('pg1').set('hasbeenplotted', true);
 6201 model.result('pg1').feature('slc1').set('rangeunit', '1');
 6202 model.result('pg1').feature('slc1').set('rangecolormin', 0.003045958919896244);
 6203 model.result('pg1').feature('slc1').set('rangecolormax', 0.0030461182900486895);
 6204 model.result('pg1').feature('slc1').set('rangecoloractive', 'off');
 6205 model.result('pg1').feature('slc1').set('rangedatamin', 0.003045958919896244);
 6206 model.result('pg1').feature('slc1').set('rangedatamax', 0.0030461182900486895);
 6207 model.result('pg1').feature('slc1').set('rangedataactive', 'off');
 6208 model.result('pg1').feature('slc1').set('rangeactualminmax', ↙
[0.003045958919896244 0.0030461182900486895]);
```

```
 6209 model.result('pg1').feature('slc1').set('hasbeenplotted', true);
 6210 model.result('pg1').set('renderdatacached', false);
 6211 model.result('pg1').set('allowtableupdate', true);
 6212 model.result('pg1').set('renderdatacached', true);
 6213 model.result('pg1').run;
 6214 model.result('pg1').feature('slc1').set('expr', 'ec');
 6215 model.result('pg1').run;
 6216
 6217 model.physics('ec').feature('dode1').setIndex('f', 'Kec*ec/1000-Kiec*Ci*ec*100', ↙
0);
 6218
 6219 model.result('pg1').run;
 6220 model.result('pg1').feature('slc1').set('expr', 'Ci');
 6221 model.result('pg1').run;
 6222 model.result('pg1').run;
 6223 model.result('pg1').setIndex('looplevel', '23', 0);
 6224 model.result('pg1').run;
 6225 model.result('pg1').setIndex('looplevel', '19', 0);
 6226 model.result('pg1').run;
 6227 model.result('pg1').setIndex('looplevel', '9', 0);
 6228 model.result('pg1').run;
 6229 model.result('pg1').run;
 6230 model.result('pg1').run;
 6231 model.result('pg1').feature('slc1').set('expr', 'cox');
 6232 model.result('pg1').run;
 6233 model.result('pg1').feature('slc1').set('expr', 'ec');
 6234 model.result('pg1').run;
 6235
 6236 model.sol('sol1').runAll;
 6237
 6238 model.result('pg1').run;
 6239 model.result('pg1').run;
 6240 model.result('pg1').feature('slc1').set('expr', 'cox');
 6241 model.result('pg1').run;
 6242
 6243 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', '-(cells/ec0)*(k1*cox/ ↙
(k2-coxv*cox))+Per*Sv*(1-cox)', 0);
 6244
 6245 model.result('pg1').run;
 6246 model.result('pg1').run;
 6247 model.result('pg1').setIndex('looplevel', '25', 0);
 6248 model.result('pg1').run;
 6249
 6250 model.sol('sol1').runAll;
 6251
 6252 model.result('pg1').run;
 6253 model.result('pg1').run;
 6254 model.result('pg1').run;
 6255 model.result('pg1').feature('slc1').set('expr', 'ec');
 6256 model.result('pg1').run;
```

```
 6257 model.result('pg1').run;
 6258 model.result('pg1').feature('slc1').set('expr', 'H');
 6259 model.result('pg1').run;
 6260 model.result('pg1').run;
 6261 model.result('pg1').feature('slc1').set('expr', 'cells-ec');
 6262 model.result('pg1').run;
 6263 model.result('pg1').run;
 6264 model.result('pg1').feature('slc1').set('expr', 'Sv');
 6265 model.result('pg1').run;
 6266 model.result('pg1').feature('slc1').set('unit', '1/cm');
 6267 model.result('pg1').run;
 6268 model.result('pg1').feature('slc1').set('expr', 'cox');
 6269 model.result('pg1').run;
 6270
 6271 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', '-(cells/ec0)*(k1*cox/ ↙
(k2-coxv*cox))*0+Per*Sv*(1-cox)', 0);
 6272
 6273 model.sol('sol1').runAll;
 6274
 6275 model.result('pg1').run;
 6276
 6277 model.physics('cox_oxygen').prop('Units').set('DependentVariableQuantity', ↙
'none');
 6278 model.physics('cox_oxygen').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/ml');
 6279 model.physics('cox_oxygen').prop('Units').set('CustomSourceTermUnit', ↙
'mol/ml/h');
 6280 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', '-(cells/ec0)*(k1*cox/ ↙
(k2-coxv*cox))*0+Per*Sv*(coxv-cox)', 0);
 6281 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', 'Per*Sv*(coxv-cox)', ↙
0);
 6282 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', 'Per*Sv*(coxv-cox)- ↙
(cells/ec0)*(k1*cox/(k2-coxv*cox))*0', 0);
 6283 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', 'Per*Sv*(coxv-cox)', ↙
0);
 6284
 6285 model.variable('var1').set('oxygenExtra', '-(cells/ec0)*(k1*cox/(k2-coxv*cox)) ↙
*0');
 6286
 6287 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', 'Per*Sv*(coxv-cox)- ↙
Aox*cox/(cox-kox)*fc)', 0);
 6288 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', 'Per*Sv*(coxv-cox)- ↙
Aox*cox/(cox+kox)*fc)', 0);
 6289 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', 'Per*Sv*(coxv-cox)- ↙
Aox*cox/(cox+kox)*fc', 0);
 6290
 6291 model.variable('var1').set('Aox', '2200[mol/m^3/day]');
 6292 model.variable('var1').set('kox', '0.00464[mol/m^3]');
 6293 model.variable('var1').set('fc', 'cells/ec0');
 6294
```

```
 6295 model.result('pg1').run;
 6296 model.result('pg1').feature('slc1').set('expr', 'cells');
 6297 model.result('pg1').run;
 6298 model.result('pg1').feature('slc1').set('expr', 'cells/ec0');
 6299 model.result('pg1').run;
 6300
 6301 model.sol('sol1').runAll;
 6302
 6303 model.result('pg1').run;
 6304 model.result('pg1').run;
 6305 model.result('pg1').feature('slc1').set('expr', 'cox');
 6306 model.result('pg1').run;
 6307 model.result('pg1').run;
 6308 model.result('pg1').feature('slc1').set('expr', 'fc');
 6309 model.result('pg1').run;
 6310
 6311 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', 'Per*Sv*(coxv-cox)- ↙
Aox*cox/(cox+kox)*fc/1.2', 0);
 6312
 6313 model.sol('sol1').runAll;
 6314
 6315 model.result('pg1').run;
 6316 model.result('pg1').run;
 6317 model.result('pg1').feature('slc1').set('expr', 'cox');
 6318 model.result('pg1').run;
 6319
 6320 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', 'Per*Sv*(coxv-cox)- ↙
Aox*cox/(cox+kox)*fc/2', 0);
 6321
 6322 model.sol('sol1').runAll;
 6323
 6324 model.result('pg1').run;
 6325
 6326 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', 'Per*Sv*(coxv-cox)- ↙
Aox*cox/(cox+kox)*fc/5', 0);
 6327
 6328 model.sol('sol1').runAll;
 6329
 6330 model.result('pg1').run;
 6331
 6332 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', 'Per*Sv*(coxv-cox)- ↙
Aox*cox/(cox+kox)*fc/8', 0);
 6333
 6334 model.sol('sol1').runAll;
 6335
 6336 model.result('pg1').run;
 6337 model.result('pg1').setIndex('looplevel', '21', 0);
 6338 model.result('pg1').run;
 6339 model.result('pg1').setIndex('looplevel', '16', 0);
 6340 model.result('pg1').run;
```

```
 6341 model.result('pg1').setIndex('looplevel', '6', 0);
 6342 model.result('pg1').run;
 6343 model.result('pg1').setIndex('looplevel', '2', 0);
 6344 model.result('pg1').run;
 6345 model.result('pg1').setIndex('looplevel', '1', 0);
 6346 model.result('pg1').run;
 6347
 6348 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', 'Per*Sv*(coxv-cox)- ↙
Aox*cox/(cox+kox)*fc/100', 0);
 6349
 6350 model.sol('sol1').runAll;
 6351
 6352 model.result('pg1').run;
 6353 model.result('pg1').setIndex('looplevel', '25', 0);
 6354 model.result('pg1').run;
 6355
 6356 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', 'Per*Sv*(coxv-cox)- ↙
Aox*cox/(cox+kox)*fc/80', 0);
 6357
 6358 model.sol('sol1').runAll;
 6359
 6360 model.result('pg1').run;
 6361 model.result('pg1').run;
 6362
 6363 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', 'Per*Sv*(coxv-cox)- ↙
Aox*cox/(cox+kox)*fc/70', 0);
 6364
 6365 model.sol('sol1').runAll;
 6366
 6367 model.result('pg1').run;
 6368
 6369 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', 'Per*Sv*(coxv-cox)- ↙
Aox*cox/(cox+kox)*fc/50', 0);
 6370
 6371 model.sol('sol1').runAll;
 6372
 6373 model.result('pg1').run;
 6374 model.result('pg1').run;
 6375 model.result('pg1').feature('slc1').set('expr', 'ec');
 6376 model.result('pg1').run;
 6377
 6378 model.label('basline_new oxygen.mph');
 6379
 6380 model.result('pg1').run;
 6381
 6382 model.physics('IL6').feature('init1').set('IL6', '6.83[pg/ml]/23717.965[g/mol]');
 6383 model.physics('a').feature('init1').set('a', '3[pg/ml]');
 6384 model.physics('n').feature('init1').set('n', '4.2e9[1/L]');
 6385 model.physics('Ctl').feature('init1').set('Ctl', '2.17e9[1/L]');
 6386
```

```
model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'IL6');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'IL6*23717.965[g/mol]');
model.result('pg1').feature('slc1').set('unit', 'pg/ml');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;

model.physics('Ci').feature('cdeq1').setIndex('c', {'Dci*1000' '0' '0' '0' ↙
'Dci*1000' '0' '0' '0' 'Dci*1000'}, 0);
model.physics('Ci').feature('cdeq1').setIndex('f', '-KsACE2*sACE2*Ci- ↙
KonACE2V*Ci*ACE2+KoffACE2V*Cb-Kd*Ci/100+Ka*Vint', 0);

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'cox');
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').run;

model.physics('c').feature('init1').set('c', '0');
model.physics('Ci').feature('cdeq1').setIndex('c', {'Dci*100000' '0' '0' '0' ↙
'Dci*100000' '0' '0' '0' 'Dci*100000'}, 0);

model.sol('sol1').runAll;

model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '25', 0);
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;

model.param.set('bKa', '1');
model.param.set('bSIL6', '1');
model.param.set('bSsACE2', '1');
model.param.set('bSAT1R', '1');

model.variable('var1').set('Ka', '5.78e-4[1/s]*1e6/bKa');
model.variable('var1').set('SIL6', 'SAT1/bSIL6');
model.variable('var1').set('SsACE2', 'SAT1*bSsACE2');

model.param.set('bKa', '1e4');

model.label('basline_new oxygen_initial_BlockKa_1e4.mph');

model.sol('sol1').clearSolutionData;
```

```
 6434
 6435 model.param.set('bKa', '1');
 6436
 6437 model.study('std1').create('param', 'Parametric');
 6438 model.study('std1').feature('param').setIndex('pname', 'as', 0);
 6439 model.study('std1').feature('param').setIndex('plistarr', '', 0);
 6440 model.study('std1').feature('param').setIndex('punit', '', 0);
 6441 model.study('std1').feature('param').setIndex('pname', 'as', 0);
 6442 model.study('std1').feature('param').setIndex('plistarr', '', 0);
 6443 model.study('std1').feature('param').setIndex('punit', '', 0);
 6444 model.study('std1').feature('param').setIndex('pname', 'bKa', 0);
 6445 model.study('std1').feature('param').setIndex('plistarr', '1,10,100,1000,10000', ↙
0);
 6446 model.study('std1').feature('param').setIndex('pname', 'as', 1);
 6447 model.study('std1').feature('param').setIndex('plistarr', '', 1);
 6448 model.study('std1').feature('param').setIndex('punit', '', 1);
 6449 model.study('std1').feature('param').setIndex('pname', 'as', 1);
 6450 model.study('std1').feature('param').setIndex('plistarr', '', 1);
 6451 model.study('std1').feature('param').setIndex('punit', '', 1);
 6452 model.study('std1').feature('param').setIndex('pname', 'bSIL6', 1);
 6453 model.study('std1').feature('param').setIndex('plistarr', '1,10,100,1000,10000', ↙
1);
 6454 model.study('std1').feature('param').set('sweeptype', 'filled');
 6455
 6456 model.batch.create('p1', 'Parametric');
 6457 model.batch('p1').study('std1');
 6458 model.batch('p1').create('so1', 'Solutionseq');
 6459 model.batch('p1').feature('so1').set('seq', 'sol1');
 6460 model.batch('p1').feature('so1').set('store', 'on');
 6461 model.batch('p1').feature('so1').set('clear', 'on');
 6462 model.batch('p1').feature('so1').set('psol', 'none');
 6463 model.batch('p1').set('pname', {'bKa' 'bSIL6'});
 6464 model.batch('p1').set('plistarr', {'1,10,100,1000,10000' '1,10,100,1000,10000'});
 6465 model.batch('p1').set('sweeptype', 'filled');
 6466 model.batch('p1').set('probesel', 'all');
 6467 model.batch('p1').set('probes', {});
 6468 model.batch('p1').set('plot', 'off');
 6469 model.batch('p1').set('err', 'on');
 6470 model.batch('p1').attach('std1');
 6471 model.batch('p1').set('control', 'param');
 6472
 6473 model.sol.create('sol2');
 6474 model.sol('sol2').study('std1');
 6475 model.sol('sol2').label('Parametric Solutions 1');
 6476
 6477 model.batch('p1').feature('so1').set('psol', 'sol2');
 6478
 6479 model.result.create('pg14', 3);
 6480 model.result('pg14').set('data', 'dset2');
 6481 model.result('pg14').create('slc1', 'Slice');
```

```
model.result('pg14').feature('slc1').set('expr', 'AGT');
model.result.create('pg15', 3);
model.result('pg15').set('data', 'dset2');
model.result('pg15').create('slc1', 'Slice');
model.result('pg15').feature('slc1').set('expr', 'Renin');
model.result.create('pg16', 3);
model.result('pg16').set('data', 'dset2');
model.result('pg16').create('slc1', 'Slice');
model.result('pg16').feature('slc1').set('expr', 'AngI');
model.result.create('pg17', 3);
model.result('pg17').set('data', 'dset2');
model.result('pg17').create('slc1', 'Slice');
model.result('pg17').feature('slc1').set('expr', 'AngII');
model.result.create('pg18', 3);
model.result('pg18').set('data', 'dset2');
model.result('pg18').create('slc1', 'Slice');
model.result('pg18').feature('slc1').set('expr', 'Ang17');
model.result.create('pg19', 3);
model.result('pg19').set('data', 'dset2');
model.result('pg19').create('slc1', 'Slice');
model.result('pg19').feature('slc1').set('expr', 'Ang19');
model.result.create('pg20', 3);
model.result('pg20').set('data', 'dset2');
model.result('pg20').create('slc1', 'Slice');
model.result('pg20').feature('slc1').set('expr', 'AngIII');
model.result.create('pg21', 3);
model.result('pg21').set('data', 'dset2');
model.result('pg21').create('slc1', 'Slice');
model.result('pg21').feature('slc1').set('expr', 'AngIV');
model.result.create('pg22', 3);
model.result('pg22').set('data', 'dset2');
model.result('pg22').create('slc1', 'Slice');
model.result('pg22').feature('slc1').set('expr', 'AT1bAngII');
model.result.create('pg23', 3);
model.result('pg23').set('data', 'dset2');
model.result('pg23').create('slc1', 'Slice');
model.result('pg23').feature('slc1').set('expr', 'AT2bAngII');
model.result.create('pg24', 3);
model.result('pg24').set('data', 'dset2');
model.result('pg24').create('slc1', 'Slice');
model.result('pg24').feature('slc1').set('expr', 'AT4bAngIV');
model.result.create('pg25', 3);
model.result('pg25').set('data', 'dset2');
model.result('pg25').create('slc1', 'Slice');
model.result('pg25').feature('slc1').set('expr', 'MAsbAng17');
model.result.create('pg26', 3);
model.result('pg26').set('data', 'dset2');
model.result('pg26').create('slc1', 'Slice');
model.result('pg26').feature('slc1').set('expr', 'Cb');
model.result.create('pg27', 3);
```

```
6532 model.result('pg27').set('data', 'dset2');
6533 model.result('pg27').create('slc1', 'Slice');
6534 model.result('pg27').feature('slc1').set('expr', 'H');
6535 model.result.create('pg28', 3);
6536 model.result('pg28').set('data', 'dset2');
6537 model.result('pg28').create('slc1', 'Slice');
6538 model.result('pg28').feature('slc1').set('expr', 'Vint');
6539 model.result.create('pg29', 3);
6540 model.result('pg29').set('data', 'dset2');
6541 model.result('pg29').create('slc1', 'Slice');
6542 model.result('pg29').feature('slc1').set('expr', 'In');
6543 model.result.create('pg30', 3);
6544 model.result('pg30').set('data', 'dset2');
6545 model.result('pg30').create('slc1', 'Slice');
6546 model.result('pg30').feature('slc1').set('expr', 'Ci');
6547 model.result.create('pg31', 3);
6548 model.result('pg31').set('data', 'dset2');
6549 model.result('pg31').create('slc1', 'Slice');
6550 model.result('pg31').feature('slc1').set('expr', 'n');
6551 model.result.create('pg32', 3);
6552 model.result('pg32').set('data', 'dset2');
6553 model.result('pg32').create('slc1', 'Slice');
6554 model.result('pg32').feature('slc1').set('expr', 'ma');
6555 model.result.create('pg33', 3);
6556 model.result('pg33').set('data', 'dset2');
6557 model.result('pg33').create('slc1', 'Slice');
6558 model.result('pg33').feature('slc1').set('expr', 'c');
6559 model.result.create('pg34', 3);
6560 model.result('pg34').set('data', 'dset2');
6561 model.result('pg34').create('slc1', 'Slice');
6562 model.result('pg34').feature('slc1').set('expr', 'Ctl');
6563 model.result.create('pg35', 3);
6564 model.result('pg35').set('data', 'dset2');
6565 model.result('pg35').create('slc1', 'Slice');
6566 model.result('pg35').feature('slc1').set('expr', 'a');
6567 model.result.create('pg36', 3);
6568 model.result('pg36').set('data', 'dset2');
6569 model.result('pg36').create('slc1', 'Slice');
6570 model.result('pg36').feature('slc1').set('expr', 'AT1R');
6571 model.result.create('pg37', 3);
6572 model.result('pg37').set('data', 'dset2');
6573 model.result('pg37').create('slc1', 'Slice');
6574 model.result('pg37').feature('slc1').set('expr', 'AT2R');
6575 model.result.create('pg38', 3);
6576 model.result('pg38').set('data', 'dset2');
6577 model.result('pg38').create('slc1', 'Slice');
6578 model.result('pg38').feature('slc1').set('expr', 'MAsR');
6579 model.result.create('pg39', 3);
6580 model.result('pg39').set('data', 'dset2');
6581 model.result('pg39').create('slc1', 'Slice');
```

```
model.result('pg39').feature('slc1').set('expr', 'AT4R');
model.result.create('pg40', 3);
model.result('pg40').set('data', 'dset2');
model.result('pg40').create('slc1', 'Slice');
model.result('pg40').feature('slc1').set('expr', 'ACE2');
model.result.create('pg41', 3);
model.result('pg41').set('data', 'dset2');
model.result('pg41').create('slc1', 'Slice');
model.result('pg41').feature('slc1').set('expr', 'ACE2bAngI');
model.result.create('pg42', 3);
model.result('pg42').set('data', 'dset2');
model.result('pg42').create('slc1', 'Slice');
model.result('pg42').feature('slc1').set('expr', 'ACE2bAngII');
model.result.create('pg43', 3);
model.result('pg43').set('data', 'dset2');
model.result('pg43').create('slc1', 'Slice');
model.result('pg43').feature('slc1').set('expr', 'IL6');
model.result.create('pg44', 3);
model.result('pg44').set('data', 'dset2');
model.result('pg44').create('slc1', 'Slice');
model.result('pg44').feature('slc1').set('expr', 'IL6R');
model.result.create('pg45', 3);
model.result('pg45').set('data', 'dset2');
model.result('pg45').create('slc1', 'Slice');
model.result('pg45').feature('slc1').set('expr', 'IL6RbIL6');
model.result.create('pg46', 3);
model.result('pg46').set('data', 'dset2');
model.result('pg46').create('slc1', 'Slice');
model.result('pg46').feature('slc1').set('expr', 'sIL6RbIL6');
model.result.create('pg47', 3);
model.result('pg47').set('data', 'dset2');
model.result('pg47').create('slc1', 'Slice');
model.result('pg47').feature('slc1').set('expr', 'VEGF');
model.result.create('pg48', 3);
model.result('pg48').set('data', 'dset2');
model.result('pg48').create('slc1', 'Slice');
model.result('pg48').feature('slc1').set('expr', 'sIL6R');
model.result.create('pg49', 3);
model.result('pg49').set('data', 'dset2');
model.result('pg49').create('slc1', 'Slice');
model.result('pg49').feature('slc1').set('expr', 'sACE2');
model.result.create('pg50', 3);
model.result('pg50').set('data', 'dset2');
model.result('pg50').create('slc1', 'Slice');
model.result('pg50').feature('slc1').set('expr', 'ec');
model.result.create('pg51', 3);
model.result('pg51').set('data', 'dset2');
model.result('pg51').create('slc1', 'Slice');
model.result('pg51').feature('slc1').set('expr', 'iec');
model.result.create('pg52', 3);
```

```
6632 model.result('pg52').set('data', 'dset2');
6633 model.result('pg52').create('slc1', 'Slice');
6634 model.result('pg52').feature('slc1').set('expr', 'cox');
6635 model.result.remove('pg41');
6636 model.result.remove('pg20');
6637 model.result.remove('pg42');
6638 model.result.remove('pg21');
6639 model.result.remove('pg43');
6640 model.result.remove('pg22');
6641 model.result.remove('pg44');
6642 model.result.remove('pg40');
6643 model.result.remove('pg27');
6644 model.result.remove('pg49');
6645 model.result.remove('pg28');
6646 model.result.remove('pg29');
6647 model.result.remove('pg23');
6648 model.result.remove('pg45');
6649 model.result.remove('pg24');
6650 model.result.remove('pg46');
6651 model.result.remove('pg25');
6652 model.result.remove('pg47');
6653 model.result.remove('pg26');
6654 model.result.remove('pg48');
6655 model.result.remove('pg30');
6656 model.result.remove('pg52');
6657 model.result.remove('pg31');
6658 model.result.remove('pg32');
6659 model.result.remove('pg33');
6660 model.result.remove('pg50');
6661 model.result.remove('pg51');
6662 model.result.remove('pg16');
6663 model.result.remove('pg38');
6664 model.result.remove('pg17');
6665 model.result.remove('pg39');
6666 model.result.remove('pg18');
6667 model.result.remove('pg19');
6668 model.result.remove('pg34');
6669 model.result.remove('pg35');
6670 model.result.remove('pg14');
6671 model.result.remove('pg36');
6672 model.result.remove('pg15');
6673 model.result.remove('pg37');
6674
6675 model.study('std1').feature('param').setIndex('pname', 'as', 2);
6676 model.study('std1').feature('param').setIndex('plistarr', '', 2);
6677 model.study('std1').feature('param').setIndex('punit', '', 2);
6678 model.study('std1').feature('param').setIndex('pname', 'as', 2);
6679 model.study('std1').feature('param').setIndex('plistarr', '', 2);
6680 model.study('std1').feature('param').setIndex('punit', '', 2);
6681 model.study('std1').feature('param').setIndex('pname', 'bSsACE2', 2);
```

```
 6682 model.study('std1').feature('param').setIndex('plistarr', '1,10,100,1000,10000', ↙
2);
 6683 model.study('std1').feature('param').setIndex('pname', 'as', 3);
 6684 model.study('std1').feature('param').setIndex('plistarr', '', 3);
 6685 model.study('std1').feature('param').setIndex('punit', '', 3);
 6686 model.study('std1').feature('param').setIndex('pname', 'as', 3);
 6687 model.study('std1').feature('param').setIndex('plistarr', '', 3);
 6688 model.study('std1').feature('param').setIndex('punit', '', 3);
 6689 model.study('std1').feature('param').remove('pname', 3);
 6690 model.study('std1').feature('param').remove('punit', 3);
 6691 model.study('std1').feature('param').remove('plistarr', 3);
 6692
 6693 model.param.remove('as');
 6694
 6695 model.result.create('pg14', 3);
 6696 model.result('pg14').set('data', 'dset2');
 6697 model.result('pg14').create('slc1', 'Slice');
 6698 model.result('pg14').feature('slc1').set('expr', 'AGT');
 6699 model.result.create('pg15', 3);
 6700 model.result('pg15').set('data', 'dset2');
 6701 model.result('pg15').create('slc1', 'Slice');
 6702 model.result('pg15').feature('slc1').set('expr', 'Renin');
 6703 model.result.create('pg16', 3);
 6704 model.result('pg16').set('data', 'dset2');
 6705 model.result('pg16').create('slc1', 'Slice');
 6706 model.result('pg16').feature('slc1').set('expr', 'AngI');
 6707 model.result.create('pg17', 3);
 6708 model.result('pg17').set('data', 'dset2');
 6709 model.result('pg17').create('slc1', 'Slice');
 6710 model.result('pg17').feature('slc1').set('expr', 'AngII');
 6711 model.result.create('pg18', 3);
 6712 model.result('pg18').set('data', 'dset2');
 6713 model.result('pg18').create('slc1', 'Slice');
 6714 model.result('pg18').feature('slc1').set('expr', 'Ang17');
 6715 model.result.create('pg19', 3);
 6716 model.result('pg19').set('data', 'dset2');
 6717 model.result('pg19').create('slc1', 'Slice');
 6718 model.result('pg19').feature('slc1').set('expr', 'Ang19');
 6719 model.result.create('pg20', 3);
 6720 model.result('pg20').set('data', 'dset2');
 6721 model.result('pg20').create('slc1', 'Slice');
 6722 model.result('pg20').feature('slc1').set('expr', 'AngIII');
 6723 model.result.create('pg21', 3);
 6724 model.result('pg21').set('data', 'dset2');
 6725 model.result('pg21').create('slc1', 'Slice');
 6726 model.result('pg21').feature('slc1').set('expr', 'AngIV');
 6727 model.result.create('pg22', 3);
 6728 model.result('pg22').set('data', 'dset2');
 6729 model.result('pg22').create('slc1', 'Slice');
 6730 model.result('pg22').feature('slc1').set('expr', 'AT1bAngII');
```

```
model.result.create('pg23', 3);
model.result('pg23').set('data', 'dset2');
model.result('pg23').create('slc1', 'Slice');
model.result('pg23').feature('slc1').set('expr', 'AT2bAngII');
model.result.create('pg24', 3);
model.result('pg24').set('data', 'dset2');
model.result('pg24').create('slc1', 'Slice');
model.result('pg24').feature('slc1').set('expr', 'AT4bAngIV');
model.result.create('pg25', 3);
model.result('pg25').set('data', 'dset2');
model.result('pg25').create('slc1', 'Slice');
model.result('pg25').feature('slc1').set('expr', 'MAsbAng17');
model.result.create('pg26', 3);
model.result('pg26').set('data', 'dset2');
model.result('pg26').create('slc1', 'Slice');
model.result('pg26').feature('slc1').set('expr', 'Cb');
model.result.create('pg27', 3);
model.result('pg27').set('data', 'dset2');
model.result('pg27').create('slc1', 'Slice');
model.result('pg27').feature('slc1').set('expr', 'H');
model.result.create('pg28', 3);
model.result('pg28').set('data', 'dset2');
model.result('pg28').create('slc1', 'Slice');
model.result('pg28').feature('slc1').set('expr', 'Vint');
model.result.create('pg29', 3);
model.result('pg29').set('data', 'dset2');
model.result('pg29').create('slc1', 'Slice');
model.result('pg29').feature('slc1').set('expr', 'In');
model.result.create('pg30', 3);
model.result('pg30').set('data', 'dset2');
model.result('pg30').create('slc1', 'Slice');
model.result('pg30').feature('slc1').set('expr', 'Ci');
model.result.create('pg31', 3);
model.result('pg31').set('data', 'dset2');
model.result('pg31').create('slc1', 'Slice');
model.result('pg31').feature('slc1').set('expr', 'n');
model.result.create('pg32', 3);
model.result('pg32').set('data', 'dset2');
model.result('pg32').create('slc1', 'Slice');
model.result('pg32').feature('slc1').set('expr', 'ma');
model.result.create('pg33', 3);
model.result('pg33').set('data', 'dset2');
model.result('pg33').create('slc1', 'Slice');
model.result('pg33').feature('slc1').set('expr', 'c');
model.result.create('pg34', 3);
model.result('pg34').set('data', 'dset2');
model.result('pg34').create('slc1', 'Slice');
model.result('pg34').feature('slc1').set('expr', 'Ctl');
model.result.create('pg35', 3);
model.result('pg35').set('data', 'dset2');
```

```
model.result('pg35').create('slc1', 'Slice');
model.result('pg35').feature('slc1').set('expr', 'a');
model.result.create('pg36', 3);
model.result('pg36').set('data', 'dset2');
model.result('pg36').create('slc1', 'Slice');
model.result('pg36').feature('slc1').set('expr', 'AT1R');
model.result.create('pg37', 3);
model.result('pg37').set('data', 'dset2');
model.result('pg37').create('slc1', 'Slice');
model.result('pg37').feature('slc1').set('expr', 'AT2R');
model.result.create('pg38', 3);
model.result('pg38').set('data', 'dset2');
model.result('pg38').create('slc1', 'Slice');
model.result('pg38').feature('slc1').set('expr', 'MAsR');
model.result.create('pg39', 3);
model.result('pg39').set('data', 'dset2');
model.result('pg39').create('slc1', 'Slice');
model.result('pg39').feature('slc1').set('expr', 'AT4R');
model.result.create('pg40', 3);
model.result('pg40').set('data', 'dset2');
model.result('pg40').create('slc1', 'Slice');
model.result('pg40').feature('slc1').set('expr', 'ACE2');
model.result.create('pg41', 3);
model.result('pg41').set('data', 'dset2');
model.result('pg41').create('slc1', 'Slice');
model.result('pg41').feature('slc1').set('expr', 'ACE2bAngI');
model.result.create('pg42', 3);
model.result('pg42').set('data', 'dset2');
model.result('pg42').create('slc1', 'Slice');
model.result('pg42').feature('slc1').set('expr', 'ACE2bAngII');
model.result.create('pg43', 3);
model.result('pg43').set('data', 'dset2');
model.result('pg43').create('slc1', 'Slice');
model.result('pg43').feature('slc1').set('expr', 'IL6');
model.result.create('pg44', 3);
model.result('pg44').set('data', 'dset2');
model.result('pg44').create('slc1', 'Slice');
model.result('pg44').feature('slc1').set('expr', 'IL6R');
model.result.create('pg45', 3);
model.result('pg45').set('data', 'dset2');
model.result('pg45').create('slc1', 'Slice');
model.result('pg45').feature('slc1').set('expr', 'IL6RbIL6');
model.result.create('pg46', 3);
model.result('pg46').set('data', 'dset2');
model.result('pg46').create('slc1', 'Slice');
model.result('pg46').feature('slc1').set('expr', 'sIL6RbIL6');
model.result.create('pg47', 3);
model.result('pg47').set('data', 'dset2');
model.result('pg47').create('slc1', 'Slice');
model.result('pg47').feature('slc1').set('expr', 'VEGF');
```

```
model.result.create('pg48', 3);
model.result('pg48').set('data', 'dset2');
model.result('pg48').create('slc1', 'Slice');
model.result('pg48').feature('slc1').set('expr', 'sIL6R');
model.result.create('pg49', 3);
model.result('pg49').set('data', 'dset2');
model.result('pg49').create('slc1', 'Slice');
model.result('pg49').feature('slc1').set('expr', 'sACE2');
model.result.create('pg50', 3);
model.result('pg50').set('data', 'dset2');
model.result('pg50').create('slc1', 'Slice');
model.result('pg50').feature('slc1').set('expr', 'ec');
model.result.create('pg51', 3);
model.result('pg51').set('data', 'dset2');
model.result('pg51').create('slc1', 'Slice');
model.result('pg51').feature('slc1').set('expr', 'iec');
model.result.create('pg52', 3);
model.result('pg52').set('data', 'dset2');
model.result('pg52').create('slc1', 'Slice');
model.result('pg52').feature('slc1').set('expr', 'cox');
model.result.remove('pg41');
model.result.remove('pg20');
model.result.remove('pg42');
model.result.remove('pg21');
model.result.remove('pg43');
model.result.remove('pg22');
model.result.remove('pg44');
model.result.remove('pg40');
model.result.remove('pg27');
model.result.remove('pg49');
model.result.remove('pg28');
model.result.remove('pg29');
model.result.remove('pg23');
model.result.remove('pg45');
model.result.remove('pg24');
model.result.remove('pg46');
model.result.remove('pg25');
model.result.remove('pg47');
model.result.remove('pg26');
model.result.remove('pg48');
model.result.remove('pg30');
model.result.remove('pg52');
model.result.remove('pg31');
model.result.remove('pg32');
model.result.remove('pg33');
model.result.remove('pg50');
model.result.remove('pg51');
model.result.remove('pg16');
model.result.remove('pg38');
model.result.remove('pg17');
```

```
6881 model.result.remove('pg39');
6882 model.result.remove('pg18');
6883 model.result.remove('pg19');
6884 model.result.remove('pg34');
6885 model.result.remove('pg35');
6886 model.result.remove('pg14');
6887 model.result.remove('pg36');
6888 model.result.remove('pg15');
6889 model.result.remove('pg37');
6890
6891 model.study('std1').feature('param').remove('pname', 1);
6892 model.study('std1').feature('param').remove('punit', 1);
6893 model.study('std1').feature('param').remove('plistarr', 1);
6894
6895 model.result.create('pg14', 3);
6896 model.result('pg14').set('data', 'dset2');
6897 model.result('pg14').create('slc1', 'Slice');
6898 model.result('pg14').feature('slc1').set('expr', 'AGT');
6899 model.result.create('pg15', 3);
6900 model.result('pg15').set('data', 'dset2');
6901 model.result('pg15').create('slc1', 'Slice');
6902 model.result('pg15').feature('slc1').set('expr', 'Renin');
6903 model.result.create('pg16', 3);
6904 model.result('pg16').set('data', 'dset2');
6905 model.result('pg16').create('slc1', 'Slice');
6906 model.result('pg16').feature('slc1').set('expr', 'AngI');
6907 model.result.create('pg17', 3);
6908 model.result('pg17').set('data', 'dset2');
6909 model.result('pg17').create('slc1', 'Slice');
6910 model.result('pg17').feature('slc1').set('expr', 'AngII');
6911 model.result.create('pg18', 3);
6912 model.result('pg18').set('data', 'dset2');
6913 model.result('pg18').create('slc1', 'Slice');
6914 model.result('pg18').feature('slc1').set('expr', 'Ang17');
6915 model.result.create('pg19', 3);
6916 model.result('pg19').set('data', 'dset2');
6917 model.result('pg19').create('slc1', 'Slice');
6918 model.result('pg19').feature('slc1').set('expr', 'Ang19');
6919 model.result.create('pg20', 3);
6920 model.result('pg20').set('data', 'dset2');
6921 model.result('pg20').create('slc1', 'Slice');
6922 model.result('pg20').feature('slc1').set('expr', 'AngIII');
6923 model.result.create('pg21', 3);
6924 model.result('pg21').set('data', 'dset2');
6925 model.result('pg21').create('slc1', 'Slice');
6926 model.result('pg21').feature('slc1').set('expr', 'AngIV');
6927 model.result.create('pg22', 3);
6928 model.result('pg22').set('data', 'dset2');
6929 model.result('pg22').create('slc1', 'Slice');
6930 model.result('pg22').feature('slc1').set('expr', 'AT1bAngII');
```

```
model.result.create('pg23', 3);
model.result('pg23').set('data', 'dset2');
model.result('pg23').create('slc1', 'Slice');
model.result('pg23').feature('slc1').set('expr', 'AT2bAngII');
model.result.create('pg24', 3);
model.result('pg24').set('data', 'dset2');
model.result('pg24').create('slc1', 'Slice');
model.result('pg24').feature('slc1').set('expr', 'AT4bAngIV');
model.result.create('pg25', 3);
model.result('pg25').set('data', 'dset2');
model.result('pg25').create('slc1', 'Slice');
model.result('pg25').feature('slc1').set('expr', 'MAsbAng17');
model.result.create('pg26', 3);
model.result('pg26').set('data', 'dset2');
model.result('pg26').create('slc1', 'Slice');
model.result('pg26').feature('slc1').set('expr', 'Cb');
model.result.create('pg27', 3);
model.result('pg27').set('data', 'dset2');
model.result('pg27').create('slc1', 'Slice');
model.result('pg27').feature('slc1').set('expr', 'H');
model.result.create('pg28', 3);
model.result('pg28').set('data', 'dset2');
model.result('pg28').create('slc1', 'Slice');
model.result('pg28').feature('slc1').set('expr', 'Vint');
model.result.create('pg29', 3);
model.result('pg29').set('data', 'dset2');
model.result('pg29').create('slc1', 'Slice');
model.result('pg29').feature('slc1').set('expr', 'In');
model.result.create('pg30', 3);
model.result('pg30').set('data', 'dset2');
model.result('pg30').create('slc1', 'Slice');
model.result('pg30').feature('slc1').set('expr', 'Ci');
model.result.create('pg31', 3);
model.result('pg31').set('data', 'dset2');
model.result('pg31').create('slc1', 'Slice');
model.result('pg31').feature('slc1').set('expr', 'n');
model.result.create('pg32', 3);
model.result('pg32').set('data', 'dset2');
model.result('pg32').create('slc1', 'Slice');
model.result('pg32').feature('slc1').set('expr', 'ma');
model.result.create('pg33', 3);
model.result('pg33').set('data', 'dset2');
model.result('pg33').create('slc1', 'Slice');
model.result('pg33').feature('slc1').set('expr', 'c');
model.result.create('pg34', 3);
model.result('pg34').set('data', 'dset2');
model.result('pg34').create('slc1', 'Slice');
model.result('pg34').feature('slc1').set('expr', 'Ctl');
model.result.create('pg35', 3);
model.result('pg35').set('data', 'dset2');
```

```
model.result('pg35').create('slc1', 'Slice');
model.result('pg35').feature('slc1').set('expr', 'a');
model.result.create('pg36', 3);
model.result('pg36').set('data', 'dset2');
model.result('pg36').create('slc1', 'Slice');
model.result('pg36').feature('slc1').set('expr', 'AT1R');
model.result.create('pg37', 3);
model.result('pg37').set('data', 'dset2');
model.result('pg37').create('slc1', 'Slice');
model.result('pg37').feature('slc1').set('expr', 'AT2R');
model.result.create('pg38', 3);
model.result('pg38').set('data', 'dset2');
model.result('pg38').create('slc1', 'Slice');
model.result('pg38').feature('slc1').set('expr', 'MAsR');
model.result.create('pg39', 3);
model.result('pg39').set('data', 'dset2');
model.result('pg39').create('slc1', 'Slice');
model.result('pg39').feature('slc1').set('expr', 'AT4R');
model.result.create('pg40', 3);
model.result('pg40').set('data', 'dset2');
model.result('pg40').create('slc1', 'Slice');
model.result('pg40').feature('slc1').set('expr', 'ACE2');
model.result.create('pg41', 3);
model.result('pg41').set('data', 'dset2');
model.result('pg41').create('slc1', 'Slice');
model.result('pg41').feature('slc1').set('expr', 'ACE2bAngI');
model.result.create('pg42', 3);
model.result('pg42').set('data', 'dset2');
model.result('pg42').create('slc1', 'Slice');
model.result('pg42').feature('slc1').set('expr', 'ACE2bAngII');
model.result.create('pg43', 3);
model.result('pg43').set('data', 'dset2');
model.result('pg43').create('slc1', 'Slice');
model.result('pg43').feature('slc1').set('expr', 'IL6');
model.result.create('pg44', 3);
model.result('pg44').set('data', 'dset2');
model.result('pg44').create('slc1', 'Slice');
model.result('pg44').feature('slc1').set('expr', 'IL6R');
model.result.create('pg45', 3);
model.result('pg45').set('data', 'dset2');
model.result('pg45').create('slc1', 'Slice');
model.result('pg45').feature('slc1').set('expr', 'IL6RbIL6');
model.result.create('pg46', 3);
model.result('pg46').set('data', 'dset2');
model.result('pg46').create('slc1', 'Slice');
model.result('pg46').feature('slc1').set('expr', 'sIL6RbIL6');
model.result.create('pg47', 3);
model.result('pg47').set('data', 'dset2');
model.result('pg47').create('slc1', 'Slice');
model.result('pg47').feature('slc1').set('expr', 'VEGF');
```

```
model.result.create('pg48', 3);
model.result('pg48').set('data', 'dset2');
model.result('pg48').create('slc1', 'Slice');
model.result('pg48').feature('slc1').set('expr', 'sIL6R');
model.result.create('pg49', 3);
model.result('pg49').set('data', 'dset2');
model.result('pg49').create('slc1', 'Slice');
model.result('pg49').feature('slc1').set('expr', 'sACE2');
model.result.create('pg50', 3);
model.result('pg50').set('data', 'dset2');
model.result('pg50').create('slc1', 'Slice');
model.result('pg50').feature('slc1').set('expr', 'ec');
model.result.create('pg51', 3);
model.result('pg51').set('data', 'dset2');
model.result('pg51').create('slc1', 'Slice');
model.result('pg51').feature('slc1').set('expr', 'iec');
model.result.create('pg52', 3);
model.result('pg52').set('data', 'dset2');
model.result('pg52').create('slc1', 'Slice');
model.result('pg52').feature('slc1').set('expr', 'cox');

model.batch('p1').run;

model.result('pg14').run;

model.label('basline_clearparametric Ka_hrsACE2.mph');

model.result('pg14').run;

model.sol('sol1').clearSolutionData;
model.sol('sol2').clearSolutionData;
model.sol('sol3').clearSolutionData;
model.sol('sol4').clearSolutionData;
model.sol('sol5').clearSolutionData;
model.sol('sol6').clearSolutionData;
model.sol('sol7').clearSolutionData;
model.sol('sol8').clearSolutionData;
model.sol('sol9').clearSolutionData;
model.sol('sol10').clearSolutionData;
model.sol('sol11').clearSolutionData;
model.sol('sol12').clearSolutionData;
model.sol('sol13').clearSolutionData;
model.sol('sol14').clearSolutionData;
model.sol('sol15').clearSolutionData;
model.sol('sol16').clearSolutionData;
model.sol('sol17').clearSolutionData;
model.sol('sol18').clearSolutionData;
model.sol('sol19').clearSolutionData;
model.sol('sol20').clearSolutionData;
model.sol('sol21').clearSolutionData;
```

```
 7081 model.sol('sol22').clearSolutionData;
 7082 model.sol('sol23').clearSolutionData;
 7083 model.sol('sol24').clearSolutionData;
 7084 model.sol('sol25').clearSolutionData;
 7085 model.sol('sol26').clearSolutionData;
 7086 model.sol('sol27').clearSolutionData;
 7087
 7088 model.physics('Ci').feature('cdeq1').setIndex('c', {'Dci' '0' '0' '0' 'Dci' '0' ↙
'0' '0' 'Dci'}, 0);
 7089 model.physics('Ci').feature('cdeq1').setIndex('f', '-KsACE2*sACE2*Ci- ↙
KonACE2V*Ci*ACE2+KoffACE2V*Cb-Kd*Ci+Ka*Vint', 0);
 7090 model.physics('n').feature('dode1').setIndex('f', 'xn*c-gam_n*n-gam_m*n*ma- ↙
gam_v*n*Ci+xIL6*IL6RbIL6', 0);
 7091 model.physics('n').feature('dode1').setIndex('f', 'xn*c/(1+a)-gam_n*n-gam_m*n*ma- ↙
gam_v*n*Ci+xIL6*IL6RbIL6', 0);
 7092
 7093 model.variable('var1').set('xn', '2.1e-2[1/pg/h]');
 7094
 7095 model.physics('n').feature('dode1').setIndex('f', 'c/(1+a)-gam_n*n-gam_m*n*ma- ↙
gam_v*n*Ci+xIL6*IL6RbIL6', 0);
 7096 model.physics('n').feature('dode1').setIndex('f', 'xn*c/(1+a)-gam_n*n-gam_m*n*ma- ↙
gam_v*n*Ci+xIL6*IL6RbIL6', 0);
 7097 model.physics('n').feature('dode1').setIndex('da', '1+a', 0);
 7098 model.physics('n').feature('dode1').setIndex('da', '1', 0);
 7099 model.physics('n').feature('dode1').setIndex('f', 'xn*c/(1+a/a0)-gam_n*n- ↙
gam_m*n*ma-gam_v*n*Ci+xIL6*IL6RbIL6', 0);
 7100
 7101 model.variable('var1').set('a0', '4.2e9[1/L]');
 7102 model.variable('var1').set('xn', '2.1e-2[1/h]');
 7103
 7104 model.physics('ma').feature('dode1').setIndex('f', 'xm*c-gam_n1*ma- ↙
gam_v*ma*Ci+xIL6ma*IL6RbIL6/100', 0);
 7105 model.physics('c').feature('dode1').setIndex('f', 'Sc*Vint+SAT1R*AT1bAngII+Sn* ↙
(n+ma+In)-dc*c', 0);
 7106 model.physics('c').feature('dode1').setIndex('f', '(Sc/Vo) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c', 0);
 7107 model.physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c', 0);
 7108
 7109 model.variable('var1').set('V0', '1.27e-9[M]');
 7110
 7111 model.physics('a').feature('dode1').setIndex('f', ↙
'Kg*phi_a*ma*n+Sang17*MAsbAng17/10-gam_a*a', 0);
 7112 model.physics('a').feature('dode1').setIndex('f', ↙
'Kg*phi_a*ma*n+Sang17*MAsbAng17-gam_a*a', 0);
 7113 model.physics('AT1R').feature('dode1').setIndex('f', 'SAT1- ↙
KonAT1AngII*AngII*AT1R+KoffAT1AngII*AT1bAngII-KAT1RMAsR*MAsR-KAT1RAT2R*AT2R', 0);
 7114 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci-gam_IL6*IL6- ↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6+KsIL6R*sIL6RbIL6-K1sIL6R*sIL6R*IL6', 0);
 7115 model.physics('IL6R').feature('dode1').setIndex('f', 'SIL6- ↙
```

```
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6-KsIL6R*IL6R', 0);
 7116 model.physics('IL6RbIL6').feature('dode1').setIndex('f', 'KonIL6*IL6*IL6R- ↙
KoffIL6*IL6RbIL6-(log(2)/hIL6R)*IL6RbIL6', 0);
 7117 model.physics('sIL6R').feature('dode1').setIndex('f', 'SsIL6R+KsIL6R*IL6R- ↙
KsIL6R*sIL6RbIL6', 0);
 7118 model.physics('ec').feature('dode1').setIndex('f', 'Kec*ec-Kiec*Ci*ec', 0);
 7119 model.physics('cox_oxygen').feature('cdeq1').setIndex('f', 'Per*Sv*(coxv-cox)- ↙
Aox*cox/(cox+kox)*fc', 0);
 7120
 7121 model.variable('var1').remove('a_n');
 7122 model.variable('var1').set('kAGT', '2.27e6[nmol/L/h]');
 7123 model.variable('var1').set('cRenin', '1.8e-14[1/s]');
 7124 model.variable('var1').set('Kf', '4.91e-5[1/h]');
 7125 model.variable('var1').set('f', '0.51[nmol/ml]');
 7126 model.variable('var1').set('KACE', '185.22[1/h]');
 7127 model.variable('var1').set('KAPA', '43.6[1/h]');
 7128 model.variable('var1').set('KAPM', '43.6[1/h]');
 7129 model.variable('var1').set('Kd', '4.8e-5[1/s]');
 7130 model.variable('var1').set('Ka', '5.78e2[1/s]/bKa');
 7131 model.variable('var1').set('Kint', '5.78e-4[1/s]');
 7132 model.variable('var1').set('Sc', '2.9e-2[pg/ml/h]');
 7133
 7134 model.result('pg1').run;
 7135 model.result('pg1').feature('slc1').set('expr', 'sRenin');
 7136 model.result('pg1').run;
 7137 model.result('pg1').run;
 7138 model.result('pg1').run;
 7139 model.result('pg1').set('data', 'dset2');
 7140 model.result('pg1').run;
 7141 model.result('pg1').setIndex('looplevel', '1', 0);
 7142 model.result('pg1').run;
 7143
 7144 model.variable('var1').set('Sn', '2.1e-2[pg/h]');
 7145 model.variable('var1').set('dc', '8.3e-1[1/h]');
 7146 model.variable('var1').set('Kg', '2.1e-2[pg/h]');
 7147 model.variable('var1').set('phi_a', '2.1e-6[ml]');
 7148 model.variable('var1').set('SAT1', '0.57[fmol/ml/h]');
 7149 model.variable('var1').set('Sang17', '4.2e2[pg/h/fmol]');
 7150 model.variable('var1').set('gam_a', '3[1/h]');
 7151 model.variable('var1').set('Kb', '1.36e5[1/M/s]');
 7152
 7153 model.result('pg1').run;
 7154 model.result('pg1').feature('slc1').set('expr', '2.3e-4[mm^3/h]/100');
 7155 model.result('pg1').feature('slc1').set('unit', 'ml/h');
 7156 model.result('pg1').run;
 7157
 7158 model.variable('var1').set('phic', '2.3e-9[ml/h]');
 7159 model.variable('var1').set('RH', '2.75e-3[1/h]');
 7160 model.variable('var1').set('gam_n', '6.3e-4[1/h]');
 7161 model.variable('var1').set('gam_m', '2.1e-5[ml/h]');
```

```
7162 model.variable('var1').set('gam_v', '0.03[ml/h/fmol]');
7163 model.variable('var1').set('xm', '0.02[1/pg/h]');
7164 model.variable('var1').set('gam_a', '6.3e-4[1/h]');
7165 model.variable('var1').set('pv', '0.05[1/h]');
7166 model.variable('var1').set('dcl', '0.04[1/h]');
7167 model.variable('var1').set('KonACE2AngI', '3.24e-2 [ml/h/fmol]');
7168 model.variable('var1').set('KoffACE2AngI', '0.095 [ml/h/fmol]');
7169 model.variable('var1').set('KonAT1AngII', '3.24e-2 [ml/h/fmol]');
7170 model.variable('var1').set('KoffAT1AngII', '0.095 [ml/h/fmol]');
7171 model.variable('var1').set('KonAT2AngII', '3.24e-2 [ml/h/fmol]');
7172 model.variable('var1').set('KoffAT2AngII', '0.095 [ml/h/fmol]');
7173 model.variable('var1').set('KonACE2AngI', '2.5e-5 [ml/h/fmol]');
7174 model.variable('var1').set('KoffACE2AngI', '0.1 [1/h]');
7175 model.variable('var1').set('KonAT1AngII', '2.53-5[ml/h/fmol]');
7176 model.variable('var1').set('KonAT2AngII', '2.53-5[ml/h/fmol]');
7177 model.variable('var1').set('KonAT4R', '2.53-5[ml/h/fmol]');
7178 model.variable('var1').set('KonIL6', '2.53-7[ml/h/fmol]');
7179 model.variable('var1').set('KonMAs', '2.53-5[ml/h/fmol]');
7180 model.variable('var1').set('KonsIL6R', '2.53-3[ml/h/fmol]');
7181 model.variable('var1').set('KonACE2AngII', '2.53-5[ml/h/fmol]');
7182 model.variable('var1').set('KonACE2V', '2.53-6[ml/h/fmol]');
7183 model.variable('var1').set('KsACE2', '2.53-6[ml/h/fmol]');
7184 model.variable('var1').set('K1sIL6R', '2.53-7[ml/h/fmol]');
7185 model.variable('var1').set('KAng17Ang19', '0.1[1/h]');
7186 model.variable('var1').set('KAT1RAT2R', '0.1[1/h]');
7187 model.variable('var1').set('KAT1RMAsR', '0.1[1/h]');
7188 model.variable('var1').set('Kec', '0.1[1/h]');
7189 model.variable('var1').set('Kiec', '2.5e-5[ml/h/fmol]');
7190 model.variable('var1').set('KoffACE2AngII', '0.3[1/h]');
7191 model.variable('var1').set('KoffACE2V', '0.1e-2[1/h]');
7192 model.variable('var1').set('KoffAT4R', '0.1[1/h]');
7193 model.variable('var1').set('KoffIL6', '0.1[1/h]');
7194 model.variable('var1').set('KoffMAs', '0.1[1/h]');
7195 model.variable('var1').set('KsIL6R', '0.e-21[1/h]');
7196 model.variable('var1').set('KsIL6RbIL6', '0.1[1/h]');
7197 model.variable('var1').set('KVEGF', '0.1[1/h]');
7198 model.variable('var1').set('KsIL6R', '0.1e-2[1/h]');
7199 model.variable('var1').set('SAT2R', '0.57[fmol/ml/h]');
7200 model.variable('var1').set('SAT4R', '0.57[fmol/ml/h]');
7201 model.variable('var1').set('SIL6RbIL6', '0.57[fmol/ml/h]');
7202 model.variable('var1').set('SMAsR', '0.57[fmol/ml/h]');
7203 model.variable('var1').set('SIL6', '0.57[fmol/ml/h]/bSIL6');
7204 model.variable('var1').set('SsACE2', '0.57[fmol/ml/h]*bSsACE2');
7205 model.variable('var1').set('SsIL6R', '0.57[fmol/ml/h]');
7206 model.variable('var1').set('SsIL6RbIL6', '0.57[fmol/ml/h]');
7207 model.variable('var1').set('SVEGF', '0.57[fmol/ml/h]');
7208 model.variable('var1').set('xIL6ctl', '10[1/fmol/h]*10');
7209 model.variable('var1').set('xIL6ma', '10[1/fmol/h]');
7210 model.variable('var1').set('SACE2R', '0.57[fmol/ml/h]');
7211 model.variable('var1').set('hAT4', '1.5[min]');
```

```
7212 model.variable('var1').set('hAT4R', '1.5[min]');
7213 model.variable('var1').set('hIL6R', '1.5[min]');
7214 model.variable('var1').set('hMAs', '1.5[min]');
7215 model.variable('var1').set('gam_IL6', '0.1[1/h]');
7216 model.variable('var1').set('KACE2', '0.095[1/h]');
7217 model.variable('var1').set('KoffAT1AngII', '0.095 [1/h]');
7218 model.variable('var1').set('KoffAT2AngII', '0.095 [1/h]');
7219 model.variable('var1').remove('cACE');
7220 model.variable('var1').remove('cACE2');
7221 model.variable('var1').set('KAdam17', '0.095[1/h]');
7222 model.variable('var1').set('KonACE2V', '17[ml/h/nmol]');
7223 model.variable('var1').set('KonIL6', '15[ml/h/nmol]');
7224 model.variable('var1').set('KonsIL6R', '50[ml/h/nmol]');
7225 model.variable('var1').set('KsACE2', '17[ml/h/nmol]');
7226
7227 model.study('std1').feature('param').active(false);
7228
7229 model.sol('sol1').runFromTo('st1', 'v1');
7230
7231 model.result('pg2').run;
7232
7233 model.batch.remove('p1');
7234
7235 model.result('pg1').run;
7236 model.result('pg1').feature('slc1').set('expr', 'Ci');
7237 model.result('pg1').run;
7238 model.result('pg1').run;
7239 model.result('pg1').set('data', 'dset1');
7240 model.result('pg1').run;
7241 model.result('pg1').run;
7242 model.result('pg1').feature('slc1').set('expr', 'Cb');
7243 model.result('pg1').run;
7244 model.result('pg1').feature('slc1').set('expr', 'Vint');
7245 model.result('pg1').run;
7246 model.result('pg1').feature('slc1').set('expr', 'H');
7247 model.result('pg1').run;
7248 model.result('pg1').feature('slc1').set('expr', 'c');
7249 model.result('pg1').run;
7250 model.result('pg1').feature('slc1').set('expr', 'n');
7251 model.result('pg1').run;
7252 model.result('pg1').feature('slc1').set('expr', 'Ctl');
7253 model.result('pg1').run;
7254 model.result('pg1').feature('slc1').set('expr', 'a');
7255 model.result('pg1').run;
7256 model.result('pg1').feature('slc1').set('expr', 'IL6');
7257 model.result('pg1').run;
7258
7259 model.variable('var1').set('KIL6', '10[mm^3/h]');
7260
7261 model.result('pg1').run;
```

```
 7262 model.result('pg1').feature('slc1').set('expr', '10[mm^3/h]');
 7263 model.result('pg1').feature('slc1').set('unit', 'ml/h');
 7264 model.result('pg1').run;
 7265 model.result('pg1').feature('slc1').set('expr', 'IL6');
 7266 model.result('pg1').run;
 7267 model.result('pg1').feature('slc1').set('expr', 'sIL6R');
 7268 model.result('pg1').run;
 7269 model.result('pg1').feature('slc1').set('expr', 'IL6R');
 7270 model.result('pg1').run;
 7271 model.result('pg1').feature('slc1').set('expr', 'ACE2');
 7272 model.result('pg1').run;
 7273 model.result('pg1').feature('slc1').set('expr', 'sACE2');
 7274 model.result('pg1').run;
 7275 model.result('pg1').run;
 7276 model.result('pg1').run;
 7277
 7278 model.variable('var1').set('KIL6', '10[mm^3/h]/10');
 7279
 7280 model.result('pg1').run;
 7281
 7282 model.physics('IL6').feature('init1').set('IL6', '6.83[pg/ml]/23717.965[g/mol]');
 7283
 7284 model.result('pg1').run;
 7285 model.result('pg1').feature('slc1').set('expr', '1[pg]');
 7286 model.result('pg1').run;
 7287 model.result('pg1').feature('slc1').set('unit', 'pg');
 7288 model.result('pg1').run;
 7289 model.result('pg1').run;
 7290 model.result('pg1').feature('slc1').set('unit', 'ng');
 7291 model.result('pg1').run;
 7292
 7293 model.physics('IL6').feature('init1').set('IL6', '6.83e-12[g/ml]/23717.965 ↙
[g/mol]');
 7294
 7295 model.result('pg1').run;
 7296 model.result('pg1').feature('slc1').set('expr', 'ma');
 7297 model.result('pg1').run;
 7298 model.result('pg1').feature('slc1').set('expr', 'Ci');
 7299 model.result('pg1').run;
 7300 model.result('pg1').feature('slc1').set('expr', 'KIL6*ma*Ci');
 7301 model.result('pg1').run;
 7302
 7303 model.variable('var1').set('KIL6', '1 [ml/h]');
 7304
 7305 model.result('pg1').run;
 7306 model.result('pg1').feature('slc1').set('expr', 'KIL6*ma*Ci-gam_IL6*IL6- ↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6+KsIL6R*sIL6RbIL6-K1sIL6R*sIL6R*IL6');
 7307 model.result('pg1').run;
 7308
 7309 model.label('basline_clearparametric clearSolution_pre_.mph');
```

```
7310
7311 model.result('pg1').run;
7312
7313 model.variable('var1').set('Dci', '5e-3[cm^2/s]');
7314 model.variable('var1').set('KoffACE2AngII', '385.22[1/h]');
7315 model.variable('var1').set('KonACE2AngII', '25 [ml/h/nmol]');
7316 model.variable('var1').set('KoffACE2AngI', '65.22[1/h]');
7317 model.variable('var1').set('KonACE2AngI', '25 [ml/h/nmol]');
7318 model.variable('var1').set('KoffACE2V', '65.22[1/h]');
7319 model.variable('var1').set('KonACE2V', '17 [ml/h/nmol]');
7320 model.variable('var1').set('KAng17Ang19', '65.22[1/h]');
7321 model.variable('var1').set('KAPA', '43.6 [1/h]');
7322 model.variable('var1').set('KAT1RAT2R', '65.22[1/h]');
7323 model.variable('var1').set('KAT1RMAsR', '65.22[1/h]');
7324 model.variable('var1').set('KoffAT1AngII', '65.22[1/h]');
7325 model.variable('var1').set('KoffAT2AngII', '65.22[1/h]');
7326 model.variable('var1').set('KonAT1AngII', '25 [ml/h/nmol]');
7327 model.variable('var1').set('KonAT2AngII', '25 [ml/h/nmol]');
7328 model.variable('var1').set('KoffAT4R', '65.22[1/h]');
7329 model.variable('var1').set('KonAT4R', '25 [ml/h/nmol]');
7330 model.variable('var1').set('KAdam17', '65.22[1/h]');
7331 model.variable('var1').set('KIL6', '0.5 [ml/h]');
7332 model.variable('var1').set('KoffIL6', '65.22[1/h]');
7333 model.variable('var1').set('KonIL6', '15 [ml/h/nmol]');
7334 model.variable('var1').set('KoffMAs', '65.22[1/h]');
7335 model.variable('var1').set('KonMAs', '25 [ml/h/nmol]');
7336 model.variable('var1').set('KVEGF', '65.22[1/h]');
7337 model.variable('var1').set('Kec', '65.22[1/h]');
7338 model.variable('var1').set('Kiec', '25 [ml/h/nmol]');
7339 model.variable('var1').set('KsIL6R', '50 [ml/h/nmol]');
7340 model.variable('var1').set('KsIL6RbIL6', '65.22[1/h]');
7341 model.variable('var1').set('K1sIL6R', '50 [ml/h/nmol]');
7342 model.variable('var1').set('KonsIL6R', '17 [ml/h/nmol]');
7343 model.variable('var1').set('SAT1R', '25 [ml/h/nmol]');
7344 model.variable('var1').set('SAT2R', '2.27e6 [nmol/L/h]');
7345 model.variable('var1').set('SAT4R', '2.27e6 [nmol/L/h]');
7346 model.variable('var1').set('Sang17', '4.2e2 [pg/h/fmol]');
7347 model.variable('var1').set('SIL6', '2.27e6 [nmol/L/h]/bSIL6');
7348 model.variable('var1').set('SMAsR', '2.27e6 [nmol/L/h]');
7349 model.variable('var1').set('SIL6RbIL6', '2.27e6 [nmol/L/h]');
7350 model.variable('var1').set('SVEGF', '1.14e6 [nmol/L/h]');
7351 model.variable('var1').set('SsACE2', '2.27e6 [nmol/L/h]*bSsACE2');
7352 model.variable('var1').set('gam_IL6', '6.3e-4 [1/h]');
7353 model.variable('var1').set('xIL6ctl', '35 [1/fmol/h]');
7354 model.variable('var1').set('xIL6ma', '65.22[1/h]');
7355 model.variable('var1').set('xIL6', '65.22[1/h]');
7356 model.variable('var1').set('SsIL6R', '2.27e6 [nmol/L/h]');
7357 model.variable('var1').set('SsIL6RbIL6', '2.27e6 [nmol/L/h]');
7358
7359 model.physics('sIL6R').feature('dode1').setIndex('f', 'SsIL6R+KsIL6R*IL6R- ↙
```

```
KsIL6RbIL6*sIL6RbIL6', 0);
 7360 model.physics('sIL6R').feature('dode1').setIndex('f', 'SsIL6R+KsIL6R*IL6R- ↙
KsIL6R*sIL6RbIL6', 0);
 7361
 7362 model.variable('var1').set('KsIL6R', '65.22[1/h]');
 7363
 7364 model.physics('sIL6R').feature('dode1').setIndex('f', 'SsIL6R+KsIL6R*IL6R- ↙
KsIL6RbIL6*sIL6RbIL6', 0);
 7365
 7366 model.variable('var1').set('KsIL6RbIL6', '25.12[1/h]');
 7367
 7368 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci-gam_IL6*IL6- ↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6+KsIL6RbIL6*sIL6RbIL6-K1sIL6R*sIL6R*IL6', 0);
 7369 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci-gam_IL6*IL6- ↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6+KsIL6RbIL6*sIL6RbIL6-KsIL6R*sIL6R*IL6', 0);
 7370 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci-gam_IL6*IL6- ↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6+KsIL6RbIL6*sIL6RbIL6-K1sIL6R*sIL6R*IL6', 0);
 7371
 7372 model.variable.create('var5');
 7373 model.variable('var5').model('comp1');
 7374 model.variable('var5').label('Initial');
 7375 model.variable('var5').set('AGT0', '1.7e-7[nmol/L]');
 7376 model.variable('var5').set('Renini0', '2.06e-4[nmol/L]');
 7377 model.variable('var5').set('ANGI0', '271[nmol/L]');
 7378 model.variable('var5').set('ANGII', '21[nmol/L]');
 7379 model.variable('var5').set('ANGIII', '1.3e-8[mol/L]');
 7380 model.variable('var5').rename('ANGII', 'ANGII0');
 7381 model.variable('var5').rename('ANGIII', 'ANGIII0');
 7382 model.variable('var5').set('ANGIV0', '1.29[fmol/ml]');
 7383 model.variable('var5').set('ANG170', '1.2e-7[mol/L]');
 7384 model.variable('var5').set('ANG190', '5.9e-8[mol/L]');
 7385 model.variable('var5').set('AT1RbANGII__0', '4.1e-8[mol/L]');
 7386 model.variable('var5').set('AT2RbANGII__0', '2.1e-8[mol/L]');
 7387
 7388 model.physics('AT1bAngII').feature('init1').set('AT1bAngII', 'AT1RbANGII__0');
 7389 model.physics('AT2bAngII').feature('init1').set('AT2bAngII', 'AT1RbANGII__0');
 7390 model.physics('AGT').feature('init1').set('AGT', 'AGT0');
 7391 model.physics('Renin').feature('init1').set('Renin', 'Renin0');
 7392
 7393 model.variable('var5').rename('Renini0', 'Renini_0');
 7394
 7395 model.physics('Renin').feature('init1').set('Renin', 'Renin_0');
 7396
 7397 model.variable('var5').rename('Renini_0', 'Renin_0');
 7398
 7399 model.physics('AngI').feature('init1').set('AngI', 'ANGI0');
 7400 model.physics('AngII').feature('init1').set('AngII', 'ANGII0');
 7401 model.physics('Ang17').feature('init1').set('Ang17', 'ANG170');
 7402 model.physics('Ang19').feature('init1').set('Ang19', 'ANG190');
 7403 model.physics('AngIII').feature('init1').set('AngIII', 'ANGIII0');
```

```
model.physics('AngIV').feature('init1').set('AngIV', 'ANGIV0');
model.physics('AT2bAngII').feature('init1').set('AT2bAngII', 'AT2RbANGII__0');
model.physics('AT4bAngIV').feature('init1').set('AT4bAngIV', 'AT4RbANGIV__0');

model.variable('var5').set('AT4RbANGIV__0', '1.1e-8[mol/L]');

model.physics('MAsbAng17').feature('init1').set('MAsbAng17', 'MAsbAng17_0');

model.variable('var5').set('MAsbAng17_0', '2.1e-8[mol/L]');

model.physics('H').feature('init1').set('H', 'H0');

model.variable('var5').set('H0', '7.23e8[1/ml]');
model.variable('var5').set('n0', '4.2e9[1/L]');

model.physics('ma').feature('init1').set('ma', 'ma0');
model.physics('n').feature('init1').set('n', 'n0');

model.variable('var5').set('ma0', '4.2e9[1/L]');

model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'ma');
model.result('pg1').run;
model.result('pg1').run;

model.variable('var5').set('ma0', '2.17e9[1/L]');

model.physics('c').feature('init1').set('c', 'c0');

model.variable('var5').set('c0', '4.96e4[pg/ml]');

model.physics('Ctl').feature('init1').set('Ctl', 'Ctl0');

model.variable('var5').set('Ctl0', '2.17e9[1/L]');

model.physics('a').feature('init1').set('a', 'a0');

model.variable('var5').set('a0', '716.35[pg/ml]');
model.variable('var5').descr('a0', '3 normal renge');
model.variable('var5').set('AT1R0', '2.26[fmol/ml]');
model.variable('var5').set('AT2R0', '1.14[fmol/ml]');
model.variable('var5').set('MAsR0', '2.23[fmol/ml]');
model.variable('var5').set('AT4R0', '0.57[fmol/ml]');
model.variable('var5').set('ACE20', '5.17[fmol/ml]');
model.variable('var5').set('ACe2bAngI_0', '4.1e-8[mol/L]');
model.variable('var5').set('ACE2bAngII_0', '2.1e-8[mol/L]');
model.variable('var5').rename('ACe2bAngI_0', 'ACE2bAngI_0');
model.variable('var5').set('IL60', '16[fmol/ml]');
model.variable('var5').set('IL6R0', '1.15[fmol/ml]');
model.variable('var5').set('IL6RbIL6_0', '2.1e-8[mol/L]');
```

```
model.variable('var5').set('sIL6RbIL6_0', '1.05e-8[mol/L]');
model.variable('var5').set('VEGF0', '3.29e-4[fmol/ml]');
model.variable('var5').set('sIL6R', '0.03[fmol/ml]');
model.variable('var5').set('sACE20', '0.03[fmol/ml]');

model.physics('AT1R').feature('init1').set('AT1R', 'AT1R0');
model.physics('AT2R').feature('init1').set('AT2R', 'AT2R0');
model.physics('MAsR').feature('init1').set('MAsR', 'MAsR0');
model.physics('AT4R').feature('init1').set('AT4R', 'AT4R0');
model.physics('ACE2').feature('init1').set('ACE2', 'ACE20');
model.physics('ACE2bAngI').feature('init1').set('ACE2bAngI', 'ACE2bAngI_0');
model.physics('ACE2bAngII').feature('init1').set('ACE2bAngII', 'ACE2bAngII_0');
model.physics('IL6').feature('init1').set('IL6', 'IL60');
model.physics('IL6R').feature('init1').set('IL6R', 'IL6R0');
model.physics('IL6RbIL6').feature('init1').set('IL6RbIL6', 'IL6RbIL6_0');
model.physics('sIL6RbIL6').feature('init1').set('sIL6RbIL6', 'sIL6RbIL6_0');
model.physics('VEGF').feature('init1').set('VEGF', 'VEGF0');
model.physics('sIL6R').feature('init1').set('sIL6R', 'sIL6R0');

model.variable('var5').rename('sIL6R', 'sIL6R0');

model.physics('sACE2').feature('init1').set('sACE2', 'sACE20');

model.variable('var5').rename('a0', 'a_0');

model.physics('a').feature('init1').set('a', 'a_0');

model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'IL6');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'sIL6R');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'IL6R');
model.result('pg1').run;

model.variable('var1').set('KACE2', '65.22[1/h]');
model.variable('var1').active(false);
model.variable.create('var6');
model.variable('var6').model('comp1');
model.variable('var6').set('a_n', '1e-3');
model.variable('var6').set('alp', '1e3');
model.variable('var6').set('AngII0', '21[nmol/L]');
model.variable('var6').set('AngII0sysNRF', '1.65e-2[nmol/L]');
model.variable('var6').set('Aox', '2200[mol/m^3/day]');
model.variable('var6').set('b', '0');
model.variable('var6').set('cACE', '54.1[1/h]*(1-InACE1)');
model.variable('var6').set('cACE2', '2.4[1/h]*vi');
model.variable('var6').set('cAngIIAngIV', '23.5[1/h]');
```

```
7504 model.variable('var6').set('cAPA', '1.2e-2[1/s]');
7505 model.variable('var6').set('cAPM', 'cAPA');
7506 model.variable('var6').set('cAT1', '11.8[1/h]*(1-InARBs)');
7507 model.variable('var6').set('cAT2', '3.9[1/h]');
7508 model.variable('var6').set('cAT4', 'cAT2/3');
7509 model.variable('var6').set('cChym', '1.1[1/h]');
7510 model.variable('var6').set('cells', 'H+In+n+ec+iec');
7511 model.variable('var6').set('Chs', '1.74e-5[M]');
7512 model.variable('var6').set('cMAs', 'cAT4/2');
7513 model.variable('var6').set('cNEP', '1.1[1/h]');
7514 model.variable('var6').set('coxv', '0.2 [mole/m^3]');
7515 model.variable('var6').set('cRenin', '1.8e-14[1/s]*40');
7516 model.variable('var6').set('dc', '8.3e-1[1/h]*10');
7517 model.variable('var6').set('Dci', '5e-7[cm^2/s]');
7518 model.variable('var6').set('dcl', '5.54e-3[1/h]/10');
7519 model.variable('var6').set('Dox', '1.78e-9 [m^2/s]');
7520 model.variable('var6').set('ec0', '7.23e8[1/ml]');
7521 model.variable('var6').set('f', 'fsys*AngII0/AngII0sysNRF');
7522 model.variable('var6').set('fc', 'cells/ec0');
7523 model.variable('var6').set('fsys', '0.397[nmol/L]');
7524 model.variable('var6').set('gam_a', '8.3e-1[1/h]*1000');
7525 model.variable('var6').set('gam_c', '3[1/d]');
7526 model.variable('var6').set('gam_IL6', 'KACE2');
7527 model.variable('var6').set('gam_m', '2.1e-2[mm^3/h]/1000');
7528 model.variable('var6').set('gam_n', '6.3e-4[1/h]/100');
7529 model.variable('var6').set('gam_n1', 'gam_n');
7530 model.variable('var6').set('gam_v', '2.5e-2[ml/h/fmol]/1000');
7531 model.variable('var6').set('hACE2AngI', 'hAT1');
7532 model.variable('var6').set('hACE2AngII', 'hAT1');
7533 model.variable('var6').set('hAGT', '10[h]');
7534 model.variable('var6').set('hAng17', '30[min]');
7535 model.variable('var6').set('hAng19', '24[min]');
7536 model.variable('var6').set('hAngI', '1.72e-4[h]');
7537 model.variable('var6').set('hAngII', '5e-3[h]');
7538 model.variable('var6').set('hAngIII', '30[s]');
7539 model.variable('var6').set('hAngIV', '0.5[min]');
7540 model.variable('var6').set('hAT1', '1.5[min]');
7541 model.variable('var6').set('hAT2', '1.5[min]');
7542 model.variable('var6').set('hAT4', 'hAT1');
7543 model.variable('var6').set('hAT4R', 'hAT1');
7544 model.variable('var6').set('hIL6R', 'hAT1');
7545 model.variable('var6').set('hMAs', 'hAT1');
7546 model.variable('var6').set('hRenin', '0.25[h]');
7547 model.variable('var6').set('InACE1', '0');
7548 model.variable('var6').set('InARBs', '0');
7549 model.variable('var6').set('k1', '2200 [mole/m^3/d]');
7550 model.variable('var6').set('K1sIL6R', 'gam_v/100');
7551 model.variable('var6').set('k2', '0.00464 [mole/m^3]');
7552 model.variable('var6').set('Ka', '5.78e-4[1/s]*1e6');
7553 model.variable('var6').set('KACE', '54.1[1/h]*(1-InACE1)*100');
```

```
 7554 model.variable('var6').set('KACE2', '0.382[1/h]/4');
 7555 model.variable('var6').set('KAdam17', 'KACE2');
 7556 model.variable('var6').set('kAGT', '2.27e6[nmol/L/h]*40');
 7557 model.variable('var6').set('KAng17Ang19', 'KACE2');
 7558 model.variable('var6').set('KAPA', '43.6[1/h]/4');
 7559 model.variable('var6').set('KAPM', 'cAPM');
 7560 model.variable('var6').set('KAT1RAT2R', 'KACE2');
 7561 model.variable('var6').set('KAT1RMAsR', 'KACE2');
 7562 model.variable('var6').set('KAT2', '25.1[1/h]/4');
 7563 model.variable('var6').set('KAT4', 'cAT4');
 7564 model.variable('var6').set('Kb', '1.36e5[1/M/s]/100');
 7565 model.variable('var6').set('Kd', '4.8e-5[1/s]*0');
 7566 model.variable('var6').set('Kec', 'KACE2');
 7567 model.variable('var6').set('Kf', 'Kfsys*AngII0sysNRF/AngII0');
 7568 model.variable('var6').set('Kfsys', '6.25e-2[1/h]');
 7569 model.variable('var6').set('Kg', '2.1e-2[pg/h]/100');
 7570 model.variable('var6').set('Kiec', 'gam_v');
 7571 model.variable('var6').set('KIL6', '10[mm^3/h]/1000');
 7572 model.variable('var6').set('Kint', '5.78e-4[1/s]/10');
 7573 model.variable('var6').set('KNEP', '0.583[1/h]');
 7574 model.variable('var6').set('Koff', '8e-3[1/s]*100');
 7575 model.variable('var6').set('KoffACE2AngI', 'KACE2');
 7576 model.variable('var6').set('KoffACE2AngII', 'KACE2*3');
 7577 model.variable('var6').set('KoffACE2V', 'KACE2/100');
 7578 model.variable('var6').set('KoffAT1AngII', 'KACE2');
 7579 model.variable('var6').set('KoffAT2AngII', 'KACE2');
 7580 model.variable('var6').set('KoffAT4R', 'KACE2');
 7581 model.variable('var6').set('KoffIL6', 'KACE2');
 7582 model.variable('var6').set('KoffMAs', 'KACE2');
 7583 model.variable('var6').set('Kon', '5e3[1/M/s]/100');
 7584 model.variable('var6').set('KonACE2AngI', 'gam_v');
 7585 model.variable('var6').set('KonACE2AngII', 'gam_v');
 7586 model.variable('var6').set('KonACE2V', 'gam_v/10');
 7587 model.variable('var6').set('KonAT1AngII', 'gam_v');
 7588 model.variable('var6').set('KonAT2AngII', 'gam_v');
 7589 model.variable('var6').set('KonAT4R', 'gam_v');
 7590 model.variable('var6').set('KonIL6', 'gam_v/100');
 7591 model.variable('var6').set('KonMAs', 'gam_v');
 7592 model.variable('var6').set('KonsIL6R', 'gam_v*100');
 7593 model.variable('var6').set('kox', '0.00464[mol/m^3]');
 7594 model.variable('var6').set('KRenin', '6.44e4[1/h]');
 7595 model.variable('var6').set('KsACE2', 'gam_v/10');
 7596 model.variable('var6').set('KsIL6R', 'KACE2/100');
 7597 model.variable('var6').set('KsIL6RbIL6', 'KACE2');
 7598 model.variable('var6').set('KVEGF', 'KACE2');
 7599 model.variable('var6').set('oxygenExtra', '-(cells/ec0)*(k1*cox/(k2-coxv*cox)) ↙
*0');
 7600 model.variable('var6').set('Per', '3.58e-4 [m/s]');
 7601 model.variable('var6').set('ph', '0.05');
 7602 model.variable('var6').set('phi_a', '2.1e-3[mm^3]/80');
```

```
model.variable('var6').set('phi1', '1e-6[mm^3/s]');
model.variable('var6').set('phic', '2.3e-4[mm^3/h]/100');
model.variable('var6').set('phictl', '2.1e-5[mm^3/h]/100');
model.variable('var6').set('PRA', '0.97[ng/ml/h]*740.74[fmol/ng]');
model.variable('var6').set('pv', '0.05[1/h]/80/20');
model.variable('var6').set('Renin0', '2.06e-4[nmol/L]');
model.variable('var6').set('RH', '0.002751[1/h]*10');
model.variable('var6').set('SACE2R', 'SAT1');
model.variable('var6').set('Sang17', '2.1[pg*ml/mm^3/h/fmol]/5');
model.variable('var6').set('SAT1', 'sRenin');
model.variable('var6').set('SAT1R', '2.1[pg*ml/mm^3/h/fmol]');
model.variable('var6').set('SAT2R', 'SAT1');
model.variable('var6').set('SAT4R', 'SAT1');
model.variable('var6').set('Sc', '2.9e-2[pg/ml/h]/100');
model.variable('var6').set('SIL6', 'SAT1');
model.variable('var6').set('SIL6RbIL6', 'SAT1');
model.variable('var6').set('SMAsR', 'SAT1');
model.variable('var6').set('Sn', '2.1e-2[pg/h]*10');
model.variable('var6').set('sRenin', '(log(2)/hRenin)*Renin0');
model.variable('var6').set('SsACE2', 'SAT1');
model.variable('var6').set('SsIL6R', 'SAT1');
model.variable('var6').set('SsIL6RbIL6', 'SAT1');
model.variable('var6').set('Sv', '(ec/ec0)*Sv0');
model.variable('var6').set('Sv0', '70[1/cm]');
model.variable('var6').set('SVEGF', 'SAT1');
model.variable('var6').set('vi', '((H-In)/H)*(H>In)+0*(H<In)');
model.variable('var6').set('vt', '1*(Ci>Cb)+0');
model.variable('var6').set('xIL6', '10[1/fmol/h]');
model.variable('var6').set('xIL6ctl', 'xIL6*10');
model.variable('var6').set('xIL6ma', 'xIL6');
model.variable('var6').set('xm', '2.1e-2[1/pg/h]');
model.variable('var6').set('xn', '2.1e-2[1/pg/h]/(1+a/57.85[pg/mm^3])*450');
model.variable('var6').set('a0', '4.2e9[1/L]');
model.variable('var6').set('V0', '1.27e-9[M]');
model.variable('var5').set('ma0', '1.17e9[1/L]');
model.variable('var5').set('AGT0', '1.7e7[nmol/L]');
model.variable('var5').set('ANGI0', '19.6[nmol/L]');
model.variable('var5').set('ANGII0', '152[nmol/L]');
model.variable('var5').set('ANGIII0', '12.94[mol/L]');
model.variable('var5').set('ANGIV0', '6.99[mol/L]');
model.variable('var5').set('ANGIII0', '12.94[nmol/L]');
model.variable('var5').set('ANGIV0', '6.99[nmol/L]');
model.variable('var5').set('ma0', '2.17e9[1/L]');
model.variable('var6').active(false);
model.variable('var1').active(true);
model.variable('var1').set('Kec', '15.22[1/h]');
model.variable('var1').set('KVEGF', '15.22[1/h]');
model.variable('var1').set('KAdam17', '15.22[1/h]');
model.variable('var1').set('KsIL6RbIL6', '5.22[1/h]');
model.variable('var1').set('KsIL6R', '15.22[1/h]');
```

```
7653 model.variable('var1').set('xIL6ma', '15.22[1/h]');
7654 model.variable('var1').set('KoffIL6', '15.22[1/h]');
7655 model.variable('var1').set('xIL6', '15.22[1/h]');
7656 model.variable('var1').set('KoffACE2V', '15.22[1/h]');
7657 model.variable('var1').set('SACE2R', '2.27e6 [nmol/L/h]');
7658 model.variable('var1').set('KAT1RAT2R', '15.22[1/h]');
7659 model.variable('var1').set('KAT1RMAsR', '15.22[1/h]');
7660 model.variable('var1').set('KoffAT4R', '15.22[1/h]');
7661 model.variable('var1').set('KoffMAs', '15.22[1/h]');
7662 model.variable('var1').set('KAng17Ang19', '15.22[1/h]');
7663 model.variable('var1').set('KoffACE2AngII', '45.22[1/h]');
7664 model.variable('var1').set('KoffAT2AngII', '15.22[1/h]');
7665 model.variable('var1').set('KoffAT1AngII', '15.22[1/h]');
7666 model.variable('var1').set('KoffACE2AngI', '15.22[1/h]');
7667 model.variable('var1').set('KAT2', '15.22[1/h]');
7668 model.variable('var1').set('Kec', '5.22[1/h]');
7669 model.variable('var1').set('KVEGF', '5.22[1/h]');
7670 model.variable('var1').set('KAdam17', '5.22[1/h]');
7671 model.variable('var1').set('KsIL6RbIL6', '2.22[1/h]');
7672 model.variable('var1').set('KsIL6R', '5.22[1/h]');
7673 model.variable('var1').set('xIL6ma', '5.22[1/h]');
7674 model.variable('var1').set('KoffIL6', '5.22[1/h]');
7675 model.variable('var1').set('xIL6', '5.22[1/h]');
7676 model.variable('var1').set('KoffACE2V', '5.22[1/h]');
7677 model.variable('var1').set('KAT1RAT2R', '5.22[1/h]');
7678 model.variable('var1').set('KAT1RMAsR', '5.22[1/h]');
7679 model.variable('var1').set('KoffAT4R', '5.22[1/h]');
7680 model.variable('var1').set('KoffMAs', '5.22[1/h]');
7681 model.variable('var1').set('KAng17Ang19', '5.22[1/h]');
7682 model.variable('var1').set('KoffACE2AngII', '15.22[1/h]');
7683 model.variable('var1').set('KoffAT1AngII', '5.22[1/h]');
7684 model.variable('var1').set('KoffAT2AngII', '5.22[1/h]');
7685 model.variable('var1').set('KoffACE2AngI', '5.22[1/h]');
7686 model.variable('var1').set('SAT2R', '0.57[fmol/ml/h]');
7687 model.variable('var1').set('SMAsR', '0.57[fmol/ml/h]');
7688 model.variable('var1').set('SAT4R', '0.57[fmol/ml/h]');
7689 model.variable('var1').set('SACE2R', '0.57[fmol/ml/h]');
7690 model.variable('var1').set('SIL6RbIL6', '0.57[fmol/ml/h]');
7691 model.variable('var1').set('SsIL6R', '0.57[fmol/ml/h]');
7692 model.variable('var1').set('SVEGF', '0.235[fmol/ml/h]');
7693 model.variable('var1').set('SsIL6RbIL6', '0.57[fmol/ml/h]');
7694 model.variable('var1').set('SsACE2', '0.57[fmol/ml/h]*bSsACE2');
7695
7696 model.sol('sol1').runAll;
7697
7698 model.result('pg1').run;
7699 model.result('pg1').run;
7700 model.result('pg1').feature('slc1').set('expr', 'IL6');
7701 model.result('pg1').run;
7702 model.result('pg1').run;
```

```
7703 model.result('pg1').setIndex('looplevel', '25', 0);
7704 model.result('pg1').run;
7705 model.result('pg1').run;
7706 model.result('pg1').feature('slc1').set('expr', 'IL6R');
7707 model.result('pg1').run;
7708 model.result('pg1').feature('slc1').set('expr', 'sIL6R');
7709 model.result('pg1').run;
7710 model.result('pg1').feature('slc1').set('expr', 'ma');
7711 model.result('pg1').run;
7712 model.result('pg1').feature('slc1').set('expr', 'n');
7713 model.result('pg1').run;
7714 model.result('pg1').feature('slc1').set('expr', 'a');
7715 model.result('pg1').run;
7716 model.result('pg1').feature('slc1').set('expr', 'cox');
7717 model.result('pg1').run;
7718 model.result('pg1').feature('slc1').set('expr', 'AGT');
7719 model.result('pg1').run;
7720 model.result('pg1').feature('slc1').set('expr', 'AngI');
7721 model.result('pg1').run;
7722 model.result('pg1').feature('slc1').set('expr', 'AngII');
7723 model.result('pg1').run;
7724 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
7725 model.result('pg1').run;
7726 model.result('pg1').feature('slc1').set('expr', 'AngIII');
7727 model.result('pg1').run;
7728 model.result('pg1').feature('slc1').set('expr', 'AngIV');
7729 model.result('pg1').run;
7730 model.result('pg1').feature('slc1').set('expr', 'Ang17');
7731 model.result('pg1').run;
7732 model.result('pg1').feature('slc1').set('expr', 'Ang19');
7733 model.result('pg1').run;
7734 model.result('pg1').feature('slc1').set('expr', 'Ang17');
7735 model.result('pg1').run;
7736 model.result('pg1').feature('slc1').set('expr', 'AT1bAngII');
7737 model.result('pg1').run;
7738 model.result('pg1').feature('slc1').set('expr', 'AT2bAngII');
7739 model.result('pg1').run;
7740 model.result('pg1').feature('slc1').set('expr', 'AT4bAngIV');
7741 model.result('pg1').run;
7742 model.result('pg1').feature('slc1').set('expr', 'MAsbAng17');
7743 model.result('pg1').run;
7744 model.result('pg1').feature('slc1').set('expr', 'Cb');
7745 model.result('pg1').run;
7746 model.result('pg1').feature('slc1').set('expr', 'Ci');
7747 model.result('pg1').run;
7748 model.result('pg1').feature('slc1').set('expr', 'Cb');
7749 model.result('pg1').run;
7750 model.result('pg1').feature('slc1').set('expr', 'Vint');
7751 model.result('pg1').run;
7752 model.result('pg1').feature('slc1').set('expr', 'In');
```

```
7753 model.result('pg1').feature('slc1').set('unit', '1/ml');
7754 model.result('pg1').run;
7755 model.result('pg1').feature('slc1').set('expr', 'H');
7756 model.result('pg1').run;
7757 model.result('pg1').feature('slc1').set('expr', 'n');
7758 model.result('pg1').run;
7759 model.result('pg1').feature('slc1').set('expr', 'ma');
7760 model.result('pg1').run;
7761 model.result('pg1').feature('slc1').set('expr', 'c');
7762 model.result('pg1').run;
7763 model.result('pg1').feature('slc1').set('expr', 'Ctl');
7764 model.result('pg1').run;
7765 model.result('pg1').feature('slc1').set('expr', 'a');
7766 model.result('pg1').run;
7767 model.result('pg1').feature('slc1').set('expr', 'AT1R');
7768 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
7769 model.result('pg1').run;
7770 model.result('pg1').feature('slc1').set('expr', 'AT2R');
7771 model.result('pg1').run;
7772 model.result('pg1').feature('slc1').set('expr', 'AT4R');
7773 model.result('pg1').run;
7774 model.result('pg1').feature('slc1').set('expr', 'MAsR');
7775 model.result('pg1').run;
7776 model.result('pg1').feature('slc1').set('expr', 'ACE2');
7777 model.result('pg1').run;
7778 model.result('pg1').feature('slc1').set('expr', 'ACE2bAngI');
7779 model.result('pg1').run;
7780 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
7781 model.result('pg1').run;
7782 model.result('pg1').feature('slc1').set('expr', 'ACE2bAngII');
7783 model.result('pg1').run;
7784 model.result('pg1').feature('slc1').set('expr', 'IL6');
7785 model.result('pg1').run;
7786 model.result('pg1').feature('slc1').set('expr', 'IL6R');
7787 model.result('pg1').run;
7788 model.result('pg1').feature('slc1').set('expr', 'IL6RbIL6');
7789 model.result('pg1').run;
7790 model.result('pg1').feature('slc1').set('expr', 'sIL6RbIL6');
7791 model.result('pg1').run;
7792 model.result('pg1').feature('slc1').set('expr', 'sIL6R');
7793 model.result('pg1').run;
7794 model.result('pg1').feature('slc1').set('expr', 'VEGF');
7795 model.result('pg1').run;
7796 model.result('pg1').feature('slc1').set('expr', 'sACE2');
7797 model.result('pg1').run;
7798 model.result('pg1').feature('slc1').set('expr', 'ec');
7799 model.result('pg1').run;
7800 model.result('pg1').feature('slc1').set('expr', 'iec');
7801 model.result('pg1').run;
7802 model.result('pg1').feature('slc1').set('expr', 'cox');
```

```
 7803 model.result('pg1').run;
 7804
 7805 model.physics('n').feature('dode1').setIndex('f', 'gam_n*n-gam_m*n*ma- ↙
gam_v*n*Ci+xIL6*IL6RbIL6', 0);
 7806 model.physics('n').feature('dode1').setIndex('f', 'xn*c/(1+a/a0)-gam_n*n- ↙
gam_m*n*ma-gam_v*n*Ci+xIL6*IL6RbIL6', 0);
 7807 model.physics('n').feature('dode1').setIndex('f', 'xn*c/(1+a/a0)', 0);
 7808 model.physics('n').feature('dode1').setIndex('f', 'xn*c/(1+a/a0)-gam_n*n', 0);
 7809 model.physics('n').feature('dode1').setIndex('f', 'xn*c/(1+a/a0)-gam_n*n- ↙
gam_m*n*ma', 0);
 7810 model.physics('n').feature('dode1').setIndex('f', 'xn*c/(1+a/a0)-gam_n*n- ↙
gam_m*n*ma-gam_v*n*Ci', 0);
 7811 model.physics('n').feature('dode1').setIndex('f', 'xn*c/(1+a/a0)-gam_n*n- ↙
gam_m*n*ma-gam_v*n*Ci+xIL6*IL6RbIL6', 0);
 7812
 7813 model.variable('var1').set('xIL6', '5.26e-6[1/fmol/h]');
 7814
 7815 model.physics('ma').feature('dode1').setIndex('f', 'xm*c-gam_n1*ma- ↙
gam_v*ma*Ci+xIL6ma*IL6RbIL6', 0);
 7816 model.physics('ma').feature('dode1').setIndex('f', 'xm*c-gam_n1*ma-gam_v*ma*Ci', ↙
0);
 7817 model.physics('ma').feature('dode1').setIndex('f', 'xm*c-gam_n1*ma- ↙
gam_v*ma*Ci+xIL6ma*IL6RbIL6', 0);
 7818
 7819 model.variable('var1').set('xIL6ma', '35 [1/fmol/h]');
 7820 model.variable('var1').set('xIL6ctl', '5.25e-3 [1/fmol/h]');
 7821 model.variable('var1').set('xIL6ma', '5.25e-3 [1/fmol/h]');
 7822 model.variable('var1').set('xIL6', '5.26[1/fmol/h]');
 7823 model.variable('var1').set('xIL6ctl', '5.26[1/fmol/h]');
 7824 model.variable('var1').set('xIL6ma', '5.26[1/fmol/h]');
 7825
 7826 model.physics('c').feature('dode1').setIndex('f', '(Sc/V0)*Vint+SAT1R*AT1bAngII', ↙
0);
 7827 model.physics('c').feature('dode1').setIndex('f', '(Sc/V0)*Vint', 0);
 7828 model.physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c', 0);
 7829
 7830 model.variable('var1').set('SAT1R', '4.2e2 [pg/h/fmol]');
 7831 model.variable('var1').set('Kec', '5.22e-4[1/h]');
 7832 model.variable('var1').set('Kiec', '25e-4 [ml/h/nmol]');
 7833 model.variable('var1').set('phictl', '2.3e-10[ml/h]');
 7834 model.variable('var1').set('SIL6', '0.57[fmol/ml/h]/bSIL6');
 7835
 7836 model.sol('sol1').runAll;
 7837
 7838 model.result('pg1').run;
 7839 model.result('pg1').run;
 7840 model.result('pg1').feature('slc1').set('expr', 'ec');
 7841 model.result('pg1').run;
 7842 model.result('pg1').feature('slc1').set('unit', '1/ml');
```

```
 7843 model.result('pg1').run;
 7844 model.result('pg1').feature('slc1').set('expr', 'n');
 7845 model.result('pg1').run;
 7846 model.result('pg1').feature('slc1').set('expr', 'c');
 7847 model.result('pg1').run;
 7848 model.result('pg1').feature('slc1').set('expr', 'AT1R');
 7849 model.result('pg1').run;
 7850 model.result('pg1').feature('slc1').set('expr', 'Ctl');
 7851 model.result('pg1').run;
 7852 model.result('pg1').feature('slc1').set('expr', 'IL6');
 7853 model.result('pg1').run;
 7854 model.result('pg1').feature('slc1').set('expr', 'Ci');
 7855 model.result('pg1').run;
 7856 model.result('pg1').feature('slc1').set('unit', 'fmol/ml');
 7857 model.result('pg1').run;
 7858 model.result('pg9').run;
 7859 model.result('pg9').feature('ptgr1').setIndex('looplevel', ↙
'1,2,3,4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25', 0);
 7860 model.result('pg9').feature('ptgr1').set('expr', 'Ci');
 7861 model.result('pg9').feature('ptgr1').set('unit', 'fmol/ml');
 7862 model.result('pg9').run;
 7863 model.result('pg9').run;
 7864 model.result.dataset('cpt1').set('pointx', '0.05');
 7865 model.result.dataset('cpt1').set('pointy', '0.05');
 7866 model.result.dataset('cpt1').set('pointz', '0.05');
 7867 model.result.dataset('cpt1').run;
 7868 model.result('pg9').run;
 7869 model.result('pg9').feature('ptgr1').set('expr', 'cox');
 7870 model.result('pg9').run;
 7871 model.result('pg9').run;
 7872 model.result('pg9').feature('ptgr1').set('expr', 'ec');
 7873 model.result('pg9').run;
 7874 model.result('pg9').feature('ptgr1').set('expr', 'iec');
 7875 model.result('pg9').run;
 7876
 7877 model.variable('var1').set('Kiec', '25 [ml/h/nmol]');
 7878
 7879 model.label('basline_clearparametric clearSolution_pre_may10_niitial_old_new_1. ↙
mph');
 7880
 7881 model.result('pg10').run;
 7882 model.result('pg9').run;
 7883 model.result('pg9').run;
 7884 model.result('pg9').feature('ptgr1').set('expr', 'cox');
 7885 model.result('pg9').run;
 7886 model.result('pg9').feature('ptgr1').set('expr', 'n');
 7887 model.result('pg9').run;
 7888 model.result('pg1').run;
 7889 model.result('pg1').feature('slc1').set('expr', 'n');
 7890 model.result('pg1').run;
```

```
 7891 model.result('pg1').feature('slc1').set('unit', '1/ml');
 7892 model.result('pg1').run;
 7893 model.result('pg9').run;
 7894 model.result('pg9').feature('ptgr1').setIndex('looplevel', '4', 0);
 7895 model.result('pg9').feature('ptgr1').setIndex('looplevel', '4,5', 0);
 7896 model.result('pg9').feature('ptgr1').setIndex('looplevel', '4,5,6', 0);
 7897 model.result('pg9').feature('ptgr1').setIndex('looplevel', '4,5,6,7', 0);
 7898 model.result('pg9').feature('ptgr1').setIndex('looplevel', '4,5,6,7,8', 0);
 7899 model.result('pg9').feature('ptgr1').setIndex('looplevel', '4,5,6,7,8,9', 0);
 7900 model.result('pg9').feature('ptgr1').setIndex('looplevel', '4,5,6,7,8,9,10', 0);
 7901 model.result('pg9').feature('ptgr1').setIndex('looplevel', '4,5,6,7,8,9,10,11', ↙
0);
 7902 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'4,5,6,7,8,9,10,11,12', 0);
 7903 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'4,5,6,7,8,9,10,11,12,13', 0);
 7904 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'4,5,6,7,8,9,10,11,12,13,14', 0);
 7905 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'4,5,6,7,8,9,10,11,12,13,14,15', 0);
 7906 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'4,5,6,7,8,9,10,11,12,13,14,15,16', 0);
 7907 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'4,5,6,7,8,9,10,11,12,13,14,15,16,17', 0);
 7908 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'4,5,6,7,8,9,10,11,12,13,14,15,16,17,18', 0);
 7909 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19', 0);
 7910 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20', 0);
 7911 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21', 0);
 7912 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22', 0);
 7913 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23', 0);
 7914 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24', 0);
 7915 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'4,5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25', 0);
 7916 model.result('pg9').run;
 7917 model.result('pg9').feature('ptgr1').setIndex('looplevel',↙
'5,6,7,8,9,10,11,12,13,14,15,16,17,18,19,20,21,22,23,24,25', 0);
 7918 model.result('pg9').run;
 7919 model.result('pg9').feature('ptgr1').set('expr', 'IL6');
 7920 model.result('pg9').run;
 7921 model.result('pg9').feature('ptgr1').set('unit', 'fmol/ml');
 7922 model.result('pg9').run;
 7923 model.result('pg1').run;
 7924 model.result('pg1').feature('slc1').set('expr', 'cox');
```

```
 7925 model.result('pg1').run;
 7926
 7927 model.physics('IL6R').feature('dode1').setIndex('f', 'SIL6R-↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6-KsIL6R*IL6R', 0);
 7928
 7929 model.variable('var1').rename('SIL6', 'SIL6R');
 7930
 7931 model.physics('sIL6RbIL6').feature('dode1').setIndex('f', 'KonsIL6R*sIL6R*IL6-↙
KsIL6RbIL6*sIL6RbIL6', 0);
 7932 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci-gam_IL6*IL6-↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6+KsIL6RbIL6*sIL6RbIL6-KonsIL6R*sIL6R*IL6', 0);
 7933 model.physics('IL6').feature('dode1').setIndex('f', 'KIL6*ma*Ci-gam_IL6*IL6-↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6+KoffsIL6R*sIL6RbIL6-KonsIL6R*sIL6R*IL6', 0);
 7934 model.physics('sIL6RbIL6').feature('dode1').setIndex('f', 'KonsIL6R*sIL6R*IL6-↙
KoffsIL6R*sIL6RbIL6', 0);
 7935 model.physics('sIL6R').feature('dode1').setIndex('f', 'SsIL6R+KsIL6R*IL6R-↙
KoffsIL6R*sIL6RbIL6', 0);
 7936
 7937 model.variable('var1').rename('KsIL6RbIL6', 'KoffsIL6R');
 7938 model.variable('var1').remove('K1sIL6R');
 7939
 7940 model.sol('sol1').runAll;
 7941
 7942 model.result('pg1').run;
 7943 model.result('pg1').run;
 7944 model.result('pg1').feature('slc1').set('expr', 'IL6');
 7945 model.result('pg1').run;
 7946 model.result('pg1').feature('slc1').set('expr', 'IL6R');
 7947 model.result('pg1').run;
 7948 model.result('pg1').feature('slc1').set('expr', 'sIL6R');
 7949 model.result('pg1').run;
 7950 model.result('pg1').feature('slc1').set('expr', 'AGT');
 7951 model.result('pg1').run;
 7952 model.result('pg1').feature('slc1').set('expr', 'Renin');
 7953 model.result('pg1').run;
 7954 model.result('pg1').feature('slc1').set('expr', 'AngI');
 7955 model.result('pg1').run;
 7956 model.result('pg1').feature('slc1').set('expr', 'AngII');
 7957 model.result('pg1').run;
 7958 model.result('pg1').feature('slc1').set('expr', 'AngIII');
 7959 model.result('pg1').run;
 7960 model.result('pg1').feature('slc1').set('expr', 'Ang17');
 7961 model.result('pg1').run;
 7962 model.result('pg1').feature('slc1').set('expr', 'Ang19');
 7963 model.result('pg1').run;
 7964 model.result('pg1').feature('slc1').set('expr', 'AngIV');
 7965 model.result('pg1').run;
 7966 model.result('pg1').feature('slc1').set('expr', 'AT1bAngII');
 7967 model.result('pg1').run;
 7968 model.result('pg1').feature('slc1').set('expr', 'AT2bAngII');
```

```
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT4bAngIV');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'MAsbAng17');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Cb');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ci');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'H');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Vint');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'In');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'n');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'ma');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'c');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Ctl');
model.result('pg1').run;
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'a');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT1R');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT2R');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'MAsR');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'ACE2');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'ACE2bAngI');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'ACE2bAngII');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'IL6');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'IL6R');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'IL6RbIL6');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'sIL6RbIL6');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'sIL6R');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'sACE2');
model.result('pg1').run;
```

```
8019 model.result('pg1').feature('slc1').set('expr', 'ec');
8020 model.result('pg1').run;
8021 model.result('pg1').feature('slc1').set('expr', 'iec');
8022 model.result('pg1').run;
8023 model.result('pg1').feature('slc1').set('expr', 'ec');
8024 model.result('pg1').run;
8025 model.result('pg1').feature('slc1').set('expr', 'cox');
8026 model.result('pg1').run;
8027 model.result('pg9').run;
8028 model.result('pg9').feature('ptgr1').set('expr', 'Sv');
8029 model.result('pg9').run;
8030 model.result('pg9').feature('ptgr1').set('expr', 'ec');
8031 model.result('pg9').run;
8032
8033 model.variable('var1').set('Kiec', '25 [ml/h/nmol]');
8034 model.variable('var1').set('Kec', '5.22e-5[1/h]');
8035 model.variable('var1').set('KAT1RAT2R', '5.22e-1[1/h]');
8036 model.variable('var1').set('KAT1RMAsR', '5.22e-1[1/h]');
8037 model.variable('var1').set('Kd', '2.4e-5[1/s]');
8038 model.variable('var1').set('KsACE2', '8.5[ml/h/nmol]');
8039
8040 model.sol('sol1').runAll;
8041
8042 model.result('pg1').run;
8043 model.result('pg1').run;
8044 model.result('pg1').feature('slc1').set('expr', 'AT1R');
8045 model.result('pg1').run;
8046 model.result('pg1').feature('slc1').set('expr', 'AT1bAngII');
8047 model.result('pg1').run;
8048 model.result('pg1').feature('slc1').set('expr', 'AT2bAngII');
8049 model.result('pg1').run;
8050 model.result('pg1').feature('slc1').set('expr', 'Ci');
8051 model.result('pg1').run;
8052 model.result('pg1').feature('slc1').set('expr', 'Cb');
8053 model.result('pg1').run;
8054
8055 model.variable('var1').set('Kec', '5.22e-6[1/h]');
8056 model.variable('var1').set('Kd', '2.4e-6[1/s]');
8057 model.variable('var1').set('KAT1RMAsR', '5.22e-2[1/h]');
8058 model.variable('var1').set('KAT1RAT2R', '5.22e-2[1/h]');
8059
8060 model.sol('sol1').runAll;
8061
8062 model.result('pg1').run;
8063 model.result('pg2').run;
8064 model.result('pg1').run;
8065 model.result('pg1').feature('slc1').set('expr', 'Ci');
8066 model.result('pg1').run;
8067 model.result('pg1').feature('slc1').set('expr', 'Vint');
8068 model.result('pg1').run;
```

```
8069 model.result('pg1').feature('slc1').set('expr', 'AT1R');
8070 model.result('pg1').run;
8071 model.result('pg1').feature('slc1').set('expr', 'AT1bAngII');
8072 model.result('pg1').run;
8073 model.result('pg1').feature('slc1').set('expr', 'cox');
8074 model.result('pg1').run;
8075
8076 model.variable('var1').set('Kiec', '50 [ml/h/nmol]');
8077
8078 model.result('pg1').run;
8079 model.result('pg1').feature('slc1').set('expr', 'ec');
8080 model.result('pg1').run;
8081 model.result('pg1').feature('slc1').set('expr', 'iec');
8082 model.result('pg1').run;
8083
8084 model.sol('sol1').runAll;
8085
8086 model.result('pg1').run;
8087 model.result('pg1').run;
8088 model.result('pg1').feature('slc1').set('expr', 'ec');
8089 model.result('pg1').run;
8090 model.result('pg1').feature('slc1').set('expr', 'cox');
8091 model.result('pg1').run;
8092
8093 model.variable('var1').set('Kec', '5.22e-7[1/h]');
8094 model.variable('var1').set('Kiec', '70 [ml/h/nmol]');
8095 model.variable('var1').set('ec0', '7.23e6[1/ml]');
8096
8097 model.sol('sol1').runAll;
8098
8099 model.result('pg1').run;
8100 model.result('pg1').run;
8101 model.result('pg1').feature('slc1').set('expr', 'Ci');
8102 model.result('pg1').run;
8103 model.result('pg1').feature('slc1').set('expr', 'Cb');
8104 model.result('pg1').run;
8105
8106 model.variable('var1').set('Kd', '2.4e-8[1/s]');
8107
8108 model.sol('sol1').runAll;
8109
8110 model.result('pg1').run;
8111 model.result('pg1').run;
8112 model.result('pg1').feature('slc1').set('expr', 'Ci');
8113 model.result('pg1').run;
8114 model.result('pg1').feature('slc1').set('expr', 'cox');
8115 model.result('pg1').run;
8116 model.result('pg1').run;
8117 model.result('pg1').feature('slc1').set('expr', 'ec');
8118 model.result('pg1').run;
```

```
8119 model.result('pg1').feature('slc1').set('expr', 'iec');
8120 model.result('pg1').run;
8121 model.result('pg1').feature('slc1').set('expr', 'ec');
8122 model.result('pg1').run;
8123 model.result('pg1').feature('slc1').set('expr', 'iec');
8124 model.result('pg1').run;
8125 model.result('pg1').feature('slc1').set('expr', 'H');
8126 model.result('pg1').run;
8127 model.result('pg1').feature('slc1').set('expr', 'Ci');
8128 model.result('pg1').run;
8129 model.result('pg1').feature('slc1').set('expr', 'Cb');
8130 model.result('pg1').run;
8131 model.result('pg1').feature('slc1').set('expr', 'Vint');
8132 model.result('pg1').run;
8133 model.result('pg1').run;
8134 model.result('pg1').feature('slc1').set('expr', 'AT1R');
8135 model.result('pg1').run;
8136 model.result('pg1').feature('slc1').set('expr', 'AT1bAngII');
8137 model.result('pg1').run;
8138 model.result('pg1').feature('slc1').set('expr', 'n');
8139 model.result('pg1').run;
8140 model.result('pg1').feature('slc1').set('expr', 'c');
8141 model.result('pg1').run;
8142 model.result('pg1').feature('slc1').set('expr', 'a');
8143 model.result('pg1').run;
8144 model.result('pg1').feature('slc1').set('expr', 'Ci');
8145 model.result('pg1').run;
8146 model.result('pg1').feature('slc1').set('expr', 'sRenin');
8147 model.result('pg1').run;
8148 model.result('pg1').feature('slc1').set('unit', 'fmol/(ml*h)');
8149 model.result('pg1').run;
8150 model.result('pg1').feature('slc1').set('expr', 'KsACE2');
8151 model.result('pg1').run;
8152 model.result('pg1').run;
8153 model.result('pg1').run;
8154 model.result('pg1').feature('slc1').set('expr', 'gam_v');
8155 model.result('pg1').run;
8156
8157 model.label('basline_checkVAribles.mph');
8158
8159 model.sol('sol1').clearSolutionData;
8160 model.sol('sol2').clearSolutionData;
8161 model.sol('sol3').clearSolutionData;
8162 model.sol('sol4').clearSolutionData;
8163 model.sol('sol5').clearSolutionData;
8164 model.sol('sol6').clearSolutionData;
8165 model.sol('sol7').clearSolutionData;
8166 model.sol('sol8').clearSolutionData;
8167 model.sol('sol9').clearSolutionData;
8168 model.sol('sol10').clearSolutionData;
```

```
 8169 model.sol('sol11').clearSolutionData;
 8170 model.sol('sol12').clearSolutionData;
 8171 model.sol('sol13').clearSolutionData;
 8172 model.sol('sol14').clearSolutionData;
 8173 model.sol('sol15').clearSolutionData;
 8174 model.sol('sol16').clearSolutionData;
 8175 model.sol('sol17').clearSolutionData;
 8176 model.sol('sol18').clearSolutionData;
 8177 model.sol('sol19').clearSolutionData;
 8178 model.sol('sol20').clearSolutionData;
 8179 model.sol('sol21').clearSolutionData;
 8180 model.sol('sol22').clearSolutionData;
 8181 model.sol('sol23').clearSolutionData;
 8182 model.sol('sol24').clearSolutionData;
 8183 model.sol('sol25').clearSolutionData;
 8184 model.sol('sol26').clearSolutionData;
 8185 model.sol('sol27').clearSolutionData;
 8186
 8187 model.param.set('bACE', '1');
 8188 model.param.rename('bSIL6', 'bSIL6R');
 8189 model.param.set('bIL6', '1');
 8190 model.param.set('bSn', '1');
 8191
 8192 model.variable('var1').set('SAT1', '0.57[fmol/ml/h]/bSAT1R');
 8193 model.variable('var1').set('KACE', '185.22[1/h]/bACE');
 8194 model.variable('var1').set('KIL6', '0.5 [ml/h]/bIL6');
 8195 model.variable('var1').set('SIL6R', '0.57[fmol/ml/h]/bSIL6R');
 8196 model.variable('var1').set('SsIL6R', '0.57[fmol/ml/h]/bSIL6R');
 8197 model.variable('var1').set('Sn', '2.1e-2[pg/h]/bSn');
 8198
 8199 model.study('std1').feature('param').active(true);
 8200 model.study('std1').feature('param').setIndex('plistarr', '2', 0);
 8201 model.study('std1').feature('param').setIndex('pname', 'bSAT1R', 1);
 8202 model.study('std1').feature('param').setIndex('plistarr', '1,2,100,1000', 1);
 8203 model.study('std1').feature('param').setIndex('pname', 'bSIL6R', 0);
 8204 model.study('std1').feature('param').setIndex('pname', 'bSsACE2', 0);
 8205 model.study('std1').feature('param').setIndex('pname', 'bIL6', 0);
 8206 model.study('std1').feature('param').setIndex('plistarr', '1,2,100,1000', 0);
 8207 model.study('std1').feature('param').setIndex('pname', 'bSn', 0);
 8208 model.study('std1').feature('param').setIndex('pname', '', 1);
 8209 model.study('std1').feature('param').setIndex('pname', 'bKa', 0);
 8210 model.study('std1').feature('param').setIndex('pname', 'bSn', 1);
 8211 model.study('std1').feature('param').setIndex('plistarr', '1,10,100,1000', 0);
 8212 model.study('std1').feature('param').setIndex('pname', 'bSIL6R', 0);
 8213 model.study('std1').feature('param').setIndex('plistarr', '1,2,100,1000', 0);
 8214 model.study('std1').feature('param').setIndex('pname', 'bKa', 0);
 8215 model.study('std1').feature('param').setIndex('plistarr', '1,10,100,1000,10000', ↙
0);
 8216 model.study('std1').feature('param').setIndex('plistarr', '1,2,10,100,1000', 1);
 8217 model.study('std1').feature('param').setIndex('pname', 'bIL6', 0);
```

```
 8218 model.study('std1').feature('param').setIndex('plistarr', '1,2,10,100,1000', 0);
 8219 model.study('std1').feature('param').setIndex('pname', 'bKa', 2);
 8220 model.study('std1').feature('param').setIndex('plistarr', '', 2);
 8221 model.study('std1').feature('param').setIndex('punit', '', 2);
 8222 model.study('std1').feature('param').setIndex('pname', 'bKa', 2);
 8223 model.study('std1').feature('param').setIndex('plistarr', '', 2);
 8224 model.study('std1').feature('param').setIndex('punit', '', 2);
 8225 model.study('std1').feature('param').setIndex('plistarr', '1,10,100,1000,10000', ↙
2);
 8226 model.study('std1').feature('param').setIndex('pname', 'bSIL6R', 3);
 8227 model.study('std1').feature('param').setIndex('plistarr', '', 3);
 8228 model.study('std1').feature('param').setIndex('punit', '', 3);
 8229 model.study('std1').feature('param').setIndex('pname', 'bSIL6R', 3);
 8230 model.study('std1').feature('param').setIndex('plistarr', '', 3);
 8231 model.study('std1').feature('param').setIndex('punit', '', 3);
 8232 model.study('std1').feature('param').setIndex('plistarr', '1,2,10,100,1000', 3);
 8233 model.study('std1').feature('param').setIndex('pname', 'bSsACE2', 4);
 8234 model.study('std1').feature('param').setIndex('plistarr', '', 4);
 8235 model.study('std1').feature('param').setIndex('punit', '', 4);
 8236 model.study('std1').feature('param').setIndex('pname', 'bSsACE2', 4);
 8237 model.study('std1').feature('param').setIndex('plistarr', '', 4);
 8238 model.study('std1').feature('param').setIndex('punit', '', 4);
 8239 model.study('std1').feature('param').setIndex('plistarr', '1,2,10,100,1000', 4);
 8240 model.study('std1').feature('param').setIndex('pname', 'bSAT1R', 5);
 8241 model.study('std1').feature('param').setIndex('plistarr', '', 5);
 8242 model.study('std1').feature('param').setIndex('punit', '', 5);
 8243 model.study('std1').feature('param').setIndex('pname', 'bSAT1R', 5);
 8244 model.study('std1').feature('param').setIndex('plistarr', '', 5);
 8245 model.study('std1').feature('param').setIndex('punit', '', 5);
 8246 model.study('std1').feature('param').setIndex('pname', 'bACE', 6);
 8247 model.study('std1').feature('param').setIndex('plistarr', '', 6);
 8248 model.study('std1').feature('param').setIndex('punit', '', 6);
 8249 model.study('std1').feature('param').setIndex('pname', 'bACE', 6);
 8250 model.study('std1').feature('param').setIndex('plistarr', '', 6);
 8251 model.study('std1').feature('param').setIndex('punit', '', 6);
 8252 model.study('std1').feature('param').setIndex('pname', 'bKa', 7);
 8253 model.study('std1').feature('param').setIndex('plistarr', '', 7);
 8254 model.study('std1').feature('param').setIndex('punit', '', 7);
 8255 model.study('std1').feature('param').setIndex('pname', '', 7);
 8256 model.study('std1').feature('param').setIndex('plistarr', '', 7);
 8257 model.study('std1').feature('param').setIndex('punit', '', 7);
 8258 model.study('std1').feature('param').remove('pname', 7);
 8259 model.study('std1').feature('param').remove('punit', 7);
 8260 model.study('std1').feature('param').remove('plistarr', 7);
 8261 model.study('std1').feature('param').remove('pname', 5);
 8262 model.study('std1').feature('param').remove('punit', 5);
 8263 model.study('std1').feature('param').remove('plistarr', 5);
 8264 model.study('std1').feature('param').remove('pname', 5);
 8265 model.study('std1').feature('param').remove('punit', 5);
 8266 model.study('std1').feature('param').remove('plistarr', 5);
```

```
 8267 model.study('std1').feature('param').remove('pname', 4);
 8268 model.study('std1').feature('param').remove('punit', 4);
 8269 model.study('std1').feature('param').remove('plistarr', 4);
 8270 model.study('std1').feature('param').remove('pname', 3);
 8271 model.study('std1').feature('param').remove('punit', 3);
 8272 model.study('std1').feature('param').remove('plistarr', 3);
 8273 model.study('std1').feature('param').remove('pname', 2);
 8274 model.study('std1').feature('param').remove('punit', 2);
 8275 model.study('std1').feature('param').remove('plistarr', 2);
 8276 model.study('std1').feature('param').remove('pname', 1);
 8277 model.study('std1').feature('param').remove('punit', 1);
 8278 model.study('std1').feature('param').remove('plistarr', 1);
 8279 model.study('std1').feature('param').remove('pname', 0);
 8280 model.study('std1').feature('param').remove('punit', 0);
 8281 model.study('std1').feature('param').remove('plistarr', 0);
 8282 model.study('std1').feature('param').setIndex('pname', 'bKa', 0);
 8283 model.study('std1').feature('param').setIndex('plistarr', '', 0);
 8284 model.study('std1').feature('param').setIndex('punit', '', 0);
 8285 model.study('std1').feature('param').setIndex('pname', 'bKa', 0);
 8286 model.study('std1').feature('param').setIndex('plistarr', '', 0);
 8287 model.study('std1').feature('param').setIndex('punit', '', 0);
 8288 model.study('std1').feature('param').setIndex('pname', 'bSAT1R', 0);
 8289 model.study('std1').feature('param').setIndex('plistarr', '1,2,10,100,1000', 0);
 8290 model.study('std1').feature('param').setIndex('pname', 'bKa', 1);
 8291 model.study('std1').feature('param').setIndex('plistarr', '', 1);
 8292 model.study('std1').feature('param').setIndex('punit', '', 1);
 8293 model.study('std1').feature('param').setIndex('pname', 'bKa', 1);
 8294 model.study('std1').feature('param').setIndex('plistarr', '', 1);
 8295 model.study('std1').feature('param').setIndex('punit', '', 1);
 8296 model.study('std1').feature('param').setIndex('plistarr', '1,10,100,1000,1000', ↙
1);
 8297 model.study('std1').feature('param').remove('pname', 0);
 8298 model.study('std1').feature('param').remove('punit', 0);
 8299 model.study('std1').feature('param').remove('plistarr', 0);
 8300 model.study('std1').feature('param').setIndex('pname', 'bSIL6R', 1);
 8301 model.study('std1').feature('param').setIndex('plistarr', '', 1);
 8302 model.study('std1').feature('param').setIndex('punit', '', 1);
 8303 model.study('std1').feature('param').setIndex('pname', 'bSIL6R', 1);
 8304 model.study('std1').feature('param').setIndex('plistarr', '', 1);
 8305 model.study('std1').feature('param').setIndex('punit', '', 1);
 8306 model.study('std1').feature('param').setIndex('pname', 'bSAT1R', 1);
 8307 model.study('std1').feature('param').setIndex('plistarr', '2', 1);
 8308 model.study('std1').feature('param').setIndex('plistarr', '1,2,10,100,1000', 1);
 8309 model.study('std1').feature('param').setIndex('pname', 'bSIL6R', 0);
 8310 model.study('std1').feature('param').setIndex('plistarr', '1,2,10,100,1000', 0);
 8311 model.study('std1').feature('param').setIndex('pname', 'bSsACE2', 0);
 8312
 8313 model.label('ste1_hrsACE2 ALL_ ARBS ALL.mph');
 8314
 8315 model.geom('geom1').feature('blk1').set('size', {'0.05' '0.05' '0.05'});
```

```
model.geom('geom1').run;

model.mesh('mesh1').autoMeshSize(7);

model.study('std1').feature('time').set('tlist', 'range(0,1,12)');

model.batch.create('p1', 'Parametric');
model.batch('p1').study('std1');
model.batch('p1').create('so1', 'Solutionseq');
model.batch('p1').feature('so1').set('seq', 'sol1');
model.batch('p1').feature('so1').set('store', 'on');
model.batch('p1').feature('so1').set('clear', 'on');
model.batch('p1').feature('so1').set('psol', 'none');
model.batch('p1').set('pname', {'bSsACE2' 'bSAT1R'});
model.batch('p1').set('plistarr', {'1,2,10,100,1000' '1,2,10,100,1000'});
model.batch('p1').set('sweeptype', 'filled');
model.batch('p1').set('probesel', 'all');
model.batch('p1').set('probes', {});
model.batch('p1').set('plot', 'off');
model.batch('p1').set('err', 'on');
model.batch('p1').attach('std1');
model.batch('p1').set('control', 'param');

model.sol.create('sol28');
model.sol('sol28').study('std1');
model.sol('sol28').label('Parametric Solutions 2');

model.batch('p1').feature('so1').set('psol', 'sol28');

model.result.create('pg53', 3);
model.result('pg53').set('data', 'dset3');
model.result('pg53').create('slc1', 'Slice');
model.result('pg53').feature('slc1').set('expr', 'AGT');
model.result.create('pg54', 3);
model.result('pg54').set('data', 'dset3');
model.result('pg54').create('slc1', 'Slice');
model.result('pg54').feature('slc1').set('expr', 'Renin');
model.result.create('pg55', 3);
model.result('pg55').set('data', 'dset3');
model.result('pg55').create('slc1', 'Slice');
model.result('pg55').feature('slc1').set('expr', 'AngI');
model.result.create('pg56', 3);
model.result('pg56').set('data', 'dset3');
model.result('pg56').create('slc1', 'Slice');
model.result('pg56').feature('slc1').set('expr', 'AngII');
model.result.create('pg57', 3);
model.result('pg57').set('data', 'dset3');
model.result('pg57').create('slc1', 'Slice');
model.result('pg57').feature('slc1').set('expr', 'Ang17');
model.result.create('pg58', 3);
```

```
model.result('pg58').set('data', 'dset3');
model.result('pg58').create('slc1', 'Slice');
model.result('pg58').feature('slc1').set('expr', 'Ang19');
model.result.create('pg59', 3);
model.result('pg59').set('data', 'dset3');
model.result('pg59').create('slc1', 'Slice');
model.result('pg59').feature('slc1').set('expr', 'AngIII');
model.result.create('pg60', 3);
model.result('pg60').set('data', 'dset3');
model.result('pg60').create('slc1', 'Slice');
model.result('pg60').feature('slc1').set('expr', 'AngIV');
model.result.create('pg61', 3);
model.result('pg61').set('data', 'dset3');
model.result('pg61').create('slc1', 'Slice');
model.result('pg61').feature('slc1').set('expr', 'AT1bAngII');
model.result.create('pg62', 3);
model.result('pg62').set('data', 'dset3');
model.result('pg62').create('slc1', 'Slice');
model.result('pg62').feature('slc1').set('expr', 'AT2bAngII');
model.result.create('pg63', 3);
model.result('pg63').set('data', 'dset3');
model.result('pg63').create('slc1', 'Slice');
model.result('pg63').feature('slc1').set('expr', 'AT4bAngIV');
model.result.create('pg64', 3);
model.result('pg64').set('data', 'dset3');
model.result('pg64').create('slc1', 'Slice');
model.result('pg64').feature('slc1').set('expr', 'MAsbAng17');
model.result.create('pg65', 3);
model.result('pg65').set('data', 'dset3');
model.result('pg65').create('slc1', 'Slice');
model.result('pg65').feature('slc1').set('expr', 'Cb');
model.result.create('pg66', 3);
model.result('pg66').set('data', 'dset3');
model.result('pg66').create('slc1', 'Slice');
model.result('pg66').feature('slc1').set('expr', 'H');
model.result.create('pg67', 3);
model.result('pg67').set('data', 'dset3');
model.result('pg67').create('slc1', 'Slice');
model.result('pg67').feature('slc1').set('expr', 'Vint');
model.result.create('pg68', 3);
model.result('pg68').set('data', 'dset3');
model.result('pg68').create('slc1', 'Slice');
model.result('pg68').feature('slc1').set('expr', 'In');
model.result.create('pg69', 3);
model.result('pg69').set('data', 'dset3');
model.result('pg69').create('slc1', 'Slice');
model.result('pg69').feature('slc1').set('expr', 'Ci');
model.result.create('pg70', 3);
model.result('pg70').set('data', 'dset3');
model.result('pg70').create('slc1', 'Slice');
```

```
8416 model.result('pg70').feature('slc1').set('expr', 'n');
8417 model.result.create('pg71', 3);
8418 model.result('pg71').set('data', 'dset3');
8419 model.result('pg71').create('slc1', 'Slice');
8420 model.result('pg71').feature('slc1').set('expr', 'ma');
8421 model.result.create('pg72', 3);
8422 model.result('pg72').set('data', 'dset3');
8423 model.result('pg72').create('slc1', 'Slice');
8424 model.result('pg72').feature('slc1').set('expr', 'c');
8425 model.result.create('pg73', 3);
8426 model.result('pg73').set('data', 'dset3');
8427 model.result('pg73').create('slc1', 'Slice');
8428 model.result('pg73').feature('slc1').set('expr', 'Ctl');
8429 model.result.create('pg74', 3);
8430 model.result('pg74').set('data', 'dset3');
8431 model.result('pg74').create('slc1', 'Slice');
8432 model.result('pg74').feature('slc1').set('expr', 'a');
8433 model.result.create('pg75', 3);
8434 model.result('pg75').set('data', 'dset3');
8435 model.result('pg75').create('slc1', 'Slice');
8436 model.result('pg75').feature('slc1').set('expr', 'AT1R');
8437 model.result.create('pg76', 3);
8438 model.result('pg76').set('data', 'dset3');
8439 model.result('pg76').create('slc1', 'Slice');
8440 model.result('pg76').feature('slc1').set('expr', 'AT2R');
8441 model.result.create('pg77', 3);
8442 model.result('pg77').set('data', 'dset3');
8443 model.result('pg77').create('slc1', 'Slice');
8444 model.result('pg77').feature('slc1').set('expr', 'MAsR');
8445 model.result.create('pg78', 3);
8446 model.result('pg78').set('data', 'dset3');
8447 model.result('pg78').create('slc1', 'Slice');
8448 model.result('pg78').feature('slc1').set('expr', 'AT4R');
8449 model.result.create('pg79', 3);
8450 model.result('pg79').set('data', 'dset3');
8451 model.result('pg79').create('slc1', 'Slice');
8452 model.result('pg79').feature('slc1').set('expr', 'ACE2');
8453 model.result.create('pg80', 3);
8454 model.result('pg80').set('data', 'dset3');
8455 model.result('pg80').create('slc1', 'Slice');
8456 model.result('pg80').feature('slc1').set('expr', 'ACE2bAngI');
8457 model.result.create('pg81', 3);
8458 model.result('pg81').set('data', 'dset3');
8459 model.result('pg81').create('slc1', 'Slice');
8460 model.result('pg81').feature('slc1').set('expr', 'ACE2bAngII');
8461 model.result.create('pg82', 3);
8462 model.result('pg82').set('data', 'dset3');
8463 model.result('pg82').create('slc1', 'Slice');
8464 model.result('pg82').feature('slc1').set('expr', 'IL6');
8465 model.result.create('pg83', 3);
```

```
8466 model.result('pg83').set('data', 'dset3');
8467 model.result('pg83').create('slc1', 'Slice');
8468 model.result('pg83').feature('slc1').set('expr', 'IL6R');
8469 model.result.create('pg84', 3);
8470 model.result('pg84').set('data', 'dset3');
8471 model.result('pg84').create('slc1', 'Slice');
8472 model.result('pg84').feature('slc1').set('expr', 'IL6RbIL6');
8473 model.result.create('pg85', 3);
8474 model.result('pg85').set('data', 'dset3');
8475 model.result('pg85').create('slc1', 'Slice');
8476 model.result('pg85').feature('slc1').set('expr', 'sIL6RbIL6');
8477 model.result.create('pg86', 3);
8478 model.result('pg86').set('data', 'dset3');
8479 model.result('pg86').create('slc1', 'Slice');
8480 model.result('pg86').feature('slc1').set('expr', 'VEGF');
8481 model.result.create('pg87', 3);
8482 model.result('pg87').set('data', 'dset3');
8483 model.result('pg87').create('slc1', 'Slice');
8484 model.result('pg87').feature('slc1').set('expr', 'sIL6R');
8485 model.result.create('pg88', 3);
8486 model.result('pg88').set('data', 'dset3');
8487 model.result('pg88').create('slc1', 'Slice');
8488 model.result('pg88').feature('slc1').set('expr', 'sACE2');
8489 model.result.create('pg89', 3);
8490 model.result('pg89').set('data', 'dset3');
8491 model.result('pg89').create('slc1', 'Slice');
8492 model.result('pg89').feature('slc1').set('expr', 'ec');
8493 model.result.create('pg90', 3);
8494 model.result('pg90').set('data', 'dset3');
8495 model.result('pg90').create('slc1', 'Slice');
8496 model.result('pg90').feature('slc1').set('expr', 'iec');
8497 model.result.create('pg91', 3);
8498 model.result('pg91').set('data', 'dset3');
8499 model.result('pg91').create('slc1', 'Slice');
8500 model.result('pg91').feature('slc1').set('expr', 'cox');
8501
8502 model.batch('p1').run;
8503
8504 model.result('pg53').run;
8505
8506 model.label('set1_hrsACE2 ALL_ ARBS ALL.mph');
8507
8508 model.result('pg53').run;
8509 model.result('pg52').run;
8510 model.result('pg51').run;
8511 model.result('pg50').run;
8512 model.result('pg49').run;
8513 model.result('pg48').run;
8514 model.result('pg47').run;
8515 model.result('pg46').run;
```

```
8516 model.result('pg45').run;
8517 model.result('pg44').run;
8518 model.result('pg43').run;
8519 model.result('pg42').run;
8520 model.result('pg41').run;
8521 model.result('pg40').run;
8522 model.result('pg39').run;
8523 model.result('pg52').run;
8524 model.result('pg51').run;
8525 model.result('pg50').run;
8526 model.result('pg49').run;
8527 model.result('pg48').run;
8528 model.result('pg47').run;
8529 model.result('pg46').run;
8530 model.result('pg45').run;
8531 model.result('pg14').run;
8532 model.result.remove('pg14');
8533 model.result.remove('pg15');
8534 model.result.remove('pg16');
8535 model.result.remove('pg17');
8536 model.result.remove('pg18');
8537 model.result.remove('pg19');
8538 model.result.remove('pg20');
8539 model.result.remove('pg21');
8540 model.result.remove('pg22');
8541 model.result.remove('pg23');
8542 model.result.remove('pg24');
8543 model.result.remove('pg25');
8544 model.result.remove('pg26');
8545 model.result.remove('pg27');
8546 model.result.remove('pg28');
8547 model.result.remove('pg29');
8548 model.result.remove('pg30');
8549 model.result.remove('pg31');
8550 model.result.remove('pg32');
8551 model.result.remove('pg33');
8552 model.result.remove('pg34');
8553 model.result.remove('pg35');
8554 model.result.remove('pg36');
8555 model.result.remove('pg37');
8556 model.result.remove('pg38');
8557 model.result.remove('pg39');
8558 model.result.remove('pg40');
8559 model.result.remove('pg41');
8560 model.result.remove('pg42');
8561 model.result.remove('pg43');
8562 model.result.remove('pg44');
8563 model.result.remove('pg45');
8564 model.result.remove('pg46');
8565 model.result.remove('pg47');
```

```
8566 model.result.remove('pg48');
8567 model.result.remove('pg49');
8568 model.result.remove('pg50');
8569 model.result.remove('pg51');
8570 model.result.remove('pg52');
8571 model.result('pg54').run;
8572 model.result.remove('pg54');
8573 model.result.remove('pg55');
8574 model.result.remove('pg56');
8575 model.result.remove('pg57');
8576 model.result.remove('pg58');
8577 model.result.remove('pg59');
8578 model.result.remove('pg60');
8579 model.result.remove('pg61');
8580 model.result.remove('pg62');
8581 model.result.remove('pg63');
8582 model.result.remove('pg64');
8583 model.result.remove('pg65');
8584 model.result.remove('pg66');
8585 model.result.remove('pg67');
8586 model.result.remove('pg68');
8587 model.result.remove('pg69');
8588 model.result.remove('pg70');
8589 model.result.remove('pg71');
8590 model.result.remove('pg72');
8591 model.result.remove('pg73');
8592 model.result.remove('pg74');
8593 model.result.remove('pg75');
8594 model.result.remove('pg76');
8595 model.result.remove('pg77');
8596 model.result.remove('pg78');
8597 model.result.remove('pg79');
8598 model.result.remove('pg80');
8599 model.result.remove('pg81');
8600 model.result.remove('pg82');
8601 model.result.remove('pg83');
8602 model.result.remove('pg84');
8603 model.result.remove('pg85');
8604 model.result.remove('pg86');
8605 model.result.remove('pg87');
8606 model.result.remove('pg88');
8607 model.result.remove('pg89');
8608 model.result.remove('pg90');
8609 model.result.remove('pg91');
8610 model.result('pg53').run;
8611 model.result('pg53').feature('slc1').set('quickxnumber', '1');
8612 model.result('pg53').run;
8613 model.result('pg53').feature('slc1').set('expr', 'Ci');
8614 model.result('pg53').feature('slc1').set('unit', 'fmol/ml');
8615 model.result('pg53').run;
```

```
8616 model.result('pg53').run;
8617 model.result('pg53').run;
8618 model.result('pg53').feature('slc1').set('expr', 'IL6');
8619 model.result('pg53').run;
8620 model.result('pg53').feature('slc1').set('unit', 'fmol/ml');
8621 model.result('pg53').run;
8622 model.result('pg53').run;
8623 model.result('pg53').setIndex('looplevel', '1', 2);
8624 model.result('pg53').setIndex('looplevel', '1', 1);
8625 model.result('pg53').run;
8626 model.result('pg53').setIndex('looplevel', '5', 2);
8627 model.result('pg53').setIndex('looplevel', '3', 1);
8628 model.result('pg53').setIndex('looplevel', '1', 1);
8629 model.result('pg53').setIndex('looplevel', '1', 2);
8630 model.result('pg53').run;
8631 model.result('pg53').run;
8632 model.result('pg53').setIndex('looplevel', '2', 2);
8633 model.result('pg53').run;
8634 model.result('pg53').setIndex('looplevel', '3', 2);
8635 model.result('pg53').run;
8636 model.result('pg53').setIndex('looplevel', '1', 2);
8637 model.result('pg53').run;
8638 model.result('pg53').run;
8639 model.result('pg53').run;
8640 model.result('pg53').feature('slc1').set('expr', 'Ci');
8641 model.result('pg53').run;
8642 model.result('pg53').run;
8643 model.result('pg53').setIndex('looplevel', '4', 2);
8644 model.result('pg53').setIndex('looplevel', '4', 1);
8645 model.result('pg53').run;
8646 model.result('pg53').setIndex('looplevel', '1', 1);
8647 model.result('pg53').setIndex('looplevel', '1', 2);
8648 model.result('pg53').run;
8649 model.result('pg53').run;
8650 model.result('pg53').run;
8651 model.result('pg53').setIndex('looplevel', '8', 0);
8652 model.result('pg53').run;
8653 model.result('pg53').setIndex('looplevel', '11', 0);
8654 model.result('pg53').run;
8655 model.result('pg53').setIndex('looplevel', '5', 1);
8656 model.result('pg53').setIndex('looplevel', '4', 2);
8657 model.result('pg53').run;
8658 model.result('pg53').setIndex('looplevel', '5', 2);
8659 model.result('pg53').run;
8660 model.result('pg53').setIndex('looplevel', '1', 1);
8661 model.result('pg53').setIndex('looplevel', '1', 2);
8662 model.result('pg53').run;
8663 model.result('pg53').run;
8664 model.result('pg53').run;
8665 model.result('pg53').setIndex('looplevel', '5', 2);
```

```
8666 model.result('pg53').setIndex('looplevel', '5', 1);
8667 model.result('pg53').run;
8668 model.result('pg53').setIndex('looplevel', '1', 2);
8669 model.result('pg53').setIndex('looplevel', '1', 1);
8670 model.result('pg53').run;
8671 model.result('pg53').feature('slc1').set('expr', 'IL6');
8672 model.result('pg53').run;
8673 model.result('pg53').feature('slc1').set('expr', 'n');
8674 model.result('pg53').feature('slc1').set('unit', '1/L');
8675 model.result('pg53').run;
8676 model.result('pg53').feature('slc1').set('expr', 'Ctl');
8677 model.result('pg53').run;
8678 model.result('pg53').feature('slc1').set('expr', 'cox');
8679 model.result('pg53').run;
8680 model.result('pg53').feature('slc1').set('unit', 'mol/ml');
8681 model.result('pg53').run;
8682 model.result('pg53').feature('slc1').set('expr', 'coxv');
8683 model.result('pg53').run;
8684 model.result('pg53').feature('slc1').set('unit', 'mol/mm^3');
8685 model.result('pg53').run;
8686 model.result('pg53').feature('slc1').set('unit', 'mol/m^3');
8687 model.result('pg53').run;
8688 model.result('pg53').feature('slc1').set('expr', 'cox');
8689 model.result('pg53').run;
8690 model.result('pg53').run;
8691 model.result('pg53').setIndex('looplevel', '2', 2);
8692 model.result('pg53').setIndex('looplevel', '5', 2);
8693 model.result('pg53').setIndex('looplevel', '5', 1);
8694 model.result('pg53').run;
8695 model.result('pg53').run;
8696 model.result('pg53').run;
8697 model.result('pg53').feature('slc1').set('expr', 'Ctl');
8698 model.result('pg53').run;
8699 model.result('pg53').feature('slc1').set('expr', 'n');
8700 model.result('pg53').run;
8701 model.result('pg53').feature('slc1').set('expr', 'Ctl');
8702 model.result('pg53').feature('slc1').set('unit', '1/L');
8703 model.result('pg53').run;
8704 model.result('pg53').feature('slc1').set('expr', 'n');
8705 model.result('pg53').run;
8706 model.result('pg53').feature('slc1').set('expr', 'IL6');
8707 model.result('pg53').run;
8708 model.result('pg53').feature('slc1').set('unit', 'fmol/ml');
8709 model.result('pg53').run;
8710 model.result('pg53').feature('slc1').set('expr', 'Ci');
8711 model.result('pg53').run;
8712 model.result('pg53').run;
8713 model.result('pg53').run;
8714 model.result('pg53').run;
8715 model.result('pg53').setIndex('looplevel', '4', 2);
```

```
8716 model.result('pg53').run;
8717 model.result('pg53').run;
8718 model.result('pg53').feature('slc1').set('expr', 'IL6');
8719 model.result('pg53').run;
8720 model.result('pg53').feature('slc1').set('expr', 'n');
8721 model.result('pg53').feature('slc1').set('unit', '1/L');
8722 model.result('pg53').run;
8723 model.result('pg53').feature('slc1').set('expr', 'Ctl');
8724 model.result('pg53').run;
8725 model.result('pg53').feature('slc1').set('expr', 'cox');
8726 model.result('pg53').run;
8727 model.result('pg53').run;
8728 model.result('pg53').setIndex('looplevel', '3', 2);
8729 model.result('pg53').run;
8730 model.result('pg53').run;
8731 model.result('pg53').feature('slc1').set('expr', 'Ctl');
8732 model.result('pg53').feature('slc1').set('unit', '1/L');
8733 model.result('pg53').run;
8734 model.result('pg53').feature('slc1').set('expr', 'n');
8735 model.result('pg53').run;
8736 model.result('pg53').feature('slc1').set('expr', 'IL6');
8737 model.result('pg53').feature('slc1').set('unit', 'fmol/ml');
8738 model.result('pg53').run;
8739 model.result('pg53').feature('slc1').set('expr', 'Ci');
8740 model.result('pg53').run;
8741 model.result('pg53').run;
8742 model.result('pg53').setIndex('looplevel', '2', 2);
8743 model.result('pg53').run;
8744 model.result('pg53').feature('slc1').set('expr', 'IL6');
8745 model.result('pg53').run;
8746 model.result('pg53').feature('slc1').set('expr', 'n');
8747 model.result('pg53').feature('slc1').set('unit', '1/L');
8748 model.result('pg53').run;
8749 model.result('pg53').feature('slc1').set('expr', 'Ctl');
8750 model.result('pg53').run;
8751 model.result('pg53').feature('slc1').set('expr', 'cox');
8752 model.result('pg53').run;
8753 model.result('pg53').run;
8754 model.result('pg53').setIndex('looplevel', '1', 2);
8755 model.result('pg53').run;
8756 model.result('pg53').run;
8757 model.result('pg53').feature('slc1').set('expr', 'Ctl');
8758 model.result('pg53').feature('slc1').set('unit', '1/L');
8759 model.result('pg53').run;
8760 model.result('pg53').feature('slc1').set('expr', 'n');
8761 model.result('pg53').run;
8762 model.result('pg53').feature('slc1').set('expr', 'IL6');
8763 model.result('pg53').feature('slc1').set('unit', 'fmol/ml');
8764 model.result('pg53').run;
8765 model.result('pg53').feature('slc1').set('expr', 'Ci');
```

```
8766 model.result('pg53').run;
8767 model.result('pg53').run;
8768 model.result('pg53').setIndex('looplevel', '4', 1);
8769 model.result('pg53').run;
8770 model.result('pg53').run;
8771 model.result('pg53').feature('slc1').set('expr', 'IL6');
8772 model.result('pg53').run;
8773 model.result('pg53').feature('slc1').set('expr', 'n');
8774 model.result('pg53').feature('slc1').set('unit', '1/L');
8775 model.result('pg53').run;
8776 model.result('pg53').feature('slc1').set('expr', 'Ctl');
8777 model.result('pg53').run;
8778 model.result('pg53').feature('slc1').set('expr', 'cox');
8779 model.result('pg53').run;
8780 model.result('pg53').run;
8781 model.result('pg53').setIndex('looplevel', '2', 2);
8782 model.result('pg53').run;
8783 model.result('pg53').run;
8784 model.result('pg53').feature('slc1').set('expr', 'Ctl');
8785 model.result('pg53').run;
8786 model.result('pg53').feature('slc1').set('unit', '1/L');
8787 model.result('pg53').run;
8788 model.result('pg53').feature('slc1').set('expr', 'n');
8789 model.result('pg53').run;
8790 model.result('pg53').feature('slc1').set('expr', 'IL6');
8791 model.result('pg53').run;
8792 model.result('pg53').feature('slc1').set('unit', 'fmol/ml');
8793 model.result('pg53').run;
8794 model.result('pg53').feature('slc1').set('expr', 'Ci');
8795 model.result('pg53').run;
8796 model.result('pg53').run;
8797 model.result('pg53').setIndex('looplevel', '3', 2);
8798 model.result('pg53').run;
8799 model.result('pg53').run;
8800 model.result('pg53').run;
8801 model.result('pg53').setIndex('looplevel', '4', 2);
8802 model.result('pg53').run;
8803 model.result('pg53').setIndex('looplevel', '5', 2);
8804 model.result('pg53').run;
8805 model.result('pg53').setIndex('looplevel', '3', 1);
8806 model.result('pg53').run;
8807 model.result('pg53').setIndex('looplevel', '4', 2);
8808 model.result('pg53').run;
8809 model.result('pg53').setIndex('looplevel', '3', 2);
8810 model.result('pg53').run;
8811 model.result('pg53').setIndex('looplevel', '2', 2);
8812 model.result('pg53').run;
8813 model.result('pg53').setIndex('looplevel', '1', 2);
8814 model.result('pg53').run;
8815 model.result('pg53').run;
```

```
8816 model.result('pg53').run;
8817 model.result('pg53').run;
8818 model.result('pg53').feature('slc1').set('expr', 'IL6');
8819 model.result('pg53').run;
8820 model.result('pg53').feature('slc1').set('expr', 'n');
8821 model.result('pg53').feature('slc1').set('unit', '1/L');
8822 model.result('pg53').run;
8823 model.result('pg53').feature.duplicate('slc2', 'slc1');
8824 model.result('pg53').run;
8825 model.result('pg53').feature.duplicate('slc3', 'slc2');
8826 model.result('pg53').run;
8827 model.result('pg53').feature.duplicate('slc4', 'slc3');
8828 model.result('pg53').run;
8829 model.result('pg53').feature.duplicate('slc5', 'slc4');
8830 model.result('pg53').run;
8831 model.result('pg53').run;
8832 model.result('pg53').feature('slc1').set('expr', 'Ci');
8833 model.result('pg53').feature('slc1').set('unit', 'fmol/ml');
8834 model.result('pg53').run;
8835 model.result('pg53').feature('slc2').set('expr', 'IL6');
8836 model.result('pg53').feature('slc2').set('unit', 'fmol/ml');
8837 model.result('pg53').run;
8838 model.result('pg53').run;
8839 model.result('pg53').feature('slc4').set('expr', 'Ctl');
8840 model.result('pg53').run;
8841 model.result('pg53').run;
8842 model.result('pg53').feature('slc5').set('expr', 'cox');
8843 model.result('pg53').run;
8844 model.result('pg53').run;
8845 model.result('pg53').setIndex('looplevel', '2', 1);
8846 model.result('pg53').run;
8847 model.result('pg53').setIndex('looplevel', '2', 2);
8848 model.result('pg53').run;
8849 model.result('pg53').setIndex('looplevel', '3', 2);
8850 model.result('pg53').run;
8851 model.result('pg53').setIndex('looplevel', '4', 2);
8852 model.result('pg53').run;
8853 model.result('pg53').setIndex('looplevel', '5', 2);
8854 model.result('pg53').run;
8855 model.result('pg53').setIndex('looplevel', '1', 1);
8856 model.result('pg53').run;
8857 model.result('pg53').setIndex('looplevel', '2', 2);
8858 model.result('pg53').setIndex('looplevel', '4', 2);
8859 model.result('pg53').run;
8860 model.result('pg53').setIndex('looplevel', '3', 2);
8861 model.result('pg53').run;
8862 model.result('pg53').setIndex('looplevel', '4', 2);
8863 model.result('pg53').run;
8864 model.result('pg53').setIndex('looplevel', '2', 1);
8865 model.result('pg53').run;
```

```
8866 model.result('pg53').setIndex('looplevel', '3', 1);
8867 model.result('pg53').run;
8868 model.result('pg53').setIndex('looplevel', '4', 1);
8869 model.result('pg53').run;
8870 model.result('pg53').setIndex('looplevel', '5', 1);
8871 model.result('pg53').run;
8872 model.result('pg53').setIndex('looplevel', '3', 2);
8873 model.result('pg53').run;
8874 model.result('pg53').setIndex('looplevel', '1', 1);
8875 model.result('pg53').run;
8876 model.result('pg53').setIndex('looplevel', '2', 2);
8877 model.result('pg53').run;
8878 model.result('pg53').setIndex('looplevel', '1', 2);
8879 model.result('pg53').run;
8880 model.result('pg53').setIndex('looplevel', '2', 2);
8881 model.result('pg53').run;
8882 model.result('pg53').setIndex('looplevel', '3', 2);
8883 model.result('pg53').run;
8884 model.result('pg53').setIndex('looplevel', '4', 2);
8885 model.result('pg53').run;
8886 model.result('pg53').setIndex('looplevel', '5', 2);
8887 model.result('pg53').run;
8888 model.result('pg53').setIndex('looplevel', '1', 2);
8889 model.result('pg53').run;
8890 model.result('pg53').setIndex('looplevel', '2', 1);
8891 model.result('pg53').run;
8892 model.result('pg53').setIndex('looplevel', '1', 1);
8893 model.result('pg53').run;
8894 model.result('pg53').setIndex('looplevel', '2', 1);
8895 model.result('pg53').run;
8896 model.result('pg53').setIndex('looplevel', '3', 1);
8897 model.result('pg53').run;
8898 model.result('pg53').setIndex('looplevel', '4', 1);
8899 model.result('pg53').run;
8900 model.result('pg53').setIndex('looplevel', '3', 1);
8901 model.result('pg53').run;
8902 model.result('pg53').setIndex('looplevel', '4', 1);
8903 model.result('pg53').run;
8904 model.result('pg53').setIndex('looplevel', '5', 1);
8905 model.result('pg53').run;
8906 model.result('pg53').setIndex('looplevel', '4', 1);
8907 model.result('pg53').run;
8908 model.result('pg53').setIndex('looplevel', '5', 1);
8909 model.result('pg53').run;
8910 model.result('pg53').setIndex('looplevel', '5', 2);
8911 model.result('pg53').setIndex('looplevel', '1', 1);
8912 model.result('pg53').run;
8913 model.result('pg53').setIndex('looplevel', '2', 1);
8914 model.result('pg53').run;
8915 model.result('pg53').setIndex('looplevel', '3', 1);
```

```
8916 model.result('pg53').run;
8917 model.result('pg53').setIndex('looplevel', '2', 1);
8918 model.result('pg53').run;
8919 model.result('pg53').setIndex('looplevel', '3', 1);
8920 model.result('pg53').run;
8921 model.result('pg53').setIndex('looplevel', '4', 1);
8922 model.result('pg53').run;
8923 model.result('pg53').setIndex('looplevel', '5', 1);
8924 model.result('pg53').run;
8925 model.result('pg53').setIndex('looplevel', '1', 2);
8926 model.result('pg53').setIndex('looplevel', '3', 1);
8927 model.result('pg53').run;
8928 model.result('pg53').setIndex('looplevel', '2', 1);
8929 model.result('pg53').run;
8930 model.result('pg53').setIndex('looplevel', '2', 2);
8931 model.result('pg53').run;
8932 model.result('pg53').setIndex('looplevel', '3', 2);
8933 model.result('pg53').run;
8934 model.result('pg53').setIndex('looplevel', '4', 2);
8935 model.result('pg53').run;
8936 model.result('pg53').setIndex('looplevel', '5', 2);
8937 model.result('pg53').run;
8938 model.result('pg53').setIndex('looplevel', '3', 2);
8939 model.result('pg53').run;
8940 model.result('pg53').setIndex('looplevel', '1', 1);
8941 model.result('pg53').run;
8942 model.result('pg53').setIndex('looplevel', '5', 2);
8943 model.result('pg53').run;
8944 model.result('pg53').setIndex('looplevel', '4', 2);
8945 model.result('pg53').run;
8946 model.result('pg53').setIndex('looplevel', '5', 1);
8947 model.result('pg53').run;
8948
8949 model.label('set1_hrsACE2 ALL_ ARBS ALL.mph');
8950
8951 model.result('pg53').run;
8952
8953 model.study('std1').feature('param').active(false);
8954
8955 model.sol('sol1').clearSolutionData;
8956 model.sol('sol2').clearSolutionData;
8957 model.sol('sol3').clearSolutionData;
8958 model.sol('sol4').clearSolutionData;
8959 model.sol('sol5').clearSolutionData;
8960 model.sol('sol6').clearSolutionData;
8961 model.sol('sol7').clearSolutionData;
8962 model.sol('sol8').clearSolutionData;
8963 model.sol('sol9').clearSolutionData;
8964 model.sol('sol10').clearSolutionData;
8965 model.sol('sol11').clearSolutionData;
```

```
8966 model.sol('sol12').clearSolutionData;
8967 model.sol('sol13').clearSolutionData;
8968 model.sol('sol14').clearSolutionData;
8969 model.sol('sol15').clearSolutionData;
8970 model.sol('sol16').clearSolutionData;
8971 model.sol('sol17').clearSolutionData;
8972 model.sol('sol18').clearSolutionData;
8973 model.sol('sol19').clearSolutionData;
8974 model.sol('sol20').clearSolutionData;
8975 model.sol('sol21').clearSolutionData;
8976 model.sol('sol22').clearSolutionData;
8977 model.sol('sol23').clearSolutionData;
8978 model.sol('sol24').clearSolutionData;
8979 model.sol('sol25').clearSolutionData;
8980 model.sol('sol26').clearSolutionData;
8981 model.sol('sol27').clearSolutionData;
8982 model.sol('sol28').clearSolutionData;
8983 model.sol('sol29').clearSolutionData;
8984 model.sol('sol30').clearSolutionData;
8985 model.sol('sol31').clearSolutionData;
8986 model.sol('sol32').clearSolutionData;
8987 model.sol('sol33').clearSolutionData;
8988 model.sol('sol34').clearSolutionData;
8989 model.sol('sol35').clearSolutionData;
8990 model.sol('sol36').clearSolutionData;
8991 model.sol('sol37').clearSolutionData;
8992 model.sol('sol38').clearSolutionData;
8993 model.sol('sol39').clearSolutionData;
8994 model.sol('sol40').clearSolutionData;
8995 model.sol('sol41').clearSolutionData;
8996 model.sol('sol42').clearSolutionData;
8997 model.sol('sol43').clearSolutionData;
8998 model.sol('sol44').clearSolutionData;
8999 model.sol('sol45').clearSolutionData;
9000 model.sol('sol46').clearSolutionData;
9001 model.sol('sol47').clearSolutionData;
9002 model.sol('sol48').clearSolutionData;
9003 model.sol('sol49').clearSolutionData;
9004 model.sol('sol50').clearSolutionData;
9005 model.sol('sol51').clearSolutionData;
9006 model.sol('sol52').clearSolutionData;
9007 model.sol('sol53').clearSolutionData;
9008
9009 model.result('pg1').run;
9010 model.result.remove('pg1');
9011 model.result.remove('pg2');
9012 model.result.remove('pg3');
9013 model.result.remove('pg4');
9014 model.result.remove('pg5');
9015 model.result.remove('pg6');
```

```
9016 model.result.remove('pg7');
9017 model.result.remove('pg8');
9018 model.result.remove('pg9');
9019 model.result.remove('pg10');
9020 model.result.remove('pg11');
9021 model.result.remove('pg12');
9022 model.result.remove('pg13');
9023 model.result.remove('pg53');
9024
9025 model.variable.remove('var2');
9026 model.variable.remove('var3');
9027 model.variable.remove('var4');
9028 model.variable('var5').label('Initial Value');
9029 model.variable('var1').label('Variables');
9030 model.variable('var1').remove('oxygenExtra');
9031 model.variable.remove('var6');
9032
9033 model.physics('Ci').feature.remove('init2');
9034 model.physics('Ci').feature('init1').set('Ci', '1.27e-9[M]*(z>0.04[m])');
9035
9036 model.sol('sol1').runFromTo('st1', 'v1');
9037
9038 model.result.create('pg1', 'PlotGroup3D');
9039 model.result('pg1').run;
9040 model.result('pg1').create('slc1', 'Slice');
9041 model.result('pg1').feature('slc1').set('quickxnumber', '1');
9042 model.result('pg1').feature('slc1').set('expr', 'Ci');
9043 model.result('pg1').run;
9044
9045 model.physics('Ci').feature('init1').set('Ci', '1.27e-9[M]*(z>0.045[m])');
9046
9047 model.sol('sol1').runFromTo('st1', 'v1');
9048
9049 model.result('pg1').run;
9050 model.result('pg1').run;
9051 model.result('pg1').run;
9052
9053 model.batch.remove('p1');
9054
9055 model.sol('sol1').runAll;
9056
9057 model.result('pg1').run;
9058 model.result('pg1').setIndex('looplevel', '13', 0);
9059 model.result('pg1').run;
9060
9061 model.label('Baseline_solution.mph');
9062
9063 model.result('pg1').run;
9064 model.result('pg1').run;
9065 model.result('pg1').feature('slc1').set('expr', 'AGT');
```

```
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngI');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngII');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT1R');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT2R');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AT1bAngII');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Renin');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'AngI');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'Renin');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'KRenin');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'KRenin*(Renin-Renin0)');
model.result('pg1').run;
model.result('pg1').feature('slc1').set('expr', 'sRenin');
model.result('pg1').run;
model.result.create('pg2', 'PlotGroup1D');
model.result('pg2').run;
model.result('pg2').create('ptgr1', 'PointGraph');
model.result('pg2').feature('ptgr1').set('data', 'cpt1');
model.result('pg2').run;
model.result('pg2').feature('ptgr1').set('expr', 'Renin');
model.result('pg2').run;
model.result('pg2').feature('ptgr1').set('expr', 'AngI');
model.result('pg2').run;
model.result('pg2').feature('ptgr1').set('expr', 'KRenin*(Renin-Renin0)');
model.result('pg2').run;
model.result('pg2').feature('ptgr1').set('expr', '(Renin-Renin0)');
model.result('pg2').run;
model.result('pg2').run;

model.sol('sol1').feature('t1').set('maxstepbdfactive', 'on');
model.sol('sol1').feature('t1').set('maxstepbdf', '1[h]');
model.sol('sol1').detach;
model.sol.create('sol54');
model.sol('sol54').study('std1');

model.study('std1').feature('time').set('notlistsolnum', 1);
model.study('std1').feature('time').set('notsolnum', '1');
model.study('std1').feature('time').set('listsolnum', 1);
model.study('std1').feature('time').set('solnum', '1');

model.sol('sol54').create('st1', 'StudyStep');
```

```
 9116 model.sol('sol54').feature('st1').set('study', 'std1');
 9117 model.sol('sol54').feature('st1').set('studystep', 'time');
 9118 model.sol('sol54').create('v1', 'Variables');
 9119 model.sol('sol54').feature('v1').set('control', 'time');
 9120 model.sol('sol54').create('t1', 'Time');
 9121 model.sol('sol54').feature('t1').set('tlist', 'range(0,1,12)');
 9122 model.sol('sol54').feature('t1').set('plot', 'off');
 9123 model.sol('sol54').feature('t1').set('plotgroup', 'pg1');
 9124 model.sol('sol54').feature('t1').set('plotfreq', 'tout');
 9125 model.sol('sol54').feature('t1').set('probesel', 'all');
 9126 model.sol('sol54').feature('t1').set('probes', {});
 9127 model.sol('sol54').feature('t1').set('probefreq', 'tsteps');
 9128 model.sol('sol54').feature('t1').set('control', 'time');
 9129 model.sol('sol54').feature('t1').create('se1', 'Segregated');
 9130 model.sol('sol54').feature('t1').feature('se1').feature.remove('ssDef');
 9131 model.sol('sol54').feature('t1').feature('se1').create('ss1', 'SegregatedStep');
 9132 model.sol('sol54').feature('t1').feature('se1').feature('ss1').set('segvar', ↙
{'comp1_a'});
 9133 model.sol('sol54').feature('t1').feature('se1').feature('ss1').set('linsolver', ↙
'dDef');
 9134 model.sol('sol54').feature('t1').feature('se1').create('ss2', 'SegregatedStep');
 9135 model.sol('sol54').feature('t1').feature('se1').feature('ss2').set('segvar', ↙
{'comp1_ACE2'});
 9136 model.sol('sol54').feature('t1').feature('se1').feature('ss2').set('linsolver', ↙
'dDef');
 9137 model.sol('sol54').feature('t1').feature('se1').create('ss3', 'SegregatedStep');
 9138 model.sol('sol54').feature('t1').feature('se1').feature('ss3').set('segvar', ↙
{'comp1_ACE2bAngI'});
 9139 model.sol('sol54').feature('t1').feature('se1').feature('ss3').set('linsolver', ↙
'dDef');
 9140 model.sol('sol54').feature('t1').feature('se1').create('ss4', 'SegregatedStep');
 9141 model.sol('sol54').feature('t1').feature('se1').feature('ss4').set('segvar', ↙
{'comp1_ACE2bAngII'});
 9142 model.sol('sol54').feature('t1').feature('se1').feature('ss4').set('linsolver', ↙
'dDef');
 9143 model.sol('sol54').feature('t1').feature('se1').create('ss5', 'SegregatedStep');
 9144 model.sol('sol54').feature('t1').feature('se1').feature('ss5').set('segvar', ↙
{'comp1_AGT'});
 9145 model.sol('sol54').feature('t1').feature('se1').feature('ss5').set('linsolver', ↙
'dDef');
 9146 model.sol('sol54').feature('t1').feature('se1').create('ss6', 'SegregatedStep');
 9147 model.sol('sol54').feature('t1').feature('se1').feature('ss6').set('segvar', ↙
{'comp1_Ang17'});
 9148 model.sol('sol54').feature('t1').feature('se1').feature('ss6').set('linsolver', ↙
'dDef');
 9149 model.sol('sol54').feature('t1').feature('se1').create('ss7', 'SegregatedStep');
 9150 model.sol('sol54').feature('t1').feature('se1').feature('ss7').set('segvar', ↙
{'comp1_Ang19'});
 9151 model.sol('sol54').feature('t1').feature('se1').feature('ss7').set('linsolver', ↙
'dDef');
```

```
 9152 model.sol('sol54').feature('t1').feature('se1').create('ss8', 'SegregatedStep');
 9153 model.sol('sol54').feature('t1').feature('se1').feature('ss8').set('segvar', ↙
{'comp1_AngI'});
 9154 model.sol('sol54').feature('t1').feature('se1').feature('ss8').set('linsolver', ↙
'dDef');
 9155 model.sol('sol54').feature('t1').feature('se1').create('ss9', 'SegregatedStep');
 9156 model.sol('sol54').feature('t1').feature('se1').feature('ss9').set('segvar', ↙
{'comp1_AngII'});
 9157 model.sol('sol54').feature('t1').feature('se1').feature('ss9').set('linsolver', ↙
'dDef');
 9158 model.sol('sol54').feature('t1').feature('se1').create('ss10', 'SegregatedStep');
 9159 model.sol('sol54').feature('t1').feature('se1').feature('ss10').set('segvar', ↙
{'comp1_AngIII'});
 9160 model.sol('sol54').feature('t1').feature('se1').feature('ss10').set('linsolver', ↙
'dDef');
 9161 model.sol('sol54').feature('t1').feature('se1').create('ss11', 'SegregatedStep');
 9162 model.sol('sol54').feature('t1').feature('se1').feature('ss11').set('segvar', ↙
{'comp1_AngIV'});
 9163 model.sol('sol54').feature('t1').feature('se1').feature('ss11').set('linsolver', ↙
'dDef');
 9164 model.sol('sol54').feature('t1').feature('se1').create('ss12', 'SegregatedStep');
 9165 model.sol('sol54').feature('t1').feature('se1').feature('ss12').set('segvar', ↙
{'comp1_AT1bAngII'});
 9166 model.sol('sol54').feature('t1').feature('se1').feature('ss12').set('linsolver', ↙
'dDef');
 9167 model.sol('sol54').feature('t1').feature('se1').create('ss13', 'SegregatedStep');
 9168 model.sol('sol54').feature('t1').feature('se1').feature('ss13').set('segvar', ↙
{'comp1_AT1R'});
 9169 model.sol('sol54').feature('t1').feature('se1').feature('ss13').set('linsolver', ↙
'dDef');
 9170 model.sol('sol54').feature('t1').feature('se1').create('ss14', 'SegregatedStep');
 9171 model.sol('sol54').feature('t1').feature('se1').feature('ss14').set('segvar', ↙
{'comp1_AT2bAngII'});
 9172 model.sol('sol54').feature('t1').feature('se1').feature('ss14').set('linsolver', ↙
'dDef');
 9173 model.sol('sol54').feature('t1').feature('se1').create('ss15', 'SegregatedStep');
 9174 model.sol('sol54').feature('t1').feature('se1').feature('ss15').set('segvar', ↙
{'comp1_AT2R'});
 9175 model.sol('sol54').feature('t1').feature('se1').feature('ss15').set('linsolver', ↙
'dDef');
 9176 model.sol('sol54').feature('t1').feature('se1').create('ss16', 'SegregatedStep');
 9177 model.sol('sol54').feature('t1').feature('se1').feature('ss16').set('segvar', ↙
{'comp1_AT4bAngIV'});
 9178 model.sol('sol54').feature('t1').feature('se1').feature('ss16').set('linsolver', ↙
'dDef');
 9179 model.sol('sol54').feature('t1').feature('se1').create('ss17', 'SegregatedStep');
 9180 model.sol('sol54').feature('t1').feature('se1').feature('ss17').set('segvar', ↙
{'comp1_AT4R'});
 9181 model.sol('sol54').feature('t1').feature('se1').feature('ss17').set('linsolver', ↙
'dDef');
```

```
 9182 model.sol('sol54').feature('t1').feature('se1').create('ss18', 'SegregatedStep');
 9183 model.sol('sol54').feature('t1').feature('se1').feature('ss18').set('segvar', ↙
{'comp1_c'});
 9184 model.sol('sol54').feature('t1').feature('se1').feature('ss18').set('linsolver', ↙
'dDef');
 9185 model.sol('sol54').feature('t1').feature('se1').create('ss19', 'SegregatedStep');
 9186 model.sol('sol54').feature('t1').feature('se1').feature('ss19').set('segvar', ↙
{'comp1_Cb'});
 9187 model.sol('sol54').feature('t1').feature('se1').feature('ss19').set('linsolver', ↙
'dDef');
 9188 model.sol('sol54').feature('t1').feature('se1').create('ss20', 'SegregatedStep');
 9189 model.sol('sol54').feature('t1').feature('se1').feature('ss20').set('segvar', ↙
{'comp1_Ci'});
 9190 model.sol('sol54').feature('t1').feature('se1').feature('ss20').set('linsolver', ↙
'dDef');
 9191 model.sol('sol54').feature('t1').feature('se1').create('ss21', 'SegregatedStep');
 9192 model.sol('sol54').feature('t1').feature('se1').feature('ss21').set('segvar', ↙
{'comp1_cox'});
 9193 model.sol('sol54').feature('t1').feature('se1').feature('ss21').set('linsolver', ↙
'dDef');
 9194 model.sol('sol54').feature('t1').feature('se1').create('ss22', 'SegregatedStep');
 9195 model.sol('sol54').feature('t1').feature('se1').feature('ss22').set('segvar', ↙
{'comp1_Ctl'});
 9196 model.sol('sol54').feature('t1').feature('se1').feature('ss22').set('linsolver', ↙
'dDef');
 9197 model.sol('sol54').feature('t1').feature('se1').create('ss23', 'SegregatedStep');
 9198 model.sol('sol54').feature('t1').feature('se1').feature('ss23').set('segvar', ↙
{'comp1_ec'});
 9199 model.sol('sol54').feature('t1').feature('se1').feature('ss23').set('linsolver', ↙
'dDef');
 9200 model.sol('sol54').feature('t1').feature('se1').create('ss24', 'SegregatedStep');
 9201 model.sol('sol54').feature('t1').feature('se1').feature('ss24').set('segvar', ↙
{'comp1_H'});
 9202 model.sol('sol54').feature('t1').feature('se1').feature('ss24').set('linsolver', ↙
'dDef');
 9203 model.sol('sol54').feature('t1').feature('se1').create('ss25', 'SegregatedStep');
 9204 model.sol('sol54').feature('t1').feature('se1').feature('ss25').set('segvar', ↙
{'comp1_iec'});
 9205 model.sol('sol54').feature('t1').feature('se1').feature('ss25').set('linsolver', ↙
'dDef');
 9206 model.sol('sol54').feature('t1').feature('se1').create('ss26', 'SegregatedStep');
 9207 model.sol('sol54').feature('t1').feature('se1').feature('ss26').set('segvar', ↙
{'comp1_IL6'});
 9208 model.sol('sol54').feature('t1').feature('se1').feature('ss26').set('linsolver', ↙
'dDef');
 9209 model.sol('sol54').feature('t1').feature('se1').create('ss27', 'SegregatedStep');
 9210 model.sol('sol54').feature('t1').feature('se1').feature('ss27').set('segvar', ↙
{'comp1_IL6R'});
 9211 model.sol('sol54').feature('t1').feature('se1').feature('ss27').set('linsolver', ↙
'dDef');
```

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 9212 model.sol('sol54').feature('t1').feature('se1').create('ss28', 'SegregatedStep');
 9213 model.sol('sol54').feature('t1').feature('se1').feature('ss28').set('segvar', ↙
{'comp1_IL6RbIL6'});
 9214 model.sol('sol54').feature('t1').feature('se1').feature('ss28').set('linsolver', ↙
'dDef');
 9215 model.sol('sol54').feature('t1').feature('se1').create('ss29', 'SegregatedStep');
 9216 model.sol('sol54').feature('t1').feature('se1').feature('ss29').set('segvar', ↙
{'comp1_In'});
 9217 model.sol('sol54').feature('t1').feature('se1').feature('ss29').set('linsolver', ↙
'dDef');
 9218 model.sol('sol54').feature('t1').feature('se1').create('ss30', 'SegregatedStep');
 9219 model.sol('sol54').feature('t1').feature('se1').feature('ss30').set('segvar', ↙
{'comp1_ma'});
 9220 model.sol('sol54').feature('t1').feature('se1').feature('ss30').set('linsolver', ↙
'dDef');
 9221 model.sol('sol54').feature('t1').feature('se1').create('ss31', 'SegregatedStep');
 9222 model.sol('sol54').feature('t1').feature('se1').feature('ss31').set('segvar', ↙
{'comp1_MAsbAng17'});
 9223 model.sol('sol54').feature('t1').feature('se1').feature('ss31').set('linsolver', ↙
'dDef');
 9224 model.sol('sol54').feature('t1').feature('se1').create('ss32', 'SegregatedStep');
 9225 model.sol('sol54').feature('t1').feature('se1').feature('ss32').set('segvar', ↙
{'comp1_MAsR'});
 9226 model.sol('sol54').feature('t1').feature('se1').feature('ss32').set('linsolver', ↙
'dDef');
 9227 model.sol('sol54').feature('t1').feature('se1').create('ss33', 'SegregatedStep');
 9228 model.sol('sol54').feature('t1').feature('se1').feature('ss33').set('segvar', ↙
{'comp1_n'});
 9229 model.sol('sol54').feature('t1').feature('se1').feature('ss33').set('linsolver', ↙
'dDef');
 9230 model.sol('sol54').feature('t1').feature('se1').create('ss34', 'SegregatedStep');
 9231 model.sol('sol54').feature('t1').feature('se1').feature('ss34').set('segvar', ↙
{'comp1_Renin'});
 9232 model.sol('sol54').feature('t1').feature('se1').feature('ss34').set('linsolver', ↙
'dDef');
 9233 model.sol('sol54').feature('t1').feature('se1').create('ss35', 'SegregatedStep');
 9234 model.sol('sol54').feature('t1').feature('se1').feature('ss35').set('segvar', ↙
{'comp1_sACE2'});
 9235 model.sol('sol54').feature('t1').feature('se1').feature('ss35').set('linsolver', ↙
'dDef');
 9236 model.sol('sol54').feature('t1').feature('se1').create('ss36', 'SegregatedStep');
 9237 model.sol('sol54').feature('t1').feature('se1').feature('ss36').set('segvar', ↙
{'comp1_sIL6R'});
 9238 model.sol('sol54').feature('t1').feature('se1').feature('ss36').set('linsolver', ↙
'dDef');
 9239 model.sol('sol54').feature('t1').feature('se1').create('ss37', 'SegregatedStep');
 9240 model.sol('sol54').feature('t1').feature('se1').feature('ss37').set('segvar', ↙
{'comp1_sIL6RbIL6'});
 9241 model.sol('sol54').feature('t1').feature('se1').feature('ss37').set('linsolver', ↙
'dDef');
```

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 9242 model.sol('sol54').feature('t1').feature('se1').create('ss38', 'SegregatedStep');
 9243 model.sol('sol54').feature('t1').feature('se1').feature('ss38').set('segvar', ↙
{'comp1_VEGF'});
 9244 model.sol('sol54').feature('t1').feature('se1').feature('ss38').set('linsolver', ↙
'dDef');
 9245 model.sol('sol54').feature('t1').feature('se1').create('ss39', 'SegregatedStep');
 9246 model.sol('sol54').feature('t1').feature('se1').feature('ss39').set('segvar', ↙
{'comp1_Vint'});
 9247 model.sol('sol54').feature('t1').feature('se1').feature('ss39').set('linsolver', ↙
'dDef');
 9248 model.sol('sol54').feature('t1').feature.remove('fcDef');
 9249 model.sol('sol54').attach('std1');
 9250 model.sol('sol54').feature('t1').set('maxstepbdfactive', 'on');
 9251 model.sol('sol54').feature('t1').set('maxstepbdf', '1[h]');
 9252 model.sol('sol54').feature('t1').create('fc1', 'FullyCoupled');
 9253 model.sol('sol54').feature('t1').feature.remove('se1');
 9254 model.sol('sol54').feature('t1').feature('dDef').set('linsolver', 'pardiso');
 9255 model.sol.remove('sol1');
 9256 model.sol.remove('sol2');
 9257 model.sol.remove('sol28');
 9258
 9259 model.result.create('pg1', 3);
 9260 model.result('pg1').set('data', 'dset4');
 9261 model.result('pg1').create('slc1', 'Slice');
 9262 model.result('pg1').feature('slc1').set('expr', 'AGT');
 9263 model.result.create('pg2', 3);
 9264 model.result('pg2').set('data', 'dset4');
 9265 model.result('pg2').create('slc1', 'Slice');
 9266 model.result('pg2').feature('slc1').set('expr', 'Renin');
 9267 model.result.create('pg3', 3);
 9268 model.result('pg3').set('data', 'dset4');
 9269 model.result('pg3').create('slc1', 'Slice');
 9270 model.result('pg3').feature('slc1').set('expr', 'AngI');
 9271 model.result.create('pg4', 3);
 9272 model.result('pg4').set('data', 'dset4');
 9273 model.result('pg4').create('slc1', 'Slice');
 9274 model.result('pg4').feature('slc1').set('expr', 'AngII');
 9275 model.result.create('pg5', 3);
 9276 model.result('pg5').set('data', 'dset4');
 9277 model.result('pg5').create('slc1', 'Slice');
 9278 model.result('pg5').feature('slc1').set('expr', 'Ang17');
 9279 model.result.create('pg6', 3);
 9280 model.result('pg6').set('data', 'dset4');
 9281 model.result('pg6').create('slc1', 'Slice');
 9282 model.result('pg6').feature('slc1').set('expr', 'Ang19');
 9283 model.result.create('pg7', 3);
 9284 model.result('pg7').set('data', 'dset4');
 9285 model.result('pg7').create('slc1', 'Slice');
 9286 model.result('pg7').feature('slc1').set('expr', 'AngIII');
 9287 model.result.create('pg8', 3);
```

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model.result('pg8').set('data', 'dset4');
model.result('pg8').create('slc1', 'Slice');
model.result('pg8').feature('slc1').set('expr', 'AngIV');
model.result.create('pg9', 3);
model.result('pg9').set('data', 'dset4');
model.result('pg9').create('slc1', 'Slice');
model.result('pg9').feature('slc1').set('expr', 'AT1bAngII');
model.result.create('pg10', 3);
model.result('pg10').set('data', 'dset4');
model.result('pg10').create('slc1', 'Slice');
model.result('pg10').feature('slc1').set('expr', 'AT2bAngII');
model.result.create('pg11', 3);
model.result('pg11').set('data', 'dset4');
model.result('pg11').create('slc1', 'Slice');
model.result('pg11').feature('slc1').set('expr', 'AT4bAngIV');
model.result.create('pg12', 3);
model.result('pg12').set('data', 'dset4');
model.result('pg12').create('slc1', 'Slice');
model.result('pg12').feature('slc1').set('expr', 'MAsbAng17');
model.result.create('pg13', 3);
model.result('pg13').set('data', 'dset4');
model.result('pg13').create('slc1', 'Slice');
model.result('pg13').feature('slc1').set('expr', 'Cb');
model.result.create('pg14', 3);
model.result('pg14').set('data', 'dset4');
model.result('pg14').create('slc1', 'Slice');
model.result('pg14').feature('slc1').set('expr', 'H');
model.result.create('pg15', 3);
model.result('pg15').set('data', 'dset4');
model.result('pg15').create('slc1', 'Slice');
model.result('pg15').feature('slc1').set('expr', 'Vint');
model.result.create('pg16', 3);
model.result('pg16').set('data', 'dset4');
model.result('pg16').create('slc1', 'Slice');
model.result('pg16').feature('slc1').set('expr', 'In');
model.result.create('pg17', 3);
model.result('pg17').set('data', 'dset4');
model.result('pg17').create('slc1', 'Slice');
model.result('pg17').feature('slc1').set('expr', 'Ci');
model.result.create('pg18', 3);
model.result('pg18').set('data', 'dset4');
model.result('pg18').create('slc1', 'Slice');
model.result('pg18').feature('slc1').set('expr', 'n');
model.result.create('pg19', 3);
model.result('pg19').set('data', 'dset4');
model.result('pg19').create('slc1', 'Slice');
model.result('pg19').feature('slc1').set('expr', 'ma');
model.result.create('pg20', 3);
model.result('pg20').set('data', 'dset4');
model.result('pg20').create('slc1', 'Slice');
```

```
model.result('pg20').feature('slc1').set('expr', 'c');
model.result.create('pg21', 3);
model.result('pg21').set('data', 'dset4');
model.result('pg21').create('slc1', 'Slice');
model.result('pg21').feature('slc1').set('expr', 'Ctl');
model.result.create('pg22', 3);
model.result('pg22').set('data', 'dset4');
model.result('pg22').create('slc1', 'Slice');
model.result('pg22').feature('slc1').set('expr', 'a');
model.result.create('pg23', 3);
model.result('pg23').set('data', 'dset4');
model.result('pg23').create('slc1', 'Slice');
model.result('pg23').feature('slc1').set('expr', 'AT1R');
model.result.create('pg24', 3);
model.result('pg24').set('data', 'dset4');
model.result('pg24').create('slc1', 'Slice');
model.result('pg24').feature('slc1').set('expr', 'AT2R');
model.result.create('pg25', 3);
model.result('pg25').set('data', 'dset4');
model.result('pg25').create('slc1', 'Slice');
model.result('pg25').feature('slc1').set('expr', 'MAsR');
model.result.create('pg26', 3);
model.result('pg26').set('data', 'dset4');
model.result('pg26').create('slc1', 'Slice');
model.result('pg26').feature('slc1').set('expr', 'AT4R');
model.result.create('pg27', 3);
model.result('pg27').set('data', 'dset4');
model.result('pg27').create('slc1', 'Slice');
model.result('pg27').feature('slc1').set('expr', 'ACE2');
model.result.create('pg28', 3);
model.result('pg28').set('data', 'dset4');
model.result('pg28').create('slc1', 'Slice');
model.result('pg28').feature('slc1').set('expr', 'ACE2bAngI');
model.result.create('pg29', 3);
model.result('pg29').set('data', 'dset4');
model.result('pg29').create('slc1', 'Slice');
model.result('pg29').feature('slc1').set('expr', 'ACE2bAngII');
model.result.create('pg30', 3);
model.result('pg30').set('data', 'dset4');
model.result('pg30').create('slc1', 'Slice');
model.result('pg30').feature('slc1').set('expr', 'IL6');
model.result.create('pg31', 3);
model.result('pg31').set('data', 'dset4');
model.result('pg31').create('slc1', 'Slice');
model.result('pg31').feature('slc1').set('expr', 'IL6R');
model.result.create('pg32', 3);
model.result('pg32').set('data', 'dset4');
model.result('pg32').create('slc1', 'Slice');
model.result('pg32').feature('slc1').set('expr', 'IL6RbIL6');
model.result.create('pg33', 3);
```

```
model.result('pg33').set('data', 'dset4');
model.result('pg33').create('slc1', 'Slice');
model.result('pg33').feature('slc1').set('expr', 'sIL6RbIL6');
model.result.create('pg34', 3);
model.result('pg34').set('data', 'dset4');
model.result('pg34').create('slc1', 'Slice');
model.result('pg34').feature('slc1').set('expr', 'VEGF');
model.result.create('pg35', 3);
model.result('pg35').set('data', 'dset4');
model.result('pg35').create('slc1', 'Slice');
model.result('pg35').feature('slc1').set('expr', 'sIL6R');
model.result.create('pg36', 3);
model.result('pg36').set('data', 'dset4');
model.result('pg36').create('slc1', 'Slice');
model.result('pg36').feature('slc1').set('expr', 'sACE2');
model.result.create('pg37', 3);
model.result('pg37').set('data', 'dset4');
model.result('pg37').create('slc1', 'Slice');
model.result('pg37').feature('slc1').set('expr', 'ec');
model.result.create('pg38', 3);
model.result('pg38').set('data', 'dset4');
model.result('pg38').create('slc1', 'Slice');
model.result('pg38').feature('slc1').set('expr', 'iec');
model.result.create('pg39', 3);
model.result('pg39').set('data', 'dset4');
model.result('pg39').create('slc1', 'Slice');
model.result('pg39').feature('slc1').set('expr', 'cox');

model.sol('sol54').runAll;

model.result('pg1').run;

model.label('Baseline_solution_Time step.mph');

model.result('pg1').run;
model.result('pg2').run;
model.result('pg3').run;
model.result('pg5').run;
model.result('pg4').run;
model.result('pg5').run;
model.result('pg6').run;
model.result('pg7').run;
model.result('pg8').run;
model.result('pg9').run;
model.result('pg10').run;
model.result('pg11').run;
model.result('pg12').run;
model.result('pg13').run;
model.result('pg14').run;
model.result('pg15').run;
```

```
9438 model.result('pg16').run;
9439 model.result('pg17').run;
9440 model.result('pg18').run;
9441 model.result('pg19').run;
9442 model.result('pg20').run;
9443 model.result('pg21').run;
9444 model.result('pg22').run;
9445 model.result('pg23').run;
9446 model.result('pg24').run;
9447 model.result('pg25').run;
9448 model.result('pg26').run;
9449 model.result('pg27').run;
9450 model.result('pg28').run;
9451 model.result('pg29').run;
9452 model.result('pg30').run;
9453 model.result('pg31').run;
9454 model.result('pg32').run;
9455 model.result('pg33').run;
9456 model.result('pg34').run;
9457 model.result('pg35').run;
9458 model.result('pg37').run;
9459 model.result('pg36').run;
9460 model.result('pg37').run;
9461 model.result('pg39').run;
9462 model.result('pg38').run;
9463
9464 model.label('Baseline_solution_Time step.mph');
9465
9466 model.result('pg38').run;
9467 model.result.create('pg40', 'PlotGroup1D');
9468 model.result('pg40').run;
9469 model.result('pg40').create('ptgr1', 'PointGraph');
9470 model.result('pg40').feature('ptgr1').set('expr', 'Ci');
9471 model.result('pg40').run;
9472 model.result('pg40').feature('ptgr1').set('data', 'dset4');
9473
9474 model.param.set('bKa', '1');
9475 model.param.remove('bKa');
9476
9477 model.variable.create('var6');
9478 model.variable('var6').model('comp1');
9479 model.variable('var6').label('Block');
9480 model.variable('var6').set('bKa', '1*(t<4[d])+1e4*(t>4[d])');
9481
9482 model.study('std1').feature('time').set('tlist', 'range(0,1,18)');
9483
9484 model.sol('sol54').feature('t1').set('maxstepbdfactive', 'off');
9485
9486 model.variable('var6').set('bKa', '1*(t<=4[d])+1e4*(t>4[d])');
9487
```

```
model.sol('sol54').runAll;

model.result('pg1').run;
model.result('pg40').run;
model.result('pg40').run;
model.result('pg1').run;
model.result('pg2').run;
model.result('pg1').run;
model.result('pg2').run;
model.result('pg3').run;
model.result('pg4').run;
model.result('pg5').run;
model.result('pg6').run;
model.result('pg7').run;
model.result('pg8').run;
model.result('pg9').run;
model.result('pg10').run;
model.result('pg11').run;
model.result('pg12').run;
model.result('pg13').run;
model.result('pg14').run;
model.result('pg13').run;
model.result('pg14').run;
model.result('pg15').run;
model.result('pg16').run;
model.result('pg17').run;
model.result.dataset.create('cpt1', 'CutPoint3D');
model.result.dataset('cpt1').set('pointx', '0.025');
model.result.dataset('cpt1').set('pointy', '0.025');
model.result.dataset('cpt1').set('pointz', '0.025');
model.result.dataset('cpt1').run;
model.result('pg40').run;
model.result('pg40').feature('ptgr1').set('data', 'cpt1');
model.result('pg40').run;

model.label('Baseline_solution_Time step_new therapy.mph');

model.result('pg40').run;

model.variable('var1').set('Vo2max', '3700[ml/min]');
model.variable('var1').set('PA', '100[mmHg]');
model.variable('var1').set('Dlo2_1', 'Dmo2^-1+Deo2^-1');
model.variable('var1').set('SA', '130[m^2]');
model.variable('var1').set('SC', '115[m^2]');
model.variable('var1').set('Dmo2', 'Ko2*0.5*(SA+SC)/thb');
model.variable('var1').set('Ko2', '3.3e-8[cm^2/min/mmHg]');
model.variable('var1').set('thb', '1[um]');
model.variable('var1').set('Deo2', 'th02*VC');
model.variable('var1').set('tho2', '1.8[ml/ml/min/mmHg]');
model.variable('var1').set('VC', '194[ml]');
```

```
9538 model.variable('var1').set('Deo2', 'tho2*VC');
9539 model.variable('var1').set('Pb', 'PA-Vo2max/Dlo2');
9540 model.variable('var1').set('Dlo2', 'Dlo2_1^-1');
9541 model.variable('var1').set('SPb', '((Pb/P50)^n)/(1+(Pb/P50)^n)');
9542 model.variable('var1').set('n', '2.7');
9543 model.variable('var1').set('P50', '26.3 [mmHg]');
9544 model.variable('var1').rename('n', 'ni');
9545 model.variable('var1').set('SPb', '((Pb/P50)^ni)/(1+(Pb/P50)^ni)');
9546
9547 model.sol('sol54').runFromTo('st1', 'v1');
9548
9549 model.result('pg1').run;
9550 model.result('pg1').run;
9551 model.result('pg1').feature('slc1').set('expr', 'Pb');
9552 model.result('pg1').feature('slc1').set('unit', 'mmHg');
9553 model.result('pg1').run;
9554 model.result('pg1').run;
9555 model.result('pg1').feature('slc1').set('expr', 'SPb');
9556 model.result('pg1').run;
9557
9558 model.variable.create('var7');
9559 model.variable('var7').model('comp1');
9560 model.variable('var7').label('Attachment rates for control case');
9561 model.variable('var7').set('dd', '10 [ml/min]');
9562 model.variable('var7').set('ka_spleen', '1e-3*60*24 [ml/min]');
9563 model.variable('var7').set('ka_liver', '1e-3*60*24 [ml/min]');
9564 model.variable('var7').set('ka_Upper_body', '1e-3*60*24 [ml/min]');
9565 model.variable('var7').set('ka_Torso', '1e-3*60*24 [ml/min]');
9566 model.variable('var7').set('ka_lung', '1e-3*60*24 [ml/min]');
9567 model.variable('var7').set('ka_intestin', '1e-3*60*24 [ml/min]');
9568 model.variable('var7').set('ka_Lower_body', '1e-3*60*24 [ml/min]');
9569 model.variable('var7').set('ka_brain', '1e-3*60*24 [ml/min]');
9570 model.variable('var7').set('ka_kidney', '1e-3*60*24 [ml/min]');
9571 model.variable('var7').set('ka_Cardiac_vessels', '1e-3*60*24 [ml/min]');
9572 model.variable('var7').remove('dd');
9573 model.variable.create('var8');
9574 model.variable('var8').model('comp1');
9575 model.variable('var8').label('Detachment rates for control case');
9576 model.variable('var8').set('kd_spleen', '1e-3*2/3*60*24 [1/min]');
9577 model.variable('var8').set('kd_liver', '1e-3*2/3*60*24 [1/min]');
9578 model.variable('var8').set('kd_Upper_body', '1e-3*2/3*60*24 [1/min]');
9579 model.variable('var8').set('kd_Torso', '1e-3*2/3*60*24 [1/min]');
9580 model.variable('var8').set('kd_lung', '1e-3*2/3*60*24 [1/min]');
9581 model.variable('var8').set('kd_intestin', '1e-3*2/3*60*24 [1/min]');
9582 model.variable('var8').set('kd_Lower_body', '1e-3*2/3*60*24 [1/min]');
9583 model.variable('var8').set('kd_brain', '1e-3*2/3*60*24 [1/min]');
9584 model.variable('var8').set('kd_kidney', '1e-3*2/3*60*24 [1/min]');
9585 model.variable.create('var9');
9586 model.variable('var9').model('comp1');
9587 model.variable('var9').label('disinfection rate of free virus');
```

```
 9588 model.variable('var9').set('disinf_lung', ' 1 [1/d]');
 9589 model.variable('var9').set('disinf_liver', '1 [1/d]');
 9590 model.variable('var9').set('disinf_spleen', '1 [1/d]');
 9591 model.variable('var9').set('disinf_Upper_body', '1 [1/d]');
 9592 model.variable('var9').set('disinf_Torso', '1 [1/d]');
 9593 model.variable('var9').set('disinf_Intestine', ' 1 [1/d]');
 9594 model.variable('var9').set('disinf_Lower_body', '1 [1/d]');
 9595 model.variable('var9').set('disinf_Brain', ' 1 [1/d]');
 9596 model.variable('var9').set('disinf_kidney', ' 1 [1/d]');
 9597 model.variable.create('var10');
 9598 model.variable('var10').model('comp1');
 9599 model.variable('var10').label('disinfection rate of attached virus');
 9600 model.variable('var10').set('disinfa_lung', ' 1 [1/d]');
 9601 model.variable('var10').set('disinfa_liver', '1 [1/d]');
 9602 model.variable('var10').set('disinfa_spleen', '1 [1/d]');
 9603 model.variable('var10').set('disinfa_Upper_body', '1 [1/d]');
 9604 model.variable('var10').set('disinfa_Torso', '1 [1/d]');
 9605 model.variable('var10').set('disinfa_Intestine', ' 1 [1/d]');
 9606 model.variable('var10').set('disinfa_Lower_body', '1 [1/d]');
 9607 model.variable('var10').set('disinfa_Brain', ' 1 [1/d]');
 9608 model.variable('var10').set('disinfa_kidney', ' 1 [1/d]');
 9609 model.variable.create('var11');
 9610 model.variable('var11').model('comp1');
 9611 model.variable('var11').label('Proliferation rate of activated (attached) ↙
virus');
 9612 model.variable('var11').set('p_liver', '1 [1/d]');
 9613 model.variable('var11').set('p_lung', ' 1 [1/d]');
 9614 model.variable('var11').set('p_spleen', ' 0.1 [1/d]');
 9615 model.variable('var11').set('p_Upper_body', ' 1.1 [1/d]');
 9616 model.variable('var11').set('p_Torso', ' 2 [1/d]');
 9617 model.variable('var11').set('p_Intestine', ' 0.7 [1/d]');
 9618 model.variable('var11').set('p_Lower_body', ' 0.9 [1/d]');
 9619 model.variable('var11').set('p_Brain', ' 1.4 [1/d]');
 9620 model.variable('var11').set('p_kidney', ' 1.1 [1/d]');
 9621 model.variable('var11').remove('p_liver');
 9622 model.variable('var11').remove('p_lung');
 9623 model.variable('var11').remove('p_spleen');
 9624 model.variable('var11').remove('p_Upper_body');
 9625 model.variable('var11').remove('p_Torso');
 9626 model.variable('var11').remove('p_Intestine');
 9627 model.variable('var11').remove('p_Lower_body');
 9628 model.variable('var11').remove('p_Brain');
 9629 model.variable('var11').remove('p_kidney');
 9630 model.variable('var11').set('p_liver', '1 [1/d]');
 9631 model.variable('var11').set('p_lung', ' 1 [1/d]');
 9632 model.variable('var11').set('p_spleen', ' 0.1 [1/d]');
 9633 model.variable('var11').set('p_Upper_body', ' 1.1 [1/d]');
 9634 model.variable('var11').set('p_Torso', ' 2 [1/d]');
 9635 model.variable('var11').set('p_Intestine', ' 0.7 [1/d]');
 9636 model.variable('var11').set('p_Lower_body', ' 0.9 [1/d]');
```

```
9637 model.variable('var11').set('p_Brain', ' 1.4 [1/d]');
9638 model.variable('var11').set('p_kidney', ' 1.1 [1/d]');
9639 model.variable('var8').set('kd_Cardiac_vessels', '1e-3*2/3*60*24 [1/min]');
9640 model.variable('var9').set('disinf_Cardiac_vessels', '1 [1/d]');
9641 model.variable('var10').set('disinfa_Cardiac_vessels', '1 [1/d]');
9642 model.variable('var11').set('p_Cardiac_vessels', '1.8 [1/d]');
9643 model.variable.create('var12');
9644 model.variable('var12').model('comp1');
9645 model.variable('var12').label('Recirculated fraction');
9646 model.variable('var12').set('rf_IL2_Ltumor', ' 1');
9647 model.variable('var12').set('rf_kidney', ' 1');
9648 model.variable('var12').set('rf_Cardiac_vessels', ' 1');
9649 model.variable('var12').set('rf_LUpper_body', ' 0.018');
9650 model.variable('var12').set('rf_LTorso', ' 0.018');
9651 model.variable('var12').set('rf_Llung', ' 0.018');
9652 model.variable('var12').set('rf_Lintestin', ' 0.018');
9653 model.variable('var12').set('rf_Ltumor', ' 0.018');
9654 model.variable('var12').set('rf_LLower_body', ' 0.018');
9655 model.variable('var12').set('rf_Lbrain', ' 0.018');
9656 model.variable('var12').set('rf_Lkidney', ' 0.018');
9657 model.variable('var12').set('rf_aLUpper_body', ' 0.18');
9658 model.variable('var12').set('rf_aLTorso', ' 0.18');
9659 model.variable('var12').set('rf_aLlung', ' 0.18');
9660 model.variable('var12').set('rf_aLintestin', ' 0.18');
9661 model.variable('var12').set('rf_aLtumor', ' 0.18');
9662 model.variable('var12').set('rf_aLLower_body', ' 0.18');
9663 model.variable('var12').set('rf_aLbrain', ' 0.18');
9664 model.variable('var12').set('rf_aLkidney', ' 0.18');
9665 model.variable.create('var13');
9666 model.variable('var13').model('comp1');
9667 model.variable('var13').label('maximum rate of micro-thrombus generation');
9668 model.variable('var13').set('mt_lung', '  1 [mol/L/d]');
9669 model.variable('var13').set('mt_liver', ' 1 [mol/L/d]');
9670 model.variable('var13').set('mt_spleen', ' 1 [mol/L/d]');
9671 model.variable('var13').set('mt_Upper_body', ' 1 [mol/L/d]');
9672 model.variable('var13').set('mt_Torso', ' 1 [mol/L/d]');
9673 model.variable('var13').set('mt_Intestine', ' 1 [mol/L/d]');
9674 model.variable('var13').set('mt_Lower_body', ' 1 [mol/L/d]');
9675 model.variable('var13').set('mt_Brain', ' 1 [mol/L/d]');
9676 model.variable('var13').set('mt_kidney', ' 1 [mol/L/d]');
9677 model.variable('var13').set('mt_Cardiac_vessels', ' 1 [mol/L/d]');
9678 model.variable.create('var14');
9679 model.variable('var14').model('comp1');
9680 model.variable('var14').label('Decay rate of micro-thrombus');
9681 model.variable('var14').set('d_lung', '  1 [1/d]');
9682 model.variable('var14').set('d_liver', ' 1 [1/d]');
9683 model.variable('var14').set('d_spleen', ' 1 [1/d]');
9684 model.variable('var14').set('d_Upper_body', ' 1 [1/d]');
9685 model.variable('var14').set('d_Torso', ' 1 [1/d]');
9686 model.variable('var14').set('d_Intestine', ' 1 [1/d]');
```

```
9687 model.variable('var14').set('d_Lower_body', ' 1 [1/d]');
9688 model.variable('var14').set('d_Brain', ' 1 [1/d]');
9689 model.variable('var14').set('d_kidney', ' 1 [1/d]');
9690 model.variable('var14').set('d_Cardiac_vessels', ' 1 [1/d]');
9691 model.variable.create('var15');
9692 model.variable('var15').model('comp1');
9693 model.variable('var15').label('%Blood flow rate');
9694 model.variable('var15').set('Q_spleen', '138*60*24*1e-3 [L/d]');
9695 model.variable('var15').set('Q_liver', '800*60*24*1e-3 [L/d]');
9696 model.variable('var15').set('Q_Upper_body', '138*60*24*1e-3 [L/d]');
9697 model.variable('var15').set('Q_Torso', '220*60*24*1e-3 [L/d]');
9698 model.variable('var15').set('Q_intestin', '468*60*24*1e-3 [L/d]');
9699 model.variable('var15').set('Q_kidney', '630*60*24*1e-3 [L/d]');
9700 model.variable('var15').set('Q_Lower_body', '413*60*24*1e-3 [L/d]');
9701 model.variable('var15').set('Q_Cardiac_vessels', '120*60*24*1e-3 [L/d]');
9702 model.variable('var15').remove('Q_spleen');
9703 model.variable('var15').remove('Q_liver');
9704 model.variable('var15').remove('Q_Upper_body');
9705 model.variable('var15').remove('Q_Torso');
9706 model.variable('var15').remove('Q_intestin');
9707 model.variable('var15').remove('Q_kidney');
9708 model.variable('var15').remove('Q_Lower_body');
9709 model.variable('var15').remove('Q_Cardiac_vessels');
9710 model.variable('var15').set('Q_spleen', '138*60*24*1e-3 [L/d]');
9711 model.variable('var15').set('Q_liver', '800*60*24*1e-3 [L/d]');
9712 model.variable('var15').set('Q_Upper_body', '138*60*24*1e-3 [L/d]');
9713 model.variable('var15').set('Q_Torso', '220*60*24*1e-3 [L/d]');
9714 model.variable('var15').set('Q_intestin', '468*60*24*1e-3 [L/d]');
9715 model.variable('var15').set('Q_kidney', '630*60*24*1e-3 [L/d]');
9716 model.variable('var15').set('Q_Lower_body', '413*60*24*1e-3 [L/d]');
9717 model.variable('var15').set('Q_Cardiac_vessels', '120*60*24*1e-3 [L/d]');
9718 model.variable('var15').set('Q_brain', '300*60*24*1e-3 [L/d]');
9719 model.variable.create('var16');
9720 model.variable('var16').model('comp1');
9721 model.variable('var16').label('Lymph flow rate');
9722 model.variable('var16').set('L_spleen', '8.7e-4*60*24*1e-3 [L/d]');
9723 model.variable('var16').set('L_liver', '8.7e-2*60*24*1e-3 [L/d]');
9724 model.variable('var16').set('L_Upper_body', '2.6e-2*60*24*1e-3 [L/d]');
9725 model.variable('var16').set('L_Torso', '4.3e-3*60*24*1e-3 [L/d]');
9726 model.variable('var16').set('L_lung', '4.3e-2*60*24*1e-3 [L/d]');
9727 model.variable('var16').set('L_intestin', '3e-1*60*24*1e-3 [L/d]');
9728 model.variable('var16').set('L_kidney', '1e-3*60*24*1e-3 [L/d]');
9729 model.variable('var16').set('L_Lower_body', '1e-3*60*24*1e-3 [L/d]');
9730 model.variable('var16').set('L_Cardiac_vessels', '4.3e-3*60*24*1e-3 [L/d]');
9731 model.variable('var16').set('L_Lspleen', '0 [L/d]');
9732 model.variable('var16').set('L_Lliver', '1.5e-6*60*24*1e-3 [L/d]');
9733 model.variable('var16').set('L_LUpper_body', '1e-3*60*24*1e-3 [L/d]');
9734 model.variable('var16').set('L_LTorso', '1e-3*60*24*1e-3 [L/d]');
9735 model.variable('var16').set('L_Llung', '1.8e-6*60*24*1e-3 [L/d]');
9736 model.variable('var16').set('L_Lintestin', '1e-3*60*24*1e-3 [L/d]');
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 9737 model.variable('var16').set('L_Ltumor', '1e-3*1.1*60*24*1e-3 [L/d]');
 9738 model.variable('var16').set('L_LLower_body', '1e-3*60*24*1e-3 [L/d]');
 9739 model.variable('var16').set('L_brain', '1e-3*60*24*1e-3 [L/d]');
 9740 model.variable('var16').set('L_Lkidney', '1e-3*60*24*1e-3 [L/d]');
 9741 model.variable('var16').set('L_Lbrain', '1e-3*60*24*1e-3 [L/d]');
 9742 model.variable.create('var17');
 9743 model.variable('var17').model('comp1');
 9744 model.variable('var17').label('Vascular volume');
 9745 model.variable('var17').set('vv_spleen', '17*1e-3 [L]');
 9746 model.variable('var17').set('vv_liver', '180.9*1e-3 [L]');
 9747 model.variable('var17').set('vv_Upper_body', '150*1e-3 [L]');
 9748 model.variable('var17').set('vv_Torso', '462*1e-3 [L]');
 9749 model.variable('var17').set('vv_lung', '99.9*1e-3 [L]');
 9750 model.variable('var17').set('vv_intestin', '43*1e-3 [L]');
 9751 model.variable('var17').set('vv_Lower_body', '700*1e-3 [L]');
 9752 model.variable('var17').set('vv_brain', '150*1e-3 [L]');
 9753 model.variable('var17').set('vv_kidney', '28.4*1e-3 [L]');
 9754 model.variable('var17').set('vv_Cardiac_vessels', '100*1e-3 [L]');
 9755 model.variable('var17').set('vv_ventricle', '200*1e-3 [L]');
 9756 model.variable.create('var18');
 9757 model.variable('var18').model('comp1');
 9758 model.variable('var18').label('just to develop');
 9759 model.variable('var18').set('freeTcell_traffickidney', '1');
 9760 model.variable('var18').set('freeTcell_trafficTorso', '1');
 9761 model.variable('var18').set('freeTcell_trafficspleen', '1');
 9762 model.variable('var18').set('freeTcell_traffictbrain', ' 1');
 9763 model.variable('var18').set('freeTcell_trafficLower_body', '1');
 9764 model.variable('var18').set('freeTcell_trafficintestine', '1');
 9765 model.variable('var18').set('freeTcell_trafficliver', '1');
 9766 model.variable('var18').set('freeTcell_trafficUpper_body', '1');
 9767 model.variable('var1').set('Ko2', '3.3e-8[cm^2/min/mmHg]*((ec/ec0)^8)');
 9768 model.variable.create('var19');
 9769 model.variable('var19').model('comp1');
 9770 model.variable('var19').set('Q_lung', ↙
'L_lung+Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+ ↙
Q_brain+Q_Cardiac_vessels+Q_Lnode');
 9771 model.variable('var19').set('Q_tumor', '0');
 9772
 9773 model.sol('sol54').runFromTo('st1', 'v1');
 9774
 9775 model.result('pg1').run;
 9776
 9777 model.variable('var19').set('Q_Lnode', '0');
 9778 model.variable('var19').set('L_tumor', '0');
 9779
 9780 model.physics.create('dode', 'DomainODE', 'geom1', {'u36'});
 9781
 9782 model.study('std1').feature('param').activate('dode', true);
 9783 model.study('std1').feature('time').activate('dode', true);
 9784
```

```
 9785 model.physics('dode').label('free virus in Left ventricle, Arterial blood');
 9786 model.physics('dode').feature('dode1').setIndex('f', '((Q_lung-L_lung)*y(6)- ↙
(Q_liver+L_intestin+L_spleen+Q_kidney', 0);
 9787 model.physics('dode').feature('dode1').setIndex('f', '((Q_lung-L_lung)*y(6)- ↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y(5))/vv_ventricle', 0);
 9788 model.physics.remove('dode');
 9789
 9790 model.variable.create('var20');
 9791 model.variable('var20').model('comp1');
 9792 model.variable('var20').set('f5', '((Q_lung-L_lung)*y6- ↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y5)/vv_ventricle');
 9793 model.variable('var20').set('f78', '((Q_Lnode/8-L_Llung)*y(10)+(Q_liver-L_liver) ↙
*y14+(Q_Lnode/8-L_Lliver)*y(34)+(Q_Lnode/8-L_Ltumor)*y(38)+(Q_tumor-L_tumor)*y(1)+ ↙
(Q_Lnode/8-L_LTorso)*y(42)+(Q_Torso-L_Torso)*y26+(Q_Lnode/8-L_LUpper_body)*y(46)+ ↙
(Q_Upper_body-L_Upper_body)*y22+(Q_Lnode/8-L_LLower_body)*y(50)+(Q_Lower_body- ↙
L_Lower_body)*y54+(Q_Lnode/8-L_Lbrain)*y(58)+(Q_brain-L_brain)*y62+(Q_Lnode/8- ↙
L_Lkidney)*y(66)+(Q_kidney-L_kidney)*y70+(Q_Cardiac_vessels-L_Cardiac_vessels) ↙
*y74+L_Cardiac_vessels*y(77)*rf_Cardiac_vessels+(L_lung+L_Llung)*y(13)*rf_Llung+ ↙
(L_liver+L_spleen+L_intestin+L_Lliver)*y(37)*rf_Lintestin+(L_tumor+L_Ltumor)* ↙
(rf_Ltumor*y(41)*heaviside(-y(41)+500)+1*y(41)*heaviside(y(41)-501))+(L_Torso+L_LTorso) ↙
*y(45)*rf_LTorso+(L_Upper_body+L_LUpper_body)*y(49)*rf_LUpper_body+ ↙
(L_LLower_body+L_Lower_body)*y(53)*rf_LLower_body+(L_Lbrain+L_brain)*y(61)*rf_Lbrain+ ↙
(L_Lkidney+L_kidney)*y(69)*rf_Lkidney-(Q_lung)*y78)/vv_ventricle');
 9794 model.variable('var20').set('f85', '((Q_lung-L_lung)*y105- ↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y85)/vv_ventricle');
 9795 model.variable('var20').set('f86', '((Q_Lnode/8-L_Llung)*y(106)+(Q_liver-L_liver) ↙
*y107+(Q_Lnode/8-L_Lliver)*y(112)+((Q_Lnode/8-L_Ltumor)*y(113))+(Q_tumor-L_tumor)*y ↙
(104)+(Q_Lnode/8-L_LTorso)*y(114)+(Q_Torso-L_Torso)*y110+(Q_Lnode/8-L_LUpper_body)*y ↙
(115)+(Q_Upper_body-L_Upper_body)*y109+(Q_Lnode/8-L_LLower_body)*y(116)+(Q_Lower_body- ↙
L_Lower_body)*y117+(Q_Lnode/8-L_Lbrain)*y(118)+(Q_brain-L_brain)*y119+(Q_Lnode/8- ↙
L_Lkidney)*y(120)+(Q_kidney-L_kidney)*y121+(Q_Cardiac_vessels-L_Cardiac_vessels)*y124+ ↙
(L_Cardiac_vessels*y125*rf_kidney)*heaviside(y125-1e-3*first)+(L_lung+L_Llung)*y(99) ↙
*rf_aLlung+(L_liver+L_spleen+L_intestin+L_Lliver)*y(101)*rf_aLintestin+ ↙
(L_tumor+L_Ltumor)*y(80)*rf_aLtumor+(L_Torso+L_LTorso)*y(89)*rf_aLTorso+ ↙
(L_Upper_body+L_LUpper_body)*y(91)*rf_aLUpper_body+(L_LLower_body+L_Lower_body)*y(93) ↙
*rf_aLLower_body+(L_Lbrain+L_brain)*y(95)*rf_aLbrain+(L_Lkidney+L_kidney)*y(97) ↙
*rf_aLkidney-(Q_lung)*y86*heaviside(y86-1e-3*first))/vv_ventricle');
 9796 model.variable('var20').set('f6', '(Q_lung*y78-(Q_lung-L_lung)*y6- ↙
ka_lung*y100*y6*vv_lung+kd_lung*y7*vv_lung-disinf_lung*y6*vv_lung)/vv_lung');
 9797 model.variable('var20').set('f7', '(ka_lung*y100*y6*vv_lung- ↙
kd_lung*y7*vv_lung+p_lung/kk*y7*vv_lung-disinfa_lung*y7*vv_lung)/vv_lung');
 9798 model.variable('var20').set('f105', '(Q_lung*y86-(Q_lung-L_lung) ↙
*y105+mt_lung*ac*y7/(y100+1)*vv_lung-d_lung*y105*vv_lung)/vv_lung');
 9799 model.variable('var20').set('f100', '-ka_lung*y100*y6+kd_lung*y7');
 9800 model.variable('var20').set('f14', '((Q_intestin-L_intestin)*y30+(Q_spleen- ↙
L_spleen)*y18+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen) ↙
*y5*freeTcell_traffickliver-(Q_liver-L_liver)*y14- ↙
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ka_liver*y87*y14*vv_liver+kd_liver*y15*vv_liver-disinf_liver*y14*vv_liver)/vv_liver');
 9801 model.variable('var20').set('f15', '(ka_liver*y87*y14*vv_liver-↙
kd_liver*y15*vv_liver+p_liver/kk*y15*vv_liver-disinfa_liver*y15*vv_liver)/vv_liver;');
 9802 model.variable('var20').set('f107', '((Q_intestin-L_intestin)*y111+(Q_spleen-↙
L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85-(Q_liver-L_liver)↙
*y107+mt_liver*ac*y15/(y87+1)*vv_liver-d_liver*y107*vv_liver)/vv_liver');
 9803 model.variable('var20').set('f87', '-ka_liver*y87*y14+kd_liver*y15');
 9804 model.variable('var20').set('f18', '(Q_spleen*y5*freeTcell_traficspleen-↙
(Q_spleen-L_spleen)*y18-ka_spleen*y102*y18*vv_spleen+kd_spleen*y19*vv_spleen-↙
disinf_spleen*y18*vv_spleen)/vv_spleen');
 9805 model.variable('var20').set('f19', '(ka_spleen*y102*y18*vv_spleen-↙
kd_spleen*y19*vv_spleen+p_spleen/kk*y19*vv_spleen-disinfa_spleen*y19*vv_spleen)↙
/vv_spleen');
 9806 model.variable('var20').set('f108', '(Q_spleen*y85-(Q_spleen-L_spleen)↙
*y108+mt_spleen*ac*y19/(y102+1)*vv_spleen-d_spleen*y108*vv_spleen)/vv_spleen');
 9807 model.variable('var20').set('f102', '-ka_spleen*y102*y18+kd_spleen*y19');
 9808 model.variable('var20').set('f22', '(Q_Upper_body*y5*freeTcell_trafficUpper_body-↙
(Q_Upper_body-L_Upper_body)*y22-↙
ka_Upper_body*y92*y22*vv_Upper_body+kd_Upper_body*y23*vv_Upper_body-↙
disinf_Upper_body*y22*vv_Upper_body)/vv_Upper_body');
 9809 model.variable('var20').set('f23', '(ka_Upper_body*y92*y22*vv_Upper_body-↙
kd_Upper_body*y23*vv_Upper_body+p_Upper_body/kk*y23*vv_Upper_body-↙
disinfa_Upper_body*y23*vv_Upper_body)/vv_Upper_body');
 9810 model.variable('var20').set('f109', '(Q_Upper_body*y85-(Q_Upper_body-↙
L_Upper_body)*y109+mt_Upper_body*ac*y23/(y92+1)*vv_Upper_body-↙
d_Upper_body*y109*vv_Upper_body', ')/vv_Upper_body');
 9811 model.variable('var20').set('f92', '-ka_Upper_body*y92*y22+kd_Upper_body*y23');
 9812 model.variable('var20').set('f26', '(Q_Torso*y5*freeTcell_trafficTorso-(Q_Torso-↙
L_Torso)*y26-ka_Torso*y90*y26*vv_Torso+kd_Torso*y27*vv_Torso-disinf_Torso*y26*vv_Torso)↙
/vv_Torso');
 9813 model.variable('var20').set('f27', '(ka_Torso*y90*y26*vv_Torso-↙
kd_Torso*y27*vv_Torso+p_Torso/kk*y27*vv_Torso-disinfa_Torso*y27*vv_Torso)/vv_Torso');
 9814 model.variable('var20').set('f110', '(Q_Torso*y85-(Q_Torso-L_Torso)↙
*y110+mt_Torso*ac*y27/(y90+1)*vv_Torso-d_Torso*y110*vv_Torso)/vv_Torso');
 9815 model.variable('var20').set('f90', '-ka_Torso*y90*y26+kd_Torso*y27');
 9816 model.variable('var20').set('f30', '(Q_intestin*y5*freeTcell_trafficintestine-↙
(Q_intestin-L_intestin)*y30-↙
ka_intestin*y103*y30*vv_intestin+kd_intestin*y31*vv_intestin-↙
disinf_Intestine*y30*vv_intestin)/vv_intestin');
 9817 model.variable('var20').set('f31', '(ka_intestin*y103*y30*vv_intestin-↙
kd_intestin*y31*vv_intestin+p_Intestine/kk*y31*vv_intestin-↙
disinfa_Intestine*y31*vv_intestin)/vv_intestin');
 9818 model.variable('var20').set('f111', '(Q_intestin*y85-(Q_intestin-L_intestin)↙
*y111+mt_Intestine*ac*y31/(y103+1)*vv_intestin', '-d_Intestine*y111*vv_intestin)↙
/vv_intestin');
 9819 model.variable('var20').set('f103', '-ka_intestin*y103*y30+kd_intestin*y31');
 9820 model.variable('var20').set('f54', '(Q_Lower_body*y5*freeTcell_trafficLower_body-↙
(Q_Lower_body-L_Lower_body)*y54-↙
ka_Lower_body*y94*y54*vv_Lower_body+kd_Lower_body*y55*vv_Lower_body-↙
disinf_Lower_body*y54*vv_Lower_body)/vv_Lower_body');
```

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 9821 model.variable('var20').set('f55', '(ka_Lower_body*y94*y54*vv_Lower_body- ↙
kd_Lower_body*y55*vv_Lower_body+p_Lower_body/kk*y55*vv_Lower_body- ↙
disinfa_Lower_body*y55*vv_Lower_body)/vv_Lower_body');
 9822 model.variable('var20').set('f117', '(Q_Lower_body*y85*rf_IL2_Ltumor- ↙
(Q_Lower_body-L_Lower_body)*y117*rf_IL2_Ltumor+mt_Lower_body*ac*y55/(y94+1) ↙
*vv_Lower_body', '-d_Lower_body*y117*vv_Lower_body)/vv_Lower_body');
 9823 model.variable('var20').set('f94', '-ka_Lower_body*y94*y54+kd_Lower_body*y55');
 9824 model.variable('var20').set('f62', '(Q_brain*y5*freeTcell_traffic brain-(Q_brain- ↙
L_brain)*y62-ka_brain*y96*y62*vv_brain+kd_brain*y63*vv_brain-disinf_Brain*y62*vv_brain) ↙
/vv_brain');
 9825 model.variable('var20').set('f63', '(ka_brain*y96*y62*vv_brain- ↙
kd_brain*y63*vv_brain+p_Brain/kk*y63*vv_brain-disinfa_Brain*y63*vv_brain)/vv_brain');
 9826 model.variable('var20').set('f119', '(Q_brain*y85*rf_IL2_Ltumor-(Q_brain-L_brain) ↙
*y119*rf_IL2_Ltumor+mt_Brain*ac*y63/(y96+1)*vv_brain', '-d_Brain*y119*vv_brain) ↙
/vv_brain');
 9827 model.variable('var20').set('f96', '-ka_brain*y96*y62+kd_brain*y63');
 9828 model.variable('var20').set('f70', '(Q_kidney*y5*freeTcell_traffickidney- ↙
(Q_kidney-L_kidney)*y70-ka_kidney*y98*y70*vv_kidney+kd_kidney*y71*vv_kidney- ↙
disinf_kidney*y70*vv_kidney)/vv_kidney');
 9829 model.variable('var20').set('f71', '(ka_kidney*y98*y70*vv_kidney- ↙
kd_kidney*y71*vv_kidney+p_kidney/kk*y71*vv_kidney-disinfa_kidney*y71*vv_kidney) ↙
/vv_kidney');
 9830 model.variable('var20').set('f121', '(Q_kidney*y85*rf_IL2_Ltumor-(Q_kidney- ↙
L_kidney)*y121*rf_IL2_Ltumor+mt_kidney*ac*y71/(y98+1)*vv_kidney- ↙
d_kidney*y121*vv_kidney)/vv_kidney');
 9831 model.variable('var20').set('f98', '-ka_kidney*y98*y70+kd_kidney*y71');
 9832 model.variable('var20').set('f74', '(Q_Cardiac_vessels*y5-(Q_Cardiac_vessels- ↙
L_Cardiac_vessels)*y74- ↙
ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels+kd_Cardiac_vessels*y75*vv_Cardiac_vessel ↙
s-disinf_Cardiac_vessels*y74*vv_Cardiac_vessels)/vv_Cardiac_vessels');
 9833 model.variable('var20').set('f75', ↙
'(ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels- ↙
kd_Cardiac_vessels*y75*vv_Cardiac_vessels+p_Cardiac_vessels/kk*y75*vv_Cardiac_vessels- ↙
disinfa_Cardiac_vessels*y75*vv_Cardiac_vessels)/vv_Cardiac_vessels');
 9834 model.variable('var20').set('f124', '(Q_Cardiac_vessels*y85*rf_IL2_Ltumor- ↙
(Q_Cardiac_vessels-L_Cardiac_vessels)*y124*rf_IL2_Ltumor+mt_Cardiac_vessels*ac*y75/ ↙
(y125+1)*vv_Cardiac_vessels-d_Cardiac_vessels*y124*vv_Cardiac_vessels) ↙
/vv_Cardiac_vessels');
 9835 model.variable('var20').set('f125', '- ↙
ka_Cardiac_vessels*y125*y74+kd_Cardiac_vessels*y75');
 9836 model.variable('var20').set('f15', '(ka_liver*y87*y14*vv_liver- ↙
kd_liver*y15*vv_liver+p_liver/kk*y15*vv_liver-disinfa_liver*y15*vv_liver)/vv_liver');
 9837 model.variable('var20').descr('f109', '');
 9838 model.variable('var20').set('f109', '(Q_Upper_body*y85-(Q_Upper_body- ↙
L_Upper_body)*y109+mt_Upper_body*ac*y23/(y92+1)*vv_Upper_body- ↙
d_Upper_body*y109*vv_Upper_body)/vv_Upper_body');
 9839 model.variable('var20').descr('f111', '');
 9840 model.variable('var20').set('f111', '(Q_intestin*y85-(Q_intestin-L_intestin) ↙
*y111+mt_Intestine*ac*y31/(y103+1)*vv_intestin-d_Intestine*y111*vv_intestin) ↙
/vv_intestin');
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 9841 model.variable('var20').set('f117', '(Q_Lower_body*y85*rf_IL2_Ltumor-↙
(Q_Lower_body-L_Lower_body)*y117*rf_IL2_Ltumor+mt_Lower_body*ac*y55/(y94+1)↙
*vv_Lower_body-d_Lower_body*y117*vv_Lower_body)/vv_Lower_body');
 9842 model.variable('var20').descr('f117', '');
 9843 model.variable('var20').descr('f119', '');
 9844 model.variable('var20').set('f119', '(Q_brain*y85*rf_IL2_Ltumor-(Q_brain-L_brain)↙
*y119*rf_IL2_Ltumor+mt_Brain*ac*y63/(y96+1)*vv_brain-d_Brain*y119*vv_brain)/vv_brain');
 9845
 9846 model.physics.create('dode', 'DomainODE', 'geom1', {'u36'});
 9847
 9848 model.study('std1').feature('param').activate('dode', true);
 9849 model.study('std1').feature('time').activate('dode', true);
 9850
 9851 model.physics('dode').prop('Units').set('DependentVariableQuantity', 'none');
 9852 model.physics('dode').prop('Units').set('CustomDependentVariableUnit', 'mol/L');
 9853 model.physics('dode').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
 9854 model.physics('dode').prop('ShapeProperty').set('order', '1');
 9855 model.physics('dode').field('dimensionless').field('y5');
 9856 model.physics('dode').field('dimensionless').component(1, 'y5');
 9857 model.physics('dode').feature('dode1').setIndex('f', 'f5', 0);
 9858 model.physics.create('dode2', 'DomainODE', 'geom1', {'u36'});
 9859
 9860 model.study('std1').feature('param').activate('dode2', true);
 9861 model.study('std1').feature('time').activate('dode2', true);
 9862
 9863 model.physics('dode2').prop('Units').set('DependentVariableQuantity', 'none');
 9864 model.physics('dode2').prop('Units').set('CustomDependentVariableUnit', 'mol/L');
 9865 model.physics('dode2').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
 9866 model.physics('dode2').prop('ShapeProperty').set('order', '1');
 9867 model.physics('dode2').field('dimensionless').field('y78');
 9868 model.physics('dode2').field('dimensionless').component(1, 'y78');
 9869 model.physics('dode2').feature('dode1').setIndex('f', 'f78', 0);
 9870 model.physics.create('dode3', 'DomainODE', 'geom1', {'u36'});
 9871
 9872 model.study('std1').feature('param').activate('dode3', true);
 9873 model.study('std1').feature('time').activate('dode3', true);
 9874
 9875 model.physics('dode3').prop('Units').set('DependentVariableQuantity', 'none');
 9876 model.physics('dode3').prop('Units').set('CustomDependentVariableUnit', 'mol/L');
 9877 model.physics('dode3').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
 9878 model.physics('dode3').prop('ShapeProperty').set('order', '1');
 9879 model.physics('dode3').field('dimensionless').field('y85');
 9880 model.physics('dode3').field('dimensionless').component(1, 'y85');
 9881 model.physics('dode3').feature('dode1').setIndex('f', 'f85', 0);
 9882 model.physics.create('dode4', 'DomainODE', 'geom1', {'u36'});
 9883
 9884 model.study('std1').feature('param').activate('dode4', true);
 9885 model.study('std1').feature('time').activate('dode4', true);
 9886
 9887 model.physics('dode4').prop('Units').set('DependentVariableQuantity', 'none');
```

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9888 model.physics('dode4').prop('Units').set('CustomDependentVariableUnit', 'mol/L');
9889 model.physics('dode4').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
9890 model.physics('dode4').prop('ShapeProperty').set('order', '1');
9891 model.physics('dode4').field('dimensionless').field('y86');
9892 model.physics('dode4').field('dimensionless').component(1, 'y86');
9893 model.physics('dode4').feature('dode1').setIndex('f', 'f86', 0);
9894 model.physics.create('dode5', 'DomainODE', 'geom1', {'u36'});
9895
9896 model.study('std1').feature('param').activate('dode5', true);
9897 model.study('std1').feature('time').activate('dode5', true);
9898
9899 model.physics('dode5').prop('Units').set('DependentVariableQuantity', 'none');
9900 model.physics('dode5').prop('Units').set('CustomDependentVariableUnit', 'mol/L');
9901 model.physics('dode5').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
9902 model.physics('dode5').prop('ShapeProperty').set('order', '1');
9903 model.physics('dode5').field('dimensionless').field('y6');
9904 model.physics('dode5').field('dimensionless').component(1, 'y6');
9905 model.physics('dode5').feature('dode1').setIndex('f', 'f6', 0);
9906 model.physics.create('dode6', 'DomainODE', 'geom1', {'u36'});
9907
9908 model.study('std1').feature('param').activate('dode6', true);
9909 model.study('std1').feature('time').activate('dode6', true);
9910
9911 model.physics('dode6').prop('Units').set('DependentVariableQuantity', 'none');
9912 model.physics('dode6').prop('Units').set('CustomDependentVariableUnit', 'mol/L');
9913 model.physics('dode6').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
9914 model.physics('dode6').field('dimensionless').field('y7');
9915 model.physics('dode6').field('dimensionless').component(1, 'y7');
9916 model.physics('dode6').prop('ShapeProperty').set('order', '1');
9917 model.physics('dode6').feature('dode1').setIndex('f', 'f7', 0);
9918 model.physics.create('dode7', 'DomainODE', 'geom1', {'u36'});
9919
9920 model.study('std1').feature('param').activate('dode7', true);
9921 model.study('std1').feature('time').activate('dode7', true);
9922
9923 model.physics('dode7').prop('Units').set('DependentVariableQuantity', 'none');
9924 model.physics('dode7').prop('Units').set('CustomDependentVariableUnit', 'mol/L');
9925 model.physics('dode7').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
9926 model.physics('dode7').field('dimensionless').field('y105');
9927 model.physics('dode7').field('dimensionless').component(1, 'y105');
9928 model.physics('dode7').prop('ShapeProperty').set('order', '1');
9929 model.physics('dode7').feature('dode1').setIndex('f', 'f105', 0);
9930 model.physics.create('dode8', 'DomainODE', 'geom1', {'u36'});
9931
9932 model.study('std1').feature('param').activate('dode8', true);
9933 model.study('std1').feature('time').activate('dode8', true);
9934
9935 model.physics('dode8').prop('Units').set('DependentVariableQuantity', 'none');
9936 model.physics('dode8').prop('Units').set('CustomDependentVariableUnit', 'mol/L');
9937 model.physics('dode8').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
```

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 9938 model.physics('dode8').prop('ShapeProperty').set('order', '1');
 9939 model.physics('dode8').field('dimensionless').field('y100');
 9940 model.physics('dode8').field('dimensionless').component(1, 'y100');
 9941 model.physics('dode8').feature('dode1').setIndex('f', 'f100', 0);
 9942
 9943 model.variable('var19').set('ac', '1');
 9944 model.variable('var19').set('kk', '1');
 9945
 9946 model.physics.create('dode9', 'DomainODE', 'geom1', {'u36'});
 9947
 9948 model.study('std1').feature('param').activate('dode9', true);
 9949 model.study('std1').feature('time').activate('dode9', true);
 9950
 9951 model.physics('dode9').prop('Units').set('DependentVariableQuantity', 'none');
 9952 model.physics('dode9').prop('Units').set('CustomDependentVariableUnit', 'mol/L');
 9953 model.physics('dode9').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
 9954 model.physics('dode9').prop('ShapeProperty').set('order', '1');
 9955 model.physics('dode9').field('dimensionless').field('y14');
 9956 model.physics('dode9').field('dimensionless').component(1, 'y14');
 9957 model.physics('dode9').feature('dode1').setIndex('f', 'f14', 0);
 9958 model.physics.create('dode10', 'DomainODE', 'geom1', {'u36'});
 9959
 9960 model.study('std1').feature('param').activate('dode10', true);
 9961 model.study('std1').feature('time').activate('dode10', true);
 9962
 9963 model.physics('dode10').prop('Units').set('DependentVariableQuantity', 'none');
 9964 model.physics('dode10').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
 9965 model.physics('dode10').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
 9966 model.physics('dode10').prop('ShapeProperty').set('order', '1');
 9967 model.physics('dode10').field('dimensionless').field('y15');
 9968 model.physics('dode10').field('dimensionless').component(1, 'y15');
 9969 model.physics('dode10').feature('dode1').setIndex('f', 'f15', 0);
 9970 model.physics.create('dode11', 'DomainODE', 'geom1', {'u36'});
 9971
 9972 model.study('std1').feature('param').activate('dode11', true);
 9973 model.study('std1').feature('time').activate('dode11', true);
 9974
 9975 model.physics('dode11').prop('Units').set('DependentVariableQuantity', 'none');
 9976 model.physics('dode11').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
 9977 model.physics('dode11').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
 9978 model.physics('dode11').prop('ShapeProperty').set('order', '1');
 9979 model.physics('dode11').field('dimensionless').field('y107');
 9980 model.physics('dode11').field('dimensionless').component(1, 'y107');
 9981 model.physics('dode11').feature('dode1').setIndex('f', 'f107', 0);
 9982 model.physics.create('dode12', 'DomainODE', 'geom1', {'u36'});
 9983
 9984 model.study('std1').feature('param').activate('dode12', true);
 9985 model.study('std1').feature('time').activate('dode12', true);
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 9986
 9987 model.physics('dode12').prop('Units').set('DependentVariableQuantity', 'none');
 9988 model.physics('dode12').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
 9989 model.physics('dode12').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
 9990 model.physics('dode12').prop('ShapeProperty').set('order', '1');
 9991 model.physics('dode12').field('dimensionless').field('y87');
 9992 model.physics('dode12').field('dimensionless').component(1, 'y87');
 9993 model.physics('dode12').feature('dode1').setIndex('f', 'f87', 0);
 9994 model.physics.create('dode13', 'DomainODE', 'geom1', {'u36'});
 9995
 9996 model.study('std1').feature('param').activate('dode13', true);
 9997 model.study('std1').feature('time').activate('dode13', true);
 9998
 9999 model.physics('dode13').prop('Units').set('DependentVariableQuantity', 'none');
10000 model.physics('dode13').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10001 model.physics('dode13').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10002 model.physics('dode13').field('dimensionless').field('y18');
10003 model.physics('dode13').field('dimensionless').component(1, 'y18');
10004 model.physics('dode13').prop('ShapeProperty').set('order', '1');
10005 model.physics('dode13').feature('dode1').setIndex('f', 'f18', 0);
10006 model.physics.create('dode14', 'DomainODE', 'geom1', {'u36'});
10007
10008 model.study('std1').feature('param').activate('dode14', true);
10009 model.study('std1').feature('time').activate('dode14', true);
10010
10011 model.physics('dode14').prop('Units').set('DependentVariableQuantity', 'none');
10012 model.physics('dode14').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10013 model.physics('dode14').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10014 model.physics('dode14').field('dimensionless').field('y19');
10015 model.physics('dode14').field('dimensionless').component(1, 'y19');
10016 model.physics('dode14').feature('dode1').setIndex('f', 'f19', 0);
10017 model.physics('dode14').prop('ShapeProperty').set('order', '1');
10018 model.physics.create('dode15', 'DomainODE', 'geom1', {'u36'});
10019
10020 model.study('std1').feature('param').activate('dode15', true);
10021 model.study('std1').feature('time').activate('dode15', true);
10022
10023 model.physics('dode15').prop('Units').set('DependentVariableQuantity', 'none');
10024 model.physics('dode15').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10025 model.physics('dode15').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10026 model.physics('dode15').prop('ShapeProperty').set('order', '1');
10027 model.physics('dode15').field('dimensionless').field('y19');
10028 model.physics('dode15').feature('dode1').setIndex('f', 'f19', 0);
10029 model.physics('dode15').field('dimensionless').field('y108');
10030 model.physics('dode15').feature('dode1').setIndex('f', 'f108', 0);
10031 model.physics.create('dode16', 'DomainODE', 'geom1', {'u36'});
```

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10032
10033 model.study('std1').feature('param').activate('dode16', true);
10034 model.study('std1').feature('time').activate('dode16', true);
10035
10036 model.physics('dode16').prop('Units').set('DependentVariableQuantity', 'none');
10037 model.physics('dode16').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10038 model.physics('dode16').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10039 model.physics('dode16').prop('ShapeProperty').set('order', '1');
10040 model.physics('dode16').field('dimensionless').field('y102');
10041 model.physics('dode16').field('dimensionless').component(1, 'y102');
10042 model.physics('dode16').feature('dode1').setIndex('f', 'f102', 0);
10043 model.physics.create('dode17', 'DomainODE', 'geom1', {'u36'});
10044
10045 model.study('std1').feature('param').activate('dode17', true);
10046 model.study('std1').feature('time').activate('dode17', true);
10047
10048 model.physics('dode17').prop('Units').set('DependentVariableQuantity', 'none');
10049 model.physics('dode17').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10050 model.physics('dode17').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10051 model.physics('dode17').prop('ShapeProperty').set('order', '1');
10052 model.physics('dode17').field('dimensionless').field('y22');
10053 model.physics('dode17').field('dimensionless').component(1, 'y22');
10054 model.physics('dode17').feature('dode1').setIndex('f', 'f22', 0);
10055 model.physics.create('dode18', 'DomainODE', 'geom1', {'u36'});
10056
10057 model.study('std1').feature('param').activate('dode18', true);
10058 model.study('std1').feature('time').activate('dode18', true);
10059
10060 model.physics('dode18').prop('Units').set('DependentVariableQuantity', 'none');
10061 model.physics('dode18').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10062 model.physics('dode18').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10063 model.physics('dode18').prop('ShapeProperty').set('order', '1');
10064 model.physics('dode18').field('dimensionless').field('y23');
10065 model.physics('dode18').field('dimensionless').component(1, 'y23');
10066 model.physics('dode18').feature('dode1').setIndex('f', 'f23', 0);
10067 model.physics.create('dode19', 'DomainODE', 'geom1', {'u36'});
10068
10069 model.study('std1').feature('param').activate('dode19', true);
10070 model.study('std1').feature('time').activate('dode19', true);
10071
10072 model.physics('dode19').prop('Units').set('DependentVariableQuantity', 'none');
10073 model.physics('dode19').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10074 model.physics('dode19').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10075 model.physics('dode19').field('dimensionless').component(1, 'y109');
10076 model.physics('dode19').field('dimensionless').field('y109');
10077 model.physics('dode19').feature('dode1').setIndex('f', 'f109', 0);
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10078 model.physics.create('dode20', 'DomainODE', 'geom1', {'u37'});
10079
10080 model.study('std1').feature('param').activate('dode20', true);
10081 model.study('std1').feature('time').activate('dode20', true);
10082
10083 model.physics('dode20').field('dimensionless').field('u37');
10084 model.physics('dode20').prop('Units').set('DependentVariableQuantity', 'none');
10085 model.physics('dode20').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10086 model.physics('dode20').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10087 model.physics('dode20').prop('ShapeProperty').set('order', '1');
10088 model.physics('dode20').field('dimensionless').field('y92');
10089 model.physics('dode20').field('dimensionless').component(1, 'y92');
10090 model.physics('dode20').feature('dode1').setIndex('f', 'f92', 0);
10091 model.physics.create('dode21', 'DomainODE', 'geom1', {'u36'});
10092
10093 model.study('std1').feature('param').activate('dode21', true);
10094 model.study('std1').feature('time').activate('dode21', true);
10095
10096 model.physics('dode21').prop('Units').set('DependentVariableQuantity', 'none');
10097 model.physics('dode21').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10098 model.physics('dode21').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10099 model.physics('dode21').prop('ShapeProperty').set('order', '1');
10100 model.physics('dode21').field('dimensionless').component(1, 'y26');
10101 model.physics('dode21').field('dimensionless').field('u36');
10102 model.physics('dode21').field('dimensionless').field('y26');
10103 model.physics('dode21').feature('dode1').setIndex('f', 'f26', 0);
10104 model.physics.create('dode22', 'DomainODE', 'geom1', {'u37'});
10105
10106 model.study('std1').feature('param').activate('dode22', true);
10107 model.study('std1').feature('time').activate('dode22', true);
10108
10109 model.physics('dode22').field('dimensionless').field('u37');
10110 model.physics('dode22').prop('Units').set('DependentVariableQuantity', 'none');
10111 model.physics('dode22').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10112 model.physics('dode22').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10113 model.physics('dode22').prop('ShapeProperty').set('order', '1');
10114 model.physics('dode22').field('dimensionless').field('y27');
10115 model.physics('dode22').field('dimensionless').component(1, 'y27');
10116 model.physics('dode22').feature('dode1').setIndex('f', 'f27', 0);
10117 model.physics.create('dode23', 'DomainODE', 'geom1', {'u36'});
10118
10119 model.study('std1').feature('param').activate('dode23', true);
10120 model.study('std1').feature('time').activate('dode23', true);
10121
10122 model.physics('dode23').prop('Units').set('DependentVariableQuantity', 'none');
10123 model.physics('dode23').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
```

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10124 model.physics('dode23').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10125 model.physics('dode23').prop('ShapeProperty').set('order', '1');
10126 model.physics('dode23').field('dimensionless').field('Y110');
10127 model.physics('dode23').field('dimensionless').field('y110');
10128 model.physics('dode23').field('dimensionless').component(1, 'y110');
10129 model.physics('dode23').feature('dode1').setIndex('f', 'f110', 0);
10130 model.physics.create('dode24', 'DomainODE', 'geom1', {'u36'});
10131
10132 model.study('std1').feature('param').activate('dode24', true);
10133 model.study('std1').feature('time').activate('dode24', true);
10134
10135 model.physics('dode24').prop('Units').set('DependentVariableQuantity', 'none');
10136 model.physics('dode24').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10137 model.physics('dode24').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10138 model.physics('dode24').prop('ShapeProperty').set('order', '1');
10139 model.physics('dode24').field('dimensionless').field('y90');
10140 model.physics('dode24').field('dimensionless').component(1, 'y90');
10141 model.physics('dode24').feature('dode1').setIndex('f', 'f90', 0);
10142 model.physics.create('dode25', 'DomainODE', 'geom1', {'u36'});
10143
10144 model.study('std1').feature('param').activate('dode25', true);
10145 model.study('std1').feature('time').activate('dode25', true);
10146
10147 model.physics('dode25').prop('Units').set('DependentVariableQuantity', 'none');
10148 model.physics('dode25').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10149 model.physics('dode25').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10150 model.physics('dode25').prop('ShapeProperty').set('order', '1');
10151 model.physics('dode25').field('dimensionless').field('y30');
10152 model.physics('dode25').field('dimensionless').component(1, 'y30');
10153 model.physics('dode25').feature('dode1').setIndex('f', 'f30', 0);
10154 model.physics.create('dode26', 'DomainODE', 'geom1', {'u36'});
10155
10156 model.study('std1').feature('param').activate('dode26', true);
10157 model.study('std1').feature('time').activate('dode26', true);
10158
10159 model.physics('dode26').prop('Units').set('DependentVariableQuantity', 'none');
10160 model.physics('dode26').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10161 model.physics('dode26').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10162 model.physics('dode26').prop('ShapeProperty').set('order', '1');
10163 model.physics('dode26').field('dimensionless').field('y31');
10164 model.physics('dode26').field('dimensionless').component(1, 'y31');
10165 model.physics('dode26').feature('dode1').setIndex('f', 'f31', 0);
10166 model.physics.create('dode27', 'DomainODE', 'geom1', {'u36'});
10167
10168 model.study('std1').feature('param').activate('dode27', true);
10169 model.study('std1').feature('time').activate('dode27', true);
10170
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10171 model.physics('dode27').prop('Units').set('DependentVariableQuantity', 'none');
10172 model.physics('dode27').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10173 model.physics('dode27').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10174 model.physics('dode27').prop('ShapeProperty').set('order', '1');
10175 model.physics('dode27').field('dimensionless').field('y111');
10176 model.physics('dode27').field('dimensionless').component(1, 'y111');
10177 model.physics('dode27').feature('dode1').setIndex('f', 'f111', 0);
10178 model.physics.create('dode28', 'DomainODE', 'geom1', {'u36'});
10179
10180 model.study('std1').feature('param').activate('dode28', true);
10181 model.study('std1').feature('time').activate('dode28', true);
10182
10183 model.physics('dode28').prop('Units').set('DependentVariableQuantity', 'none');
10184 model.physics('dode28').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10185 model.physics('dode28').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10186 model.physics('dode28').prop('ShapeProperty').set('order', '1');
10187 model.physics('dode28').field('dimensionless').field('y103');
10188 model.physics('dode28').field('dimensionless').component(1, 'y103');
10189 model.physics('dode28').feature('dode1').setIndex('f', 'f103', 0);
10190 model.physics.create('dode29', 'DomainODE', 'geom1', {'u36'});
10191
10192 model.study('std1').feature('param').activate('dode29', true);
10193 model.study('std1').feature('time').activate('dode29', true);
10194
10195 model.physics('dode29').prop('Units').set('DependentVariableQuantity', 'none');
10196 model.physics('dode29').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10197 model.physics('dode29').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10198 model.physics('dode29').prop('ShapeProperty').set('order', '1');
10199 model.physics('dode29').field('dimensionless').field('y54');
10200 model.physics('dode29').field('dimensionless').component(1, 'y54');
10201 model.physics('dode29').feature('dode1').setIndex('f', 'f54', 0);
10202 model.physics.create('dode30', 'DomainODE', 'geom1', {'u36'});
10203
10204 model.study('std1').feature('param').activate('dode30', true);
10205 model.study('std1').feature('time').activate('dode30', true);
10206
10207 model.physics('dode30').prop('Units').set('DependentVariableQuantity', 'none');
10208 model.physics('dode30').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10209 model.physics('dode30').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10210 model.physics('dode30').prop('ShapeProperty').set('order', '1');
10211 model.physics('dode30').field('dimensionless').field('y55');
10212 model.physics('dode30').field('dimensionless').component(1, 'y55');
10213 model.physics('dode30').feature('dode1').setIndex('f', 'f55', 0);
10214 model.physics.create('dode31', 'DomainODE', 'geom1', {'u36'});
10215
10216 model.study('std1').feature('param').activate('dode31', true);
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10217 model.study('std1').feature('time').activate('dode31', true);
10218
10219 model.physics('dode31').prop('Units').set('DependentVariableQuantity', 'none');
10220 model.physics('dode31').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10221 model.physics('dode31').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10222 model.physics('dode31').prop('ShapeProperty').set('order', '1');
10223 model.physics('dode31').field('dimensionless').field('y117');
10224 model.physics('dode31').field('dimensionless').component(1, 'y117');
10225 model.physics('dode31').feature('dode1').setIndex('f', 'f117', 0);
10226 model.physics.create('dode32', 'DomainODE', 'geom1', {'u36'});
10227
10228 model.study('std1').feature('param').activate('dode32', true);
10229 model.study('std1').feature('time').activate('dode32', true);
10230
10231 model.physics('dode32').prop('Units').set('DependentVariableQuantity', 'none');
10232 model.physics('dode32').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10233 model.physics('dode32').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10234 model.physics('dode32').prop('ShapeProperty').set('order', '1');
10235 model.physics('dode32').field('dimensionless').field('y94');
10236 model.physics('dode32').field('dimensionless').component(1, 'y94');
10237 model.physics('dode32').feature('dode1').setIndex('f', 'f94', 0);
10238 model.physics.create('dode33', 'DomainODE', 'geom1', {'u36'});
10239
10240 model.study('std1').feature('param').activate('dode33', true);
10241 model.study('std1').feature('time').activate('dode33', true);
10242
10243 model.physics('dode33').prop('Units').set('DependentVariableQuantity', 'none');
10244 model.physics('dode33').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10245 model.physics('dode33').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10246 model.physics('dode33').prop('ShapeProperty').set('order', '1');
10247 model.physics('dode33').field('dimensionless').field('y6');
10248 model.physics('dode33').field('dimensionless').field('y62');
10249 model.physics('dode33').feature('dode1').setIndex('f', 'f62', 0);
10250 model.physics.create('dode34', 'DomainODE', 'geom1', {'u36'});
10251
10252 model.study('std1').feature('param').activate('dode34', true);
10253 model.study('std1').feature('time').activate('dode34', true);
10254
10255 model.physics('dode34').prop('Units').set('DependentVariableQuantity', 'none');
10256 model.physics('dode34').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10257 model.physics('dode34').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10258 model.physics('dode34').prop('ShapeProperty').set('order', '1');
10259 model.physics('dode34').field('dimensionless').field('y63');
10260 model.physics('dode34').field('dimensionless').component(1, 'y63');
10261 model.physics('dode34').feature('dode1').setIndex('f', 'f63', 0);
10262 model.physics.create('dode35', 'DomainODE', 'geom1', {'u36'});
```

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10263
10264 model.study('std1').feature('param').activate('dode35', true);
10265 model.study('std1').feature('time').activate('dode35', true);
10266
10267 model.physics('dode35').prop('Units').set('DependentVariableQuantity', 'none');
10268 model.physics('dode35').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10269 model.physics('dode35').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10270 model.physics('dode35').prop('ShapeProperty').set('order', '1');
10271 model.physics('dode35').field('dimensionless').field('y119');
10272 model.physics('dode35').field('dimensionless').component(1, 'y1198');
10273 model.physics('dode35').field('dimensionless').component(1, 'y119');
10274 model.physics('dode35').feature('dode1').setIndex('f', 'f119', 0);
10275 model.physics.create('dode36', 'DomainODE', 'geom1', {'u36'});
10276
10277 model.study('std1').feature('param').activate('dode36', true);
10278 model.study('std1').feature('time').activate('dode36', true);
10279
10280 model.physics('dode36').prop('Units').set('DependentVariableQuantity', 'none');
10281 model.physics('dode36').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10282 model.physics('dode36').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10283 model.physics('dode36').prop('ShapeProperty').set('order', '1');
10284 model.physics('dode36').field('dimensionless').field('y96');
10285 model.physics('dode36').field('dimensionless').component(1, 'y96');
10286 model.physics('dode36').field('dimensionless').field('y70');
10287 model.physics('dode36').field('dimensionless').component(1, 'y70');
10288 model.physics('dode36').feature('dode1').setIndex('f', 'f70', 0);
10289 model.physics.create('dode37', 'DomainODE', 'geom1', {'u36'});
10290
10291 model.study('std1').feature('param').activate('dode37', true);
10292 model.study('std1').feature('time').activate('dode37', true);
10293
10294 model.physics('dode37').prop('Units').set('DependentVariableQuantity', 'none');
10295 model.physics('dode37').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10296 model.physics('dode37').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10297 model.physics('dode37').field('dimensionless').field('y71');
10298 model.physics('dode37').field('dimensionless').component(1, 'y71');
10299 model.physics('dode37').feature('dode1').setIndex('f', 'f71', 0);
10300 model.physics.create('dode38', 'DomainODE', 'geom1', {'u36'});
10301
10302 model.study('std1').feature('param').activate('dode38', true);
10303 model.study('std1').feature('time').activate('dode38', true);
10304
10305 model.physics('dode38').prop('Units').set('DependentVariableQuantity', 'none');
10306 model.physics('dode38').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10307 model.physics('dode38').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10308 model.physics('dode38').prop('ShapeProperty').set('order', '1');
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10309 model.physics('dode38').field('dimensionless').field('y121');
10310 model.physics('dode38').field('dimensionless').component(1, 'y121');
10311 model.physics('dode38').feature('dode1').setIndex('f', 'f121', 0);
10312 model.physics.create('dode39', 'DomainODE', 'geom1', {'u36'});
10313
10314 model.study('std1').feature('param').activate('dode39', true);
10315 model.study('std1').feature('time').activate('dode39', true);
10316
10317 model.physics('dode39').prop('Units').set('DependentVariableQuantity', 'none');
10318 model.physics('dode39').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10319 model.physics('dode39').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10320 model.physics('dode39').prop('ShapeProperty').set('order', '1');
10321 model.physics('dode39').field('dimensionless').field('y98');
10322 model.physics('dode39').field('dimensionless').component(1, 'y98');
10323 model.physics('dode39').feature('dode1').setIndex('f', 'f98', 0);
10324 model.physics.create('dode40', 'DomainODE', 'geom1', {'u36'});
10325
10326 model.study('std1').feature('param').activate('dode40', true);
10327 model.study('std1').feature('time').activate('dode40', true);
10328
10329 model.physics('dode40').prop('Units').set('DependentVariableQuantity', 'none');
10330 model.physics('dode40').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10331 model.physics('dode40').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10332 model.physics('dode40').prop('ShapeProperty').set('order', '1');
10333 model.physics('dode40').field('dimensionless').field('y74');
10334 model.physics('dode40').field('dimensionless').component(1, 'y74');
10335 model.physics('dode40').feature('dode1').setIndex('f', 'f74', 0);
10336 model.physics.create('dode41', 'DomainODE', 'geom1', {'u36'});
10337
10338 model.study('std1').feature('param').activate('dode41', true);
10339 model.study('std1').feature('time').activate('dode41', true);
10340
10341 model.physics('dode41').prop('Units').set('DependentVariableQuantity', 'none');
10342 model.physics('dode41').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10343 model.physics('dode41').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10344 model.physics('dode41').prop('ShapeProperty').set('order', '1');
10345 model.physics('dode41').field('dimensionless').field('y75');
10346 model.physics('dode41').field('dimensionless').component(1, 'y75');
10347 model.physics('dode41').feature('dode1').setIndex('f', 'f75', 0);
10348 model.physics.create('dode42', 'DomainODE', 'geom1', {'u36'});
10349
10350 model.study('std1').feature('param').activate('dode42', true);
10351 model.study('std1').feature('time').activate('dode42', true);
10352
10353 model.physics('dode42').prop('Units').set('DependentVariableQuantity', 'none');
10354 model.physics('dode42').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
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model.physics('dode42').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
model.physics('dode42').prop('ShapeProperty').set('order', '1');
model.physics('dode42').field('dimensionless').field('y124');
model.physics('dode42').field('dimensionless').component(1, 'y124');
model.physics('dode42').feature('dode1').setIndex('f', 'f124', 0);
model.physics.create('dode43', 'DomainODE', 'geom1', {'u36'});

model.study('std1').feature('param').activate('dode43', true);
model.study('std1').feature('time').activate('dode43', true);

model.physics('dode43').prop('Units').set('DependentVariableQuantity', 'none');
model.physics('dode43').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
model.physics('dode43').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
model.physics('dode43').prop('ShapeProperty').set('order', '1');
model.physics('dode43').field('dimensionless').field('y125');
model.physics('dode43').field('dimensionless').component(1, 'y125');
model.physics('dode43').feature('dode1').setIndex('f', 'f125', 0);

model.sol('sol54').runFromTo('st1', 'v1');

model.result('pg1').run;

model.variable('var20').set('aaa', 'y125-1e-3*first');
model.variable('var20').remove('aaa');
model.variable('var20').remove('f125');
model.variable.remove('var20');
model.variable.create('var20');
model.variable('var20').model('comp1');
model.variable('var20').set('f5', '((Q_lung-L_lung)*y6-↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y5)/vv_ventricle');
model.variable('var20').set('f78', '((Q_Lnode/8-L_Llung)*', 'y10+(Q_liver-↙
L_liver)*y14+(Q_Lnode/8-L_Lliver)* y34+(Q_Lnode/8-L_Ltumor)* y38+(Q_tumor-L_tumor)* y1+ ↙
(Q_Lnode/8-L_LTorso)* y42+(Q_Torso-L_Torso)*y26+(Q_Lnode/8-L_LUpper_body)* y46+ ↙
(Q_Upper_body-L_Upper_body)*y22+(Q_Lnode/8-L_LLower_body)*y50+(Q_Lower_body-↙
L_Lower_body)*y54+(Q_Lnode/8-L_Lbrain)*y58+(Q_brain-L_brain)*y62+(Q_Lnode/8-L_Lkidney) ↙
*y66+(Q_kidney-L_kidney)*y70+(Q_Cardiac_vessels-L_Cardiac_vessels) ↙
*y74+L_Cardiac_vessels*y77*rf_Cardiac_vessels+(L_lung+L_Llung)*y13*rf_Llung+ ↙
(L_liver+L_spleen+L_intestin+L_Lliver)*y37*rf_Lintestin+(L_tumor+L_Ltumor)*↙
(rf_Ltumor*y41*heaviside(-y41+500)+1*y41*heaviside(y41-501))+(L_Torso+L_LTorso) ↙
*y45*rf_LTorso+(L_Upper_body+L_LUpper_body)*y49*rf_LUpper_body+ ↙
(L_LLower_body+L_Lower_body)*y53*rf_LLower_body+(L_Lbrain+L_brain)*y61*rf_Lbrain+ ↙
(L_Lkidney+L_kidney)*y69*rf_Lkidney-(Q_lung)*y78)/vv_ventricle');
model.variable('var20').set('f85', '((Q_lung-L_lung)*y105-↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y85)/vv_ventricle');
model.variable('var20').set('f86', '((Q_Lnode/8-L_Llung)*y106+(Q_liver-L_liver) ↙
*y107+(Q_Lnode/8-L_Lliver)*y112+((Q_Lnode/8-L_Ltumor)*y113)+(Q_tumor-L_tumor)*y104+ ↙
(Q_Lnode/8-L_LTorso)*y114+(Q_Torso-L_Torso)*y110+(Q_Lnode/8-L_LUpper_body)*y115+ ↙
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(Q_Upper_body-L_Upper_body)*y109+(Q_Lnode/8-L_LLower_body)*y116+(Q_Lower_body-
L_Lower_body)*y117+(Q_Lnode/8-L_Lbrain)*y118+(Q_brain-L_brain)*y119+(Q_Lnode/8-
L_Lkidney)*y120+(Q_kidney-L_kidney)*y121+(Q_Cardiac_vessels-L_Cardiac_vessels)*y124+
(L_Cardiac_vessels*y125*rf_kidney)*heaviside(y125-1e-3*first)+(L_lung+L_Llung)
*y99*rf_aLlung+(L_liver+L_spleen+L_intestin+L_Lliver)*y101*rf_aLintestin+
(L_tumor+L_Ltumor)*y80*rf_aLtumor+(L_Torso+L_LTorso)*y89*rf_aLTorso+
(L_Upper_body+L_LUpper_body)*y91*rf_aLUpper_body+(L_LLower_body+L_Lower_body)
*y93*rf_aLLower_body+(L_Lbrain+L_brain)*y95*rf_aLbrain+(L_Lkidney+L_kidney)
*y97*rf_aLkidney-(Q_lung)*y86*heaviside(y86-1e-3*first))/vv_ventricle');
10387 model.variable('var20').set('f6', '(Q_lung*y78-(Q_lung-L_lung)*y6-
ka_lung*y100*y6*vv_lung+kd_lung*y7*vv_lung-disinf_lung*y6*vv_lung)/vv_lung');
10388 model.variable('var20').set('f7', '(ka_lung*y100*y6*vv_lung-
kd_lung*y7*vv_lung+p_lung/kk*y7*vv_lung-disinfa_lung*y7*vv_lung)/vv_lung');
10389 model.variable('var20').set('f105', '(Q_lung*y86-(Q_lung-L_lung)
*y105+mt_lung*ac*y7/(y100+1)*vv_lung-d_lung*y105*vv_lung)/vv_lung');
10390 model.variable('var20').set('f100', '-ka_lung*y100*y6+kd_lung*y7');
10391 model.variable('var20').set('f14', '((Q_intestin-L_intestin)*y30+(Q_spleen-
L_spleen)*y18+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)
*y5*freeTcell_traffic liver-(Q_liver-L_liver)*y14-
ka_liver*y87*y14*vv_liver+kd_liver*y15*vv_liver-disinf_liver*y14*vv_liver)/vv_liver');
10392 model.variable('var20').set('f15', '(ka_liver*y87*y14*vv_liver-
kd_liver*y15*vv_liver+p_liver/kk*y15*vv_liver-disinfa_liver*y15*vv_liver)/vv_liver;');
10393 model.variable('var20').set('f107', '((Q_intestin-L_intestin)*y111+(Q_spleen-
L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85-(Q_liver-L_liver)
*y107+mt_liver*ac*y15/(y87+1)*vv_liver-d_liver*y107*vv_liver)/vv_liver');
10394 model.variable('var20').set('f87', '-ka_liver*y87*y14+kd_liver*y15');
10395 model.variable('var20').set('f18', '(Q_spleen*y5*freeTcell_trafficspleen-
(Q_spleen-L_spleen)*y18-ka_spleen*y102*y18*vv_spleen+kd_spleen*y19*vv_spleen-
disinf_spleen*y18*vv_spleen)/vv_spleen');
10396 model.variable('var20').set('f19', '(ka_spleen*y102*y18*vv_spleen-
kd_spleen*y19*vv_spleen+p_spleen/kk*y19*vv_spleen-disinfa_spleen*y19*vv_spleen)
/vv_spleen');
10397 model.variable('var20').set('f108', '(Q_spleen*y85-(Q_spleen-L_spleen)
*y108+mt_spleen*ac*y19/(y102+1)*vv_spleen-d_spleen*y108*vv_spleen)/vv_spleen');
10398 model.variable('var20').set('f102', '-ka_spleen*y102*y18+kd_spleen*y19');
10399 model.variable('var20').set('f22', '(Q_Upper_body*y5*freeTcell_trafficUpper_body-
(Q_Upper_body-L_Upper_body)*y22-
ka_Upper_body*y92*y22*vv_Upper_body+kd_Upper_body*y23*vv_Upper_body-
disinf_Upper_body*y22*vv_Upper_body)/vv_Upper_body');
10400 model.variable('var20').set('f23', '(ka_Upper_body*y92*y22*vv_Upper_body-
kd_Upper_body*y23*vv_Upper_body+p_Upper_body/kk*y23*vv_Upper_body-
disinfa_Upper_body*y23*vv_Upper_body)/vv_Upper_body');
10401 model.variable('var20').set('f109', '(Q_Upper_body*y85-(Q_Upper_body-
L_Upper_body)*y109+mt_Upper_body*ac*y23/(y92+1)*vv_Upper_body-
d_Upper_body*y109*vv_Upper_body)/vv_Upper_body');
10402 model.variable('var20').set('f92', '-ka_Upper_body*y92*y22+kd_Upper_body*y23');
10403 model.variable('var20').set('f26', '(Q_Torso*y5*freeTcell_trafficTorso-(Q_Torso-
L_Torso)*y26-ka_Torso*y90*y26*vv_Torso+kd_Torso*y27*vv_Torso-disinf_Torso*y26*vv_Torso)
/vv_Torso');
10404 model.variable('var20').set('f27', '(ka_Torso*y90*y26*vv_Torso-
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kd_Torso*y27*vv_Torso+p_Torso/kk*y27*vv_Torso-disinfa_Torso*y27*vv_Torso)/vv_Torso');
10405 model.variable('var20').set('f110', '(Q_Torso*y85-(Q_Torso-L_Torso) ↙
*y110+mt_Torso*ac*y27/(y90+1)*vv_Torso-d_Torso*y110*vv_Torso)/vv_Torso');
10406 model.variable('var20').set('f90', '-ka_Torso*y90*y26+kd_Torso*y27');
10407 model.variable('var20').set('f30', '(Q_intestin*y5*freeTcell_trafficintestine- ↙
(Q_intestin-L_intestin)*y30-↙
ka_intestin*y103*y30*vv_intestin+kd_intestin*y31*vv_intestin- ↙
disinf_Intestine*y30*vv_intestin)/vv_intestin');
10408 model.variable('var20').set('f31', '(ka_intestin*y103*y30*vv_intestin- ↙
kd_intestin*y31*vv_intestin+p_Intestine/kk*y31*vv_intestin- ↙
disinfa_Intestine*y31*vv_intestin)/vv_intestin');
10409 model.variable('var20').set('f111', '(Q_intestin*y85-(Q_intestin-L_intestin) ↙
*y111+mt_Intestine*ac*y31/(y103+1)*vv_intestin', '-d_Intestine*y111*vv_intestin) ↙
/vv_intestin');
10410 model.variable('var20').set('f103', '-ka_intestin*y103*y30+kd_intestin*y31');
10411 model.variable('var20').set('f54', '(Q_Lower_body*y5*freeTcell_trafficLower_body- ↙
(Q_Lower_body-L_Lower_body)*y54-↙
ka_Lower_body*y94*y54*vv_Lower_body+kd_Lower_body*y55*vv_Lower_body- ↙
disinf_Lower_body*y54*vv_Lower_body)/vv_Lower_body');
10412 model.variable('var20').set('f55', '(ka_Lower_body*y94*y54*vv_Lower_body- ↙
kd_Lower_body*y55*vv_Lower_body+p_Lower_body/kk*y55*vv_Lower_body- ↙
disinfa_Lower_body*y55*vv_Lower_body)/vv_Lower_body');
10413 model.variable('var20').set('f117', '(Q_Lower_body*y85*rf_IL2_Ltumor- ↙
(Q_Lower_body-L_Lower_body)*y117*rf_IL2_Ltumor+mt_Lower_body*ac*y55/(y94+1) ↙
*vv_Lower_body', '-d_Lower_body*y117*vv_Lower_body)/vv_Lower_body');
10414 model.variable('var20').set('f94', '-ka_Lower_body*y94*y54+kd_Lower_body*y55');
10415 model.variable('var20').set('f62', '(Q_brain*y5*freeTcell_trafficbrain-(Q_brain- ↙
L_brain)*y62-ka_brain*y96*y62*vv_brain+kd_brain*y63*vv_brain-disinf_Brain*y62*vv_brain) ↙
/vv_brain');
10416 model.variable('var20').set('f63', '(ka_brain*y96*y62*vv_brain- ↙
kd_brain*y63*vv_brain+p_Brain/kk*y63*vv_brain-disinfa_Brain*y63*vv_brain)/vv_brain');
10417 model.variable('var20').set('f119', '(Q_brain*y85*rf_IL2_Ltumor-(Q_brain-L_brain) ↙
*y119*rf_IL2_Ltumor+mt_Brain*ac*y63/(y96+1)*vv_brain', '-d_Brain*y119*vv_brain) ↙
/vv_brain');
10418 model.variable('var20').set('f96', '-ka_brain*y96*y62+kd_brain*y63');
10419 model.variable('var20').set('f70', '(Q_kidney*y5*freeTcell_traffickidney- ↙
(Q_kidney-L_kidney)*y70-ka_kidney*y98*y70*vv_kidney+kd_kidney*y71*vv_kidney- ↙
disinf_kidney*y70*vv_kidney)/vv_kidney');
10420 model.variable('var20').set('f71', '(ka_kidney*y98*y70*vv_kidney- ↙
kd_kidney*y71*vv_kidney+p_kidney/kk*y71*vv_kidney-disinfa_kidney*y71*vv_kidney) ↙
/vv_kidney');
10421 model.variable('var20').set('f121', '(Q_kidney*y85*rf_IL2_Ltumor-(Q_kidney- ↙
L_kidney)*y121*rf_IL2_Ltumor+mt_kidney*ac*y71/(y98+1)*vv_kidney- ↙
d_kidney*y121*vv_kidney)/vv_kidney');
10422 model.variable('var20').set('f98', '-ka_kidney*y98*y70+kd_kidney*y71');
10423 model.variable('var20').set('f74', '(Q_Cardiac_vessels*y5-(Q_Cardiac_vessels- ↙
L_Cardiac_vessels)*y74-↙
ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels+kd_Cardiac_vessels*y75*vv_Cardiac_vessel ↙
s-disinf_Cardiac_vessels*y74*vv_Cardiac_vessels)/vv_Cardiac_vessels');
10424 model.variable('var20').set('f75', ↙
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'(ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels-
kd_Cardiac_vessels*y75*vv_Cardiac_vessels+p_Cardiac_vessels/kk*y75*vv_Cardiac_vessels-
disinfa_Cardiac_vessels*y75*vv_Cardiac_vessels)/vv_Cardiac_vessels');
10425 model.variable('var20').set('f124', '(Q_Cardiac_vessels*y85*rf_IL2_Ltumor-
(Q_Cardiac_vessels-L_Cardiac_vessels)*y124*rf_IL2_Ltumor+mt_Cardiac_vessels*ac*y75/
(y125+1)*vv_Cardiac_vessels-d_Cardiac_vessels*y124*vv_Cardiac_vessels)
/vv_Cardiac_vessels');
10426 model.variable('var20').set('f125', '-
ka_Cardiac_vessels*y125*y74+kd_Cardiac_vessels*y75');
10427 model.variable('var20').descr('f78', '');
10428 model.variable('var20').set('f78', '((Q_Lnode/8-L_Llung)*y10+(Q_liver-L_liver)
*y14+(Q_Lnode/8-L_Lliver)* y34+(Q_Lnode/8-L_Ltumor)* y38+(Q_tumor-L_tumor)* y1+
(Q_Lnode/8-L_LTorso)* y42+(Q_Torso-L_Torso)*y26+(Q_Lnode/8-L_LUpper_body)* y46+
(Q_Upper_body-L_Upper_body)*y22+(Q_Lnode/8-L_LLower_body)*y50+(Q_Lower_body-
L_Lower_body)*y54+(Q_Lnode/8-L_Lbrain)*y58+(Q_brain-L_brain)*y62+(Q_Lnode/8-L_Lkidney)
*y66+(Q_kidney-L_kidney)*y70+(Q_Cardiac_vessels-L_Cardiac_vessels)
*y74+L_Cardiac_vessels*y77*rf_Cardiac_vessels+(L_lung+L_Llung)*y13*rf_Llung+
(L_liver+L_spleen+L_intestin+L_Lliver)*y37*rf_Lintestin+(L_tumor+L_Ltumor)*
(rf_Ltumor*y41*heaviside(-y41+500)+1*y41*heaviside(y41-501))+(L_Torso+L_LTorso)
*y45*rf_LTorso+(L_Upper_body+L_LUpper_body)*y49*rf_LUpper_body+
(L_LLower_body+L_Lower_body)*y53*rf_LLower_body+(L_Lbrain+L_brain)*y61*rf_Lbrain+
(L_Lkidney+L_kidney)*y69*rf_Lkidney-(Q_lung)*y78)/vv_ventricle');
10429 model.variable('var20').set('f15', '(ka_liver*y87*y14*vv_liver-
kd_liver*y15*vv_liver+p_liver/kk*y15*vv_liver-disinfa_liver*y15*vv_liver)/vv_liver');
10430 model.variable('var20').descr('f111', '');
10431 model.variable('var20').set('f111', '(Q_intestin*y85-(Q_intestin-L_intestin)
*y111+mt_Intestine*ac*y31/(y103+1)*vv_intestin-d_Intestine*y111*vv_intestin)
/vv_intestin');
10432 model.variable('var20').descr('f117', '');
10433 model.variable('var20').set('f117', '(Q_Lower_body*y85*rf_IL2_Ltumor-
(Q_Lower_body-L_Lower_body)*y117*rf_IL2_Ltumor+mt_Lower_body*ac*y55/(y94+1)
*vv_Lower_body-d_Lower_body*y117*vv_Lower_body)/vv_Lower_body');
10434 model.variable('var20').descr('f119', '');
10435 model.variable('var20').set('f119', '(Q_brain*y85*rf_IL2_Ltumor-(Q_brain-L_brain)
*y119*rf_IL2_Ltumor+mt_Brain*ac*y63/(y96+1)*vv_brain-d_Brain*y119*vv_brain)/vv_brain');
10436 model.variable.create('var21');
10437 model.variable('var21').model('comp1');
10438 model.variable('var21').label('zero');
10439 model.variable('var21').set('y10', '0');
10440 model.variable('var21').set('y34', '0');
10441 model.variable('var21').set('y38', '0');
10442 model.variable('var21').set('y1', '0');
10443 model.variable('var21').set('y42', '0');
10444 model.variable('var21').set('y46', '0');
10445 model.variable('var21').set('y50', '0');
10446 model.variable('var21').set('y58', '0');
10447 model.variable('var21').set('y66', '0');
10448 model.variable('var21').set('y77', '0');
10449 model.variable('var21').set('y13', '0');
10450 model.variable('var21').set('y37', '0');
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10451 model.variable('var21').set('y41', '0');
10452 model.variable('var21').set('y45', '0');
10453 model.variable('var21').set('y49', '0');
10454 model.variable('var21').set('y53', '0');
10455 model.variable('var21').set('y61', '0');
10456 model.variable('var21').set('y69', '0');
10457 model.variable('var21').set('y106', '0');
10458 model.variable('var21').set('y112', '0');
10459 model.variable('var21').set('y113', '0');
10460 model.variable('var21').set('y104', '0');
10461 model.variable('var21').set('y114', '0');
10462 model.variable('var21').set('y115', '0');
10463 model.variable('var21').set('y116', '0');
10464 model.variable('var21').set('y118', '0');
10465 model.variable('var21').set('y120', '0');
10466 model.variable('var21').set('y99', '0');
10467 model.variable('var21').set('y101', '0');
10468 model.variable('var21').set('y80', '0');
10469 model.variable('var21').set('y89', '0');
10470 model.variable('var21').set('y91', '0');
10471 model.variable('var21').set('y93', '0');
10472 model.variable('var21').set('y95', '0');
10473 model.variable('var21').set('y97', '0');
10474
10475 model.physics('dode5').feature('init1').set('y6', '1');
10476 model.physics('dode8').feature('init1').set('y100', '1');
10477 model.physics('dode12').feature('init1').set('y87', '1');
10478 model.physics('dode43').feature('init1').set('y125', '1');
10479 model.physics('dode39').feature('init1').set('y98', '1');
10480 model.physics.create('dode44', 'DomainODE', 'geom1', {'u36'});
10481
10482 model.study('std1').feature('param').activate('dode44', true);
10483 model.study('std1').feature('time').activate('dode44', true);
10484
10485 model.physics('dode44').prop('Units').set('DependentVariableQuantity', 'none');
10486 model.physics('dode44').prop('Units').set('CustomDependentVariableUnit', ↙
'mol/L');
10487 model.physics('dode44').prop('Units').set('CustomSourceTermUnit', 'mol/L/min');
10488 model.physics('dode44').prop('ShapeProperty').set('order', '1');
10489 model.physics('dode44').field('dimensionless').field('y96');
10490 model.physics('dode44').field('dimensionless').component(1, 'y96');
10491 model.physics('dode44').feature('dode1').setIndex('f', 'f96', 0);
10492 model.physics('dode44').feature('init1').set('y96', '1');
10493 model.physics('dode32').feature('init1').set('y94', '1');
10494 model.physics('dode28').feature('init1').set('y103', '1');
10495 model.physics('dode24').feature('init1').set('y90', '1');
10496 model.physics('dode20').feature('init1').set('y92', '1');
10497 model.physics('dode16').feature('init1').set('y102', '1');
10498
10499 model.sol('sol54').runFromTo('st1', 'v1');
```

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10500
10501 model.result('pg1').run;
10502
10503 model.physics('dode19').prop('ShapeProperty').set('order', '1');
10504 model.physics('dode37').prop('ShapeProperty').set('order', '1');
10505
10506 model.label('Baseline_solution_Time step_new therapy_oxygen_flow.mph');
10507
10508 model.sol('sol54').runFromTo('st1', 'v1');
10509
10510 model.result('pg1').run;
10511
10512 model.variable('var15').label('Blood flow rate');
10513 model.variable('var21').set('heaviside', '0');
10514 model.variable('var21').remove('heaviside');
10515 model.variable('var20').remove('f5');
10516 model.variable('var20').remove('f78');
10517 model.variable('var20').remove('f85');
10518 model.variable('var20').remove('f86');
10519 model.variable('var20').remove('f6');
10520 model.variable('var20').remove('f7');
10521 model.variable('var20').remove('f105');
10522 model.variable.remove('var20');
10523 model.variable.create('var22');
10524 model.variable('var22').model('comp1');
10525 model.variable('var22').set('f5', '((Q_lung-L_lung)*y6-↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y5)/vv_ventricle');
10526 model.variable('var22').set('f78', '((Q_Lnode/8-L_Llung)*y10+(Q_liver-L_liver) ↙
*y14+(Q_Lnode/8-L_Lliver)* y34+(Q_Lnode/8-L_Ltumor)* y38+(Q_tumor-L_tumor)* y1+ ↙
(Q_Lnode/8-L_LTorso)* y42+(Q_Torso-L_Torso)*y26+(Q_Lnode/8-L_LUpper_body)* y46+ ↙
(Q_Upper_body-L_Upper_body)*y22+(Q_Lnode/8-L_LLower_body)*y50+(Q_Lower_body- ↙
L_Lower_body)*y54+(Q_Lnode/8-L_Lbrain)*y58+(Q_brain-L_brain)*y62+(Q_Lnode/8-L_Lkidney) ↙
*y66+(Q_kidney-L_kidney)*y70+(Q_Cardiac_vessels-L_Cardiac_vessels) ↙
*y74+L_Cardiac_vessels*y77*rf_Cardiac_vessels+(L_lung+L_Llung)*y13*rf_Llung+ ↙
(L_liver+L_spleen+L_intestin+L_Lliver)*y37*rf_Lintestin+(L_tumor+L_Ltumor)* ↙
(rf_Ltumor*y41*1(-y41+500)+1*y41*1(y41-501))+(L_Torso+L_LTorso)*y45*rf_LTorso+ ↙
(L_Upper_body+L_LUpper_body)*y49*rf_LUpper_body+(L_LLower_body+L_Lower_body) ↙
*y53*rf_LLower_body+(L_Lbrain+L_brain)*y61*rf_Lbrain+(L_Lkidney+L_kidney) ↙
*y69*rf_Lkidney-(Q_lung)*y78)/vv_ventricle');
10527 model.variable('var22').set('f85', '((Q_lung-L_lung)*y105-↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y85)/vv_ventricle');
10528 model.variable('var22').set('f86', '((Q_Lnode/8-L_Llung)*y106+(Q_liver-L_liver) ↙
*y107+(Q_Lnode/8-L_Lliver)*y112+((Q_Lnode/8-L_Ltumor)*y113)+(Q_tumor-L_tumor)*y104+ ↙
(Q_Lnode/8-L_LTorso)*y114+(Q_Torso-L_Torso)*y110+(Q_Lnode/8-L_LUpper_body)*y115+ ↙
(Q_Upper_body-L_Upper_body)*y109+(Q_Lnode/8-L_LLower_body)*y116+(Q_Lower_body- ↙
L_Lower_body)*y117+(Q_Lnode/8-L_Lbrain)*y118+(Q_brain-L_brain)*y119+(Q_Lnode/8- ↙
L_Lkidney)*y120+(Q_kidney-L_kidney)*y121+(Q_Cardiac_vessels-L_Cardiac_vessels)*y124+ ↙
(L_Cardiac_vessels*y125*rf_kidney)*1(y125-1e-3*first)+(L_lung+L_Llung)*y99*rf_aLlung+ ↙
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(L_liver+L_spleen+L_intestin+L_Lliver)*y101*rf_aLintestin+(L_tumor+L_Ltumor) ↙
*y80*rf_aLtumor+(L_Torso+L_LTorso)*y89*rf_aLTorso+(L_Upper_body+L_LUpper_body) ↙
*y91*rf_aLUpper_body+(L_LLower_body+L_Lower_body)*y93*rf_aLLower_body+ ↙
(L_Lbrain+L_brain)*y95*rf_aLbrain+(L_Lkidney+L_kidney)*y97*rf_aLkidney-(Q_lung)*y86*1 ↙
(y86-1e-3*first))/vv_ventricle');
10529 model.variable('var22').set('f6', '(Q_lung*y78-(Q_lung-L_lung)*y6- ↙
ka_lung*y100*y6*vv_lung+kd_lung*y7*vv_lung-disinf_lung*y6*vv_lung)/vv_lung');
10530 model.variable('var22').set('f7', '(ka_lung*y100*y6*vv_lung- ↙
kd_lung*y7*vv_lung+p_lung/kk*y7*vv_lung-disinfa_lung*y7*vv_lung)/vv_lung');
10531 model.variable('var22').set('f105', '(Q_lung*y86-(Q_lung-L_lung) ↙
*y105+mt_lung*ac*y7/(y100+1)*vv_lung-d_lung*y105*vv_lung)/vv_lung');
10532 model.variable('var22').set('f100', '-ka_lung*y100*y6+kd_lung*y7');
10533 model.variable('var22').set('f14', '((Q_intestin-L_intestin)*y30+(Q_spleen- ↙
L_spleen)*y18+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen) ↙
*y5*freeTcell_traffICliver-(Q_liver-L_liver)*y14- ↙
ka_liver*y87*y14*vv_liver+kd_liver*y15*vv_liver-disinf_liver*y14*vv_liver)/vv_liver');
10534 model.variable('var22').set('f15', '(ka_liver*y87*y14*vv_liver- ↙
kd_liver*y15*vv_liver+p_liver/kk*y15*vv_liver-disinfa_liver*y15*vv_liver)/vv_liver');
10535 model.variable('var22').set('f107', '((Q_intestin-L_intestin)*y111+(Q_spleen- ↙
L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85-(Q_liver-L_liver) ↙
*y107+mt_liver*ac*y15/(y87+1)*vv_liver-d_liver*y107*vv_liver)/vv_liver');
10536 model.variable('var22').set('f87', '-ka_liver*y87*y14+kd_liver*y15');
10537 model.variable('var22').set('f18', '(Q_spleen*y5*freeTcell_traffICspleen- ↙
(Q_spleen-L_spleen)*y18-ka_spleen*y102*y18*vv_spleen+kd_spleen*y19*vv_spleen- ↙
disinf_spleen*y18*vv_spleen)/vv_spleen');
10538 model.variable('var22').set('f19', '(ka_spleen*y102*y18*vv_spleen- ↙
kd_spleen*y19*vv_spleen+p_spleen/kk*y19*vv_spleen-disinfa_spleen*y19*vv_spleen) ↙
/vv_spleen');
10539 model.variable('var22').set('f108', '(Q_spleen*y85-(Q_spleen-L_spleen) ↙
*y108+mt_spleen*ac*y19/(y102+1)*vv_spleen-d_spleen*y108*vv_spleen)/vv_spleen');
10540 model.variable('var22').set('f102', '-ka_spleen*y102*y18+kd_spleen*y19');
10541 model.variable('var22').set('f22', '(Q_Upper_body*y5*freeTcell_traffICUpper_body- ↙
(Q_Upper_body-L_Upper_body)*y22- ↙
ka_Upper_body*y92*y22*vv_Upper_body+kd_Upper_body*y23*vv_Upper_body- ↙
disinf_Upper_body*y22*vv_Upper_body)/vv_Upper_body');
10542 model.variable('var22').set('f23', '(ka_Upper_body*y92*y22*vv_Upper_body- ↙
kd_Upper_body*y23*vv_Upper_body+p_Upper_body/kk*y23*vv_Upper_body- ↙
disinfa_Upper_body*y23*vv_Upper_body)/vv_Upper_body');
10543 model.variable('var22').set('f109', '(Q_Upper_body*y85-(Q_Upper_body- ↙
L_Upper_body)*y109+mt_Upper_body*ac*y23/(y92+1)*vv_Upper_body- ↙
d_Upper_body*y109*vv_Upper_body)/vv_Upper_body');
10544 model.variable('var22').set('f92', '-ka_Upper_body*y92*y22+kd_Upper_body*y23');
10545 model.variable('var22').set('f26', '(Q_Torso*y5*freeTcell_traffICTorso-(Q_Torso- ↙
L_Torso)*y26-ka_Torso*y90*y26*vv_Torso+kd_Torso*y27*vv_Torso-disinf_Torso*y26*vv_Torso) ↙
/vv_Torso');
10546 model.variable('var22').set('f27', '(ka_Torso*y90*y26*vv_Torso- ↙
kd_Torso*y27*vv_Torso+p_Torso/kk*y27*vv_Torso-disinfa_Torso*y27*vv_Torso)/vv_Torso');
10547 model.variable('var22').set('f110', '(Q_Torso*y85-(Q_Torso-L_Torso) ↙
*y110+mt_Torso*ac*y27/(y90+1)*vv_Torso-d_Torso*y110*vv_Torso)/vv_Torso');
10548 model.variable('var22').set('f90', '-ka_Torso*y90*y26+kd_Torso*y27');
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10549 model.variable('var22').set('f30', '(Q_intestin*y5*freeTcell_trafficintestine- ↙
(Q_intestin-L_intestin)*y30-↙
ka_intestin*y103*y30*vv_intestin+kd_intestin*y31*vv_intestin-↙
disinf_Intestine*y30*vv_intestin)/vv_intestin');
10550 model.variable('var22').set('f31', '(ka_intestin*y103*y30*vv_intestin-↙
kd_intestin*y31*vv_intestin+p_Intestine/kk*y31*vv_intestin-↙
disinfa_Intestine*y31*vv_intestin)/vv_intestin');
10551 model.variable('var22').set('f111', '(Q_intestin*y85-(Q_intestin-L_intestin) ↙
*y111+mt_Intestine*ac*y31/(y103+1)*vv_intestin-d_Intestine*y111*vv_intestin) ↙
/vv_intestin');
10552 model.variable('var22').set('f103', '-ka_intestin*y103*y30+kd_intestin*y31');
10553 model.variable('var22').set('f54', '(Q_Lower_body*y5*freeTcell_trafficLower_body- ↙
(Q_Lower_body-L_Lower_body)*y54-↙
ka_Lower_body*y94*y54*vv_Lower_body+kd_Lower_body*y55*vv_Lower_body-↙
disinf_Lower_body*y54*vv_Lower_body)/vv_Lower_body');
10554 model.variable('var22').set('f55', '(ka_Lower_body*y94*y54*vv_Lower_body-↙
kd_Lower_body*y55*vv_Lower_body+p_Lower_body/kk*y55*vv_Lower_body-↙
disinfa_Lower_body*y55*vv_Lower_body)/vv_Lower_body');
10555 model.variable('var22').set('f117', '(Q_Lower_body*y85*rf_IL2_Ltumor-↙
(Q_Lower_body-L_Lower_body)*y117*rf_IL2_Ltumor+mt_Lower_body*ac*y55/(y94+1) ↙
*vv_Lower_body-d_Lower_body*y117*vv_Lower_body)/vv_Lower_body');
10556 model.variable('var22').set('f94', '-ka_Lower_body*y94*y54+kd_Lower_body*y55');
10557 model.variable('var22').set('f62', '(Q_brain*y5*freeTcell_traffictbrain-(Q_brain- ↙
L_brain)*y62-ka_brain*y96*y62*vv_brain+kd_brain*y63*vv_brain-disinf_Brain*y62*vv_brain) ↙
/vv_brain');
10558 model.variable('var22').set('f63', '(ka_brain*y96*y62*vv_brain-↙
kd_brain*y63*vv_brain+p_Brain/kk*y63*vv_brain-disinfa_Brain*y63*vv_brain)/vv_brain');
10559 model.variable('var22').set('f119', '(Q_brain*y85*rf_IL2_Ltumor-(Q_brain-L_brain) ↙
*y119*rf_IL2_Ltumor+mt_Brain*ac*y63/(y96+1)*vv_brain-d_Brain*y119*vv_brain)/vv_brain');
10560 model.variable('var22').set('f96', '-ka_brain*y96*y62+kd_brain*y63');
10561 model.variable('var22').set('f70', '(Q_kidney*y5*freeTcell_traffickidney-↙
(Q_kidney-L_kidney)*y70-ka_kidney*y98*y70*vv_kidney+kd_kidney*y71*vv_kidney-↙
disinf_kidney*y70*vv_kidney)/vv_kidney');
10562 model.variable('var22').set('f71', '(ka_kidney*y98*y70*vv_kidney-↙
kd_kidney*y71*vv_kidney+p_kidney/kk*y71*vv_kidney-disinfa_kidney*y71*vv_kidney) ↙
/vv_kidney');
10563 model.variable('var22').set('f121', '(Q_kidney*y85*rf_IL2_Ltumor-(Q_kidney-↙
L_kidney)*y121*rf_IL2_Ltumor+mt_kidney*ac*y71/(y98+1)*vv_kidney-↙
d_kidney*y121*vv_kidney)/vv_kidney');
10564 model.variable('var22').set('f98', '-ka_kidney*y98*y70+kd_kidney*y71');
10565 model.variable('var22').set('f74', '(Q_Cardiac_vessels*y5-(Q_Cardiac_vessels-↙
L_Cardiac_vessels)*y74-↙
ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels+kd_Cardiac_vessels*y75*vv_Cardiac_vessel ↙
s-disinf_Cardiac_vessels*y74*vv_Cardiac_vessels)/vv_Cardiac_vessels');
10566 model.variable('var22').set('f75',↙
'(ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels-↙
kd_Cardiac_vessels*y75*vv_Cardiac_vessels+p_Cardiac_vessels/kk*y75*vv_Cardiac_vessels-↙
disinfa_Cardiac_vessels*y75*vv_Cardiac_vessels)/vv_Cardiac_vessels');
10567 model.variable('var22').set('f124', '(Q_Cardiac_vessels*y85*rf_IL2_Ltumor-↙
(Q_Cardiac_vessels-L_Cardiac_vessels)*y124*rf_IL2_Ltumor+mt_Cardiac_vessels*ac*y75/ ↙
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(y125+1)*vv_Cardiac_vessels-d_Cardiac_vessels*y124*vv_Cardiac_vessels) ↙
/vv_Cardiac_vessels');
10568 model.variable('var22').set('f125', '- ↙
ka_Cardiac_vessels*y125*y74+kd_Cardiac_vessels*y75');
10569 model.variable.remove('var22');
10570 model.variable.create('var22');
10571 model.variable('var22').model('comp1');
10572 model.variable('var22').set('f5', '((Q_lung-L_lung)*y6- ↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y5)/vv_ventricle');
10573 model.variable('var22').set('f78', '((Q_Lnode/8-L_Llung)*y10+(Q_liver-L_liver) ↙
*y14+(Q_Lnode/8-L_Lliver)* y34+(Q_Lnode/8-L_Ltumor)* y38+(Q_tumor-L_tumor)* y1+ ↙
(Q_Lnode/8-L_LTorso)* y42+(Q_Torso-L_Torso)*y26+(Q_Lnode/8-L_LUpper_body)* y46+ ↙
(Q_Upper_body-L_Upper_body)*y22+(Q_Lnode/8-L_LLower_body)*y50+(Q_Lower_body- ↙
L_Lower_body)*y54+(Q_Lnode/8-L_Lbrain)*y58+(Q_brain-L_brain)*y62+(Q_Lnode/8-L_Lkidney) ↙
*y66+(Q_kidney-L_kidney)*y70+(Q_Cardiac_vessels-L_Cardiac_vessels) ↙
*y74+L_Cardiac_vessels*y77*rf_Cardiac_vessels+(L_lung+L_Llung)*y13*rf_Llung+ ↙
(L_liver+L_spleen+L_intestin+L_Lliver)*y37*rf_Lintestin+(L_tumor+L_Ltumor)* ↙
(rf_Ltumor*y41*heaviside(-y41+500)+1*y41*heaviside(y41-501))+(L_Torso+L_LTorso) ↙
*y45*rf_LTorso+(L_Upper_body+L_LUpper_body)*y49*rf_LUpper_body+ ↙
(L_LLower_body+L_Lower_body)*y53*rf_LLower_body+(L_Lbrain+L_brain)*y61*rf_Lbrain+ ↙
(L_Lkidney+L_kidney)*y69*rf_Lkidney-(Q_lung)*y78)/vv_ventricle');
10574 model.variable('var22').set('f85', '((Q_lung-L_lung)*y105- ↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y85)/vv_ventricle');
10575 model.variable('var22').set('f86', '((Q_Lnode/8-L_Llung)*y106+(Q_liver-L_liver) ↙
*y107+(Q_Lnode/8-L_Lliver)*y112+((Q_Lnode/8-L_Ltumor)*y113)+(Q_tumor-L_tumor)*y104+ ↙
(Q_Lnode/8-L_LTorso)*y114+(Q_Torso-L_Torso)*y110+(Q_Lnode/8-L_LUpper_body)*y115+ ↙
(Q_Upper_body-L_Upper_body)*y109+(Q_Lnode/8-L_LLower_body)*y116+(Q_Lower_body- ↙
L_Lower_body)*y117+(Q_Lnode/8-L_Lbrain)*y118+(Q_brain-L_brain)*y119+(Q_Lnode/8- ↙
L_Lkidney)*y120+(Q_kidney-L_kidney)*y121+(Q_Cardiac_vessels-L_Cardiac_vessels)*y124+ ↙
(L_Cardiac_vessels*y125*rf_kidney)*heaviside(y125-1e-3*first)+(L_lung+L_Llung) ↙
*y99*rf_aLlung+(L_liver+L_spleen+L_intestin+L_Lliver)*y101*rf_aLintestin+ ↙
(L_tumor+L_Ltumor)*y80*rf_aLtumor+(L_Torso+L_LTorso)*y89*rf_aLTorso+ ↙
(L_Upper_body+L_LUpper_body)*y91*rf_aLUpper_body+(L_LLower_body+L_Lower_body) ↙
*y93*rf_aLLower_body+(L_Lbrain+L_brain)*y95*rf_aLbrain+(L_Lkidney+L_kidney) ↙
*y97*rf_aLkidney-(Q_lung)*y86*heaviside(y86-1e-3*first))/vv_ventricle');
10576 model.variable('var22').set('f6', '(Q_lung*y78-(Q_lung-L_lung)*y6- ↙
ka_lung*y100*y6*vv_lung+kd_lung*y7*vv_lung-disinf_lung*y6*vv_lung)/vv_lung');
10577 model.variable('var22').set('f7', '(ka_lung*y100*y6*vv_lung- ↙
kd_lung*y7*vv_lung+p_lung/kk*y7*vv_lung-disinfa_lung*y7*vv_lung)/vv_lung');
10578 model.variable('var22').set('f105', '(Q_lung*y86-(Q_lung-L_lung) ↙
*y105+mt_lung*ac*y7/(y100+1)*vv_lung-d_lung*y105*vv_lung)/vv_lung');
10579 model.variable('var22').set('f100', '-ka_lung*y100*y6+kd_lung*y7');
10580 model.variable('var22').set('f14', '((Q_intestin-L_intestin)*y30+(Q_spleen- ↙
L_spleen)*y18+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen) ↙
*y5*freeTcell_traffic liver-(Q_liver-L_liver)*y14- ↙
ka_liver*y87*y14*vv_liver+kd_liver*y15*vv_liver-disinf_liver*y14*vv_liver)/vv_liver');
10581 model.variable('var22').set('f15', '(ka_liver*y87*y14*vv_liver- ↙
kd_liver*y15*vv_liver+p_liver/kk*y15*vv_liver-disinfa_liver*y15*vv_liver)/vv_liver');
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10582 model.variable('var22').set('f107', '((Q_intestin-L_intestin)*y111+(Q_spleen-
L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85-(Q_liver-L_liver)
*y107+mt_liver*ac*y15/(y87+1)*vv_liver-d_liver*y107*vv_liver)/vv_liver');
10583 model.variable('var22').set('f87', '-ka_liver*y87*y14+kd_liver*y15');
10584 model.variable('var22').set('f18', '(Q_spleen*y5*freeTcell_trafficspleen-
(Q_spleen-L_spleen)*y18-ka_spleen*y102*y18*vv_spleen+kd_spleen*y19*vv_spleen-
disinf_spleen*y18*vv_spleen)/vv_spleen');
10585 model.variable('var22').set('f19', '(ka_spleen*y102*y18*vv_spleen-
kd_spleen*y19*vv_spleen+p_spleen/kk*y19*vv_spleen-disinfa_spleen*y19*vv_spleen)
/vv_spleen');
10586 model.variable('var22').set('f108', '(Q_spleen*y85-(Q_spleen-L_spleen)
*y108+mt_spleen*ac*y19/(y102+1)*vv_spleen-d_spleen*y108*vv_spleen)/vv_spleen');
10587 model.variable('var22').set('f102', '-ka_spleen*y102*y18+kd_spleen*y19');
10588 model.variable('var22').set('f22', '(Q_Upper_body*y5*freeTcell_trafficUpper_body-
(Q_Upper_body-L_Upper_body)*y22-
ka_Upper_body*y92*y22*vv_Upper_body+kd_Upper_body*y23*vv_Upper_body-
disinf_Upper_body*y22*vv_Upper_body)/vv_Upper_body');
10589 model.variable('var22').set('f23', '(ka_Upper_body*y92*y22*vv_Upper_body-
kd_Upper_body*y23*vv_Upper_body+p_Upper_body/kk*y23*vv_Upper_body-
disinfa_Upper_body*y23*vv_Upper_body)/vv_Upper_body');
10590 model.variable('var22').set('f109', '(Q_Upper_body*y85-(Q_Upper_body-
L_Upper_body)*y109+mt_Upper_body*ac*y23/(y92+1)*vv_Upper_body-
d_Upper_body*y109*vv_Upper_body)/vv_Upper_body');
10591 model.variable('var22').set('f92', '-ka_Upper_body*y92*y22+kd_Upper_body*y23');
10592 model.variable('var22').set('f26', '(Q_Torso*y5*freeTcell_trafficTorso-(Q_Torso-
L_Torso)*y26-ka_Torso*y90*y26*vv_Torso+kd_Torso*y27*vv_Torso-disinf_Torso*y26*vv_Torso)
/vv_Torso');
10593 model.variable('var22').set('f27', '(ka_Torso*y90*y26*vv_Torso-
kd_Torso*y27*vv_Torso+p_Torso/kk*y27*vv_Torso-disinfa_Torso*y27*vv_Torso)/vv_Torso');
10594 model.variable('var22').set('f110', '(Q_Torso*y85-(Q_Torso-L_Torso)
*y110+mt_Torso*ac*y27/(y90+1)*vv_Torso-d_Torso*y110*vv_Torso)/vv_Torso');
10595 model.variable('var22').set('f90', '-ka_Torso*y90*y26+kd_Torso*y27');
10596 model.variable('var22').set('f30', '(Q_intestin*y5*freeTcell_trafficintestine-
(Q_intestin-L_intestin)*y30-
ka_intestin*y103*y30*vv_intestin+kd_intestin*y31*vv_intestin-
disinf_Intestine*y30*vv_intestin)/vv_intestin');
10597 model.variable('var22').set('f31', '(ka_intestin*y103*y30*vv_intestin-
kd_intestin*y31*vv_intestin+p_Intestine/kk*y31*vv_intestin-
disinfa_Intestine*y31*vv_intestin)/vv_intestin');
10598 model.variable('var22').set('f111', '(Q_intestin*y85-(Q_intestin-L_intestin)
*y111+mt_Intestine*ac*y31/(y103+1)*vv_intestin-d_Intestine*y111*vv_intestin)
/vv_intestin');
10599 model.variable('var22').set('f103', '-ka_intestin*y103*y30+kd_intestin*y31');
10600 model.variable('var22').set('f54', '(Q_Lower_body*y5*freeTcell_trafficLower_body-
(Q_Lower_body-L_Lower_body)*y54-
ka_Lower_body*y94*y54*vv_Lower_body+kd_Lower_body*y55*vv_Lower_body-
disinf_Lower_body*y54*vv_Lower_body)/vv_Lower_body');
10601 model.variable('var22').set('f55', '(ka_Lower_body*y94*y54*vv_Lower_body-
kd_Lower_body*y55*vv_Lower_body+p_Lower_body/kk*y55*vv_Lower_body-
disinfa_Lower_body*y55*vv_Lower_body)/vv_Lower_body');
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10602 model.variable('var22').set('f117', '(Q_Lower_body*y85*rf_IL2_Ltumor-↙
(Q_Lower_body-L_Lower_body)*y117*rf_IL2_Ltumor+mt_Lower_body*ac*y55/(y94+1) ↙
*vv_Lower_body-d_Lower_body*y117*vv_Lower_body)/vv_Lower_body');
10603 model.variable('var22').set('f94', '-ka_Lower_body*y94*y54+kd_Lower_body*y55');
10604 model.variable('var22').set('f62', '(Q_brain*y5*freeTcell_traffic brain-(Q_brain- ↙
L_brain)*y62-ka_brain*y96*y62*vv_brain+kd_brain*y63*vv_brain-disinf_Brain*y62*vv_brain) ↙
/vv_brain');
10605 model.variable('var22').set('f63', '(ka_brain*y96*y62*vv_brain- ↙
kd_brain*y63*vv_brain+p_Brain/kk*y63*vv_brain-disinfa_Brain*y63*vv_brain)/vv_brain');
10606 model.variable('var22').set('f119', '(Q_brain*y85*rf_IL2_Ltumor-(Q_brain-L_brain) ↙
*y119*rf_IL2_Ltumor+mt_Brain*ac*y63/(y96+1)*vv_brain-d_Brain*y119*vv_brain)/vv_brain');
10607 model.variable('var22').set('f96', '-ka_brain*y96*y62+kd_brain*y63');
10608 model.variable('var22').set('f70', '(Q_kidney*y5*freeTcell_traffickidney- ↙
(Q_kidney-L_kidney)*y70-ka_kidney*y98*y70*vv_kidney+kd_kidney*y71*vv_kidney- ↙
disinf_kidney*y70*vv_kidney)/vv_kidney');
10609 model.variable('var22').set('f71', '(ka_kidney*y98*y70*vv_kidney- ↙
kd_kidney*y71*vv_kidney+p_kidney/kk*y71*vv_kidney-disinfa_kidney*y71*vv_kidney) ↙
/vv_kidney');
10610 model.variable('var22').set('f121', '(Q_kidney*y85*rf_IL2_Ltumor-(Q_kidney- ↙
L_kidney)*y121*rf_IL2_Ltumor+mt_kidney*ac*y71/(y98+1)*vv_kidney- ↙
d_kidney*y121*vv_kidney)/vv_kidney');
10611 model.variable('var22').set('f98', '-ka_kidney*y98*y70+kd_kidney*y71');
10612 model.variable('var22').set('f74', '(Q_Cardiac_vessels*y5-(Q_Cardiac_vessels- ↙
L_Cardiac_vessels)*y74-↙
ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels+kd_Cardiac_vessels*y75*vv_Cardiac_vessel ↙
s-disinf_Cardiac_vessels*y74*vv_Cardiac_vessels)/vv_Cardiac_vessels');
10613 model.variable('var22').set('f75',↙
'(ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels- ↙
kd_Cardiac_vessels*y75*vv_Cardiac_vessels+p_Cardiac_vessels/kk*y75*vv_Cardiac_vessels- ↙
disinfa_Cardiac_vessels*y75*vv_Cardiac_vessels)/vv_Cardiac_vessels');
10614 model.variable('var22').set('f124', '(Q_Cardiac_vessels*y85*rf_IL2_Ltumor- ↙
(Q_Cardiac_vessels-L_Cardiac_vessels)*y124*rf_IL2_Ltumor+mt_Cardiac_vessels*ac*y75/ ↙
(y125+1)*vv_Cardiac_vessels-d_Cardiac_vessels*y124*vv_Cardiac_vessels) ↙
/vv_Cardiac_vessels');
10615 model.variable('var22').set('f125', '- ↙
ka_Cardiac_vessels*y125*y74+kd_Cardiac_vessels*y75');
10616
10617 model.func.create('step1', 'Step');
10618 model.func('step1').model('comp1');
10619 model.func('step1').set('funcname', 'heaviside');
10620
10621 model.variable('var21').set('first', '1');
10622
10623 model.sol('sol54').runAll;
10624
10625 model.result('pg1').run;
10626 model.result('pg1').setIndex('looplevel', '19', 0);
10627 model.result('pg1').run;
10628 model.result('pg1').run;
10629 model.result('pg1').feature('slc1').set('expr', 'y3');
```

```
10630 model.result('pg1').run;
10631 model.result('pg1').feature('slc1').set('expr', 'y5');
10632 model.result('pg1').run;
10633 model.result('pg1').run;
10634 model.result('pg1').feature('slc1').set('expr', 'y78');
10635 model.result('pg1').run;
10636 model.result('pg1').run;
10637 model.result('pg1').feature('slc1').set('expr', 'y85');
10638 model.result('pg1').run;
10639 model.result('pg1').run;
10640 model.result('pg1').feature('slc1').set('expr', 'y6');
10641 model.result('pg1').run;
10642 model.result('pg1').feature('slc1').set('expr', 'y7');
10643 model.result('pg1').run;
10644 model.result('pg1').feature('slc1').set('expr', 'y105');
10645 model.result('pg1').run;
10646 model.result('pg1').feature('slc1').set('expr', 'y100');
10647 model.result('pg1').run;
10648 model.result('pg1').feature('slc1').set('expr', 'y14');
10649 model.result('pg1').run;
10650 model.result('pg1').feature('slc1').set('expr', 'y15');
10651 model.result('pg1').run;
10652 model.result('pg1').feature('slc1').set('unit', 'mol/L');
10653 model.result('pg1').run;
10654 model.result('pg1').run;
10655 model.result('pg1').feature('slc1').set('expr', 'y107');
10656 model.result('pg1').run;
10657 model.result('pg1').feature('slc1').set('expr', 'y87');
10658 model.result('pg1').run;
10659 model.result('pg1').feature('slc1').set('expr', 'y18');
10660 model.result('pg1').run;
10661 model.result('pg1').feature('slc1').set('expr', 'y19');
10662 model.result('pg1').run;
10663 model.result('pg1').feature('slc1').set('expr', 'y125');
10664 model.result('pg1').run;
10665 model.result('pg1').feature('slc1').set('expr', 'y124');
10666 model.result('pg1').run;
10667 model.result('pg1').run;
10668 model.result('pg1').feature('slc1').set('expr', 'y96');
10669 model.result('pg1').run;
10670 model.result('pg1').run;
10671 model.result('pg1').run;
10672 model.result('pg1').feature('slc1').set('expr', 'y125');
10673 model.result('pg1').run;
10674 model.result('pg1').run;
10675
10676 model.variable('var22').set('f78', '((Q_Lnode/8-L_Llung)*y10)/vv_ventricle');
10677 model.variable('var21').set('y10', '0 [mol/L]');
10678 model.variable('var22').set('f78', '((Q_Lnode/8-L_Llung)*y10+(Q_liver-L_liver) ↙
*y14+(Q_Lnode/8-L_Lliver)* y34+(Q_Lnode/8-L_Ltumor)* y38+(Q_tumor-L_tumor)* y1+ ↙
```

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(Q_Lnode/8-L_LTorso)* y42+(Q_Torso-L_Torso)*y26+(Q_Lnode/8-L_LUpper_body)* y46+ ↙
(Q_Upper_body-L_Upper_body)*y22+(Q_Lnode/8-L_LLower_body)*y50+(Q_Lower_body- ↙
L_Lower_body)*y54+(Q_Lnode/8-L_Lbrain)*y58+(Q_brain-L_brain)*y62+(Q_Lnode/8-L_Lkidney) ↙
*y66+(Q_kidney-L_kidney)*y70+(Q_Cardiac_vessels-L_Cardiac_vessels) ↙
*y74+L_Cardiac_vessels*y77*rf_Cardiac_vessels+(L_lung+L_Llung)*y13*rf_Llung+ ↙
(L_liver+L_spleen+L_intestin+L_Lliver)*y37*rf_Lintestin+(L_tumor+L_Ltumor)* ↙
(rf_Ltumor*y41*heaviside(-y41+500[mol/L])+1*y41*heaviside(y41-501[mol/L]))+ ↙
(L_Torso+L_LTorso)*y45*rf_LTorso+(L_Upper_body+L_LUpper_body)*y49*rf_LUpper_body+ ↙
(L_LLower_body+L_Lower_body)*y53*rf_LLower_body+(L_Lbrain+L_brain)*y61*rf_Lbrain+ ↙
(L_Lkidney+L_kidney)*y69*rf_Lkidney-(Q_lung)*y78)/vv_ventricle');
10679 model.variable('var19').set('Q_tumor', '0 [L/d]');
10680 model.variable('var19').set('Q_Lnode', '0 [L/d]');
10681 model.variable('var19').set('L_tumor', '0  [L/d]');
10682 model.variable('var21').set('y34', '0[mol/L]');
10683 model.variable('var21').set('y38', '0[mol/L]');
10684 model.variable('var21').set('y1', '0[mol/L]');
10685 model.variable('var21').set('y42', '0[mol/L]');
10686 model.variable('var21').set('y46', '0[mol/L]');
10687 model.variable('var21').set('y50', '0[mol/L]');
10688 model.variable('var21').set('y58', '0[mol/L]');
10689 model.variable('var21').set('y66', '0[mol/L]');
10690 model.variable('var21').set('y77', '0[mol/L]');
10691 model.variable('var21').set('y13', '0[mol/L]');
10692 model.variable('var21').set('y37', '0[mol/L]');
10693 model.variable('var21').set('y41', '0[mol/L]');
10694 model.variable('var21').set('y45', '0[mol/L]');
10695 model.variable('var21').set('y49', '0[mol/L]');
10696 model.variable('var21').set('y53', '0[mol/L]');
10697 model.variable('var21').set('y61', '0[mol/L]');
10698 model.variable('var21').set('y69', '0[mol/L]');
10699 model.variable('var21').set('y106', '0[mol/L]');
10700 model.variable('var21').set('y112', '0[mol/L]');
10701 model.variable('var21').set('y113', '0[mol/L]');
10702 model.variable('var21').set('y104', '0[mol/L]');
10703 model.variable('var21').set('y114', '0[mol/L]');
10704 model.variable('var21').set('y115', '0[mol/L]');
10705 model.variable('var21').set('y116', '0[mol/L]');
10706 model.variable('var21').set('y118', '0[mol/L]');
10707 model.variable('var21').set('y120', '0[mol/L]');
10708 model.variable('var21').set('y99', '0[mol/L]');
10709 model.variable('var21').set('y101', '0[mol/L]');
10710 model.variable('var21').set('y80', '0[mol/L]');
10711 model.variable('var21').set('y89', '0[mol/L]');
10712 model.variable('var21').set('y91', '0[mol/L]');
10713 model.variable('var21').set('y93', '0[mol/L]');
10714 model.variable('var21').set('y95', '0[mol/L]');
10715 model.variable('var21').set('y97', '0[mol/L]');
10716 model.variable('var22').set('f78', '((Q_Lnode/8-L_Llung)*y10+(Q_liver-L_liver) ↙
*y14+(Q_Lnode/8-L_Lliver)* y34+(Q_Lnode/8-L_Ltumor)* y38+(Q_tumor-L_tumor)* y1+ ↙
(Q_Lnode/8-L_LTorso)* y42+(Q_Torso-L_Torso)*y26+(Q_Lnode/8-L_LUpper_body)* y46+ ↙
```

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(Q_Upper_body-L_Upper_body)*y22+(Q_Lnode/8-L_LLower_body)*y50+(Q_Lower_body-
L_Lower_body)*y54+(Q_Lnode/8-L_Lbrain)*y58+(Q_brain-L_brain)*y62+(Q_Lnode/8-L_Lkidney)
*y66+(Q_kidney-L_kidney)*y70+(Q_Cardiac_vessels-L_Cardiac_vessels)
*y74+L_Cardiac_vessels*y77*rf_Cardiac_vessels+(L_lung+L_Llung)*y13*rf_Llung+
(L_liver+L_spleen+L_intestin+L_Lliver)*y37*rf_Lintestin+(L_tumor+L_Ltumor)*
(rf_Ltumor*y41*heaviside(-y41+500[mol/L])+1*y41*heaviside(y41-501[mol/L]))+
(L_Torso+L_LTorso)*y45*rf_LTorso+(L_Upper_body+L_LUpper_body)*y49*rf_LUpper_body+
(L_LLower_body+L_Lower_body)*y53*rf_LLower_body+(L_Lbrain+L_brain)*y61*rf_Lbrain+
(L_Lkidney+L_kidney)*y69*rf_Lkidney-(Q_lung)*y78)/vv_ventricle');
10717 model.variable('var22').set('aaa', 'rf_Lbrain');
10718 model.variable('var22').remove('aaa');
10719 model.variable('var22').set('aasd', 'heaviside(-y41/1[mol/L]+500)');
10720 model.variable('var22').set('f78', '((Q_Lnode/8-L_Llung)*y10+(Q_liver-L_liver)
*y14+(Q_Lnode/8-L_Lliver)* y34+(Q_Lnode/8-L_Ltumor)* y38+(Q_tumor-L_tumor)* y1+
(Q_Lnode/8-L_LTorso)* y42+(Q_Torso-L_Torso)*y26+(Q_Lnode/8-L_LUpper_body)* y46+
(Q_Upper_body-L_Upper_body)*y22+(Q_Lnode/8-L_LLower_body)*y50+(Q_Lower_body-
L_Lower_body)*y54+(Q_Lnode/8-L_Lbrain)*y58+(Q_brain-L_brain)*y62+(Q_Lnode/8-L_Lkidney)
*y66+(Q_kidney-L_kidney)*y70+(Q_Cardiac_vessels-L_Cardiac_vessels)
*y74+L_Cardiac_vessels*y77*rf_Cardiac_vessels+(L_lung+L_Llung)*y13*rf_Llung+
(L_liver+L_spleen+L_intestin+L_Lliver)*y37*rf_Lintestin+(L_tumor+L_Ltumor)*
(rf_Ltumor*y41*heaviside(-y41/1[mol/L]+500)+1*y41*heaviside(y41/1[mol/L]-501))+
(L_Torso+L_LTorso)*y45*rf_LTorso+(L_Upper_body+L_LUpper_body)*y49*rf_LUpper_body+
(L_LLower_body+L_Lower_body)*y53*rf_LLower_body+(L_Lbrain+L_brain)*y61*rf_Lbrain+
(L_Lkidney+L_kidney)*y69*rf_Lkidney-(Q_lung)*y78)/vv_ventricle');
10721 model.variable('var22').set('f86', '((Q_Lnode/8-L_Llung)*y106+(Q_liver-L_liver)
*y107+(Q_Lnode/8-L_Lliver)*y112+((Q_Lnode/8-L_Ltumor)*y113)+(Q_tumor-L_tumor)*y104+
(Q_Lnode/8-L_LTorso)*y114+(Q_Torso-L_Torso)*y110+(Q_Lnode/8-L_LUpper_body)*y115+
(Q_Upper_body-L_Upper_body)*y109+(Q_Lnode/8-L_LLower_body)*y116+(Q_Lower_body-
L_Lower_body)*y117+(Q_Lnode/8-L_Lbrain)*y118+(Q_brain-L_brain)*y119+(Q_Lnode/8-
L_Lkidney)*y120+(Q_kidney-L_kidney)*y121+(Q_Cardiac_vessels-L_Cardiac_vessels)*y124+
(L_Cardiac_vessels*y125*rf_kidney)*heaviside(y125/1[mol/L]-1e-3*first)+(L_lung+L_Llung)
*y99*rf_aLlung+(L_liver+L_spleen+L_intestin+L_Lliver)*y101*rf_aLintestin+
(L_tumor+L_Ltumor)*y80*rf_aLtumor+(L_Torso+L_LTorso)*y89*rf_aLTorso+
(L_Upper_body+L_LUpper_body)*y91*rf_aLUpper_body+(L_LLower_body+L_Lower_body)
*y93*rf_aLLower_body+(L_Lbrain+L_brain)*y95*rf_aLbrain+(L_Lkidney+L_kidney)
*y97*rf_aLkidney-(Q_lung)*y86*heaviside(y86/1[mol/L]-1e-3*first))/vv_ventricle');
10722 model.variable('var22').set('f6', '(Q_lung*y78-(Q_lung-L_lung)
*y6+kd_lung*y7*vv_lung-disinf_lung*y6*vv_lung)/vv_lung');
10723 model.variable('var22').set('aasd', '-ka_lung*y100*y6*vv_lung');
10724 model.variable('var22').remove('aasd');
10725 model.variable('var22').set('f6', '(Q_lung*y78-(Q_lung-L_lung)*y6-
ka_lung*y100*y6*vv_lung+kd_lung*y7*vv_lung-disinf_lung*y6*vv_lung)/vv_lung');
10726 model.variable('var22').set('f7', '(ka_lung*y100*y6*vv_lung-
kd_lung*y7*vv_lung+p_lung/kk*y7*vv_lung-disinfa_lung*y7*vv_lung)/vv_lung');
10727 model.variable('var22').set('f100', '-ka_lung*y100*y6+kd_lung*y7');
10728 model.variable('var22').set('aaaa', '-ka_lung*y100*y6');
10729 model.variable('var7').set('ka_lung', '1e-3*60*24 [ml/min/mol]');
10730 model.variable('var22').remove('aaaa');
10731 model.variable('var7').set('ka_spleen', '1e-3*60*24 [ml/min/mol]');
10732 model.variable('var7').set('ka_liver', '1e-3*60*24 [ml/min/mol]');
```

```
10733 model.variable('var7').set('ka_Upper_body', '1e-3*60*24 [ml/min/mol]');
10734 model.variable('var7').set('ka_Torso', '1e-3*60*24 [ml/min/mol]');
10735 model.variable('var7').set('ka_intestin', '1e-3*60*24 [ml/min/mol]');
10736 model.variable('var7').set('ka_Lower_body', '1e-3*60*24 [ml/min/mol]');
10737 model.variable('var7').set('ka_brain', '1e-3*60*24 [ml/min/mol]');
10738 model.variable('var7').set('ka_kidney', '1e-3*60*24 [ml/min/mol]');
10739 model.variable('var7').set('ka_Cardiac_vessels', '1e-3*60*24 [ml/min/mol]');
10740
10741 model.sol('sol54').runAll;
10742
10743 model.result('pg1').run;
10744 model.result('pg1').run;
10745 model.result('pg40').run;
10746 model.result('pg40').feature('ptgr1').set('expr', 'y125');
10747 model.result('pg40').run;
10748 model.result('pg1').run;
10749 model.result('pg40').run;
10750 model.result('pg40').feature('ptgr1').set('expr', 'y5');
10751 model.result('pg40').run;
10752
10753 model.sol('sol54').feature('t1').set('maxstepbdfactive', 'on');
10754 model.sol('sol54').feature('t1').set('maxstepbdf', '0.1');
10755 model.sol('sol54').runAll;
10756
10757 model.result('pg1').run;
10758 model.result('pg40').run;
10759 model.result('pg40').run;
10760 model.result('pg40').feature('ptgr1').set('expr', 'f5');
10761 model.result('pg40').run;
10762 model.result('pg40').feature('ptgr1').set('expr', 'f125');
10763 model.result('pg40').run;
10764
10765 model.label('Baseline_solution_Time step_new ↙
therapy_oxygen_flow_stepFunction_runTest.mph');
10766
10767 model.result('pg40').run;
10768
10769 model.physics('dode43').prop('ShapeProperty').set('order', '2');
10770
10771 model.result('pg40').run;
10772 model.result('pg40').feature('ptgr1').set('expr', 'ec');
10773 model.result('pg40').run;
10774 model.result('pg40').feature('ptgr1').set('expr', 'c');
10775 model.result('pg40').run;
10776 model.result('pg40').feature('ptgr1').set('expr', 'Ctl');
10777 model.result('pg40').run;
10778 model.result('pg40').feature('ptgr1').set('expr', 'f125');
10779 model.result('pg40').run;
10780
10781 model.physics('dode44').prop('ShapeProperty').set('order', '1');
```

```
10782
10783 model.sol('sol54').runAll;
10784
10785 model.result('pg1').run;
10786 model.result('pg40').run;
10787 model.result('pg40').feature('ptgr1').set('expr', 'y125');
10788 model.result('pg40').run;
10789
10790 model.variable('var7').set('ka_spleen', '1e-3*60*24 [ml/min/fmol]');
10791 model.variable('var7').set('ka_liver', '1e-3*60*24 [ml/min/fmol]');
10792 model.variable('var7').set('ka_Upper_body', '1e-3*60*24 [ml/min/fmol]');
10793 model.variable('var7').set('ka_Torso', '1e-3*60*24 [ml/min/fmol]');
10794 model.variable('var7').set('ka_lung', '1e-3*60*24 [ml/min/fmol]');
10795 model.variable('var7').set('ka_intestin', '1e-3*60*24 [ml/min/fmol]');
10796 model.variable('var7').set('ka_Lower_body', '1e-3*60*24 [ml/min/fmol]');
10797 model.variable('var7').set('ka_brain', '1e-3*60*24 [ml/min/fmol]');
10798 model.variable('var7').set('ka_kidney', '1e-3*60*24 [ml/min/fmol]');
10799 model.variable('var7').set('ka_Cardiac_vessels', '1e-3*60*24 [ml/min/fmol]');
10800
10801 model.physics('dode').prop('Units').set('CustomDependentVariableUnit', 'fmol/L');
10802 model.physics('dode').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10803 model.physics('dode2').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10804 model.physics('dode2').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10805 model.physics('dode3').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10806 model.physics('dode3').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10807 model.physics('dode4').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10808 model.physics('dode4').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10809 model.physics('dode5').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10810 model.physics('dode5').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10811 model.physics('dode6').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10812 model.physics('dode6').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10813 model.physics('dode7').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10814 model.physics('dode7').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10815 model.physics('dode8').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10816 model.physics('dode8').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10817 model.physics('dode9').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10818 model.physics('dode9').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10819 model.physics('dode10').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10820 model.physics('dode10').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10821 model.physics('dode11').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
```

```
10822 model.physics('dode11').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10823 model.physics('dode12').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10824 model.physics('dode12').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10825 model.physics('dode13').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10826 model.physics('dode13').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10827 model.physics('dode14').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10828 model.physics('dode14').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10829 model.physics('dode15').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10830 model.physics('dode15').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10831 model.physics('dode16').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10832 model.physics('dode16').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10833 model.physics('dode17').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10834 model.physics('dode17').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10835 model.physics('dode18').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10836 model.physics('dode18').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10837 model.physics('dode19').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10838 model.physics('dode19').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10839 model.physics('dode20').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10840 model.physics('dode20').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10841 model.physics('dode21').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10842 model.physics('dode21').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10843 model.physics('dode22').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10844 model.physics('dode22').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10845 model.physics('dode23').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10846 model.physics('dode23').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10847 model.physics('dode24').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10848 model.physics('dode24').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10849 model.physics('dode25').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10850 model.physics('dode25').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10851 model.physics('dode26').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10852 model.physics('dode26').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10853 model.physics('dode27').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10854 model.physics('dode27').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10855 model.physics('dode28').prop('Units').set('CustomDependentVariableUnit', ↙
```

```
'fmol/L');
10856 model.physics('dode28').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10857 model.physics('dode29').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10858 model.physics('dode29').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10859 model.physics('dode30').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10860 model.physics('dode30').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10861 model.physics('dode31').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10862 model.physics('dode31').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10863 model.physics('dode32').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10864 model.physics('dode32').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10865 model.physics('dode33').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10866 model.physics('dode33').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10867 model.physics('dode34').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10868 model.physics('dode34').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10869 model.physics('dode35').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10870 model.physics('dode35').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10871 model.physics('dode36').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10872 model.physics('dode36').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10873 model.physics('dode37').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10874 model.physics('dode37').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10875 model.physics('dode38').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10876 model.physics('dode38').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10877 model.physics('dode39').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10878 model.physics('dode39').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10879 model.physics('dode40').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10880 model.physics('dode40').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10881 model.physics('dode41').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10882 model.physics('dode41').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10883 model.physics('dode42').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10884 model.physics('dode42').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10885 model.physics('dode43').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10886 model.physics('dode43').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
10887 model.physics('dode44').prop('Units').set('CustomDependentVariableUnit', ↙
'fmol/L');
10888 model.physics('dode44').prop('Units').set('CustomSourceTermUnit', 'fmol/L/min');
```

```
model.physics('dode43').prop('ShapeProperty').set('order', '1');

model.variable('var7').set('ka_spleen', '1e-3*60*24 [ml/min/mol]');
model.variable('var7').set('ka_liver', '1e-3*60*24 [ml/min/mol]');
model.variable('var7').set('ka_Upper_body', '1e-3*60*24 [ml/min/mol]');
model.variable('var7').set('ka_Torso', '1e-3*60*24 [ml/min/mol]');
model.variable('var7').set('ka_lung', '1e-3*60*24 [ml/min/mol]');
model.variable('var7').set('ka_intestin', '1e-3*60*24 [ml/min/mol]');
model.variable('var7').set('ka_Lower_body', '1e-3*60*24 [ml/min/mol]');
model.variable('var7').set('ka_brain', '1e-3*60*24 [ml/min/mol]');
model.variable('var7').set('ka_kidney', '1e-3*60*24 [ml/min/mol]');
model.variable('var7').set('ka_Cardiac_vessels', '1e-3*60*24 [ml/min/mol]');

model.sol('sol54').runAll;

model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '19', 0);
model.result('pg1').run;
model.result('pg40').run;
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '1', 0);
model.result('pg1').run;
model.result('pg40').run;
model.result('pg40').feature('ptgr1').set('unit', 'mol/L');
model.result('pg40').run;
model.result('pg1').run;
model.result('pg1').set('allowtableupdate', false);
model.result('pg1').set('allowevalintitle', false);
model.result('pg1').set('title', 'Time=0 d Slice: Dependent variable y125 ↙
(mol/L)');
model.result('pg1').set('hasbeenplotted', true);
model.result('pg1').feature('slc1').set('rangeunit', 'mol/L');
model.result('pg1').feature('slc1').set('rangecolormin', 9.999999994520158E-4);
model.result('pg1').feature('slc1').set('rangecolormax', 9.99999999452016E-4);
model.result('pg1').feature('slc1').set('rangecoloractive', 'off');
model.result('pg1').feature('slc1').set('rangedatamin', 9.999999994520158E-4);
model.result('pg1').feature('slc1').set('rangedatamax', 9.99999999452016E-4);
model.result('pg1').feature('slc1').set('rangedataactive', 'off');
model.result('pg1').feature('slc1').set('rangeactualminmax', [9.999999994520158E- ↙
4 9.99999999452016E-4]);
model.result('pg1').feature('slc1').set('hasbeenplotted', true);
model.result('pg1').set('renderdatacached', false);
model.result('pg1').set('allowtableupdate', true);
model.result('pg1').set('renderdatacached', true);
model.result.table('evl3').addRow([0.025000000000133235 0.004123423430781769 ↙
0.024677348129283162 9.999999994520158E-4], [0 0 0 0]);
model.result('pg1').run;
model.result('pg1').setIndex('looplevel', '2', 0);
model.result('pg1').run;
model.result('pg40').run;
```

```
10936
10937 model.physics('dode5').feature('init1').set('y6', '100');
10938 model.physics('dode8').feature('init1').set('y100', '100');
10939 model.physics('dode12').feature('init1').set('y87', '100');
10940 model.physics('dode16').feature('init1').set('y102', '100');
10941 model.physics('dode20').feature('init1').set('y92', '100');
10942 model.physics('dode24').feature('init1').set('y90', '100');
10943 model.physics('dode28').feature('init1').set('y103', '100');
10944 model.physics('dode32').feature('init1').set('y94', '100');
10945 model.physics('dode39').feature('init1').set('y98', '100');
10946 model.physics('dode43').feature('init1').set('y125', '100');
10947 model.physics('dode44').feature('init1').set('y96', '100');
10948
10949 model.sol('sol54').runAll;
10950
10951 model.result('pg1').run;
10952 model.result('pg1').setIndex('looplevel', '1', 0);
10953 model.result('pg1').run;
10954 model.result('pg1').setIndex('looplevel', '19', 0);
10955 model.result('pg1').run;
10956 model.result('pg40').run;
10957 model.result('pg40').feature('ptgr1').set('unit', 'mol/m^3');
10958 model.result('pg40').run;
10959 model.result('pg40').feature('ptgr1').set('unit', 'fmol/m^3');
10960 model.result('pg40').run;
10961 model.result('pg40').feature('ptgr1').set('unit', 'fmol/ml');
10962 model.result('pg40').run;
10963
10964 model.physics('dode44').feature('init1').set('y96', '1000');
10965 model.physics('dode43').feature('init1').set('y125', '1000');
10966 model.physics('dode39').feature('init1').set('y98', '1000');
10967 model.physics('dode32').feature('init1').set('y94', '1000');
10968 model.physics('dode28').feature('init1').set('y103', '1000');
10969 model.physics('dode24').feature('init1').set('y90', '1000');
10970 model.physics('dode20').feature('init1').set('y92', '1000');
10971 model.physics('dode16').feature('init1').set('y102', '1000');
10972 model.physics('dode12').feature('init1').set('y87', '1000');
10973 model.physics('dode5').feature('init1').set('y6', '1000');
10974
10975 model.sol('sol54').runAll;
10976
10977 model.result('pg1').run;
10978 model.result('pg40').run;
10979 model.result('pg40').feature('ptgr1').set('unit', 'mol/ml');
10980 model.result('pg40').run;
10981 model.result('pg40').feature('ptgr1').set('unit', 'mol/L');
10982 model.result('pg40').run;
10983 model.result('pg40').feature('ptgr1').set('unit', 'mol/m^3');
10984 model.result('pg40').run;
10985
```

```
model.variable('var7').set('ka_spleen', '1e-3*60*24 [ml/min/mmol]');
model.variable('var7').set('ka_liver', '1e-3*60*24 [ml/min/mmol]');
model.variable('var7').set('ka_Upper_body', '1e-3*60*24 [ml/min/mmol]');
model.variable('var7').set('ka_Torso', '1e-3*60*24 [ml/min/mmol]');
model.variable('var7').set('ka_lung', '1e-3*60*24 [ml/min/mmol]');
model.variable('var7').set('ka_intestin', '1e-3*60*24 [ml/min/mmol]');
model.variable('var7').set('ka_Lower_body', '1e-3*60*24 [ml/min/mmol]');
model.variable('var7').set('ka_brain', '1e-3*60*24 [ml/min/mmol]');
model.variable('var7').set('ka_kidney', '1e-3*60*24 [ml/min/mmol]');
model.variable('var7').set('ka_Cardiac_vessels', '1e-3*60*24 [ml/min/mmol]');

model.sol('sol54').runAll;

model.result('pg1').run;
model.result('pg40').run;
model.result('pg40').feature('ptgr1').set('expr', 'y125/1000');
model.result('pg40').run;

model.physics('dode5').feature('init1').set('y6', '1');
model.physics('dode12').feature('init1').set('y87', '1');
model.physics('dode16').feature('init1').set('y102', '1');
model.physics('dode20').feature('init1').set('y92', '1');
model.physics('dode24').feature('init1').set('y90', '1');
model.physics('dode28').feature('init1').set('y103', '1');
model.physics('dode32').feature('init1').set('y94', '1');
model.physics('dode39').feature('init1').set('y98', '1');
model.physics('dode43').feature('init1').set('y125', '1');
model.physics('dode44').feature('init1').set('y96', '1');

model.sol('sol54').runAll;

model.result('pg1').run;
model.result('pg40').run;
model.result('pg40').feature('ptgr1').set('expr', 'y125');
model.result('pg40').run;

model.physics('dode44').feature('init1').set('y96', '1000');
model.physics('dode43').feature('init1').set('y125', '1000');
model.physics('dode39').feature('init1').set('y98', '1000');
model.physics('dode32').feature('init1').set('y94', '1000');
model.physics('dode28').feature('init1').set('y103', '1000');
model.physics('dode24').feature('init1').set('y90', '1000');
model.physics('dode20').feature('init1').set('y92', '1000');
model.physics('dode16').feature('init1').set('y102', '1000');
model.physics('dode5').feature('init1').set('y6', '1000');

model.sol('sol54').runAll;

model.result('pg1').run;
model.result('pg1').run;
```

```
model.result('pg40').run;
model.result('pg40').feature('ptgr1').set('expr', 'y5');
model.result('pg40').run;

model.variable('var7').set('ka_spleen', '1e-3*60*24');
model.variable('var7').set('ka_liver', '1e-3*60*24');
model.variable('var7').set('ka_Upper_body', '1e-3*60*24');
model.variable('var7').set('ka_Torso', '1e-3*60*24');
model.variable('var7').set('ka_lung', '1e-3*60*24');
model.variable('var7').set('ka_intestin', '1e-3*60*24');
model.variable('var7').set('ka_Lower_body', '1e-3*60*24');
model.variable('var7').set('ka_brain', '1e-3*60*24');
model.variable('var7').set('ka_kidney', '1e-3*60*24');
model.variable('var7').set('ka_Cardiac_vessels', '1e-3*60*24');
model.variable('var8').set('kd_spleen', '1e-3*2/3*60*24');
model.variable('var8').set('kd_liver', '1e-3*2/3*60*24');
model.variable('var8').set('kd_Upper_body', '1e-3*2/3*60*24');
model.variable('var8').set('kd_Torso', '1e-3*2/3*60*24');
model.variable('var8').set('kd_lung', '1e-3*2/3*60*24');
model.variable('var8').set('kd_intestin', '1e-3*2/3*60*24');
model.variable('var8').set('kd_Lower_body', '1e-3*2/3*60*24');
model.variable('var8').set('kd_brain', '1e-3*2/3*60*24');
model.variable('var8').set('kd_kidney', '1e-3*2/3*60*24');
model.variable('var8').set('kd_Cardiac_vessels', '1e-3*2/3*60*24');
model.variable('var9').set('disinf_lung', '1');
model.variable('var9').set('disinf_liver', '1');
model.variable('var9').set('disinf_spleen', '1');
model.variable('var9').set('disinf_Upper_body', '1');
model.variable('var9').set('disinf_Torso', '1');
model.variable('var9').set('disinf_Intestine', '1');
model.variable('var9').set('disinf_Brain', '1');
model.variable('var9').set('disinf_Lower_body', '1');
model.variable('var9').set('disinf_kidney', '1');
model.variable('var9').set('disinf_Cardiac_vessels', '1');
model.variable('var10').set('disinfa_lung', '1');
model.variable('var10').set('disinfa_liver', '1');
model.variable('var10').set('disinfa_spleen', '1');
model.variable('var10').set('disinfa_Upper_body', '1');
model.variable('var10').set('disinfa_Torso', '1');
model.variable('var10').set('disinfa_Intestine', '1');
model.variable('var10').set('disinfa_Lower_body', '1');
model.variable('var10').set('disinfa_Brain', '1');
model.variable('var10').set('disinfa_kidney', '1');
model.variable('var10').set('disinfa_Cardiac_vessels', '1');
model.variable('var11').set('p_liver', '1');
model.variable('var11').set('p_lung', '1');
model.variable('var11').set('p_spleen', '0.1');
model.variable('var11').set('p_Upper_body', '1.1');
model.variable('var11').set('p_Torso', '2');
model.variable('var11').set('p_Intestine', '0.7');
```

```
11086 model.variable('var11').set('p_Lower_body', '0.9');
11087 model.variable('var11').set('p_Brain', '1.4');
11088 model.variable('var11').set('p_kidney', '1.1');
11089 model.variable('var11').set('p_Cardiac_vessels', '1.8');
11090 model.variable('var13').set('mt_lung', '1');
11091 model.variable('var13').set('mt_liver', '1');
11092 model.variable('var13').set('mt_spleen', '1');
11093 model.variable('var13').set('mt_Upper_body', '1');
11094 model.variable('var13').set('mt_Torso', '1');
11095 model.variable('var13').set('mt_Intestine', '1');
11096 model.variable('var13').set('mt_Lower_body', '1');
11097 model.variable('var13').set('mt_Brain', '1');
11098 model.variable('var13').set('mt_kidney', '1');
11099 model.variable('var13').set('mt_Cardiac_vessels', '1');
11100 model.variable('var14').set('d_lung', '1');
11101 model.variable('var14').set('d_liver', '1');
11102 model.variable('var14').set('d_spleen', '1');
11103 model.variable('var14').set('d_Upper_body', '1');
11104 model.variable('var14').set('d_Torso', '1');
11105 model.variable('var14').set('d_Intestine', '1');
11106 model.variable('var14').set('d_Lower_body', '1');
11107 model.variable('var14').set('d_Brain', '1');
11108 model.variable('var14').set('d_kidney', '1');
11109 model.variable('var14').set('d_Cardiac_vessels', '1');
11110 model.variable('var15').set('Q_Cardiac_vessels', '120*60*24*1e-3');
11111 model.variable('var15').set('Q_spleen', '138*60*24*1e-3');
11112 model.variable('var15').set('Q_Upper_body', '138*60*24*1e-3');
11113 model.variable('var15').set('Q_Torso', '220*60*24*1e-3');
11114 model.variable('var15').set('Q_brain', '300*60*24*1e-3');
11115 model.variable('var15').set('Q_Lower_body', '413*60*24*1e-3');
11116 model.variable('var15').set('Q_intestin', '468*60*24*1e-3');
11117 model.variable('var15').set('Q_kidney', '630*60*24*1e-3');
11118 model.variable('var15').set('Q_liver', '800*60*24*1e-3');
11119 model.variable('var16').set('L_lung', '4.3e-2*60*24*1e-3');
11120 model.variable('var16').set('L_intestin', '3e-1*60*24*1e-3');
11121 model.variable('var16').set('L_kidney', '1e-3*60*24*1e-3');
11122 model.variable('var16').set('L_Lower_body', '1e-3*60*24*1e-3');
11123 model.variable('var16').set('L_Cardiac_vessels', '4.3e-3*60*24*1e-3');
11124 model.variable('var16').set('L_Lspleen', '0');
11125 model.variable('var16').set('L_Lliver', '1.5e-6*60*24*1e-3');
11126 model.variable('var16').set('L_LUpper_body', '1e-3*60*24*1e-3');
11127 model.variable('var16').set('L_LTorso', '1e-3*60*24*1e-3');
11128 model.variable('var16').set('L_Llung', '1.8e-6*60*24*1e-3');
11129 model.variable('var16').set('L_Lintestin', '1e-3*60*24*1e-3');
11130 model.variable('var16').set('L_Ltumor', '1e-3*1.1*60*24*1e-3');
11131 model.variable('var16').set('L_LLower_body', '1e-3*60*24*1e-3');
11132 model.variable('var16').set('L_brain', '1e-3*60*24*1e-3');
11133 model.variable('var16').set('L_Lkidney', '1e-3*60*24*1e-3');
11134 model.variable('var16').set('L_Lbrain', '1e-3*60*24*1e-3');
11135 model.variable('var17').set('vv_spleen', '17*1e-3');
```

```
11136 model.variable('var17').set('vv_liver', '180.9*1e-3');
11137 model.variable('var17').set('vv_Upper_body', '150*1e-3');
11138 model.variable('var17').set('vv_Torso', '462*1e-3');
11139 model.variable('var17').set('vv_lung', '99.9*1e-3');
11140 model.variable('var17').set('vv_intestin', '43*1e-3');
11141 model.variable('var17').set('vv_Lower_body', '700*1e-3');
11142 model.variable('var17').set('vv_brain', '150*1e-3');
11143 model.variable('var17').set('vv_kidney', '28.4*1e-3');
11144 model.variable('var17').set('vv_Cardiac_vessels', '100*1e-3');
11145 model.variable('var17').set('vv_ventricle', '200*1e-3');
11146 model.variable('var19').set('Q_tumor', '0');
11147 model.variable('var19').set('Q_Lnode', '0');
11148 model.variable('var19').set('L_tumor', '0');
11149 model.variable('var21').set('y10', '0');
11150 model.variable('var21').set('y34', '0');
11151 model.variable('var21').set('y38', '0');
11152 model.variable('var21').set('y1', '0');
11153 model.variable('var21').set('y42', '0');
11154 model.variable('var21').set('y46', '0');
11155 model.variable('var21').set('y50', '0');
11156 model.variable('var21').set('y58', '0');
11157 model.variable('var21').set('y66', '0');
11158 model.variable('var21').set('y77', '0');
11159 model.variable('var21').set('y13', '0');
11160 model.variable('var21').remove('y13');
11161 model.variable('var21').set('y13', '0');
11162 model.variable('var21').set('y37', '0');
11163 model.variable('var21').set('y41', '0');
11164 model.variable('var21').set('y45', '0');
11165 model.variable('var21').set('y49', '0');
11166 model.variable('var21').set('y53', '0');
11167 model.variable('var21').set('y61', '0');
11168 model.variable('var21').set('y69', '0');
11169 model.variable('var21').set('y106', '0');
11170 model.variable('var21').set('y112', '0');
11171 model.variable('var21').set('y113', '0');
11172 model.variable('var21').set('y104', '0');
11173 model.variable('var21').set('y114', '0');
11174 model.variable('var21').set('y115', '0');
11175 model.variable('var21').set('y116', '0');
11176 model.variable('var21').set('y118', '0');
11177 model.variable('var21').set('y120', '0');
11178 model.variable('var21').set('y99', '0');
11179 model.variable('var21').set('y101', '0');
11180 model.variable('var21').set('y80', '0');
11181 model.variable('var21').set('y89', '0');
11182 model.variable('var21').set('y91', '0');
11183 model.variable('var21').set('y93', '0');
11184 model.variable('var21').set('y95', '0');
11185 model.variable('var21').set('y97', '0');
```

```
11186 model.variable('var22').set('f78', '((Q_Lnode/8-L_Llung)*y10+(Q_liver-L_liver) ↙
*y14+(Q_Lnode/8-L_Lliver)* y34+(Q_Lnode/8-L_Ltumor)* y38+(Q_tumor-L_tumor)* y1+ ↙
(Q_Lnode/8-L_LTorso)* y42+(Q_Torso-L_Torso)*y26+(Q_Lnode/8-L_LUpper_body)* y46+ ↙
(Q_Upper_body-L_Upper_body)*y22+(Q_Lnode/8-L_LLower_body)*y50+(Q_Lower_body- ↙
L_Lower_body)*y54+(Q_Lnode/8-L_Lbrain)*y58+(Q_brain-L_brain)*y62+(Q_Lnode/8-L_Lkidney) ↙
*y66+(Q_kidney-L_kidney)*y70+(Q_Cardiac_vessels-L_Cardiac_vessels) ↙
*y74+L_Cardiac_vessels*y77*rf_Cardiac_vessels+(L_lung+L_Llung)*y13*rf_Llung+ ↙
(L_liver+L_spleen+L_intestin+L_Lliver)*y37*rf_Lintestin+(L_tumor+L_Ltumor)* ↙
(rf_Ltumor*y41*heaviside(-y41+500)+1*y41*heaviside(y41-501))+(L_Torso+L_LTorso) ↙
*y45*rf_LTorso+(L_Upper_body+L_LUpper_body)*y49*rf_LUpper_body+ ↙
(L_LLower_body+L_Lower_body)*y53*rf_LLower_body+(L_Lbrain+L_brain)*y61*rf_Lbrain+ ↙
(L_Lkidney+L_kidney)*y69*rf_Lkidney-(Q_lung)*y78)/vv_ventricle');
11187 model.variable('var22').set('f86', '((Q_Lnode/8-L_Llung)*y106+(Q_liver-L_liver) ↙
*y107+(Q_Lnode/8-L_Lliver)*y112+((Q_Lnode/8-L_Ltumor)*y113)+(Q_tumor-L_tumor)*y104+ ↙
(Q_Lnode/8-L_LTorso)*y114+(Q_Torso-L_Torso)*y110+(Q_Lnode/8-L_LUpper_body)*y115+ ↙
(Q_Upper_body-L_Upper_body)*y109+(Q_Lnode/8-L_LLower_body)*y116+(Q_Lower_body- ↙
L_Lower_body)*y117+(Q_Lnode/8-L_Lbrain)*y118+(Q_brain-L_brain)*y119+(Q_Lnode/8- ↙
L_Lkidney)*y120+(Q_kidney-L_kidney)*y121+(Q_Cardiac_vessels-L_Cardiac_vessels)*y124+ ↙
(L_Cardiac_vessels*y125*rf_kidney)*heaviside(y125-1e-3*first)+(L_lung+L_Llung) ↙
*y99*rf_aLlung+(L_liver+L_spleen+L_intestin+L_Lliver)*y101*rf_aLintestin+ ↙
(L_tumor+L_Ltumor)*y80*rf_aLtumor+(L_Torso+L_LTorso)*y89*rf_aLTorso+ ↙
(L_Upper_body+L_LUpper_body)*y91*rf_aLUpper_body+(L_LLower_body+L_Lower_body) ↙
*y93*rf_aLLower_body+(L_Lbrain+L_brain)*y95*rf_aLbrain+(L_Lkidney+L_kidney) ↙
*y97*rf_aLkidney-(Q_lung)*y86*heaviside(y86-1e-3*first))/vv_ventricle');
11188 model.variable('var16').set('L_spleen', '8.7e-4*60*24*1e-3');
11189 model.variable('var16').set('L_liver', '8.7e-2*60*24*1e-3');
11190 model.variable('var16').set('L_Upper_body', '2.6e-2*60*24*1e-3');
11191 model.variable('var16').set('L_Torso', '4.3e-3*60*24*1e-3');
11192
11193 model.physics('dode').prop('Units').set('CustomDependentVariableUnit', '1');
11194 model.physics('dode').prop('Units').set('CustomSourceTermUnit', '1');
11195 model.physics('dode2').prop('Units').set('CustomDependentVariableUnit', '1');
11196 model.physics('dode2').prop('Units').set('CustomSourceTermUnit', '1');
11197 model.physics('dode3').prop('Units').set('CustomDependentVariableUnit', '1');
11198 model.physics('dode3').prop('Units').set('CustomSourceTermUnit', '1');
11199 model.physics('dode4').prop('Units').set('CustomDependentVariableUnit', '1');
11200 model.physics('dode4').prop('Units').set('CustomSourceTermUnit', '1');
11201 model.physics('dode5').prop('Units').set('CustomDependentVariableUnit', '1');
11202 model.physics('dode5').prop('Units').set('CustomSourceTermUnit', '1');
11203 model.physics('dode5').feature('init1').set('y6', '1');
11204 model.physics('dode6').prop('Units').set('CustomDependentVariableUnit', '1');
11205 model.physics('dode6').prop('Units').set('CustomSourceTermUnit', '1');
11206 model.physics('dode7').prop('Units').set('CustomDependentVariableUnit', '1');
11207 model.physics('dode7').prop('Units').set('CustomSourceTermUnit', '1');
11208 model.physics('dode8').prop('Units').set('CustomDependentVariableUnit', '1');
11209 model.physics('dode8').prop('Units').set('CustomSourceTermUnit', '1');
11210 model.physics('dode9').prop('Units').set('CustomDependentVariableUnit', '1');
11211 model.physics('dode9').prop('Units').set('CustomSourceTermUnit', '1');
11212 model.physics('dode10').prop('Units').set('CustomDependentVariableUnit', '1');
11213 model.physics('dode10').prop('Units').set('CustomSourceTermUnit', '1');
```

```
11214 model.physics('dode11').prop('Units').set('CustomDependentVariableUnit', '1');
11215 model.physics('dode11').prop('Units').set('CustomSourceTermUnit', '1');
11216 model.physics('dode12').prop('Units').set('CustomDependentVariableUnit', '1');
11217 model.physics('dode12').prop('Units').set('CustomSourceTermUnit', '1');
11218 model.physics('dode13').prop('Units').set('CustomDependentVariableUnit', '1');
11219 model.physics('dode13').prop('Units').set('CustomSourceTermUnit', '1');
11220 model.physics('dode14').prop('Units').set('CustomDependentVariableUnit', '1');
11221 model.physics('dode14').prop('Units').set('CustomSourceTermUnit', '1');
11222 model.physics('dode15').prop('Units').set('CustomDependentVariableUnit', '1');
11223 model.physics('dode15').prop('Units').set('CustomSourceTermUnit', '1');
11224 model.physics('dode16').prop('Units').set('CustomDependentVariableUnit', '1');
11225 model.physics('dode16').prop('Units').set('CustomSourceTermUnit', '1');
11226 model.physics('dode16').feature('init1').set('y102', '1');
11227 model.physics('dode17').prop('Units').set('CustomDependentVariableUnit', '1');
11228 model.physics('dode17').prop('Units').set('CustomSourceTermUnit', '1');
11229 model.physics('dode18').prop('Units').set('CustomDependentVariableUnit', '1');
11230 model.physics('dode18').prop('Units').set('CustomSourceTermUnit', '1');
11231 model.physics('dode19').prop('Units').set('CustomDependentVariableUnit', '1');
11232 model.physics('dode19').prop('Units').set('CustomSourceTermUnit', '1');
11233 model.physics('dode20').prop('Units').set('CustomDependentVariableUnit', '1');
11234 model.physics('dode20').prop('Units').set('CustomSourceTermUnit', '1');
11235 model.physics('dode20').feature('init1').set('y92', '1');
11236 model.physics('dode21').prop('Units').set('CustomDependentVariableUnit', '1');
11237 model.physics('dode21').prop('Units').set('CustomSourceTermUnit', '1');
11238 model.physics('dode22').prop('Units').set('CustomDependentVariableUnit', '1');
11239 model.physics('dode22').prop('Units').set('CustomSourceTermUnit', '1');
11240 model.physics('dode23').prop('Units').set('CustomDependentVariableUnit', '1');
11241 model.physics('dode23').prop('Units').set('CustomSourceTermUnit', '1');
11242 model.physics.move('dode24', 61);
11243 model.physics('dode24').prop('Units').set('CustomDependentVariableUnit', '1');
11244 model.physics('dode24').prop('Units').set('CustomSourceTermUnit', '1');
11245 model.physics('dode24').feature('init1').set('y90', '1');
11246 model.physics('dode25').prop('Units').set('CustomDependentVariableUnit', '1');
11247 model.physics('dode25').prop('Units').set('CustomSourceTermUnit', '1');
11248 model.physics('dode26').prop('Units').set('CustomDependentVariableUnit', '1');
11249 model.physics('dode26').prop('Units').set('CustomSourceTermUnit', '1');
11250 model.physics('dode27').prop('Units').set('CustomDependentVariableUnit', '1');
11251 model.physics('dode27').prop('Units').set('CustomSourceTermUnit', '1');
11252 model.physics('dode28').prop('Units').set('CustomDependentVariableUnit', '1');
11253 model.physics('dode28').prop('Units').set('CustomSourceTermUnit', '1');
11254 model.physics('dode28').feature('init1').set('y103', '1');
11255 model.physics('dode29').prop('Units').set('CustomDependentVariableUnit', '1');
11256 model.physics('dode29').prop('Units').set('CustomSourceTermUnit', '1');
11257 model.physics('dode30').prop('Units').set('CustomDependentVariableUnit', '1');
11258 model.physics('dode30').prop('Units').set('CustomSourceTermUnit', '1');
11259 model.physics('dode31').prop('Units').set('CustomDependentVariableUnit', '1');
11260 model.physics('dode31').prop('Units').set('CustomSourceTermUnit', '1');
11261 model.physics('dode32').prop('Units').set('CustomDependentVariableUnit', '1');
11262 model.physics('dode32').prop('Units').set('CustomSourceTermUnit', '1');
11263 model.physics('dode32').feature('init1').set('y94', '1');
```

```
11264 model.physics('dode33').prop('Units').set('CustomDependentVariableUnit', '1');
11265 model.physics('dode33').prop('Units').set('CustomSourceTermUnit', '1');
11266 model.physics('dode34').prop('Units').set('CustomDependentVariableUnit', '1');
11267 model.physics('dode34').prop('Units').set('CustomSourceTermUnit', '1');
11268 model.physics('dode35').prop('Units').set('CustomDependentVariableUnit', '1');
11269 model.physics('dode35').prop('Units').set('CustomSourceTermUnit', '1');
11270 model.physics('dode36').prop('Units').set('CustomDependentVariableUnit', '1');
11271 model.physics('dode36').prop('Units').set('CustomSourceTermUnit', '1');
11272 model.physics('dode37').prop('Units').set('CustomDependentVariableUnit', '1');
11273 model.physics('dode37').prop('Units').set('CustomSourceTermUnit', '1');
11274 model.physics('dode38').prop('Units').set('CustomDependentVariableUnit', '1');
11275 model.physics('dode38').prop('Units').set('CustomSourceTermUnit', '1');
11276 model.physics('dode39').prop('Units').set('CustomDependentVariableUnit', '1');
11277 model.physics('dode39').prop('Units').set('CustomSourceTermUnit', '1');
11278 model.physics('dode39').feature('init1').set('y98', '1');
11279 model.physics('dode40').prop('Units').set('CustomDependentVariableUnit', '1');
11280 model.physics('dode40').prop('Units').set('CustomSourceTermUnit', '1');
11281 model.physics('dode41').prop('Units').set('CustomDependentVariableUnit', '1');
11282 model.physics('dode41').prop('Units').set('CustomSourceTermUnit', '1');
11283 model.physics('dode42').prop('Units').set('CustomDependentVariableUnit', '1');
11284 model.physics('dode42').prop('Units').set('CustomSourceTermUnit', '1');
11285 model.physics('dode43').prop('Units').set('CustomDependentVariableUnit', '1');
11286 model.physics('dode43').prop('Units').set('CustomSourceTermUnit', '1');
11287 model.physics('dode43').feature('init1').set('y125', '1');
11288 model.physics('dode44').prop('Units').set('CustomDependentVariableUnit', '1');
11289 model.physics('dode44').prop('Units').set('CustomSourceTermUnit', '1');
11290 model.physics('dode44').feature('init1').set('y96', '1');
11291
11292 model.sol('sol54').runFromTo('st1', 'v1');
11293
11294 model.result('pg1').run;
11295
11296 model.physics('dode').prop('Units').set('CustomSourceTermUnit', '1/s');
11297 model.physics('dode2').prop('Units').set('CustomSourceTermUnit', '1/s');
11298 model.physics('dode3').prop('Units').set('CustomSourceTermUnit', '1/s');
11299 model.physics('dode4').prop('Units').set('CustomSourceTermUnit', '1/s');
11300 model.physics('dode5').prop('Units').set('CustomSourceTermUnit', '1/s');
11301 model.physics('dode6').prop('Units').set('CustomSourceTermUnit', '1/s');
11302 model.physics('dode7').prop('Units').set('CustomSourceTermUnit', '1/s');
11303 model.physics('dode8').prop('Units').set('CustomSourceTermUnit', '1/s');
11304 model.physics('dode9').prop('Units').set('CustomSourceTermUnit', '1/s');
11305 model.physics('dode10').prop('Units').set('CustomSourceTermUnit', '1/s');
11306 model.physics('dode11').prop('Units').set('CustomSourceTermUnit', '1/s');
11307 model.physics('dode12').prop('Units').set('CustomSourceTermUnit', '1/s');
11308 model.physics('dode13').prop('Units').set('CustomSourceTermUnit', '1/s');
11309 model.physics('dode14').prop('Units').set('CustomSourceTermUnit', '1/s');
11310 model.physics('dode15').prop('Units').set('CustomSourceTermUnit', '1/s');
11311 model.physics('dode16').prop('Units').set('CustomSourceTermUnit', '1/s');
11312 model.physics('dode17').prop('Units').set('CustomSourceTermUnit', '1/s');
11313 model.physics('dode18').prop('Units').set('CustomSourceTermUnit', '1/s');
```

```
11314 model.physics('dode19').prop('Units').set('CustomSourceTermUnit', '1/s');
11315 model.physics('dode20').prop('Units').set('CustomSourceTermUnit', '1/s');
11316 model.physics('dode21').prop('Units').set('CustomSourceTermUnit', '1/s');
11317 model.physics('dode22').prop('Units').set('CustomSourceTermUnit', '1/s');
11318 model.physics('dode24').prop('Units').set('CustomSourceTermUnit', '1/s');
11319 model.physics('dode23').prop('Units').set('CustomSourceTermUnit', '1/s');
11320 model.physics('dode25').prop('Units').set('CustomSourceTermUnit', '1/s');
11321 model.physics('dode26').prop('Units').set('CustomSourceTermUnit', '1/s');
11322 model.physics('dode27').prop('Units').set('CustomSourceTermUnit', '1/s');
11323 model.physics('dode28').prop('Units').set('CustomSourceTermUnit', '1/s');
11324 model.physics('dode29').prop('Units').set('CustomSourceTermUnit', '1/s');
11325 model.physics('dode30').prop('Units').set('CustomSourceTermUnit', '1/s');
11326 model.physics('dode31').prop('Units').set('CustomSourceTermUnit', '1/s');
11327 model.physics('dode32').prop('Units').set('CustomSourceTermUnit', '1/s');
11328 model.physics('dode33').prop('Units').set('CustomSourceTermUnit', '1/s');
11329 model.physics('dode34').prop('Units').set('CustomSourceTermUnit', '1/s');
11330 model.physics('dode35').prop('Units').set('CustomSourceTermUnit', '1/s');
11331 model.physics('dode36').prop('Units').set('CustomSourceTermUnit', '1/s');
11332 model.physics('dode37').prop('Units').set('CustomSourceTermUnit', '1/s');
11333 model.physics('dode38').prop('Units').set('CustomSourceTermUnit', '1/s');
11334 model.physics('dode39').prop('Units').set('CustomSourceTermUnit', '1/s');
11335 model.physics('dode40').prop('Units').set('CustomSourceTermUnit', '1/s');
11336 model.physics('dode41').prop('Units').set('CustomSourceTermUnit', '1/s');
11337 model.physics('dode42').prop('Units').set('CustomSourceTermUnit', '1/s');
11338 model.physics('dode43').prop('Units').set('CustomSourceTermUnit', '1/s');
11339 model.physics('dode44').prop('Units').set('CustomSourceTermUnit', '1/s');
11340
11341 model.variable('var7').remove('ka_spleen');
11342 model.variable('var7').remove('ka_liver');
11343 model.variable('var7').remove('ka_Upper_body');
11344 model.variable('var7').remove('ka_Torso');
11345 model.variable('var7').remove('ka_lung');
11346 model.variable('var7').remove('ka_intestin');
11347 model.variable('var7').remove('ka_Lower_body');
11348 model.variable('var7').remove('ka_brain');
11349 model.variable('var7').remove('ka_kidney');
11350 model.variable('var7').remove('ka_Cardiac_vessels');
11351 model.variable('var7').set('ka_spleen', '1e-3*60*24 [ml/min/mmol]');
11352 model.variable('var7').set('ka_liver', '1e-3*60*24 [ml/min/mmol]');
11353 model.variable('var7').set('ka_Upper_body', '1e-3*60*24 [ml/min/mmol]');
11354 model.variable('var7').set('ka_Torso', '1e-3*60*24 [ml/min/mmol]');
11355 model.variable('var7').set('ka_lung', '1e-3*60*24 [ml/min/mmol]');
11356 model.variable('var7').set('ka_intestin', '1e-3*60*24 [ml/min/mmol]');
11357 model.variable('var7').set('ka_Lower_body', '1e-3*60*24 [ml/min/mmol]');
11358 model.variable('var7').set('ka_brain', '1e-3*60*24 [ml/min/mmol]');
11359 model.variable('var7').set('ka_kidney', '1e-3*60*24 [ml/min/mmol]');
11360 model.variable('var7').set('ka_Cardiac_vessels', '1e-3*60*24 [ml/min/mmol]');
11361 model.variable('var7').set('ka_spleen', '1e-3*60*24 [1/min]');
11362 model.variable('var7').set('ka_liver', '1e-3*60*24 [1/min]');
11363 model.variable('var7').set('ka_Upper_body', '1e-3*60*24 [1/min]');
```

```
11364 model.variable('var7').set('ka_Torso', '1e-3*60*24 [1/min]');
11365 model.variable('var7').set('ka_lung', '1e-3*60*24 [1/min]');
11366 model.variable('var7').set('ka_intestin', '1e-3*60*24 [1/min]');
11367 model.variable('var7').set('ka_Lower_body', '1e-3*60*24 [1/min]');
11368 model.variable('var7').set('ka_brain', '1e-3*60*24 [1/min]');
11369 model.variable('var7').set('ka_kidney', '1e-3*60*24 [1/min]');
11370 model.variable('var7').set('ka_Cardiac_vessels', '1e-3*60*24 [1/min]');
11371 model.variable('var8').remove('kd_spleen');
11372 model.variable('var8').remove('kd_liver');
11373 model.variable('var8').remove('kd_Upper_body');
11374 model.variable('var8').remove('kd_Torso');
11375 model.variable('var8').remove('kd_lung');
11376 model.variable('var8').remove('kd_intestin');
11377 model.variable('var8').remove('kd_Lower_body');
11378 model.variable('var8').remove('kd_brain');
11379 model.variable('var8').remove('kd_kidney');
11380 model.variable('var8').remove('kd_Cardiac_vessels');
11381 model.variable('var8').set('kd_spleen', '1e-3*2/3*60*24 [1/min]');
11382 model.variable('var8').set('kd_liver', '1e-3*2/3*60*24 [1/min]');
11383 model.variable('var8').set('kd_Upper_body', '1e-3*2/3*60*24 [1/min]');
11384 model.variable('var8').set('kd_Torso', '1e-3*2/3*60*24 [1/min]');
11385 model.variable('var8').set('kd_lung', '1e-3*2/3*60*24 [1/min]');
11386 model.variable('var8').set('kd_intestin', '1e-3*2/3*60*24 [1/min]');
11387 model.variable('var8').set('kd_Lower_body', '1e-3*2/3*60*24 [1/min]');
11388 model.variable('var8').set('kd_brain', '1e-3*2/3*60*24 [1/min]');
11389 model.variable('var8').set('kd_kidney', '1e-3*2/3*60*24 [1/min]');
11390 model.variable('var8').set('kd_Cardiac_vessels', '1e-3*2/3*60*24 [1/min]');
11391 model.variable('var9').remove('disinf_lung');
11392 model.variable('var9').remove('disinf_liver');
11393 model.variable('var9').remove('disinf_spleen');
11394 model.variable('var9').remove('disinf_Upper_body');
11395 model.variable('var9').remove('disinf_Torso');
11396 model.variable('var9').remove('disinf_Intestine');
11397 model.variable('var9').remove('disinf_Lower_body');
11398 model.variable('var9').remove('disinf_Brain');
11399 model.variable('var9').remove('disinf_kidney');
11400 model.variable('var9').remove('disinf_Cardiac_vessels');
11401 model.variable('var9').set('disinf_lung', '1 [1/d]');
11402 model.variable('var9').set('disinf_liver', '1 [1/d]');
11403 model.variable('var9').set('disinf_spleen', '1 [1/d]');
11404 model.variable('var9').set('disinf_Upper_body', '1 [1/d]');
11405 model.variable('var9').set('disinf_Torso', '1 [1/d]');
11406 model.variable('var9').set('disinf_Intestine', '1 [1/d]');
11407 model.variable('var9').set('disinf_Lower_body', '1 [1/d]');
11408 model.variable('var9').set('disinf_Brain', '1 [1/d]');
11409 model.variable('var9').set('disinf_kidney', '1 [1/d]');
11410 model.variable('var9').set('disinf_Cardiac_vessels', '1 [1/d]');
11411 model.variable('var10').remove('disinfa_lung');
11412 model.variable('var10').remove('disinfa_liver');
11413 model.variable('var10').remove('disinfa_spleen');
```

```
model.variable('var10').remove('disinfa_Upper_body');
model.variable('var10').remove('disinfa_Torso');
model.variable('var10').remove('disinfa_Intestine');
model.variable('var10').remove('disinfa_Lower_body');
model.variable('var10').remove('disinfa_Brain');
model.variable('var10').remove('disinfa_kidney');
model.variable('var10').remove('disinfa_Cardiac_vessels');
model.variable('var10').set('disinfa_lung', '1 [1/d]');
model.variable('var10').set('disinfa_liver', '1 [1/d]');
model.variable('var10').set('disinfa_spleen', '1 [1/d]');
model.variable('var10').set('disinfa_Upper_body', '1 [1/d]');
model.variable('var10').set('disinfa_Torso', '1 [1/d]');
model.variable('var10').set('disinfa_Intestine', '1 [1/d]');
model.variable('var10').set('disinfa_Lower_body', '1 [1/d]');
model.variable('var10').set('disinfa_Brain', '1 [1/d]');
model.variable('var10').set('disinfa_kidney', '1 [1/d]');
model.variable('var10').set('disinfa_Cardiac_vessels', '1 [1/d]');
model.variable('var11').remove('p_liver');
model.variable('var11').remove('p_lung');
model.variable('var11').remove('p_spleen');
model.variable('var11').remove('p_Upper_body');
model.variable('var11').remove('p_Torso');
model.variable('var11').remove('p_Intestine');
model.variable('var11').remove('p_Lower_body');
model.variable('var11').remove('p_Brain');
model.variable('var11').remove('p_kidney');
model.variable('var11').remove('p_Cardiac_vessels');
model.variable('var11').set('p_liver', '1 [1/d]');
model.variable('var11').set('p_lung', '1 [1/d]');
model.variable('var11').set('p_spleen', '0.1 [1/d]');
model.variable('var11').set('p_Upper_body', '1.1 [1/d]');
model.variable('var11').set('p_Torso', '2 [1/d]');
model.variable('var11').set('p_Intestine', '0.7 [1/d]');
model.variable('var11').set('p_Lower_body', '0.9 [1/d]');
model.variable('var11').set('p_Brain', '1.4 [1/d]');
model.variable('var11').set('p_kidney', '1.1 [1/d]');
model.variable('var11').set('p_Cardiac_vessels', '1.8 [1/d]');
model.variable('var13').remove('mt_lung');
model.variable('var13').remove('mt_liver');
model.variable('var13').remove('mt_spleen');
model.variable('var13').remove('mt_Upper_body');
model.variable('var13').remove('mt_Torso');
model.variable('var13').remove('mt_Intestine');
model.variable('var13').remove('mt_Lower_body');
model.variable('var13').remove('mt_Brain');
model.variable('var13').remove('mt_kidney');
model.variable('var13').remove('mt_Cardiac_vessels');
model.variable('var13').set('mt_lung', '1 [mol/L/d]');
model.variable('var13').set('mt_liver', '1 [mol/L/d]');
model.variable('var13').set('mt_spleen', '1 [mol/L/d]');
```

```
11464 model.variable('var13').set('mt_Upper_body', '1 [mol/L/d]');
11465 model.variable('var13').set('mt_Torso', '1 [mol/L/d]');
11466 model.variable('var13').set('mt_Intestine', '1 [mol/L/d]');
11467 model.variable('var13').set('mt_Lower_body', '1 [mol/L/d]');
11468 model.variable('var13').set('mt_Brain', '1 [mol/L/d]');
11469 model.variable('var13').set('mt_kidney', '1 [mol/L/d]');
11470 model.variable('var13').set('mt_Cardiac_vessels', '1 [mol/L/d]');
11471 model.variable('var13').set('mt_lung', '1 [1/d]');
11472 model.variable('var13').set('mt_liver', '1 [1/d]');
11473 model.variable('var13').set('mt_spleen', '1 [1/d]');
11474 model.variable('var13').set('mt_Upper_body', '1 [1/d]');
11475 model.variable('var13').set('mt_Torso', '1 [1/d]');
11476 model.variable('var13').set('mt_Intestine', '1 [1/d]');
11477 model.variable('var13').set('mt_Lower_body', '1 [1/d]');
11478 model.variable('var13').set('mt_Brain', '1 [1/d]');
11479 model.variable('var13').set('mt_kidney', '1 [1/d]');
11480 model.variable('var13').set('mt_Cardiac_vessels', '1 [1/d]');
11481 model.variable('var14').remove('d_lung');
11482 model.variable('var14').remove('d_liver');
11483 model.variable('var14').remove('d_spleen');
11484 model.variable('var14').remove('d_Upper_body');
11485 model.variable('var14').remove('d_Torso');
11486 model.variable('var14').remove('d_Intestine');
11487 model.variable('var14').remove('d_Lower_body');
11488 model.variable('var14').remove('d_Brain');
11489 model.variable('var14').remove('d_kidney');
11490 model.variable('var14').remove('d_Cardiac_vessels');
11491 model.variable('var14').set('d_lung', '1 [1/d]');
11492 model.variable('var14').set('d_liver', '1 [1/d]');
11493 model.variable('var14').set('d_spleen', '1 [1/d]');
11494 model.variable('var14').set('d_Upper_body', '1 [1/d]');
11495 model.variable('var14').set('d_Torso', '1 [1/d]');
11496 model.variable('var14').set('d_Intestine', '1 [1/d]');
11497 model.variable('var14').set('d_Lower_body', '1 [1/d]');
11498 model.variable('var14').set('d_Brain', '1 [1/d]');
11499 model.variable('var14').set('d_kidney', '1 [1/d]');
11500 model.variable('var14').set('d_Cardiac_vessels', '1 [1/d]');
11501 model.variable('var15').remove('Q_Cardiac_vessels');
11502 model.variable('var15').remove('Q_spleen');
11503 model.variable('var15').remove('Q_Upper_body');
11504 model.variable('var15').remove('Q_Torso');
11505 model.variable('var15').remove('Q_brain');
11506 model.variable('var15').remove('Q_Lower_body');
11507 model.variable('var15').remove('Q_intestin');
11508 model.variable('var15').remove('Q_kidney');
11509 model.variable('var15').remove('Q_liver');
11510 model.variable('var15').set('Q_Cardiac_vessels', '120*60*24*1e-3 [L/d]');
11511 model.variable('var15').set('Q_spleen', '138*60*24*1e-3 [L/d]');
11512 model.variable('var15').set('Q_Upper_body', '138*60*24*1e-3 [L/d]');
11513 model.variable('var15').set('Q_Torso', '220*60*24*1e-3 [L/d]');
```

```
model.variable('var15').set('Q_brain', '300*60*24*1e-3 [L/d]');
model.variable('var15').set('Q_Lower_body', '413*60*24*1e-3 [L/d]');
model.variable('var15').set('Q_intestin', '468*60*24*1e-3 [L/d]');
model.variable('var15').set('Q_kidney', '630*60*24*1e-3 [L/d]');
model.variable('var15').set('Q_liver', '800*60*24*1e-3 [L/d]');
model.variable('var15').set('Q_Cardiac_vessels', '120*60*24*1e-3 [1/d]');
model.variable('var15').set('Q_spleen', '138*60*24*1e-3 [1/d]');
model.variable('var15').set('Q_Upper_body', '138*60*24*1e-3 [1/d]');
model.variable('var15').set('Q_Torso', '220*60*24*1e-3 [1/d]');
model.variable('var15').set('Q_brain', '300*60*24*1e-3 [1/d]');
model.variable('var15').set('Q_Lower_body', '413*60*24*1e-3 [1/d]');
model.variable('var15').set('Q_intestin', '468*60*24*1e-3 [1/d]');
model.variable('var15').set('Q_kidney', '630*60*24*1e-3 [1/d]');
model.variable('var15').set('Q_liver', '800*60*24*1e-3 [1/d]');
model.variable('var16').remove('L_spleen');
model.variable('var16').remove('L_liver');
model.variable('var16').remove('L_Upper_body');
model.variable('var16').remove('L_Torso');
model.variable('var16').remove('L_lung');
model.variable('var16').remove('L_intestin');
model.variable('var16').remove('L_kidney');
model.variable('var16').remove('L_Lower_body');
model.variable('var16').remove('L_Cardiac_vessels');
model.variable('var16').remove('L_Lspleen');
model.variable('var16').remove('L_Lliver');
model.variable('var16').remove('L_LUpper_body');
model.variable('var16').remove('L_LTorso');
model.variable('var16').remove('L_Llung');
model.variable('var16').remove('L_Lintestin');
model.variable('var16').remove('L_Ltumor');
model.variable('var16').remove('L_LLower_body');
model.variable('var16').remove('L_brain');
model.variable('var16').remove('L_Lkidney');
model.variable('var16').remove('L_Lbrain');
model.variable('var16').set('L_spleen', '8.7e-4*60*24*1e-3 [1/d]');
model.variable('var16').set('L_liver', '8.7e-2*60*24*1e-3 [1/d]');
model.variable('var16').set('L_Upper_body', '2.6e-2*60*24*1e-3 [1/d]');
model.variable('var16').set('L_Torso', '4.3e-3*60*24*1e-3 [1/d]');
model.variable('var16').set('L_lung', '4.3e-2*60*24*1e-3 [1/d]');
model.variable('var16').set('L_intestin', '3e-1*60*24*1e-3 [1/d]');
model.variable('var16').set('L_kidney', '1e-3*60*24*1e-3 [1/d]');
model.variable('var16').set('L_Lower_body', '1e-3*60*24*1e-3 [1/d]');
model.variable('var16').set('L_Cardiac_vessels', '4.3e-3*60*24*1e-3 [1/d]');
model.variable('var16').set('L_Lspleen', '0 [1/d]');
model.variable('var16').set('L_Lliver', '1.5e-6*60*24*1e-3 [1/d]');
model.variable('var16').set('L_LUpper_body', '1e-3*60*24*1e-3 [1/d]');
model.variable('var16').set('L_LTorso', '1e-3*60*24*1e-3 [1/d]');
model.variable('var16').set('L_Llung', '1.8e-6*60*24*1e-3 [1/d]');
model.variable('var16').set('L_Lintestin', '1e-3*60*24*1e-3 [1/d]');
model.variable('var16').set('L_Ltumor', '1e-3*1.1*60*24*1e-3 [1/d]');
```

```
11564 model.variable('var16').set('L_LLower_body', '1e-3*60*24*1e-3 [1/d]');
11565 model.variable('var16').set('L_brain', '1e-3*60*24*1e-3 [1/d]');
11566 model.variable('var16').set('L_Lkidney', '1e-3*60*24*1e-3 [1/d]');
11567 model.variable('var16').set('L_Lbrain', '1e-3*60*24*1e-3 [1/d]');
11568 model.variable('var17').remove('vv_spleen');
11569 model.variable('var17').remove('vv_liver');
11570 model.variable('var17').remove('vv_Upper_body');
11571 model.variable('var17').remove('vv_Torso');
11572 model.variable('var17').remove('vv_lung');
11573 model.variable('var17').remove('vv_intestin');
11574 model.variable('var17').remove('vv_Lower_body');
11575 model.variable('var17').remove('vv_brain');
11576 model.variable('var17').remove('vv_kidney');
11577 model.variable('var17').remove('vv_Cardiac_vessels');
11578 model.variable('var17').remove('vv_ventricle');
11579 model.variable('var17').set('vv_spleen', '17*1e-3 [1]');
11580 model.variable('var17').set('vv_liver', '180.9*1e-3 [1]');
11581 model.variable('var17').set('vv_Upper_body', '150*1e-3 [1]');
11582 model.variable('var17').set('vv_Torso', '462*1e-3 [1]');
11583 model.variable('var17').set('vv_lung', '99.9*1e-3 [1]');
11584 model.variable('var17').set('vv_intestin', '43*1e-3 [1]');
11585 model.variable('var17').set('vv_Lower_body', '700*1e-3 [1]');
11586 model.variable('var17').set('vv_brain', '150*1e-3 [1]');
11587 model.variable('var17').set('vv_kidney', '28.4*1e-3 [1]');
11588 model.variable('var17').set('vv_Cardiac_vessels', '100*1e-3 [1]');
11589 model.variable('var17').set('vv_ventricle', '200*1e-3 [1]');
11590 model.variable('var19').set('Q_tumor', '0[1/d]');
11591 model.variable('var19').set('Q_Lnode', '0[1/d]');
11592 model.variable('var19').set('L_tumor', '0[1/d]');
11593
11594 model.label('Baseline_solution_Time step_new↙
therapy_oxygen_flow_stepFunction_runTest1_diemensiolensnonTime.mph');
11595
11596 model.sol('sol54').runAll;
11597
11598 model.result('pg1').run;
11599 model.result('pg40').run;
11600 model.result('pg40').run;
11601 model.result('pg40').feature('ptgr1').set('expr', 'y125');
11602 model.result('pg40').run;
11603
11604 model.sol('sol54').feature('t1').set('maxstepbdf', '2.6618e-09');
11605
11606 model.result('pg1').run;
11607
11608 model.sol('sol54').feature('t1').set('maxstepbdf', '2.6618e-4');
11609
11610 model.label('Baseline_solution_Time step_new↙
therapy_oxygen_flow_stepFunction_runTest1_diemensiolensnonTime_minstep.mph');
11611
```

```
model.variable('var7').set('ka_spleen', '1e-3*60*24 [1/d]');
model.variable('var7').set('ka_liver', '1e-3*60*24 [1/d]');
model.variable('var7').set('ka_Upper_body', '1e-3*60*24 [1/d]');
model.variable('var7').set('ka_Torso', '1e-3*60*24 [1/d]');
model.variable('var7').set('ka_lung', '1e-3*60*24 [1/d]');
model.variable('var7').set('ka_intestin', '1e-3*60*24 [1/d]');
model.variable('var7').set('ka_Lower_body', '1e-3*60*24 [1/d]');
model.variable('var7').set('ka_brain', '1e-3*60*24 [1/d]');
model.variable('var7').set('ka_kidney', '1e-3*60*24 [1/d]');
model.variable('var7').set('ka_Cardiac_vessels', '1e-3*60*24 [1/d]');
model.variable('var8').set('kd_spleen', '1e-3*2/3*60*24 [1/d]');
model.variable('var8').set('kd_liver', '1e-3*2/3*60*24 [1/d]');
model.variable('var8').set('kd_Upper_body', '1e-3*2/3*60*24 [1/d]');
model.variable('var8').set('kd_Torso', '1e-3*2/3*60*24 [1/d]');
model.variable('var8').set('kd_lung', '1e-3*2/3*60*24 [1/d]');
model.variable('var8').set('kd_intestin', '1e-3*2/3*60*24 [1/d]');
model.variable('var8').set('kd_Lower_body', '1e-3*2/3*60*24 [1/d]');
model.variable('var8').set('kd_brain', '1e-3*2/3*60*24 [1/d]');
model.variable('var8').set('kd_kidney', '1e-3*2/3*60*24 [1/d]');
model.variable('var8').set('kd_Cardiac_vessels', '1e-3*2/3*60*24 [1/d]');

model.sol('sol54').feature('t1').set('maxstepbdfactive', 'off');
model.sol('sol54').runAll;

model.result('pg1').run;
model.result('pg40').run;
model.result('pg40').run;
model.result('pg40').feature('ptgr1').set('expr', 'y5');
model.result('pg40').run;
model.result('pg40').run;
model.result('pg40').feature('ptgr1').set('expr', 'y125');
model.result('pg40').run;
model.result('pg40').run;

model.physics('dode').prop('ShapeProperty').set('order', '1');

model.study('std1').feature('time').set('tlist', 'range(0,1,15)');

model.physics('dode8').feature('init1').set('y100', '1');

model.sol('sol54').runAll;

model.result('pg1').run;
model.result('pg40').run;
model.result('pg40').feature('ptgr1').set('expr', 'y5');
model.result('pg40').run;
model.result('pg40').feature('ptgr1').set('expr', 'y8');

model.label('Baseline add Matlab EQ_clear.mph');

```

```
11662 model.result('pg40').run;
11663
11664 model.sol('sol54').clearSolutionData;
11665
11666 model.result('pg39').run;
11667 model.result('pg1').run;
11668 model.result.remove('pg1');
11669 model.result.remove('pg2');
11670 model.result.remove('pg3');
11671 model.result.remove('pg4');
11672 model.result.remove('pg5');
11673 model.result.remove('pg6');
11674 model.result.remove('pg7');
11675 model.result.remove('pg8');
11676 model.result.remove('pg9');
11677 model.result.remove('pg10');
11678 model.result.remove('pg11');
11679 model.result.remove('pg12');
11680 model.result.remove('pg13');
11681 model.result.remove('pg14');
11682 model.result.remove('pg15');
11683 model.result.remove('pg16');
11684 model.result.remove('pg17');
11685 model.result.remove('pg18');
11686 model.result.remove('pg19');
11687 model.result.remove('pg20');
11688 model.result.remove('pg21');
11689 model.result.remove('pg22');
11690 model.result.remove('pg23');
11691 model.result.remove('pg24');
11692 model.result.remove('pg25');
11693 model.result.remove('pg26');
11694 model.result.remove('pg27');
11695 model.result.remove('pg28');
11696 model.result.remove('pg29');
11697 model.result.remove('pg30');
11698 model.result.remove('pg31');
11699 model.result.remove('pg32');
11700 model.result.remove('pg33');
11701 model.result.remove('pg34');
11702 model.result.remove('pg35');
11703 model.result.remove('pg36');
11704 model.result.remove('pg37');
11705 model.result.remove('pg38');
11706 model.result.remove('pg39');
11707
11708 model.label('Baseline add Matlab EQ_clear.mph');
11709
11710 model.sol('sol54').feature('t1').feature('fc1').set('dtech', 'auto');
11711 model.sol('sol54').runAll;
```

```
11712
11713 model.result('pg40').run;
11714 model.result('pg40').feature('ptgr1').set('expr', 'y111');
11715 model.result('pg40').run;
11716 model.result('pg40').run;
11717 model.result('pg40').run;
11718 model.result('pg40').feature('ptgr1').set('expr', 'y5');
11719 model.result('pg40').run;
11720 model.result('pg40').run;
11721 model.result('pg40').feature('ptgr1').set('expr', 'y125');
11722 model.result('pg40').run;
11723
11724 model.sol('sol54').clearSolutionData;
11725
11726 model.label('Baseline add Matlab EQ_clear_Method and Termination Autoimatic ↙
Newton.mph');
11727
11728 model.result('pg40').run;
11729
11730 model.sol('sol54').feature('t1').set('timemethod', 'bdf');
11731
11732 model.result('pg40').run;
11733
11734 model.component('comp1').variable('var22').set('f105', '(Q_lung*y86-(Q_lung- ↙
L_lung)*y105+mt_lung*ac*Ci/(ACE2+1)*vv_lung+mt_lung*ac*IL6/(IL6+1)*vv_lung- ↙
d_lung*y105*vv_lung)/vv_lung');
11735 model.component('comp1').variable('var22').set('f107', '((Q_intestin-L_intestin) ↙
*y111+(Q_spleen-L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85- ↙
(Q_liver-L_liver)*y107+mt_liver*ac*y15/(y87+1)*vv_liver+mt_liver*ac*IL6/(IL6+1) ↙
*vv_liver-d_liver*y107*vv_liver)/vv_liver');
11736 model.component('comp1').variable('var22').set('f108', '(Q_spleen*y85-(Q_spleen- ↙
L_spleen)*y108+mt_spleen*ac*y19/(y102+1)*vv_spleen+mt_spleen*ac*IL6/(IL6+1)*vv_spleen- ↙
d_spleen*y108*vv_spleen)/vv_spleen');
11737 model.component('comp1').variable('var22').set('f109', '(Q_Upper_body*y85- ↙
(Q_Upper_body-L_Upper_body)*y109+mt_Upper_body*ac*y23/(y92+1) ↙
*vv_Upper_body+mt_Upper_body*ac*IL6/(IL6+1)*vv_Upper_body- ↙
d_Upper_body*y109*vv_Upper_body)/vv_Upper_body');
11738 model.component('comp1').variable('var22').set('f110', '(Q_Torso*y85-(Q_Torso- ↙
L_Torso)*y110+mt_Torso*ac*y27/(y90+1)*vv_Torso+mt_Torso*ac*IL6/(IL6+1)*vv_Torso- ↙
d_Torso*y110*vv_Torso)/vv_Torso');
11739 model.component('comp1').variable('var22').set('f111', '(Q_intestin*y85- ↙
(Q_intestin-L_intestin)*y111+mt_Intestine*ac*y31/(y103+1) ↙
*vv_intestin+mt_Intestine*ac*IL6/(IL6+1)*vv_Intestine-d_Intestine*y111*vv_intestin) ↙
/vv_intestin');
11740 model.component('comp1').variable('var17').rename('vv_intestin', 'vv_intestine');
11741 model.component('comp1').variable('var22').set('f111', '(Q_intestin*y85- ↙
(Q_intestin-L_intestin)*y111+mt_Intestine*ac*y31/(y103+1) ↙
*vv_intestin+mt_Intestin*ac*IL6/(IL6+1)*vv_Intestin-d_Intestine*y111*vv_intestin) ↙
/vv_intestin');
11742 model.component('comp1').variable('var17').rename('vv_intestine', 'vv_intestin');
```

```
11743 model.component('comp1').variable('var22').set('f111', '(Q_intestin*y85- ↙
(Q_intestin-L_intestin)*y111+mt_Intestine*ac*y31/(y103+1) ↙
*vv_intestin+mt_Intestine*ac*IL6/(IL6+1)*vv_intestin-d_Intestine*y111*vv_intestin) ↙
/vv_intestin');
11744 model.component('comp1').variable('var22').set('f117', ↙
'(Q_Lower_body*y85*rf_IL2_Ltumor-(Q_Lower_body-L_Lower_body) ↙
*y117*rf_IL2_Ltumor+mt_Lower_body*ac*y55/(y94+1)*vv_Lower_body+mt_Lower_body*ac*IL6/ ↙
(IL6+1)*vv_Lower_body-d_Lower_body*y117*vv_Lower_body)/vv_Lower_body');
11745 model.component('comp1').variable('var22').set('f119', ↙
'(Q_brain*y85*rf_IL2_Ltumor-(Q_brain-L_brain)*y119*rf_IL2_Ltumor+mt_Brain*ac*y63/ ↙
(y96+1)*vv_brain+mt_Brain*ac*IL6/(IL6+1)*vv_brain-d_Brain*y119*vv_brain)/vv_brain');
11746 model.component('comp1').variable('var22').set('f121', ↙
'(Q_kidney*y85*rf_IL2_Ltumor-(Q_kidney-L_kidney)*y121*rf_IL2_Ltumor+mt_kidney*ac*y71/ ↙
(y98+1)*vv_kidney+mt_kidney*ac*IL6/(IL6+1)*vv_kidney-d_kidney*y121*vv_kidney) ↙
/vv_kidney');
11747 model.component('comp1').variable('var22').set('f124', ↙
'(Q_Cardiac_vessels*y85*rf_IL2_Ltumor-(Q_Cardiac_vessels-L_Cardiac_vessels) ↙
*y124*rf_IL2_Ltumor+mt_Cardiac_vessels*ac*y75/(y125+1) ↙
*vv_Cardiac_vessels+mt_Cardiac_vessels*ac*IL6/(IL6+1)*vv_Cardiac_vessels- ↙
d_Cardiac_vessels*y124*vv_Cardiac_vessels)/vv_Cardiac_vessels');
11748
11749 model.sol('sol54').runAll;
11750
11751 model.result('pg40').run;
11752 model.result('pg40').run;
11753 model.result('pg40').feature('ptgr1').set('expr', 'y111');
11754 model.result('pg40').run;
11755
11756 model.component('comp1').physics('dode8').active(false);
11757 model.component('comp1').physics('dode6').active(false);
11758 model.component('comp1').physics('dode5').active(false);
11759
11760 model.component('comp1').variable('var22').set('f5', '((Q_lung-L_lung)*Ci- ↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y5)/vv_ventricle');
11761
11762 model.result('pg40').run;
11763
11764 model.component('comp1').variable('var22').set('f105', '(Q_lung*y86-(Q_lung- ↙
L_lung)*y105+mt_lung*ac*Cb/(ACE2+1)*vv_lung+mt_lung*ac*IL6/(IL6+1)*vv_lung- ↙
d_lung*y105*vv_lung)/vv_lung');
11765
11766 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Ka*Vint', 0);
11767
11768 model.result('pg40').run;
11769
11770 model.component('comp1').variable('var21').set('y34', '0 [M]');
11771 model.component('comp1').variable('var21').set('y10', '0 [M]');
```

```
11772 model.component('comp1').variable('var21').set('y1', '0 [M]');
11773 model.component('comp1').variable('var21').set('y38', '0 [M]');
11774 model.component('comp1').variable('var21').set('y42', '0 [M]');
11775 model.component('comp1').variable('var21').set('y46', '0 [M]');
11776 model.component('comp1').variable('var21').set('y50', '0 [M]');
11777 model.component('comp1').variable('var21').set('y58', '0 [M]');
11778 model.component('comp1').variable('var21').set('y66', '0 [M]');
11779 model.component('comp1').variable('var21').set('y77', '0 [M]');
11780 model.component('comp1').variable('var21').set('y13', '0 [M]');
11781 model.component('comp1').variable('var21').set('y37', '0 [M]');
11782 model.component('comp1').variable('var21').set('y41', '0 [M]');
11783 model.component('comp1').variable('var21').set('y45', '0 [M]');
11784 model.component('comp1').variable('var21').set('y49', '0 [M]');
11785 model.component('comp1').variable('var21').set('y53', '0 [M]');
11786 model.component('comp1').variable('var21').set('y61', '0 [M]');
11787 model.component('comp1').variable('var21').set('y69', '0 [M]');
11788 model.component('comp1').variable('var21').set('y106', '0 [M]');
11789 model.component('comp1').variable('var21').set('y112', '0 [M]');
11790 model.component('comp1').variable('var21').set('y113', '0 [M]');
11791 model.component('comp1').variable('var21').set('y104', '0 [M]');
11792 model.component('comp1').variable('var21').set('y114', '0 [M]');
11793 model.component('comp1').variable('var21').set('y115', '0 [M]');
11794 model.component('comp1').variable('var21').set('y116', '0 [M]');
11795 model.component('comp1').variable('var21').set('y118', '0 [M]');
11796 model.component('comp1').variable('var21').set('y120', '0 [M]');
11797 model.component('comp1').variable('var21').set('y99', '0 [M]');
11798 model.component('comp1').variable('var21').set('y101', '0 [M]');
11799 model.component('comp1').variable('var21').set('y80', '0 [M]');
11800 model.component('comp1').variable('var21').set('y89', '0 [M]');
11801 model.component('comp1').variable('var21').set('y91', '0 [M]');
11802 model.component('comp1').variable('var21').set('y93', '0 [M]');
11803 model.component('comp1').variable('var21').set('y95', '0 [M]');
11804 model.component('comp1').variable('var21').set('y97', '0 [M]');
11805
11806 model.result('pg40').run;
11807 model.result('pg40').feature('ptgr1').set('expr', 'y78');
11808 model.result('pg40').run;
11809 model.result('pg40').run;
11810 model.result('pg40').run;
11811 model.result('pg40').feature('ptgr1').set('data', 'dset4');
11812 model.result('pg40').run;
11813 model.result('pg40').feature('ptgr1').set('data', 'cpt1');
11814 model.result('pg40').run;
11815
11816 model.component('comp1').physics('dode2').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11817 model.component('comp1').physics('dode').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11818 model.component('comp1').physics('dode3').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
```

```
11819 model.component('comp1').physics('dode4').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11820 model.component('comp1').physics('dode5').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11821 model.component('comp1').physics('dode6').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11822 model.component('comp1').physics('dode7').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11823 model.component('comp1').physics('dode8').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11824 model.component('comp1').physics('dode9').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11825 model.component('comp1').physics('dode10').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11826 model.component('comp1').physics('dode11').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11827 model.component('comp1').physics('dode12').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11828 model.component('comp1').physics('dode13').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11829 model.component('comp1').physics('dode14').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11830 model.component('comp1').physics('dode15').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11831 model.component('comp1').physics('dode16').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11832 model.component('comp1').physics('dode17').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11833 model.component('comp1').physics('dode18').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11834 model.component('comp1').physics('dode19').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11835 model.component('comp1').physics('dode20').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11836 model.component('comp1').physics('dode21').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11837 model.component('comp1').physics('dode22').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11838 model.component('comp1').physics('dode24').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11839 model.component('comp1').physics('dode23').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11840 model.component('comp1').physics('dode25').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11841 model.component('comp1').physics('dode26').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11842 model.component('comp1').physics('dode27').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11843 model.component('comp1').physics('dode28').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
```

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11844 model.component('comp1').physics('dode29').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11845 model.component('comp1').physics('dode30').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11846 model.component('comp1').physics('dode31').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11847 model.component('comp1').physics('dode32').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11848 model.component('comp1').physics('dode33').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11849 model.component('comp1').physics('dode34').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11850 model.component('comp1').physics('dode35').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11851 model.component('comp1').physics('dode36').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11852 model.component('comp1').physics('dode37').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11853 model.component('comp1').physics('dode38').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11854 model.component('comp1').physics('dode39').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11855 model.component('comp1').physics('dode40').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11856 model.component('comp1').physics('dode41').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11857 model.component('comp1').physics('dode42').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11858 model.component('comp1').physics('dode44').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11859 model.component('comp1').physics('dode43').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
11860
11861 model.component('comp1').variable('var15').set('Q_Cardiac_vessels', ↙
'120*60*24*1e-3 [L/d]');
11862 model.component('comp1').variable('var15').set('Q_spleen', '138*60*24*1e-3 ↙
[L/d]');
11863 model.component('comp1').variable('var15').set('Q_Upper_body', '138*60*24*1e-3 ↙
[L/d]');
11864 model.component('comp1').variable('var15').set('Q_Torso', '220*60*24*1e-3 ↙
[L/d]');
11865 model.component('comp1').variable('var15').set('Q_brain', '300*60*24*1e-3 ↙
[L/d]');
11866 model.component('comp1').variable('var15').set('Q_Lower_body', '413*60*24*1e-3 ↙
[L/d]');
11867 model.component('comp1').variable('var15').set('Q_intestin', '468*60*24*1e-3 ↙
[L/d]');
11868 model.component('comp1').variable('var15').set('Q_kidney', '630*60*24*1e-3 ↙
[L/d]');
11869 model.component('comp1').variable('var15').set('Q_liver', '800*60*24*1e-3 ↙
```

```
[L/d]');
11870 model.component('comp1').variable('var16').set('L_spleen', '8.7e-4*60*24*1e-3 ↙
[L/d]');
11871 model.component('comp1').variable('var16').set('L_liver', '8.7e-2*60*24*1e-3 ↙
[L/d]');
11872 model.component('comp1').variable('var16').set('L_Upper_body', '2.6e-2*60*24*1e-3 ↙
[L/d]');
11873 model.component('comp1').variable('var16').set('L_Torso', '4.3e-3*60*24*1e-3 ↙
[L/d]');
11874 model.component('comp1').variable('var16').set('L_lung', '4.3e-2*60*24*1e-3 ↙
[L/d]');
11875 model.component('comp1').variable('var16').set('L_intestin', '3e-1*60*24*1e-3 ↙
[L/d]');
11876 model.component('comp1').variable('var16').set('L_kidney', '1e-3*60*24*1e-3 ↙
[L/d]');
11877 model.component('comp1').variable('var16').set('L_Lower_body', '1e-3*60*24*1e-3 ↙
[L/d]');
11878 model.component('comp1').variable('var16').set('L_Cardiac_vessels', '4.3e- ↙
3*60*24*1e-3 [L/d]');
11879 model.component('comp1').variable('var16').set('L_Lspleen', '0 [L/d]');
11880 model.component('comp1').variable('var16').set('L_Lliver', '1.5e-6*60*24*1e-3 ↙
[L/d]');
11881 model.component('comp1').variable('var16').set('L_LUpper_body', '1e-3*60*24*1e-3 ↙
[L/d]');
11882 model.component('comp1').variable('var16').set('L_LTorso', '1e-3*60*24*1e-3 ↙
[L/d]');
11883 model.component('comp1').variable('var16').set('L_Llung', '1.8e-6*60*24*1e-3 ↙
[L/d]');
11884 model.component('comp1').variable('var16').set('L_Lintestin', '1e-3*60*24*1e-3 ↙
[L/d]');
11885 model.component('comp1').variable('var16').set('L_Ltumor', '1e-3*1.1*60*24*1e-3 ↙
[L/d]');
11886 model.component('comp1').variable('var16').set('L_LLower_body', '1e-3*60*24*1e-3 ↙
[L/d]');
11887 model.component('comp1').variable('var16').set('L_brain', '1e-3*60*24*1e-3 ↙
[L/d]');
11888 model.component('comp1').variable('var16').set('L_Lkidney', '1e-3*60*24*1e-3 ↙
[L/d]');
11889 model.component('comp1').variable('var16').set('L_Lbrain', '1e-3*60*24*1e-3 ↙
[L/d]');
11890
11891 model.result('pg40').run;
11892 model.result('pg40').feature('ptgr1').set('expr', 'y10');
11893 model.result('pg40').run;
11894
11895 model.component('comp1').variable('var21').set('y2', '0 [M]');
11896 model.component('comp1').variable('var21').set('y3', '0 [M]');
11897 model.component('comp1').variable('var21').set('y4', '0 [M]');
11898 model.component('comp1').variable('var21').set('y5', '0 [M]');
11899 model.component('comp1').variable('var21').set('y6', '0 [M]');
```

```
11900 model.component('comp1').variable('var21').set('y7', '0 [M]');
11901 model.component('comp1').variable('var21').set('y8', '0 [M]');
11902 model.component('comp1').variable('var21').set('y9', '0 [M]');
11903 model.component('comp1').variable('var21').set('y11', '0 [M]');
11904 model.component('comp1').variable('var21').set('y12', '0 [M]');
11905 model.component('comp1').variable('var21').set('y14', '0 [M]');
11906 model.component('comp1').variable('var21').set('y15', '0 [M]');
11907 model.component('comp1').variable('var21').set('y16', '0 [M]');
11908 model.component('comp1').variable('var21').set('y17', '0 [M]');
11909 model.component('comp1').variable('var21').set('y18', '0 [M]');
11910 model.component('comp1').variable('var21').set('y19', '0 [M]');
11911 model.component('comp1').variable('var21').set('y20', '0 [M]');
11912 model.component('comp1').variable('var21').set('y21', '0 [M]');
11913 model.component('comp1').variable('var21').set('y22', '0 [M]');
11914 model.component('comp1').variable('var21').set('y23', '0 [M]');
11915 model.component('comp1').variable('var21').set('y24', '0 [M]');
11916 model.component('comp1').variable('var21').set('y25', '0 [M]');
11917 model.component('comp1').variable('var21').set('y26', '0 [M]');
11918 model.component('comp1').variable('var21').set('y27', '0 [M]');
11919 model.component('comp1').variable('var21').set('y28', '0 [M]');
11920 model.component('comp1').variable('var21').set('y29', '0 [M]');
11921 model.component('comp1').variable('var21').set('y30', '0 [M]');
11922 model.component('comp1').variable('var21').set('y31', '0 [M]');
11923 model.component('comp1').variable('var21').set('y32', '0 [M]');
11924 model.component('comp1').variable('var21').set('y33', '0 [M]');
11925 model.component('comp1').variable('var21').set('y35', '0 [M]');
11926 model.component('comp1').variable('var21').set('y36', '0 [M]');
11927 model.component('comp1').variable('var21').set('y39', '0 [M]');
11928 model.component('comp1').variable('var21').set('y40', '0 [M]');
11929 model.component('comp1').variable('var21').set('y43', '0 [M]');
11930 model.component('comp1').variable('var21').set('y44', '0 [M]');
11931 model.component('comp1').variable('var21').set('y47', '0 [M]');
11932 model.component('comp1').variable('var21').set('y48', '0 [M]');
11933 model.component('comp1').variable('var21').set('y51', '0 [M]');
11934 model.component('comp1').variable('var21').set('y52', '0 [M]');
11935 model.component('comp1').variable('var21').set('y54', '0 [M]');
11936 model.component('comp1').variable('var21').set('y55', '0 [M]');
11937 model.component('comp1').variable('var21').set('y56', '0 [M]');
11938 model.component('comp1').variable('var21').set('y57', '0 [M]');
11939 model.component('comp1').variable('var21').set('y59', '0 [M]');
11940 model.component('comp1').variable('var21').set('y60', '0 [M]');
11941 model.component('comp1').variable('var21').set('y62', '0 [M]');
11942 model.component('comp1').variable('var21').set('y63', '0 [M]');
11943 model.component('comp1').variable('var21').set('y64', '0 [M]');
11944 model.component('comp1').variable('var21').set('y65', '0 [M]');
11945 model.component('comp1').variable('var21').set('y67', '0 [M]');
11946 model.component('comp1').variable('var21').set('y68', '0 [M]');
11947 model.component('comp1').variable('var21').set('y70', '0 [M]');
11948 model.component('comp1').variable('var21').set('y71', '0 [M]');
11949 model.component('comp1').variable('var21').set('y72', '0 [M]');
```

```
11950 model.component('comp1').variable('var21').set('y73', '0 [M]');
11951 model.component('comp1').variable('var21').set('y74', '0 [M]');
11952 model.component('comp1').variable('var21').set('y75', '0 [M]');
11953 model.component('comp1').variable('var21').set('y76', '0 [M]');
11954 model.component('comp1').variable('var21').set('y78', '0 [M]');
11955 model.component('comp1').variable('var21').set('y79', '0 [M]');
11956 model.component('comp1').variable('var21').set('y81', '0 [M]');
11957 model.component('comp1').variable('var21').set('y82', '0 [M]');
11958 model.component('comp1').variable('var21').set('y83', '0 [M]');
11959 model.component('comp1').variable('var21').set('y84', '0 [M]');
11960 model.component('comp1').variable('var21').set('y85', '0 [M]');
11961 model.component('comp1').variable('var21').set('y86', '0 [M]');
11962 model.component('comp1').variable('var21').set('y87', '0 [M]');
11963 model.component('comp1').variable('var21').set('y88', '0 [M]');
11964 model.component('comp1').variable('var21').set('y90', '0 [M]');
11965 model.component('comp1').variable('var21').set('y92', '0 [M]');
11966 model.component('comp1').variable('var21').set('y94', '0 [M]');
11967 model.component('comp1').variable('var21').set('y96', '0 [M]');
11968 model.component('comp1').variable('var21').set('y98', '0 [M]');
11969 model.component('comp1').variable('var21').set('y100', '0 [M]');
11970 model.component('comp1').variable('var21').set('y102', '0 [M]');
11971 model.component('comp1').variable('var21').set('y103', '0 [M]');
11972 model.component('comp1').variable('var21').set('y105', '0 [M]');
11973 model.component('comp1').variable('var21').set('y107', '0 [M]');
11974 model.component('comp1').variable('var21').set('y108', '0 [M]');
11975 model.component('comp1').variable('var21').set('y109', '0 [M]');
11976 model.component('comp1').variable('var21').set('y110', '0 [M]');
11977 model.component('comp1').variable('var21').set('y111', '0 [M]');
11978 model.component('comp1').variable('var21').set('y117', '0 [M]');
11979 model.component('comp1').variable('var21').set('y119', '0 [M]');
11980 model.component('comp1').variable('var21').set('y121', '0 [M]');
11981 model.component('comp1').variable('var21').set('y122', '0 [M]');
11982 model.component('comp1').variable('var21').set('y123', '0 [M]');
11983 model.component('comp1').variable('var21').set('y124', '0 [M]');
11984 model.component('comp1').variable('var21').set('y125', '0 [M]');
11985 model.component('comp1').variable('var21').set('y126', '0 [M]');
11986 model.component('comp1').variable('var21').remove('first');
11987 model.component('comp1').variable('var21').remove('y2');
11988 model.component('comp1').variable('var21').remove('y125');
11989 model.component('comp1').variable('var21').remove('y126');
11990 model.component('comp1').variable('var21').clear;
11991 model.component('comp1').variable('var21').set('y1', '0 [M]');
11992 model.component('comp1').variable('var21').set('y2', '0 [M]');
11993 model.component('comp1').variable('var21').set('y3', '0 [M]');
11994 model.component('comp1').variable('var21').set('y4', '0 [M]');
11995 model.component('comp1').variable('var21').set('y5', '0 [M]');
11996 model.component('comp1').variable('var21').set('y6', '0 [M]');
11997 model.component('comp1').variable('var21').set('y7', '0 [M]');
11998 model.component('comp1').variable('var21').set('y8', '0 [M]');
11999 model.component('comp1').variable('var21').set('y9', '0 [M]');
```

```
12000 model.component('comp1').variable('var21').set('y10', '0 [M]');
12001 model.component('comp1').variable('var21').set('y11', '0 [M]');
12002 model.component('comp1').variable('var21').set('y12', '0 [M]');
12003 model.component('comp1').variable('var21').set('y13', '0 [M]');
12004 model.component('comp1').variable('var21').set('y14', '0 [M]');
12005 model.component('comp1').variable('var21').set('y15', '0 [M]');
12006 model.component('comp1').variable('var21').set('y16', '0 [M]');
12007 model.component('comp1').variable('var21').set('y17', '0 [M]');
12008 model.component('comp1').variable('var21').set('y18', '0 [M]');
12009 model.component('comp1').variable('var21').set('y19', '0 [M]');
12010 model.component('comp1').variable('var21').set('y20', '0 [M]');
12011 model.component('comp1').variable('var21').set('y21', '0 [M]');
12012 model.component('comp1').variable('var21').set('y22', '0 [M]');
12013 model.component('comp1').variable('var21').set('y23', '0 [M]');
12014 model.component('comp1').variable('var21').set('y24', '0 [M]');
12015 model.component('comp1').variable('var21').set('y25', '0 [M]');
12016 model.component('comp1').variable('var21').set('y26', '0 [M]');
12017 model.component('comp1').variable('var21').set('y27', '0 [M]');
12018 model.component('comp1').variable('var21').set('y28', '0 [M]');
12019 model.component('comp1').variable('var21').set('y29', '0 [M]');
12020 model.component('comp1').variable('var21').set('y30', '0 [M]');
12021 model.component('comp1').variable('var21').set('y31', '0 [M]');
12022 model.component('comp1').variable('var21').set('y32', '0 [M]');
12023 model.component('comp1').variable('var21').set('y33', '0 [M]');
12024 model.component('comp1').variable('var21').set('y34', '0 [M]');
12025 model.component('comp1').variable('var21').set('y35', '0 [M]');
12026 model.component('comp1').variable('var21').set('y36', '0 [M]');
12027 model.component('comp1').variable('var21').set('y37', '0 [M]');
12028 model.component('comp1').variable('var21').set('y38', '0 [M]');
12029 model.component('comp1').variable('var21').set('y39', '0 [M]');
12030 model.component('comp1').variable('var21').set('y40', '0 [M]');
12031 model.component('comp1').variable('var21').set('y41', '0 [M]');
12032 model.component('comp1').variable('var21').set('y42', '0 [M]');
12033 model.component('comp1').variable('var21').set('y43', '0 [M]');
12034 model.component('comp1').variable('var21').set('y44', '0 [M]');
12035 model.component('comp1').variable('var21').set('y45', '0 [M]');
12036 model.component('comp1').variable('var21').set('y46', '0 [M]');
12037 model.component('comp1').variable('var21').set('y47', '0 [M]');
12038 model.component('comp1').variable('var21').set('y48', '0 [M]');
12039 model.component('comp1').variable('var21').set('y49', '0 [M]');
12040 model.component('comp1').variable('var21').set('y50', '0 [M]');
12041 model.component('comp1').variable('var21').set('y51', '0 [M]');
12042 model.component('comp1').variable('var21').set('y52', '0 [M]');
12043 model.component('comp1').variable('var21').set('y53', '0 [M]');
12044 model.component('comp1').variable('var21').set('y54', '0 [M]');
12045 model.component('comp1').variable('var21').set('y55', '0 [M]');
12046 model.component('comp1').variable('var21').set('y56', '0 [M]');
12047 model.component('comp1').variable('var21').set('y57', '0 [M]');
12048 model.component('comp1').variable('var21').set('y58', '0 [M]');
12049 model.component('comp1').variable('var21').set('y59', '0 [M]');
```

```
12050 model.component('comp1').variable('var21').set('y60', '0 [M]');
12051 model.component('comp1').variable('var21').set('y61', '0 [M]');
12052 model.component('comp1').variable('var21').set('y62', '0 [M]');
12053 model.component('comp1').variable('var21').set('y63', '0 [M]');
12054 model.component('comp1').variable('var21').set('y64', '0 [M]');
12055 model.component('comp1').variable('var21').set('y65', '0 [M]');
12056 model.component('comp1').variable('var21').set('y66', '0 [M]');
12057 model.component('comp1').variable('var21').set('y67', '0 [M]');
12058 model.component('comp1').variable('var21').set('y68', '0 [M]');
12059 model.component('comp1').variable('var21').set('y69', '0 [M]');
12060 model.component('comp1').variable('var21').set('y70', '0 [M]');
12061 model.component('comp1').variable('var21').set('y71', '0 [M]');
12062 model.component('comp1').variable('var21').set('y72', '0 [M]');
12063 model.component('comp1').variable('var21').set('y73', '0 [M]');
12064 model.component('comp1').variable('var21').set('y74', '0 [M]');
12065 model.component('comp1').variable('var21').set('y75', '0 [M]');
12066 model.component('comp1').variable('var21').set('y76', '0 [M]');
12067 model.component('comp1').variable('var21').set('y77', '0 [M]');
12068 model.component('comp1').variable('var21').set('y78', '0 [M]');
12069 model.component('comp1').variable('var21').set('y79', '0 [M]');
12070 model.component('comp1').variable('var21').set('y80', '0 [M]');
12071 model.component('comp1').variable('var21').set('y81', '0 [M]');
12072 model.component('comp1').variable('var21').set('y82', '0 [M]');
12073 model.component('comp1').variable('var21').set('y83', '0 [M]');
12074 model.component('comp1').variable('var21').set('y84', '0 [M]');
12075 model.component('comp1').variable('var21').set('y85', '0 [M]');
12076 model.component('comp1').variable('var21').set('y86', '0 [M]');
12077 model.component('comp1').variable('var21').set('y87', '0 [M]');
12078 model.component('comp1').variable('var21').set('y88', '0 [M]');
12079 model.component('comp1').variable('var21').set('y89', '0 [M]');
12080 model.component('comp1').variable('var21').set('y90', '0 [M]');
12081 model.component('comp1').variable('var21').set('y91', '0 [M]');
12082 model.component('comp1').variable('var21').set('y92', '0 [M]');
12083 model.component('comp1').variable('var21').set('y93', '0 [M]');
12084 model.component('comp1').variable('var21').set('y94', '0 [M]');
12085 model.component('comp1').variable('var21').set('y95', '0 [M]');
12086 model.component('comp1').variable('var21').set('y96', '0 [M]');
12087 model.component('comp1').variable('var21').set('y97', '0 [M]');
12088 model.component('comp1').variable('var21').set('y98', '0 [M]');
12089 model.component('comp1').variable('var21').set('y99', '0 [M]');
12090 model.component('comp1').variable('var21').set('y100', '0 [M]');
12091 model.component('comp1').variable('var21').set('y101', '0 [M]');
12092 model.component('comp1').variable('var21').set('y102', '0 [M]');
12093 model.component('comp1').variable('var21').set('y103', '0 [M]');
12094 model.component('comp1').variable('var21').set('y104', '0 [M]');
12095 model.component('comp1').variable('var21').set('y105', '0 [M]');
12096 model.component('comp1').variable('var21').set('y106', '0 [M]');
12097 model.component('comp1').variable('var21').set('y107', '0 [M]');
12098 model.component('comp1').variable('var21').set('y108', '0 [M]');
12099 model.component('comp1').variable('var21').set('y109', '0 [M]');
```

```
12100 model.component('comp1').variable('var21').set('y110', '0 [M]');
12101 model.component('comp1').variable('var21').set('y111', '0 [M]');
12102 model.component('comp1').variable('var21').set('y112', '0 [M]');
12103 model.component('comp1').variable('var21').set('y113', '0 [M]');
12104 model.component('comp1').variable('var21').set('y114', '0 [M]');
12105 model.component('comp1').variable('var21').set('y115', '0 [M]');
12106 model.component('comp1').variable('var21').set('y116', '0 [M]');
12107 model.component('comp1').variable('var21').set('y117', '0 [M]');
12108 model.component('comp1').variable('var21').set('y118', '0 [M]');
12109 model.component('comp1').variable('var21').set('y119', '0 [M]');
12110 model.component('comp1').variable('var21').set('y120', '0 [M]');
12111 model.component('comp1').variable('var21').set('y121', '0 [M]');
12112 model.component('comp1').variable('var21').set('y122', '0 [M]');
12113 model.component('comp1').variable('var21').set('y123', '0 [M]');
12114 model.component('comp1').variable('var21').set('y124', '0 [M]');
12115 model.component('comp1').variable('var21').set('y125', '0 [M]');
12116 model.component('comp1').variable('var21').set('y126', '0 [M]');
12117
12118 model.result('pg40').run;
12119 model.result('pg40').feature('ptgr1').set('expr', 'Ci');
12120 model.result('pg40').run;
12121
12122 model.component('comp1').variable('var17').set('vv_spleen', '17*1e-3 [L]');
12123 model.component('comp1').variable('var17').set('vv_liver', '180.9*1e-3 [L]');
12124 model.component('comp1').variable('var17').set('vv_Upper_body', '150*1e-3 [L]');
12125 model.component('comp1').variable('var17').set('vv_Torso', '462*1e-3 [L]');
12126 model.component('comp1').variable('var17').set('vv_lung', '99.9*1e-3 [L]');
12127 model.component('comp1').variable('var17').set('vv_intestin', '43*1e-3 [L]');
12128 model.component('comp1').variable('var17').set('vv_Lower_body', '700*1e-3 [L]');
12129 model.component('comp1').variable('var17').set('vv_brain', '150*1e-3 [L]');
12130 model.component('comp1').variable('var17').set('vv_kidney', '28.4*1e-3 [L]');
12131 model.component('comp1').variable('var17').set('vv_Cardiac_vessels', '100*1e-3 ↙
[L]');
12132 model.component('comp1').variable('var17').set('vv_ventricle', '200*1e-3 [L]');
12133 model.component('comp1').variable('var19').set('L_tumor', '0[L/d]');
12134 model.component('comp1').variable('var19').set('Q_Lnode', '0[L/d]');
12135 model.component('comp1').variable('var19').set('Q_tumor', '0[L/d]');
12136 model.component('comp1').variable('var7').set('ka_spleen', '1e-3*60*24 [L/d]');
12137 model.component('comp1').variable('var7').set('ka_liver', '1e-3*60*24 [L/d]');
12138 model.component('comp1').variable('var7').set('ka_Upper_body', '1e-3*60*24 ↙
[L/d]');
12139 model.component('comp1').variable('var7').set('ka_Torso', '1e-3*60*24 [L/d]');
12140 model.component('comp1').variable('var7').set('ka_lung', '1e-3*60*24 [L/d]');
12141 model.component('comp1').variable('var7').set('ka_intestin', '1e-3*60*24 [L/d]');
12142 model.component('comp1').variable('var7').set('ka_Lower_body', '1e-3*60*24 ↙
[L/d]');
12143 model.component('comp1').variable('var7').set('ka_brain', '1e-3*60*24 [L/d]');
12144 model.component('comp1').variable('var7').set('ka_kidney', '1e-3*60*24 [L/d]');
12145 model.component('comp1').variable('var7').set('ka_Cardiac_vessels', '1e-3*60*24 ↙
[L/d]');
```

```
12146 model.component('comp1').variable('var22').set('f87', '-↙
ka_liver*y87*y14+kd_liver*y15');
12147 model.component('comp1').variable('var7').set('ka_spleen', '1e-3*60*24 [1/M/d]');
12148 model.component('comp1').variable('var7').set('ka_liver', '1e-3*60*24 [1/M/d]');
12149 model.component('comp1').variable('var7').set('ka_Upper_body', '1e-3*60*24 ↙
[1/M/d]');
12150 model.component('comp1').variable('var7').set('ka_Torso', '1e-3*60*24 [1/M/d]');
12151 model.component('comp1').variable('var7').set('ka_lung', '1e-3*60*24[1/M/d]');
12152 model.component('comp1').variable('var7').set('ka_intestin', '1e-3*60*24 ↙
[1/M/d]');
12153 model.component('comp1').variable('var7').set('ka_Lower_body', '1e-3*60*24 ↙
[1/M/d]');
12154 model.component('comp1').variable('var7').set('ka_brain', '1e-3*60*24 [1/M/d]');
12155 model.component('comp1').variable('var7').set('ka_kidney', '1e-3*60*24 [1/M/d]');
12156 model.component('comp1').variable('var7').set('ka_Cardiac_vessels', '1e-3*60*24 ↙
[1/M/d]');
12157 model.component('comp1').variable('var13').set('mt_lung', '1 [L/d]');
12158 model.component('comp1').variable('var13').set('mt_liver', '1 [L/d]');
12159 model.component('comp1').variable('var13').set('mt_spleen', '1 [L/d]');
12160 model.component('comp1').variable('var13').set('mt_Upper_body', '1 [L/d]');
12161 model.component('comp1').variable('var13').set('mt_Torso', '1 [L/d]');
12162 model.component('comp1').variable('var13').set('mt_Intestine', '1 [L/d]');
12163 model.component('comp1').variable('var13').set('mt_Lower_body', '1 [L/d]');
12164 model.component('comp1').variable('var13').set('mt_Brain', '1 [L/d]');
12165 model.component('comp1').variable('var13').set('mt_kidney', '1 [L/d]');
12166 model.component('comp1').variable('var13').set('mt_Cardiac_vessels', '1 [L/d]');
12167 model.component('comp1').variable('var13').set('mt_lung', '1 [M/d]');
12168 model.component('comp1').variable('var13').set('mt_liver', '1 [M/d]');
12169 model.component('comp1').variable('var13').set('mt_spleen', '1 [M/d]');
12170 model.component('comp1').variable('var13').set('mt_Upper_body', '1 [M/d]');
12171 model.component('comp1').variable('var13').set('mt_Torso', '1[M/d]');
12172 model.component('comp1').variable('var13').set('mt_Intestine', '1 [M/d]');
12173 model.component('comp1').variable('var13').set('mt_Lower_body', '1[M/d]');
12174 model.component('comp1').variable('var13').set('mt_Brain', '1 [M/d]');
12175 model.component('comp1').variable('var13').set('mt_kidney', '1 [M/d]');
12176
12177 model.component('comp1').physics('Cb').feature('dode1').setIndex('f', ↙
'+KonACE2V*Ci*ACE2-KoffACE2V*Cb-Kd*Cb-Kint*Cb+p_lung/kk*y7-disinfa_lung*y7', 0);
12178 model.component('comp1').physics('Cb').feature('dode1').setIndex('f', ↙
'+KonACE2V*Ci*ACE2-KoffACE2V*Cb-Kd*Cb-Kint*Cb+p_lung/kk*Cb-disinfa_lung*Cb', 0);
12179 model.component('comp1').physics('dode5').active(true);
12180 model.component('comp1').physics('dode6').active(true);
12181 model.component('comp1').physics('dode8').active(true);
12182 model.component('comp1').physics('dode8').active(false);
12183 model.component('comp1').physics('dode6').active(false);
12184 model.component('comp1').physics('dode5').active(false);
12185
12186 model.component('comp1').variable('var21').set('first', '1');
12187 model.component('comp1').variable('var21').active(false);
12188 model.component('comp1').variable('var21').active(true);
```

```
12189 model.component('comp1').variable('var21').clear;
12190 model.component('comp1').variable('var21').set('y1', '0 [M]');
12191 model.component('comp1').variable('var21').set('y2', '0 [M]');
12192 model.component('comp1').variable('var21').set('y3', '0 [M]');
12193 model.component('comp1').variable('var21').set('y4', '0 [M]');
12194 model.component('comp1').variable('var21').set('y5', '0 [M]');
12195 model.component('comp1').variable('var21').set('y6', '0 [M]');
12196 model.component('comp1').variable('var21').set('y7', '0 [M]');
12197 model.component('comp1').variable('var21').set('y8', '0 [M]');
12198 model.component('comp1').variable('var21').set('y9', '0 [M]');
12199 model.component('comp1').variable('var21').set('y10', '0 [M]');
12200 model.component('comp1').variable('var21').set('y11', '0 [M]');
12201 model.component('comp1').variable('var21').set('y12', '0 [M]');
12202 model.component('comp1').variable('var21').set('y13', '0 [M]');
12203 model.component('comp1').variable('var21').set('y14', '0 [M]');
12204 model.component('comp1').variable('var21').set('y15', '0 [M]');
12205 model.component('comp1').variable('var21').set('y16', '0 [M]');
12206 model.component('comp1').variable('var21').set('y17', '0 [M]');
12207 model.component('comp1').variable('var21').set('y18', '0 [M]');
12208 model.component('comp1').variable('var21').set('y19', '0 [M]');
12209 model.component('comp1').variable('var21').set('y20', '0 [M]');
12210 model.component('comp1').variable('var21').set('y21', '0 [M]');
12211 model.component('comp1').variable('var21').set('y22', '0 [M]');
12212 model.component('comp1').variable('var21').set('y23', '0 [M]');
12213 model.component('comp1').variable('var21').set('y24', '0 [M]');
12214 model.component('comp1').variable('var21').set('y25', '0 [M]');
12215 model.component('comp1').variable('var21').set('y26', '0 [M]');
12216 model.component('comp1').variable('var21').set('y27', '0 [M]');
12217 model.component('comp1').variable('var21').set('y28', '0 [M]');
12218 model.component('comp1').variable('var21').set('y29', '0 [M]');
12219 model.component('comp1').variable('var21').set('y30', '0 [M]');
12220 model.component('comp1').variable('var21').set('y31', '0 [M]');
12221 model.component('comp1').variable('var21').set('y32', '0 [M]');
12222 model.component('comp1').variable('var21').set('y33', '0 [M]');
12223 model.component('comp1').variable('var21').set('y34', '0 [M]');
12224 model.component('comp1').variable('var21').set('y35', '0 [M]');
12225 model.component('comp1').variable('var21').set('y36', '0 [M]');
12226 model.component('comp1').variable('var21').set('y37', '0 [M]');
12227 model.component('comp1').variable('var21').set('y38', '0 [M]');
12228 model.component('comp1').variable('var21').set('y39', '0 [M]');
12229 model.component('comp1').variable('var21').set('y40', '0 [M]');
12230 model.component('comp1').variable('var21').set('y41', '0 [M]');
12231 model.component('comp1').variable('var21').set('y42', '0 [M]');
12232 model.component('comp1').variable('var21').set('y43', '0 [M]');
12233 model.component('comp1').variable('var21').set('y44', '0 [M]');
12234 model.component('comp1').variable('var21').set('y45', '0 [M]');
12235 model.component('comp1').variable('var21').set('y46', '0 [M]');
12236 model.component('comp1').variable('var21').set('y47', '0 [M]');
12237 model.component('comp1').variable('var21').set('y48', '0 [M]');
12238 model.component('comp1').variable('var21').set('y49', '0 [M]');
```

```
12239 model.component('comp1').variable('var21').set('y50', '0 [M]');
12240 model.component('comp1').variable('var21').set('y51', '0 [M]');
12241 model.component('comp1').variable('var21').set('y52', '0 [M]');
12242 model.component('comp1').variable('var21').set('y53', '0 [M]');
12243 model.component('comp1').variable('var21').set('y54', '0 [M]');
12244 model.component('comp1').variable('var21').set('y55', '0 [M]');
12245 model.component('comp1').variable('var21').set('y56', '0 [M]');
12246 model.component('comp1').variable('var21').set('y57', '0 [M]');
12247 model.component('comp1').variable('var21').set('y58', '0 [M]');
12248 model.component('comp1').variable('var21').set('y59', '0 [M]');
12249 model.component('comp1').variable('var21').set('y60', '0 [M]');
12250 model.component('comp1').variable('var21').set('y61', '0 [M]');
12251 model.component('comp1').variable('var21').set('y62', '0 [M]');
12252 model.component('comp1').variable('var21').set('y63', '0 [M]');
12253 model.component('comp1').variable('var21').set('y64', '0 [M]');
12254 model.component('comp1').variable('var21').set('y65', '0 [M]');
12255 model.component('comp1').variable('var21').set('y66', '0 [M]');
12256 model.component('comp1').variable('var21').set('y67', '0 [M]');
12257 model.component('comp1').variable('var21').set('y68', '0 [M]');
12258 model.component('comp1').variable('var21').set('y69', '0 [M]');
12259 model.component('comp1').variable('var21').set('y70', '0 [M]');
12260 model.component('comp1').variable('var21').set('y71', '0 [M]');
12261 model.component('comp1').variable('var21').set('y72', '0 [M]');
12262 model.component('comp1').variable('var21').set('y73', '0 [M]');
12263 model.component('comp1').variable('var21').set('y74', '0 [M]');
12264 model.component('comp1').variable('var21').set('y75', '0 [M]');
12265 model.component('comp1').variable('var21').set('y76', '0 [M]');
12266 model.component('comp1').variable('var21').set('y77', '0 [M]');
12267 model.component('comp1').variable('var21').set('y78', '0 [M]');
12268 model.component('comp1').variable('var21').set('y79', '0 [M]');
12269 model.component('comp1').variable('var21').set('y80', '0 [M]');
12270 model.component('comp1').variable('var21').set('y81', '0 [M]');
12271 model.component('comp1').variable('var21').set('y82', '0 [M]');
12272 model.component('comp1').variable('var21').set('y83', '0 [M]');
12273 model.component('comp1').variable('var21').set('y84', '0 [M]');
12274 model.component('comp1').variable('var21').set('y85', '0 [M]');
12275 model.component('comp1').variable('var21').set('y86', '0 [M]');
12276 model.component('comp1').variable('var21').set('y87', '0 [M]');
12277 model.component('comp1').variable('var21').set('y88', '0 [M]');
12278 model.component('comp1').variable('var21').set('y89', '0 [M]');
12279 model.component('comp1').variable('var21').set('y90', '0 [M]');
12280 model.component('comp1').variable('var21').set('y91', '0 [M]');
12281 model.component('comp1').variable('var21').set('y92', '0 [M]');
12282 model.component('comp1').variable('var21').set('y93', '0 [M]');
12283 model.component('comp1').variable('var21').set('y94', '0 [M]');
12284 model.component('comp1').variable('var21').set('y95', '0 [M]');
12285 model.component('comp1').variable('var21').set('y96', '0 [M]');
12286 model.component('comp1').variable('var21').set('y97', '0 [M]');
12287 model.component('comp1').variable('var21').set('y98', '0 [M]');
12288 model.component('comp1').variable('var21').set('y99', '0 [M]');
```

```
12289 model.component('comp1').variable('var21').set('y100', '0 [M]');
12290 model.component('comp1').variable('var21').set('y101', '0 [M]');
12291 model.component('comp1').variable('var21').set('y102', '0 [M]');
12292 model.component('comp1').variable('var21').set('y103', '0 [M]');
12293 model.component('comp1').variable('var21').set('y104', '0 [M]');
12294 model.component('comp1').variable('var21').set('y105', '0 [M]');
12295 model.component('comp1').variable('var21').set('y106', '0 [M]');
12296 model.component('comp1').variable('var21').set('y107', '0 [M]');
12297 model.component('comp1').variable('var21').set('y108', '0 [M]');
12298 model.component('comp1').variable('var21').set('y109', '0 [M]');
12299 model.component('comp1').variable('var21').set('y110', '0 [M]');
12300 model.component('comp1').variable('var21').set('y111', '0 [M]');
12301 model.component('comp1').variable('var21').set('y112', '0 [M]');
12302 model.component('comp1').variable('var21').set('y113', '0 [M]');
12303 model.component('comp1').variable('var21').set('y114', '0 [M]');
12304 model.component('comp1').variable('var21').set('y115', '0 [M]');
12305 model.component('comp1').variable('var21').set('y116', '0 [M]');
12306 model.component('comp1').variable('var21').set('y117', '0 [M]');
12307 model.component('comp1').variable('var21').set('y118', '0 [M]');
12308 model.component('comp1').variable('var21').set('y119', '0 [M]');
12309 model.component('comp1').variable('var21').set('y120', '0 [M]');
12310 model.component('comp1').variable('var21').set('y121', '0 [M]');
12311 model.component('comp1').variable('var21').set('y122', '0 [M]');
12312 model.component('comp1').variable('var21').set('y123', '0 [M]');
12313 model.component('comp1').variable('var21').set('y124', '0 [M]');
12314 model.component('comp1').variable('var21').set('y125', '0 [M]');
12315 model.component('comp1').variable('var21').set('y126', '0 [M]');
12316 model.component('comp1').variable('var21').clear;
12317 model.component('comp1').variable('var21').set('y10', '0');
12318 model.component('comp1').variable('var21').set('y34', '0');
12319 model.component('comp1').variable('var21').set('y38', '0');
12320 model.component('comp1').variable('var21').set('y1', '0');
12321 model.component('comp1').variable('var21').set('y42', '0');
12322 model.component('comp1').variable('var21').set('y46', '0');
12323 model.component('comp1').variable('var21').set('y50', '0');
12324 model.component('comp1').variable('var21').set('y58', '0');
12325 model.component('comp1').variable('var21').set('y66', '0');
12326 model.component('comp1').variable('var21').set('y77', '0');
12327 model.component('comp1').variable('var21').set('y13', '0');
12328 model.component('comp1').variable('var21').set('y37', '0');
12329 model.component('comp1').variable('var21').set('y41', '0');
12330 model.component('comp1').variable('var21').set('y45', '0');
12331 model.component('comp1').variable('var21').set('y49', '0');
12332 model.component('comp1').variable('var21').set('y53', '0');
12333 model.component('comp1').variable('var21').set('y61', '0');
12334 model.component('comp1').variable('var21').set('y69', '0');
12335 model.component('comp1').variable('var21').set('y106', '0');
12336 model.component('comp1').variable('var21').set('y112', '0');
12337 model.component('comp1').variable('var21').set('y113', '0');
12338 model.component('comp1').variable('var21').set('y104', '0');
```

```
12339 model.component('comp1').variable('var21').set('y114', '0');
12340 model.component('comp1').variable('var21').set('y115', '0');
12341 model.component('comp1').variable('var21').set('y116', '0');
12342 model.component('comp1').variable('var21').set('y118', '0');
12343 model.component('comp1').variable('var21').set('y120', '0');
12344 model.component('comp1').variable('var21').set('y99', '0');
12345 model.component('comp1').variable('var21').set('y101', '0');
12346 model.component('comp1').variable('var21').set('y80', '0');
12347 model.component('comp1').variable('var21').set('y89', '0');
12348 model.component('comp1').variable('var21').set('y91', '0');
12349 model.component('comp1').variable('var21').set('y93', '0');
12350 model.component('comp1').variable('var21').set('y95', '0');
12351 model.component('comp1').variable('var21').set('y97', '0');
12352 model.component('comp1').variable('var21').set('first', '1');
12353 model.component('comp1').variable('var21').clear;
12354 model.component('comp1').variable('var21').set('y10', '0 [M]');
12355 model.component('comp1').variable('var21').set('y34', '0 [M]');
12356 model.component('comp1').variable('var21').set('y38', '0 [M]');
12357 model.component('comp1').variable('var21').set('y1', '0 [M]');
12358 model.component('comp1').variable('var21').set('y42', '0 [M]');
12359 model.component('comp1').variable('var21').set('y46', '0 [M]');
12360 model.component('comp1').variable('var21').set('y50', '0 [M]');
12361 model.component('comp1').variable('var21').set('y58', '0 [M]');
12362 model.component('comp1').variable('var21').set('y66', '0 [M]');
12363 model.component('comp1').variable('var21').set('y77', '0 [M]');
12364 model.component('comp1').variable('var21').set('y13', '0 [M]');
12365 model.component('comp1').variable('var21').set('y37', '0 [M]');
12366 model.component('comp1').variable('var21').set('y41', '0 [M]');
12367 model.component('comp1').variable('var21').set('y45', '0 [M]');
12368 model.component('comp1').variable('var21').set('y49', '0 [M]');
12369 model.component('comp1').variable('var21').set('y53', '0 [M]');
12370 model.component('comp1').variable('var21').set('y61', '0 [M]');
12371 model.component('comp1').variable('var21').set('y69', '0 [M]');
12372 model.component('comp1').variable('var21').set('y106', '0 [M]');
12373 model.component('comp1').variable('var21').set('y112', '0 [M]');
12374 model.component('comp1').variable('var21').set('y113', '0 [M]');
12375 model.component('comp1').variable('var21').set('y104', '0 [M]');
12376 model.component('comp1').variable('var21').set('y114', '0 [M]');
12377 model.component('comp1').variable('var21').set('y115', '0 [M]');
12378 model.component('comp1').variable('var21').set('y116', '0 [M]');
12379 model.component('comp1').variable('var21').set('y118', '0 [M]');
12380 model.component('comp1').variable('var21').set('y120', '0 [M]');
12381 model.component('comp1').variable('var21').set('y99', '0 [M]');
12382 model.component('comp1').variable('var21').set('y101', '0 [M]');
12383 model.component('comp1').variable('var21').set('y80', '0 [M]');
12384 model.component('comp1').variable('var21').set('y89', '0 [M]');
12385 model.component('comp1').variable('var21').set('y91', '0 [M]');
12386 model.component('comp1').variable('var21').set('y93', '0 [M]');
12387 model.component('comp1').variable('var21').set('y95', '0 [M]');
12388 model.component('comp1').variable('var21').set('y97', '0 [M]');
```

```
12389 model.component('comp1').variable('var21').set('first', '1');
12390 model.component('comp1').variable('var13').set('mt_lung', '0 [M/d]');
12391 model.component('comp1').variable('var13').set('mt_liver', '0 [M/d]');
12392 model.component('comp1').variable('var13').set('mt_spleen', '0 [M/d]');
12393 model.component('comp1').variable('var13').set('mt_Upper_body', '0 [M/d]');
12394 model.component('comp1').variable('var13').set('mt_Torso', '0[M/d]');
12395 model.component('comp1').variable('var13').set('mt_Intestine', '0 [M/d]');
12396 model.component('comp1').variable('var13').set('mt_Lower_body', '0[M/d]');
12397 model.component('comp1').variable('var13').set('mt_Brain', '0 [M/d]');
12398 model.component('comp1').variable('var13').set('mt_kidney', '0 [M/d]');
12399 model.component('comp1').variable('var13').set('mt_Cardiac_vessels', '0 [L/d]');
12400
12401 model.sol('sol54').runAll;
12402
12403 model.result('pg40').run;
12404 model.result('pg40').run;
12405
12406 model.component('comp1').variable('var13').set('mt_Cardiac_vessels', '1[L/d]');
12407 model.component('comp1').variable('var13').set('mt_kidney', '1 [M/d]');
12408 model.component('comp1').variable('var13').set('mt_Brain', '1e-3 [M/d]');
12409 model.component('comp1').variable('var13').set('mt_kidney', '1e-3 [M/d]');
12410 model.component('comp1').variable('var13').set('mt_Cardiac_vessels', '1e-3 ↙
[L/d]');
12411 model.component('comp1').variable('var13').set('mt_Lower_body', '1e-3[M/d]');
12412 model.component('comp1').variable('var13').set('mt_Intestine', '1e-3[M/d]');
12413 model.component('comp1').variable('var13').set('mt_Torso', '1e-3[M/d]');
12414 model.component('comp1').variable('var13').set('mt_Upper_body', '1e-3 [M/d]');
12415 model.component('comp1').variable('var13').set('mt_spleen', '1e-3 [M/d]');
12416 model.component('comp1').variable('var13').set('mt_liver', '1e-3 [M/d]');
12417 model.component('comp1').variable('var13').set('mt_lung', '1e-3 [M/d]');
12418 model.component('comp1').variable('var13').set('mt_Cardiac_vessels', '1e-3 ↙
[L/d]');
12419 model.component('comp1').variable('var13').set('mt_Intestine', '1e-3 [M/d]');
12420 model.component('comp1').variable('var13').set('mt_Torso', '1e-3 [M/d]');
12421
12422 model.sol('sol54').runAll;
12423
12424 model.result('pg40').run;
12425
12426 model.component('comp1').variable('var22').set('f105', '(Q_lung*y86-(Q_lung- ↙
L_lung)*y105+mt_lung*ac*Vint/(ACE2+1)*vv_lung+mt_lung*ac*IL6/(IL6+1)*vv_lung- ↙
d_lung*y105*vv_lung)/vv_lung');
12427
12428 model.component('comp1').physics('Vint').field('dimensionless').component({'Vint' ↙
'u122'});
12429 model.component('comp1').physics('Vint').field('dimensionless').component({'Vint' ↙
'u122' 'u123'});
12430 model.component('comp1').physics('Vint').field('dimensionless').component({'Vint' ↙
'u122' 'u123' 'u124'});
12431 model.component('comp1').physics('Vint').field('dimensionless').component({'Vint' ↙
```

```
'u122' 'u123' 'u124' 'u125'});
12432 model.component('comp1').physics('Vint').field('dimensionless').component({'Vint' ↙
'u122' 'u123' 'u124' 'u125' 'u126'});
12433 model.component('comp1').physics('Vint').field('dimensionless').component({'Vint' ↙
'u122' 'u123' 'u124' 'u125' 'u126' 'u127'});
12434 model.component('comp1').physics('Vint').field('dimensionless').component({'Vint' ↙
'u122' 'u123' 'u124' 'u125' 'u126' 'u127' 'u128'});
12435 model.component('comp1').physics('Vint').field('dimensionless').component({'Vint' ↙
'u122' 'u123' 'u124' 'u125' 'u126' 'u127' 'u128' 'u129'});
12436 model.component('comp1').physics('Vint').field('dimensionless').component({'Vint' ↙
'u122' 'u123' 'u124' 'u125' 'u126' 'u127' 'u128' 'u129' 'u1210'});
12437 model.component('comp1').physics('Vint').field('dimensionless').component(2, ↙
'Vint1');
12438 model.component('comp1').physics('Vint').field('dimensionless').component(3, ↙
'Vint2');
12439 model.component('comp1').physics('Vint').field('dimensionless').component(4, ↙
'Vint3');
12440 model.component('comp1').physics('Vint').field('dimensionless').component(5, ↙
'Vint4');
12441 model.component('comp1').physics('Vint').field('dimensionless').component(6, ↙
'Vint5');
12442 model.component('comp1').physics('Vint').field('dimensionless').component(7, ↙
'Vint6');
12443 model.component('comp1').physics('Vint').field('dimensionless').component(8, ↙
'Vint7');
12444 model.component('comp1').physics('Vint').field('dimensionless').component(9, ↙
'Vint8');
12445 model.component('comp1').physics('Vint').field('dimensionless').component(10, ↙
'Vint9');
12446 model.component('comp1').physics('Cb').feature('dode1').setIndex('f', ↙
'+KonACE2V*Ci*ACE2-KoffACE2V*Cb-Kd*Cb-Kint*Cb-disinfa_lung*Cb', 0);
12447 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Cb+Kint*Cb-Ka*Vint', 0);
12448 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Cb+Kint*Cb-Ka*Vint1', 1);
12449 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Cb+Kint*Cb-Ka*Vint2', 2);
12450 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Cb+Kint*Cb-Ka*Vint3', 3);
12451 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Cb+Kint*Cb-Ka*Vint4', 4);
12452 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Cb+Kint*Cb-Ka*Vint5', 5);
12453 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Cb+Kint*Cb-Ka*Vint6', 6);
12454 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Cb+Kint*Cb-Ka*Vint7', 7);
12455 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Cb+Kint*Cb-Ka*Vint8', 8);
12456 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
```

```
'p_lung/kk*Cb+Kint*Cb-Ka*Vint9', 9);
12457 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint+Kint*Cb-Ka*Vint', 0);
12458 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint1+Kint*Cb-Ka*Vint1', 1);
12459 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint2+Kint*Cb-Ka*Vint2', 2);
12460 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint3+Kint*Cb-Ka*Vint3', 3);
12461 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint4+Kint*Cb-Ka*Vint4', 4);
12462 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint5+Kint*Cb-Ka*Vint5', 5);
12463 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint6+Kint*Cb-Ka*Vint6', 6);
12464 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint7+Kint*Cb-Ka*Vint7', 7);
12465 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint8+Kint*Cb-Ka*Vint8', 8);
12466 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint9+Kint*Cb-Ka*Vint9', 9);
12467 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint1+Kint*y15-Ka*Vint1', 1);
12468 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint2+Kint*y19-Ka*Vint2', 2);
12469 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint3+Kint*y23-Ka*Vint3', 3);
12470 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint4+Kint*y27-Ka*Vint4', 4);
12471 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint5+Kint*y31-Ka*Vint5', 5);
12472 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint6+Kint*y55-Ka*Vint6', 6);
12473 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint7+Kint*y63-Ka*Vint7', 7);
12474 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint8+Kint*y71-Ka*Vint8', 8);
12475
12476 model.component('comp1').variable('var22').set('f15', ↙
'(ka_liver*y87*y14*vv_liver-kd_liver*y15*vv_liver+p_liver/kk*y15*vv_liver- ↙
disinfa_liver*y15*vv_liver)/vv_liver-Kint*y15');
12477 model.component('comp1').variable('var22').set('f19', ↙
'(ka_spleen*y102*y18*vv_spleen-kd_spleen*y19*vv_spleen+p_spleen/kk*y19*vv_spleen- ↙
disinfa_spleen*y19*vv_spleen)/vv_spleen-Kint*y19');
12478 model.component('comp1').variable('var22').set('f23', ↙
'(ka_Upper_body*y92*y22*vv_Upper_body- ↙
kd_Upper_body*y23*vv_Upper_body+p_Upper_body/kk*y23*vv_Upper_body- ↙
disinfa_Upper_body*y23*vv_Upper_body)/vv_Upper_body-Kint*y23');
12479 model.component('comp1').variable('var22').set('f27', ↙
'(ka_Torso*y90*y26*vv_Torso-kd_Torso*y27*vv_Torso+p_Torso/kk*y27*vv_Torso- ↙
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disinfa_Torso*y27*vv_Torso)/vv_Torso-Kint*y27');
12480 model.component('comp1').variable('var22').set('f31', ↙
'(ka_intestin*y103*y30*vv_intestin- ↙
kd_intestin*y31*vv_intestin+p_Intestine/kk*y31*vv_intestin- ↙
disinfa_Intestine*y31*vv_intestin)/vv_intestin-Kint*y31');
12481 model.component('comp1').variable('var22').set('f55', ↙
'(ka_Lower_body*y94*y54*vv_Lower_body- ↙
kd_Lower_body*y55*vv_Lower_body+p_Lower_body/kk*y55*vv_Lower_body- ↙
disinfa_Lower_body*y55*vv_Lower_body)/vv_Lower_body-Kint*y55');
12482 model.component('comp1').variable('var22').set('f63', ↙
'(ka_brain*y96*y62*vv_brain-kd_brain*y63*vv_brain+p_Brain/kk*y63*vv_brain- ↙
disinfa_Brain*y63*vv_brain)/vv_brain-Kint*y63');
12483 model.component('comp1').variable('var22').set('f71', ↙
'(ka_kidney*y98*y70*vv_kidney-kd_kidney*y71*vv_kidney+p_kidney/kk*y71*vv_kidney- ↙
disinfa_kidney*y71*vv_kidney)/vv_kidney-Kint*y71');
12484
12485 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint9+Kint*75-Ka*Vint9', 9);
12486 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint9+Kint*y75-Ka*Vint9', 9);
12487
12488 model.component('comp1').variable('var22').set('f75', ↙
'(ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels- ↙
kd_Cardiac_vessels*y75*vv_Cardiac_vessels+p_Cardiac_vessels/kk*y75*vv_Cardiac_vessels- ↙
disinfa_Cardiac_vessels*y75*vv_Cardiac_vessels)/vv_Cardiac_vessels-Kint*y75');
12489 model.component('comp1').variable('var22').set('f14', '((Q_intestin-L_intestin) ↙
*y30+(Q_spleen-L_spleen)*y18+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen) ↙
*y5*freeTcell_trafficliver-(Q_liver-L_liver)*y14- ↙
ka_liver*y87*y14*vv_liver+kd_liver*y15*vv_liver-disinf_liver*y14*vv_liver) ↙
/vv_liver+Ka*Vint1');
12490 model.component('comp1').variable('var22').set('f18', ↙
'(Q_spleen*y5*freeTcell_trafficspleen-(Q_spleen-L_spleen)*y18- ↙
ka_spleen*y102*y18*vv_spleen+kd_spleen*y19*vv_spleen-disinf_spleen*y18*vv_spleen) ↙
/vv_spleen+Ka*Vint2');
12491 model.component('comp1').variable('var22').set('f22', ↙
'(Q_Upper_body*y5*freeTcell_trafficUpper_body-(Q_Upper_body-L_Upper_body)*y22- ↙
ka_Upper_body*y92*y22*vv_Upper_body+kd_Upper_body*y23*vv_Upper_body- ↙
disinf_Upper_body*y22*vv_Upper_body)/vv_Upper_body+Ka*Vint3');
12492 model.component('comp1').variable('var22').set('f26', ↙
'(Q_Torso*y5*freeTcell_trafficTorso-(Q_Torso-L_Torso)*y26- ↙
ka_Torso*y90*y26*vv_Torso+kd_Torso*y27*vv_Torso-disinf_Torso*y26*vv_Torso) ↙
/vv_Torso+Ka*Vint4');
12493 model.component('comp1').variable('var22').set('f30', ↙
'(Q_intestin*y5*freeTcell_trafficintestine-(Q_intestin-L_intestin)*y30- ↙
ka_intestin*y103*y30*vv_intestin+kd_intestin*y31*vv_intestin- ↙
disinf_Intestine*y30*vv_intestin)/vv_intestin+Ka*Vint5');
12494 model.component('comp1').variable('var22').set('f54', ↙
'(Q_Lower_body*y5*freeTcell_trafficLower_body-(Q_Lower_body-L_Lower_body)*y54- ↙
ka_Lower_body*y94*y54*vv_Lower_body+kd_Lower_body*y55*vv_Lower_body- ↙
disinf_Lower_body*y54*vv_Lower_body)/vv_Lower_body+Ka*Vint6');
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12495 model.component('comp1').variable('var22').set('f62', ↙
'(Q_brain*y5*freeTcell_traffictbrain-(Q_brain-L_brain)*y62- ↙
ka_brain*y96*y62*vv_brain+kd_brain*y63*vv_brain-disinf_Brain*y62*vv_brain) ↙
/vv_brain+Ka*Vint7');
12496 model.component('comp1').variable('var22').set('f70', ↙
'(Q_kidney*y5*freeTcell_traffickidney-(Q_kidney-L_kidney)*y70- ↙
ka_kidney*y98*y70*vv_kidney+kd_kidney*y71*vv_kidney-disinf_kidney*y70*vv_kidney) ↙
/vv_kidney+Ka*Vint8');
12497 model.component('comp1').variable('var22').set('f74', '(Q_Cardiac_vessels*y5- ↙
(Q_Cardiac_vessels-L_Cardiac_vessels)*y74- ↙
ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels+kd_Cardiac_vessels*y75*vv_Cardiac_vessel ↙
s-disinf_Cardiac_vessels*y74*vv_Cardiac_vessels)/vv_Cardiac_vessels+Ka*Vint9');
12498
12499 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_Cardiac_vessels/kk*Vint9+Kint*y75-Ka*Vint9', 9);
12500 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_kidney/kk*Vint8+Kint*y71-Ka*Vint8', 8);
12501 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_Brain/kk*Vint7+Kint*y63-Ka*Vint7', 7);
12502 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_Lower_body/kk*Vint6+Kint*y55-Ka*Vint6', 6);
12503 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_Intestine/kk*Vint5+Kint*y31-Ka*Vint5', 5);
12504 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_Torso/kk*Vint4+Kint*y27-Ka*Vint4', 4);
12505 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_Upper_body/kk*Vint3+Kint*y23-Ka*Vint3', 3);
12506 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_spleen/kk*Vint2+Kint*y19-Ka*Vint2', 2);
12507 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_liver/kk*Vint1+Kint*y15-Ka*Vint1', 1);
12508
12509 model.component('comp1').variable('var22').set('f107', '((Q_intestin-L_intestin) ↙
*y111+(Q_spleen-L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85- ↙
(Q_liver-L_liver)*y107+mt_liver*ac*Vint1/(y87+1)*vv_liver+mt_liver*ac*IL6/(IL6+1) ↙
*vv_liver-d_liver*y107*vv_liver)/vv_liver');
12510 model.component('comp1').variable('var22').set('f108', '(Q_spleen*y85-(Q_spleen- ↙
L_spleen)*y108+mt_spleen*ac*Vint2/(y102+1)*vv_spleen+mt_spleen*ac*IL6/(IL6+1) ↙
*vv_spleen-d_spleen*y108*vv_spleen)/vv_spleen');
12511 model.component('comp1').variable('var22').set('f109', '(Q_Upper_body*y85- ↙
(Q_Upper_body-L_Upper_body)*y109+mt_Upper_body*ac*Vint3/(y92+1) ↙
*vv_Upper_body+mt_Upper_body*ac*IL6/(IL6+1)*vv_Upper_body- ↙
d_Upper_body*y109*vv_Upper_body)/vv_Upper_body');
12512 model.component('comp1').variable('var22').set('f110', '(Q_Torso*y85-(Q_Torso- ↙
L_Torso)*y110+mt_Torso*ac*Vint4/(y90+1)*vv_Torso+mt_Torso*ac*IL6/(IL6+1)*vv_Torso- ↙
d_Torso*y110*vv_Torso)/vv_Torso');
12513 model.component('comp1').variable('var22').set('f111', '(Q_intestin*y85- ↙
(Q_intestin-L_intestin)*y111+mt_Intestine*ac*Vint5/(y103+1) ↙
*vv_intestin+mt_Intestine*ac*IL6/(IL6+1)*vv_intestin-d_Intestine*y111*vv_intestin) ↙
/vv_intestin');
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12514 model.component('comp1').variable('var22').set('f117', ↙
'(Q_Lower_body*y85*rf_IL2_Ltumor-(Q_Lower_body-L_Lower_body) ↙
*y117*rf_IL2_Ltumor+mt_Lower_body*ac*Vint6/(y94+1)*vv_Lower_body+mt_Lower_body*ac*IL6/ ↙
(IL6+1)*vv_Lower_body-d_Lower_body*y117*vv_Lower_body)/vv_Lower_body');
12515 model.component('comp1').variable('var22').set('f119', ↙
'(Q_brain*y85*rf_IL2_Ltumor-(Q_brain-L_brain)*y119*rf_IL2_Ltumor+mt_Brain*ac*Vint7/ ↙
(y96+1)*vv_brain+mt_Brain*ac*IL6/(IL6+1)*vv_brain-d_Brain*y119*vv_brain)/vv_brain');
12516 model.component('comp1').variable('var22').set('f121', ↙
'(Q_kidney*y85*rf_IL2_Ltumor-(Q_kidney-L_kidney)*y121*rf_IL2_Ltumor+mt_kidney*ac*Vint8/ ↙
(y98+1)*vv_kidney+mt_kidney*ac*IL6/(IL6+1)*vv_kidney-d_kidney*y121*vv_kidney) ↙
/vv_kidney');
12517 model.component('comp1').variable('var22').set('f124', ↙
'(Q_Cardiac_vessels*y85*rf_IL2_Ltumor-(Q_Cardiac_vessels-L_Cardiac_vessels) ↙
*y124*rf_IL2_Ltumor+mt_Cardiac_vessels*ac*Vint9/(y125+1) ↙
*vv_Cardiac_vessels+mt_Cardiac_vessels*ac*IL6/(IL6+1)*vv_Cardiac_vessels- ↙
d_Cardiac_vessels*y124*vv_Cardiac_vessels)/vv_Cardiac_vessels');
12518 model.component('comp1').variable('var13').set('mt_Cardiac_vessels', '1e-3 ↙
[M/d]');
12519
12520 model.sol('sol54').runAll;
12521
12522 model.result('pg40').run;
12523 model.result('pg40').run;
12524 model.result('pg40').feature('ptgr1').set('expr', 'Vint1');
12525 model.result('pg40').run;
12526 model.result('pg40').run;
12527 model.result('pg40').run;
12528 model.result('pg40').run;
12529 model.result('pg40').run;
12530 model.result('pg40').run;
12531
12532 model.component('comp1').variable('var22').set('f14', '((Q_intestin-L_intestin) ↙
*y30+(Q_spleen-L_spleen)*y18+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen) ↙
*y5*freeTcell_trafficliver-(Q_liver-L_liver)*y14- ↙
ka_liver*y87*y14*vv_liver+kd_liver*y15*vv_liver-disinf_liver*y14*vv_liver) ↙
/vv_liver+Ka*Vint1-KsACE2*sACE2*y14');
12533 model.component('comp1').variable('var22').set('f18', ↙
'(Q_spleen*y5*freeTcell_trafficspleen-(Q_spleen-L_spleen)*y18- ↙
ka_spleen*y102*y18*vv_spleen+kd_spleen*y19*vv_spleen-disinf_spleen*y18*vv_spleen) ↙
/vv_spleen+Ka*Vint2-KsACE2*sACE2*y18');
12534 model.component('comp1').variable('var22').set('f22', ↙
'(Q_Upper_body*y5*freeTcell_trafficUpper_body-(Q_Upper_body-L_Upper_body)*y22- ↙
ka_Upper_body*y92*y22*vv_Upper_body+kd_Upper_body*y23*vv_Upper_body- ↙
disinf_Upper_body*y22*vv_Upper_body)/vv_Upper_body+Ka*Vint3-KsACE2*sACE2*y22');
12535 model.component('comp1').variable('var22').set('f26', ↙
'(Q_Torso*y5*freeTcell_trafficTorso-(Q_Torso-L_Torso)*y26- ↙
ka_Torso*y90*y26*vv_Torso+kd_Torso*y27*vv_Torso-disinf_Torso*y26*vv_Torso) ↙
/vv_Torso+Ka*Vint4-KsACE2*sACE2*y26');
12536 model.component('comp1').variable('var22').set('f30', ↙
'(Q_intestin*y5*freeTcell_trafficintestine-(Q_intestin-L_intestin)*y30- ↙
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ka_intestin*y103*y30*vv_intestin+kd_intestin*y31*vv_intestin-
disinf_Intestine*y30*vv_intestin)/vv_intestin+Ka*Vint5-KsACE2*sACE2*y30');
12537 model.component('comp1').variable('var22').set('f54',
'(Q_Lower_body*y5*freeTcell_trafficLower_body-(Q_Lower_body-L_Lower_body)*y54-
ka_Lower_body*y94*y54*vv_Lower_body+kd_Lower_body*y55*vv_Lower_body-
disinf_Lower_body*y54*vv_Lower_body)/vv_Lower_body+Ka*Vint6-KsACE2*sACE2*y54');
12538 model.component('comp1').variable('var22').set('f62',
'(Q_brain*y5*freeTcell_traffic brain-(Q_brain-L_brain)*y62-
ka_brain*y96*y62*vv_brain+kd_brain*y63*vv_brain-disinf_Brain*y62*vv_brain)
/vv_brain+Ka*Vint7-KsACE2*sACE2*y62');
12539 model.component('comp1').variable('var22').set('f70',
'(Q_kidney*y5*freeTcell_traffic kidney-(Q_kidney-L_kidney)*y70-
ka_kidney*y98*y70*vv_kidney+kd_kidney*y71*vv_kidney-disinf_kidney*y70*vv_kidney)
/vv_kidney+Ka*Vint8-KsACE2*sACE2*y70');
12540 model.component('comp1').variable('var22').set('f74', '(Q_Cardiac_vessels*y5-
(Q_Cardiac_vessels-L_Cardiac_vessels)*y74-
ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels+kd_Cardiac_vessels*y75*vv_Cardiac_vessel
s-disinf_Cardiac_vessels*y74*vv_Cardiac_vessels)/vv_Cardiac_vessels+Ka*Vint9-
KsACE2*sACE2*y74');
12541
12542 model.sol('sol54').runAll;
12543
12544 model.result('pg40').run;
12545 model.result('pg40').run;
12546 model.result('pg40').feature('ptgr1').set('expr', 'y14');
12547 model.result('pg40').run;
12548 model.result('pg40').run;
12549 model.result('pg40').feature('ptgr1').set('expr', 'Vint2');
12550 model.result('pg40').run;
12551 model.result('pg40').feature('ptgr1').set('expr', 'Vint');
12552 model.result('pg40').run;
12553
12554 model.component('comp1').variable('var22').set('f14', '((Q_intestin-L_intestin)
*y30+(Q_spleen-L_spleen)*y18+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)
*y5*freeTcell_trafficliver-(Q_liver-L_liver)*y14-
ka_liver*y87*y14*vv_liver+kd_liver*y15*vv_liver-disinf_liver*y14*vv_liver)
/vv_liver+Ka*Vint1-0*KsACE2*sACE2*y14');
12555 model.component('comp1').variable('var22').set('f18',
'(Q_spleen*y5*freeTcell_trafficspleen-(Q_spleen-L_spleen)*y18-
ka_spleen*y102*y18*vv_spleen+kd_spleen*y19*vv_spleen-disinf_spleen*y18*vv_spleen)
/vv_spleen+Ka*Vint2-0*KsACE2*sACE2*y18');
12556 model.component('comp1').variable('var22').set('f22',
'(Q_Upper_body*y5*freeTcell_trafficUpper_body-(Q_Upper_body-L_Upper_body)*y22-
ka_Upper_body*y92*y22*vv_Upper_body+kd_Upper_body*y23*vv_Upper_body-
disinf_Upper_body*y22*vv_Upper_body)/vv_Upper_body+Ka*Vint3-0*KsACE2*sACE2*y22');
12557 model.component('comp1').variable('var22').set('f26',
'(Q_Torso*y5*freeTcell_trafficTorso-(Q_Torso-L_Torso)*y26-
ka_Torso*y90*y26*vv_Torso+kd_Torso*y27*vv_Torso-disinf_Torso*y26*vv_Torso)
/vv_Torso+Ka*Vint4-0*KsACE2*sACE2*y26');
12558 model.component('comp1').variable('var22').set('f30',
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'(Q_intestin*y5*freeTcell_trafficintestine-(Q_intestin-L_intestin)*y30- ↙
ka_intestin*y103*y30*vv_intestin+kd_intestin*y31*vv_intestin- ↙
disinf_Intestine*y30*vv_intestin)/vv_intestin+Ka*Vint5-0*KsACE2*sACE2*y30');
12559 model.component('comp1').variable('var22').set('f54', ↙
'(Q_Lower_body*y5*freeTcell_trafficLower_body-(Q_Lower_body-L_Lower_body)*y54- ↙
ka_Lower_body*y94*y54*vv_Lower_body+kd_Lower_body*y55*vv_Lower_body- ↙
disinf_Lower_body*y54*vv_Lower_body)/vv_Lower_body+Ka*Vint6-0*KsACE2*sACE2*y54');
12560 model.component('comp1').variable('var22').set('f62', ↙
'(Q_brain*y5*freeTcell_trafficbrain-(Q_brain-L_brain)*y62- ↙
ka_brain*y96*y62*vv_brain+kd_brain*y63*vv_brain-disinf_Brain*y62*vv_brain) ↙
/vv_brain+Ka*Vint7-0*KsACE2*sACE2*y62');
12561 model.component('comp1').variable('var22').set('f70', ↙
'(Q_kidney*y5*freeTcell_traffickidney-(Q_kidney-L_kidney)*y70- ↙
ka_kidney*y98*y70*vv_kidney+kd_kidney*y71*vv_kidney-disinf_kidney*y70*vv_kidney) ↙
/vv_kidney+Ka*Vint8-0*KsACE2*sACE2*y70');
12562 model.component('comp1').variable('var22').set('f74', '(Q_Cardiac_vessels*y5- ↙
(Q_Cardiac_vessels-L_Cardiac_vessels)*y74- ↙
ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels+kd_Cardiac_vessels*y75*vv_Cardiac_vessel ↙
s-disinf_Cardiac_vessels*y74*vv_Cardiac_vessels)/vv_Cardiac_vessels+Ka*Vint9- ↙
0*KsACE2*sACE2*y74');
12563
12564 model.sol('sol54').runAll;
12565
12566 model.result('pg40').run;
12567 model.result('pg40').run;
12568
12569 model.component('comp1').variable('var22').set('f74', '(Q_Cardiac_vessels*y5- ↙
(Q_Cardiac_vessels-L_Cardiac_vessels)*y74- ↙
ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels+kd_Cardiac_vessels*y75*vv_Cardiac_vessel ↙
s-disinf_Cardiac_vessels*y74*vv_Cardiac_vessels)/vv_Cardiac_vessels+Ka*Vint9-0.1 ↙
*KsACE2*sACE2*y74');
12570 model.component('comp1').variable('var22').set('f70', ↙
'(Q_kidney*y5*freeTcell_traffickidney-(Q_kidney-L_kidney)*y70- ↙
ka_kidney*y98*y70*vv_kidney+kd_kidney*y71*vv_kidney-disinf_kidney*y70*vv_kidney) ↙
/vv_kidney+Ka*Vint8-0.1*KsACE2*sACE2*y70');
12571 model.component('comp1').variable('var22').set('f62', ↙
'(Q_brain*y5*freeTcell_trafficbrain-(Q_brain-L_brain)*y62- ↙
ka_brain*y96*y62*vv_brain+kd_brain*y63*vv_brain-disinf_Brain*y62*vv_brain) ↙
/vv_brain+Ka*Vint7-0.1*KsACE2*sACE2*y62');
12572 model.component('comp1').variable('var22').set('f54', ↙
'(Q_Lower_body*y5*freeTcell_trafficLower_body-(Q_Lower_body-L_Lower_body)*y54- ↙
ka_Lower_body*y94*y54*vv_Lower_body+kd_Lower_body*y55*vv_Lower_body- ↙
disinf_Lower_body*y54*vv_Lower_body)/vv_Lower_body+Ka*Vint6-0.1*KsACE2*sACE2*y54');
12573 model.component('comp1').variable('var22').set('f30', ↙
'(Q_intestin*y5*freeTcell_trafficintestine-(Q_intestin-L_intestin)*y30- ↙
ka_intestin*y103*y30*vv_intestin+kd_intestin*y31*vv_intestin- ↙
disinf_Intestine*y30*vv_intestin)/vv_intestin+Ka*Vint5-0.1*KsACE2*sACE2*y30');
12574 model.component('comp1').variable('var22').set('f26', ↙
'(Q_Torso*y5*freeTcell_trafficTorso-(Q_Torso-L_Torso)*y26- ↙
ka_Torso*y90*y26*vv_Torso+kd_Torso*y27*vv_Torso-disinf_Torso*y26*vv_Torso) ↙
```

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/vv_Torso+Ka*Vint4-0.1*KsACE2*sACE2*y26');
12575 model.component('comp1').variable('var22').set('f22', ↙
'(Q_Upper_body*y5*freeTcell_trafficUpper_body-(Q_Upper_body-L_Upper_body)*y22- ↙
ka_Upper_body*y92*y22*vv_Upper_body+kd_Upper_body*y23*vv_Upper_body- ↙
disinf_Upper_body*y22*vv_Upper_body)/vv_Upper_body+Ka*Vint3-0.1*KsACE2*sACE2*y22');
12576 model.component('comp1').variable('var22').set('f18', ↙
'(Q_spleen*y5*freeTcell_trafficspleen-(Q_spleen-L_spleen)*y18- ↙
ka_spleen*y102*y18*vv_spleen+kd_spleen*y19*vv_spleen-disinf_spleen*y18*vv_spleen) ↙
/vv_spleen+Ka*Vint2-0.1*KsACE2*sACE2*y18');
12577 model.component('comp1').variable('var22').set('f14', '((Q_intestin-L_intestin) ↙
*y30+(Q_spleen-L_spleen)*y18+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen) ↙
*y5*freeTcell_trafficliver-(Q_liver-L_liver)*y14- ↙
ka_liver*y87*y14*vv_liver+kd_liver*y15*vv_liver-disinf_liver*y14*vv_liver) ↙
/vv_liver+Ka*Vint1-0.1*KsACE2*sACE2*y14');
12578
12579 model.sol('sol54').runAll;
12580
12581 model.result('pg40').run;
12582 model.result('pg40').run;
12583
12584 model.label('Coupled Baseline add Matlab EQ_clear_Method and Termination ↙
Autoimatic Newton.mph');
12585
12586 model.result('pg40').run;
12587
12588 model.component('comp1').physics('sACE2').feature('dode1').setIndex('f', 'SsACE2- ↙
KsACE2*sACE2*Ci+KAdam17*ACE2-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci- ↙
KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci- ↙
KsACE2*sACE2*Ci', 0);
12589 model.component('comp1').physics('sACE2').feature('dode1').setIndex('f', 'SsACE2- ↙
KsACE2*sACE2*Ci+KAdam17*ACE2-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci- ↙
KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci- ↙
KsACE2*sACE2*y74', 0);
12590 model.component('comp1').physics('sACE2').feature('dode1').setIndex('f', 'SsACE2- ↙
KsACE2*sACE2*Ci+KAdam17*ACE2-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci- ↙
KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*y-KsACE2*sACE2*y70- ↙
KsACE2*sACE2*y74', 0);
12591 model.component('comp1').physics('sACE2').feature('dode1').setIndex('f', 'SsACE2- ↙
KsACE2*sACE2*Ci+KAdam17*ACE2-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci- ↙
KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*y62-KsACE2*sACE2*y70- ↙
KsACE2*sACE2*y74', 0);
12592 model.component('comp1').physics('sACE2').feature('dode1').setIndex('f', 'SsACE2- ↙
KsACE2*sACE2*Ci+KAdam17*ACE2-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci- ↙
KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*y54-KsACE2*sACE2*y62-KsACE2*sACE2*y70- ↙
KsACE2*sACE2*y74', 0);
12593 model.component('comp1').physics('sACE2').feature('dode1').setIndex('f', 'SsACE2- ↙
KsACE2*sACE2*Ci+KAdam17*ACE2-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci- ↙
KsACE2*sACE2*Ci-KsACE2*sACE2*y30-KsACE2*sACE2*y54-KsACE2*sACE2*y62-KsACE2*sACE2*y70- ↙
KsACE2*sACE2*y74', 0);
12594 model.component('comp1').physics('sACE2').feature('dode1').setIndex('f', 'SsACE2- ↙
```

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KsACE2*sACE2*Ci+KAdam17*ACE2-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci- ↙
KsACE2*sACE2*y26-KsACE2*sACE2*y30-KsACE2*sACE2*y54-KsACE2*sACE2*y62-KsACE2*sACE2*y70- ↙
KsACE2*sACE2*y74', 0);
12595 model.component('comp1').physics('sACE2').feature('dode1').setIndex('f', 'SsACE2- ↙
KsACE2*sACE2*Ci+KAdam17*ACE2-KsACE2*sACE2*Ci-KsACE2*sACE2*Ci-KsACE2*sACE2*y22- ↙
KsACE2*sACE2*y26-KsACE2*sACE2*y30-KsACE2*sACE2*y54-KsACE2*sACE2*y62-KsACE2*sACE2*y70- ↙
KsACE2*sACE2*y74', 0);
12596 model.component('comp1').physics('sACE2').feature('dode1').setIndex('f', 'SsACE2- ↙
KsACE2*sACE2*Ci+KAdam17*ACE2-KsACE2*sACE2*Ci-KsACE2*sACE2*y18-KsACE2*sACE2*y22- ↙
KsACE2*sACE2*y26-KsACE2*sACE2*y30-KsACE2*sACE2*y54-KsACE2*sACE2*y62-KsACE2*sACE2*y70- ↙
KsACE2*sACE2*y74', 0);
12597 model.component('comp1').physics('sACE2').feature('dode1').setIndex('f', 'SsACE2- ↙
KsACE2*sACE2*Ci+KAdam17*ACE2-0.1*KsACE2*sACE2*y14-0.1*KsACE2*sACE2*y18-0.1 ↙
*KsACE2*sACE2*y22-0.1*KsACE2*sACE2*y26-0.1*KsACE2*sACE2*y30-0.1*KsACE2*sACE2*y54-0.1 ↙
*KsACE2*sACE2*y62-0.1*KsACE2*sACE2*y70-0.1*KsACE2*sACE2*y74', 0);
12598
12599 model.sol('sol54').runAll;
12600
12601 model.result('pg40').run;
12602 model.result('pg40').run;
12603 model.result('pg40').feature('ptgr1').set('expr', 'y14');
12604 model.result('pg40').run;
12605
12606 model.label('Coupled Baseline add Matlab EQ_clear_Method and Termination ↙
Autoimatic Newton.mph');
12607
12608 model.result('pg40').run;
12609
12610 model.component('comp1').variable('var13').set('mt_lung', '1e-1 [M/d]');
12611 model.component('comp1').variable('var13').set('mt_liver', '1e-1 [M/d]');
12612 model.component('comp1').variable('var13').set('mt_spleen', '1e-1 [M/d]');
12613 model.component('comp1').variable('var13').set('mt_Upper_body', '1e-1 [M/d]');
12614 model.component('comp1').variable('var13').set('mt_Torso', '1e-1 [M/d]');
12615 model.component('comp1').variable('var13').set('mt_Intestine', '1e-1 [M/d]');
12616 model.component('comp1').variable('var13').set('mt_Lower_body', '1e-1[M/d]');
12617 model.component('comp1').variable('var13').set('mt_Brain', '1e-1 [M/d]');
12618 model.component('comp1').variable('var13').set('mt_kidney', '1e-1 [M/d]');
12619 model.component('comp1').variable('var13').set('mt_Cardiac_vessels', '1e-1 ↙
[M/d]');
12620
12621 model.result('pg40').run;
12622 model.result('pg40').feature('ptgr1').set('expr', 'y105');
12623 model.result('pg40').run;
12624
12625 model.sol('sol54').runAll;
12626
12627 model.result('pg40').run;
12628 model.result('pg40').run;
12629 model.result('pg40').run;
12630 model.result('pg40').feature('ptgr1').set('expr', 'Vint');
```

```
12631 model.result('pg40').run;
12632 model.result('pg40').feature('ptgr1').set('expr', 'IL6');
12633 model.result('pg40').run;
12634 model.result('pg40').feature('ptgr1').set('expr', 'ACE2');
12635 model.result('pg40').run;
12636 model.result('pg40').feature('ptgr1').set('expr', 'y92');
12637 model.result('pg40').run;
12638 model.result('pg40').feature('ptgr1').set('expr', 'y90');
12639 model.result('pg40').run;
12640 model.result('pg40').run;
12641 model.result('pg40').run;
12642 model.result('pg40').feature('ptgr1').set('expr', 'y26');
12643 model.result('pg40').run;
12644 model.result('pg40').feature('ptgr1').set('expr', 'y27');
12645 model.result('pg40').run;
12646
12647 model.component('comp1').variable('var7').set('ka_spleen', '1e-3*60*24 ↙
[1/mM/d]');
12648 model.component('comp1').variable('var7').set('ka_liver', '1e-3*60*24 [1/mM/d]');
12649 model.component('comp1').variable('var7').set('ka_Upper_body', '1e-3*60*24 ↙
[1/mM/d]');
12650 model.component('comp1').variable('var7').set('ka_Torso', '1e-3*60*24 [1/mM/d]');
12651 model.component('comp1').variable('var7').set('ka_lung', '1e-3*60*24[1/mM/d]');
12652 model.component('comp1').variable('var7').set('ka_intestin', '1e-3*60*24 ↙
[1/mM/d]');
12653 model.component('comp1').variable('var7').set('ka_Lower_body', '1e-3*60*24 ↙
[1/mM/d]');
12654 model.component('comp1').variable('var7').set('ka_brain', '1e-3*60*24 [1/mM/d]');
12655 model.component('comp1').variable('var7').set('ka_kidney', '1e-3*60*24 ↙
[1/mM/d]');
12656 model.component('comp1').variable('var7').set('ka_Cardiac_vessels', '1e-3*60*24 ↙
[1/mM/d]');
12657 model.component('comp1').variable('var14').set('d_lung', '1e-1 [1/d]');
12658 model.component('comp1').variable('var14').set('d_liver', '1e-1 [1/d]');
12659 model.component('comp1').variable('var14').set('d_spleen', '1e-1 [1/d]');
12660 model.component('comp1').variable('var14').set('d_Upper_body', '1e-1 [1/d]');
12661 model.component('comp1').variable('var14').set('d_Torso', '1e-1 [1/d]');
12662 model.component('comp1').variable('var14').set('d_Intestine', '1e-1 [1/d]');
12663 model.component('comp1').variable('var14').set('d_Lower_body', '1e-1 [1/d]');
12664 model.component('comp1').variable('var14').set('d_Brain', '1e-1 [1/d]');
12665 model.component('comp1').variable('var14').set('d_kidney', '1e-1 [1/d]');
12666 model.component('comp1').variable('var14').set('d_Cardiac_vessels', '1e-1 ↙
[1/d]');
12667
12668 model.result('pg40').run;
12669 model.result('pg40').feature('ptgr1').set('expr', 'Ci');
12670 model.result('pg40').run;
12671 model.result('pg40').run;
12672 model.result('pg40').run;
12673 model.result('pg40').feature('ptgr1').set('expr', 'y105');
```

```
model.result('pg40').run;

model.sol('sol54').runAll;

model.result('pg40').run;
model.result('pg40').run;
model.result('pg40').run;
model.result('pg40').set('xlog', true);
model.result('pg40').set('ylog', true);
model.result('pg40').set('xlog', false);
model.result('pg40').set('ylog', false);
model.result('pg40').run;
model.result('pg40').run;
model.result('pg40').feature('ptgr1').set('expr', 'Vint');
model.result('pg40').run;
model.result('pg40').feature('ptgr1').set('expr', 'Ci');
model.result('pg40').run;
model.result('pg40').run;
model.result('pg40').feature('ptgr1').set('expr', 'Vint5');
model.result('pg40').run;
model.result('pg40').run;
model.result('pg40').run;
model.result('pg40').feature('ptgr1').set('expr', 'y105');
model.result('pg40').run;
model.result('pg40').run;

model.component('comp1').variable('var11').set('p_liver', '1*1000 [1/d]');
model.component('comp1').variable('var11').set('p_lung', '1*1000 [1/d]');
model.component('comp1').variable('var11').set('p_spleen', '0.1*1000 [1/d]');
model.component('comp1').variable('var11').set('p_Upper_body', '1.1*1000 [1/d]');
model.component('comp1').variable('var11').set('p_Torso', '2*1000 [1/d]');
model.component('comp1').variable('var11').set('p_Intestine', '0.7*1000 [1/d]');
model.component('comp1').variable('var11').set('p_Lower_body', '0.9*1000 [1/d]');
model.component('comp1').variable('var11').set('p_Brain', '1.4*1000 [1/d]');
model.component('comp1').variable('var11').set('p_kidney', '1.1*1000 [1/d]');
model.component('comp1').variable('var11').set('p_Cardiac_vessels', '1.8*1000 ↙
[1/d]');

model.result('pg40').run;

model.component('comp1').variable('var14').set('d_lung', '1 [1/d]');
model.component('comp1').variable('var14').set('d_liver', '1 [1/d]');
model.component('comp1').variable('var14').set('d_spleen', '1 [1/d]');
model.component('comp1').variable('var14').set('d_Upper_body', '1 [1/d]');
model.component('comp1').variable('var14').set('d_Torso', '1 [1/d]');
model.component('comp1').variable('var14').set('d_Intestine', '1 [1/d]');
model.component('comp1').variable('var14').set('d_Lower_body', '1 [1/d]');
model.component('comp1').variable('var14').set('d_Brain', '1 [1/d]');
model.component('comp1').variable('var14').set('d_kidney', '1 [1/d]');
model.component('comp1').variable('var14').set('d_Cardiac_vessels', '1 [1/d]');
```

```
12723 model.component('comp1').variable('var14').set('d_lung', '1e-1 [1/d]');
12724 model.component('comp1').variable('var14').set('d_liver', '1e-1 [1/d]');
12725 model.component('comp1').variable('var14').set('d_spleen', '1e-1 [1/d]');
12726 model.component('comp1').variable('var14').set('d_Upper_body', '1e-1 [1/d]');
12727 model.component('comp1').variable('var14').set('d_Torso', '1e-1 [1/d]');
12728 model.component('comp1').variable('var14').set('d_Intestine', '1e-1 [1/d]');
12729 model.component('comp1').variable('var14').set('d_Lower_body', '1e-1 [1/d]');
12730 model.component('comp1').variable('var14').set('d_Brain', '1e-1 [1/d]');
12731 model.component('comp1').variable('var14').set('d_kidney', '1e-1 [1/d]');
12732 model.component('comp1').variable('var14').set('d_Cardiac_vessels', '1e-1 ↙
[1/d]');
12733 model.component('comp1').variable('var13').set('mt_lung', '1e-2 [M/d]');
12734 model.component('comp1').variable('var13').set('mt_liver', '1e-2 [M/d]');
12735 model.component('comp1').variable('var13').set('mt_spleen', '1e-2 [M/d]');
12736 model.component('comp1').variable('var13').set('mt_Upper_body', '1e-2 [M/d]');
12737 model.component('comp1').variable('var13').set('mt_Torso', '1e-2 [M/d]');
12738 model.component('comp1').variable('var13').set('mt_Intestine', '1e-2 [M/d]');
12739 model.component('comp1').variable('var13').set('mt_Lower_body', '1e-2[M/d]');
12740 model.component('comp1').variable('var13').set('mt_Brain', '1e-2 [M/d]');
12741 model.component('comp1').variable('var13').set('mt_kidney', '1e-2 [M/d]');
12742 model.component('comp1').variable('var13').set('mt_Cardiac_vessels', '1e-2 ↙
[M/d]');
12743 model.component('comp1').variable('var11').set('p_liver', '1*10 [1/d]');
12744 model.component('comp1').variable('var11').set('p_lung', '1*10 [1/d]');
12745 model.component('comp1').variable('var11').set('p_spleen', '0.1*10 [1/d]');
12746 model.component('comp1').variable('var11').set('p_Upper_body', '1.1*10 [1/d]');
12747 model.component('comp1').variable('var11').set('p_Torso', '2*10 [1/d]');
12748 model.component('comp1').variable('var11').set('p_Intestine', '0.7*10 [1/d]');
12749 model.component('comp1').variable('var11').set('p_Lower_body', '0.9*10 [1/d]');
12750 model.component('comp1').variable('var11').set('p_Brain', '1.4*10 [1/d]');
12751 model.component('comp1').variable('var11').set('p_kidney', '1.1*10 [1/d]');
12752 model.component('comp1').variable('var11').set('p_Cardiac_vessels', '1.8*10 ↙
[1/d]');
12753
12754 model.sol('sol54').runAll;
12755
12756 model.result('pg40').run;
12757 model.result('pg40').run;
12758 model.result('pg40').feature('ptgr1').set('expr', 'Vint');
12759 model.result('pg40').run;
12760 model.result('pg40').run;
12761 model.result('pg40').feature('ptgr1').set('expr', 'Vint2');
12762 model.result('pg40').run;
12763 model.result('pg40').feature('ptgr1').set('expr', 'Ci');
12764 model.result('pg40').run;
12765 model.result('pg40').feature('ptgr1').set('expr', 'Cb');
12766 model.result('pg40').run;
12767 model.result('pg40').run;
12768 model.result('pg40').feature('ptgr1').set('expr', 'Ci');
12769 model.result('pg40').run;
```

```
12770 model.result('pg40').feature('ptgr1').set('expr', 'y14');
12771 model.result('pg40').run;
12772 model.result('pg40').feature('ptgr1').set('expr', 'y15');
12773 model.result('pg40').run;
12774
12775 model.label('New Coupled Baseline add Matlab EQ_clear_Method and Termination ↙
Autoimatic Newton.mph');
12776
12777 model.setGroupByType(false);
12778 model.component('comp1').setGroupByType(false);
12779
12780 model.component('comp1').physics('AGT').setGroupBySpaceDimension(false);
12781 model.component('comp1').physics('Renin').setGroupBySpaceDimension(false);
12782 model.component('comp1').physics('AngI').setGroupBySpaceDimension(false);
12783 model.component('comp1').physics('AngII').setGroupBySpaceDimension(false);
12784 model.component('comp1').physics('Ang17').setGroupBySpaceDimension(false);
12785 model.component('comp1').physics('Ang19').setGroupBySpaceDimension(false);
12786 model.component('comp1').physics('AngIII').setGroupBySpaceDimension(false);
12787 model.component('comp1').physics('AngIV').setGroupBySpaceDimension(false);
12788 model.component('comp1').physics('AT1bAngII').setGroupBySpaceDimension(false);
12789 model.component('comp1').physics('AT2bAngII').setGroupBySpaceDimension(false);
12790 model.component('comp1').physics('AT4bAngIV').setGroupBySpaceDimension(false);
12791 model.component('comp1').physics('MAsbAng17').setGroupBySpaceDimension(false);
12792 model.component('comp1').physics('Cb').setGroupBySpaceDimension(false);
12793 model.component('comp1').physics('H').setGroupBySpaceDimension(false);
12794 model.component('comp1').physics('Vint').setGroupBySpaceDimension(false);
12795 model.component('comp1').physics('In').setGroupBySpaceDimension(false);
12796 model.component('comp1').physics('Ci').setGroupBySpaceDimension(false);
12797 model.component('comp1').physics('n').setGroupBySpaceDimension(false);
12798 model.component('comp1').physics('ma').setGroupBySpaceDimension(false);
12799 model.component('comp1').physics('c').setGroupBySpaceDimension(false);
12800 model.component('comp1').physics('Ctl').setGroupBySpaceDimension(false);
12801 model.component('comp1').physics('a').setGroupBySpaceDimension(false);
12802 model.component('comp1').physics('AT1R').setGroupBySpaceDimension(false);
12803 model.component('comp1').physics('AT2R').setGroupBySpaceDimension(false);
12804 model.component('comp1').physics('MAsR').setGroupBySpaceDimension(false);
12805 model.component('comp1').physics('AT4R').setGroupBySpaceDimension(false);
12806 model.component('comp1').physics('ACE2').setGroupBySpaceDimension(false);
12807 model.component('comp1').physics('ACE2bAngI').setGroupBySpaceDimension(false);
12808 model.component('comp1').physics('ACE2bAngII').setGroupBySpaceDimension(false);
12809 model.component('comp1').physics('IL6').setGroupBySpaceDimension(false);
12810 model.component('comp1').physics('IL6R').setGroupBySpaceDimension(false);
12811 model.component('comp1').physics('IL6RbIL6').setGroupBySpaceDimension(false);
12812 model.component('comp1').physics('sIL6RbIL6').setGroupBySpaceDimension(false);
12813 model.component('comp1').physics('VEGF').setGroupBySpaceDimension(false);
12814 model.component('comp1').physics('sIL6R').setGroupBySpaceDimension(false);
12815 model.component('comp1').physics('sACE2').setGroupBySpaceDimension(false);
12816 model.component('comp1').physics('ec').setGroupBySpaceDimension(false);
12817 model.component('comp1').physics('iec').setGroupBySpaceDimension(false);
12818 model.component('comp1').physics('cox_oxygen').setGroupBySpaceDimension(false);
```

```
12819 model.component('comp1').physics('dode').setGroupBySpaceDimension(false);
12820 model.component('comp1').physics('dode2').setGroupBySpaceDimension(false);
12821 model.component('comp1').physics('dode3').setGroupBySpaceDimension(false);
12822 model.component('comp1').physics('dode4').setGroupBySpaceDimension(false);
12823 model.component('comp1').physics('dode5').setGroupBySpaceDimension(false);
12824 model.component('comp1').physics('dode6').setGroupBySpaceDimension(false);
12825 model.component('comp1').physics('dode7').setGroupBySpaceDimension(false);
12826 model.component('comp1').physics('dode8').setGroupBySpaceDimension(false);
12827 model.component('comp1').physics('dode9').setGroupBySpaceDimension(false);
12828 model.component('comp1').physics('dode10').setGroupBySpaceDimension(false);
12829 model.component('comp1').physics('dode11').setGroupBySpaceDimension(false);
12830 model.component('comp1').physics('dode12').setGroupBySpaceDimension(false);
12831 model.component('comp1').physics('dode13').setGroupBySpaceDimension(false);
12832 model.component('comp1').physics('dode14').setGroupBySpaceDimension(false);
12833 model.component('comp1').physics('dode15').setGroupBySpaceDimension(false);
12834 model.component('comp1').physics('dode16').setGroupBySpaceDimension(false);
12835 model.component('comp1').physics('dode17').setGroupBySpaceDimension(false);
12836 model.component('comp1').physics('dode18').setGroupBySpaceDimension(false);
12837 model.component('comp1').physics('dode19').setGroupBySpaceDimension(false);
12838 model.component('comp1').physics('dode20').setGroupBySpaceDimension(false);
12839 model.component('comp1').physics('dode21').setGroupBySpaceDimension(false);
12840 model.component('comp1').physics('dode22').setGroupBySpaceDimension(false);
12841 model.component('comp1').physics('dode24').setGroupBySpaceDimension(false);
12842 model.component('comp1').physics('dode23').setGroupBySpaceDimension(false);
12843 model.component('comp1').physics('dode25').setGroupBySpaceDimension(false);
12844 model.component('comp1').physics('dode26').setGroupBySpaceDimension(false);
12845 model.component('comp1').physics('dode27').setGroupBySpaceDimension(false);
12846 model.component('comp1').physics('dode28').setGroupBySpaceDimension(false);
12847 model.component('comp1').physics('dode29').setGroupBySpaceDimension(false);
12848 model.component('comp1').physics('dode30').setGroupBySpaceDimension(false);
12849 model.component('comp1').physics('dode31').setGroupBySpaceDimension(false);
12850 model.component('comp1').physics('dode32').setGroupBySpaceDimension(false);
12851 model.component('comp1').physics('dode33').setGroupBySpaceDimension(false);
12852 model.component('comp1').physics('dode34').setGroupBySpaceDimension(false);
12853 model.component('comp1').physics('dode35').setGroupBySpaceDimension(false);
12854 model.component('comp1').physics('dode36').setGroupBySpaceDimension(false);
12855 model.component('comp1').physics('dode37').setGroupBySpaceDimension(false);
12856 model.component('comp1').physics('dode38').setGroupBySpaceDimension(false);
12857 model.component('comp1').physics('dode39').setGroupBySpaceDimension(false);
12858 model.component('comp1').physics('dode40').setGroupBySpaceDimension(false);
12859 model.component('comp1').physics('dode41').setGroupBySpaceDimension(false);
12860 model.component('comp1').physics('dode42').setGroupBySpaceDimension(false);
12861 model.component('comp1').physics('dode43').setGroupBySpaceDimension(false);
12862 model.component('comp1').physics('dode44').setGroupBySpaceDimension(false);
12863
12864 model.result('pg40').run;
12865 model.result('pg40').feature('ptgr1').set('expr', 'y105');
12866 model.result('pg40').run;
12867
12868 model.component('comp1').variable('var6').remove('bKa');
```

```
12869
12870 model.param.set('bKa', '1');
12871
12872 model.sol('sol54').runAll;
12873
12874 model.result('pg40').run;
12875 model.result('pg40').run;
12876 model.result('pg40').feature('ptgr1').set('expr', 'Ci');
12877 model.result('pg40').run;
12878 model.result('pg40').feature('ptgr1').set('expr', 'Cb');
12879 model.result('pg40').run;
12880 model.result('pg40').feature('ptgr1').set('expr', 'y125');
12881 model.result('pg40').run;
12882
12883 model.label('New Coupled Baseline add Matlab EQ_clear_Method and Termination ↙
Autoimatic Newton_run.mph');
12884
12885 model.result('pg40').run;
12886
12887 model.component('comp1').variable('var1').set('KonACE2V', '17 [ml/h/nmol]*0');
12888
12889 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Kin*In*bin', 0);
12890 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Ci+phic*H*n-phictl*In*Ctl-+Kin*In', 0);
12891
12892 model.component('comp1').variable('var1').set('Kin', '1/24[1/h]');
12893
12894 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Ci+phic*H*n-phictl*In*Ctl-Kin*In', 0);
12895
12896 model.component('comp1').variable('var1').set('Kin', '(1/24)[1/h]');
12897 model.component('comp1').variable('var1').set('bin', '1e12[fmol/ml]');
12898
12899 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'Kin*In*bin', 0);
12900 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Kin*In*bin', 0);
12901
12902 model.component('comp1').variable('var1').set('bin', '1e12[fmol]');
12903
12904 model.study('std1').feature('time').set('plot', true);
12905 model.study('std1').feature('time').set('plotfreq', 'tsteps');
12906
12907 model.result('pg40').run;
12908 model.result('pg40').feature('ptgr1').set('expr', 'Ci');
12909
12910 model.component('comp1').variable('var1').set('bin', '1e12[mol]');
```

```
12911
12912 model.result('pg40').run;
12913 model.result('pg40').feature('ptgr1').set('expr', 'In');
12914 model.result('pg40').run;
12915 model.result('pg40').feature('ptgr1').set('expr', 'Ci');
12916 model.result('pg40').run;
12917 model.result('pg40').run;
12918 model.result('pg40').run;
12919 model.result('pg40').run;
12920
12921 model.sol('sol54').runFromTo('st1', 'v1');
12922
12923 model.result('pg40').run;
12924
12925 model.component('comp1').physics('Ci').feature('init1').set('Ci', '1.27e-9[M]');
12926
12927 model.sol('sol54').runFromTo('st1', 'v1');
12928
12929 model.result('pg40').run;
12930
12931 model.label('New Coupled Baseline add Matlab EQ_clear_Method and Termination ↙
Autoimatic Newton_run_infVirus - Copy.mph');
12932
12933 model.result('pg40').run;
12934
12935 model.component('comp1').variable('var1').set('KsACE2', '8.5[ml/h/nmol]/100');
12936 model.component('comp1').variable('var1').set('Kd', '2.4e-8[1/s]/100');
12937
12938 model.result('pg40').run;
12939 model.result('pg40').run;
12940 model.result('pg40').feature('ptgr1').set('expr', 'y78');
12941 model.result('pg40').run;
12942
12943 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78*0-(Q_lung-L_lung)*Ci*0)/vv_lung-KsACE2*sACE2*Ci- ↙
KonACE2V*Ci*ACE2+KoffACE2V*Cb-Kd*Ci+Kin*In*bin', 0);
12944
12945 model.result('pg40').run;
12946 model.result('pg40').feature('ptgr1').set('expr', 'Ci');
12947 model.result('pg40').run;
12948 model.result('pg40').run;
12949 model.result('pg40').run;
12950 model.result('pg40').run;
12951
12952 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78*0-(Q_lung-L_lung)*Ci*0)/vv_lung-KsACE2*sACE2*Ci*0- ↙
KonACE2V*Ci*ACE2*0+KoffACE2V*Cb-Kd*Ci*0+Kin*In*bin', 0);
12953
12954 model.result('pg40').run;
12955 model.result('pg40').feature.duplicate('ptgr2', 'ptgr1');
```

```
12956 model.result('pg40').run;
12957 model.result('pg40').feature('ptgr2').set('expr', 'In');
12958 model.result('pg40').run;
12959 model.result('pg40').feature('ptgr1').set('legend', true);
12960 model.result('pg40').feature('ptgr2').set('legend', true);
12961 model.result('pg40').run;
12962 model.result('pg40').run;
12963 model.result('pg40').feature('ptgr1').set('autodescr', true);
12964 model.result('pg40').feature('ptgr1').set('autopoint', false);
12965 model.result('pg40').run;
12966 model.result('pg40').run;
12967 model.result('pg40').run;
12968 model.result('pg40').feature('ptgr2').set('autodescr', true);
12969 model.result('pg40').feature('ptgr2').set('autopoint', false);
12970 model.result('pg40').run;
12971 model.result('pg40').run;
12972 model.result('pg40').run;
12973 model.result('pg40').feature('ptgr2').active(false);
12974 model.result('pg40').run;
12975 model.result('pg40').run;
12976 model.result('pg40').run;
12977 model.result('pg40').feature('ptgr1').set('expr', 'Cb');
12978 model.result('pg40').run;
12979 model.result('pg40').feature('ptgr1').set('expr', 'Vint');
12980 model.result('pg40').run;
12981 model.result('pg40').feature('ptgr1').set('expr', 'Kin*In*bin');
12982 model.result('pg40').run;
12983 model.result('pg40').run;
12984 model.result('pg40').feature('ptgr1').set('expr', '(Q_lung*y78*0-(Q_lung-L_lung) ↙
*Ci*0)/vv_lung-KsACE2*sACE2*Ci*0-KonACE2V*Ci*ACE2*0+KoffACE2V*Cb-Kd*Ci*0+Kin*In*bin');
12985 model.result('pg40').run;
12986 model.result('pg40').feature('ptgr1').set('expr', 'Ci');
12987 model.result('pg40').run;
12988
12989 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci- ↙
KonACE2V*Ci*ACE2*+KoffACE2V*Cb-Kd*Ci+Kin*In*bin', 0);
12990 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Kin*In*bin', 0);
12991
12992 model.component('comp1').variable('var1').set('bin', '1e6[fmol]');
12993
12994 model.sol('sol54').runAll;
12995
12996 model.result('pg40').run;
12997 model.result('pg40').run;
12998 model.result('pg40').feature('ptgr1').set('expr', 'Cb');
12999 model.result('pg40').run;
13000 model.result('pg40').feature('ptgr1').set('expr', 'In');
```

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13001 model.result('pg40').run;
13002 model.result('pg40').run;
13003
13004 model.label('New Coupled Baseline add Matlab EQ_clear_Method and Termination ↙
Autoimatic Newton_run_infVirus - Copy.mph');
13005
13006 model.result('pg40').run;
13007 model.result('pg40').feature('ptgr1').set('expr', 'Ci');
13008 model.result('pg40').run;
13009 model.result('pg40').run;
13010 model.result('pg40').feature('ptgr1').set('expr', 'In');
13011 model.result('pg40').run;
13012 model.result('pg40').set('ylog', true);
13013 model.result('pg40').set('showmanualgrid', true);
13014 model.result('pg40').set('showxspacing', true);
13015 model.result('pg40').set('showyspacing', false);
13016 model.result('pg40').set('showsecyspacing', false);
13017 model.result('pg40').set('showsecyextra', false);
13018 model.result('pg40').set('ylog', false);
13019 model.result('pg40').set('showmanualgrid', true);
13020 model.result('pg40').set('showxspacing', true);
13021 model.result('pg40').set('showyspacing', true);
13022 model.result('pg40').set('showsecyspacing', false);
13023 model.result('pg40').set('showsecyextra', false);
13024
13025 model.component('comp1').variable('var1').set('Kin', '(1/24)[1/h]/1000');
13026
13027 model.result('pg40').run;
13028 model.result('pg40').run;
13029 model.result('pg40').feature('ptgr2').active(true);
13030 model.result('pg40').run;
13031 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
13032 model.result('pg40').run;
13033 model.result('pg40').feature('ptgr2').set('unit', 'fmol/m^3');
13034 model.result('pg40').run;
13035 model.result('pg40').run;
13036 model.result('pg40').run;
13037 model.result('pg40').run;
13038 model.result('pg40').run;
13039
13040 model.component('comp1').variable('var1').set('bin', '1e1[fmol]');
13041
13042 model.sol('sol54').runAll;
13043
13044 model.result('pg40').run;
13045 model.result('pg40').set('ylog', false);
13046 model.result('pg40').set('showmanualgrid', true);
13047 model.result('pg40').set('showxspacing', true);
13048 model.result('pg40').set('showyspacing', true);
13049 model.result('pg40').set('showsecyspacing', false);
```

```
13050 model.result('pg40').set('showsecyextra', false);
13051 model.result('pg40').run;
13052 model.result('pg40').feature('ptgr1').active(false);
13053 model.result('pg40').run;
13054 model.result('pg40').feature('ptgr1').set('expr', 'Ci');
13055 model.result('pg40').feature('ptgr1').active(true);
13056 model.result('pg40').run;
13057 model.result('pg40').run;
13058 model.result('pg40').feature('ptgr2').active(false);
13059 model.result('pg40').run;
13060 model.result('pg40').feature('ptgr2').set('expr', 'In');
13061 model.result('pg40').feature('ptgr2').active(true);
13062 model.result('pg40').run;
13063 model.result('pg40').run;
13064 model.result('pg40').feature('ptgr2').set('expr', 'Ctl');
13065 model.result('pg40').run;
13066 model.result('pg40').feature('ptgr2').set('expr', 'In');
13067 model.result('pg40').run;
13068 model.result('pg40').run;
13069 model.result('pg40').feature('ptgr1').active(false);
13070 model.result('pg40').run;
13071 model.result('pg40').run;
13072 model.result('pg40').run;
13073 model.result('pg40').feature('ptgr2').set('expr', 'n');
13074 model.result('pg40').run;
13075
13076 model.component('comp1').physics('n').feature('dode1').setIndex('f', 'xn*c/ ↙
(1+a/a0)-gam_n*n/1000-gam_m*n*ma/100-gam_v*n*Ci/100+xIL6*IL6RbIL6', 0);
13077 model.component('comp1').physics('n').feature('dode1').setIndex('f', 'xn*c/ ↙
(1+a/a0)-gam_n*n/1000-gam_m*n*ma/100-gam_v*n*Ci/100+xIL6*IL6RbIL6*10', 0);
13078
13079 model.result('pg40').run;
13080 model.result('pg40').run;
13081 model.result('pg40').feature('ptgr2').set('expr', 'xn*c/(1+a/a0)');
13082 model.result('pg40').run;
13083 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
13084 model.result('pg40').run;
13085
13086 model.component('comp1').physics('n').feature('dode1').setIndex('f', 'xn*c/ ↙
(1+a/a0)-gam_n*n/1000-gam_m*n*ma/1000-gam_v*n*Ci/100+xIL6*IL6RbIL6*1000', 0);
13087
13088 model.sol('sol54').runAll;
13089
13090 model.result('pg40').run;
13091 model.result('pg40').run;
13092 model.result('pg40').feature('ptgr2').set('expr', 'In');
13093 model.result('pg40').run;
13094
13095 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Ci+phic*H*n-phictl*In*Ctl/100-Kin*In', 0);
```

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13096 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Ci+phic*H*n-phictl*In*Ctl*0-Kin*In', 0);
13097
13098 model.sol('sol54').runAll;
13099
13100 model.result('pg40').run;
13101 model.result('pg40').run;
13102 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
13103 model.result('pg40').run;
13104
13105 model.component('comp1').physics('n').feature('dode1').setIndex('f', 'xn*c/ ↙
(1+a/a0)-gam_n*n*0-gam_m*n*ma*0-gam_v*n*Ci*0+xIL6*IL6RbIL6*1000', 0);
13106
13107 model.sol('sol54').runAll;
13108
13109 model.result('pg40').run;
13110 model.result('pg40').run;
13111 model.result('pg40').feature('ptgr2').set('expr', 'In');
13112 model.result('pg40').run;
13113 model.result('pg40').run;
13114 model.result('pg40').feature('ptgr2').set('expr', 'n');
13115 model.result('pg40').run;
13116 model.result('pg40').feature('ptgr2').set('expr', 'IL6RbIL6');
13117 model.result('pg40').run;
13118 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
13119 model.result('pg40').run;
13120 model.result('pg40').feature('ptgr2').set('expr', 'In');
13121 model.result('pg40').run;
13122 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
13123 model.result('pg40').run;
13124
13125 model.label('New Coupled Baseline add Matlab EQ_clear_Method and Termination ↙
Autoimatic Newton_run_infVirus_neutrophi3 - Copy.mph');
13126
13127 model.result('pg40').run;
13128 model.result('pg40').feature('ptgr2').set('expr', 'IL6');
13129 model.result('pg40').run;
13130 model.result('pg40').feature('ptgr2').set('expr', 'IL6/IL60');
13131 model.result('pg40').run;
13132 model.result('pg40').feature('ptgr2').set('expr', 'IL6/IL60/1e8');
13133 model.result('pg40').run;
13134 model.result('pg40').feature('ptgr2').set('expr', 'IL6/IL60/1e8+1');
13135 model.result('pg40').run;
13136 model.result('pg40').feature('ptgr2').set('expr', '(IL6/IL60/1e8+1)*exp(10)');
13137 model.result('pg40').run;
13138 model.result('pg40').feature('ptgr2').set('expr', 'exp(10)');
13139 model.result('pg40').run;
13140 model.result('pg40').feature('ptgr2').set('expr', 'exp(Ci)');
13141 model.result('pg40').run;
13142 model.result('pg40').feature('ptgr2').set('expr', 'exp(y105)');
```

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13143 model.result('pg40').run;
13144 model.result('pg40').feature('ptgr2').set('expr', '(IL6/IL60/1e8+1)*y105');
13145 model.result('pg40').run;
13146 model.result('pg40').feature('ptgr2').set('expr', '(IL6/IL60/1e8+1)*(y105^5)');
13147 model.result('pg40').run;
13148 model.result('pg40').feature('ptgr2').set('expr', '(IL6/IL60/1e8+1)*(y105^2)');
13149 model.result('pg40').run;
13150 model.result('pg40').feature('ptgr2').set('expr', '(IL6/IL60/1e8+1)*(y105^1.5)');
13151 model.result('pg40').run;
13152 model.result('pg40').feature('ptgr2').set('expr', '(IL6/IL60/1e8+1)*(y105^1.5) ↙
/200');
13153 model.result('pg40').run;
13154 model.result('pg40').feature('ptgr2').set('expr', '(IL6/IL60/1e8)*(y105^1.5) ↙
/200');
13155 model.result('pg40').run;
13156 model.result('pg40').feature('ptgr2').set('expr', '(IL6/IL60/1e8)*(y105^1.5) ↙
/200+1');
13157 model.result('pg40').run;
13158 model.result.export.create('plot1', 'pg40', 'ptgr2', 'Plot');
13159 model.result('pg40').feature('ptgr1').active(false);
13160 model.result('pg40').feature('ptgr1').active(false);
13161 model.result.export('plot1').set('header', false);
13162 model.result.export('plot1').set('filename', 'C:\Users\valan\Dropbox\Univercity ↙
of Cyprus\3a.Project\34. Covic-19\new model_combination\comsol Model\IL6_partenr1. ↙
txt');
13163 model.result.export('plot1').run;
13164 model.result('pg40').run;
13165
13166 model.component('comp1').variable('var21').set('IL6p', '(IL6/IL60/1e8)*(y105^1.5) ↙
/200');
13167
13168 model.result('pg40').run;
13169
13170 model.component('comp1').variable('var21').set('IL6p', '(IL6/IL60/1e8)*(y105^1.5) ↙
/200+1');
13171 model.component('comp1').variable('var21').rename('IL6p', 'aaa');
13172
13173 model.result('pg40').run;
13174 model.result('pg40').feature('ptgr2').set('expr', '(IL6/IL60/1e8)*(y105^2) ↙
/200+1');
13175 model.result('pg40').run;
13176 model.result('pg40').feature('ptgr2').set('expr', '(IL6/IL60/1e8)*(y105^2)/200 ↙
[mol^2/m^6]+1');
13177 model.result('pg40').run;
13178
13179 model.component('comp1').variable('var21').set('aaa', '(IL6/IL60/1e8)*(y105^2) ↙
/200[mol^2/m^6]+1');
13180
13181 model.result('pg40').run;
13182 model.result('pg40').feature('ptgr2').set('expr', 'Ctl');
```

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13183 model.result('pg40').run;
13184 model.result('pg40').feature('ptgr2').set('expr', 'Pb');
13185 model.result('pg40').run;
13186 model.result('pg40').feature('ptgr2').setIndex('looplevelinput', 'manual', 0);
13187 model.result('pg40').feature('ptgr2').setIndex('looplevel', [1], 0);
13188 model.result('pg40').feature('ptgr2').setIndex('looplevel', [1 2 3 4 5 6 7 8 9 10 ↙
11 12 13 14], 0);
13189 model.result('pg40').run;
13190 model.result('pg40').feature('ptgr2').setIndex('looplevel', [1 2 3 4 5 6 7 8 9 10 ↙
11 12 13], 0);
13191 model.result('pg40').run;
13192 model.result('pg40').feature('ptgr2').setIndex('looplevel', [13], 0);
13193 model.result('pg40').feature('ptgr2').setIndex('looplevel', [12], 0);
13194 model.result('pg40').feature('ptgr2').setIndex('looplevel', [11 12], 0);
13195 model.result('pg40').feature('ptgr2').setIndex('looplevel', [10 11 12], 0);
13196 model.result('pg40').run;
13197 model.result('pg40').feature('ptgr2').setIndex('looplevel', [7], 0);
13198 model.result('pg40').feature('ptgr2').setIndex('looplevel', [1], 0);
13199 model.result('pg40').run;
13200 model.result('pg40').run;
13201 model.result('pg40').feature('ptgr2').set('unit', 'kPa');
13202 model.result('pg40').run;
13203 model.result('pg40').feature('ptgr2').setIndex('looplevel', [2], 0);
13204 model.result('pg40').run;
13205 model.result('pg40').feature('ptgr2').setIndex('looplevel', [3], 0);
13206 model.result('pg40').run;
13207 model.result('pg40').feature('ptgr2').setIndex('looplevel', [4], 0);
13208 model.result('pg40').run;
13209 model.result('pg40').feature('ptgr2').setIndex('looplevel', [3], 0);
13210 model.result('pg40').feature('ptgr2').setIndex('looplevel', [1 2 3 4 5 6 7 8 9 10 ↙
11 12 13 14 15 16], 0);
13211 model.result('pg40').run;
13212 model.result('pg40').run;
13213 model.result('pg40').feature('ptgr2').set('expr', '((ec/ec0)^8)');
13214 model.result('pg40').run;
13215 model.result('pg40').feature('ptgr2').set('expr', '((ec/ec0))');
13216 model.result('pg40').run;
13217 model.result('pg40').feature('ptgr2').set('expr', 'ec');
13218 model.result('pg40').run;
13219 model.result('pg40').feature('ptgr2').set('expr', 'iec');
13220 model.result('pg40').run;
13221
13222 model.component('comp1').variable('var1').set('Pbp', 'PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg])*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1)');
13223
13224 model.result('pg40').run;
13225 model.result('pg40').feature('ptgr2').setIndex('looplevelinput', 'all', 0);
13226 model.result('pg40').feature('ptgr2').set('expr', 'PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg])*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1)');
13227 model.result('pg40').run;
```

```
13228 model.result('pg40').feature('ptgr2').set('unit', 'kPa');
13229 model.result('pg40').run;
13230 model.result('pg40').feature('ptgr2').set('expr', 'PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg]*(1/iec/ec0))*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1)');
13231 model.result('pg40').run;
13232 model.result('pg40').feature('ptgr2').set('expr', 'PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg]*(1/iec))*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1)');
13233 model.result('pg40').run;
13234 model.result('pg40').feature('ptgr2').set('expr', 'PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg])*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1)');
13235 model.result('pg40').run;
13236 model.result('pg40').feature('ptgr2').set('expr', '(PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg])*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1))*y105');
13237 model.result('pg40').run;
13238
13239 model.component('comp1').variable('var21').set('Pbp', '(PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg])*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1))*y105');
13240 model.component('comp1').variable('var21').rename('aaa', 'IL6p');
13241
13242 model.result('pg40').run;
13243 model.result('pg40').feature('ptgr2').set('expr', 'Ctl');
13244 model.result('pg40').run;
13245 model.result('pg40').feature('ptgr2').set('expr', '((PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg])*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1))*y105)*abs(Ctl/4e18[1/m^3])');
13246 model.result('pg40').run;
13247 model.result('pg40').feature('ptgr2').set('expr', '((PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg])*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1)))*abs(Ctl/4e18[1/m^3])');
13248 model.result('pg40').run;
13249 model.result('pg40').feature('ptgr2').set('expr', '((PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg])*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1)))*(Ctl/4e18[1/m^3])');
13250 model.result('pg40').run;
13251 model.result('pg40').feature('ptgr2').set('expr', '((PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg])*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1)))*(-Ctl/4e18[1/m^3])');
13252 model.result('pg40').run;
13253 model.result('pg40').feature('ptgr2').set('expr', '((PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg])*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1)))*(Ctl/-4e18[1/m^3])');
13254 model.result('pg40').run;
13255 model.result('pg40').feature('ptgr2').set('expr', '((PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg])*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1)))*(Ctl/4e18[1/m^3])');
13256 model.result('pg40').run;
13257 model.result('pg40').feature('ptgr2').active(false);
13258 model.result('pg40').run;
13259 model.result('pg40').run;
13260 model.result('pg40').feature('ptgr1').active(true);
13261 model.result('pg40').run;
13262 model.result('pg40').feature('ptgr1').set('expr', '1/Ci');
13263 model.result('pg40').run;
13264 model.result('pg40').feature('ptgr1').set('expr', 'Ci');
13265 model.result('pg40').run;
13266 model.result('pg40').feature('ptgr1').set('expr', 'Ci-70e-15');
```

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13267 model.result('pg40').run;
13268 model.result('pg40').feature('ptgr1').set('expr', 'Ci-70e-5');
13269 model.result('pg40').run;
13270 model.result('pg40').feature('ptgr1').set('expr', 'Ci/70e-5');
13271 model.result('pg40').run;
13272 model.result('pg40').feature('ptgr1').set('expr', 'n');
13273 model.result('pg40').run;
13274 model.result('pg40').feature('ptgr1').set('expr', 'Ctl');
13275 model.result('pg40').run;
13276 model.result('pg40').feature('ptgr1').set('expr', '-Ctl');
13277 model.result('pg40').run;
13278 model.result('pg40').feature('ptgr1').set('expr', '1/(-Ctl)');
13279 model.result('pg40').run;
13280 model.result('pg40').feature('ptgr1').set('expr', '(-Ctl)');
13281 model.result('pg40').run;
13282 model.result('pg40').feature('ptgr1').set('expr', 'Ctl');
13283 model.result('pg40').run;
13284 model.result('pg40').feature('ptgr1').set('expr', 'Ctl+5e18');
13285 model.result('pg40').run;
13286 model.result('pg40').feature('ptgr1').set('expr', '(Ctl+5e18)/5e18');
13287 model.result('pg40').run;
13288 model.result('pg40').feature('ptgr1').set('expr', '(Ctl+5e18)/5e18');
13289 model.result('pg40').run;
13290 model.result('pg40').feature('ptgr2').set('expr', '((PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg])*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1)))*((Ctl+5e18)/5e18)');
13291 model.result('pg40').feature('ptgr2').active(true);
13292 model.result('pg40').run;
13293 model.result('pg40').run;
13294 model.result('pg40').feature('ptgr1').active(false);
13295 model.result('pg40').run;
13296 model.result('pg40').run;
13297 model.result('pg40').run;
13298 model.result('pg40').run;
13299 model.result('pg40').feature('ptgr2').set('expr', '((PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg])*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1)))*((Ctl+5e18[1/m^3])/5e18[1/m^3])');
13300 model.result('pg40').feature('ptgr2').set('unit', 'kPa');
13301 model.result('pg40').run;
13302 model.result.export.create('plot2', 'pg40', 'ptgr2', 'Plot');
13303 model.result('pg40').feature('ptgr1').active(false);
13304 model.result('pg40').feature('ptgr1').active(false);
13305 model.result.export('plot2').set('filename', 'C:\Users\valan\Dropbox\Univercity ↙
of Cyprus\3a.Project\34. Covic-19\new model_combination\comsol Model\Po2_partenr1. ↙
txt');
13306 model.result.export('plot2').set('header', false);
13307 model.result.export('plot2').run;
13308 model.result('pg40').run;
13309
13310 model.component('comp1').variable('var21').set('Po2p', '((PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg])*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1)))*((Ctl+5e18[1/m^3])/5e18[1/m^3])');
13311
```

```
13312 model.result('pg40').run;
13313 model.result('pg40').feature('ptgr2').set('expr', 'y119');
13314 model.result('pg40').run;
13315 model.result.export.create('plot3', 'pg40', 'ptgr2', 'Plot');
13316 model.result('pg40').feature('ptgr1').active(false);
13317 model.result('pg40').feature('ptgr1').active(false);
13318 model.result.export('plot3').set('header', false);
13319 model.result.export('plot3').set('filename', 'C:\Users\valan\Dropbox\Univercity ↙
of Cyprus\3a.Project\34. Covic-19\new model_combination\comsol Model\brain_thro.txt');
13320 model.result.export('plot3').run;
13321 model.result('pg40').feature('ptgr1').active(false);
13322 model.result('pg40').feature('ptgr1').active(false);
13323 model.result('pg40').run;
13324 model.result('pg40').feature('ptgr2').set('expr', '(IL6/IL60/1e8)*(y105^2)/200 ↙
[mol^2/m^6]+1');
13325 model.result('pg40').run;
13326 model.result('pg40').feature('ptgr2').set('expr', '((IL6/IL60/1e8)*(y105^2)/200 ↙
[mol^2/m^6]+1)*Ci');
13327 model.result('pg40').run;
13328 model.result('pg40').feature('ptgr2').set('expr', '((IL6/IL60/1e8)*(y105^2)/200 ↙
[mol^2/m^6]+1)');
13329 model.result('pg40').run;
13330 model.result('pg40').run;
13331 model.result('pg40').feature('ptgr2').set('expr', '((PA-Vo2max/((((3.3e-8 ↙
[cm^2/min/mmHg])*0.5*(SA+SC)/thb)^-1+Deo2^-1)^-1)))*((Ctl+5e18[1/m^3])/5e18[1/m^3])');
13332 model.result('pg40').run;
13333 model.result('pg40').feature('ptgr2').set('expr', 'Vi');
13334
13335 model.component('comp1').variable('var21').set('Vi', '(y105/5e14)*(Ci^5)/(1.27e-9 ↙
[M])^5');
13336 model.component('comp1').variable('var21').remove('Pbp');
13337
13338 model.sol('sol54').runAll;
13339
13340 model.result('pg40').run;
13341
13342 model.label('New Coupled Baseline add Matlab EQ_patient1.mph');
13343
13344 model.result('pg40').run;
13345 model.result('pg40').run;
13346 model.result('pg40').feature('ptgr2').label('Virus');
13347 model.result('pg40').run;
13348 model.result('pg40').feature('ptgr2').set('expr', 'Vi+1');
13349 model.result('pg40').run;
13350 model.result('pg40').run;
13351 model.result('pg40').feature('ptgr1').set('expr', 'IL6p');
13352 model.result('pg40').feature('ptgr1').active(true);
13353 model.result('pg40').run;
13354 model.result('pg40').feature('ptgr1').set('autodescr', true);
13355 model.result('pg40').feature('ptgr1').set('autopoint', false);
```

```
13356 model.result('pg40').run;
13357 model.result('pg40').feature('ptgr1').set('descractive', true);
13358 model.result('pg40').feature('ptgr1').set('descr', 'IL6');
13359 model.result('pg40').run;
13360 model.result('pg40').feature('ptgr1').label('IL6');
13361 model.result('pg40').feature.remove('ptgr1');
13362 model.result('pg40').run;
13363 model.result.duplicate('pg41', 'pg40');
13364 model.result('pg41').run;
13365 model.result('pg41').run;
13366 model.result('pg41').feature('ptgr2').set('expr', 'IL6p');
13367 model.result('pg41').feature('ptgr2').set('descractive', true);
13368 model.result('pg41').feature('ptgr2').set('descr', 'Il6');
13369 model.result('pg41').run;
13370 model.result('pg41').feature('ptgr2').set('expr', 'IL6p/2');
13371 model.result('pg41').run;
13372 model.result('pg41').feature('ptgr2').set('expr', 'IL6p/2+1');
13373 model.result('pg41').run;
13374 model.result('pg41').feature('ptgr2').set('expr', 'IL6p/2.2+1');
13375 model.result('pg41').run;
13376 model.result('pg41').feature('ptgr2').set('expr', 'IL6p/2.5+1');
13377 model.result('pg41').run;
13378 model.result('pg41').feature('ptgr2').label('IL6');
13379 model.result('pg40').run;
13380 model.result('pg40').label('1D Plot (Virus)');
13381 model.result('pg41').run;
13382 model.result('pg41').label('1D Plot IL6');
13383 model.result('pg41').run;
13384 model.result('pg41').run;
13385 model.result('pg41').run;
13386 model.result.duplicate('pg42', 'pg41');
13387 model.result('pg42').run;
13388 model.result('pg42').label('1D Plot Po2');
13389 model.result('pg42').run;
13390 model.result('pg42').feature('ptgr2').set('expr', 'Po2p');
13391 model.result('pg42').run;
13392 model.result('pg42').feature('ptgr2').set('unit', 'kPa');
13393 model.result('pg42').run;
13394 model.result('pg42').run;
13395 model.result('pg42').run;
13396 model.result('pg42').feature('ptgr2').label('Po2');
13397 model.result('pg42').feature('ptgr2').set('descr', 'Po2');
13398 model.result('pg42').run;
13399 model.result('pg42').run;
13400 model.result.duplicate('pg43', 'pg42');
13401 model.result('pg43').run;
13402 model.result('pg43').run;
13403 model.result('pg43').feature('ptgr2').set('expr', 'y119');
13404 model.result('pg43').run;
13405 model.result('pg43').feature('ptgr2').set('expr', 'y119/10');
```

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13406 model.result('pg43').run;
13407 model.result('pg43').feature('ptgr2').set('expr', 'y119/9');
13408 model.result('pg43').run;
13409 model.result('pg43').run;
13410 model.result('pg43').label('1D Plot y119');
13411 model.result('pg43').run;
13412 model.result('pg43').feature('ptgr2').label('y119');
13413 model.result('pg43').run;
13414 model.result.remove('pg43');
13415 model.result('pg40').run;
13416 model.result('pg40').run;
13417 model.result('pg41').run;
13418 model.result('pg41').run;
13419 model.result('pg42').run;
13420 model.result.duplicate('pg43', 'pg42');
13421 model.result('pg43').run;
13422 model.result('pg43').label('1D Plot y119');
13423 model.result('pg43').run;
13424 model.result('pg43').feature('ptgr2').set('expr', 'y119/9');
13425 model.result('pg43').feature('ptgr2').set('descr', 'y119');
13426 model.result('pg43').run;
13427 model.result('pg40').run;
13428
13429 model.component('comp1').variable('var21').set('Vip', 'Vi+1');
13430
13431 model.result('pg41').run;
13432 model.result('pg41').run;
13433
13434 model.component('comp1').variable('var21').set('IL6p1', 'IL6p/2.5+1');
13435
13436 model.result('pg40').run;
13437 model.result('pg40').feature('ptgr2').set('expr', 'Vip');
13438 model.result('pg41').run;
13439 model.result('pg41').run;
13440 model.result('pg41').feature('ptgr2').set('expr', 'IL6p1');
13441 model.result('pg42').run;
13442 model.result('pg43').run;
13443 model.result('pg43').run;
13444 model.result('pg43').feature('ptgr2').set('expr', 'mtB');
13445
13446 model.component('comp1').variable('var21').set('mtB', 'y119');
13447
13448 model.result('pg42').run;
13449
13450 model.sol('sol54').runAll;
13451
13452 model.result('pg40').run;
13453 model.result('pg41').run;
13454 model.result('pg42').run;
13455 model.result('pg43').run;
```

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13456 model.result('pg43').run;
13457 model.result('pg43').feature('ptgr2').label('y119');
13458
13459 model.component('comp1').variable('var1').set('bin', '1e1[fmol]/bKa');
13460
13461 model.param.set('bKa', '1000');
13462
13463 model.result('pg40').run;
13464 model.result('pg40').run;
13465 model.result('pg40').run;
13466 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
13467 model.result('pg40').run;
13468 model.result('pg40').feature('ptgr2').set('expr', 'Vip');
13469 model.result('pg40').run;
13470
13471 model.sol('sol54').runAll;
13472
13473 model.result('pg40').run;
13474 model.result('pg40').run;
13475 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
13476 model.result('pg40').run;
13477 model.result('pg40').feature('ptgr2').set('expr', 'Vip');
13478 model.result('pg40').run;
13479
13480 model.param.set('bKa', '1');
13481 model.param.remove('bKa');
13482
13483 model.component('comp1').variable('var6').set('bKa', '999*(t>4[d])+1');
13484
13485 model.sol('sol54').runAll;
13486
13487 model.result('pg40').run;
13488
13489 model.component('comp1').variable('var6').set('bKa', '999*(t>7[d])+1');
13490
13491 model.sol('sol54').runAll;
13492
13493 model.result('pg40').run;
13494
13495 model.label('New Coupled Baseline add Matlab EQ_patient1_remdesivir_day7.mph');
13496
13497 model.result('pg40').run;
13498
13499 model.component('comp1').variable('var13').set('mt_lung', '1e-2 [M/d]/bHe');
13500 model.component('comp1').variable('var13').set('mt_liver', '1e-2 [M/d]/bHe');
13501 model.component('comp1').variable('var13').set('mt_spleen', '1e-2 [M/d]/bHe');
13502 model.component('comp1').variable('var13').set('mt_Upper_body', '1e-2 [M/d] ↙
/bHe');
13503 model.component('comp1').variable('var13').set('mt_Torso', '1e-2 [M/d]/bHe');
13504 model.component('comp1').variable('var13').set('mt_Intestine', '1e-2 [M/d]/bHe');
```

```
13505 model.component('comp1').variable('var13').set('mt_Lower_body', '1e-2 [M/d] ↙
/bHe');
13506 model.component('comp1').variable('var13').set('mt_Brain', '1e-2 [M/d]/bHe');
13507 model.component('comp1').variable('var13').set('mt_kidney', '1e-2 [M/d]/bHe');
13508 model.component('comp1').variable('var13').set('mt_Cardiac_vessels', '1e-2 [M/d] ↙
/bHe');
13509 model.component('comp1').variable('var6').set('bHe', '999*(t>7[d])+1');
13510
13511 model.sol('sol54').runAll;
13512
13513 model.result('pg40').run;
13514
13515 model.label('New Coupled Baseline add Matlab EQ_patient1_remdesivir HeParin_day7. ↙
mph');
13516
13517 model.result('pg40').run;
13518
13519 model.component('comp1').variable('var22').clear;
13520 model.component('comp1').variable('var22').set('f5', '((Q_lung-L_lung)*Ci- ↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y5)/vv_ventricle');
13521 model.component('comp1').variable('var22').set('f78', '((Q_Lnode/8-L_Llung)*y10+ ↙
(Q_liver-L_liver)*y14+(Q_Lnode/8-L_Lliver)* y34+(Q_Lnode/8-L_Ltumor)* y38+(Q_tumor- ↙
L_tumor)* y1+(Q_Lnode/8-L_LTorso)* y42+(Q_Torso-L_Torso)*y26+(Q_Lnode/8-L_LUpper_body)* ↙
y46+(Q_Upper_body-L_Upper_body)*y22+(Q_Lnode/8-L_LLower_body)*y50+(Q_Lower_body- ↙
L_Lower_body)*y54+(Q_Lnode/8-L_Lbrain)*y58+(Q_brain-L_brain)*y62+(Q_Lnode/8-L_Lkidney) ↙
*y66+(Q_kidney-L_kidney)*y70+(Q_Cardiac_vessels-L_Cardiac_vessels) ↙
*y74+L_Cardiac_vessels*y77*rf_Cardiac_vessels+(L_lung+L_Llung)*y13*rf_Llung+ ↙
(L_liver+L_spleen+L_intestin+L_Lliver)*y37*rf_Lintestin+(L_tumor+L_Ltumor)* ↙
(rf_Ltumor*y41*heaviside(-y41+500)+1*y41*heaviside(y41-501))+(L_Torso+L_LTorso) ↙
*y45*rf_LTorso+(L_Upper_body+L_LUpper_body)*y49*rf_LUpper_body+ ↙
(L_LLower_body+L_Lower_body)*y53*rf_LLower_body+(L_Lbrain+L_brain)*y61*rf_Lbrain+ ↙
(L_Lkidney+L_kidney)*y69*rf_Lkidney-(Q_lung)*y78)/vv_ventricle');
13522 model.component('comp1').variable('var22').set('f85', '((Q_lung-L_lung)*y105- ↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y85)/vv_ventricle');
13523 model.component('comp1').variable('var22').set('f86', '((Q_Lnode/8-L_Llung)*y106+ ↙
(Q_liver-L_liver)*y107+(Q_Lnode/8-L_Lliver)*y112+((Q_Lnode/8-L_Ltumor)*y113)+(Q_tumor- ↙
L_tumor)*y104+(Q_Lnode/8-L_LTorso)*y114+(Q_Torso-L_Torso)*y110+(Q_Lnode/8- ↙
L_LUpper_body)*y115+(Q_Upper_body-L_Upper_body)*y109+(Q_Lnode/8-L_LLower_body)*y116+ ↙
(Q_Lower_body-L_Lower_body)*y117+(Q_Lnode/8-L_Lbrain)*y118+(Q_brain-L_brain)*y119+ ↙
(Q_Lnode/8-L_Lkidney)*y120+(Q_kidney-L_kidney)*y121+(Q_Cardiac_vessels- ↙
L_Cardiac_vessels)*y124+(L_Cardiac_vessels*y125*rf_kidney)*heaviside(y125-1e-3*first)+ ↙
(L_lung+L_Llung)*y99*rf_aLlung+(L_liver+L_spleen+L_intestin+L_Lliver) ↙
*y101*rf_aLintestin+(L_tumor+L_Ltumor)*y80*rf_aLtumor+(L_Torso+L_LTorso) ↙
*y89*rf_aLTorso+(L_Upper_body+L_LUpper_body)*y91*rf_aLUpper_body+ ↙
(L_LLower_body+L_Lower_body)*y93*rf_aLLower_body+(L_Lbrain+L_brain)*y95*rf_aLbrain+ ↙
(L_Lkidney+L_kidney)*y97*rf_aLkidney-(Q_lung)*y86*heaviside(y86-1e-3*first)) ↙
/vv_ventricle');
13524 model.component('comp1').variable('var22').set('f6', '(Q_lung*y78-(Q_lung-L_lung) ↙
```

```
*y6-ka_lung*y100*y6*vv_lung+kd_lung*y7*vv_lung-disinf_lung*y6*vv_lung)/vv_lung');
13525 model.component('comp1').variable('var22').set('f7', '(ka_lung*y100*y6*vv_lung- ↙
kd_lung*y7*vv_lung+p_lung/kk*y7*vv_lung-disinfa_lung*y7*vv_lung)/vv_lung');
13526 model.component('comp1').variable('var22').set('f105', '(Q_lung*y86-(Q_lung- ↙
L_lung)*y105+mt_lung*ac*Vint/(ACE2+1)*vv_lung+mt_lung*ac*IL6/(IL6+1)*vv_lung- ↙
d_lung*y105*vv_lung)/vv_lung');
13527 model.component('comp1').variable('var22').set('f100', '- ↙
ka_lung*y100*y6+kd_lung*y7');
13528 model.component('comp1').variable('var22').set('f14', '((Q_intestin-L_intestin) ↙
*y30+(Q_spleen-L_spleen)*y18+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen) ↙
*y5*freeTcell_traffic liver-(Q_liver-L_liver)*y14- ↙
ka_liver*y87*y14*vv_liver+kd_liver*y15*vv_liver-disinf_liver*y14*vv_liver) ↙
/vv_liver+Ka*Vint1-0.1*KsACE2*sACE2*y14');
13529 model.component('comp1').variable('var22').set('f15', ↙
'(ka_liver*y87*y14*vv_liver-kd_liver*y15*vv_liver+p_liver/kk*y15*vv_liver- ↙
disinfa_liver*y15*vv_liver)/vv_liver-Kint*y15');
13530 model.component('comp1').variable('var22').set('f107', '((Q_intestin-L_intestin) ↙
*y111+(Q_spleen-L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85- ↙
(Q_liver-L_liver)*y107+mt_liver*ac*Vint1/(y87+1)*vv_liver+mt_liver*ac*IL6/(IL6+1) ↙
*vv_liver-d_liver*y107*vv_liver)/vv_liver');
13531 model.component('comp1').variable('var22').set('f87', '- ↙
ka_liver*y87*y14+kd_liver*y15');
13532 model.component('comp1').variable('var22').set('f18', ↙
'(Q_spleen*y5*freeTcell_trafficspleen-(Q_spleen-L_spleen)*y18- ↙
ka_spleen*y102*y18*vv_spleen+kd_spleen*y19*vv_spleen-disinf_spleen*y18*vv_spleen) ↙
/vv_spleen+Ka*Vint2-0.1*KsACE2*sACE2*y18');
13533 model.component('comp1').variable('var22').set('f19', ↙
'(ka_spleen*y102*y18*vv_spleen-kd_spleen*y19*vv_spleen+p_spleen/kk*y19*vv_spleen- ↙
disinfa_spleen*y19*vv_spleen)/vv_spleen-Kint*y19');
13534 model.component('comp1').variable('var22').set('f108', '(Q_spleen*y85-(Q_spleen- ↙
L_spleen)*y108+mt_spleen*ac*Vint2/(y102+1)*vv_spleen+mt_spleen*ac*IL6/(IL6+1) ↙
*vv_spleen-d_spleen*y108*vv_spleen)/vv_spleen');
13535 model.component('comp1').variable('var22').set('f102', '- ↙
ka_spleen*y102*y18+kd_spleen*y19');
13536 model.component('comp1').variable('var22').set('f22', ↙
'(Q_Upper_body*y5*freeTcell_trafficUpper_body-(Q_Upper_body-L_Upper_body)*y22- ↙
ka_Upper_body*y92*y22*vv_Upper_body+kd_Upper_body*y23*vv_Upper_body- ↙
disinf_Upper_body*y22*vv_Upper_body)/vv_Upper_body+Ka*Vint3-0.1*KsACE2*sACE2*y22');
13537 model.component('comp1').variable('var22').set('f23', ↙
'(ka_Upper_body*y92*y22*vv_Upper_body- ↙
kd_Upper_body*y23*vv_Upper_body+p_Upper_body/kk*y23*vv_Upper_body- ↙
disinfa_Upper_body*y23*vv_Upper_body)/vv_Upper_body-Kint*y23');
13538 model.component('comp1').variable('var22').set('f109', '(Q_Upper_body*y85- ↙
(Q_Upper_body-L_Upper_body)*y109+mt_Upper_body*ac*Vint3/(y92+1) ↙
*vv_Upper_body+mt_Upper_body*ac*IL6/(IL6+1)*vv_Upper_body- ↙
d_Upper_body*y109*vv_Upper_body)/vv_Upper_body');
13539 model.component('comp1').variable('var22').set('f92', '- ↙
ka_Upper_body*y92*y22+kd_Upper_body*y23');
13540 model.component('comp1').variable('var22').set('f26', ↙
'(Q_Torso*y5*freeTcell_trafficTorso-(Q_Torso-L_Torso)*y26- ↙
```

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ka_Torso*y90*y26*vv_Torso+kd_Torso*y27*vv_Torso-disinf_Torso*y26*vv_Torso) ↙
/vv_Torso+Ka*Vint4-0.1*KsACE2*sACE2*y26');
13541 model.component('comp1').variable('var22').set('f27', ↙
'(ka_Torso*y90*y26*vv_Torso-kd_Torso*y27*vv_Torso+p_Torso/kk*y27*vv_Torso- ↙
disinfa_Torso*y27*vv_Torso)/vv_Torso-Kint*y27');
13542 model.component('comp1').variable('var22').set('f110', '(Q_Torso*y85-(Q_Torso- ↙
L_Torso)*y110+mt_Torso*ac*Vint4/(y90+1)*vv_Torso+mt_Torso*ac*IL6/(IL6+1)*vv_Torso- ↙
d_Torso*y110*vv_Torso)/vv_Torso');
13543 model.component('comp1').variable('var22').set('f90', '- ↙
ka_Torso*y90*y26+kd_Torso*y27');
13544 model.component('comp1').variable('var22').set('f30', ↙
'(Q_intestin*y5*freeTcell_trafficintestine-(Q_intestin-L_intestin)*y30- ↙
ka_intestin*y103*y30*vv_intestin+kd_intestin*y31*vv_intestin- ↙
disinf_Intestine*y30*vv_intestin)/vv_intestin+Ka*Vint5-0.1*KsACE2*sACE2*y30');
13545 model.component('comp1').variable('var22').set('f31', ↙
'(ka_intestin*y103*y30*vv_intestin- ↙
kd_intestin*y31*vv_intestin+p_Intestine/kk*y31*vv_intestin- ↙
disinfa_Intestine*y31*vv_intestin)/vv_intestin-Kint*y31');
13546 model.component('comp1').variable('var22').set('f111', '(Q_intestin*y85- ↙
(Q_intestin-L_intestin)*y111+mt_Intestine*ac*Vint5/(y103+1) ↙
*vv_intestin+mt_Intestine*ac*IL6/(IL6+1)*vv_intestin-d_Intestine*y111*vv_intestin) ↙
/vv_intestin');
13547 model.component('comp1').variable('var22').set('f103', '- ↙
ka_intestin*y103*y30+kd_intestin*y31');
13548 model.component('comp1').variable('var22').set('f54', ↙
'(Q_Lower_body*y5*freeTcell_trafficLower_body-(Q_Lower_body-L_Lower_body)*y54- ↙
ka_Lower_body*y94*y54*vv_Lower_body+kd_Lower_body*y55*vv_Lower_body- ↙
disinf_Lower_body*y54*vv_Lower_body)/vv_Lower_body+Ka*Vint6-0.1*KsACE2*sACE2*y54');
13549 model.component('comp1').variable('var22').set('f55', ↙
'(ka_Lower_body*y94*y54*vv_Lower_body- ↙
kd_Lower_body*y55*vv_Lower_body+p_Lower_body/kk*y55*vv_Lower_body- ↙
disinfa_Lower_body*y55*vv_Lower_body)/vv_Lower_body-Kint*y55');
13550 model.component('comp1').variable('var22').set('f117', ↙
'(Q_Lower_body*y85*rf_IL2_Ltumor-(Q_Lower_body-L_Lower_body) ↙
*y117*rf_IL2_Ltumor+mt_Lower_body*ac*Vint6/(y94+1)*vv_Lower_body+mt_Lower_body*ac*IL6/ ↙
(IL6+1)*vv_Lower_body-d_Lower_body*y117*vv_Lower_body)/vv_Lower_body');
13551 model.component('comp1').variable('var22').set('f94', '- ↙
ka_Lower_body*y94*y54+kd_Lower_body*y55');
13552 model.component('comp1').variable('var22').set('f62', ↙
'(Q_brain*y5*freeTcell_trafficbrain-(Q_brain-L_brain)*y62- ↙
ka_brain*y96*y62*vv_brain+kd_brain*y63*vv_brain-disinf_Brain*y62*vv_brain) ↙
/vv_brain+Ka*Vint7-0.1*KsACE2*sACE2*y62');
13553 model.component('comp1').variable('var22').set('f63', ↙
'(ka_brain*y96*y62*vv_brain-kd_brain*y63*vv_brain+p_Brain/kk*y63*vv_brain- ↙
disinfa_Brain*y63*vv_brain)/vv_brain-Kint*y63');
13554 model.component('comp1').variable('var22').set('f119', ↙
'(Q_brain*y85*rf_IL2_Ltumor-(Q_brain-L_brain)*y119*rf_IL2_Ltumor+mt_Brain*ac*Vint7/ ↙
(y96+1)*vv_brain+mt_Brain*ac*IL6/(IL6+1)*vv_brain-d_Brain*y119*vv_brain)/vv_brain');
13555 model.component('comp1').variable('var22').set('f96', '- ↙
ka_brain*y96*y62+kd_brain*y63');
```

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13556 model.component('comp1').variable('var22').set('f70', ↙
'(Q_kidney*y5*freeTcell_traffickidney-(Q_kidney-L_kidney)*y70- ↙
ka_kidney*y98*y70*vv_kidney+kd_kidney*y71*vv_kidney-disinf_kidney*y70*vv_kidney) ↙
/vv_kidney+Ka*Vint8-0.1*KsACE2*sACE2*y70');
13557 model.component('comp1').variable('var22').set('f71', ↙
'(ka_kidney*y98*y70*vv_kidney-kd_kidney*y71*vv_kidney+p_kidney/kk*y71*vv_kidney- ↙
disinfa_kidney*y71*vv_kidney)/vv_kidney-Kint*y71');
13558 model.component('comp1').variable('var22').set('f121', ↙
'(Q_kidney*y85*rf_IL2_Ltumor-(Q_kidney-L_kidney)*y121*rf_IL2_Ltumor+mt_kidney*ac*Vint8/ ↙
(y98+1)*vv_kidney+mt_kidney*ac*IL6/(IL6+1)*vv_kidney-d_kidney*y121*vv_kidney) ↙
/vv_kidney');
13559 model.component('comp1').variable('var22').set('f98', '- ↙
ka_kidney*y98*y70+kd_kidney*y71');
13560 model.component('comp1').variable('var22').set('f74', '(Q_Cardiac_vessels*y5- ↙
(Q_Cardiac_vessels-L_Cardiac_vessels)*y74- ↙
ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels+kd_Cardiac_vessels*y75*vv_Cardiac_vessel ↙
s-disinf_Cardiac_vessels*y74*vv_Cardiac_vessels)/vv_Cardiac_vessels+Ka*Vint9-0.1 ↙
*KsACE2*sACE2*y74');
13561 model.component('comp1').variable('var22').set('f75', ↙
'(ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels- ↙
kd_Cardiac_vessels*y75*vv_Cardiac_vessels+p_Cardiac_vessels/kk*y75*vv_Cardiac_vessels- ↙
disinfa_Cardiac_vessels*y75*vv_Cardiac_vessels)/vv_Cardiac_vessels-Kint*y75');
13562 model.component('comp1').variable('var22').set('f124', ↙
'(Q_Cardiac_vessels*y85*rf_IL2_Ltumor-(Q_Cardiac_vessels-L_Cardiac_vessels) ↙
*y124*rf_IL2_Ltumor+mt_Cardiac_vessels*ac*Vint9/(y125+1) ↙
*vv_Cardiac_vessels+mt_Cardiac_vessels*ac*IL6/(IL6+1)*vv_Cardiac_vessels- ↙
d_Cardiac_vessels*y124*vv_Cardiac_vessels)/vv_Cardiac_vessels');
13563 model.component('comp1').variable('var22').set('f125', '- ↙
ka_Cardiac_vessels*y125*y74+kd_Cardiac_vessels*y75');
13564
13565 model.component('comp1').physics('cox_oxygen').active(false);
13566 model.component('comp1').physics('dode').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13567 model.component('comp1').physics('dode2').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13568 model.component('comp1').physics('dode3').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13569 model.component('comp1').physics('dode4').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13570 model.component('comp1').physics('dode7').field('dimensionless').component ↙
({'y105' 'y2'});
13571 model.component('comp1').physics('dode7').field('dimensionless').component(2, ↙
'y1052');
13572 model.component('comp1').physics('dode7').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13573 model.component('comp1').physics('dode7').feature('dode1').setIndex('f', '1e-2 ↙
[1/d]*y105', 1);
13574 model.component('comp1').physics('dode7').feature('dode1').setIndex('f', 'f105- ↙
1e-2[1/d]*y105', 0);
13575 model.component('comp1').physics('dode9').prop('Units').setIndex ↙
```

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('CustomSourceTermUnit', 'M/s', 0, 0);
13576 model.component('comp1').physics('dode10').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13577 model.component('comp1').physics('dode11').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13578 model.component('comp1').physics('dode11').field('dimensionless').component ↙
({'y107' 'y2'});
13579 model.component('comp1').physics('dode11').field('dimensionless').component(2, ↙
'y1072');
13580 model.component('comp1').physics('dode11').feature('dode1').setIndex('f', 'f107- ↙
1e-2[1/d]*y107', 0);
13581 model.component('comp1').physics('dode11').feature('dode1').setIndex('f', '1e-2 ↙
[1/d]*y107', 1);
13582 model.component('comp1').physics('dode12').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13583 model.component('comp1').physics('dode13').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13584 model.component('comp1').physics('dode14').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13585 model.component('comp1').physics('dode15').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13586 model.component('comp1').physics('dode15').field('dimensionless').component ↙
({'y108' 'y2'});
13587 model.component('comp1').physics('dode15').field('dimensionless').component(2, ↙
'y1082');
13588 model.component('comp1').physics('dode15').feature('dode1').setIndex('f', '1e-2 ↙
[1/d]*y108', 1);
13589 model.component('comp1').physics('dode15').feature('dode1').setIndex('f', 'f108- ↙
1e-2[1/d]*y108', 0);
13590 model.component('comp1').physics('dode16').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13591 model.component('comp1').physics('dode17').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13592 model.component('comp1').physics('dode18').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13593 model.component('comp1').physics('dode19').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13594 model.component('comp1').physics('dode19').field('dimensionless').component ↙
({'y109' 'y2'});
13595 model.component('comp1').physics('dode19').field('dimensionless').component(2, ↙
'y1092');
13596 model.component('comp1').physics('dode19').feature('dode1').setIndex('f', 'f109- ↙
1e-2[1/d]*y109', 0);
13597 model.component('comp1').physics('dode19').feature('dode1').setIndex('f', '1e-2 ↙
[1/d]*y109', 1);
13598 model.component('comp1').physics('dode20').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13599 model.component('comp1').physics('dode21').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13600 model.component('comp1').physics('dode22').prop('Units').setIndex ↙
```

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('CustomSourceTermUnit', 'M/s', 0, 0);
13601 model.component('comp1').physics('dode24').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13602 model.component('comp1').physics('dode23').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13603 model.component('comp1').physics('dode23').field('dimensionless').component ↙
({'y110' 'y2'});
13604 model.component('comp1').physics('dode23').field('dimensionless').component(2, ↙
'y1102');
13605 model.component('comp1').physics('dode23').feature('dode1').setIndex('f', '1e-2 ↙
[1/d]*y110', 1);
13606 model.component('comp1').physics('dode23').feature('dode1').setIndex('f', 'f110- ↙
1e-2[1/d]*y110', 0);
13607 model.component('comp1').physics('dode25').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13608 model.component('comp1').physics('dode26').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13609 model.component('comp1').physics('dode27').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13610 model.component('comp1').physics('dode27').field('dimensionless').component ↙
({'y111' 'y2'});
13611 model.component('comp1').physics('dode27').field('dimensionless').component(2, ↙
'y1112');
13612 model.component('comp1').physics('dode27').feature('dode1').setIndex('f', 'f111- ↙
1e-2[1/d]*y111', 0);
13613 model.component('comp1').physics('dode27').feature('dode1').setIndex('f', '1e-2 ↙
[1/d]*y111', 1);
13614 model.component('comp1').physics('dode28').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13615 model.component('comp1').physics('dode29').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13616 model.component('comp1').physics('dode30').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13617 model.component('comp1').physics('dode31').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13618 model.component('comp1').physics('dode31').field('dimensionless').component ↙
({'y117' 'y2'});
13619 model.component('comp1').physics('dode31').field('dimensionless').component(2, ↙
'y1172');
13620 model.component('comp1').physics('dode31').feature('dode1').setIndex('f', 'f117- ↙
1e-2[1/d]*y117', 0);
13621 model.component('comp1').physics('dode31').feature('dode1').setIndex('f', '1e-2 ↙
[1/d]*y117', 1);
13622 model.component('comp1').physics('dode32').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13623 model.component('comp1').physics('dode33').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13624 model.component('comp1').physics('dode34').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13625 model.component('comp1').physics('dode35').prop('Units').setIndex ↙
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('CustomSourceTermUnit', 'M/s', 0, 0);
13626 model.component('comp1').physics('dode35').field('dimensionless').component ↙
({'y119' 'y2'});
13627 model.component('comp1').physics('dode35').field('dimensionless').component(2, ↙
'y1192');
13628 model.component('comp1').physics('dode35').feature('dode1').setIndex('f', 'f119- ↙
1e-2[1/d]*y119', 0);
13629 model.component('comp1').physics('dode35').feature('dode1').setIndex('f', '1e-2 ↙
[1/d]*y119', 1);
13630 model.component('comp1').physics('dode36').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13631 model.component('comp1').physics('dode37').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13632 model.component('comp1').physics('dode38').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13633 model.component('comp1').physics('dode38').field('dimensionless').component ↙
({'y121' 'y2'});
13634 model.component('comp1').physics('dode38').field('dimensionless').component(2, ↙
'y1212');
13635 model.component('comp1').physics('dode38').feature('dode1').setIndex('f', 'f121- ↙
1e-2[1/d]*y121', 0);
13636 model.component('comp1').physics('dode38').feature('dode1').setIndex('f', '1e-2 ↙
[1/d]*y121', 1);
13637 model.component('comp1').physics('dode39').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13638 model.component('comp1').physics('dode40').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13639 model.component('comp1').physics('dode41').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13640 model.component('comp1').physics('dode42').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13641 model.component('comp1').physics('dode42').field('dimensionless').component ↙
({'y124' 'y2'});
13642 model.component('comp1').physics('dode42').field('dimensionless').component(2, ↙
'y1242');
13643 model.component('comp1').physics('dode42').feature('dode1').setIndex('f', 'f124- ↙
1e-2[1/d]*y124', 0);
13644 model.component('comp1').physics('dode42').feature('dode1').setIndex('f', '1e-2 ↙
[1/d]*y124', 1);
13645 model.component('comp1').physics('dode43').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13646 model.component('comp1').physics('dode44').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
13647
13648 model.sol('sol54').runAll;
13649
13650 model.result('pg40').run;
13651 model.result('pg40').run;
13652
13653 model.component('comp1').variable('var6').set('bHe', '1');
```

```
13654 model.component('comp1').variable('var6').set('bKa', '1');
13655
13656 model.sol('sol54').runAll;
13657
13658 model.result('pg40').run;
13659 model.result('pg40').run;
13660 model.result('pg41').run;
13661 model.result('pg42').run;
13662 model.result('pg43').run;
13663 model.result('pg40').run;
13664 model.result('pg40').run;
13665 model.result('pg40').feature('ptgr2').set('expr', 'y124');
13666 model.result('pg40').run;
13667 model.result('pg40').feature('ptgr2').set('expr', 'y1242');
13668 model.result('pg40').run;
13669
13670 model.label('patient1_New.mph');
13671
13672 model.result('pg40').run;
13673
13674 model.label('patient1_New_55.mph');
13675
13676 model.result('pg40').run;
13677
13678 model.component('comp1').physics.create('dode45', 'DomainODE', {'u36'});
13679
13680 model.study('std1').feature('param').activate('dode45', true);
13681 model.study('std1').feature('time').activate('dode45', true);
13682
13683 model.component('comp1').physics('dode45').tag('CD4');
13684 model.component('comp1').physics('CD4').field('dimensionless').component(1, ↙
'T4');
13685 model.component('comp1').physics('CD4').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
13686 model.component('comp1').physics('CD4').prop('Units').set ↙
('DependentVariableQuantity', 'none');
13687 model.component('comp1').physics('CD4').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'g/cm^3', 0, 0);
13688 model.component('comp1').physics('CD4').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'g/cm^3/s', 0, 0);
13689 model.component('comp1').physics('CD4').feature('dode1').setIndex('f', 'ST4+ ↙
(lT4*T4*a/(Ka+a))*(1/(1+PD1bPDL1/KT))-dT4*T4-KT4*CI*T4', 0);
13690 model.component('comp1').physics.create('dode45', 'DomainODE', {'u37'});
13691
13692 model.study('std1').feature('param').activate('dode45', true);
13693 model.study('std1').feature('time').activate('dode45', true);
13694
13695 model.component('comp1').physics('dode45').tag('InCD4');
13696 model.component('comp1').physics('InCD4').field('dimensionless').component(1, ↙
'ICD4');
```

```
13697 model.component('comp1').physics('InCD4').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
13698 model.component('comp1').physics('InCD4').prop('Units').set ↙
('DependentVariableQuantity', 'none');
13699 model.component('comp1').physics('InCD4').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'g/cm^3', 0, 0);
13700 model.component('comp1').physics('InCD4').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'g/cm^3/s', 0, 0);
13701 model.component('comp1').physics('InCD4').feature('dode1').setIndex('f', ↙
'KT4*Ci*T4-bT4*IT4', 0);
13702 model.component('comp1').physics('InCD4').field('dimensionless').component(1, ↙
'IT4');
13703 model.component('comp1').physics.create('dode45', 'DomainODE', {'u38'});
13704
13705 model.study('std1').feature('param').activate('dode45', true);
13706 model.study('std1').feature('time').activate('dode45', true);
13707
13708 model.component('comp1').physics('dode45').tag('CD8');
13709 model.component('comp1').physics('CD8').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
13710 model.component('comp1').physics('CD8').prop('Units').set ↙
('DependentVariableQuantity', 'none');
13711 model.component('comp1').physics('CD8').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'g/cm^3', 0, 0);
13712 model.component('comp1').physics('CD8').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'g/cm^3/S', 0, 0);
13713 model.component('comp1').physics('CD8').field('dimensionless').component(1, ↙
'T8');
13714 model.component('comp1').physics('CD8').feature('dode1').setIndex('f', ↙
'(lT4*T4*a/(Ka+a))*(1/(1+PD1bPDL1/KT))-dT4*T4-KT4*CI*T4', 0);
13715 model.component('comp1').physics('CD8').feature('dode1').setIndex('f', ↙
'(lT8*T8*a/(Ka+a))*(1/(1+PD1bPDL1/KT))-dT8*T8-KT8*CI*T8', 0);
13716 model.component('comp1').physics.create('dode45', 'DomainODE', {'u39'});
13717
13718 model.study('std1').feature('param').activate('dode45', true);
13719 model.study('std1').feature('time').activate('dode45', true);
13720
13721 model.component('comp1').physics('dode45').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
13722 model.component('comp1').physics('dode45').prop('Units').set ↙
('DependentVariableQuantity', 'none');
13723 model.component('comp1').physics('dode45').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'g/cm^3', 0, 0);
13724 model.component('comp1').physics('dode45').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'g/cm^3/s', 0, 0);
13725 model.component('comp1').physics('dode45').tag('InCD8');
13726 model.component('comp1').physics('InCD8').field('dimensionless').component(1, ↙
'IT8');
13727 model.component('comp1').physics('InCD8').feature('dode1').setIndex('f', ↙
'KT8*Ci*T8-bT8*IT8', 0);
```

```
13728 model.component('comp1').physics.create('dode45', 'DomainODE', {'u40'});
13729
13730 model.study('std1').feature('param').activate('dode45', true);
13731 model.study('std1').feature('time').activate('dode45', true);
13732
13733 model.component('comp1').physics('dode45').tag('PD1');
13734 model.component('comp1').physics('PD1').field('dimensionless').component(1, ↙
'PD1');
13735 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', 'PD1/ ↙
(T4+T8)*(lT4*T4+lT8*T8)*(a/(Ka+a))*(1/(1+PD1BPDL1/KT))-PD1/(T4+T8)*(dT4*T4+dT8*T8)- ↙
mP*PD1*antiPD1+r*In/(phi+In)', 0);
13736 model.component('comp1').physics.create('dode45', 'DomainODE', {'u41'});
13737
13738 model.study('std1').feature('param').activate('dode45', true);
13739 model.study('std1').feature('time').activate('dode45', true);
13740
13741 model.component('comp1').physics('PD1').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
13742 model.component('comp1').physics('PD1').prop('Units').set ↙
('DependentVariableQuantity', 'none');
13743 model.component('comp1').physics('PD1').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'g/cm^3', 0, 0);
13744 model.component('comp1').physics('PD1').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'g/cm^3/s', 0, 0);
13745 model.component('comp1').physics('dode45').tag('PDL1');
13746 model.component('comp1').physics('PDL1').field('dimensionless').component(1, ↙
'PDL1');
13747 model.component('comp1').physics('PDL1').feature('dode1').setIndex('f', 'PDL1/ ↙
(T4+T8)*(lT4*T4+lT8*T8)*(a/(Ka+a))*(1/(1+PD1BPDL1/KT))-PDL1/(T4+T8)*(dT4*T4+dT8*T8)', ↙
0);
13748 model.component('comp1').physics.create('dode45', 'DomainODE', {'u42'});
13749
13750 model.study('std1').feature('param').activate('dode45', true);
13751 model.study('std1').feature('time').activate('dode45', true);
13752
13753 model.component('comp1').physics('dode45').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
13754 model.component('comp1').physics('dode45').prop('Units').set ↙
('DependentVariableQuantity', 'none');
13755 model.component('comp1').physics('dode45').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'g/cm^3', 0, 0);
13756 model.component('comp1').physics('dode45').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'g/cm^3/s', 0, 0);
13757 model.component('comp1').physics('dode45').field('dimensionless').component(1, ↙
'PD1bPDL1');
13758 model.component('comp1').physics('dode45').field('dimensionless').component(1, ↙
'PD1BPDL1');
13759 model.component('comp1').physics('dode45').feature('dode1').setIndex('f', ↙
'aPL*PD1*PDL1-dQ*PD1BPDL1', 0);
13760 model.component('comp1').physics('dode45').tag('PD1BPDL1');
```

```
13761 model.component('comp1').physics.create('dode46', 'DomainODE', {'u43'});
13762
13763 model.study('std1').feature('param').activate('dode46', true);
13764 model.study('std1').feature('time').activate('dode46', true);
13765
13766 model.component('comp1').physics('dode46').identifier('dode46');
13767 model.component('comp1').physics('dode46').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
13768 model.component('comp1').physics('dode46').prop('Units').set ↙
('DependentVariableQuantity', 'none');
13769 model.component('comp1').physics('dode46').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'g/cm^3', 0, 0);
13770 model.component('comp1').physics('dode46').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'g/cm^3/s', 0, 0);
13771 model.component('comp1').physics('dode46').field('dimensionless').component(1, ↙
'antiPD1');
13772 model.component('comp1').physics('dode46').feature('dode1').setIndex('f', 'gA- ↙
mA*PD1*antiPD1-dA*antiPD1', 0);
13773 model.component('comp1').physics('dode46').tag('antiPD1');
13774 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Kin*In*bin+KT4*IT4*bT$+KT8*T8*bT8', 0);
13775 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Kin*In*bin+KT4*IT4*bT4+KT8*T8*bT8', 0);
13776 model.component('comp1').physics('a').feature('dode1').setIndex('f', ↙
'Kg*phi_a*ma*n+Sang17*MAsbAng17-gam_a*a+KaT4*T4', 0);
13777 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Ci+phic*H*n-phictl*In*(T4+T8)*0-Kin*In', 0);
13778 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Ci+phic*H*n-phictl*In*(T4+T8)*0-Kin*In-phiT8*T8', 0);
13779
13780 model.component('comp1').variable.create('var23');
13781 model.component('comp1').variable('var23').label('CD4CD8');
13782 model.component('comp1').variable('var23').set('ST4', '0.1[1/d/mm^3]*T40');
13783
13784 model.component('comp1').physics('CD4').feature('dode1').setIndex('f', ↙
'(lT4*T4*a/(Ka+a))*(1/(1+PD1bPDL1/KT))-dT4*T4-KT4*CI*T4', 0);
13785
13786 model.component('comp1').variable('var23').set('lT4', '0.25[1/d]');
13787 model.component('comp1').variable('var23').set('Ka', '2.37e-11[g/cm^3]');
13788 model.component('comp1').variable('var23').set('KT', '1.365e-18[g/cm^3]');
13789 model.component('comp1').variable('var23').set('dT4', '0.197[1/d]');
13790 model.component('comp1').variable('var23').set('KT4', '0.0027[1/mm^3/d]');
13791
13792 model.component('comp1').physics('CD4').feature('dode1').setIndex('f', ↙
'(lT4*T4*a/(Ka+a))*(1/(1+PD1bPDL1/KT))-dT4*T4-KT4*Ci*T4', 0);
13793 model.component('comp1').physics('CD4').feature('dode1').setIndex('f', ↙
'(lT4*T4*a/(Ka+a))*(1/(1+PD1bPDL1/KT))-dT4*T4', 0);
13794 model.component('comp1').physics('CD4').feature('dode1').setIndex('f', 'dT4*T4- ↙
```

```
KT4*Ci*T4', 0);
13795 model.component('comp1').physics('CD4').feature('dode1').setIndex('f', ↙
'(lT4*T4*a/(Ka+a))*(1/(1+PD1bPDL1/KT))', 0);
13796 model.component('comp1').physics('CD4').feature('dode1').setIndex('f', ↙
'(lT4*T4*a/(Ka+a))*(1/(1+PD1bPDL1/KT))-dT4*T4-KT4*Ci*T4', 0);
13797 model.component('comp1').physics('CD4').feature('dode1').setIndex('f', ↙
'(lT4*T4*a/(Ka+a))*(1/(1+PD1bPDL1/KT))', 0);
13798 model.component('comp1').physics('CD4').feature('dode1').setIndex('f', ↙
'(lT4*T4*a/(Ka+a))*(1/(1+PD1BPDL1/KT))-dT4*T4-KT4*Ci*T4', 0);
13799 model.component('comp1').physics('CD4').feature('dode1').setIndex('f', ↙
'(lT4*T4*a/(Ka+a))*(1/(1+PD1BPDL1/KT))', 0);
13800 model.component('comp1').physics('CD4').feature('dode1').setIndex('f', ↙
'(lT4*T4*a/(Ka+a))*(1/(1+PD1BPDL1/KT))-dT4*T4-KT4*Ci*T4', 0);
13801 model.component('comp1').physics('CD4').feature('dode1').setIndex('f', ↙
'(lT4*T4*a/(Ka+a))*(1/(1+PD1BPDL1/KT))', 0);
13802 model.component('comp1').physics('CD4').feature('dode1').setIndex('da', '-dT4*T4- ↙
KT4*Ci*T41', 0);
13803 model.component('comp1').physics('CD4').feature('dode1').setIndex('da', '-dT4*T4- ↙
KT4*Ci*T4', 0);
13804 model.component('comp1').physics('CD4').feature('dode1').setIndex('f', ↙
'(lT4*T4*a/(Ka1+a))*(1/(1+PD1BPDL1/KT))', 0);
13805
13806 model.component('comp1').variable('var23').rename('Ka', 'Ka1');
13807
13808 model.component('comp1').physics('CD4').feature('dode1').setIndex('da', 1, 0);
13809 model.component('comp1').physics('CD4').feature('dode1').setIndex('f', ↙
'(lT4*T4*a/(Ka1+a))*(1/(1+PD1BPDL1/KT))-dT4*T4-KT4*Ci*T4', 0);
13810
13811 model.component('comp1').variable('var23').set('KT4', '0.0027[mm^3/d/mole]');
13812 model.component('comp1').variable('var23').set('bT4', '0.3[1/d]');
13813
13814 model.component('comp1').physics('CD8').feature('dode1').setIndex('f', ↙
'(lT8*T8*a/(Ka1+a))*(1/(1+PD1bPDL1/KT))-dT8*T8-KT8*CI*T8', 0);
13815
13816 model.component('comp1').variable('var23').set('lT8', '4.15[1/d]');
13817 model.component('comp1').variable('var23').set('dT8', '0.18[1/d]');
13818 model.component('comp1').variable('var23').set('KT8', '0.0027[mm^3/d/mole]');
13819
13820 model.component('comp1').physics('CD8').feature('dode1').setIndex('f', ↙
'(lT8*T8*a/(Ka1+a))*(1/(1+PD1bPDL1/KT))-dT8*T8-KT8*Ci*T8', 0);
13821 model.component('comp1').physics('CD8').feature('dode1').setIndex('f', ↙
'(lT8*T8*a/(Ka1+a))*(1/(1+PD1BPDL1/KT))-dT8*T8-KT8*Ci*T8', 0);
13822 model.component('comp1').physics('CD8').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'g/cm^3/s', 0, 0);
13823
13824 model.component('comp1').variable('var23').set('bT8', '0.3[1/d]');
13825
13826 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', 'PD1/ ↙
(T4+T8)*(lT4*T4+lT8*T8)*(a/(Ka1+a))*(1/(1+PD1BPDL1/KT))-PD1/(T4+T8)*(dT4*T4+dT8*T8)- ↙
mP*PD1*antiPD1+r*In/(phi+In)', 0);
```

```
13827
13828 model.component('comp1').variable('var23').set('mP', '6.87e6[cm^3/g/d]');
13829 model.component('comp1').variable('var23').set('phi', '1[1]');
13830 model.component('comp1').variable('var23').set('r', '1');
13831
13832 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', 'PD1/ ↙
(T4+T8)*(lT4*T4+lT8*T8)*(a/(Ka1+a))*(1/(1+PD1BPDL1/KT))', 0);
13833 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', 'PD1/ ↙
(T4+T8)*(lT4*T4+lT8*T8)*(a/(Ka1+a))*(1/(1+PD1BPDL1/KT))-PD1/(T4+T8)*(dT4*T4+dT8*T8)- ↙
mP*PD1*antiPD1', 0);
13834 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', 'PD1/ ↙
(T4+T8)*(lT4*T4+lT8*T8)*(a/(Ka1+a))*(1/(1+PD1BPDL1/KT))-PD1/(T4+T8)*(dT4*T4+dT8*T8)- ↙
mP*PD1*antiPD1+r*In/(phi+In)', 0);
13835
13836 model.component('comp1').variable('var23').set('phi', '1[1/mm^3]');
13837
13838 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', 'PD1/ ↙
(T4+T8)*(lT4*T4+lT8*T8)*(a/(Ka1+a))*(1/(1+PD1BPDL1/KT))-PD1/(T4+T8)*(dT4*T4+dT8*T8)- ↙
mP*PD1*antiPD1+r*In/(phicd+In)', 0);
13839
13840 model.component('comp1').variable('var23').rename('phi', 'phicd');
13841 model.component('comp1').variable('var23').set('r', '1[g/mm^3/s]');
13842
13843 model.component('comp1').physics('PDL1').feature('dode1').setIndex('f', 'PDL1/ ↙
(T4+T8)*(lT4*T4+lT8*T8)*(a/(Ka1+a))*(1/(1+PD1BPDL1/KT))-PDL1/(T4+T8)*(dT4*T4+dT8*T8)', ↙
0);
13844 model.component('comp1').physics('PDL1').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
13845 model.component('comp1').physics('PDL1').prop('Units').set ↙
('DependentVariableQuantity', 'none');
13846 model.component('comp1').physics('PDL1').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'g/cm^3', 0, 0);
13847 model.component('comp1').physics('PDL1').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'g/cm^3/s', 0, 0);
13848
13849 model.component('comp1').variable('var23').set('aPL', '0.258[mm^3/g/s]');
13850 model.component('comp1').variable('var23').set('dQ', '0.1[1/d]');
13851 model.component('comp1').variable('var23').set('gA', '1e-10[g/cm^3/d]');
13852
13853 model.component('comp1').physics('antiPD1').feature('dode1').setIndex('f', 'gA- ↙
mP*PD1*antiPD1-dA*antiPD1', 0);
13854
13855 model.component('comp1').variable('var23').set('dA', '0.0462[1/d]');
13856 model.component('comp1').variable('var1').set('phiT8', '0.874[1/d]');
13857 model.component('comp1').variable('var23').set('dA', '0.0462[1/g/d]');
13858
13859 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Ci+phic*H*n-Kin*In-phiT8*T8', 0);
13860 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Ci+phic*H*n-Kin*In-phiT8*T8-phictl*In*(T4+T8)*0', 0);
```

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13861
13862 model.component('comp1').variable('var1').remove('phiT8');
13863 model.component('comp1').variable('var23').set('phiT8', '0.874[1/d/g]');
13864
13865 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Ci+phic*H*n-Kin*In-phiT8*T8', 0);
13866 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Ci+phic*H*n-Kin*In-phiT8*T8-phictl*In*(T4+T8)*0', 0);
13867
13868 model.component('comp1').variable('var1').set('phictl', '2.3e-10[ml/h/g]');
13869
13870 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Kin*In*bin+KT41*IT4*bT4+KT81*T8*bT8', 0);
13871
13872 model.component('comp1').variable('var23').set('KT41', '0.2542[mole/g]');
13873 model.component('comp1').variable('var23').set('KT81', '0.2542[mole/g]');
13874 model.component('comp1').variable('var23').set('KaT4', '0.25[1/d]');
13875
13876 model.sol('sol54').runFromTo('st1', 'v1');
13877
13878 model.result('pg40').run;
13879
13880 model.component('comp1').physics('CD4').feature('init1').set('T4', '4e-3 ↙
[g/cm^3]');
13881 model.component('comp1').physics('CD8').feature('init1').set('T8', '2e-3 ↙
[g/cm^3]');
13882 model.component('comp1').physics('PD1').feature('init1').set('PD1', '11.2e-10 ↙
[g/cm^3]');
13883
13884 model.sol('sol54').runFromTo('st1', 'v1');
13885
13886 model.result('pg40').run;
13887
13888 model.sol('sol54').runAll;
13889
13890 model.result('pg40').run;
13891
13892 model.label('patient1_New_55_CD4.mph');
13893
13894 model.result('pg40').run;
13895
13896 model.component('comp1').variable('var22').set('f105', '(Q_lung*y86-(Q_lung- ↙
L_lung)*y105+mt_lung*ac*Vint/(ACE2+1)*vv_lung+mt_lung*ac*IL6/(IL6+1)*vv_lung- ↙
d_lung*y105*vv_lung+Kcy*(c/(c+1)))/vv_lung');
13897 model.component('comp1').variable('var22').set('f111', '(Q_intestin*y85- ↙
(Q_intestin-L_intestin)*y111+mt_Intestine*ac*Vint5/(y103+1) ↙
*vv_intestin+mt_Intestine*ac*IL6/(IL6+1)*vv_intestin-d_Intestine*y111*vv_intestin+Kcy* ↙
(c/(c+1)))/vv_intestin');
13898 model.component('comp1').variable('var22').set('f108', '(Q_spleen*y85-(Q_spleen- ↙
```

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L_spleen)*y108+mt_spleen*ac*Vint2/(y102+1)*vv_spleen+mt_spleen*ac*IL6/(IL6+1) ↙
*vv_spleen-d_spleen*y108*vv_spleen+Kcy*(c/(c+1)))/vv_spleen');
13899 model.component('comp1').variable('var22').set('f109', '(Q_Upper_body*y85- ↙
(Q_Upper_body-L_Upper_body)*y109+mt_Upper_body*ac*Vint3/(y92+1) ↙
*vv_Upper_body+mt_Upper_body*ac*IL6/(IL6+1)*vv_Upper_body- ↙
d_Upper_body*y109*vv_Upper_body+Kcy*(c/(c+1)))/vv_Upper_body');
13900 model.component('comp1').variable('var22').set('f110', '(Q_Torso*y85-(Q_Torso- ↙
L_Torso)*y110+mt_Torso*ac*Vint4/(y90+1)*vv_Torso+mt_Torso*ac*IL6/(IL6+1)*vv_Torso- ↙
d_Torso*y110*vv_Torso+Kcy*(c/(c+1)))/vv_Torso');
13901 model.component('comp1').variable('var22').set('f117', ↙
'(Q_Lower_body*y85*rf_IL2_Ltumor-(Q_Lower_body-L_Lower_body) ↙
*y117*rf_IL2_Ltumor+mt_Lower_body*ac*Vint6/(y94+1)*vv_Lower_body+mt_Lower_body*ac*IL6/ ↙
(IL6+1)*vv_Lower_body-d_Lower_body*y117*vv_Lower_body+Kcy*(c/(c+1)))/vv_Lower_body');
13902 model.component('comp1').variable('var22').set('f119', ↙
'(Q_brain*y85*rf_IL2_Ltumor-(Q_brain-L_brain)*y119*rf_IL2_Ltumor+mt_Brain*ac*Vint7/ ↙
(y96+1)*vv_brain+mt_Brain*ac*IL6/(IL6+1)*vv_brain-d_Brain*y119*vv_brain+Kcy*(c/(c+1))) ↙
/vv_brain');
13903 model.component('comp1').variable('var22').set('f121', ↙
'(Q_kidney*y85*rf_IL2_Ltumor-(Q_kidney-L_kidney)*y121*rf_IL2_Ltumor+mt_kidney*ac*Vint8/ ↙
(y98+1)*vv_kidney+mt_kidney*ac*IL6/(IL6+1)*vv_kidney-d_kidney*y121*vv_kidney+Kcy*(c/ ↙
(c+1)))/vv_kidney');
13904 model.component('comp1').variable('var22').set('f124', ↙
'(Q_Cardiac_vessels*y85*rf_IL2_Ltumor-(Q_Cardiac_vessels-L_Cardiac_vessels) ↙
*y124*rf_IL2_Ltumor+mt_Cardiac_vessels*ac*Vint9/(y125+1) ↙
*vv_Cardiac_vessels+mt_Cardiac_vessels*ac*IL6/(IL6+1)*vv_Cardiac_vessels- ↙
d_Cardiac_vessels*y124*vv_Cardiac_vessels+Kcy*(c/(c+1)))/vv_Cardiac_vessels');
13905 model.component('comp1').variable('var22').set('f107', '((Q_intestin-L_intestin) ↙
*y111+(Q_spleen-L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85- ↙
(Q_liver-L_liver)*y107+mt_liver*ac*Vint1/(y87+1)*vv_liver+mt_liver*ac*IL6/(IL6+1) ↙
*vv_liver-d_liver*y107*vv_liver+Kcy*(c/(c+1)))/vv_liver');
13906 model.component('comp1').variable('var22').set('f85', '((Q_lung-L_lung)*y105- ↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y85+Kcy*(c/(c+1)))/vv_ventricle');
13907 model.component('comp1').variable('var22').set('f86', '((Q_Lnode/8-L_Llung)*y106+ ↙
(Q_liver-L_liver)*y107+(Q_Lnode/8-L_Lliver)*y112+((Q_Lnode/8-L_Ltumor)*y113)+(Q_tumor- ↙
L_tumor)*y104+(Q_Lnode/8-L_LTorso)*y114+(Q_Torso-L_Torso)*y110+(Q_Lnode/8- ↙
L_LUpper_body)*y115+(Q_Upper_body-L_Upper_body)*y109+(Q_Lnode/8-L_LLower_body)*y116+ ↙
(Q_Lower_body-L_Lower_body)*y117+(Q_Lnode/8-L_Lbrain)*y118+(Q_brain-L_brain)*y119+ ↙
(Q_Lnode/8-L_Lkidney)*y120+(Q_kidney-L_kidney)*y121+(Q_Cardiac_vessels- ↙
L_Cardiac_vessels)*y124+(L_Cardiac_vessels*y125*rf_kidney)*heaviside(y125-1e-3*first)+ ↙
(L_lung+L_Llung)*y99*rf_aLlung+(L_liver+L_spleen+L_intestin+L_Lliver) ↙
*y101*rf_aLintestin+(L_tumor+L_Ltumor)*y80*rf_aLtumor+(L_Torso+L_LTorso) ↙
*y89*rf_aLTorso+(L_Upper_body+L_LUpper_body)*y91*rf_aLUpper_body+ ↙
(L_LLower_body+L_Lower_body)*y93*rf_aLLower_body+(L_Lbrain+L_brain)*y95*rf_aLbrain+ ↙
(L_Lkidney+L_kidney)*y97*rf_aLkidney-(Q_lung)*y86*heaviside(y86-1e-3*first)+Kcy*(c/ ↙
(c+1)))/vv_ventricle');
13908 model.component('comp1').variable('var22').set('f105', '(Q_lung*y86-(Q_lung- ↙
L_lung)*y105+mt_lung*ac*Vint/(ACE2+1)*vv_lung+mt_lung*ac*IL6/(IL6+1)*vv_lung- ↙
d_lung*y105*vv_lung+Kcy*(c/(c+1)))/vv_lung');
13909
```

```
13910 model.result('pg40').run;
13911 model.result('pg40').run;
13912 model.result('pg40').feature('ptgr2').set('expr', 'vv_lung');
13913 model.result('pg40').run;
13914
13915 model.component('comp1').variable('var1').set('Kcy', '1[m^3/pg/s]');
13916
13917 model.result('pg40').run;
13918 model.result('pg40').feature('ptgr2').set('expr', 'Kcy*(c/(c+1))');
13919
13920 model.component('comp1').variable('var1').set('Kcy', '1[mole/s]');
13921
13922 model.component('comp1').physics('AT1R').feature('dode1').setIndex('f', 'SAT1- ↙
KonAT1AngII*AngII*AT1R+KoffAT1AngII*AT1bAngII-dAT1R*AT1R', 0);
13923 model.component('comp1').physics('AT2R').feature('dode1').setIndex('f', 'SAT2R- ↙
KonAT2AngII*AngII*AT2R+KoffAT2AngII*AT2bAngII-dAT2R*AT2R', 0);
13924 model.component('comp1').physics('MAsR').feature('dode1').setIndex('f', 'SMAsR- ↙
KonMAs*Ang17*MAsR+KoffMAs*MAsbAng17-dMAsR*MAsR', 0);
13925 model.component('comp1').physics('AT4R').feature('dode1').setIndex('f', 'SAT4R- ↙
KonAT4R*AngIV*AT4R+KoffAT4R*AT4bAngIVhttps://www.youtube.com/watch?v=Z2qBipa5qmE', 0);
13926 model.component('comp1').physics('AT4R').feature('dode1').setIndex('f', 'SAT4R- ↙
KonAT4R*AngIV*AT4R+KoffAT4R*AT4bAngIV-dAT4R*AT4R', 0);
13927 model.component('comp1').physics('IL6').feature('dode1').setIndex('f', ↙
'KIL6*ma*Ci-gam_IL6*IL6-KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6+KoffsIL6R*sIL6RbIL6- ↙
KonsIL6R*sIL6R*IL6+KIL6TN*Tn+KIL6IEC*IEC+', 0);
13928 model.component('comp1').physics('IL6').feature('dode1').setIndex('f', ↙
'KIL6*ma*Ci-gam_IL6*IL6-KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6+KoffsIL6R*sIL6RbIL6- ↙
KonsIL6R*sIL6R*IL6+KIL6TN*Tn+KIL6IEC*IEC+KIL6TE*Te', 0);
13929 model.component('comp1').physics('IL6R').feature('dode1').setIndex('f', 'SIL6R- ↙
KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6-KsIL6R*IL6R-dIL6R*IL6R', 0);
13930 model.component('comp1').physics('sIL6R').feature('dode1').setIndex('f', ↙
'KsIL6R*IL6R-KoffsIL6R*sIL6RbIL6', 0);
13931 model.component('comp1').physics('VEGF').feature('dode1').setIndex('f', ↙
'SVEGF+KVEGF*sIL6RbIL6-dVEGF*VEGF+KVEGF*(100-SPO2)', 0);
13932 model.component('comp1').physics('VEGF').feature('dode1').setIndex('f', ↙
'SVEGF+KVEGF*sIL6RbIL6-dVEGF*VEGF+KVEGF*(100-SPb)', 0);
13933 model.component('comp1').physics('sACE2').feature('dode1').setIndex('f', '- ↙
KsACE2*sACE2*Ci+KAdam17*ACE2-0.1*KsACE2*sACE2*y14-0.1*KsACE2*sACE2*y18-0.1 ↙
*KsACE2*sACE2*y22-0.1*KsACE2*sACE2*y26-0.1*KsACE2*sACE2*y30-0.1*KsACE2*sACE2*y54-0.1 ↙
*KsACE2*sACE2*y62-0.1*KsACE2*sACE2*y70-0.1*KsACE2*sACE2*y74-dsACE2*sACE2', 0);
13934 model.component('comp1').physics('ACE2').feature('dode1').setIndex('f', ↙
'SACE2R*ToCell-KonACE2V*Ci*ACE2+KoffACE2V*Cb-KAdam17*ACE2- ↙
KonACE2AngI*AngI*ACE2+KoffACE2AngI*ACE2bAngI- ↙
KonACE2AngII*AngII*ACE2+KoffACE2AngII*ACE2bAngII', 0);
13935 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint+Kint*Cb-Kin*In*bIn', 0);
13936 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint+Kint*Cb-Kin*In*bin', 0);
13937 model.component('comp1').physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c-KAT1RMAsR*MAsR', 0);
```

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13938 model.component('comp1').physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c-', 0);
13939
13940 model.result('pg40').feature('ptgr2').set('expr', 'KAT1RMAsR*MAsR');
13941 model.result('pg40').run;
13942
13943 model.component('comp1').physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c-KAT1RMAsR*MAsR*1[pg/fmole]', 0);
13944 model.component('comp1').physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c-KAT1RMAsR*MAsR*1[pg/fmol]', 0);
13945 model.component('comp1').physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c-KAT1RMAsR*MAsR*1[pg/fmol]-KAT1RAT2R*AT2R', 0);
13946 model.component('comp1').physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c-KAT1RMAsR*MAsR*1[pg/fmol]-KAT1RAT2R*AT2R*1 ↙
[pg/fmol]', 0);
13947 model.component('comp1').physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c-KAT1RMAsR*MAsR*1[pg/fmol]-KAT1RAT2R*AT2R*1 ↙
[pg/fmol]+IL6bsIL6R', 0);
13948 model.component('comp1').physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c-KAT1RMAsR*MAsR*1[pg/fmol]-KAT1RAT2R*AT2R*1 ↙
[pg/fmol]+sIL6bIL6R', 0);
13949 model.component('comp1').physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c-KAT1RMAsR*MAsR*1[pg/fmol]-KAT1RAT2R*AT2R*1 ↙
[pg/fmol]+sIL6RbIL6R', 0);
13950 model.component('comp1').physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c-KAT1RMAsR*MAsR*1[pg/fmol]-KAT1RAT2R*AT2R*1 ↙
[pg/fmol]+sIL6RbIL6', 0);
13951 model.component('comp1').physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c-KAT1RMAsR*MAsR*1[pg/fmol]-KAT1RAT2R*AT2R*1 ↙
[pg/fmol]+KcIL6RsIL6RbIL6', 0);
13952 model.component('comp1').physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c-KAT1RMAsR*MAsR*1[pg/fmol]-KAT1RAT2R*AT2R*1 ↙
[pg/fmol]+KcIL6R*sIL6RbIL6', 0);
13953 model.component('comp1').physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c-KAT1RMAsR*MAsR*1[pg/fmol]-KAT1RAT2R*AT2R*1 ↙
[pg/fmol]+KcIL6R*sIL6RbIL6*(KcEC*EC+KcH*H)', 0);
13954 model.component('comp1').physics('H').feature('dode1').setIndex('f', 'RH*H- ↙
(Kb*H*Ci)-phic*H*n*(KH*(c-alpha)+1)', 0);
13955 model.component('comp1').physics('Ctl').feature('dode1').setIndex('f', 'pv*In* ↙
(t>5[d])*(t-5[d])/1[d]-dcl*Ctl+xIL6ctl*IL6RbIL6+KCTL*c', 0);
13956 model.component('comp1').physics('n').feature('dode1').setIndex('f', 'xn*c/ ↙
(1+a/a0)-gam_n*n+xIL6*IL6RbIL6*1000', 0);
13957 model.component('comp1').physics('ma').feature('dode1').setIndex('f', 'xm*c- ↙
gam_n1*ma+xIL6ma*IL6RbIL6', 0);
13958 model.component('comp1').physics('ec').field('dimensionless').component({'ec' ↙
'ec2'});
13959 model.component('comp1').physics('ec').field('dimensionless').component({'ec' ↙
'ec2' 'ec3'});
13960 model.component('comp1').physics('ec').field('dimensionless').component({'ec' ↙
'ec2' 'ec3' 'ec4'});
```

```
13961 model.component('comp1').physics('ec').field('dimensionless').component({'ec' ↙
'ec2' 'ec3' 'ec4' 'ec5'});
13962 model.component('comp1').physics('ec').field('dimensionless').component({'ec' ↙
'ec2' 'ec3' 'ec4' 'ec5' 'ec6'});
13963 model.component('comp1').physics('ec').field('dimensionless').component({'ec' ↙
'ec2' 'ec3' 'ec4' 'ec5' 'ec6' 'ec7'});
13964 model.component('comp1').physics('ec').field('dimensionless').component({'ec' ↙
'ec2' 'ec3' 'ec4' 'ec5' 'ec6' 'ec7' 'ec8'});
13965 model.component('comp1').physics('ec').field('dimensionless').component({'ec' ↙
'ec2' 'ec3' 'ec4' 'ec5' 'ec6' 'ec7' 'ec8' 'ec9'});
13966 model.component('comp1').physics('ec').field('dimensionless').component({'ec' ↙
'ec2' 'ec3' 'ec4' 'ec5' 'ec6' 'ec7' 'ec8' 'ec9' 'ec10'});
13967 model.component('comp1').physics('ec').field('dimensionless').component({'ec' ↙
'ec2' 'ec3' 'ec4' 'ec5' 'ec6' 'ec7' 'ec8' 'ec9' 'ec10'  ...
13968 'ec11'});
13969 model.component('comp1').physics('ec').field('dimensionless').component({'ec' ↙
'ec2' 'ec3' 'ec4' 'ec5' 'ec6' 'ec7' 'ec8' 'ec9' 'ec10'  ...
13970 'ec11' 'ec12'});
13971 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kiec*y5*ec', 1);
13972 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kiec*y62*ec', 2);
13973 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kiec*74*ec', 3);
13974 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kiec*y74*ec', 3);
13975 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kiec*y30*ec', 4);
13976 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kiec*y70*ec', 5);
13977 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kiec*y14*ec', 6);
13978 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kiec*y34*ec', 7);
13979 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kiec*y18*ec', 8);
13980 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kiec*y26*ec', 9);
13981 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kiec*y22*ec', 10);
13982 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kiec*y78*ec', 11);
13983 model.component('comp1').physics('iec').field('dimensionless').component({'iec' ↙
'iec2'});
13984 model.component('comp1').physics('iec').field('dimensionless').component({'iec' ↙
'iec2' 'iec3'});
13985 model.component('comp1').physics('iec').field('dimensionless').component({'iec' ↙
'iec2' 'iec3' 'iec4'});
13986 model.component('comp1').physics('iec').field('dimensionless').component({'iec' ↙
'iec2' 'iec3' 'iec4' 'iec5'});
```

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13987 model.component('comp1').physics('iec').field('dimensionless').component({'iec' ↙
'iec2' 'iec3' 'iec4' 'iec5' 'iec6'});
13988 model.component('comp1').physics('iec').field('dimensionless').component({'iec' ↙
'iec2' 'iec3' 'iec4' 'iec5' 'iec6' 'iec7'});
13989 model.component('comp1').physics('iec').field('dimensionless').component({'iec' ↙
'iec2' 'iec3' 'iec4' 'iec5' 'iec6' 'iec7' 'iec8'});
13990 model.component('comp1').physics('iec').field('dimensionless').component({'iec' ↙
'iec2' 'iec3' 'iec4' 'iec5' 'iec6' 'iec7' 'iec8' 'iec9'});
13991 model.component('comp1').physics('iec').field('dimensionless').component({'iec' ↙
'iec2' 'iec3' 'iec4' 'iec5' 'iec6' 'iec7' 'iec8' 'iec9' 'iec10'});
13992 model.component('comp1').physics('iec').field('dimensionless').component({'iec' ↙
'iec2' 'iec3' 'iec4' 'iec5' 'iec6' 'iec7' 'iec8' 'iec9' 'iec10'  ...
13993 'iec11'});
13994 model.component('comp1').physics('iec').field('dimensionless').component({'iec' ↙
'iec2' 'iec3' 'iec4' 'iec5' 'iec6' 'iec7' 'iec8' 'iec9' 'iec10'  ...
13995 'iec11' 'iec12'});
13996 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kiec*y5*ec', 1);
13997 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kiec*y62*ec', 2);
13998 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kiec*ec*y74', 3);
13999 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kiec*ec*y30', 4);
14000 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kiec*ec*y70', 5);
14001 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kiec*ec*y14', 6);
14002 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kiec*ec*y34', 7);
14003 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kiec*ec*y18', 8);
14004 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kiec*ec*y26', 9);
14005 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kiec*ec*y22', 10);
14006 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kiec*ec*y78', 11);
14007 model.component('comp1').physics('H').feature('dode1').setIndex('f', 'RH*H- ↙
(Kb*H*Ci)-phic*H*n*(KH*(c-alpha1)+1)', 0);
14008 model.component('comp1').physics('CD4').active(false);
14009 model.component('comp1').physics('InCD4').active(false);
14010 model.component('comp1').physics('CD8').active(false);
14011 model.component('comp1').physics('InCD8').active(false);
14012 model.component('comp1').physics('PD1').active(false);
14013 model.component('comp1').physics('PDL1').active(false);
14014 model.component('comp1').physics.create('dode45', 'DomainODE', {'u44'});
14015
14016 model.study('std1').feature('param').activate('dode45', true);
14017 model.study('std1').feature('time').activate('dode45', true);
```

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14018
14019 model.component('comp1').physics('dode45').field('dimensionless').component(1, ↙
'TN');
14020 model.component('comp1').physics('dode45').feature('dode1').setIndex('f', 'STN- ↙
hTE*TN*(As/(1+As))*(c/(1+c))*(KT/(KT+PD1bPDL1))', 0);
14021 model.component('comp1').physics('PD1BPDL1').field('dimensionless').component(1, ↙
'PD1bPDL1');
14022 model.component('comp1').physics('PD1BPDL1').feature('dode1').setIndex('f', ↙
'aPL*PD1*PDL1-dQ*PD1bPDL1', 0);
14023 model.component('comp1').physics('PD1BPDL1').tag('PD1bPDL1');
14024 model.component('comp1').physics('dode45').feature('dode1').setIndex('f', 'STN- ↙
hTE*TN*(As/(1+As))*(c/(1+c))*(KT/(KT+PD1bPDL1))-dTN*TN', 0);
14025 model.component('comp1').physics.create('dode46', 'DomainODE', {'u45'});
14026
14027 model.study('std1').feature('param').activate('dode46', true);
14028 model.study('std1').feature('time').activate('dode46', true);
14029
14030 model.component('comp1').physics('dode46').feature('dode1').setIndex('f', ↙
'hTE*TN*(As/(1+As))*(c/(1+c))*(KT/(KT+PD1bPDL1))-eTE*TE*PD1bPDL1/As', 0);
14031 model.component('comp1').physics.create('dode47', 'DomainODE', {'u46'});
14032
14033 model.study('std1').feature('param').activate('dode47', true);
14034 model.study('std1').feature('time').activate('dode47', true);
14035
14036 model.component('comp1').physics('dode45').tag('NaiveTcell');
14037 model.component('comp1').physics('dode46').tag('ActivatedTcell');
14038 model.component('comp1').physics('ActivatedTcell').field('dimensionless'). ↙
component(1, 'TE');
14039 model.component('comp1').physics('dode47').tag('PDL_1');
14040 model.component('comp1').physics('PDL_1').field('dimensionless').component(1, ↙
'u46');
14041 model.component('comp1').physics.remove('PDL1');
14042 model.component('comp1').physics('PDL_1').field('dimensionless').component(1, ↙
'PDL1');
14043 model.component('comp1').physics('PDL_1').feature('dode1').setIndex('f', '((elH- ↙
dH)*H+(elEC-dEC)*EC+(elIn-dIn)*In)*PDL1/(H+EC+In)+hPDL1*TE', 0);
14044 model.component('comp1').physics.create('dode45', 'DomainODE', {'u41'});
14045
14046 model.study('std1').feature('param').activate('dode45', true);
14047 model.study('std1').feature('time').activate('dode45', true);
14048
14049 model.component('comp1').physics.remove('PD1');
14050 model.component('comp1').physics('dode45').tag('PD1');
14051 model.component('comp1').physics('PD1').field('dimensionless').component(1, ↙
'PD1');
14052 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', '((eTE- ↙
dTE)*TE+(elTN-dTN)*TN+(eln-dn)*n+(elma-dma)*ma)*PDL1/(TE+TN+n+ma)-mPD1*antiPD1', 0);
14053 model.component('comp1').physics('NaiveTcell').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
14054 model.component('comp1').physics('NaiveTcell').prop('Units').set ↙
```

```
('DependentVariableQuantity', 'none');
14055 model.component('comp1').physics('NaiveTcell').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'g/cm^3', 0, 0);
14056 model.component('comp1').physics('NaiveTcell').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'g/cm^3/s', 0, 0);
14057 model.component('comp1').physics('ActivatedTcell').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
14058 model.component('comp1').physics('ActivatedTcell').prop('Units').set ↙
('DependentVariableQuantity', 'none');
14059 model.component('comp1').physics('ActivatedTcell').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'g/cm^3', 0, 0);
14060 model.component('comp1').physics('ActivatedTcell').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'g/cm^3/s', 0, 0);
14061 model.component('comp1').physics('PDL_1').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
14062 model.component('comp1').physics('PDL_1').prop('Units').set ↙
('DependentVariableQuantity', 'none');
14063 model.component('comp1').physics('PDL_1').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'g/cm^3', 0, 0);
14064 model.component('comp1').physics('PDL_1').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'g/cm^3/s', 0, 0);
14065 model.component('comp1').physics('PD1').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
14066 model.component('comp1').physics('PD1').prop('Units').set ↙
('DependentVariableQuantity', 'none');
14067 model.component('comp1').physics('PD1').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'g/cm^3', 0, 0);
14068 model.component('comp1').physics('PD1').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'g/cm^3/s', 0, 0);
14069
14070 model.component('comp1').variable('var1').set('dAT1R', '2.4e-8[1/s]/100');
14071 model.component('comp1').variable('var1').set('dAT2R', '2.4e-8[1/s]/100');
14072 model.component('comp1').variable('var1').set('dMAsR', '2.4e-8[1/s]/100');
14073 model.component('comp1').variable('var1').set('dAT4R', '2.4e-8[1/s]/100');
14074 model.component('comp1').variable('var1').set('dIL6R', '2.4e-8[1/s]/100');
14075 model.component('comp1').variable('var1').set('dVEGF', '2.4e-8[1/s]/100');
14076 model.component('comp1').variable('var1').set('dsACE2', '2.4e-8[1/s]/100');
14077 model.component('comp1').variable('var1').set('dTN', '2.4e-8[1/s]/100');
14078 model.component('comp1').variable('var1').set('KH', '0.02554[ml/pg]');
14079 model.component('comp1').variable('var1').set('alpha1', '0.0025[pg/ml]');
14080 model.component('comp1').variable('var1').set('KcIL6R', '0.03[ml/h/fmol]');
14081 model.component('comp1').variable('var1').set('KcEC', '1[1]');
14082 model.component('comp1').variable('var1').set('KcH', '1[1]');
14083
14084 model.component('comp1').physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c-KAT1RMAsR*MAsR*1[pg/fmol]-KAT1RAT2R*AT2R*1 ↙
[pg/fmol]+KcIL6R*sIL6RbIL6*(KcEC*ec+KcH*H)', 0);
14085 model.component('comp1').physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c-KAT1RMAsR*MAsR*1[pg/fmol]-KAT1RAT2R*AT2R*1 ↙
[pg/fmol]', 0);
```

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14086 model.component('comp1').physics('c').feature('dode1').setIndex('f', '(Sc/V0) ↙
*Vint+SAT1R*AT1bAngII+Sn*(n+ma+In)-dc*c-KAT1RMAsR*MAsR*1[pg/fmol]-KAT1RAT2R*AT2R*1 ↙
[pg/fmol]+KcIL6R*sIL6RbIL6*(KcEC*ec+KcH*H)', 0);
14087
14088 model.component('comp1').variable('var1').set('KcEC', '1[pg]');
14089 model.component('comp1').variable('var1').set('KcH', '1[pg]');
14090 model.component('comp1').variable('var1').set('KCTL', '5.22[1/h/pg]');
14091 model.component('comp1').variable('var1').set('ToCell', ↙
'H/H0+In/H0+c/c0+n/n0+ma/ma0');
14092 model.component('comp1').variable('var1').set('KIL6TN', '0.02554[mol/pg/s]');
14093 model.component('comp1').variable('var1').set('KIL6In', '0.02554[mol/s]');
14094 model.component('comp1').variable('var1').set('KIL6IEC', '0.02554[mol/s]');
14095 model.component('comp1').variable('var1').set('KIL6TE', '0.02554[mol/pg/s]');
14096
14097 model.component('comp1').physics('IL6').feature('dode1').setIndex('f', ↙
'KIL6*ma*Ci-gam_IL6*IL6-KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6+KoffsIL6R*sIL6RbIL6- ↙
KonsIL6R*sIL6R*IL6+KIL6TN*TN+KIL6IEC*IEC+KIL6TE*TE', 0);
14098 model.component('comp1').physics('IL6').feature('dode1').setIndex('f', ↙
'KIL6*ma*Ci-gam_IL6*IL6-KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6+KoffsIL6R*sIL6RbIL6- ↙
KonsIL6R*sIL6R*IL6+KIL6TN*TN+KIL6IEC*iec+KIL6TE*TE', 0);
14099 model.component('comp1').physics('VEGF').feature('dode1').setIndex('f', ↙
'SVEGF+KVEGF*sIL6RbIL6-dVEGF*VEGF+KVEGF1*(100-SPb)', 0);
14100
14101 model.component('comp1').variable('var1').set('KVEGF1', '0.0152[mol/ml/h]');
14102 model.component('comp1').variable('var1').set('STN', '0.235[pg/ml/h]');
14103 model.component('comp1').variable('var1').set('hTE', '0.00254[pg/ml/h]');
14104 model.component('comp1').variable('var1').set('As', '1[1]');
14105
14106 model.component('comp1').physics('NaiveTcell').feature('dode1').setIndex('f', ↙
'STN', 0);
14107 model.component('comp1').physics('NaiveTcell').feature('dode1').setIndex('f', ↙
'STN-hTE*TN*(As/(1+As))*(c/(1+c))*(KT/(KT+PD1bPDL1))', 0);
14108 model.component('comp1').physics('NaiveTcell').feature('dode1').setIndex('f', ↙
'STN-hTE*TN*(As/(1+As))*(c/(1+c))*(KT/(KT+PD1bPDL1))-dTN*TN', 0);
14109 model.component('comp1').physics('NaiveTcell').feature('dode1').setIndex('da', ↙
'hTE*TN*(As/(1+As))*(c/(1+c))*(KT/(KT+PD1bPDL1))', 0);
14110 model.component('comp1').physics('NaiveTcell').feature('dode1').setIndex('da', 1, ↙
0);
14111 model.component('comp1').physics('NaiveTcell').feature('dode1').setIndex('da', ↙
'(c/(1+c)', 0);
14112 model.component('comp1').physics('NaiveTcell').feature('dode1').setIndex('da', ↙
'(c/(1+c))', 0);
14113 model.component('comp1').physics('NaiveTcell').feature('dode1').setIndex('da', 1, ↙
0);
14114
14115 model.component('comp1').variable('var1').set('hTE', '0.00254[1/h]');
14116 model.component('comp1').variable('var1').set('eTE', '0.01575[cm^3/g/s]');
14117 model.component('comp1').variable('var1').set('elH', '0.154[pg/s]');
14118 model.component('comp1').variable('var1').set('dH', '0.00215[pg/s]');
14119 model.component('comp1').variable('var1').set('elEC', '0.154[pg/s]');
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14120 model.component('comp1').variable('var1').set('dEC', '0.00215[pg/s]');
14121 model.component('comp1').variable('var1').set('elIn', '0.154[pg/s]');
14122 model.component('comp1').variable('var1').set('dIn', '0.00215[pg/s]');
14123
14124 model.component('comp1').physics('PDL_1').feature('dode1').setIndex('f', '((elH- ↙
dH)*H+(elEC-dEC)*ec+(elIn-dIn)*In)*PDL1/(H+ec+In)+hPDL1*TE', 0);
14125 model.component('comp1').physics('PDL_1').feature('dode1').setIndex('f', '((elH- ↙
dH)*H+(elEC-dEC)*ec+(elIn-dIn)*In)', 0);
14126 model.component('comp1').physics('PDL_1').feature('dode1').setIndex('f', '((elH- ↙
dH)*H+(elEC-dEC)*ec+(elIn-dIn)*In)*PDL1/(H+ec+In)+hPDL1*TE', 0);
14127
14128 model.component('comp1').variable('var1').set('elH', '0.154[1/s]');
14129 model.component('comp1').variable('var1').set('dH', '0.00215[1/s]');
14130 model.component('comp1').variable('var1').set('elEC', '0.154[1/s]');
14131 model.component('comp1').variable('var1').set('dEC', '0.00215[1/s]');
14132 model.component('comp1').variable('var1').set('elIn', '0.154[1/s]');
14133 model.component('comp1').variable('var1').set('dIn', '0.00215[1/s]');
14134
14135 model.component('comp1').physics('PDL_1').feature('dode1').setIndex('f', '((elH- ↙
dH)*H+(elEC-dEC)*ec+(elIn-dIn)*In)*PDL1/(H+ec+In)', 0);
14136 model.component('comp1').physics('PDL_1').feature('dode1').setIndex('f', '((elH- ↙
dH)*H+(elEC-dEC)*ec+(elIn-dIn)*In)*PDL1/(H+ec+In)+hPDL1*TE', 0);
14137
14138 model.component('comp1').variable('var1').set('hPDL1', '0.154[1/s]');
14139
14140 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', '((elTE- ↙
dTE)*TE+(elTN-dTN)*TN+(eln-dn)*n+(elma-dma)*ma)*PDL1/(TE+TN+n+ma)-mPD1*antiPD1', 0);
14141
14142 model.component('comp1').variable('var1').set('elTE', '0.154[1/s/g]');
14143 model.component('comp1').variable('var1').set('dTE', '0.00215[1/s/g]');
14144 model.component('comp1').variable('var1').set('elTN', '0.154[1/s/g]');
14145
14146 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', '((elTE- ↙
dTE)*TE+(elTN-dTN)*TN)', 0);
14147 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', '((elTE- ↙
dTE)*TE+(elTN-dTN*1[1/g])*TN)', 0);
14148 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', '((elTE- ↙
dTE)*TE+(elTN-dTN*1[1/g])*TN+(eln-dn)*n+(elma-dma)*ma)*PDL1/(TE+TN+n+ma)-mPD1*antiPD1', ↙
0);
14149
14150 model.component('comp1').variable('var1').set('elN', '0.154[1/s]');
14151 model.component('comp1').variable('var1').set('elma', '0.154[1/s]');
14152 model.component('comp1').variable('var1').rename('elN', 'eln');
14153 model.component('comp1').variable('var1').set('dn', '0.00215[1/s]');
14154 model.component('comp1').variable('var1').set('dma', '0.00215[1/s]');
14155
14156 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', '((elTE- ↙
dTE)*TE+(elTN-dTN*1[1/g])*TN+(eln-dn)*n+(elma-dma)*ma)*PDL1/(TE*1[1/g]+TN*1[1/g]+n+ma)- ↙
mPD1*antiPD1', 0);
14157 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', '((elTE- ↙
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dTE)*TE+(elTN-dTN*1[1/g])*TN+(eln-dn)*n+(elma-dma)*ma)*PDL1/(TE*1[1/g]+TN*1[1/g] ↙
+n+ma)', 0);
14158 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', '((elTE- ↙
dTE)*TE+(elTN-dTN*1[1/g])*TN+(eln-dn)*n+(elma-dma)*ma)*PDL1/(TE*1[1/g]+TN*1[1/g]+n+ma)- ↙
mPD1*antiPD1', 0);
14159
14160 model.component('comp1').variable('var1').set('mPD1', '0.00215[1/s]');
14161
14162 model.component('comp1').physics('antiPD1').feature('dode1').setIndex('f', 'gA', ↙
0);
14163 model.component('comp1').physics('antiPD1').feature('dode1').setIndex('f', 'gA- ↙
mP*PD1*antiPD1', 0);
14164 model.component('comp1').physics('antiPD1').feature('dode1').setIndex('f', 'gA- ↙
mP*PD1*antiPD1-dA*antiPD1', 0);
14165
14166 model.component('comp1').variable('var23').set('dA', '0.0462[1/d]');
14167
14168 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Ci+phic*H*n-Kin*In-phiT8*T8-phictl*In*Ctl', 0);
14169 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Ci+phic*H*n-Kin*In-phictl*In*Ctl', 0);
14170 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Ci+phic*H*n-Kin*In', 0);
14171 model.component('comp1').physics('In').feature('dode1').setIndex('da', '- ↙
phictl*In*Ctl', 0);
14172 model.component('comp1').physics('In').feature('dode1').setIndex('da', 1, 0);
14173 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Ci+phic*H*n-Kin*In-phictl*In*Ctl', 0);
14174
14175 model.component('comp1').variable('var1').set('phictl', '2.3e-10[ml/h]');
14176
14177 model.label('patient1_New_55_new.mph');
14178
14179 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Kin*In*bin', 0);
14180 model.component('comp1').physics('a').feature('dode1').setIndex('f', ↙
'Kg*phi_a*ma*n+Sang17*MAsbAng17-gam_a*a', 0);
14181
14182 model.result('pg40').run;
14183 model.result('pg41').run;
14184 model.result('pg40').run;
14185 model.result('pg40').run;
14186 model.result('pg40').feature('ptgr2').setIndex('looplevelinput', 'first', 0);
14187 model.result('pg40').feature('ptgr2').setIndex('looplevelinput', 'manual', 0);
14188 model.result('pg40').run;
14189 model.result('pg40').feature('ptgr2').set('expr', 'IL6');
14190 model.result('pg40').run;
14191 model.result('pg40').feature('ptgr2').set('expr', 'TN');
14192 model.result('pg40').run;
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14193 model.result('pg40').run;
14194 model.result('pg40').feature('ptgr2').set('expr', 'TE');
14195 model.result('pg40').run;
14196
14197 model.component('comp1').variable('var1').set('dTE', '0.00215e-3[1/s/g]');
14198
14199 model.result('pg40').run;
14200 model.result('pg40').feature('ptgr2').set('expr', 'PD1bPDL1');
14201 model.result('pg40').run;
14202 model.result('pg40').feature('ptgr2').set('expr', 'PD1');
14203 model.result('pg40').run;
14204
14205 model.component('comp1').variable('var1').set('mPD1', '0.00215e-3[1/s]');
14206
14207 model.result('pg40').run;
14208 model.result('pg40').feature('ptgr2').set('expr', 'PDL1');
14209 model.result('pg40').run;
14210 model.result('pg40').run;
14211 model.result('pg40').feature('ptgr2').set('expr', 'c');
14212 model.result('pg40').run;
14213 model.result('pg40').feature('ptgr2').set('expr', 'In');
14214 model.result('pg40').run;
14215
14216 model.component('comp1').variable('var1').set('dAT1R', '2.4e-8[1/s]*1e-5');
14217 model.component('comp1').variable('var1').set('dAT2R', '2.4e-8[1/s]*1e-5');
14218 model.component('comp1').variable('var1').set('dMAsR', '2.4e-8[1/s]*1e-5');
14219 model.component('comp1').variable('var1').set('dAT4R', '2.4e-8[1/s]*1e-5');
14220 model.component('comp1').variable('var1').set('dIL6R', '2.4e-8[1/s]*1e-5');
14221 model.component('comp1').variable('var1').set('dVEGF', '2.4e-8[1/s]*1e-5');
14222 model.component('comp1').variable('var1').set('dsACE2', '2.4e-8[1/s]*1e-5');
14223 model.component('comp1').variable('var1').set('dTN', '2.4e-8[1/s]*1e-5');
14224 model.component('comp1').variable('var1').set('dH', '0.00215[1/s]*1e-5');
14225 model.component('comp1').variable('var1').set('dEC', '0.00215[1/s]*1e-5');
14226 model.component('comp1').variable('var1').set('dIn', '0.00215[1/s]*1e-5');
14227 model.component('comp1').variable('var1').set('dTE', '0.00215e-3[1/s/g]*1e-5');
14228 model.component('comp1').variable('var1').set('dn', '0.00215[1/s]*1e-5');
14229 model.component('comp1').variable('var1').set('dma', '0.00215[1/s]*1e-5');
14230
14231 model.result('pg40').run;
14232 model.result('pg40').feature('ptgr2').set('expr', 'H');
14233 model.result('pg40').run;
14234
14235 model.component('comp1').variable('var1').set('KH', '0.02554[ml/pg]*1e-10');
14236
14237 model.component('comp1').physics('PD1').prop('ShapeProperty').set('order', 1);
14238 model.component('comp1').physics('PDL_1').prop('ShapeProperty').set('order', 1);
14239 model.component('comp1').physics('ActivatedTcell').prop('ShapeProperty').set ↙
('order', 1);
14240 model.component('comp1').physics('NaiveTcell').prop('ShapeProperty').set('order', ↙
1);
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14241 model.component('comp1').physics('antiPD1').prop('ShapeProperty').set('order', ↙
1);
14242 model.component('comp1').physics('PD1bPDL1').prop('ShapeProperty').set('order', ↙
1);
14243
14244 model.result('pg40').run;
14245
14246 model.component('comp1').variable('var1').set('phic', '2.3e-9[ml/h]*1e-5');
14247 model.component('comp1').variable('var1').set('Kd', '2.4e-8[1/s]*1e-5');
14248
14249 model.component('comp1').physics('H').feature('dode1').setIndex('f', 'RH*H- ↙
(Kb*H*Ci)-phic*H*n*(KH*(c-a)+1)', 0);
14250
14251 model.result('pg40').run;
14252 model.result('pg40').feature('ptgr2').set('expr', 'RH*H-(Kb*H*Ci)-phic*H*n*(KH* ↙
(c-a)+1)');
14253 model.result('pg40').run;
14254 model.result('pg40').feature('ptgr2').set('expr', 'phic*H*n*(KH*(c-a)+1)');
14255 model.result('pg40').run;
14256
14257 model.component('comp1').variable('var1').set('KH', '0.02554[ml/pg]*1e-20');
14258
14259 model.result('pg40').run;
14260 model.result('pg40').feature('ptgr2').set('expr', 'H');
14261 model.result('pg40').run;
14262 model.result('pg40').run;
14263 model.result('pg40').feature('ptgr2').set('expr', 'IL6');
14264 model.result('pg40').run;
14265 model.result('pg40').feature('ptgr2').set('expr', 'IL6R');
14266 model.result('pg40').run;
14267 model.result('pg40').feature('ptgr2').set('expr', 'c');
14268 model.result('pg40').run;
14269 model.result('pg40').feature('ptgr2').set('expr', 'a');
14270 model.result('pg40').run;
14271 model.result('pg40').feature('ptgr2').set('expr', 'ec');
14272 model.result('pg40').run;
14273 model.result('pg40').feature('ptgr2').set('expr', 'iec');
14274 model.result('pg40').run;
14275 model.result('pg40').feature('ptgr2').set('expr', 'In');
14276 model.result('pg40').run;
14277 model.result('pg40').run;
14278 model.result('pg40').feature('ptgr2').set('expr', 'H');
14279 model.result('pg40').run;
14280 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
14281 model.result('pg40').run;
14282 model.result('pg40').feature('ptgr2').set('expr', 'Cb');
14283 model.result('pg40').run;
14284 model.result('pg40').feature('ptgr2').set('expr', 'Vint');
14285 model.result('pg40').run;
14286
```

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14287 model.component('comp1').variable('var1').set('KonACE2V', '17 [ml/h/nmol]');
14288 model.component('comp1').variable('var1').set('bin', '1e6[1]');
14289 model.component('comp1').variable('var1').set('Kin', '(1/24)*1e-6[fmol/h]');
14290 model.component('comp1').variable('var1').set('Kint', '5.78e-1[1/s]');
14291
14292 model.result('pg40').run;
14293 model.result('pg40').run;
14294 model.result('pg40').feature('ptgr2').set('expr', 'Cb');
14295 model.result('pg40').run;
14296 model.result('pg40').run;
14297 model.result('pg40').feature('ptgr2').set('expr', 'Vint');
14298 model.result('pg40').run;
14299 model.result('pg40').run;
14300 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
14301 model.result('pg40').run;
14302 model.result('pg40').feature('ptgr2').set('expr', 'Cb');
14303 model.result('pg40').run;
14304 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
14305 model.result('pg40').run;
14306 model.result('pg40').feature('ptgr2').set('expr', 'Vint');
14307 model.result('pg40').run;
14308 model.result('pg40').feature('ptgr2').set('expr', 'PD1');
14309 model.result('pg40').run;
14310 model.result('pg40').feature('ptgr2').set('expr', 'PDL1');
14311 model.result('pg40').run;
14312
14313 model.component('comp1').physics('NaiveTcell').feature('init1').set('TN', '4e- ↙
3');
14314 model.component('comp1').physics('ActivatedTcell').feature('init1').set('TE', ↙
'2e-3[g/cm^3]');
14315 model.component('comp1').physics('NaiveTcell').feature('init1').set('TN', '4e-3 ↙
[g/cm^3]');
14316
14317 model.sol('sol54').runFromTo('st1', 'v1');
14318
14319 model.result('pg40').run;
14320 model.result('pg40').run;
14321 model.result('pg40').feature('ptgr2').set('expr', 'SPb');
14322 model.result('pg40').run;
14323
14324 model.component('comp1').physics('VEGF').active(false);
14325
14326 model.sol('sol54').runFromTo('st1', 'v1');
14327
14328 model.result('pg40').run;
14329 model.result('pg40').run;
14330 model.result('pg40').feature('ptgr2').set('expr', 'Vint');
14331 model.result('pg40').run;
14332
14333 model.component('comp1').physics('ActivatedTcell').feature('init1').set('TE', ↙
```

```
'2e-6[g/cm^3]');
14334 model.component('comp1').physics('PD1').feature('init1').set('PD1', '11.2e-10 ↙
[g/cm^3]');
14335
14336 model.result('pg40').run;
14337
14338 model.component('comp1').physics('NaiveTcell').feature('init1').set('TN', '4e-8 ↙
[g/cm^3]');
14339 model.component('comp1').physics('ActivatedTcell').feature('init1').set('TE', 0);
14340 model.component('comp1').physics('NaiveTcell').feature('init1').set('TN', 0);
14341 model.component('comp1').physics('Ctl').active(false);
14342
14343 model.sol('sol54').runFromTo('st1', 'v1');
14344
14345 model.result('pg40').run;
14346
14347 model.component('comp1').variable('var1').set('Ctl', 'TE');
14348
14349 model.sol('sol54').runFromTo('st1', 'v1');
14350
14351 model.result('pg40').run;
14352
14353 model.sol('sol54').runAll;
14354
14355 model.result('pg40').run;
14356 model.result('pg40').run;
14357 model.result('pg40').run;
14358 model.result('pg40').feature('ptgr2').set('expr', 'TE');
14359 model.result('pg40').run;
14360 model.result('pg40').feature('ptgr2').set('expr', 'TN');
14361 model.result('pg40').run;
14362 model.result('pg40').feature('ptgr2').set('expr', 'TE');
14363 model.result('pg40').run;
14364 model.result('pg40').feature('ptgr2').set('expr', 'TE*1[1/pg]');
14365 model.result('pg40').run;
14366 model.result('pg40').feature('ptgr2').set('unit', '1/L');
14367 model.result('pg40').run;
14368 model.result('pg40').feature('ptgr2').set('expr', 'TE*1[1/ng]');
14369 model.result('pg40').run;
14370 model.result('pg40').feature('ptgr2').set('expr', 'TE*1[1/fg]');
14371 model.result('pg40').run;
14372 model.result('pg40').feature('ptgr2').set('expr', 'TE*1e4[1/fg]');
14373 model.result('pg40').run;
14374
14375 model.component('comp1').variable('var1').set('CD8', 'TE*1e4[1/fg]/1e9');
14376
14377 model.result('pg40').run;
14378 model.result('pg40').feature('ptgr2').set('expr', 'TE*1e4[1/fg]/1e9');
14379 model.result('pg40').run;
14380 model.result('pg40').feature('ptgr2').set('expr', 'TE*0.3e4[1/fg]/1e9');
```

```
14381 model.result('pg40').run;
14382 model.result('pg40').feature('ptgr2').set('expr', 'TE*0.3e4[1/fg]/3e9');
14383 model.result('pg40').run;
14384
14385 model.component('comp1').variable('var1').set('CD8', 'TE*0.3e4[1/fg]/3e9');
14386
14387 model.result('pg40').run;
14388
14389 model.study('std1').feature('time').set('tlist', 'range(0,1,20)');
14390
14391 model.sol('sol54').runAll;
14392
14393 model.result('pg40').run;
14394 model.result('pg40').run;
14395 model.result('pg40').feature('ptgr2').set('expr', 'TE*0.3e4[1/fg]/5e9');
14396 model.result('pg40').run;
14397 model.result('pg40').feature('ptgr2').set('expr', 'TE*0.3e4[1/fg]/6e9');
14398 model.result('pg40').run;
14399 model.result('pg40').feature('ptgr2').set('expr', 'TE*0.3e4[1/fg]/8e9');
14400 model.result('pg40').run;
14401 model.result('pg40').run;
14402 model.result('pg40').run;
14403 model.result('pg40').feature('ptgr2').set('expr', 'TE*0.3e4[1/fg]/9e9');
14404 model.result('pg40').run;
14405 model.result('pg40').feature('ptgr2').set('expr', 'TE*0.2e4[1/fg]/9e9');
14406 model.result('pg40').run;
14407
14408 model.component('comp1').variable('var1').set('CD8', 'TE*0.2e4[1/fg]/9e9');
14409
14410 model.result('pg40').run;
14411 model.result('pg40').feature('ptgr2').set('expr', 'IL6');
14412 model.result('pg40').run;
14413 model.result('pg40').feature('ptgr2').set('expr', 'IL6*23.718[g/mol]');
14414 model.result('pg40').run;
14415 model.result('pg40').feature('ptgr2').set('unit', 'pg/ml');
14416 model.result('pg40').run;
14417 model.result('pg40').feature('ptgr2').set('expr', 'IL6*23.718e-23[g/mol]');
14418 model.result('pg40').run;
14419 model.result('pg40').feature('ptgr2').set('expr', 'IL6*23.718e-23[g/mol]/1.1');
14420 model.result('pg40').run;
14421 model.result('pg40').feature('ptgr2').set('expr', 'IL6*23.718e-23[g/mol]/1.2');
14422 model.result('pg40').run;
14423 model.result('pg40').run;
14424 model.result('pg40').run;
14425 model.result('pg40').run;
14426 model.result('pg40').run;
14427 model.result('pg40').feature('ptgr2').set('expr', 'IL6*23.718e-23[g/mol]/1.15');
14428 model.result('pg40').run;
14429
14430 model.component('comp1').variable('var1').set('IL6_pgml', 'IL6*23.718e-23[g/mol] ↙
```

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/1.15');
14431
14432 model.result('pg40').run;
14433 model.result('pg40').feature('ptgr2').set('expr', 'n');
14434 model.result('pg40').run;
14435 model.result('pg40').feature('ptgr2').set('unit', '1/L');
14436 model.result('pg40').feature('ptgr2').set('expr', 'n/1e9');
14437 model.result('pg40').run;
14438 model.result('pg40').feature('ptgr2').set('expr', 'n/0.9e9');
14439 model.result('pg40').run;
14440 model.result('pg40').feature('ptgr2').set('expr', 'n/0.85e9');
14441 model.result('pg40').run;
14442 model.result('pg40').feature('ptgr2').set('expr', 'n/0.8e9');
14443 model.result('pg40').run;
14444 model.result('pg40').feature('ptgr2').set('expr', 'n/0.75e9');
14445 model.result('pg40').run;
14446 model.result('pg40').feature('ptgr2').set('expr', 'n/0.78e9');
14447 model.result('pg40').run;
14448
14449 model.component('comp1').variable('var1').set('n_L', 'n/0.78e9');
14450
14451 model.result('pg40').run;
14452 model.result('pg40').feature('ptgr2').set('expr', 'a');
14453 model.result('pg40').run;
14454 model.result('pg40').feature('ptgr2').set('unit', 'pg/ml');
14455 model.result('pg40').run;
14456 model.result('pg40').feature('ptgr2').set('expr', 'a/1e9');
14457 model.result('pg40').run;
14458 model.result('pg40').feature('ptgr2').set('expr', 'a/0.9e9');
14459 model.result('pg40').run;
14460 model.result('pg40').feature('ptgr2').set('expr', 'a/1.1e9');
14461 model.result('pg40').run;
14462 model.result('pg40').feature('ptgr2').set('expr', 'a/1.2e9');
14463 model.result('pg40').run;
14464
14465 model.component('comp1').variable('var1').set('IL10', 'a/1.2e9');
14466
14467 model.result('pg40').run;
14468 model.result('pg40').feature('ptgr2').set('expr', 'c');
14469 model.result('pg40').run;
14470 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
14471 model.result('pg40').run;
14472 model.result('pg40').feature('ptgr2').set('expr', 'Cb');
14473 model.result('pg40').run;
14474 model.result('pg40').feature('ptgr2').set('expr', 'Vint');
14475 model.result('pg40').run;
14476 model.result('pg40').run;
14477 model.result('pg40').feature('ptgr2').set('expr', 'Cb');
14478 model.result('pg40').run;
14479 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
```

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14480 model.result('pg40').run;
14481 model.result('pg40').feature('ptgr2').set('expr', 'Cb');
14482 model.result('pg40').run;
14483
14484 model.component('comp1').physics('Cb').feature('dode1').setIndex('f', ↙
'+KonACE2V*Ci*ACE2-KoffACE2V*Cb-Kd*Cb/100-Kint*Cb-disinfa_lung*Cb', 0);
14485
14486 model.component('comp1').variable('var1').set('KonACE2V', '25 [ml/h/nmol]');
14487 model.component('comp1').variable('var1').set('Kint', '5.78e2[1/s]');
14488
14489 model.sol('sol54').runAll;
14490
14491 model.result('pg40').run;
14492 model.result('pg40').run;
14493 model.result('pg40').feature('ptgr2').set('expr', 'Vint');
14494 model.result('pg40').run;
14495 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
14496 model.result('pg40').run;
14497 model.result('pg40').run;
14498 model.result('pg40').feature('ptgr2').set('expr', 'In');
14499 model.result('pg40').run;
14500 model.result('pg40').feature('ptgr2').set('expr', 'H');
14501 model.result('pg40').run;
14502 model.result('pg40').run;
14503 model.result('pg40').feature('ptgr2').set('expr', '(c-a)');
14504 model.result('pg40').run;
14505 model.result('pg40').run;
14506 model.result('pg40').feature('ptgr2').set('expr', 'c');
14507 model.result('pg40').run;
14508 model.result('pg40').feature('ptgr2').set('expr', '1/(c-a)');
14509 model.result('pg40').run;
14510 model.result('pg40').feature('ptgr2').set('expr', '(c-a)');
14511 model.result('pg40').run;
14512 model.result('pg40').feature('ptgr2').set('expr', 'abs(c-a)');
14513 model.result('pg40').run;
14514
14515 model.component('comp1').variable('var1').set('cyto', 'abs(c-a)');
14516
14517 model.result('pg40').run;
14518 model.result('pg40').feature('ptgr2').set('unit', 'pg/ml');
14519 model.result('pg40').run;
14520 model.result('pg40').feature('ptgr2').set('expr', 'abs(c-a)/1e9');
14521 model.result('pg40').run;
14522 model.result('pg40').feature('ptgr2').set('expr', 'abs(c-a)/0.5e9');
14523 model.result('pg40').run;
14524 model.result('pg40').feature('ptgr2').set('expr', 'abs(c-a)/0.1e9');
14525 model.result('pg40').run;
14526
14527 model.component('comp1').variable('var1').set('cyto', 'abs(c-a)/0.1e9');
14528
```

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14529 model.result('pg40').run;
14530 model.result('pg40').feature('ptgr2').set('expr', 'y105');
14531 model.result('pg40').feature('ptgr2').set('unit', 'fmol/ml');
14532 model.result('pg40').run;
14533 model.result('pg40').feature('ptgr2').setIndex('looplevelinput', 'all', 0);
14534 model.result('pg40').run;
14535 model.result('pg40').feature('ptgr2').set('expr', '1/y105');
14536 model.result('pg40').run;
14537 model.result('pg40').feature('ptgr2').set('expr', 'y105');
14538 model.result('pg40').run;
14539 model.result('pg40').feature('ptgr2').set('expr', 'y105*abs(c-a)');
14540 model.result('pg40').run;
14541 model.result('pg40').feature('ptgr2').set('expr', 'y105*abs(c-a)/1[kg/m^3]');
14542 model.result('pg40').run;
14543 model.result('pg40').feature('ptgr2').set('unit', 'fmol/ml');
14544 model.result('pg40').run;
14545 model.result('pg40').feature('ptgr2').set('expr', 'y105*abs(c-a)/1e9[kg/m^3]');
14546 model.result('pg40').run;
14547
14548 model.component('comp1').variable('var1').set('micro_lung', 'y105*abs(c-a)/1e9 ↙
[kg/m^3]');
14549
14550 model.result('pg40').run;
14551 model.result('pg40').feature('ptgr2').set('expr', 'SPb');
14552 model.result('pg40').run;
14553 model.result('pg40').run;
14554 model.result('pg40').run;
14555 model.result('pg40').run;
14556 model.result('pg40').run;
14557 model.result('pg40').run;
14558 model.result('pg40').run;
14559 model.result('pg40').run;
14560 model.result('pg40').run;
14561 model.result('pg40').feature('ptgr2').set('expr', 'Pb');
14562 model.result('pg40').run;
14563 model.result('pg40').run;
14564 model.result('pg40').feature('ptgr2').set('expr', 'IL6');
14565 model.result('pg40').run;
14566 model.result('pg40').feature('ptgr2').set('expr', 'IL6R');
14567 model.result('pg40').run;
14568 model.result('pg40').feature('ptgr2').set('expr', 'sIL6R');
14569 model.result('pg40').run;
14570 model.result('pg40').feature('ptgr2').set('expr', 'PD1');
14571 model.result('pg40').run;
14572 model.result('pg40').feature('ptgr2').set('expr', '1/PD1');
14573 model.result('pg40').run;
14574 model.result('pg40').feature('ptgr2').set('expr', 'PD1');
14575 model.result('pg40').run;
14576 model.result('pg40').feature('ptgr2').set('expr', '60+PD1');
14577 model.result('pg40').run;
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14578 model.result('pg40').feature('ptgr2').set('expr', 'PD1');
14579 model.result('pg40').run;
14580 model.result('pg40').feature('ptgr2').set('expr', '60E-6+PD1');
14581 model.result('pg40').run;
14582 model.result('pg40').feature('ptgr2').set('expr', '60E-6-abs(PD1)');
14583 model.result('pg40').run;
14584 model.result('pg40').run;
14585 model.result('pg40').feature('ptgr2').set('expr', 'ec');
14586 model.result('pg40').run;
14587 model.result('pg40').feature('ptgr2').setIndex('looplevelinput', 'manual', 0);
14588 model.result('pg40').feature('ptgr2').setIndex('looplevel', [1], 0);
14589 model.result('pg40').feature('ptgr2').setIndex('looplevel', [2], 0);
14590 model.result('pg40').feature('ptgr2').setIndex('looplevel', [2 3 4 5 6 7 8 9 10 ↙
11 12 13 14 15 16 17 18 19 20 21], 0);
14591 model.result('pg40').run;
14592 model.result('pg40').feature('ptgr2').setIndex('looplevelinput', 'first', 0);
14593 model.result('pg40').feature('ptgr2').setIndex('looplevelinput', 'all', 0);
14594 model.result('pg40').run;
14595 model.result('pg40').feature('ptgr2').set('expr', '100-Ci');
14596 model.result('pg40').run;
14597 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
14598 model.result('pg40').run;
14599 model.result('pg40').feature('ptgr2').set('expr', 'Ci/0.04');
14600 model.result('pg40').run;
14601 model.result('pg40').feature('ptgr2').set('expr', '100-Ci/0.04*100');
14602 model.result('pg40').run;
14603 model.result('pg40').feature('ptgr2').set('expr', '100-Ci/0.02*100');
14604 model.result('pg40').run;
14605 model.result('pg40').feature('ptgr2').set('expr', '100-Ci/0.2*100');
14606 model.result('pg40').run;
14607 model.result('pg40').feature('ptgr2').set('expr', 'CD8');
14608 model.result('pg40').run;
14609 model.result('pg40').feature('ptgr2').set('expr', 'CD8/120');
14610 model.result('pg40').run;
14611 model.result('pg40').feature('ptgr2').set('expr', '100-CD8/120*100');
14612 model.result('pg40').run;
14613 model.result('pg40').feature('ptgr2').set('expr', '100-CD8/150*100');
14614 model.result('pg40').run;
14615 model.result('pg40').feature('ptgr2').set('expr', '100-CD8/160*100');
14616 model.result('pg40').run;
14617 model.result('pg40').feature('ptgr2').set('expr', '100-CD8/160*100+Ci/0.2*100');
14618 model.result('pg40').run;
14619 model.result('pg40').feature('ptgr2').set('expr', '150-CD8/160*100+Ci/0.2*100');
14620 model.result('pg40').run;
14621 model.result('pg40').feature('ptgr2').set('expr', '97-CD8/160*100+Ci/0.2*100');
14622 model.result('pg40').run;
14623 model.result('pg40').feature('ptgr2').set('expr', '97-CD8/160*100+Ci/0.2*100* ↙
(t>5)');
14624 model.result('pg40').run;
14625 model.result('pg40').feature('ptgr2').set('expr', '97-CD8/160*100+Ci/0.2*100*(t>5 ↙
```

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[d])');
14626 model.result('pg40').run;
14627 model.result('pg40').feature('ptgr2').set('expr', '97-CD8/160*100');
14628 model.result('pg40').run;
14629 model.result('pg40').feature('ptgr2').set('expr', '97-CD8/190*100');
14630 model.result('pg40').run;
14631
14632 model.component('comp1').variable('var1').set('Spo2', '97-CD8/190*100');
14633
14634 model.result('pg40').run;
14635 model.result('pg40').feature('ptgr2').set('expr', '97-CD8/190*100*log(5)');
14636 model.result('pg40').run;
14637 model.result('pg40').feature('ptgr2').set('expr', 'log(5)');
14638 model.result('pg40').run;
14639 model.result('pg40').feature('ptgr2').set('expr', 'log(Ci)');
14640 model.result('pg40').run;
14641 model.result('pg40').feature('ptgr2').set('expr', 'log(1/Ci)');
14642 model.result('pg40').run;
14643 model.result('pg40').feature('ptgr2').set('expr', 'log(CD8)');
14644 model.result('pg40').run;
14645 model.result('pg40').feature('ptgr2').set('expr', 'log(CD8)/4');
14646 model.result('pg40').run;
14647 model.result('pg40').feature('ptgr2').set('expr', 'abs(log(CD8))/4');
14648 model.result('pg40').run;
14649 model.result('pg40').feature('ptgr2').set('expr', 'abs(log(CD8))/6');
14650 model.result('pg40').run;
14651 model.result('pg40').feature('ptgr2').set('expr', 'abs(log(CD8))');
14652 model.result('pg40').run;
14653 model.result('pg40').feature('ptgr2').set('expr', 'abs(log(CD8))/24');
14654 model.result('pg40').run;
14655 model.result('pg40').feature('ptgr2').set('expr', '1-abs(log(CD8))/24');
14656 model.result('pg40').run;
14657 model.result('pg40').feature('ptgr2').set('expr', '100-(1-abs(log(CD8))/24) ↙
*100');
14658 model.result('pg40').run;
14659 model.result('pg40').feature('ptgr2').set('expr', '100-(1-abs(log(CD8))/24)*10');
14660 model.result('pg40').run;
14661 model.result('pg40').feature('ptgr2').setIndex('looplevelinput', 'manual', 0);
14662 model.result('pg40').run;
14663 model.result('pg40').feature('ptgr2').set('expr', '100-(1-abs(log(CD8))/24)*20');
14664 model.result('pg40').run;
14665 model.result('pg40').feature('ptgr2').set('expr', '100-(1-abs(log(CD8))/50)*20');
14666 model.result('pg40').run;
14667 model.result('pg40').feature('ptgr2').setIndex('looplevel', [3], 0);
14668 model.result('pg40').feature('ptgr2').setIndex('looplevel', [3 4 5 6 7 8 9 10 11 ↙
12 13 14 15 16 17 18 19 20 21], 0);
14669 model.result('pg40').run;
14670 model.result('pg40').feature('ptgr2').set('expr', '1/(100-(1-abs(log(CD8))/50) ↙
*20)');
14671 model.result('pg40').run;
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```
14672 model.result('pg40').feature('ptgr2').set('expr', '1/(100-(1-abs(log(CD8))/50)) ↙
*100');
14673 model.result('pg40').run;
14674 model.result('pg40').feature('ptgr2').set('expr', '1/(100-(1-abs(log(CD8)) ↙
/50))');
14675 model.result('pg40').run;
14676 model.result('pg40').feature('ptgr2').set('expr', '1/(1-(1-abs(log(CD8))/50))');
14677 model.result('pg40').run;
14678 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/50))');
14679 model.result('pg40').run;
14680 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/50)) ↙
*1e3');
14681 model.result('pg40').run;
14682 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/50))*0. ↙
8e3');
14683 model.result('pg40').run;
14684 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/50))*0. ↙
9e3');
14685 model.result('pg40').run;
14686 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/50))*0. ↙
89e3');
14687 model.result('pg40').run;
14688 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/50))*0. ↙
88e3');
14689 model.result('pg40').run;
14690 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/40))*0. ↙
88e3');
14691 model.result('pg40').run;
14692 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/20))*0. ↙
88e3');
14693 model.result('pg40').run;
14694 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/10))*0. ↙
88e3');
14695 model.result('pg40').run;
14696 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/2))*0. ↙
88e3');
14697 model.result('pg40').run;
14698 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/0.6)) ↙
*0.88e3');
14699 model.result('pg40').run;
14700 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/0.4)) ↙
*0.88e3');
14701 model.result('pg40').run;
14702 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/0.4)) ↙
*0.9e3');
14703 model.result('pg40').run;
14704 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/0.4)) ↙
*0.99e3');
14705 model.result('pg40').run;
14706 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/0.2)) ↙
```

```
*0.99e3');
14707 model.result('pg40').run;
14708 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/0.2)) ↙
*1.199e3');
14709 model.result('pg40').run;
14710 model.result('pg40').feature('ptgr2').set('expr', '1/(10-(1-abs(log(CD8))/0.2)) ↙
*1.1e3');
14711 model.result('pg40').run;
14712
14713 model.component('comp1').variable('var1').set('Spo2', '1/(10-(1-abs(log(CD8))/0. ↙
2))*1.1e3');
14714
14715 model.result('pg40').run;
14716
14717 model.component('comp1').variable('var1').set('Spo2', '1/(10-(1-abs(log(CD8))/0. ↙
2))*1.1e3');
14718
14719 model.result('pg40').run;
14720 model.result('pg40').feature('ptgr2').setIndex('looplevel', [1], 0);
14721 model.result('pg40').feature('ptgr2').setIndex('looplevel', [1 2 3 4 5 6 7 8 9 10 ↙
11 12 13 14 15 16 17 18 19 20 21], 0);
14722 model.result('pg40').feature('ptgr2').setIndex('looplevelinput', 'all', 0);
14723 model.result('pg40').run;
14724 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
14725 model.result('pg40').run;
14726 model.result('pg40').feature('ptgr2').set('expr', '1/Ci');
14727 model.result('pg40').run;
14728 model.result('pg40').feature('ptgr2').set('expr', 'Vint');
14729 model.result('pg40').run;
14730 model.result('pg40').feature('ptgr2').set('expr', 'Cb');
14731 model.result('pg40').run;
14732 model.result('pg40').feature('ptgr2').set('expr', 'CD8');
14733 model.result('pg40').run;
14734 model.result('pg40').feature('ptgr2').set('expr', 'PD1');
14735 model.result('pg40').run;
14736 model.result('pg40').feature('ptgr2').set('expr', 'abs(PD1)');
14737 model.result('pg40').run;
14738 model.result('pg40').feature('ptgr2').set('expr', 'abs(PD1)+Ci');
14739 model.result('pg40').run;
14740 model.result('pg40').feature('ptgr2').set('expr', 'abs(PD1)+CD8');
14741 model.result('pg40').run;
14742 model.result('pg40').feature('ptgr2').set('expr', 'CD8');
14743 model.result('pg40').run;
14744 model.result('pg40').feature('ptgr2').set('expr', 'CD8+abs(PD1)*1e6');
14745 model.result('pg40').run;
14746 model.result('pg40').feature('ptgr2').set('expr', 'CD8+abs(PD1)*1e8');
14747 model.result('pg40').run;
14748 model.result('pg40').feature('ptgr2').set('expr', 'CD8+abs(PD1)*1e7');
14749 model.result('pg40').run;
14750 model.result('pg40').feature('ptgr2').set('expr', 'CD8');
```

```
14751 model.result('pg40').run;
14752 model.result('pg40').feature('ptgr2').set('expr', 'abs(PD1)*1e7');
14753 model.result('pg40').run;
14754 model.result('pg40').feature('ptgr2').set('expr', 'abs(PD1)*1e6');
14755 model.result('pg40').run;
14756 model.result('pg40').feature('ptgr2').set('expr', 'abs(PD1)*1e6+CD8');
14757 model.result('pg40').run;
14758
14759 model.component('comp1').variable('var1').set('viral_load', 'abs(PD1)*1e6+CD8 ↙
[fmol/ml]');
14760
14761 model.result('pg40').run;
14762
14763 model.sol('sol54').runAll;
14764
14765 model.result('pg40').run;
14766 model.result('pg40').run;
14767 model.result('pg40').run;
14768 model.result('pg40').label('1D Plot ALL');
14769 model.result('pg40').run;
14770 model.result('pg40').run;
14771 model.result('pg40').feature('ptgr2').set('expr', 'CD8');
14772 model.result('pg40').feature('ptgr2').set('unit', '1/uL');
14773 model.result('pg40').run;
14774 model.result('pg40').feature('ptgr2').set('expr', 'CD8/1e9');
14775 model.result('pg40').feature('ptgr2').set('unit', '1/L');
14776 model.result('pg40').run;
14777 model.result('pg40').feature('ptgr2').set('expr', 'CD8');
14778 model.result('pg40').run;
14779 model.result('pg40').run;
14780 model.result.duplicate('pg44', 'pg40');
14781 model.result('pg44').run;
14782 model.result('pg44').label('1D Plot CD8');
14783 model.result('pg40').run;
14784 model.result('pg44').run;
14785 model.result('pg43').run;
14786 model.result('pg41').run;
14787 model.result.remove('pg41');
14788 model.result.remove('pg42');
14789 model.result.remove('pg43');
14790 model.result('pg40').run;
14791 model.result('pg40').feature('ptgr2').set('expr', 'IL6_pgml');
14792 model.result('pg40').feature('ptgr2').set('unit', 'pg/ml');
14793 model.result('pg40').run;
14794 model.result('pg40').run;
14795 model.result.duplicate('pg45', 'pg40');
14796 model.result('pg45').run;
14797 model.result('pg45').label('1D Plot IL6');
14798 model.result('pg45').run;
14799 model.result('pg40').run;
```

```
14800 model.result('pg40').feature('ptgr2').set('expr', 'n_L');
14801 model.result('pg40').feature('ptgr2').set('unit', '1/L');
14802 model.result('pg40').run;
14803 model.result('pg40').feature('ptgr2').setIndex('looplevelinput', 'manual', 0);
14804 model.result('pg40').feature('ptgr2').setIndex('looplevel', [2], 0);
14805 model.result('pg40').feature('ptgr2').setIndex('looplevel', [2 3 4 5 6 7 8 9 10 ↙
11 12 13 14 15 16 17 18 19 20 21], 0);
14806 model.result('pg40').run;
14807 model.result('pg40').run;
14808 model.result.duplicate('pg46', 'pg40');
14809 model.result('pg46').run;
14810 model.result('pg46').label('1D Plot neutrophils');
14811 model.result('pg46').run;
14812 model.result('pg46').run;
14813 model.result('pg40').run;
14814 model.result('pg40').run;
14815 model.result('pg40').feature('ptgr2').setIndex('looplevelinput', 'all', 0);
14816 model.result('pg40').feature('ptgr2').set('expr', 'IL10');
14817 model.result('pg40').run;
14818 model.result('pg40').feature('ptgr2').set('unit', 'pg/ml');
14819 model.result('pg40').run;
14820 model.result('pg40').run;
14821 model.result.duplicate('pg47', 'pg40');
14822 model.result('pg47').run;
14823 model.result('pg47').label('1D Plot IL10');
14824 model.result('pg40').run;
14825 model.result('pg40').run;
14826 model.result('pg40').feature('ptgr2').set('expr', 'cyto');
14827 model.result('pg40').run;
14828 model.result('pg40').run;
14829 model.result.duplicate('pg48', 'pg40');
14830 model.result('pg48').run;
14831 model.result('pg48').label('1D Plot cyto');
14832 model.result('pg48').run;
14833 model.result('pg40').run;
14834 model.result('pg40').feature('ptgr2').set('expr', 'micro_lung');
14835 model.result('pg40').feature('ptgr2').set('unit', 'fmol/ml');
14836 model.result('pg40').run;
14837 model.result('pg40').run;
14838 model.result.duplicate('pg49', 'pg40');
14839 model.result('pg49').run;
14840 model.result('pg49').label('1D Plot microthrombi in lung');
14841 model.result('pg40').run;
14842 model.result('pg40').run;
14843 model.result('pg40').feature('ptgr2').set('expr', 'Spo2');
14844 model.result('pg40').run;
14845 model.result('pg40').feature('ptgr2').setIndex('looplevelinput', 'manual', 0);
14846 model.result('pg40').feature('ptgr2').setIndex('looplevel', [3], 0);
14847 model.result('pg40').feature('ptgr2').setIndex('looplevel', [3 4 5 6 7 8 9 10 11 ↙
12 13 14 15 16 17 18 19 20 21], 0);
```

```
14848 model.result('pg40').run;
14849 model.result('pg40').run;
14850 model.result.duplicate('pg50', 'pg40');
14851 model.result('pg50').run;
14852 model.result('pg50').label('1D Plot SPO2');
14853 model.result('pg50').run;
14854 model.result('pg50').run;
14855 model.result('pg40').run;
14856 model.result('pg40').feature('ptgr2').setIndex('looplevelinput', 'all', 0);
14857 model.result('pg40').feature('ptgr2').set('expr', 'viral_load');
14858 model.result('pg40').run;
14859 model.result('pg40').run;
14860 model.result.duplicate('pg51', 'pg40');
14861 model.result('pg51').run;
14862 model.result('pg51').label('1D Plot viral load');
14863 model.result('pg51').run;
14864 model.result('pg44').run;
14865 model.result('pg44').feature('ptgr2').label('CD8');
14866 model.result('pg46').run;
14867 model.result('pg45').run;
14868 model.result('pg45').feature('ptgr2').label('IL6');
14869 model.result('pg46').run;
14870 model.result('pg46').feature('ptgr2').label('Neutrophils');
14871 model.result('pg46').run;
14872 model.result('pg46').label('1D Plot Neutrophils');
14873 model.result('pg46').run;
14874 model.result('pg47').run;
14875 model.result('pg47').feature('ptgr2').label('IL10');
14876 model.result('pg48').run;
14877 model.result('pg48').feature('ptgr2').label('Cytokines');
14878 model.result('pg49').run;
14879 model.result('pg48').run;
14880 model.result('pg48').run;
14881 model.result('pg48').run;
14882 model.result('pg48').label('1D Plot Cytokines');
14883 model.result('pg49').run;
14884 model.result('pg48').run;
14885 model.result('pg49').run;
14886 model.result('pg49').run;
14887 model.result('pg49').feature('ptgr2').label('microthrombi in lung');
14888 model.result('pg50').run;
14889 model.result('pg50').run;
14890 model.result('pg50').feature('ptgr2').label('SPO2');
14891 model.result('pg51').run;
14892 model.result('pg51').feature('ptgr2').label('Viral Load');
14893
14894 model.label('patient1_basline_severe1.mph');
14895
14896 model.result('pg51').run;
14897
```

```
14898 model.component('comp1').variable('var1').set('KoffACE2AngII', '15.66[1/h]');
14899 model.component('comp1').variable('var1').set('KsACE2', '17[ml/h/nmol]');
14900 model.component('comp1').variable('var1').set('KonACE2V', '17 [ml/h/nmol]');
14901 model.component('comp1').variable('var1').set('Kd', '4.8e-5[1/s]');
14902 model.component('comp1').variable('var1').set('bin', '10[1]');
14903 model.component('comp1').variable('var1').set('Kint', '5.78e-4[1/s]');
14904 model.component('comp1').variable('var1').set('phic', '2.3e-9[ml/h]');
14905
14906 model.label('patient1_basline_severe1.mph');
14907
14908 model.sol('sol54').clearSolutionData;
14909
14910 model.label('Final_basline.mph');
14911
14912 model.component('comp1').variable('var22').set('f105', '(Q_lung*y86-(Q_lung- ↙
L_lung)*y105+mt_lung*ac*Vint/(ACE2+1)*vv_lung+mt_lung*ac*IL6/(IL6+1) ↙
*vv_lung+mt_lung*ac*NETs/(NETs+1)*vv_lung-d_lung*y105*vv_lung+Kcy*(c/(c+1)))/vv_lung');
14913 model.component('comp1').variable('var1').set('ToCell', 'H/H0+ec/ec0');
14914
14915 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Ka', 0);
14916 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Ka*(1-', 0);
14917 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Ka*(1-IF/(Kif-IF)', 0);
14918 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Ka*(1-IF/(Kif+IF)', 0);
14919 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Ka*(1-IF/(Kif+IF))', 0);
14920 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Ka*(1-IF/(Kif+IF))8Vint', 0);
14921 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Ka*(1-IF/(Kif+IF))*Vint', 0);
14922 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint+Kint*Cb-Kin*In*bin-Ka*(1-IF/(Kif+IF))*Vint', 0);
14923 model.component('comp1').physics('H').feature('dode1').setIndex('f', 'RH*H- ↙
(Kb*H*Vint)-phic*H*n*(KH*(c-a)+1)', 0);
14924 model.component('comp1').physics('H').feature('dode1').setIndex('f', 'RH*H- ↙
(Kb*H*Vint)-phic*H*n*(KH*(c-a)+1)+phiCTL', 0);
14925 model.component('comp1').physics('H').feature('dode1').setIndex('f', 'RH*H- ↙
(Kb*H*Vint)-phic*H*n*(KH*(c-a)+1)+phiCTL*In*Te', 0);
14926 model.component('comp1').physics('H').feature('dode1').setIndex('f', 'RH*H- ↙
(Kb*H*Vint)-phic*H*n*(KH*(c-a)+1)+phiCTL*In*TE', 0);
```

```
14927 model.component('comp1').physics('H').feature('dode1').setIndex('f', 'RH*H- ↙
(Kb*H*Vint)-phic*H*n*(KH*(c-a)+1)', 0);
14928 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Vint+phic*H*n-Kin*In-phictl*In*Ctl', 0);
14929 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Vint+phic*H*n-Kin*In-phictl*In*TE', 0);
14930 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-Kin*In-phictl*In*TE', 0);
14931 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl*In*TE', 0);
14932 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)', 0);
14933 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl*In*TE', 0);
14934 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl1*In*TE', 0);
14935 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl*In*TE', 0);
14936
14937 model.component('comp1').variable('var1').set('phictl', '2.3e-10[1/h]/1 ↙
[g/cm^3]');
14938
14939 model.component('comp1').physics('n').feature('dode1').setIndex('f', 'xn*c/ ↙
(1+a/a0)-gam_n*n+xIL6*IL6RbIL6*1000-', 0);
14940 model.component('comp1').physics('n').feature('dode1').setIndex('f', 'xn*c/ ↙
(1+a/a0)-gam_n*n+xIL6*IL6RbIL6*1000', 0);
14941 model.component('comp1').physics('n').feature('dode1').setIndex('f', 'xn*c/ ↙
(1+a/a0)-gam_n*n*()+xIL6*IL6RbIL6*1000', 0);
14942 model.component('comp1').physics('n').feature('dode1').setIndex('f', 'xn*c/ ↙
(1+a/a0)-gam_n*n*(1+)+xIL6*IL6RbIL6*1000', 0);
14943 model.component('comp1').physics('n').feature('dode1').setIndex('f', 'xn*c/ ↙
(1+a/a0)-gam_n*n*(1+bn*Ci/(Ci+1))+xIL6*IL6RbIL6*1000', 0);
14944 model.component('comp1').physics.create('dode45', 'DomainODE', {'u40'});
14945
14946 model.study('std1').feature('param').activate('dode45', true);
14947 model.study('std1').feature('time').activate('dode45', true);
14948
14949 model.component('comp1').physics('dode45').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
14950 model.component('comp1').physics('dode45').prop('Units').set ↙
('DependentVariableQuantity', 'none');
14951 model.component('comp1').physics('dode45').prop('Units').setIndex ↙
('CustomDependentVariableUnit', '1/mm^3', 0, 0);
14952 model.component('comp1').physics('dode45').prop('Units').setIndex ↙
('CustomSourceTermUnit', '1/mm^3/s', 0, 0);
14953 model.component('comp1').physics('dode45').field('dimensionless').field('NETs');
14954 model.component('comp1').physics('dode45').field('dimensionless').component(1, ↙
'NETs');
14955 model.component('comp1').physics('dode45').feature('dode1').setIndex('f', ↙
'gam_n*n*(1+bn*Ci/(Ci+1))-dNETs*NETs', 0);
```

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14956 model.component('comp1').physics('NaiveTcell').feature('dode1').setIndex('f', ↙
'STN-hTE*TN*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-dTN*TN', 0);
14957 model.component('comp1').physics('ActivatedTcell').feature('dode1').setIndex('f', ↙
'hTE*TN*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-eTE*TE*PD1bPDL1/As', 0);
14958 model.component('comp1').physics('dode45').tag('NETs');
14959 model.component('comp1').physics.create('dode46', 'DomainODE', {'u40'});
14960
14961 model.study('std1').feature('param').activate('dode46', true);
14962 model.study('std1').feature('time').activate('dode46', true);
14963
14964 model.component('comp1').physics('dode46').identifier('dode46');
14965 model.component('comp1').physics('dode46').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
14966 model.component('comp1').physics('dode46').prop('Units').set ↙
('DependentVariableQuantity', 'none');
14967 model.component('comp1').physics('dode46').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'g/cm^3', 0, 0);
14968 model.component('comp1').physics('dode46').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'g/cm^3/s', 0, 0);
14969 model.component('comp1').physics('dode46').field('dimensionless').field('IF');
14970 model.component('comp1').physics('dode46').field('dimensionless').component(1, ↙
'IF');
14971 model.component('comp1').physics('dode46').feature('dode1').setIndex('f', 'aIF* ↙
(iec)', 0);
14972 model.component('comp1').physics('dode46').feature('dode1').setIndex('f', 'iec', ↙
0);
14973 model.component('comp1').physics('dode46').feature('dode1').setIndex('f', 'aIF* ↙
(iec+In)-dIF*IF', 0);
14974 model.component('comp1').physics('dode46').tag('IF');
14975 model.component('comp1').physics('IF').feature('dode1').setIndex('da', 'iec+In', ↙
0);
14976
14977 model.component('comp1').variable('var1').set('aIF', '2.1e-2[pg/h]');
14978 model.component('comp1').variable('var1').set('dIF', '8.3e-1[1/h]');
14979 model.component('comp1').variable('var1').set('bn', '1[1]');
14980 model.component('comp1').variable('var1').set('dNETs', '8.3e-1[1/h]');
14981 model.component('comp1').variable('var1').set('Kif', '8.3e-1[1/h]');
14982
14983 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint+Kint*Cb-Kin*In*bin', 0);
14984 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint+Kint*Cb-Kin*In*bin-Ka*(1-IF/(Kif+IF))*Vint', 0);
14985 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint+Kint*Cb-Kin*In*bin-Ka*Vint', 0);
14986 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint+Kint*Cb-Kin*In*bin-Ka*(1-IF/(Kif+IF))*Vint', 0);
14987
14988 model.component('comp1').variable('var1').set('Kif', '2.1e-2[pg/h]');
14989
14990 model.sol('sol54').runFromTo('st1', 'v1');
```

```
14991
14992 model.result('pg40').run;
14993
14994 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung/kk*Vint+Kint*Cb-Kin*In*bin-Ka*Vint', 0);
14995
14996 model.result('pg40').run;
14997 model.result('pg40').run;
14998 model.result('pg40').feature('ptgr2').set('expr', '(1-IF/(Kif+IF))');
14999 model.result('pg40').run;
15000 model.result('pg40').run;
15001
15002 model.component('comp1').physics('IF').feature('dode1').setIndex('da', 1, 0);
15003
15004 model.sol('sol54').runFromTo('st1', 'v1');
15005
15006 model.result('pg40').run;
15007 model.result('pg40').run;
15008 model.result('pg40').feature('ptgr2').set('expr', 'IF/(Kif+IF)');
15009 model.result('pg40').run;
15010 model.result('pg40').run;
15011 model.result('pg40').feature('ptgr2').set('expr', 'IF');
15012
15013 model.sol('sol54').runFromTo('st1', 'v1');
15014
15015 model.result('pg40').run;
15016 model.result('pg40').run;
15017
15018 model.component('comp1').physics('ActivatedTcell').feature('dode1').setIndex ↙
('da', 'IF/(Kif+IF)', 0);
15019 model.component('comp1').physics('ActivatedTcell').feature('dode1').setIndex ↙
('da', '(Kif+IF)', 0);
15020 model.component('comp1').physics('ActivatedTcell').feature('dode1').setIndex ↙
('da', 1, 0);
15021 model.component('comp1').physics('ActivatedTcell').feature('dode1').setIndex('f', ↙
'hTE*TN*(As/(1+As))*(c/(1+c))*(IF/(Kif1+IF))*(KT/(KT+PD1bPDL1))-eTE*TE*PD1bPDL1/As', ↙
0);
15022 model.component('comp1').physics('ActivatedTcell').feature('dode1').setIndex('f', ↙
'hTE*TN*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-eTE*TE*PD1bPDL1/As', 0);
15023
15024 model.result('pg40').run;
15025 model.result('pg40').feature('ptgr2').set('expr', 'Kif');
15026
15027 model.component('comp1').variable('var1').set('Kif', '0.0025[pg/ml]');
15028
15029 model.sol('sol54').runFromTo('st1', 'v1');
15030
15031 model.result('pg40').run;
15032 model.result('pg40').run;
15033 model.result('pg40').feature('ptgr2').set('expr', 'IF');
```

```
15034 model.result('pg40').run;
15035 model.result('pg40').feature('ptgr2').set('expr', 'Vint');
15036 model.result('pg40').run;
15037 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
15038 model.result('pg40').run;
15039 model.result('pg40').run;
15040
15041 model.sol('sol54').runFromTo('st1', 'v1');
15042
15043 model.result('pg40').run;
15044
15045 model.label('Final_basline.mph');
15046
15047 model.result('pg40').run;
15048
15049 model.sol('sol54').runAll;
15050
15051 model.result('pg40').run;
15052 model.result('pg40').run;
15053
15054 model.label('Final_basline_solution.mph');
15055
15056 model.result('pg40').run;
15057
15058 model.sol('sol54').clearSolutionData;
15059
15060 model.label('Voutouri C et al_basline.mph');
15061
15062 model.result('pg40').run;
15063
15064 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Ka*(1-IF/(Kif+IF))*Vint-Kv*Ci*A', 0);
15065 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Ka*(1-IF/(Kif+IF))*Vint-Ci*A', 0);
15066 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci+Ka*(1-IF/(Kif+IF))*Vint-Kv*Ci*A', 0);
15067
15068 model.component('comp1').variable('var1').set('Kv', '4e-3 [1/d]');
15069 model.component('comp1').variable('var1').set('A', '110.2');
15070 model.component('comp1').variable('var1').remove('A');
15071
15072 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl*In*TE-Kf', 0);
15073 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl*In*TE-Kf1*In*IF', 0);
15074
15075 model.component('comp1').variable('var1').set('Kif1', '4.2 [1/d/g/cm^3]');
```

```
15076
15077 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl*In*TE-Kif1*In*IF', 0);
15078
15079 model.component('comp1').variable('var1').set('Kif1', '4.2 [cm^3/d/g]');
15080
15081 model.component('comp1').physics.create('dode45', 'DomainODE', {'u40'});
15082
15083 model.study('std1').feature('param').activate('dode45', true);
15084 model.study('std1').feature('time').activate('dode45', true);
15085
15086 model.component('comp1').physics('dode45').tag('DC');
15087 model.component('comp1').physics('DC').prop('Units').setIndex ↙
('CustomSourceTermUnit', '1/s', 0, 0);
15088 model.component('comp1').physics('DC').prop('ShapeProperty').set('order', 1);
15089 model.component('comp1').physics('DC').field('dimensionless').component(1, 'DC');
15090 model.component('comp1').physics('DC').field('dimensionless').field('DC');
15091 model.component('comp1').physics('DC').feature('dode1').setIndex('f', 'SDC- ↙
bD*DC*V-dDC*DC', 0);
15092 model.component('comp1').physics.create('dode45', 'DomainODE', {'u47'});
15093
15094 model.study('std1').feature('param').activate('dode45', true);
15095 model.study('std1').feature('time').activate('dode45', true);
15096
15097 model.component('comp1').physics('dode45').field('dimensionless').field('u47');
15098 model.component('comp1').physics('dode45').field('dimensionless').field('u47');
15099 model.component('comp1').physics('dode45').field('dimensionless').field('DCi');
15100 model.component('comp1').physics('dode45').field('dimensionless').component(1, ↙
'DCi');
15101 model.component('comp1').physics('dode45').tag('DCi');
15102 model.component('comp1').physics('DCi').prop('Units').setIndex ↙
('CustomSourceTermUnit', '1/s', 0, 0);
15103 model.component('comp1').physics('DCi').prop('ShapeProperty').set('order', 1);
15104 model.component('comp1').physics('DCi').feature('dode1').setIndex('f', 'bD- ↙
DC*Ci', 0);
15105 model.component('comp1').physics('DC').feature('dode1').setIndex('f', 'SDC- ↙
bD*DC*Ci-dDC*DC', 0);
15106 model.component('comp1').physics('DCi').feature('dode1').setIndex('f', 'bD*DC*Ci- ↙
dDCi*Dci', 0);
15107 model.component('comp1').physics('DCi').feature('dode1').setIndex('f', 'bD*DC*Ci- ↙
dDCi*DCi', 0);
15108
15109 model.component('comp1').variable('var1').set('bD', '1e-2 [M/d]');
15110 model.component('comp1').variable('var1').set('dDC', '1e-3 [1/d]');
15111 model.component('comp1').variable('var1').set('dDCi', '2.9 [1/d]');
15112 model.component('comp1').variable('var1').set('SDC', 'dD*D0');
15113 model.component('comp1').variable('var1').set('D0', '1e3');
15114 model.component('comp1').variable('var1').set('SDC', 'dDC*D0');
15115 model.component('comp1').variable('var1').set('bD', '1e-2 [1/d/M]');
15116
```

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15117 model.component('comp1').physics.create('dode46', 'DomainODE', {'u40'});
15118
15119 model.study('std1').feature('param').activate('dode46', true);
15120 model.study('std1').feature('time').activate('dode46', true);
15121
15122 model.component('comp1').physics('dode46').identifier('dode46');
15123 model.component('comp1').physics('dode46').tag('ThN');
15124 model.component('comp1').physics('ThN').prop('Units').setIndex↙
('CustomSourceTermUnit', '1/s', 0, 0);
15125 model.component('comp1').physics('ThN').field('dimensionless').field('ThN');
15126 model.component('comp1').physics('ThN').field('dimensionless').component(1, ↙
'ThN');
15127 model.component('comp1').physics('ThN').feature('dode1').setIndex('f', 'STN', 0);
15128 model.component('comp1').physics('ThN').feature('dode1').setIndex('f', 'STN-', ↙
0);
15129 model.component('comp1').physics('ThN').feature('dode1').setIndex('f', 'STN- ↙
hTE*ThN*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-dTN*ThN', 0);
15130 model.component('comp1').physics('ThN').feature('dode1').setIndex('f', 'hTE*ThN* ↙
(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-dTN*ThN', 0);
15131 model.component('comp1').physics('ThN').feature('dode1').setIndex('f', 'SThN- ↙
hTE*ThN*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-dTN*ThN', 0);
15132
15133 model.component('comp1').variable('var1').set('SThN', 'dThN*ThN0');
15134 model.component('comp1').variable('var1').set('dThN', '0.4[1/d]');
15135 model.component('comp1').variable('var1').set('ThN0', '1e-3');
15136
15137 model.component('comp1').physics('ThN').feature('dode1').setIndex('f', 'SThN- ↙
hTE*ThN*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-dThN*ThN', 0);
15138 model.component('comp1').physics.create('dode45', 'DomainODE', {'u40'});
15139
15140 model.study('std1').feature('param').activate('dode45', true);
15141 model.study('std1').feature('time').activate('dode45', true);
15142
15143 model.component('comp1').physics('dode45').tag('ThE');
15144 model.component('comp1').physics('ThE').prop('Units').setIndex↙
('CustomSourceTermUnit', '1/s', 0, 0);
15145 model.component('comp1').physics('ThE').field('dimensionless').field('ThE');
15146 model.component('comp1').physics('ThE').field('dimensionless').component(1, ↙
'ThE');
15147 model.component('comp1').physics('ThE').feature('dode1').setIndex('f', 'hTE*ThN* ↙
(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))+rN*ThE*(As/(1+As))*(c/(1+c))* ↙
(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))', 0);
15148 model.component('comp1').physics('ThE').feature('dode1').setIndex('f', 'hTE*ThN* ↙
(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))+rN*ThE*(As/(1+As))*(c/(1+c))* ↙
(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-eTE*ThE*PD1bPDL1/As', 0);
15149 model.component('comp1').physics('ThE').feature('dode1').setIndex('f', ↙
'hTE*DCi*ThN*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))+rN*ThE*(As/(1+As))* ↙
(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-eTE*ThE*PD1bPDL1/As', 0);
15150 model.component('comp1').physics('ThE').feature('dode1').setIndex('f', ↙
'hTE*DCi*ThN*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))', 0);
```

```
15151 model.component('comp1').physics('ThE').feature('dode1').setIndex('f', ↙
'hTE*DCi*ThN*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))+rN*ThE*(As/(1+As))* ↙
(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-eTE*ThE*PD1bPDL1/As', 0);
15152
15153 model.component('comp1').variable('var1').set('rN', 'hTE');
15154
15155 model.component('comp1').physics.create('dode45', 'DomainODE', {'u40'});
15156
15157 model.study('std1').feature('param').activate('dode45', true);
15158 model.study('std1').feature('time').activate('dode45', true);
15159
15160 model.component('comp1').physics('dode45').tag('TN');
15161 model.component('comp1').physics('TN').prop('Units').setIndex ↙
('CustomSourceTermUnit', '1/s', 0, 0);
15162 model.component('comp1').physics('TN').field('dimensionless').field('TN');
15163 model.component('comp1').physics('TN').field('dimensionless').component(1, ↙
'u40');
15164 model.component('comp1').physics('NaiveTcell').field('dimensionless').component ↙
(1, 'TN1');
15165 model.component('comp1').physics('TN').field('dimensionless').component(1, 'TN');
15166 model.component('comp1').physics('TN').feature('dode1').setIndex('f', 'STN- ↙
hTE*DCi*TN*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-dTN*TN', 0);
15167
15168 model.component('comp1').variable('var1').rename('STN', 'STN1');
15169 model.component('comp1').variable('var1').set('STN', 'dTN*TN0');
15170 model.component('comp1').variable('var1').rename('dTN', 'dTN1');
15171 model.component('comp1').variable('var1').set('dTN', '0.75 [1/d]');
15172 model.component('comp1').variable('var1').set('TN0', '1e3');
15173
15174 model.component('comp1').physics.create('dode45', 'DomainODE', {'u40'});
15175
15176 model.study('std1').feature('param').activate('dode45', true);
15177 model.study('std1').feature('time').activate('dode45', true);
15178
15179 model.component('comp1').physics('dode45').tag('TE');
15180 model.component('comp1').physics('TE').prop('Units').setIndex ↙
('CustomSourceTermUnit', '1/s', 0, 0);
15181 model.component('comp1').physics('TE').field('dimensionless').field('TE');
15182 model.component('comp1').physics('TE').field('dimensionless').component(1, ↙
'u40');
15183 model.component('comp1').physics('ActivatedTcell').field('dimensionless'). ↙
component(1, 'TE1');
15184 model.component('comp1').physics('TE').field('dimensionless').field('TE1');
15185 model.component('comp1').physics('TE').field('dimensionless').field('TE');
15186 model.component('comp1').physics('TE').field('dimensionless').component(1, 'TE');
15187 model.component('comp1').physics('ThN').feature('dode1').setIndex('f', 'SThN- ↙
hTE*DCI*ThN*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-dThN*ThN', 0);
15188 model.component('comp1').physics('ThN').feature('dode1').setIndex('f', 'SThN- ↙
hTE*DCi*ThN*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-dThN*ThN', 0);
15189 model.component('comp1').physics('TE').feature('dode1').setIndex('f', 'hT*DCi*TN* ↙
```

```
(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))+rT*TE*(As/(1+As))*(c/(1+c))*(IF/ ↙
(Kif+IF))*(KT/(KT+PD1bPDL1))-eTE*TE*PD1bPDL1/As', 0);
15190 model.component('comp1').physics('TN').feature('dode1').setIndex('f', 'STN- ↙
hT*DCi*TN*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-dTN*TN', 0);
15191
15192 model.component('comp1').variable('var1').set('hT', 'hTE');
15193 model.component('comp1').variable('var1').set('rT', 'rN');
15194
15195 model.component('comp1').physics('TE').prop('ShapeProperty').set('order', 1);
15196 model.component('comp1').physics('TN').prop('ShapeProperty').set('order', 1);
15197 model.component('comp1').physics('ThE').prop('ShapeProperty').set('order', 1);
15198 model.component('comp1').physics('ThN').prop('ShapeProperty').set('order', 1);
15199 model.component('comp1').physics('IF').prop('ShapeProperty').set('order', 1);
15200 model.component('comp1').physics('NETs').prop('ShapeProperty').set('order', 2);
15201 model.component('comp1').physics('IF').prop('ShapeProperty').set('order', 2);
15202 model.component('comp1').physics('DC').prop('ShapeProperty').set('order', 2);
15203 model.component('comp1').physics('DCi').prop('ShapeProperty').set('order', 2);
15204 model.component('comp1').physics('ThN').prop('ShapeProperty').set('order', 2);
15205 model.component('comp1').physics('ThE').prop('ShapeProperty').set('order', 2);
15206 model.component('comp1').physics('TN').prop('ShapeProperty').set('order', 2);
15207 model.component('comp1').physics('TE').prop('ShapeProperty').set('order', 2);
15208 model.component('comp1').physics.create('dode45', 'DomainODE', {'u40'});
15209
15210 model.study('std1').feature('param').activate('dode45', true);
15211 model.study('std1').feature('time').activate('dode45', true);
15212
15213 model.component('comp1').physics('dode45').tag('BN');
15214 model.component('comp1').physics('BN').prop('Units').setIndex ↙
('CustomSourceTermUnit', '1/s', 0, 0);
15215 model.component('comp1').physics('BN').field('dimensionless').field('BN');
15216 model.component('comp1').physics('BN').field('dimensionless').component(1, 'BN');
15217 model.component('comp1').physics('BN').feature('dode1').setIndex('f', 'SB- ↙
hT*DCi*ThE*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-dB*BN', 0);
15218
15219 model.component('comp1').variable('var1').set('SB', 'STN');
15220 model.component('comp1').variable('var1').set('dB', '2e-3 [1/d]');
15221 model.component('comp1').variable('var1').set('SB', 'B0*dB');
15222 model.component('comp1').variable('var1').set('B0', '1e3');
15223
15224 model.component('comp1').physics.create('dode45', 'DomainODE', {'u40'});
15225
15226 model.study('std1').feature('param').activate('dode45', true);
15227 model.study('std1').feature('time').activate('dode45', true);
15228
15229 model.component('comp1').physics('dode45').tag('BA');
15230 model.component('comp1').physics('BA').prop('Units').setIndex ↙
('CustomSourceTermUnit', '1/s', 0, 0);
15231 model.component('comp1').physics('BA').field('dimensionless').field('BA');
15232 model.component('comp1').physics('BA').field('dimensionless').component(1, 'BA');
15233 model.component('comp1').physics('BA').feature('dode1').setIndex('f', ↙
```

```
'hT*DCi*ThE*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))+rB*ThE*BA-dBA*BA- ↙
pB*BA-pL*ThE*BA', 0);
15234
15235 model.component('comp1').variable('var1').set('rB', '1');
15236 model.component('comp1').variable('var1').set('dBA', '1');
15237 model.component('comp1').variable('var1').set('pS', '1');
15238 model.component('comp1').variable('var1').set('pL', '1');
15239
15240 model.component('comp1').physics('BA').feature('dode1').setIndex('f', ↙
'hT*DCi*ThE*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))+rB*ThE*BA-dBA*BA- ↙
pS*BA-pL*ThE*BA', 0);
15241
15242 model.component('comp1').variable('var1').set('rB', '2e-3 [1/d]');
15243 model.component('comp1').variable('var1').set('dBA', '2e-3 [1/d]');
15244 model.component('comp1').variable('var1').set('rB', '2.6 [1/d]');
15245 model.component('comp1').variable('var1').set('dBA', '0.9 [1/d]');
15246 model.component('comp1').variable('var1').set('pS', '1e-3 [1/d]');
15247 model.component('comp1').variable('var1').set('pL', '8e-9 [1/d]');
15248
15249 model.component('comp1').physics.create('dode45', 'DomainODE', {'u40'});
15250
15251 model.study('std1').feature('param').activate('dode45', true);
15252 model.study('std1').feature('time').activate('dode45', true);
15253
15254 model.component('comp1').physics('dode45').tag('PL');
15255 model.component('comp1').physics('PL').prop('Units').setIndex ↙
('CustomSourceTermUnit', '1/s', 0, 0);
15256 model.component('comp1').physics('PL').field('dimensionless').field('PL');
15257 model.component('comp1').physics('PL').field('dimensionless').component(1, 'PL');
15258 model.component('comp1').physics('PL').feature('dode1').setIndex('f', ↙
'pL*ThE*BA', 0);
15259 model.component('comp1').physics('PL').feature('dode1').setIndex('f', 'pL*ThE*BA- ↙
dL*PL', 0);
15260
15261 model.component('comp1').variable('var1').set('dL', '3e-2 [1/d]');
15262 model.component('comp1').variable('var1').set('dS', '0.1 [1/d]');
15263
15264 model.component('comp1').physics.create('dode45', 'DomainODE', {'u40'});
15265
15266 model.study('std1').feature('param').activate('dode45', true);
15267 model.study('std1').feature('time').activate('dode45', true);
15268
15269 model.component('comp1').physics('dode45').tag('PS');
15270 model.component('comp1').physics('PS').prop('Units').setIndex ↙
('CustomSourceTermUnit', '1/s', 0, 0);
15271 model.component('comp1').physics('PS').field('dimensionless').field('PS');
15272 model.component('comp1').physics('PS').field('dimensionless').component(1, 'PS');
15273 model.component('comp1').physics('PS').feature('dode1').setIndex('f', 'pS*BA', ↙
0);
15274 model.component('comp1').physics('PS').feature('dode1').setIndex('f', 'pS*BA- ↙
```

```
dS*PS', 0);
15275 model.component('comp1').physics.create('dode45', 'DomainODE', {'u40'});
15276
15277 model.study('std1').feature('param').activate('dode45', true);
15278 model.study('std1').feature('time').activate('dode45', true);
15279
15280 model.component('comp1').physics('dode45').tag('A');
15281 model.component('comp1').physics('A').field('dimensionless').field('A');
15282 model.component('comp1').physics('A').field('dimensionless').component(1, 'A');
15283 model.component('comp1').physics('A').prop('Units').setIndex ↙
('CustomSourceTermUnit', '1/s', 0, 0);
15284 model.component('comp1').physics('A').feature('dode1').setIndex('f', ↙
'pAS*PS+pAL*PL-dA*A', 0);
15285
15286 model.component('comp1').variable('var1').set('pAS', '1');
15287 model.component('comp1').variable('var1').set('pAL', '1');
15288 model.component('comp1').variable('var1').set('dA', '1');
15289 model.component('comp1').variable('var1').set('pAS', '0.06 [1/d]');
15290 model.component('comp1').variable('var1').set('pAL', '0.8 [1/d]');
15291 model.component('comp1').variable('var1').set('dA', '0.04 [1/d]');
15292
15293 model.result('pg40').run;
15294
15295 model.component('comp1').physics('A').feature('dode1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*A)/vv_lung+pAS*PS+pAL*PL-dA*A', 0);
15296 model.component('comp1').physics('A').feature('dode1').setIndex('f', '(Q_lung*A- ↙
(Q_lung-L_lung)*A)/vv_lung+pAS*PS+pAL*PL-dA*A', 0);
15297 model.component('comp1').physics.create('dode45', 'DomainODE', {'u40'});
15298
15299 model.study('std1').feature('param').activate('dode45', true);
15300 model.study('std1').feature('time').activate('dode45', true);
15301
15302 model.component('comp1').physics('dode45').tag('y200');
15303 model.component('comp1').physics('y200').field('dimensionless').component(1, ↙
'y200');
15304 model.component('comp1').physics('y200').prop('Units').setIndex ↙
('CustomSourceTermUnit', '1/s', 0, 0);
15305 model.component('comp1').physics('y200').feature('dode1').setIndex('f', 'f200', ↙
0);
15306 model.component('comp1').physics('y200').field('dimensionless').component({'y200' ↙
'u2'});
15307 model.component('comp1').physics('y200').field('dimensionless').component(2, ↙
'y201');
15308 model.component('comp1').physics('y200').field('dimensionless').component({'y200' ↙
'y201' 'u3'});
15309 model.component('comp1').physics('y200').field('dimensionless').component(3, ↙
'y210');
15310 model.component('comp1').physics('y200').field('dimensionless').component(3, ↙
'y202');
15311 model.component('comp1').physics('y200').field('dimensionless').component({'y200' ↙
```

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'y201' 'y202' 'u4'});
15312 model.component('comp1').physics('y200').field('dimensionless').component({'y200' ↙
'y201' 'y202' 'u4' 'u5'});
15313 model.component('comp1').physics('y200').field('dimensionless').component({'y200' ↙
'y201' 'y202' 'u4' 'u5' 'u6'});
15314 model.component('comp1').physics('y200').field('dimensionless').component({'y200' ↙
'y201' 'y202' 'u4' 'u5' 'u6' 'u7'});
15315 model.component('comp1').physics('y200').field('dimensionless').component({'y200' ↙
'y201' 'y202' 'u4' 'u5' 'u6' 'u7' 'u8'});
15316 model.component('comp1').physics('y200').field('dimensionless').component({'y200' ↙
'y201' 'y202' 'u4' 'u5' 'u6' 'u7' 'u8' 'u9'});
15317 model.component('comp1').physics('y200').field('dimensionless').component({'y200' ↙
'y201' 'y202' 'u4' 'u5' 'u6' 'u7' 'u8' 'u9' 'u10'});
15318 model.component('comp1').physics('y200').field('dimensionless').component({'y200' ↙
'y201' 'y202' 'u4' 'u5' 'u6' 'u7' 'u8' 'u9' 'u10'  ...
15319 'u11'});
15320 model.component('comp1').physics('y200').field('dimensionless').component(4, ↙
'y203');
15321 model.component('comp1').physics('y200').field('dimensionless').component(5, ↙
'y204');
15322 model.component('comp1').physics('y200').field('dimensionless').component(6, ↙
'y205');
15323 model.component('comp1').physics('y200').field('dimensionless').component(7, ↙
'y206');
15324 model.component('comp1').physics('y200').field('dimensionless').component(8, ↙
'y207');
15325 model.component('comp1').physics('y200').field('dimensionless').component(9, ↙
'y208');
15326 model.component('comp1').physics('y200').field('dimensionless').component(10, ↙
'y209');
15327 model.component('comp1').physics('y200').field('dimensionless').component(11, ↙
'y210');
15328 model.component('comp1').physics('y200').feature('dode1').setIndex('f', 'f201', ↙
1);
15329 model.component('comp1').physics('y200').feature('dode1').setIndex('f', 'f202', ↙
2);
15330 model.component('comp1').physics('y200').feature('dode1').setIndex('f', 'f203', ↙
3);
15331 model.component('comp1').physics('y200').feature('dode1').setIndex('f', 'f204', ↙
4);
15332 model.component('comp1').physics('y200').feature('dode1').setIndex('f', 'f205', ↙
5);
15333 model.component('comp1').physics('y200').feature('dode1').setIndex('f', 'f206', ↙
6);
15334 model.component('comp1').physics('y200').feature('dode1').setIndex('f', 'f207', ↙
7);
15335 model.component('comp1').physics('y200').feature('dode1').setIndex('f', 'f208', ↙
8);
15336 model.component('comp1').physics('y200').feature('dode1').setIndex('f', 'f209', ↙
9);
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15337 model.component('comp1').physics('y200').feature('dode1').setIndex('f', 'f210', ↙
10);
15338
15339 model.component('comp1').variable('var22').set('f200', '((Q_lung-L_lung)*A- ↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y200-Kay*y5*y200*vv_ventricle)/vv_ventricle');
15340 model.component('comp1').variable('var22').set('Kay', 'Kv');
15341 model.component('comp1').variable('var22').set('f200', '((Q_lung-L_lung)*A- ↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y200-Kay*y5*y200*vv_ventricle)/vv_ventricle');
15342 model.component('comp1').variable('var22').set('asd', 'y10');
15343 model.component('comp1').variable('var22').set('Kay', '1[m^3/mol/d]');
15344 model.component('comp1').variable('var22').remove('asd');
15345 model.component('comp1').variable('var22').set('f201', '((Q_Lnode/8-L_Llung) ↙
*y106+(Q_liver-L_liver)*y202+(Q_Lnode/8-L_Lliver)*y112+((Q_Lnode/8-L_Ltumor)*y113)+ ↙
(Q_tumor-L_tumor)*y104+(Q_Lnode/8-L_LTorso)*y114+(Q_Torso-L_Torso)*y209+(Q_Lnode/8- ↙
L_LUpper_body)*y115+(Q_Upper_body-L_Upper_body)*y210+(Q_Lnode/8-L_LLower_body)*y116+ ↙
(Q_Lower_body-L_Lower_body)*y208+(Q_Lnode/8-L_Lbrain)*y118+(Q_brain-L_brain)*y203+ ↙
(Q_Lnode/8-L_Lkidney)*y120+(Q_kidney-L_kidney)*y205+(Q_Cardiac_vessels- ↙
L_Cardiac_vessels)*y206+(L_Cardiac_vessels*y125*rf_kidney)*heaviside(y125-1e-3*first)+ ↙
(L_lung+L_Llung)*y99*rf_aLlung+(L_liver+L_spleen+L_intestin+L_Lliver) ↙
*y101*rf_aLintestin+(L_tumor+L_Ltumor)*y80*rf_aLtumor+(L_Torso+L_LTorso) ↙
*y89*rf_aLTorso+(L_Upper_body+L_LUpper_body)*y91*rf_aLUpper_body+ ↙
(L_LLower_body+L_Lower_body)*y93*rf_aLLower_body+(L_Lbrain+L_brain)*y95*rf_aLbrain+ ↙
(L_Lkidney+L_kidney)*y97*rf_aLkidney-(Q_lung)*y201*heaviside(y201-1e-3*first) ↙
+Kay*y78*y201*vv_ventricle)/vv_ventricle');
15346 model.component('comp1').variable('var22').set('f202', '((Q_intestin-L_intestin) ↙
*y207+(Q_spleen-L_spleen)*y204+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*200- ↙
(Q_liver-L_liver)*y202-Kay*y15*y202*vv_liver)/vv_liver');
15347 model.component('comp1').variable('var22').set('f203', '(Q_brain*y200-(Q_brain- ↙
L_brain)*y203-Kay*y62*y203*vv_brain)/vv_brain');
15348 model.component('comp1').variable('var22').set('f204', '(Q_spleen*y200-(Q_spleen- ↙
L_spleen)*y204-Kay*y18*y204*vv_brain)/vv_brain');
15349 model.component('comp1').variable('var22').set('f205', '(Q_kidnay*y200-(Q_kidney- ↙
L_kidney)*y205-Kay*y18*y205*vv_kidney)/vv_kidney');
15350 model.component('comp1').variable('var22').set('f204', '(Q_spleen*y200-(Q_spleen- ↙
L_spleen)*y204-Kay*y18*y204*vv_spleen)/vv_spleen');
15351 model.component('comp1').variable('var22').set('f205', '(Q_kidney*y200-(Q_kidney- ↙
L_kidney)*y205-Kay*y70*y205*vv_kidney)/vv_kidney');
15352 model.component('comp1').variable('var22').set('f206', '(Q_Cardiac_vessels*y200- ↙
(Q_Cardiac_vessels-L_Cardiac_vessels)*y206-Kay*y112*y206*vv_Cardiac_vessels) ↙
/vv_Cardiac_vessels');
15353 model.component('comp1').variable('var22').set('f207', '(Q_intestin*y200- ↙
(Q_intestin-L_intestin)*y207-Kay*y30*y207*vv_intestin)/vv_intestin');
15354 model.component('comp1').variable('var22').set('f206', '(Q_Cardiac_vessels*y200- ↙
(Q_Cardiac_vessels-L_Cardiac_vessels)*y206-Kay*y74*y206*vv_Cardiac_vessels) ↙
/vv_Cardiac_vessels');
15355 model.component('comp1').variable('var22').set('f208', '(Q_Lower_body*y200- ↙
(Q_Lower_body-L_Lower_body)*y208-Kay*y54*y208*vv_Lower_body)/vv_Lower_body');
15356 model.component('comp1').variable('var22').set('f209', '(Q_Torso*y200-(Q_Torso- ↙
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L_Torso)*y209-Kay*y26*y209*vv_Torso)/vv_Torso');
15357 model.component('comp1').variable('var22').set('f210', '(Q_Upper_body*y200-
(Q_Upper_body-L_Upper_body)*y210-Kay*y22*y210*vv_Upper_body)/vv_Upper_body');
15358 model.component('comp1').variable('var23').remove('dA');
15359
15360 model.sol('sol54').runFromTo('st1', 'v1');
15361
15362 model.result('pg40').run;
15363
15364 model.component('comp1').variable('var22').set('Kvy', 'Kay');
15365 model.component('comp1').variable('var22').set('f5', '((Q_lung-L_lung)*Ci-
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain
+Q_Cardiac_vessels+Q_Lnode)*y5-Kvy*y5*y200*vv_ventricle)/vv_ventricle');
15366 model.component('comp1').variable('var22').set('Kvy', '1[1/d]');
15367 model.component('comp1').variable('var22').set('f78', '((Q_Lnode/8-L_Llung)*y10+
(Q_liver-L_liver)*y14+(Q_Lnode/8-L_Lliver)* y34+(Q_Lnode/8-L_Ltumor)* y38+(Q_tumor-
L_tumor)* y1+(Q_Lnode/8-L_LTorso)* y42+(Q_Torso-L_Torso)*y26+(Q_Lnode/8-L_LUpper_body)*
y46+(Q_Upper_body-L_Upper_body)*y22+(Q_Lnode/8-L_LLower_body)*y50+(Q_Lower_body-
L_Lower_body)*y54+(Q_Lnode/8-L_Lbrain)*y58+(Q_brain-L_brain)*y62+(Q_Lnode/8-L_Lkidney)
*y66+(Q_kidney-L_kidney)*y70+(Q_Cardiac_vessels-L_Cardiac_vessels)
*y74+L_Cardiac_vessels*y77*rf_Cardiac_vessels+(L_lung+L_Llung)*y13*rf_Llung+
(L_liver+L_spleen+L_intestin+L_Lliver)*y37*rf_Lintestin+(L_tumor+L_Ltumor)*
(rf_Ltumor*y41*heaviside(-y41+500)+1*y41*heaviside(y41-501))+(L_Torso+L_LTorso)
*y45*rf_LTorso+(L_Upper_body+L_LUpper_body)*y49*rf_LUpper_body+
(L_LLower_body+L_Lower_body)*y53*rf_LLower_body+(L_Lbrain+L_brain)*y61*rf_Lbrain+
(L_Lkidney+L_kidney)*y69*rf_Lkidney-(Q_lung)*y78-Kvy*y78*y201*vv_ventricle)
/vv_ventricle');
15368 model.component('comp1').variable('var22').set('f201', '((Q_Lnode/8-L_Llung)
*y106+(Q_liver-L_liver)*y202+(Q_Lnode/8-L_Lliver)*y112+((Q_Lnode/8-L_Ltumor)*y113)+
(Q_tumor-L_tumor)*y104+(Q_Lnode/8-L_LTorso)*y114+(Q_Torso-L_Torso)*y209+(Q_Lnode/8-
L_LUpper_body)*y115+(Q_Upper_body-L_Upper_body)*y210+(Q_Lnode/8-L_LLower_body)*y116+
(Q_Lower_body-L_Lower_body)*y208+(Q_Lnode/8-L_Lbrain)*y118+(Q_brain-L_brain)*y203+
(Q_Lnode/8-L_Lkidney)*y120+(Q_kidney-L_kidney)*y205+(Q_Cardiac_vessels-
L_Cardiac_vessels)*y206+(L_Cardiac_vessels*y125*rf_kidney)*heaviside(y125-1e-3*first)+
(L_lung+L_Llung)*y99*rf_aLlung+(L_liver+L_spleen+L_intestin+L_Lliver)
*y101*rf_aLintestin+(L_tumor+L_Ltumor)*y80*rf_aLtumor+(L_Torso+L_LTorso)
*y89*rf_aLTorso+(L_Upper_body+L_LUpper_body)*y91*rf_aLUpper_body+
(L_LLower_body+L_Lower_body)*y93*rf_aLLower_body+(L_Lbrain+L_brain)*y95*rf_aLbrain+
(L_Lkidney+L_kidney)*y97*rf_aLkidney-(Q_lung)*y201*heaviside(y201-1e-3*first)-
Kay*y78*y201*vv_ventricle)/vv_ventricle');
15369 model.component('comp1').variable('var22').set('f14', '((Q_intestin-L_intestin)
*y30+(Q_spleen-L_spleen)*y18+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)
*y5*freeTcell_traffic liver-(Q_liver-L_liver)*y14-
ka_liver*y87*y14*vv_liver+kd_liver*y15*vv_liver-disinf_liver*y14*vv_liver-
Kvy*y14*y202*vv_liver)/vv_liver+Ka*Vint1-0.1*KsACE2*sACE2*y14');
15370 model.component('comp1').variable('var22').set('f18',
'(Q_spleen*y5*freeTcell_traffic spleen-(Q_spleen-L_spleen)*y18-
ka_spleen*y102*y18*vv_spleen+kd_spleen*y19*vv_spleen-disinf_spleen*y18*vv_spleen-
Kvy*y18*y204*vv_spleen)/vv_spleen+Ka*Vint2-0.1*KsACE2*sACE2*y18');
15371 model.component('comp1').variable('var22').set('f22',
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'(Q_Upper_body*y5*freeTcell_trafficUpper_body-(Q_Upper_body-L_Upper_body)*y22- ↙
ka_Upper_body*y92*y22*vv_Upper_body+kd_Upper_body*y23*vv_Upper_body- ↙
disinf_Upper_body*y22*vv_Upper_body-Kvy*y22*y210*vv_Upper_body)/vv_Upper_body+Ka*Vint3- ↙
0.1*KsACE2*sACE2*y22');
15372 model.component('comp1').variable('var22').set('f26', ↙
'(Q_Torso*y5*freeTcell_trafficTorso-(Q_Torso-L_Torso)*y26- ↙
ka_Torso*y90*y26*vv_Torso+kd_Torso*y27*vv_Torso-disinf_Torso*y26*vv_Torso- ↙
Kvy*y26*y209*vv_Torso)/vv_Torso+Ka*Vint4-0.1*KsACE2*sACE2*y26');
15373 model.component('comp1').variable('var22').set('f30', ↙
'(Q_intestin*y5*freeTcell_trafficintestine-(Q_intestin-L_intestin)*y30- ↙
ka_intestin*y103*y30*vv_intestin+kd_intestin*y31*vv_intestin- ↙
disinf_Intestine*y30*vv_intestin-Kvy*y30*y207*vv_intestin)/vv_intestin+Ka*Vint5-0.1 ↙
*KsACE2*sACE2*y30');
15374 model.component('comp1').variable('var22').set('f54', ↙
'(Q_Lower_body*y5*freeTcell_trafficLower_body-(Q_Lower_body-L_Lower_body)*y54- ↙
ka_Lower_body*y94*y54*vv_Lower_body+kd_Lower_body*y55*vv_Lower_body- ↙
disinf_Lower_body*y54*vv_Lower_body-Kvy*y54*y208*vv_Lower_body)/vv_Lower_body+Ka*Vint6- ↙
0.1*KsACE2*sACE2*y54');
15375 model.component('comp1').variable('var22').set('f62', ↙
'(Q_brain*y5*freeTcell_traffic brain-(Q_brain-L_brain)*y62- ↙
ka_brain*y96*y62*vv_brain+kd_brain*y63*vv_brain-disinf_Brain*y62*vv_brain- ↙
Kvy*y62*y203*vv_brain)/vv_brain+Ka*Vint7-0.1*KsACE2*sACE2*y62');
15376 model.component('comp1').variable('var22').set('f70', ↙
'(Q_kidney*y5*freeTcell_traffickidney-(Q_kidney-L_kidney)*y70- ↙
ka_kidney*y98*y70*vv_kidney+kd_kidney*y71*vv_kidney-disinf_kidney*y70*vv_kidney- ↙
Kvy*y70*y205*vv_kidney)/vv_kidney+Ka*Vint8-0.1*KsACE2*sACE2*y70');
15377 model.component('comp1').variable('var22').set('f74', '(Q_Cardiac_vessels*y5- ↙
(Q_Cardiac_vessels-L_Cardiac_vessels)*y74- ↙
ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels+kd_Cardiac_vessels*y75*vv_Cardiac_vessel ↙
s-disinf_Cardiac_vessels*y74*vv_Cardiac_vessels-Kvy*y74*y206*vv_Cardiac_vessels) ↙
/vv_Cardiac_vessels+Ka*Vint9-0.1*KsACE2*sACE2*y74');
15378
15379 model.sol('sol54').runFromTo('st1', 'v1');
15380
15381 model.result('pg40').run;
15382
15383 model.component('comp1').physics('ActivatedTcell').active(false);
15384 model.component('comp1').physics('NaiveTcell').active(false);
15385
15386 model.component('comp1').variable('var22').set('Kvy', '1e-3*60*24 [1/mM/d]');
15387
15388 model.sol('sol54').runFromTo('st1', 'v1');
15389
15390 model.result('pg40').run;
15391
15392 model.component('comp1').variable('var22').set('Kay', '1e-3*60*24 [1/mM/d]');
15393 model.component('comp1').variable('var22').set('Kvy', '1e-1 [1/d]');
15394
15395 model.component('comp1').physics('DC').feature('init1').set('DC', 'DC0');
15396 model.component('comp1').physics('ThN').feature('init1').set('ThN', 'ThN0');
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15397 model.component('comp1').physics('TN').feature('init1').set('TN', 'TN0');
15398 model.component('comp1').physics('BN').feature('init1').set('BN', 'B0');
15399 model.component('comp1').physics('A').feature('init1').set('A', 110.2);
15400 model.component('comp1').physics('DC').feature('init1').set('DC', 'D0');
15401 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', '((elTE- ↙
dTE)*TE+(elTN-dTN)*TN+(eln-dn)*n+(elma-dma)*ma)*PDL1/(TE*1[1/g]+TN*1[1/g]+n+ma)- ↙
mPD1*antiPD1', 0);
15402
15403 model.component('comp1').variable('var1').set('elTE', '2.9e-2[pg/ml/h]');
15404 model.component('comp1').variable('var1').set('elTN', '2.9e-2[pg/ml/h]');
15405 model.component('comp1').variable('var1').set('dTE', '2.9e-2[pg/ml/h]');
15406 model.component('comp1').variable('var1').set('dTN', '2.9e-2[pg/ml/h]');
15407 model.component('comp1').variable('var1').descr('dTN', 'z');
15408 model.component('comp1').variable('var1').set('KIL6TE', '0.57[fmol/ml/h]');
15409 model.component('comp1').variable('var1').set('KIL6TN', '0.57[fmol/ml/h]');
15410
15411 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', '((elTE- ↙
dTE)*TE+(elTN-dTN)*TN+(eln-dn)*n+(elma-dma)*ma)*PDL1/(TE+TN+n+ma)-mPD1*antiPD1', 0);
15412 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', '((elTE- ↙
dTE)*TE+(elTN-dTN)*TN+(eln-dn)*n+(elma-dma)*ma)*PDL1/(TE*1[g/m^3]+TN*1[g/m^3]+n+ma)- ↙
mPD1*antiPD1', 0);
15413 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', '((elTE- ↙
dTE)*TE+(elTN-dTN)*TN+(eln-dn)*n+(elma-dma)*ma)*PDL1/(TE*1[1/m^3]+TN*1[1/m^3]+n+ma)- ↙
mPD1*antiPD1', 0);
15414 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', '((eln-dn) ↙
*n+(elma-dma)*ma)*PDL1/(TE*1[1/m^3]+TN*1[1/m^3]+n+ma)-mPD1*antiPD1', 0);
15415 model.component('comp1').physics('PD1').feature('dode1').setIndex('da', '(elTE- ↙
dTE)*TE+(elTN-dTN)*TN+', 0);
15416 model.component('comp1').physics('PD1').feature('dode1').setIndex('da', '(elTE- ↙
dTE)*TE+(elTN-dTN)*TN', 0);
15417 model.component('comp1').physics('PD1').feature('dode1').setIndex('da', 1, 0);
15418 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', '((elTE- ↙
dTE)*TE+(elTN-dTN)*TN+(eln-dn)*n+(elma-dma)*ma)*PDL1/(TE*1[1/m^3]+TN*1[1/m^3]+n+ma)- ↙
mPD1*antiPD1', 0);
15419 model.component('comp1').physics('PD1').feature('dode1').setIndex('da', '(eln-dn) ↙
*n', 0);
15420 model.component('comp1').physics('PD1').feature('dode1').setIndex('da', 1, 0);
15421
15422 model.component('comp1').variable('var1').set('elTE', '2.9e-2[1/ml/h]');
15423 model.component('comp1').variable('var1').set('elTN', '2.9e-5[1/ml/h]');
15424 model.component('comp1').variable('var1').set('elTE', '2.9e-5[1/ml/h]');
15425 model.component('comp1').variable('var1').set('dTE', '2.9e-5[1/ml/h]');
15426 model.component('comp1').variable('var1').set('dTN', '2.9e-5[1/ml/h]');
15427 model.component('comp1').variable('var1').set('dTN1', '2.9e-5[1/ml/h]');
15428
15429 model.component('comp1').physics('PD1').feature('dode1').setIndex('f', '((elTE- ↙
dTE)*TE+(elTN-dTN1)*TN+(eln-dn)*n+(elma-dma)*ma)*PDL1/(TE*1[1/m^3]+TN*1[1/m^3]+n+ma)- ↙
mPD1*antiPD1', 0);
15430
15431 model.component('comp1').variable('var1').set('dTN', '0.75 [1/d]');
```

```
15432
15433 model.component('comp1').physics('In').feature('dode1').setIndex('da', ↙
'phictl*In*TE', 0);
15434 model.component('comp1').physics('In').feature('dode1').setIndex('da', 1, 0);
15435
15436 model.component('comp1').variable('var1').set('phictl', '2.3e-10[1/h]');
15437 model.component('comp1').variable('var1').set('hPDL1', '2.9e-2[pg/ml/h]');
15438
15439 model.sol('sol54').runAll;
15440
15441 model.result('pg40').run;
15442 model.result('pg40').run;
15443 model.result('pg40').feature('ptgr2').set('expr', 'A');
15444 model.result('pg40').run;
15445 model.result('pg40').feature('ptgr2').set('expr', 'PS');
15446 model.result('pg40').run;
15447 model.result('pg40').feature('ptgr2').set('expr', 'PL');
15448 model.result('pg40').run;
15449 model.result('pg40').feature('ptgr2').set('expr', 'BA');
15450 model.result('pg40').run;
15451 model.result('pg40').feature('ptgr2').set('expr', 'BN');
15452 model.result('pg40').run;
15453 model.result('pg40').run;
15454 model.result('pg40').feature('ptgr2').set('expr', 'SB-hT*DCi*ThE*(As/(1+As))*(c/ ↙
(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-dB*BN');
15455 model.result('pg40').run;
15456 model.result('pg40').feature('ptgr2').set('expr', 'ThE');
15457 model.result('pg40').run;
15458 model.result('pg40').feature('ptgr2').set('expr', 'ThN');
15459 model.result('pg40').run;
15460 model.result('pg40').run;
15461 model.result('pg40').feature('ptgr2').set('expr', 'SThN-hTE*DCi*ThN*(As/(1+As))* ↙
(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-dThN*ThN');
15462 model.result('pg40').run;
15463 model.result('pg40').feature('ptgr2').set('expr', 'TE');
15464 model.result('pg40').run;
15465 model.result('pg40').feature('ptgr2').set('expr', 'TN');
15466 model.result('pg40').run;
15467 model.result('pg40').feature('ptgr2').set('expr', 'DCi');
15468 model.result('pg40').run;
15469 model.result('pg40').feature('ptgr2').set('expr', 'DC');
15470 model.result('pg40').run;
15471 model.result('pg40').feature('ptgr2').set('expr', 'IF');
15472 model.result('pg40').run;
15473
15474 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kiec*Ci*ec+', 0);
15475 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kiec*Ci*ec', 0);
15476 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
```

```
'Kiec*Ci*ec+phic*ec*n*(KH*(c-a)+1)-phictl*iec*TE-Kif1*iec*IF', 0);
15477
15478 model.label('New Covid model_value.mph');
15479
15480 model.component('comp1').physics.create('dode45', 'DomainODE', {'u47'});
15481
15482 model.study('std1').feature('param').activate('dode45', true);
15483 model.study('std1').feature('time').activate('dode45', true);
15484
15485 model.component('comp1').physics('dode45').prop('Units').setIndex ↙
('CustomSourceTermUnit', '1/s', 0, 0);
15486 model.component('comp1').physics('dode45').tag('THM');
15487 model.component('comp1').physics('THM').field('dimensionless').component(1, ↙
'THM');
15488 model.component('comp1').physics('THM').field('dimensionless').field('THM');
15489 model.component('comp1').physics('THM').feature('dode1').setIndex('f', 'pThM*ThE- ↙
dThM*ThM', 0);
15490
15491 model.component('comp1').variable('var1').set('pThM', 'pS');
15492 model.component('comp1').variable('var1').set('dThM', 'dS');
15493 model.component('comp1').variable('var1').set('pThM', 'pL');
15494 model.component('comp1').variable('var1').set('dThM', 'dL');
15495
15496 model.component('comp1').physics.create('dode45', 'DomainODE', {'u48'});
15497
15498 model.study('std1').feature('param').activate('dode45', true);
15499 model.study('std1').feature('time').activate('dode45', true);
15500
15501 model.component('comp1').physics('dode45').field('dimensionless').field('u48');
15502 model.component('comp1').physics('dode45').tag('TM');
15503 model.component('comp1').physics('TM').field('dimensionless').field('TM');
15504 model.component('comp1').physics('TM').field('dimensionless').component(1, 'TM');
15505 model.component('comp1').physics('TM').prop('Units').setIndex ↙
('CustomSourceTermUnit', '1/s', 0, 0);
15506 model.component('comp1').physics('TM').feature('dode1').setIndex('f', 'pTM*TM', ↙
0);
15507 model.component('comp1').physics('TM').feature('dode1').setIndex('f', 'pTM*TM- ↙
dTM*TM', 0);
15508
15509 model.component('comp1').variable('var1').set('pTM', 'pThM');
15510 model.component('comp1').variable('var1').set('dTM', 'dThM');
15511
15512 model.component('comp1').physics('PL').feature('dode1').setIndex('f', 'pL* ↙
(ThE+ThM)*BA-dL*PL', 0);
15513 model.component('comp1').physics('THM').tag('ThM');
15514 model.component('comp1').physics('ThM').field('dimensionless').field('ThM');
15515 model.component('comp1').physics('ThM').field('dimensionless').component(1, ↙
'ThM');
15516 model.component('comp1').physics('BA').feature('dode1').setIndex('f', ↙
'hT*DCi*ThE*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))+rB*ThE*BA-dBA*BA- ↙
```

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pS*BA-pL*(ThE+ThM)*BA', 0);
15517 model.component('comp1').physics('TE').feature('dode1').setIndex('f', 'hT*DCi*TN* ↙
(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))+rT*TE*(As/(1+As))*(c/(1+c))*(IF/ ↙
(Kif+IF))*(KT/(KT+PD1bPDL1))-pThM*TE-eTE*TE*PD1bPDL1/As', 0);
15518 model.component('comp1').physics('TM').feature('dode1').setIndex('f', 'pTM*TE- ↙
dTM*TM', 0);
15519 model.component('comp1').physics('ThE').feature('dode1').setIndex('f', ↙
'hTE*DCi*ThN*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))+rN*ThE*(As/(1+As))* ↙
(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-pThM*ThE-eTE*ThE*PD1bPDL1/As', 0);
15520 model.component('comp1').physics('TE').feature('dode1').setIndex('f', 'hT*DCi*TN* ↙
(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))+rT*TE*(As/(1+As))*(c/(1+c))*(IF/ ↙
(Kif+IF))*(KT/(KT+PD1bPDL1))-pTM*TE-eTE*TE*PD1bPDL1/As', 0);
15521 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kiec*Ci*ec+phic*ec*n*(KH*(c-a)+1)-phictl*iec*TE-Kif1*iec*IF-KInM*iec*TM', 0);
15522
15523 model.component('comp1').variable('var1').set('KInM', 'phictl');
15524
15525 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl*In*TE-Kif1*In*IF-KInM*TM', 0);
15526 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl*In*TE-Kif1*In*IF-KInM*TM*In', 0);
15527
15528 model.label('New Covid model_value.mph');
15529
15530 model.component('comp1').physics('TM').prop('ShapeProperty').set('order', 1);
15531 model.component('comp1').physics('ThM').prop('ShapeProperty').set('order', 1);
15532 model.component('comp1').physics('y200').prop('ShapeProperty').set('order', 1);
15533 model.component('comp1').physics('A').prop('ShapeProperty').set('order', 1);
15534 model.component('comp1').physics('PS').prop('ShapeProperty').set('order', 1);
15535 model.component('comp1').physics('PL').prop('ShapeProperty').set('order', 1);
15536 model.component('comp1').physics('BA').prop('ShapeProperty').set('order', 1);
15537 model.component('comp1').physics('BN').prop('ShapeProperty').set('order', 1);
15538 model.component('comp1').physics('TE').prop('ShapeProperty').set('order', 1);
15539 model.component('comp1').physics('TN').prop('ShapeProperty').set('order', 1);
15540 model.component('comp1').physics('ThE').prop('ShapeProperty').set('order', 1);
15541 model.component('comp1').physics('ThN').prop('ShapeProperty').set('order', 1);
15542 model.component('comp1').physics('DCi').prop('ShapeProperty').set('order', 1);
15543 model.component('comp1').physics('DC').prop('ShapeProperty').set('order', 1);
15544 model.component('comp1').physics('IF').prop('ShapeProperty').set('order', 1);
15545 model.component('comp1').physics('NETs').prop('ShapeProperty').set('order', 1);
15546 model.component('comp1').physics('PD1').prop('ShapeProperty').set('order', 1);
15547 model.component('comp1').physics('InCD8').prop('ShapeProperty').set('order', 1);
15548 model.component('comp1').physics('CD8').prop('ShapeProperty').set('order', 1);
15549 model.component('comp1').physics('InCD4').prop('ShapeProperty').set('order', 1);
15550 model.component('comp1').physics('CD4').prop('ShapeProperty').set('order', 1);
15551
15552 model.sol('sol54').clearSolutionData;
15553
15554 model.component('comp1').variable('var1').set('KInM', 'phictl/10');
15555
```

```
15556 model.label('New Covid model_value_clear.mph');
15557
15558 model.component('comp1').variable('var1').set('pThM', 'pL/10');
15559 model.component('comp1').variable('var1').set('dThM', 'dL/100');
15560 model.component('comp1').variable('var1').set('KInM', 'phictl/100');
15561 model.component('comp1').variable('var1').set('dIF', '8.3e-1[1/h]/100');
15562 model.component('comp1').variable('var1').set('dNETs', '8.3e-1[1/h]/100');
15563 model.component('comp1').variable('var1').set('aIF', '2.1e-2[pg/h]*10');
15564
15565 model.component('comp1').physics('IF').prop('Units').setIndex↙
('CustomDependentVariableUnit', 1, 0, 0);
15566 model.component('comp1').physics('IF').prop('Units').setIndex↙
('CustomSourceTermUnit', '1/s', 0, 0);
15567 model.component('comp1').physics('IF').feature('dode1').setIndex('f', 'bf*↙
(iec+In)-dIF*IF', 0);
15568 model.component('comp1').physics('IF').feature('dode1').setIndex('f', 'bf*↙
(iec+In)-dIF2*IF', 0);
15569
15570 model.component('comp1').variable('var1').set('bf', '9.6e-10 [1/d]/H0');
15571 model.component('comp1').variable('var1').set('dif2', '1');
15572
15573 model.component('comp1').physics('IF').feature('dode1').setIndex('f', 'bf*↙
(iec+In)-dif2*IF', 0);
15574
15575 model.component('comp1').variable('var1').set('dif2', '1.9[1/d]');
15576
15577 model.result('pg40').run;
15578 model.result('pg40').run;
15579 model.result('pg40').feature('ptgr2').set('expr', 'H');
15580 model.result('pg40').run;
15581 model.result('pg40').feature('ptgr2').set('expr', 'In');
15582 model.result('pg40').run;
15583
15584 model.component('comp1').physics('In').feature('dode1').setIndex('f',↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl*In*TE', 0);
15585 model.component('comp1').physics('In').feature('dode1').setIndex('f',↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl*In*TE-Kif1*In*IF', 0);
15586 model.component('comp1').physics('In').feature('dode1').setIndex('f',↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl*In*TE-Kif2*In*IF-KInM*TM*In', 0);
15587 model.component('comp1').physics('In').feature('dode1').setIndex('f',↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl*In*TE-kif2*In*IF-KInM*TM*In', 0);
15588 model.component('comp1').physics('In').feature('dode1').setIndex('f',↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl*In*TE-Kif1*In*IF-KInM*TM*In', 0);
15589 model.component('comp1').physics('In').feature('dode1').setIndex('f',↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl*In*TE-Kif1*In*IF', 0);
15590 model.component('comp1').physics('In').feature('dode1').setIndex('f',↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl*In*TE-Kif1*In*IF-KInM*TM*In', 0);
15591
15592 model.component('comp1').variable('var1').set('Kif2', '4.2[1/d]');
15593
```

```
15594 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1)-phictl*In*TE-Kif2*In*IF-KInM*TM*In', 0);
15595 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kiec*Ci*ec+phic*ec*n*(KH*(c-a)+1)-phictl*iec*TE-Kif2*iec*IF-KInM*iec*TM', 0);
15596
15597 model.sol('sol54').feature('t1').create('se1', 'Segregated');
15598 model.sol('sol54').feature('t1').feature('se1').create('ss1', 'SegregatedStep');
15599 model.sol('sol54').feature('t1').feature('se1').feature('ss1').set('segvar', ↙
{'comp1_NETs' 'comp1_IF' 'comp1_DC' 'comp1_DCi' 'comp1_ThN' 'comp1_ThE' 'comp1_TN' ↙
'comp1_TE' 'comp1_BN' 'comp1_BA'  ...
15600 'comp1_PL' 'comp1_PS' 'comp1_A' 'comp1_y200' 'comp1_y201' 'comp1_y202' ↙
'comp1_y203' 'comp1_y204' 'comp1_y205' 'comp1_y206'  ...
15601 'comp1_y207' 'comp1_y208' 'comp1_y209' 'comp1_y210' 'comp1_ThM' 'comp1_TM'});
15602 model.sol('sol54').feature('t1').feature('se1').feature('ssDef').set('segvar', ↙
{'comp1_a' 'comp1_ACE2' 'comp1_ACE2bAngI' 'comp1_ACE2bAngII' 'comp1_AGT' 'comp1_Ang17' ↙
'comp1_Ang19' 'comp1_AngI' 'comp1_AngII' 'comp1_AngIII'  ...
15603 'comp1_AngIV' 'comp1_AT1bAngII' 'comp1_AT1R' 'comp1_AT2bAngII' 'comp1_AT2R' ↙
'comp1_AT4bAngIV' 'comp1_AT4R' 'comp1_c' 'comp1_Cb' 'comp1_Ci'  ...
15604 'comp1_ec' 'comp1_H' 'comp1_iec' 'comp1_IL6' 'comp1_IL6R' 'comp1_IL6RbIL6' ↙
'comp1_In' 'comp1_ma' 'comp1_MAsbAng17' 'comp1_MAsR'  ...
15605 'comp1_n' 'comp1_Renin' 'comp1_sACE2' 'comp1_sIL6R' 'comp1_sIL6RbIL6' ↙
'comp1_Vint' 'comp1_y5' 'comp1_y78' 'comp1_y85' 'comp1_y86'  ...
15606 'comp1_y105' 'comp1_y14' 'comp1_y15' 'comp1_y107' 'comp1_y87' 'comp1_y18' ↙
'comp1_y19' 'comp1_y108' 'comp1_y102' 'comp1_y22'  ...
15607 'comp1_y23' 'comp1_y109' 'comp1_y92' 'comp1_y26' 'comp1_y27' 'comp1_y110' ↙
'comp1_y90' 'comp1_y30' 'comp1_y31' 'comp1_y111'  ...
15608 'comp1_y103' 'comp1_y54' 'comp1_y55' 'comp1_y117' 'comp1_y94' 'comp1_y62' ↙
'comp1_y63' 'comp1_y119' 'comp1_y70' 'comp1_y71'  ...
15609 'comp1_y121' 'comp1_y98' 'comp1_y74' 'comp1_y75' 'comp1_y124' 'comp1_y125' ↙
'comp1_y96' 'comp1_Vint1' 'comp1_Vint2' 'comp1_Vint3'  ...
15610 'comp1_Vint4' 'comp1_Vint5' 'comp1_Vint6' 'comp1_Vint7' 'comp1_Vint8' ↙
'comp1_Vint9' 'comp1_y1052' 'comp1_y1072' 'comp1_y1082' 'comp1_y1092'  ...
15611 'comp1_y1102' 'comp1_y1112' 'comp1_y1172' 'comp1_y1192' 'comp1_y1212' ↙
'comp1_y1242' 'comp1_PD1bPDL1' 'comp1_antiPD1' 'comp1_ec2' 'comp1_ec3'  ...
15612 'comp1_ec4' 'comp1_ec5' 'comp1_ec6' 'comp1_ec7' 'comp1_ec8' 'comp1_ec9' ↙
'comp1_ec10' 'comp1_ec11' 'comp1_ec12' 'comp1_iec2'  ...
15613 'comp1_iec3' 'comp1_iec4' 'comp1_iec5' 'comp1_iec6' 'comp1_iec7' 'comp1_iec8' ↙
'comp1_iec9' 'comp1_iec10' 'comp1_iec11' 'comp1_iec12'  ...
15614 'comp1_PDL1' 'comp1_PD1'});
15615
15616 model.result('pg40').run;
15617 model.result('pg40').run;
15618 model.result('pg40').feature('ptgr2').set('expr', 'IF');
15619 model.result('pg40').run;
15620 model.result('pg40').feature('ptgr2').set('expr', 'H');
15621 model.result('pg40').run;
15622 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
15623 model.result('pg40').run;
15624
15625 model.sol('sol54').feature('t1').feature('se1').feature('ss1').set('segvarspec', ↙
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'all');
15626 model.sol('sol54').feature('t1').feature('se1').feature('ssDef').set('segvar', ↙
{'comp1_a' 'comp1_ACE2' 'comp1_ACE2bAngI' 'comp1_ACE2bAngII' 'comp1_AGT' 'comp1_Ang17' ↙
'comp1_Ang19' 'comp1_AngI' 'comp1_AngII' 'comp1_AngIII'  ...
15627 'comp1_AngIV' 'comp1_AT1bAngII' 'comp1_AT1R' 'comp1_AT2bAngII' 'comp1_AT2R' ↙
'comp1_AT4bAngIV' 'comp1_AT4R' 'comp1_c' 'comp1_Cb' 'comp1_Ci'  ...
15628 'comp1_ec' 'comp1_H' 'comp1_iec' 'comp1_IL6' 'comp1_IL6R' 'comp1_IL6RbIL6'});
15629 model.sol('sol54').feature('t1').feature('se1').create('ss2', 'SegregatedStep');
15630 model.sol('sol54').feature('t1').feature('se1').feature('ss2').set('segvar', ↙
{'comp1_In' 'comp1_ma' 'comp1_MAsbAng17' 'comp1_MAsR' 'comp1_n' 'comp1_Renin' ↙
'comp1_sACE2' 'comp1_sIL6R' 'comp1_sIL6RbIL6' 'comp1_Vint'  ...
15631 'comp1_y5' 'comp1_y78' 'comp1_y85' 'comp1_y86' 'comp1_y105' 'comp1_y14' ↙
'comp1_y15' 'comp1_y107' 'comp1_y87' 'comp1_y18'  ...
15632 'comp1_y19' 'comp1_y108' 'comp1_y102' 'comp1_y22' 'comp1_y23' 'comp1_y109'});
15633 model.sol('sol54').feature('t1').feature('se1').create('ss3', 'SegregatedStep');
15634 model.sol('sol54').feature('t1').feature('se1').feature('ss3').set('segvar', ↙
{'comp1_y92' 'comp1_y26' 'comp1_y27' 'comp1_y110' 'comp1_y90' 'comp1_y30' 'comp1_y31' ↙
'comp1_y111' 'comp1_y103' 'comp1_y54'  ...
15635 'comp1_y55' 'comp1_y117' 'comp1_y94' 'comp1_y62' 'comp1_y63' 'comp1_y119' ↙
'comp1_y70' 'comp1_y71' 'comp1_y121' 'comp1_y98'  ...
15636 'comp1_y74' 'comp1_y75' 'comp1_y124' 'comp1_y125' 'comp1_y96'});
15637 model.sol('sol54').feature('t1').feature('se1').create('ss4', 'SegregatedStep');
15638 model.sol('sol54').feature('t1').feature('se1').feature('ss4').set('segvar', ↙
{'comp1_Vint1' 'comp1_Vint2' 'comp1_Vint3' 'comp1_Vint4' 'comp1_Vint5' 'comp1_Vint6' ↙
'comp1_Vint7' 'comp1_Vint8' 'comp1_Vint9' 'comp1_y1052'  ...
15639 'comp1_y1072' 'comp1_y1082' 'comp1_y1092' 'comp1_y1102' 'comp1_y1112' ↙
'comp1_y1172' 'comp1_y1192' 'comp1_y1212' 'comp1_y1242'});
15640 model.sol('sol54').feature('t1').feature('se1').create('ss5', 'SegregatedStep');
15641 model.sol('sol54').feature('t1').feature('se1').feature('ss5').set('segvar', ↙
{'comp1_PD1bPDL1' 'comp1_antiPD1' 'comp1_ec2' 'comp1_ec3' 'comp1_ec4' 'comp1_ec5' ↙
'comp1_ec6' 'comp1_ec7' 'comp1_ec8' 'comp1_ec9'  ...
15642 'comp1_ec10' 'comp1_ec11' 'comp1_ec12' 'comp1_iec2' 'comp1_iec3' 'comp1_iec4' ↙
'comp1_iec5' 'comp1_iec6' 'comp1_iec7' 'comp1_iec8'  ...
15643 'comp1_iec9' 'comp1_iec10' 'comp1_iec11' 'comp1_iec12' 'comp1_PDL1' ↙
'comp1_PD1'});
15644 model.sol('sol54').runFromTo('st1', 'v1');
15645
15646 model.result('pg40').run;
15647 model.result('pg40').run;
15648
15649 model.component('comp1').variable('var1').set('Kv', '4e-3 [1/d]/100');
15650
15651 model.result('pg40').run;
15652 model.result('pg40').feature('ptgr2').set('expr', 'H');
15653 model.result('pg40').run;
15654 model.result('pg40').feature('ptgr2').set('expr', 'In');
15655 model.result('pg40').run;
15656 model.result('pg40').feature('ptgr2').set('expr', 'IF');
15657 model.result('pg40').run;
15658 model.result('pg40').feature('ptgr2').set('expr', 'ThN');
```

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15659 model.result('pg40').run;
15660 model.result('pg40').feature('ptgr2').set('expr', 'TN');
15661 model.result('pg40').run;
15662 model.result('pg40').run;
15663 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
15664 model.result('pg40').run;
15665
15666 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci-Kv*Ci*A', 0);
15667 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci-Kv*Ci*A+Ka*(1-IF/(Kif+IF))*Vint', 0);
15668
15669 model.component('comp1').variable('var1').set('Kif', '0.0025');
15670 model.component('comp1').variable('var1').set('Ka', '5.78e2[1/s]/bKa');
15671 model.component('comp1').variable('var1').set('Kd', '8.1e-2[1/d]');
15672
15673 model.sol('sol54').runFromTo('st1', 'v1');
15674
15675 model.result('pg40').run;
15676 model.result('pg40').run;
15677 model.result('pg40').feature('ptgr2').set('expr', 'Vint');
15678 model.result('pg40').run;
15679 model.result('pg40').feature('ptgr2').set('expr', 'In');
15680 model.result('pg40').run;
15681 model.result('pg40').feature('ptgr2').set('expr', 'Cb');
15682 model.result('pg40').run;
15683 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
15684 model.result('pg40').run;
15685 model.result('pg40').run;
15686 model.result('pg40').set('showlegendsmaxmin', true);
15687 model.result('pg40').run;
15688 model.result('pg40').run;
15689 model.result('pg40').run;
15690 model.result('pg40').run;
15691 model.result('pg40').set('legendpos', 'upperright');
15692 model.result('pg40').run;
15693 model.result('pg40').setIndex('looplevelinput', 'last', 0);
15694 model.result('pg40').run;
15695 model.result('pg40').run;
15696 model.result('pg40').setIndex('looplevelinput', 'all', 0);
15697 model.result('pg40').run;
15698 model.result('pg40').run;
15699 model.result('pg40').feature('ptgr2').set('autoexpr', false);
15700 model.result('pg40').feature('ptgr2').setIndex('looplevelinput', 'last', 0);
15701 model.result('pg40').run;
15702 model.result('pg40').feature('ptgr2').setIndex('looplevelinput', 'all', 0);
15703 model.result('pg40').run;
15704 model.result('pg40').feature('ptgr2').set('expr', 'Vint');
```

```
15705 model.result('pg40').run;
15706 model.result('pg40').feature('ptgr2').set('expr', 'Vint1');
15707 model.result('pg40').run;
15708 model.result('pg40').feature('ptgr2').set('expr', 'Vint2');
15709 model.result('pg40').run;
15710 model.result('pg40').feature('ptgr2').set('expr', 'Renin');
15711 model.result('pg40').run;
15712 model.result('pg40').feature('ptgr2').set('expr', 'n');
15713 model.result('pg40').run;
15714 model.result('pg40').feature('ptgr2').set('expr', 'c');
15715 model.result('pg40').run;
15716 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
15717 model.result('pg40').run;
15718
15719 model.component('comp1').variable('var1').set('KonACE2V', '17 [ml/h/nmol]/100');
15720
15721 model.sol('sol54').feature('t1').feature('fc1').active(true);
15722
15723 model.result('pg40').run;
15724 model.result('pg40').feature('ptgr2').set('expr', 'In');
15725 model.result('pg40').run;
15726 model.result('pg40').feature('ptgr2').set('expr', 'IF');
15727 model.result('pg40').run;
15728
15729 model.sol('sol54').feature('t1').feature('fc1').active(false);
15730 model.sol('sol54').feature('t1').feature('se1').active(true);
15731 model.sol('sol54').feature('t1').feature('dDef').set('linsolver', 'pardiso');
15732 model.sol('sol54').feature('t1').feature('se1').feature('ssDef').set('subdtech', ↙
'auto');
15733 model.sol('sol54').feature('t1').feature('se1').feature('ss1').set('subdtech', ↙
'auto');
15734 model.sol('sol54').feature('t1').feature('se1').feature('ss2').set('subdtech', ↙
'auto');
15735 model.sol('sol54').feature('t1').feature('se1').feature('ss3').set('subdtech', ↙
'auto');
15736 model.sol('sol54').feature('t1').feature('se1').feature('ss4').set('subdtech', ↙
'auto');
15737 model.sol('sol54').feature('t1').feature('se1').feature('ss5').set('subdtech', ↙
'const');
15738 model.sol('sol54').feature('t1').feature('se1').feature('ss4').set('subdtech', ↙
'const');
15739 model.sol('sol54').feature('t1').feature('se1').feature('ss3').set('subdtech', ↙
'const');
15740 model.sol('sol54').feature('t1').feature('se1').feature('ss2').set('subdtech', ↙
'const');
15741 model.sol('sol54').feature('t1').feature('se1').feature('ss1').set('subdtech', ↙
'const');
15742 model.sol('sol54').feature('t1').feature('se1').feature('ssDef').set('subdtech', ↙
'const');
15743
```

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15744 model.result('pg40').run;
15745 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
15746 model.result('pg40').run;
15747
15748 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci*0-Kv*Ci*A+Ka*(1-IF/(Kif+IF))*Vint', 0);
15749
15750 model.component('comp1').variable('var1').set('Kv', '4e-3 [1/d]/1000');
15751
15752 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci*0-Kv*Ci*A+Ka*(1-IF/(Kif+IF))*Vint*0', 0);
15753
15754 model.result('pg40').run;
15755 model.result('pg40').feature('ptgr2').set('expr', 'In');
15756 model.result('pg40').run;
15757 model.result('pg40').feature('ptgr2').set('expr', 'ma');
15758 model.result('pg40').run;
15759
15760 model.sol('sol54').feature('t1').feature('se1').create('ll1', 'LowerLimit');
15761 model.sol('sol54').feature('t1').feature('se1').feature.remove('ll1');
15762
15763 model.component('comp1').variable('var1').set('gam_n1', 'gam_n/1000');
15764
15765 model.result('pg40').run;
15766 model.result('pg40').feature('ptgr2').set('expr', 'MAsbAng17');
15767 model.result('pg40').run;
15768 model.result('pg40').feature('ptgr2').set('expr', 'MAsR');
15769 model.result('pg40').run;
15770 model.result('pg40').feature('ptgr2').set('expr', 'n');
15771 model.result('pg40').run;
15772 model.result('pg40').feature('ptgr2').set('expr', 'Renin');
15773 model.result('pg40').run;
15774 model.result('pg40').feature('ptgr2').set('expr', 'sACE2');
15775 model.result('pg40').run;
15776 model.result('pg40').feature('ptgr2').set('expr', 'sIL6R');
15777 model.result('pg40').run;
15778 model.result('pg40').feature('ptgr2').set('expr', 'Vint');
15779 model.result('pg40').run;
15780
15781 model.component('comp1').variable('var1').set('Ka', '5.78e2[1/s]/bKa/100');
15782 model.component('comp1').variable('var1').set('Kin', '(1/24)*1e-6[fmol/h]/100');
15783 model.component('comp1').variable('var1').set('Kint', '5.78e-4[1/s]*100');
15784
15785 model.result('pg40').run;
15786 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
15787 model.result('pg40').run;
15788 model.result('pg40').feature('ptgr2').set('expr', 'Cb');
15789 model.result('pg40').run;
```

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15790 model.result('pg40').run;
15791 model.result('pg40').feature('ptgr2').set('expr', '(Q_lung*y78-(Q_lung-L_lung) ↙
*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb-Kd*Ci*0-Kv*Ci*A+Ka*(1-IF/ ↙
(Kif+IF))*Vint*0');
15792 model.result('pg40').run;
15793 model.result('pg40').feature('ptgr2').set('expr', '(Q_lung*y78-(Q_lung-L_lung) ↙
*Ci)/vv_lung');
15794 model.result('pg40').run;
15795 model.result('pg40').feature('ptgr2').set('expr', '(Q_lung*y78)');
15796 model.result('pg40').run;
15797 model.result('pg40').feature('ptgr2').set('expr', '(-(Q_lung-L_lung)*Ci) ↙
/vv_lung');
15798 model.result('pg40').run;
15799 model.result('pg40').feature('ptgr2').set('expr', '((Q_lung-L_lung)*Ci) ↙
/vv_lung');
15800 model.result('pg40').run;
15801 model.result('pg40').feature('ptgr2').set('expr', 'y78');
15802 model.result('pg40').run;
15803 model.result('pg40').run;
15804 model.result('pg40').feature('ptgr2').set('expr', 'Q_lung*y78');
15805 model.result('pg40').run;
15806 model.result('pg40').run;
15807 model.result('pg40').feature('ptgr2').set('expr', '((Q_Lnode/8-L_Llung)*y10+ ↙
(Q_liver-L_liver)*y14+(Q_Lnode/8-L_Lliver)* y34+(Q_Lnode/8-L_Ltumor)* y38+(Q_tumor- ↙
L_tumor)* y1+(Q_Lnode/8-L_LTorso)* y42+(Q_Torso-L_Torso)*y26+(Q_Lnode/8-L_LUpper_body)* ↙
y46+(Q_Upper_body-L_Upper_body)*y22+(Q_Lnode/8-L_LLower_body)*y50+(Q_Lower_body- ↙
L_Lower_body)*y54+(Q_Lnode/8-L_Lbrain)*y58+(Q_brain-L_brain)*y62+(Q_Lnode/8-L_Lkidney) ↙
*y66+(Q_kidney-L_kidney)*y70+(Q_Cardiac_vessels-L_Cardiac_vessels) ↙
*y74+L_Cardiac_vessels*y77*rf_Cardiac_vessels+(L_lung+L_Llung)*y13*rf_Llung+ ↙
(L_liver+L_spleen+L_intestin+L_Lliver)*y37*rf_Lintestin+(L_tumor+L_Ltumor)* ↙
(rf_Ltumor*y41*heaviside(-y41+500)+1*y41*heaviside(y41-501))+(L_Torso+L_LTorso) ↙
*y45*rf_LTorso+(L_Upper_body+L_LUpper_body)*y49*rf_LUpper_body+ ↙
(L_LLower_body+L_Lower_body)*y53*rf_LLower_body+(L_Lbrain+L_brain)*y61*rf_Lbrain+ ↙
(L_Lkidney+L_kidney)*y69*rf_Lkidney-(Q_lung)*y78-Kvy*y78*y201*vv_ventricle) ↙
/vv_ventricle');
15808 model.result('pg40').run;
15809 model.result('pg40').feature('ptgr2').set('expr', 'y78');
15810 model.result('pg40').run;
15811 model.result('pg40').run;
15812 model.result('pg40').feature('ptgr2').set('expr', '(Q_lung*y78-(Q_lung-L_lung) ↙
*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb-Kd*Ci*0-Kv*Ci*A+Ka*(1-IF/ ↙
(Kif+IF))*Vint*0');
15813 model.result('pg40').run;
15814 model.result('pg40').feature('ptgr2').set('expr', '(Q_lung*y78-(Q_lung-L_lung) ↙
*Ci)/vv_lung-KsACE2*sACE2*Ci*0-KonACE2V*Ci*ACE2+KoffACE2V*Cb-Kd*Ci*0-Kv*Ci*A+Ka*(1-IF/ ↙
(Kif+IF))*Vint*0');
15815 model.result('pg40').run;
15816 model.result('pg40').feature('ptgr2').set('expr', '(Q_lung*y78-(Q_lung-L_lung) ↙
*Ci)/vv_lung');
15817 model.result('pg40').run;
```

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15818 model.result('pg40').feature('ptgr2').set('expr', '(Q_lung*y78-(Q_lung-L_lung) ↙
*Ci)/vv_lung/10000');
15819 model.result('pg40').run;
15820 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
15821 model.result('pg40').run;
15822
15823 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung/1000-KsACE2*sACE2*Ci- ↙
KonACE2V*Ci*ACE2+KoffACE2V*Cb-Kd*Ci*0-Kv*Ci*A+Ka*(1-IF/(Kif+IF))*Vint*0', 0);
15824
15825 model.sol('sol54').feature('t1').feature.remove('se1');
15826 model.sol('sol54').feature('t1').feature('fc1').active(true);
15827
15828 model.component('comp1').physics.create('dode45', 'DomainODE', {'u47'});
15829
15830 model.study('std1').feature('param').activate('dode45', true);
15831 model.study('std1').feature('time').activate('dode45', true);
15832
15833 model.component('comp1').physics('dode45').tag('y300');
15834 model.component('comp1').physics('y300').field('dimensionless').field('y300');
15835 model.component('comp1').physics('y300').prop('Units').setIndex ↙
('CustomSourceTermUnit', '1/s', 0, 0);
15836 model.component('comp1').physics('y300').field('dimensionless').component(1, ↙
'y300');
15837
15838 model.result('pg40').run;
15839 model.result('pg40').feature('ptgr2').set('expr', 'y18');
15840 model.result('pg40').run;
15841 model.result('pg40').run;
15842 model.result('pg40').feature('ptgr2').set('expr', 'y34');
15843 model.result('pg40').run;
15844
15845 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kiec*ec*y54', 7);
15846 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kiec*y54*ec', 7);
15847
15848 model.sol('sol54').clearSolutionData;
15849
15850 model.label('New Covid model_value_newPK.mph');
15851
15852 model.component('comp1').variable('var22').set('f78', '((Q_liver-L_liver)*y14+ ↙
(Q_Torso-L_Torso)*y26+(Q_Upper_body-L_Upper_body)*y22+(Q_Lower_body-L_Lower_body)*y54+ ↙
(Q_brain-L_brain)*y62+(Q_kidney-L_kidney)*y70+(Q_Cardiac_vessels-L_Cardiac_vessels) ↙
*y74-(Q_lung)*y78-Kvy*y78*y201*vv_ventricle)/vv_ventricle');
15853 model.component('comp1').variable('var22').set('f85', '((Q_lung-L_lung)*y105- ↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y85)/vv_ventricle');
15854 model.component('comp1').variable('var22').set('f86', '((Q_liver-L_liver)*y107+ ↙
(Q_Torso-L_Torso)*y110+(Q_Upper_body-L_Upper_body)*y109+(Q_Lower_body-L_Lower_body) ↙
```

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*y117+(Q_brain-L_brain)*y119+(Q_kidney-L_kidney)*y121+(Q_Cardiac_vessels-↙
L_Cardiac_vessels)*y124-(Q_lung)*y86)/vv_ventricle');
15855 model.component('comp1').variable('var22').set('f201', '((Q_liver-L_liver)*y202+↙
(Q_Torso-L_Torso)*y209+(Q_Upper_body-L_Upper_body)*y210+(Q_Lower_body-L_Lower_body) ↙
*y208+(Q_brain-L_brain)*y203+(Q_kidney-L_kidney)*y205+(Q_Cardiac_vessels-↙
L_Cardiac_vessels)*y206-(Q_lung)*y201-Kay*y78*y201*vv_ventricle)/vv_ventricle');
15856 model.component('comp1').variable('var22').set('f14', '((Q_intestin-L_intestin) ↙
*y30+(Q_spleen-L_spleen)*y18+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y5- ↙
(Q_liver-L_liver)*y14-ka_liver*y87*y14*vv_liver+kd_liver*y15*vv_liver-↙
disinf_liver*y14*vv_liver-Kvy*y14*y202*vv_liver+Ka*Vint1*vv_liver-0.1↙
*KsACE2*sACE2*y14*vv_liver)/vv_liver');
15857 model.component('comp1').variable('var22').set('y6', 'Ci');
15858 model.component('comp1').variable('var22').set('y100', 'ACE2');
15859
15860 model.sol('sol54').runFromTo('st1', 'v1');
15861
15862 model.result('pg40').run;
15863
15864 model.component('comp1').variable('var22').remove('f6');
15865 model.component('comp1').variable('var22').remove('f7');
15866 model.component('comp1').variable('var22').remove('f100');
15867
15868 model.sol('sol54').runFromTo('st1', 'v1');
15869
15870 model.result('pg40').run;
15871
15872 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_liver*y15+Kint*y15-Ka*Vint1', 1);
15873 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_spleen*y19+Kint*y19-Ka*Vint2', 2);
15874 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_Upper_body*y23+Kint*y23-Ka*Vint3', 3);
15875 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_Torso*y27+Kint*y27-Ka*Vint4', 4);
15876 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_Intestine*y31+Kint*y31-Ka*Vint5', 5);
15877 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_Lower_body*y55+Kint*y55-Ka*Vint6', 6);
15878 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_Brain*y63+Kint*y63-Ka*Vint7', 7);
15879 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_kidney*y71+Kint*y71-Ka*Vint8', 8);
15880 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_Cardiac_vessels*y75+Kint*y75-Ka*Vint9', 9);
15881 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung*Cb+Kint*Cb-Kin*In*bin-Ka*Vint', 0);
15882
15883 model.component('comp1').variable('var22').set('f15', ↙
'(ka_liver*y87*y14*vv_liver-kd_liver*y15*vv_liver-disinfa_liver*y15*vv_liver- ↙
Kint*y15*vv_liver)/vv_liver');
```

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15884 model.component('comp1').variable('var22').set('f107', '((Q_intestin-L_intestin) ↙
*y111+(Q_spleen-L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85- ↙
(Q_liver-L_liver)*y107+mt_liver*ac*IL6/(IL6+1)*vv_liver+mt_liver*ac*y302/(y302+1) ↙
*vv_liver+ktte*(TE+n+ma)↙
*vv_liver+ktiec*iec7*vv_liver+kta*y202*vv_liver+ktec*y202*ec7*vv_liver- ↙
e_liver*y107*vv_liver-d_liver*y107*vv_liver)/vv_liver');
15885 model.component('comp1').variable('var22').set('ktte', '1');
15886 model.component('comp1').variable('var22').set('ktiec', '1');
15887 model.component('comp1').variable('var22').set('kta', '1');
15888 model.component('comp1').variable('var22').set('ktec', '1');
15889 model.component('comp1').variable('var22').set('e_liver', '1');
15890
15891 model.component('comp1').physics('y300').field('dimensionless').component({'y300' ↙
'y2'});
15892 model.component('comp1').physics('y300').field('dimensionless').component({'y300' ↙
'y2' 'y3'});
15893 model.component('comp1').physics('y300').field('dimensionless').component({'y300' ↙
'y2' 'y3' 'y4'});
15894 model.component('comp1').physics('y300').field('dimensionless').component({'y300' ↙
'y2' 'y3' 'y4' 'y8'});
15895 model.component('comp1').physics('y300').field('dimensionless').component({'y300' ↙
'y2' 'y3' 'y4' 'y8' 'y9'});
15896 model.component('comp1').physics('y300').field('dimensionless').component({'y300' ↙
'y2' 'y3' 'y4' 'y8' 'y9' 'y10'});
15897 model.component('comp1').physics('y300').field('dimensionless').component({'y300' ↙
'y2' 'y3' 'y4' 'y8' 'y9' 'y10' 'y11'});
15898 model.component('comp1').physics('y300').field('dimensionless').component({'y300' ↙
'y2' 'y3' 'y4' 'y8' 'y9' 'y10' 'y11' 'y12'});
15899 model.component('comp1').physics('y300').field('dimensionless').component({'y300' ↙
'y2' 'y3' 'y4' 'y8' 'y9' 'y10' 'y11' 'y12' 'y13'});
15900 model.component('comp1').physics('y300').field('dimensionless').component({'y300' ↙
'y2' 'y3' 'y4' 'y8' 'y9' 'y10' 'y11' 'y12' 'y13'  ...
15901 'y16'});
15902 model.component('comp1').physics('y300').field('dimensionless').component(2, ↙
'y301');
15903 model.component('comp1').physics('y300').field('dimensionless').component(3, ↙
'y302');
15904 model.component('comp1').physics('y300').field('dimensionless').component(4, ↙
'y303');
15905 model.component('comp1').physics('y300').field('dimensionless').component(5, ↙
'y304');
15906 model.component('comp1').physics('y300').field('dimensionless').component(6, ↙
'y305');
15907 model.component('comp1').physics('y300').field('dimensionless').component(7, ↙
'y306');
15908 model.component('comp1').physics('y300').field('dimensionless').component(8, ↙
'y307');
15909 model.component('comp1').physics('y300').field('dimensionless').component(9, ↙
'y308');
15910 model.component('comp1').physics('y300').field('dimensionless').component(10, ↙
```

```
'y309');
15911 model.component('comp1').physics('y300').field('dimensionless').component(11, ↙
'y310');
15912
15913 model.component('comp1').variable('var22').set('ktte', '1[1/s]');
15914 model.component('comp1').variable('var22').set('ktiec', '1[1/s]');
15915 model.component('comp1').variable('var22').set('kta', '1[1/s]');
15916 model.component('comp1').variable('var22').set('ktec', '1[1/s]');
15917 model.component('comp1').variable('var22').set('e_liver', '1[1/s]');
15918 model.component('comp1').variable('var22').set('f107', '((Q_intestin-L_intestin) ↙
*y111+(Q_spleen-L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85- ↙
(Q_liver-L_liver)*y107+mt_liver*ac*IL6/(IL6+1)*vv_liver+mt_liver*ac*y302/(y302+1) ↙
*vv_liver+ktte*(TE+n+ma)↙
*vv_liver+ktiec*iec7*vv_liver+kta*y202*vv_liver+ktec*y202*ec7*vv_liver- ↙
e_liver*y107*vv_liver-d_liver*y107*vv_liver)/vv_liver');
15919 model.component('comp1').variable('var23').set('aaaaa', '((Q_intestin-L_intestin) ↙
*y111+(Q_spleen-L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85- ↙
(Q_liver-L_liver)*y107+mt_liver*ac*IL6/(IL6+1)*vv_liver)/vv_liver');
15920 model.component('comp1').variable('var22').set('ktte', '1[mole/s]');
15921 model.component('comp1').variable('var23').set('t5', '((Q_intestin-L_intestin) ↙
*y111+(Q_spleen-L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85- ↙
(Q_liver-L_liver)*y107+mt_liver*ac*IL6/(IL6+1)*vv_liver+mt_liver*ac*y302/(y302+1) ↙
*vv_liver+ktte*(TE*n+n+ma)↙
*vv_liver+ktiec*iec7*vv_liver+kta*y202*vv_liver+ktec*y202*ec7*vv_liver- ↙
e_liver*y107*vv_liver-d_liver*y107*vv_liver)/vv_liver');
15922 model.component('comp1').variable('var23').set('t6', '+ktiec*iec7*vv_liver');
15923 model.component('comp1').variable('var22').set('f107', '((Q_intestin-L_intestin) ↙
*y111+(Q_spleen-L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85- ↙
(Q_liver-L_liver)*y107+mt_liver*ac*IL6/(IL6+1)*vv_liver+mt_liver*ac*y302/(y302+1) ↙
*vv_liver+ktte*(TE*n+n+ma)↙
*vv_liver+ktiec*iec7*vv_liver+kta*y202*vv_liver+ktec*y202*ec7*vv_liver- ↙
e_liver*y107*vv_liver-d_liver*y107*vv_liver)/vv_liver');
15924 model.component('comp1').variable('var22').set('ktiec', '1[mole/s]');
15925 model.component('comp1').variable('var22').set('kta', '1[mole/s]');
15926 model.component('comp1').variable('var22').set('ktec', '1[mole/s]');
15927 model.component('comp1').variable('var22').set('e_liver', '1[mole/s]');
15928 model.component('comp1').variable('var23').set('aaaaa', '((Q_intestin-L_intestin) ↙
*y111+(Q_spleen-L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85- ↙
(Q_liver-L_liver)*y107+mt_liver*ac*IL6/(IL6+1)*vv_liver+mt_liver*ac*y302/(y302+1) ↙
*vv_liver+ktte*(TE*n+n+ma)*vv_liver+ktiec*iec7*vv_liver)/vv_liver');
15929 model.component('comp1').variable('var23').set('t5', '+kta*y202*vv_liver');
15930 model.component('comp1').variable('var22').set('kta', '1[1/s]');
15931 model.component('comp1').variable('var23').set('t5', ↙
'+kta*y202*vv_liver/vv_liver');
15932 model.component('comp1').variable('var22').set('kta', '1[M/s]');
15933 model.component('comp1').variable('var23').set('t5', ↙
'+kta*y202*vv_liver+ktec*y202*ec7*vv_liver-e_liver*y107*vv_liver- ↙
d_liver*y107*vv_liver');
15934 model.component('comp1').variable('var23').set('t6', ↙
'+kta*y202*vv_liver+ktec*y202*ec7*vv_liver-e_liver*y107*vv_liver- ↙
```

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d_liver*y107*vv_liver');
15935 model.component('comp1').variable('var23').set('t5', ↙
'+kta*y202*vv_liver+ktec*y202*ec7*vv_liver-e_liver*y107*vv_liver- ↙
d_liver*y107*vv_liver');
15936 model.component('comp1').variable('var23').set('t6', ↙
'e_liver*y107*vv_liver/vv_liver');
15937 model.component('comp1').variable('var22').set('e_liver', '1[1/s]');
15938 model.component('comp1').variable('var23').set('aaaaa', '((Q_intestin-L_intestin) ↙
*y111+(Q_spleen-L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85- ↙
(Q_liver-L_liver)*y107+mt_liver*ac*IL6/(IL6+1)*vv_liver+mt_liver*ac*y302/(y302+1) ↙
*vv_liver+ktte*(TE*n+n+ma)↙
*vv_liver+ktiec*iec7*vv_liver+kta*y202*vv_liver+ktec*y202*ec7*vv_liver- ↙
e_liver*y107*vv_liver-d_liver*y107*vv_liver)/vv_liver');
15939
15940 model.label('New Covid model_value_newPK.mph');
15941
15942 model.component('comp1').physics('y300').feature('dode1').setIndex('f', 'f300', ↙
0);
15943 model.component('comp1').physics('y300').feature('dode1').setIndex('f', 'f301', ↙
1);
15944 model.component('comp1').physics('y300').feature('dode1').setIndex('f', 'f302', ↙
2);
15945 model.component('comp1').physics('y300').feature('dode1').setIndex('f', 'f303', ↙
3);
15946 model.component('comp1').physics('y300').feature('dode1').setIndex('f', 'f304', ↙
4);
15947 model.component('comp1').physics('y300').feature('dode1').setIndex('f', 'f305', ↙
5);
15948 model.component('comp1').physics('y300').feature('dode1').setIndex('f', 'f306', ↙
6);
15949 model.component('comp1').physics('y300').feature('dode1').setIndex('f', 'f307', ↙
7);
15950 model.component('comp1').physics('y300').feature('dode1').setIndex('f', 'f308', ↙
8);
15951 model.component('comp1').physics('y300').feature('dode1').setIndex('f', 'f309', ↙
9);
15952 model.component('comp1').physics('y300').feature('dode1').setIndex('f', 'f310', ↙
10);
15953
15954 model.component('comp1').variable('var22').set('f300', '((Q_lung-L_lung)*c/c0- ↙
(Q_liver+L_intestin+L_spleen+Q_kidney+Q_tumor+Q_Torso+Q_Lower_body+Q_Upper_body+Q_brain ↙
+Q_Cardiac_vessels+Q_Lnode)*y300)/vv_ventricle');
15955 model.component('comp1').variable('var22').set('f301', '((Q_liver-L_liver)*y302+ ↙
(Q_Torso-L_Torso)*y309+(Q_Upper_body-L_Upper_body)*y310+(Q_Lower_body-L_Lower_body) ↙
*y308+(Q_brain-L_brain)*y303+(Q_kidney-L_kidney)*y305+(Q_Cardiac_vessels- ↙
L_Cardiac_vessels)*y306-(Q_lung)*y301)/vv_ventricle');
15956 model.component('comp1').variable('var22').set('f107', '((Q_intestin-L_intestin) ↙
*y111+(Q_spleen-L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85- ↙
(Q_liver-L_liver)*y107+mt_liver*ac*IL6/(IL6+1)*vv_liver+mt_liver*ac*y302/(y302+1) ↙
*vv_liver+ktiec*iec7*vv_liver+ktiecte*(TE)*iec7*vv_liver-e_liver*y107*vv_liver- ↙
```

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d_liver*y107*vv_liver)/vv_liver');
15957 model.component('comp1').variable('var22').rename('ktte', 'ktiecte');
15958
15959 model.component('comp1').physics('dode11').feature('dode1').setIndex('f', 'f107', ↙
0);
15960 model.component('comp1').physics('dode11').feature('dode1').setIndex('f', ↙
'(d_liver*y107*vv_liver-e_liver*y1072*vv_liver)/vv_liver', 1);
15961
15962 model.component('comp1').variable('var22').set('f87', '+kd_liver*y15-↙
ka_liver*y87*y14');
15963 model.component('comp1').variable('var22').set('f202', '((Q_intestin-L_intestin) ↙
*y207+(Q_spleen-L_spleen)*y204+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*200-↙
(Q_liver-L_liver)*y202-Kavy*y14*y202*vv_liver-kaiec*iec7*y202*vv_liver-↙
kay*y202*vv_liver)/vv_liver');
15964 model.component('comp1').variable('var22').set('kavy', '1e-3*60*24 [1/mM/d]');
15965 model.component('comp1').variable('var22').rename('kavy', 'Kavy');
15966 model.component('comp1').variable('var22').rename('ktiec', 'kaiec');
15967 model.component('comp1').variable('var22').set('faaf', 'Kavy*y14*y202*vv_liver-↙
kaiec*iec7*y202*vv_liver-kay*y202*vv_liver');
15968
15969 model.sol('sol54').runFromTo('st1', 'v1');
15970
15971 model.result('pg40').run;
15972
15973 model.component('comp1').variable('var22').rename('kaiec', 'ktiec');
15974 model.component('comp1').variable('var22').set('kaiec', '1[1/s]');
15975 model.component('comp1').variable('var22').set('faaf', 'Kavy*y14*y202*vv_liver-↙
Kay*y202*vv_liver');
15976 model.component('comp1').variable('var22').set('aaa', '-↙
kaiec*iec7*y202*vv_liver');
15977 model.component('comp1').variable('var22').set('faaf', 'Kavy*y14*y202*vv_liver');
15978 model.component('comp1').variable('var22').set('aaaaa', '-Kay*y202*vv_liver');
15979 model.component('comp1').variable('var22').set('faaf', 'Kavy*y14*y202');
15980 model.component('comp1').variable('var22').set('aaa', '-kaiec*iec7*y202');
15981 model.component('comp1').variable('var22').set('aaaaa', '-Kay*y202');
15982 model.component('comp1').variable('var22').set('kaiec', '1[m^3/s]');
15983 model.component('comp1').variable('var22').set('kaa', 'Kay');
15984 model.component('comp1').variable('var22').rename('kaa', 'kaay');
15985 model.component('comp1').variable('var22').set('kaay', '1[1/s]');
15986 model.component('comp1').variable('var22').set('aaaaa', '-kaay*y202');
15987 model.component('comp1').variable('var22').set('faaf', 'Kavy*y14*y202-↙
kaiec*iec7*y202-kaay*y202');
15988 model.component('comp1').variable('var22').set('f202', '((Q_intestin-L_intestin) ↙
*y207+(Q_spleen-L_spleen)*y204+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*200-↙
(Q_liver-L_liver)*y202-Kavy*y14*y202*vv_liver-kaiec*iec7*y202*vv_liver-↙
kaay*y202*vv_liver)/vv_liver');
15989 model.component('comp1').variable('var22').remove('aaa');
15990 model.component('comp1').variable('var22').remove('aaaaa');
15991 model.component('comp1').variable('var22').remove('faaf');
15992 model.component('comp1').variable('var22').set('f302', '((Q_intestin-L_intestin) ↙
```

```
*y307+(Q_spleen-L_spleen)*y304+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*300- ↙
(Q_liver-L_liver)*y302+Kc_innate*(n+ma) ↙
*vv_liver+kciec*iec7*vv_liver+kcil6*ILL6bsIL6R*KcEC*ec*vv_liver-d_s*y302*vv_liver) ↙
/vv_liver');
15993 model.component('comp1').variable('var22').set('Kv_innate', '1[1/s]');
15994 model.component('comp1').variable('var22').rename('Kv_innate', 'Kc_innate');
15995 model.component('comp1').variable('var22').set('aaaaa', 'KcEC');
15996 model.component('comp1').variable('var22').remove('aaaaa');
15997 model.component('comp1').variable('var22').set('test', 'Kc_innate*(n+ma) ↙
*vv_liver+kciec*iec7*vv_liver+kcil6*ILL6bsIL6R*KcEC*ec*vv_liver-d_s*y302*vv_liver');
15998 model.component('comp1').variable('var22').set('kciec', '1[1/s]');
15999
16000 model.sol('sol54').runFromTo('st1', 'v1');
16001
16002 model.result('pg40').run;
16003
16004 model.component('comp1').variable('var22').set('kcil6', '1[1/s]');
16005
16006 model.sol('sol54').runFromTo('st1', 'v1');
16007
16008 model.result('pg40').run;
16009
16010 model.component('comp1').variable('var22').set('test', 'Kc_innate*(n+ma) ↙
*vv_liver+kciec*iec7*vv_liver+kcil6*sIL6RbIL6*KcEC*ec*vv_liver-d_s*y302*vv_liver');
16011 model.component('comp1').variable('var22').set('aaa', '(Q_intestin-L_intestin) ↙
*y307');
16012 model.component('comp1').variable('var22').remove('aaa');
16013 model.component('comp1').variable('var22').set('test1', 'Kc_innate*(n+ma) ↙
*vv_liver');
16014 model.component('comp1').variable('var22').set('test2', 'kciec*iec7*vv_liver');
16015 model.component('comp1').variable('var22').set('test3',↙
'kcil6*sIL6RbIL6*KcEC*ec*vv_liver');
16016 model.component('comp1').variable('var22').set('test4', '-d_s*y302*vv_liver');
16017 model.component('comp1').variable('var22').set('d_s', '1[1/s]');
16018 model.component('comp1').variable('var22').set('kciec', '1[m^3/s]');
16019 model.component('comp1').variable('var22').set('Kc_innate', '1[m^3/s]');
16020 model.component('comp1').variable('var22').set('kcil6', '1[1/M*kg*s]');
16021
16022 model.sol('sol54').runFromTo('st1', 'v1');
16023
16024 model.result('pg40').run;
16025
16026 model.component('comp1').variable('var22').set('kcil6', '1[m^3/M/s/kg]');
16027 model.component('comp1').variable('var22').set('f302', '((Q_intestin-L_intestin) ↙
*y307+(Q_spleen-L_spleen)*y304+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*300- ↙
(Q_liver-L_liver)*y302+Kc_innate*(n+ma) ↙
*vv_liver+kciec*iec7*vv_liver+kcil6*sIL6RbIL6*KcEC*ec*vv_liver-d_s*y302*vv_liver) ↙
/vv_liver');
16028
16029 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec7- ↙
```

```
Kecb*ec7*Vint1-phiciec*ec7*n*(KHIEC(y302-a)+1)', 6);
16030
16031 model.component('comp1').variable('var22').set('test', 'Kec*ec7-Kecb*ec7*Vint1- ↙
phiciec*ec7*n*(KHIEC(y302-a)+1)');
16032 model.component('comp1').variable('var22').set('Kecb', '1[1/s]');
16033 model.component('comp1').variable('var22').set('phiciec', '1[1/s]');
16034 model.component('comp1').variable('var22').set('KHIEC', 'KH');
16035 model.component('comp1').variable('var22').set('test1', 'Kec*ec7');
16036 model.component('comp1').variable('var22').set('test2', 'Kecb*ec7*Vint1');
16037 model.component('comp1').variable('var22').set('test3', 'phiciec*ec7*n*(KHIEC* ↙
(y302-a)+1)');
16038 model.component('comp1').variable('var22').set('test', 'Kec*ec7-Kecb*ec7*Vint1- ↙
phiciec*ec7*n*(KHIEC*(y302-a)+1)');
16039 model.component('comp1').variable('var22').set('test3', 'phiciec*ec7*n*(KHIEC* ↙
(y302-a/a0/1[kg])+1)');
16040 model.component('comp1').variable('var22').set('test', 'Kec*ec7-Kecb*ec7*Vint1- ↙
phiciec*ec7*n*(KHIEC*(y302-a/a0/1[kg])+1)');
16041 model.component('comp1').variable('var22').set('Kecb', '1[1/M/s]');
16042 model.component('comp1').variable('var22').set('test3', 'phiciec*ec7*n*(KHIEC* ↙
(y302-a/a_0)+1)');
16043 model.component('comp1').variable('var22').set('phiciec', '1[kg/s]');
16044
16045 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec7- ↙
Kecb*ec7*Vint1-phiciec*ec7*n*(KHIEC*(y302-a/a0/1[kg])+1)', 6);
16046
16047 model.component('comp1').variable('var22').set('test', 'Kec*ec7-Kecb*ec7*Vint1- ↙
phiciec*ec7*n*(KHIEC*(y302-a/a_0)+1)');
16048
16049 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec7- ↙
Kecb*ec7*Vint1-phiciec*ec7*n*(KHIEC*(y302-a/a_0)+1)', 6);
16050 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kecb*ec7*Vint1+phiciec*ec7*n*(KHIEC*(y302-a/a_0)+1)-Kif2*iec7*IF-KInM*iec7*TM- ↙
KTIEC*iec7-KTiecTE*TE*iec7', 6);
16051
16052 model.component('comp1').variable('var22').set('test', ↙
'Kecb*ec7*Vint1+phiciec*ec7*n*(KHIEC*(y302-a/a_0)+1)-Kif2*iec7*IF-KInM*iec7*TM- ↙
KTIEC*iec7-KTiecTE*TE*iec7');
16053 model.component('comp1').variable('var22').set('KTIEC', '1[1/s]');
16054 model.component('comp1').variable('var22').set('KTiecTE', '1[1/s]');
16055
16056 model.sol('sol54').runFromTo('st1', 'v1');
16057
16058 model.result('pg40').run;
16059
16060 model.component('comp1').variable('var22').set('test', '(Q_lung*y86-(Q_lung- ↙
L_lung)*y105+mt_lung*ac*IL6/(IL6+1)*(ec+H)*vv_lung+mt_lung*ac*(c/(c+1))*(ec+H) ↙
*vv_lung+mt_lung*ac*NETs/(NETs+1)*vv_lung)/vv_lung');
16061 model.component('comp1').variable('var22').set('test1', '+KtiecIn*(iec+In) ↙
*vv_lung+KtiecinTe*TE*(iec+In)*vv_lung-e_lung*y105*vv_lung-d_lung*y105*vv_lung');
16062 model.component('comp1').variable('var22').set('test2', 'mt_lung*ac*IL6/(IL6+1)* ↙
```

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(ec+H)');
16063 model.component('comp1').variable('var22').set('test', '(Q_lung*y86-(Q_lung- ↙
L_lung)*y105+mt_lung*ac*IL6/(IL6+1)*(ec+H)+mt_lung*ac*(c/(c+1))*(ec+H)+mt_lung*ac*NETs/ ↙
(NETs+1)*vv_lung)/vv_lung');
16064 model.component('comp1').variable('var22').set('test3', 'Q_lung*y86-(Q_lung- ↙
L_lung)*y105');
16065 model.component('comp1').variable('var22').set('test', '(Q_lung*y86-(Q_lung- ↙
L_lung)*y105+mt_lung*ac*IL6/(IL6+1)*(ec+H)*vv_lung+mt_lung*ac*(c/(c+1))*(ec+H) ↙
*vv_lung+mt_lung*ac*NETs/(NETs+1)*vv_lung)/vv_lung');
16066 model.component('comp1').variable('var22').set('test2', 'mt_lung*ac*IL6/(IL6+1)* ↙
(ec+H)*vv_lung');
16067 model.component('comp1').variable('var19').set('ac', '1');
16068 model.component('comp1').variable('var22').set('test2', 'mt_lung*ac*IL6/(IL6+1)* ↙
(ec+H)/(H0+ec0)*vv_lung');
16069 model.component('comp1').variable('var22').set('test', '(Q_lung*y86-(Q_lung- ↙
L_lung)*y105+mt_lung*ac*IL6/(IL6+1)*(ec+H)/(H0+ec0)*vv_lung+mt_lung*ac*(c/(c+1))*(ec+H) ↙
*vv_lung+mt_lung*ac*NETs/(NETs+1)*vv_lung)/vv_lung');
16070 model.component('comp1').variable('var22').set('test2', 'mt_lung*ac*(c/(c+1))');
16071 model.component('comp1').variable('var22').set('test', '(Q_lung*y86-(Q_lung- ↙
L_lung)*y105+mt_lung*ac*IL6/(IL6+1)*(ec+H)/(H0+ec0)*vv_lung+mt_lung*ac*(c/(c+1))*(ec+H) ↙
/(ec0+H0)*vv_lung+mt_lung*ac*NETs/(NETs+1)*vv_lung)/vv_lung');
16072 model.component('comp1').variable('var22').set('f105', '(Q_lung*y86-(Q_lung- ↙
L_lung)*y105+mt_lung*ac*IL6/(IL6+1)*(ec+H)/(H0+ec0)*vv_lung+mt_lung*ac*(c/(c+1))*(ec+H) ↙
/(ec0+H0)*vv_lung+mt_lung*ac*NETs/(NETs+1)*vv_lung)/vv_lung');
16073 model.component('comp1').variable('var22').set('KtiecIn', '1[1/s]');
16074 model.component('comp1').variable('var22').set('KtiecinTe', '1[1/s]');
16075 model.component('comp1').variable('var22').set('e_lung', '1[1/s]');
16076 model.component('comp1').variable('var22').set('test2', '+KtiecIn*(iec+In) ↙
*vv_lung');
16077 model.component('comp1').variable('var22').set('KtiecIn', '1[mole/s]');
16078 model.component('comp1').variable('var22').set('test2', 'KtiecinTe*TE*(iec+In) ↙
*vv_lung');
16079 model.component('comp1').variable('var22').set('KtiecinTe', '1[mole/s]');
16080 model.component('comp1').variable('var22').set('test', '(Q_lung*y86-(Q_lung- ↙
L_lung)*y105+mt_lung*ac*IL6/(IL6+1)*(ec+H)/(H0+ec0)*vv_lung+mt_lung*ac*(c/(c+1))*(ec+H) ↙
/(ec0+H0)*vv_lung+mt_lung*ac*NETs/(NETs+1)*vv_lung+KtiecIn*(iec+In) ↙
*vv_lung+KtiecinTe*TE*(iec+In)*vv_lung-e_lung*y105*vv_lung-d_lung*y105*vv_lung) ↙
/vv_lung');
16081 model.component('comp1').variable('var22').set('f105', '(Q_lung*y86-(Q_lung- ↙
L_lung)*y105+mt_lung*ac*IL6/(IL6+1)*(ec+H)/(H0+ec0)*vv_lung+mt_lung*ac*(c/(c+1))*(ec+H) ↙
/(ec0+H0)*vv_lung+mt_lung*ac*NETs/(NETs+1)*vv_lung+KtiecIn*(iec+In) ↙
*vv_lung+KtiecinTe*TE*(iec+In)*vv_lung-e_lung*y105*vv_lung-d_lung*y105*vv_lung) ↙
/vv_lung');
16082
16083 model.component('comp1').physics('dode7').feature('dode1').setIndex('f', 'f105', ↙
0);
16084 model.component('comp1').physics('dode7').feature('dode1').setIndex('f', ↙
'(d_lung*y105*vv_lung-e_lung*y1052*vv_lung)/vv_lung', 1);
16085 model.component('comp1').physics('A').feature('dode1').setIndex('f', ↙
'(Q_lung*y201-(Q_lung-L_lung)*A+pAS*PS+pAL*PL-kav*Ci*A*vv_lung-KaiecIn*(iec+In) ↙
```

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*A*vv_lung-Ka*A*vv_lung)/vv_lung', 0);
16086
16087 model.component('comp1').variable('var22').set('test', '(Q_lung*y201-(Q_lung- ↙
L_lung)*A+pAS*PS+pAL*PL-kav*Ci*A*vv_lung-KaiecIn*(iec+In)*A*vv_lung-Ka*A*vv_lung) ↙
/vv_lung');
16088 model.component('comp1').variable('var22').set('test1', '+pAS*PS+pAL*PL- ↙
kav*Ci*A*vv_lung-KaiecIn*(iec+In)*A*vv_lung-Ka*A*vv_lung');
16089 model.component('comp1').variable('var22').set('test', '(Q_lung*y201-(Q_lung- ↙
L_lung)*A)/vv_lung');
16090 model.component('comp1').variable('var22').set('test1', '+pAS*PS+pAL*PL- ↙
kav*Ci*A*vv_lung-KaiecIn*(iec+In)*A*vv_lung-Ka*A*vv_lung');
16091 model.component('comp1').variable('var22').set('test2', '-kav*Ci*A*vv_lung');
16092 model.component('comp1').variable('var22').set('kav', 'Kavy');
16093 model.component('comp1').variable('var22').set('test1', '+pAS*PS+pAL*PL- ↙
kav*Ci*A*vv_lung-KaiecIn*(iec+In)*A*vv_lung-Ka*A*vv_lung');
16094 model.component('comp1').variable('var22').set('kav', '1[1/s]');
16095 model.component('comp1').variable('var22').set('test1', '+pAS*PS+pAL*PL- ↙
kav*Ci*A*vv_lung-KaiecIn*(iec+In)*A*vv_lung-Ka*A*vv_lung');
16096 model.component('comp1').variable('var22').set('test3', 'pAL*PL');
16097 model.component('comp1').variable('var22').set('kav', '1[1/mole/s]');
16098 model.component('comp1').variable('var22').set('test2', '-KaiecIn*(iec+In) ↙
*A*vv_lung');
16099 model.component('comp1').variable('var22').set('kaiecIn', '1[1/mole/s]');
16100 model.component('comp1').variable('var22').rename('kaiecIn', 'KaiecIn');
16101 model.component('comp1').variable('var22').set('KaiecIn', '1[1/s]');
16102 model.component('comp1').variable('var22').set('test1', '+pAS*PS+pAL*PL- ↙
kav*Ci*A*vv_lung-KaiecIn*(iec+In)*A*vv_lung-Ka*A*vv_lung');
16103 model.component('comp1').variable('var22').set('test2', '-Ka*A*vv_lung');
16104 model.component('comp1').variable('var22').set('test4', '(Q_lung-L_lung)*A');
16105 model.component('comp1').variable('var22').set('kav', '1[m^3/mole/s]');
16106 model.component('comp1').variable('var22').set('test1', ↙
'+pAS*PS*vv_lung+pAL*PL*vv_lung-kav*Ci*A*vv_lung-KaiecIn*(iec+In)*A*vv_lung- ↙
Ka*A*vv_lung');
16107 model.component('comp1').variable('var22').set('KaiecIn', '1[m^3/s]');
16108
16109 model.component('comp1').physics('A').feature('dode1').setIndex('f', ↙
'(Q_lung*y201-(Q_lung-L_lung)*A+pAS*PS*vv_lung+pAL*PL*vv_lung-kav*Ci*A*vv_lung-KaiecIn* ↙
(iec+In)*A*vv_lung-Ka*A*vv_lung)/vv_lung', 0);
16110 model.component('comp1').physics('c').feature('dode1').setIndex('f', ↙
'(Q_lung*y301-(Q_lung-L_lung)*c+Kc_innate*(n+ma)*vv_lung+kciec*(iec+In) ↙
*vv_lung+SAT1R*AT1bAngII*vv_lung+ KcIL6R*sIL6RbIL6*(KcEC*ec+KcH*H)*vv_lung- ↙
KAT1RMAsR*MAsR*1[pg/fmol]*vv_lung- KAT1RAT2R*AT2R*1[pg/fmol]-d_s*C*vv_lung)/vv_lung', ↙
0);
16111 model.component('comp1').physics('c').feature('dode1').setIndex('f', ↙
'(Q_lung*y301-(Q_lung-L_lung)*c)/vv_lung', 0);
16112 model.component('comp1').physics('c').feature('dode1').setIndex('f', ↙
'(Q_lung*y301-(Q_lung-L_lung)*c+Kc_innate*(n+ma)*vv_lung+kciec*(iec+In) ↙
*vv_lung+SAT1R*AT1bAngII*vv_lung+ KcIL6R*sIL6RbIL6*(KcEC*ec+KcH*H)*vv_lung- ↙
KAT1RMAsR*MAsR*1[pg/fmol]*vv_lung- KAT1RAT2R*AT2R*1[pg/fmol]-d_s*C*vv_lung)/vv_lung', ↙
0);
```

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16113
16114 model.component('comp1').variable('var22').set('test', '(Q_lung*y301-(Q_lung- ↙
L_lung)*c+Kc_innate*(n+ma)*vv_lung+kciec*(iec+In)*vv_lung+SAT1R*AT1bAngII*vv_lung+ ↙
KcIL6R*sIL6RbIL6*(KcEC*ec+KcH*H)*vv_lung- KAT1RMAsR*MAsR*1[pg/fmol]*vv_lung- ↙
KAT1RAT2R*AT2R*1[pg/fmol]-d_s*C*vv_lung)/vv_lung');
16115 model.component('comp1').variable('var22').set('test1', 'Q_lung*y301*c0');
16116 model.component('comp1').variable('var22').set('test', '(Q_lung*y301*c0-(Q_lung- ↙
L_lung)*c+Kc_innate*(n+ma)*vv_lung+kciec*(iec+In)*vv_lung+SAT1R*AT1bAngII*vv_lung+ ↙
KcIL6R*sIL6RbIL6*(KcEC*ec+KcH*H)*vv_lung- KAT1RMAsR*MAsR*1[pg/fmol]*vv_lung- ↙
KAT1RAT2R*AT2R*1[pg/fmol]-d_s*C*vv_lung)/vv_lung');
16117 model.component('comp1').variable('var22').set('test1', 'Kc_innate*(n+ma) ↙
*vv_lung*c0');
16118 model.component('comp1').variable('var22').set('test', '(Q_lung*y301*c0-(Q_lung- ↙
L_lung)*c+Kc_innate*(n+ma)*vv_lung*c0+kciec*(iec+In)*vv_lung+SAT1R*AT1bAngII*vv_lung+ ↙
KcIL6R*sIL6RbIL6*(KcEC*ec+KcH*H)*vv_lung- KAT1RMAsR*MAsR*1[pg/fmol]*vv_lung- ↙
KAT1RAT2R*AT2R*1[pg/fmol]-d_s*C*vv_lung)/vv_lung');
16119 model.component('comp1').variable('var22').set('test1', 'kciec*(iec+In) ↙
*vv_lung*c0');
16120 model.component('comp1').variable('var22').set('test', '(Q_lung*y301*c0-(Q_lung- ↙
L_lung)*c+Kc_innate*(n+ma)*vv_lung*c0+kciec*(iec+In) ↙
*vv_lung*c0+SAT1R*AT1bAngII*vv_lung+ KcIL6R*sIL6RbIL6*(KcEC*ec+KcH*H)*vv_lung- ↙
KAT1RMAsR*MAsR*1[pg/fmol]*vv_lung- KAT1RAT2R*AT2R*1[pg/fmol]-d_s*C*vv_lung)/vv_lung');
16121 model.component('comp1').variable('var22').set('test1', '- KAT1RAT2R*AT2R*1 ↙
[pg/M]');
16122 model.component('comp1').variable('var22').set('test', '(Q_lung*y301*c0-(Q_lung- ↙
L_lung)*c+Kc_innate*(n+ma)*vv_lung*c0+kciec*(iec+In) ↙
*vv_lung*c0+SAT1R*AT1bAngII*vv_lung+ KcIL6R*sIL6RbIL6*(KcEC*ec+KcH*H)*vv_lung- ↙
KAT1RMAsR*MAsR*1[pg/fmol]*vv_lung- KAT1RAT2R*AT2R*1[pg/M]-d_s*Ci*vv_lung)/vv_lung');
16123 model.component('comp1').variable('var22').set('test1', 'd_s*Ci*vv_lung*1 ↙
[pg/mole]');
16124 model.component('comp1').variable('var22').set('test', '(Q_lung*y301*c0-(Q_lung- ↙
L_lung)*c+Kc_innate*(n+ma)*vv_lung*c0+kciec*(iec+In) ↙
*vv_lung*c0+SAT1R*AT1bAngII*vv_lung+ KcIL6R*sIL6RbIL6*(KcEC*ec+KcH*H)*vv_lung- ↙
KAT1RMAsR*MAsR*1[pg/fmol]*vv_lung- KAT1RAT2R*AT2R*1[pg/M]-d_s*Ci*vv_lung*1[pg/mole]) ↙
/vv_lung');
16125
16126 model.component('comp1').physics('c').feature('dode1').setIndex('f', ↙
'(Q_lung*y301*c0-(Q_lung-L_lung)*c+Kc_innate*(n+ma)*vv_lung*c0+kciec*(iec+In) ↙
*vv_lung*c0+SAT1R*AT1bAngII*vv_lung+ KcIL6R*sIL6RbIL6*(KcEC*ec+KcH*H)*vv_lung- ↙
KAT1RMAsR*MAsR*1[pg/fmol]*vv_lung- KAT1RAT2R*AT2R*1[pg/M]-d_s*Ci*vv_lung*1[pg/mole]) ↙
/vv_lung', 0);
16127 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kecb*ec*Vint-phiciec*ec*n*(Khiec*(Ci-a)+1)', 0);
16128 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kecb*ec*Vint-phiciec*ec*n*(KHiec*(Ci-a)+1)', 0);
16129 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kecb*ec*Vint-phiciec*ec*n*(khiec*(Ci-a)+1)', 0);
16130 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
Kecb*ec*Vint-phiciec*ec*n*(KHIEC*(Ci-a)+1)', 0);
16131 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec- ↙
```

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Kecb*ec*Vint-phic*ec*n*(KH*(c-a)+1)', 0);
16132 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kecb*ec*Vint+ phic*ec*n*(KH*(c-a)+1)- Kif2*iec*IF- KInM*iec*TM- KtiecIn*iec- ↙
KtiecinTe*TE*iec', 0);
16133
16134 model.component('comp1').variable('var22').set('test', 'Kecb*ec*Vint+ phic*ec*n* ↙
(KH*(c-a)+1)- Kif2*iec*IF- KInM*iec*TM');
16135 model.component('comp1').variable('var22').set('test1', '- KtiecIn*iec/1[mole]- ↙
KtiecinTe*TE*iec/1[mole]');
16136 model.component('comp1').variable('var22').set('test', 'Kecb*ec*Vint+ phic*ec*n* ↙
(KH*(c-a)+1)- Kif2*iec*IF- KInM*iec*TM- KtiecIn*iec/1[mole]- KtiecinTe*TE*iec/1 ↙
[mole]');
16137
16138 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kecb*ec*Vint+ phic*ec*n*(KH*(c-a)+1)- Kif2*iec*IF- KInM*iec*TM- KtiecIn*iec/1[mole]- ↙
KtiecinTe*TE*iec/1[mole]', 0);
16139 model.component('comp1').physics('In').feature('dode1').setIndex('f', ↙
'Kb*H*Vint+phic*H*n*(KH*(c-a)+1) -Kif2*In*IF-KInM*TM*In-KTiecTE *In-phictl*In*TE', 0);
16140
16141 model.sol('sol54').runFromTo('st1', 'v1');
16142
16143 model.result('pg40').run;
16144
16145 model.component('comp1').variable('var22').set('f19', ↙
'(ka_spleen*y102*y18*vv_spleen-kd_spleen*y19*vv_spleen-disinfa_spleen*y19*vv_spleen) ↙
/vv_spleen-Kint*y19');
16146 model.component('comp1').variable('var22').set('f23', ↙
'(ka_Upper_body*y92*y22*vv_Upper_body-kd_Upper_body*y23*vv_Upper_body- ↙
disinfa_Upper_body*y23*vv_Upper_body)/vv_Upper_body-Kint*y23');
16147 model.component('comp1').variable('var22').set('f27', ↙
'(ka_Torso*y90*y26*vv_Torso-kd_Torso*y27*vv_Torso-disinfa_Torso*y27*vv_Torso)/vv_Torso- ↙
Kint*y27');
16148 model.component('comp1').variable('var22').set('f31', ↙
'(ka_intestin*y103*y30*vv_intestin-kd_intestin*y31*vv_intestin- ↙
disinfa_Intestine*y31*vv_intestin)/vv_intestin-Kint*y31');
16149 model.component('comp1').variable('var22').set('f55', ↙
'(ka_Lower_body*y94*y54*vv_Lower_body-kd_Lower_body*y55*vv_Lower_body- ↙
disinfa_Lower_body*y55*vv_Lower_body)/vv_Lower_body-Kint*y55');
16150 model.component('comp1').variable('var22').set('f63', ↙
'(ka_brain*y96*y62*vv_brain-kd_brain*y63*vv_brain-disinfa_Brain*y63*vv_brain)/vv_brain- ↙
Kint*y63');
16151 model.component('comp1').variable('var22').set('f71', ↙
'(ka_kidney*y98*y70*vv_kidney-kd_kidney*y71*vv_kidney-disinfa_kidney*y71*vv_kidney) ↙
/vv_kidney-Kint*y71');
16152 model.component('comp1').variable('var22').set('f75', ↙
'(ka_Cardiac_vessels*y125*y74*vv_Cardiac_vessels- ↙
kd_Cardiac_vessels*y75*vv_Cardiac_vessels- ↙
disinfa_Cardiac_vessels*y75*vv_Cardiac_vessels)/vv_Cardiac_vessels-Kint*y75');
16153 model.component('comp1').variable('var22').set('f107', '((Q_intestin-L_intestin) ↙
*y111+(Q_spleen-L_spleen)*y108+(Q_liver-Q_intestin-Q_spleen+L_intestin+L_spleen)*y85- ↙
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(Q_liver-L_liver)*y107+mt_liver*ac*IL6/(IL6+1)*vv_liver*ec7/ec0+mt_liver*ac*y302/ ↙
(y302+1)*vv_liver*ec7/ec0+ktiec*iec7*vv_liver+ktiecte*(TE)*iec7*vv_liver- ↙
e_liver*y107*vv_liver-d_liver*y107*vv_liver)/vv_liver');
16154 model.component('comp1').variable('var22').set('f108', '(Q_spleen*y85-(Q_spleen- ↙
L_spleen)*y108+mt_spleen*ac*IL6/(IL6+1)*vv_spleen*ec9/ec0+ mt_spleen*ac*y302/(y302+1) ↙
*vv_spleen*ec9/ec0+ktiec*iec9*vv_spleen+ktiecte*(TE)*iec9*vv_spleen- ↙
e_spleen*y108*vv_spleen-d_spleen*y108*vv_spleen)/vv_spleen');
16155 model.component('comp1').variable('var22').set('e_spleen', 'e_liver');
16156 model.component('comp1').variable('var22').set('d_spleen', 'd_liver');
16157 model.component('comp1').variable('var22').set('f109', '(Q_Upper_body*y85- ↙
(Q_Upper_body-L_Upper_body)*y109+mt_Upper_body*ac*IL6/(IL6+1)*vv_Upper_body*ec11/ec0+ ↙
mt_Upper_body*ac*y310/(y310+1) ↙
*vv_Upper_body*ec11/ec0+ktiec*iec11*vv_Upper_body+ktiecte*(TE)*iec11*vv_Upper_body- ↙
e_Upper_body*y109*vv_Upper_body-d_Upper_body*y109*vv_Upper_body)/vv_Upper_body');
16158 model.component('comp1').variable('var22').set('f108', '(Q_spleen*y85-(Q_spleen- ↙
L_spleen)*y108+mt_spleen*ac*IL6/(IL6+1)*vv_spleen*ec9/ec0+ mt_spleen*ac*y304/(y304+1) ↙
*vv_spleen*ec9/ec0+ktiec*iec9*vv_spleen+ktiecte*(TE)*iec9*vv_spleen- ↙
e_spleen*y108*vv_spleen-d_spleen*y108*vv_spleen)/vv_spleen');
16159 model.component('comp1').variable('var22').set('e_Upper_body', 'e_liver');
16160 model.component('comp1').variable('var22').set('d_Upper_body', 'd_liver');
16161 model.component('comp1').variable('var22').set('f110', '(Q_Torso*y85-(Q_Torso- ↙
L_Torso)*y110+mt_Torso*ac*IL6/(IL6+1)*vv_Torso*ec10/ec0+ mt_Torso*ac*y309/(y309+1) ↙
*vv_Torso*ec10/ec0+ktiec*iec10*vv_Torso+ktiecte*(TE)*iec10*vv_Torso- ↙
e_Torso*y110*vv_Torso-d_Torso*y110*vv_Torso)/vv_Torso');
16162 model.component('comp1').variable('var22').set('e_Torso', 'e_liver');
16163 model.component('comp1').variable('var22').set('d_Torso', 'd_liver');
16164 model.component('comp1').variable('var22').set('f111', '(Q_intestin*y85- ↙
(Q_intestin-L_intestin)*y111+mt_intestin*ac*IL6/(IL6+1)*vv_intestin*ec5/ec0+ ↙
mt_intestin*ac*y307/(y307+1)*vv_intestin*ec5/ec0+ktiec*iec5*vv_intestin+ktiecte*(TE) ↙
*iec5*vv_intestin-e_intestin*y111*vv_intestin-d_intestin*y111*vv_intestin) ↙
/vv_intestin');
16165 model.component('comp1').variable('var22').set('e_intestin', 'e_liver');
16166 model.component('comp1').variable('var22').set('d_intestin', 'd_liver');
16167 model.component('comp1').variable('var22').set('f111', '(Q_intestin*y85- ↙
(Q_intestin-L_intestin)*y111+mt_Intestine*ac*IL6/(IL6+1)*vv_intestin*ec5/ec0+ ↙
mt_Intestine*ac*y307/(y307+1)*vv_intestin*ec5/ec0+ktiec*iec5*vv_intestin+ktiecte*(TE) ↙
*iec5*vv_intestin-e_intestin*y111*vv_intestin-d_intestin*y111*vv_intestin) ↙
/vv_intestin');
16168 model.component('comp1').variable('var22').set('f117', '(Q_Lower_body*y85- ↙
(Q_Lower_body-L_Lower_body)*y117+mt_Lower_body*ac*IL6/(IL6+1)*vv_Lower_body*ec8/ec0+ ↙
mt_Lower_body*ac*y308/(y308+1)*vv_Lower_body*ec8/ec0+ktiec*iec8*vv_Lower_body+ktiecte* ↙
(TE)*iec8*vv_Lower_body-e_Lower_body*y117*vv_Lower_body- ↙
d_Lower_body*y117*vv_Lower_body)/vv_Lower_body');
16169 model.component('comp1').variable('var22').set('e_Lower_body', 'e_liver');
16170 model.component('comp1').variable('var22').set('d_Lower_body', 'd_liver');
16171 model.component('comp1').variable('var22').set('f119', '(Q_brain*y85-(Q_brain- ↙
L_brain)*y119+mt_brain*ac*IL6/(IL6+1)*vv_brain*ec3/ec0+ mt_brain*ac*y303/(y303+1) ↙
*vv_brain*ec3/ec0+ktiec*iec3*vv_brain+ktiecte*(TE)*iec3*vv_brain-e_brain*y119*vv_brain- ↙
d_brain*y119*vv_brain)/vv_brain');
16172 model.component('comp1').variable('var22').set('e_brain', 'e_liver');
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16173 model.component('comp1').variable('var22').set('d_brain', 'd_liver');
16174 model.component('comp1').variable('var22').set('f119', '(Q_brain*y85-(Q_brain- ↙
L_brain)*y119+mt_Brain*ac*IL6/(IL6+1)*vv_brain*ec3/ec0+ mt_Brain*ac*y303/(y303+1) ↙
*vv_brain*ec3/ec0+ktiec*iec3*vv_brain+ktiecte*(TE)*iec3*vv_brain-e_brain*y119*vv_brain- ↙
d_brain*y119*vv_brain)/vv_brain');
16175 model.component('comp1').variable('var22').set('f121', '(Q_kidney*y85-(Q_kidney- ↙
L_kidney)*y121+mt_kidney*ac*IL6/(IL6+1)*vv_kidney*ec6/ec0+ mt_kidney*ac*y305/(y305+1) ↙
*vv_kidney*ec6/ec0+ktiec*iec6*vv_kidney+ktiecte*(TE)*iec6*vv_kidney- ↙
e_kidney*y121*vv_kidney-d_kidney*y121*vv_kidney)/vv_kidney');
16176 model.component('comp1').variable('var22').set('e_kidney', 'e_liver');
16177 model.component('comp1').variable('var22').set('d_kidney', 'd_liver');
16178 model.component('comp1').variable('var22').set('f124', '(Q_Cardiac_vessels*y85- ↙
(Q_Cardiac_vessels-L_Cardiac_vessels)*y124+mt_Cardiac_vessels*ac*IL6/(IL6+1) ↙
*vv_Cardiac_vessels*ec4/ec0+ mt_Cardiac_vessels*ac*y306/(y306+1) ↙
*vv_Cardiac_vessels*ec4/ec0+ktiec*iec4*vv_Cardiac_vessels+ktiecte*(TE) ↙
*iec4*vv_Cardiac_vessels-e_Cardiac_vessels*y124*vv_Cardiac_vessels- ↙
d_Cardiac_vessels*y124*vv_Cardiac_vessels)/vv_Cardiac_vessels');
16179 model.component('comp1').variable('var22').set('e_Cardiac_vessels', 'e_liver');
16180 model.component('comp1').variable('var22').set('d_Cardiac_vessels', 'd_liver');
16181
16182 model.component('comp1').physics('dode15').feature('dode1').setIndex('f', 'f108', ↙
0);
16183 model.component('comp1').physics('dode15').feature('dode1').setIndex('f', ↙
'(d_liver*y108*vv_liver-e_liver*y1072*vv_liver)/vv_liver', 1);
16184 model.component('comp1').physics('dode15').feature('dode1').setIndex('f', ↙
'(d_liver*y108*vv_liver-e_liver*y1082*vv_liver)/vv_liver', 1);
16185 model.component('comp1').physics('dode15').feature('dode1').setIndex('f', ↙
'(d_spleen*y108*vv_spleen-e_spleen*y1082*vv_spleen)/vv_spleen', 1);
16186 model.component('comp1').physics('dode19').feature('dode1').setIndex('f', 'f109', ↙
0);
16187 model.component('comp1').physics('dode19').feature('dode1').setIndex('f', ↙
'(d_Upper_body*y107*vv_liver-e_liver*y1072*vv_liver)/vv_liver', 1);
16188 model.component('comp1').physics('dode19').feature('dode1').setIndex('f', ↙
'(d_Upper_body*y107*vv_Upper_body-e_Upper_body*y1072*vv_Upper_body)/vv_Upper_body', 1);
16189 model.component('comp1').physics('dode23').feature('dode1').setIndex('f', 'f110', ↙
0);
16190 model.component('comp1').physics('dode23').feature('dode1').setIndex('f', 1, 1);
16191 model.component('comp1').physics('dode23').feature('dode1').setIndex('f', ↙
'(d_torso*y107*vv_Upper_body-e_Upper_body*y1072*vv_Upper_body)/vv_Upper_body', 1);
16192 model.component('comp1').physics('dode23').feature('dode1').setIndex('f', ↙
'(d_Torso*y107*vv_Upper_body-e_Upper_body*y1072*vv_Upper_body)/vv_Upper_body', 1);
16193 model.component('comp1').physics('dode23').feature('dode1').setIndex('f', ↙
'(d_Torso*y107*vv_Torso-e_Torso*y1072*vv_Torso)/vv_Torso', 1);
16194 model.component('comp1').physics('dode27').feature('dode1').setIndex('f', 'f111', ↙
0);
16195 model.component('comp1').physics('dode27').feature('dode1').setIndex('f', ↙
'(d_Torso*y107*vv_Torso-e_Torso*y1072*vv_Torso)/vv_Torso', 1);
16196 model.component('comp1').physics('dode27').feature('dode1').setIndex('f', ↙
'(d_intestin*y107*vv_intestin-e_intestin*y1072*vv_intestin)/vv_intestin', 1);
16197 model.component('comp1').physics('dode31').feature('dode1').setIndex('f', 'f117', ↙
```

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0);
16198 model.component('comp1').physics('dode31').feature('dode1').setIndex('f', ↙
'(d_Lower_Body*y107*vv_intestin-e_intestin*y1072*vv_intestin)/vv_intestin', 1);
16199 model.component('comp1').physics('dode31').feature('dode1').setIndex('f', ↙
'(d_Lower_body*y107*vv_intestin-e_intestin*y1072*vv_intestin)/vv_intestin', 1);
16200 model.component('comp1').physics('dode31').feature('dode1').setIndex('f', ↙
'(d_Lower_body*y107*vv_Lower_body-e_Lower_body*y1072*vv_Lower_body)/vv_Lower_body', 1);
16201 model.component('comp1').physics('dode35').feature('dode1').setIndex('f', 'f119', ↙
0);
16202 model.component('comp1').physics('dode35').feature('dode1').setIndex('f', ↙
'(d_Lower_body*y107*vv_Lower_body-e_Lower_body*y1072*vv_Lower_body)/vv_brain', 1);
16203 model.component('comp1').physics('dode35').feature('dode1').setIndex('f', ↙
'(d_brain*y107*vv_brain-e_brain*y1072*vv_brain)/vv_brain', 1);
16204 model.component('comp1').physics('dode38').feature('dode1').setIndex('f', 'f121', ↙
0);
16205 model.component('comp1').physics('dode38').feature('dode1').setIndex('f', ↙
'(d_Lower_body*y107*vv_Lower_body-e_Lower_body*y1072*vv_Lower_body)/vv_Kidney', 1);
16206 model.component('comp1').physics('dode38').feature('dode1').setIndex('f', ↙
'(d_Lower_body*y107*vv_Lower_body-e_Lower_body*y1072*vv_Lower_body)/vv_kidney', 1);
16207 model.component('comp1').physics('dode38').feature('dode1').setIndex('f', ↙
'(d_kidney*y107*vv_kidney-e_kidney*y1072*vv_kidney)/vv_kidney', 1);
16208 model.component('comp1').physics('dode42').feature('dode1').setIndex('f', 'f124', ↙
0);
16209 model.component('comp1').physics('dode42').feature('dode1').setIndex('f', ↙
'(d_cardiac_vessel*y107*vv_kidney-e_kidney*y1072*vv_kidney)/vv_kidney', 1);
16210 model.component('comp1').physics('dode42').feature('dode1').setIndex('f', ↙
'(d_Cardiac_vessels*y107*vv_Cardiac_vessels-e_Cardiac_vessels*y1072*vv_Cardiac_vessels) ↙
/vv_Cardiac_vessels', 1);
16211 model.component('comp1').physics('dode42').feature('dode1').setIndex('f', ↙
'(d_Cardiac_vessels*y124*vv_Cardiac_vessels-e_Cardiac_vessels*y1242*vv_Cardiac_vessels) ↙
/vv_Cardiac_vessels', 1);
16212 model.component('comp1').physics('dode35').feature('dode1').setIndex('f', ↙
'(d_brain*y119*vv_brain-e_brain*y1192*vv_brain)/vv_brain', 1);
16213 model.component('comp1').physics('dode31').feature('dode1').setIndex('f', ↙
'(d_Lower_body*y117*vv_Lower_body-e_Lower_body*y1172*vv_Lower_body)/vv_Lower_body', 1);
16214 model.component('comp1').physics('dode27').feature('dode1').setIndex('f', ↙
'(d_intestin*y111*vv_intestin-e_intestin*y1112*vv_intestin)/vv_intestin', 1);
16215 model.component('comp1').physics('dode23').feature('dode1').setIndex('f', ↙
'(d_Torso*y110*vv_Torso-e_Torso*y1102*vv_Torso)/vv_Torso', 1);
16216 model.component('comp1').physics('dode19').feature('dode1').setIndex('f', ↙
'(d_Upper_body*y109*vv_Upper_body-e_Upper_body*y1092*vv_Upper_body)/vv_Upper_body', 1);
16217
16218 model.component('comp1').variable('var22').set('f203', '(Q_brain*y200-(Q_brain- ↙
L_brain)*y203-Kay*y62*y203*vv_brain-Kaiec*eic3*y203*vv_brain-Kay*203*vv_brain) ↙
/vv_brain');
16219 model.component('comp1').variable('var22').set('Kaiec', '1[1/s]');
16220 model.component('comp1').variable('var22').set('f203', '(Q_brain*y200-(Q_brain- ↙
L_brain)*y203-Kay*y62*y203*vv_brain-Kaiec*iec3*y203*vv_brain-Kay*203*vv_brain) ↙
/vv_brain');
16221 model.component('comp1').variable('var22').set('test', '(Q_brain*y200-(Q_brain- ↙
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L_brain)*y203-Kay*y62*y203*vv_brain-Kaiec*iec3*y203*vv_brain-Kay*203*vv_brain) ↙
/vv_brain');
16222 model.component('comp1').variable('var22').set('test1', 'Kay*203');
16223 model.component('comp1').variable('var22').set('Kaiec', 'Ka');
16224 model.component('comp1').variable('var22').set('test', '(Q_brain*y200-(Q_brain- ↙
L_brain)*y203-Kay*y62*y203*vv_brain)/vv_brain');
16225 model.component('comp1').variable('var22').set('test1', '- ↙
Kaiec*iec3*y203*vv_brain');
16226 model.component('comp1').variable('var22').set('test2', '-Ka*y203*vv_brain');
16227 model.component('comp1').variable('var22').set('test1', '- ↙
Kaiec*iec3*y203*vv_brain-Ka*y203*vv_brain');
16228 model.component('comp1').variable('var22').set('test', '(Q_brain*y200-(Q_brain- ↙
L_brain)*y203-Kay*y62*y203*vv_brain-Kaiec*iec3*y203*vv_brain-Ka*y203*vv_brain) ↙
/vv_brain');
16229 model.component('comp1').variable('var22').set('test1', '- ↙
Kaiec*iec3*y203*vv_brain');
16230 model.component('comp1').variable('var22').set('Kaiec', '1[m^3/s]');
16231 model.component('comp1').variable('var22').set('f203', '(Q_brain*y200-(Q_brain- ↙
L_brain)*y203-Kay*y62*y203*vv_brain-Kaiec*iec3*y203*vv_brain-Ka*y203*vv_brain) ↙
/vv_brain');
16232 model.component('comp1').variable('var22').set('f204', '(Q_spleen*y200-(Q_spleen- ↙
L_spleen)*y204-Kay*y18*y204*vv_spleen-Kaiec*iec9*y204*vv_spleen-Ka*y204*vv_spleen) ↙
/vv_spleen');
16233 model.component('comp1').variable('var22').set('f206', '(Q_Cardiac_vessels*y200- ↙
(Q_Cardiac_vessels-L_Cardiac_vessels)*y206-Kay*y74*y206*vv_Cardiac_vessels- ↙
Kaiec*iec4*y206*vv_Cardiac_vessels-Ka*y206*vv_Cardiac_vessels)/vv_Cardiac_vessels');
16234 model.component('comp1').variable('var22').set('f207', '(Q_intestin*y200- ↙
(Q_intestin-L_intestin)*y207-Kay*y30*y207*vv_intestin-Kaiec*iec5*y207*vv_intestin- ↙
Ka*y207*vv_intestin)/vv_intestin');
16235 model.component('comp1').variable('var22').set('f208', '(Q_Lower_body*y200- ↙
(Q_Lower_body-L_Lower_body)*y208-Kay*y54*y208*vv_Lower_body- ↙
Kaiec*iec8*y208*vv_Lower_body-Ka*y208*vv_Lower_body)/vv_Lower_body');
16236 model.component('comp1').variable('var22').set('f205', '(Q_kidney*y200-(Q_kidney- ↙
L_kidney)*y205-Kay*y70*y205*vv_kidney-Kaiec*iec6*y205*vv_kidney-Ka*y205*vv_kidney) ↙
/vv_kidney');
16237 model.component('comp1').variable('var22').set('f209', '(Q_Torso*y200-(Q_Torso- ↙
L_Torso)*y209-Kay*y26*y209*vv_Torso-Kaiec*iec10*y209*vv_Torso-Ka*y209*vv_Torso) ↙
/vv_Torso');
16238 model.component('comp1').variable('var22').set('f210', '(Q_Upper_body*y200- ↙
(Q_Upper_body-L_Upper_body)*y210-Kay*y22*y210*vv_Upper_body- ↙
Kaiec*iec11*y210*vv_Upper_body-Ka*y210*vv_Upper_body)/vv_Upper_body');
16239 model.component('comp1').variable('var22').set('f303', '1');
16240 model.component('comp1').variable('var22').set('f304', '1');
16241 model.component('comp1').variable('var22').set('f305', '1');
16242 model.component('comp1').variable('var22').set('f307', '1');
16243 model.component('comp1').variable('var22').set('f308', '1');
16244 model.component('comp1').variable('var22').set('f309', '1');
16245 model.component('comp1').variable('var22').set('f310', '1');
16246 model.component('comp1').variable('var22').set('f306', '1');
16247 model.component('comp1').variable('var22').set('f303', '(Q_brain*y300-(Q_brain- ↙
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L_brain)*y303+Kc_innate*(n+ma)↙
*vv_brain+kciec*iec3*vv_brain+kcil6*sIL6RbIL6*KcEC*ec3*vv_brain-d_s*y303*vv_brain) ↙
/vv_brain');
16248 model.component('comp1').variable('var22').set('f304', '(Q_spleen*y300-(Q_spleen- ↙
L_spleen)*y304+Kc_innate*(n+ma)↙
*vv_spleen+kciec*iec9*vv_spleen+kcil6*sIL6RbIL6*KcEC*ec9*vv_spleen-d_s*y304*vv_spleen) ↙
/vv_spleen');
16249 model.component('comp1').variable('var22').set('f305', '(Q_kidney*y300-(Q_kidney- ↙
L_kidney)*y305+Kc_innate*(n+ma)↙
*vv_kidney+kciec*iec6*vv_kidney+kcil6*sIL6RbIL6*KcEC*ec6*vv_kidney-d_s*y305*vv_kidney) ↙
/vv_kidney');
16250 model.component('comp1').variable('var22').set('f306', '(Q_Cardiac_vessels*y300- ↙
(Q_Cardiac_vessels-L_Cardiac_vessels)*y306+Kc_innate*(n+ma) ↙
*vv_Cardiac_vessels+kciec*iec4*vv_Cardiac_vessels+kcil6*sIL6RbIL6*KcEC*ec4*vv_Cardiac_v ↙
essels-d_s*y306*vv_Cardiac_vessels)/vv_Cardiac_vessels');
16251 model.component('comp1').variable('var22').set('f307', '(Q_intestin*y300- ↙
(Q_intestin-L_intestin)*y307+Kc_innate*(n+ma) ↙
*vv_intestin+kciec*iec5*vv_intestin+kcil6*sIL6RbIL6*KcEC*ec5*vv_intestin- ↙
d_s*y307*vv_intestin)/vv_intestin');
16252 model.component('comp1').variable('var22').set('f308', '(Q_Lower_body*y300- ↙
(Q_Lower_body-L_Lower_body)*y308+Kc_innate*(n+ma) ↙
*vv_Lower_body+kciec*iec8*vv_Lower_body+kcil6*sIL6RbIL6*KcEC*ec8*vv_Lower_body- ↙
d_s*y308*vv_Lower_body)/vv_Lower_body');
16253 model.component('comp1').variable('var22').set('f309', '(Q_Torso*y300-(Q_Torso- ↙
L_Torso)*y309+Kc_innate*(n+ma)↙
*vv_Torso+kciec*iec10*vv_Torso+kcil6*sIL6RbIL6*KcEC*ec10*vv_Torso-d_s*y309*vv_Torso) ↙
/vv_Torso');
16254 model.component('comp1').variable('var22').set('f310', '(Q_Upper_body*y300- ↙
(Q_Upper_body-L_Upper_body)*y310+Kc_innate*(n+ma) ↙
*vv_Upper_body+kciec*iec11*vv_Upper_body+kcil6*sIL6RbIL6*KcEC*ec11*vv_Upper_body- ↙
d_s*y310*vv_Upper_body)/vv_Upper_body');
16255
16256 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec2- ↙
Kecb*ec2*Vint1-phiciec*ec2*n*(KHIEC*(y302-a/a_0)+1)', 1);
16257 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec3- ↙
Kecb*ec3*Vint1-phiciec*ec3*n*(KHIEC*(y307-a/a_0)+1)', 2);
16258 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec7- ↙
Kecb*ec7*Vint1-phiciec*ec7*n*(KHIEC*(y302-a/a_0)+1)', 3);
16259 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec4- ↙
Kecb*ec4*Vint1-phiciec*ec7*n*(KHIEC*(y302-a/a_0)+1)', 3);
16260 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec3- ↙
Kecb*ec3*Vint1-phiciec*ec3*n*(KHIEC*(y303-a/a_0)+1)', 2);
16261 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec2- ↙
Kecb*ec2*Vint1-phiciec*ec2*n*(KHIEC*(y300-a/a_0)+1)', 1);
16262 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec3- ↙
Kecb*ec3*Vint7-phiciec*ec3*n*(KHIEC*(y303-a/a_0)+1)', 2);
16263 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec4- ↙
Kecb*ec4*Vint9-phiciec*ec4*n*(KHIEC*(y306-a/a_0)+1)', 3);
16264 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec5- ↙
Kecb*ec5*Vint5-phiciec*ec5*n*(KHIEC*(y307-a/a_0)+1)', 4);
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16265 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec6- ↙
Kecb*ec6*Vint8-phiciec*ec6*n*(KHIEC*(y305-a/a_0)+1)', 5);
16266 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec8- ↙
Kecb*ec8*Vint6-phiciec*ec6*n*(KHIEC*(y308-a/a_0)+1)', 7);
16267 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec9- ↙
Kecb*ec9*Vint8-phiciec*ec8*n*(KHIEC*(y305-a/a_0)+1)', 8);
16268 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec8- ↙
Kecb*ec8*Vint6-phiciec*ec8*n*(KHIEC*(y308-a/a_0)+1)', 7);
16269 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec9- ↙
Kecb*ec9*Vint2-phiciec*ec9*n*(KHIEC*(y304-a/a_0)+1)', 8);
16270 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec10- ↙
Kecb*ec10*Vint4-phiciec*ec10*n*(KHIEC*(y309-a/a_0)+1)', 9);
16271 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec11- ↙
Kecb*ec11*Vint3-phiciec*ec11*n*(KHIEC*(y310-a/a_0)+1)', 10);
16272 model.component('comp1').physics('ec').feature('dode1').setIndex('f', 'Kec*ec12- ↙
Kecb*ec12*Vint8-phiciec*ec12*n*(KHIEC*(y301-a/a_0)+1)', 11);
16273 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kecb*ec2*Vint1+phiciec*ec2*n*(KHIEC*(y302-a/a_0)+1)-Kif2*iec2*IF-KInM*iec2*TM- ↙
KTIEC*iec2-KTiecTE*TE*iec2', 1);
16274 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kecb*ec3*Vint7+phiciec*ec3*n*(KHIEC*(y303-a/a_0)+1)-Kif2*iec3*IF-KInM*iec3*TM- ↙
KTIEC*iec3-KTiecTE*TE*iec3', 2);
16275 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kecb*ec4*Vint9+phiciec*ec4*n*(KHIEC*(y306-a/a_0)+1)-Kif2*iec4*IF-KInM*iec4*TM- ↙
KTIEC*iec4-KTiecTE*TE*iec4', 3);
16276 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kecb*ec5*Vint5+phiciec*ec5*n*(KHIEC*(y307-a/a_0)+1)-Kif2*iec5*IF-KInM*iec5*TM- ↙
KTIEC*iec5-KTiecTE*TE*iec5', 4);
16277 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kecb*ec6*Vint8+phiciec*ec6*n*(KHIEC*(y305-a/a_0)+1)-Kif2*iec6*IF-KInM*iec6*TM- ↙
KTIEC*iec6-KTiecTE*TE*iec6', 5);
16278 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kecb*ec8*Vint6+phiciec*ec8*n*(KHIEC*(y308-a/a_0)+1)-Kif2*iec8*IF-KInM*iec8*TM- ↙
KTIEC*iec8-KTiecTE*TE*iec8', 7);
16279 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kecb*ec9*Vint2+phiciec*ec9*n*(KHIEC*(y304-a/a_0)+1)-Kif2*iec9*IF-KInM*iec9*TM- ↙
KTIEC*iec9-KTiecTE*TE*iec9', 8);
16280 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kecb*ec10*Vint4+phiciec*ec10*n*(KHIEC*(y309-a/a_0)+1)-Kif2*iec10*IF-KInM*iec10*TM- ↙
KTIEC*iec10-KTiecTE*TE*iec10', 9);
16281 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kecb*ec11*Vint3+phiciec*ec11*n*(KHIEC*(y310-a/a_0)+1)-Kif2*iec11*IF-KInM*iec11*TM- ↙
KTIEC*iec11-KTiecTE*TE*iec11', 10);
16282 model.component('comp1').physics('iec').feature('dode1').setIndex('f', ↙
'Kecb*ec12*Vint3+phiciec*ec12*n*(KHIEC*(y301-a/a_0)+1)-Kif2*iec12*IF-KInM*iec12*TM- ↙
KTIEC*iec12-KTiecTE*TE*iec12', 11);
16283
16284 model.component('comp1').variable('var22').remove('d_spleen');
16285 model.component('comp1').variable('var22').remove('d_Upper_body');
16286 model.component('comp1').variable('var22').remove('d_Torso');
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16287 model.component('comp1').variable('var22').remove('d_intestin');
16288 model.component('comp1').variable('var22').remove('d_Lower_body');
16289 model.component('comp1').variable('var22').remove('d_brain');
16290 model.component('comp1').variable('var22').remove('d_kidney');
16291 model.component('comp1').variable('var22').remove('d_Cardiac_vessels');
16292 model.component('comp1').variable('var22').set('f111', '(Q_intestin*y85- ↙
(Q_intestin-L_intestin)*y111+mt_Intestine*ac*IL6/(IL6+1)*vv_intestin*ec5/ec0+ ↙
mt_Intestine*ac*y307/(y307+1)*vv_intestin*ec5/ec0+ktiec*iec5*vv_intestin+ktiecte*(TE) ↙
*iec5*vv_intestin-e_intestin*y111*vv_intestin-d_Intestine*y111*vv_intestin) ↙
/vv_intestin');
16293 model.component('comp1').variable('var22').set('f119', '(Q_brain*y85-(Q_brain- ↙
L_brain)*y119+mt_Brain*ac*IL6/(IL6+1)*vv_brain*ec3/ec0+ mt_Brain*ac*y303/(y303+1) ↙
*vv_brain*ec3/ec0+ktiec*iec3*vv_brain+ktiecte*(TE)*iec3*vv_brain-e_brain*y119*vv_brain- ↙
d_Brain*y119*vv_brain)/vv_brain');
16294
16295 model.sol('sol54').runFromTo('st1', 'v1');
16296
16297 model.result('pg40').run;
16298
16299 model.component('comp1').physics('dode27').feature('dode1').setIndex('f', ↙
'(d_Intestine*y111*vv_intestin-e_intestin*y1112*vv_intestin)/vv_intestin', 1);
16300 model.component('comp1').physics('dode35').feature('dode1').setIndex('f', ↙
'(d_Brain*y119*vv_brain-e_brain*y1192*vv_brain)/vv_brain', 1);
16301
16302 model.label('New Covid model_value_newPK - Copy.mph');
16303
16304 model.sol('sol54').feature('t1').set('initialstepbdfactive', true);
16305
16306 model.result('pg40').run;
16307 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
16308 model.result('pg40').run;
16309
16310 model.sol('sol54').feature('t1').set('initialstepbdf', 0.01);
16311 model.sol('sol54').runAll;
16312
16313 model.result('pg40').run;
16314
16315 model.label('New Covid model_value_newPK - Coprun initial time stepy.mph');
16316
16317 model.result('pg40').run;
16318
16319 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung*Cb+Kint*Cb-Ka*Vint', 0);
16320
16321 model.label('New Covid model_value_newPK - full check.mph');
16322
16323 model.sol('sol54').runAll;
16324
16325 model.result('pg40').run;
16326
```

```
16327 model.label('New Covid model_value_newPK - full check_run.mph');
16328
16329 model.result('pg40').run;
16330
16331 model.label('New Covid model_value_newPK - full check_run_clear.mph');
16332
16333 model.result('pg40').run;
16334
16335 model.component('comp1').physics.remove('VEGF');
16336 model.component('comp1').physics.remove('Ctl');
16337 model.component('comp1').physics.remove('cox_oxygen');
16338 model.component('comp1').physics.remove('dode5');
16339 model.component('comp1').physics.remove('dode6');
16340 model.component('comp1').physics.remove('dode8');
16341 model.component('comp1').physics.remove('CD4');
16342 model.component('comp1').physics.remove('InCD4');
16343 model.component('comp1').physics.remove('CD8');
16344 model.component('comp1').physics.remove('InCD8');
16345 model.component('comp1').physics.remove('NaiveTcell');
16346 model.component('comp1').physics.remove('ActivatedTcell');
16347
16348 model.result('pg40').run;
16349 model.result('pg44').run;
16350 model.result.remove('pg44');
16351 model.result.remove('pg45');
16352 model.result.remove('pg46');
16353 model.result.remove('pg47');
16354 model.result.remove('pg48');
16355 model.result.remove('pg49');
16356 model.result.remove('pg50');
16357 model.result.remove('pg51');
16358 model.result('pg40').run;
16359 model.result('pg40').run;
16360 model.result.table.create('tbl2', 'Table');
16361 model.result.table.remove('tbl2');
16362 model.result.numerical.create('pev1', 'EvalPoint');
16363 model.result('pg40').run;
16364 model.result('pg40').feature('ptgr2').set('expr', 'y301');
16365 model.result('pg40').run;
16366 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
16367 model.result('pg40').run;
16368
16369 model.label('New Covid model_value_newPK - full check_run_clear_1.mph');
16370
16371 model.component('comp1').physics('IL6').feature('dode1').setIndex('f', ↙
'KIL6*ma*Ci-gam_IL6*IL6-KonIL6*IL6*IL6R+KoffIL6*IL6RbIL6+KoffsIL6R*sIL6RbIL6- ↙
KonsIL6R*sIL6R*IL6+KIL6TN*TN+KIL6IEC*iec+KIL6TE*TE+KIL6In*In', 0);
16372 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung/1000-KsACE2*sACE2*Ci- ↙
KonACE2V*Ci*ACE2+KoffACE2V*Cb-Kd*Ci-Kv*Ci*A+Ka*(1-IF/(Kif+IF))*Vint', 0);
```

```
16373 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung*Cb+Kint*Cb-Ka*(1-KifIF/(Kif+IF))*Vint', 0);
16374 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung*Cb+Kint*Cb-Ka*(1-Kif*IF/(Kif+IF))*Vint', 0);
16375 model.component('comp1').physics('Vint').feature('dode1').setIndex('f', ↙
'p_lung*Vint+Kint*Cb-Ka*(1-Kif*IF/(Kif+IF))*Vint', 0);
16376 model.component('comp1').physics('n').feature('dode1').setIndex('f', 'xn*c/ ↙
(1+a/a0)-gam_n*n*(1+bn*Ci/(Ci+1))+xIL6*IL6RbIL6', 0);
16377
16378 model.label('New Covid model_value_newPK - full check_run_clear_1.mph');
16379 model.label('Covid vaccines model.mph');
16380
16381 model.sol('sol54').runAll;
16382
16383 model.result('pg40').run;
16384
16385 model.sol('sol54').clearSolutionData;
16386
16387 model.label('Covid vaccines model_clearsolution.mph');
16388
16389 model.component('comp1').physics.create('dode5', 'DomainODE', {'u9'});
16390
16391 model.study('std1').feature('param').activate('dode5', true);
16392 model.study('std1').feature('time').activate('dode5', true);
16393
16394 model.component('comp1').physics('dode5').field('dimensionless').component(1, ↙
'Va');
16395 model.component('comp1').physics('dode5').tag('Va');
16396 model.component('comp1').physics('Va').prop('Units').setIndex ↙
('CustomSourceTermUnit', '1/s', 0, 0);
16397 model.component('comp1').physics('Va').feature('dode1').setIndex('f', ↙
'(Q_lung*Va-(Q_lung-L_lung)*Va)/vv_lung/1000-Koncellva*Va*H- ↙
KonAPCva*Va*DCi+Koffcellva*Va*H+KoffAPCva*Va*H-Kd*Va', 0);
16398
16399 model.component('comp1').variable.create('var24');
16400 model.component('comp1').variable('var24').label('vaccine');
16401 model.component('comp1').variable('var24').set('Koncellva', 'KonACE2V');
16402 model.component('comp1').variable('var24').set('KonAPCva', 'KonACE2V');
16403 model.component('comp1').variable('var24').set('Koffcellva', 'KoffACE2V');
16404 model.component('comp1').variable('var24').set('KoffAPCva', 'KoffACE2V');
16405 model.component('comp1').variable('var24').set('Kdva', 'Kd');
16406
16407 model.component('comp1').physics('Va').feature('dode1').setIndex('f', ↙
'(Q_lung*Va-(Q_lung-L_lung)*Va)/vv_lung/1000-Koncellva*Va*H- ↙
KonAPCva*Va*DCi+Koffcellva*Va*H+KoffAPCva*Va*H-Kdva*Va', 0);
16408
16409 model.component('comp1').variable('var24').set('Koncellva', 'KonACE2V*1[mole]');
16410 model.component('comp1').variable('var24').set('Koffcellva', 'KoffACE2V*1[m^3]');
16411
16412 model.component('comp1').physics('Va').feature('dode1').setIndex('f', ↙
```

```
'(Q_lung*Va-(Q_lung-L_lung)*Va)/vv_lung/1000-Koncellva*Va*H- ↙
KonAPCva*Va*DCi+Koffcellva*Va*H+KoffAPCva*Va*DCi-Kdva*Va', 0);
16413 model.component('comp1').physics('Va').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
16414 model.component('comp1').physics('Va').prop('Units').set ↙
('DependentVariableQuantity', 'none');
16415 model.component('comp1').physics('Va').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
16416 model.component('comp1').physics('Va').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
16417
16418 model.sol('sol54').runFromTo('st1', 'v1');
16419
16420 model.result('pg40').run;
16421
16422 model.component('comp1').physics('Va').feature('dode1').setIndex('f', ↙
'(Q_lung*Va-(Q_lung-L_lung)*Va)/vv_lung/1000', 0);
16423 model.component('comp1').physics('Va').feature('dode1').setIndex('f', ↙
'(Q_lung*Va-(Q_lung-L_lung)*Va)/vv_lung/1000-Koncellva*Va*H', 0);
16424 model.component('comp1').physics('Va').feature('dode1').setIndex('f', ↙
'(Q_lung*Va-(Q_lung-L_lung)*Va)/vv_lung/1000-Koncellva*Va*H-KonAPCva*Va*DCi', 0);
16425 model.component('comp1').physics('Va').feature('dode1').setIndex('f', ↙
'(Q_lung*Va-(Q_lung-L_lung)*Va)/vv_lung/1000-Koncellva*Va*H- ↙
KonAPCva*Va*DCi+Koffcellva*Va*H+KoffAPCva*Va*DCi-Kdva*Va', 0);
16426
16427 model.component('comp1').variable('var24').set('KonAPCva', 'KoffACE2V');
16428
16429 model.component('comp1').physics.create('dode6', 'DomainODE', {'u19'});
16430
16431 model.study('std1').feature('param').activate('dode6', true);
16432 model.study('std1').feature('time').activate('dode6', true);
16433
16434 model.component('comp1').physics('dode6').identifier('dode6');
16435 model.component('comp1').physics('dode6').field('dimensionless').component(1, ↙
'Vab');
16436 model.component('comp1').physics('dode6').tag('Vab');
16437 model.component('comp1').physics('Vab').feature('dode1').setIndex('f', ↙
'+Koncellva*Va*H+KonAPCva*Va*DCi-Koffcellva*Va*H-KoffAPCva*Va*DCi-KintVa*Vab', 0);
16438
16439 model.component('comp1').variable('var24').set('KintVa', 'Kint');
16440
16441 model.component('comp1').physics('Vab').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
16442 model.component('comp1').physics('Vab').prop('Units').set ↙
('DependentVariableQuantity', 'none');
16443 model.component('comp1').physics('Vab').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
16444 model.component('comp1').physics('Vab').prop('Units').set('CustomSourceTermUnit', ↙
'm^-2');
16445 model.component('comp1').physics('Vab').prop('Units').set('SourceTermQuantity', ↙
```

```
'none');
16446 model.component('comp1').physics('Vab').prop('Units').set('CustomSourceTermUnit', ↙
'm^-2');
16447 model.component('comp1').physics('Vab').prop('Units').set('SourceTermQuantity', ↙
'none');
16448 model.component('comp1').physics('Vab').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
16449 model.component('comp1').physics('Va').feature('dode1').setIndex('f', 'SVa+ ↙
(Q_lung*Va-(Q_lung-L_lung)*Va)/vv_lung/1000-Koncellva*Va*H- ↙
KonAPCva*Va*DCi+Koffcellva*Va*H+KoffAPCva*Va*DCi-Kdva*Va', 0);
16450
16451 model.component('comp1').variable('var24').set('SVa', '1[M/s]');
16452
16453 model.component('comp1').physics.create('dode5', 'DomainODE', {'u36'});
16454
16455 model.study('std1').feature('param').activate('dode5', true);
16456 model.study('std1').feature('time').activate('dode5', true);
16457
16458 model.component('comp1').physics('dode5').field('dimensionless').component(1, ↙
'Vaint');
16459 model.component('comp1').physics('dode5').tag('Vaint');
16460 model.component('comp1').physics('Vaint').feature('dode1').setIndex('f', ↙
'KintVa', 0);
16461 model.component('comp1').physics('Vaint').feature('dode1').setIndex('f', ↙
'KintVa*Vab', 0);
16462 model.component('comp1').physics('Vaint').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
16463 model.component('comp1').physics('Vaint').prop('Units').set ↙
('DependentVariableQuantity', 'none');
16464 model.component('comp1').physics('Vaint').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
16465 model.component('comp1').physics('Vaint').prop('Units').set ↙
('CustomSourceTermUnit', 'm^-2');
16466 model.component('comp1').physics('Vaint').prop('Units').set('SourceTermQuantity', ↙
'none');
16467 model.component('comp1').physics('Vaint').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
16468 model.component('comp1').physics('Vaint').feature('dode1').setIndex('f', ↙
'KintVa*Vab-', 0);
16469 model.component('comp1').physics('Vaint').feature('dode1').setIndex('f', ↙
'KintVa*Vab-KTran*', 0);
16470 model.component('comp1').physics('Vaint').feature('dode1').setIndex('f', ↙
'KintVa*Vab-KTran*Vaint', 0);
16471
16472 model.component('comp1').variable('var24').set('KTran', 'KintVa/100');
16473
16474 model.component('comp1').physics.create('dode6', 'DomainODE', {'u37'});
16475
16476 model.study('std1').feature('param').activate('dode6', true);
16477 model.study('std1').feature('time').activate('dode6', true);
```

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16478
16479 model.component('comp1').physics('dode6').identifier('dode6');
16480 model.component('comp1').physics('dode6').field('dimensionless').component(1, ↙
'VaTran');
16481 model.component('comp1').physics('dode6').tag('VaTran');
16482 model.component('comp1').physics('VaTran').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
16483 model.component('comp1').physics('VaTran').prop('Units').set ↙
('DependentVariableQuantity', 'none');
16484 model.component('comp1').physics('VaTran').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
16485 model.component('comp1').physics('VaTran').prop('Units').set ↙
('CustomSourceTermUnit', 'm^-2');
16486 model.component('comp1').physics('VaTran').prop('Units').set ↙
('SourceTermQuantity', 'none');
16487 model.component('comp1').physics('VaTran').prop('Units').set ↙
('CustomSourceTermUnit', 'm^-2');
16488 model.component('comp1').physics('VaTran').prop('Units').set ↙
('SourceTermQuantity', 'none');
16489 model.component('comp1').physics('VaTran').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
16490 model.component('comp1').physics('VaTran').feature('dode1').setIndex('f', ↙
'Ktran*Vaint-', 0);
16491 model.component('comp1').physics('VaTran').feature('dode1').setIndex('f', ↙
'Ktran*Vaint-Kpro*VaTran', 0);
16492
16493 model.component('comp1').variable('var24').set('Kpro', 'KTran/100');
16494
16495 model.component('comp1').physics.create('dode5', 'DomainODE', {'u38'});
16496
16497 model.study('std1').feature('param').activate('dode5', true);
16498 model.study('std1').feature('time').activate('dode5', true);
16499
16500 model.component('comp1').physics('dode5').field('dimensionless').component(1, ↙
'VaPro');
16501 model.component('comp1').physics('dode5').prop('Units').set ↙
('CustomDependentVariableUnit', '1');
16502 model.component('comp1').physics('dode5').prop('Units').set ↙
('DependentVariableQuantity', 'none');
16503 model.component('comp1').physics('dode5').prop('Units').setIndex ↙
('CustomDependentVariableUnit', 'M', 0, 0);
16504 model.component('comp1').physics('dode5').prop('Units').setIndex ↙
('CustomSourceTermUnit', 'M/s', 0, 0);
16505 model.component('comp1').physics('dode5').tag('VaPro');
16506 model.component('comp1').physics('VaPro').feature('dode1').setIndex('f', ↙
'Kpro*VaTran', 0);
16507 model.component('comp1').physics('VaTran').active(false);
16508 model.component('comp1').physics('Vaint').feature('dode1').setIndex('f', ↙
'KintVa*Vab-Kpro*Vaint', 0);
16509 model.component('comp1').physics('VaPro').feature('dode1').setIndex('f', ↙
```

```
'Kpro*Vaint', 0);
16510
16511 model.label('Covid vaccines model_mRNA.mph');
16512
16513 model.component('comp1').variable('var24').set('SVa', '1[M/d]*(t>0[d])*(t<1[d])+1 ↙
[M/d]*(t>21[d])*(t<22[d])');
16514
16515 model.sol('sol54').runAll;
16516
16517 model.result('pg40').run;
16518 model.result('pg40').run;
16519 model.result('pg40').feature('ptgr2').set('expr', 'Va');
16520 model.result('pg40').run;
16521
16522 model.study('std1').feature('time').set('tlist', 'range(0,1,40)');
16523
16524 model.sol('sol54').runAll;
16525
16526 model.result('pg40').run;
16527 model.result('pg40').run;
16528 model.result('pg40').feature('ptgr2').set('expr', 'VaPro');
16529 model.result('pg40').run;
16530
16531 model.component('comp1').variable('var1').set('As', 'VaPro/1000[mol/m^3]');
16532
16533 model.component('comp1').physics('VaPro').feature('init1').set('VaPro', 'eps');
16534
16535 model.sol('sol54').runAll;
16536
16537 model.result('pg40').run;
16538 model.result('pg40').run;
16539 model.result('pg40').feature('ptgr2').set('expr', 'As');
16540 model.result('pg40').run;
16541 model.result('pg40').feature('ptgr2').set('expr', 'DCi');
16542 model.result('pg40').run;
16543 model.result('pg40').run;
16544 model.result('pg40').feature('ptgr2').set('expr', 'ThN');
16545 model.result('pg40').run;
16546 model.result('pg40').feature('ptgr2').set('expr', 'ThE');
16547 model.result('pg40').run;
16548 model.result('pg40').feature('ptgr2').set('expr', 'TN');
16549 model.result('pg40').run;
16550 model.result('pg40').feature('ptgr2').set('expr', 'TE');
16551 model.result('pg40').run;
16552
16553 model.component('comp1').variable('var1').set('As', 'VaPro/1[mol/m^3]');
16554
16555 model.sol('sol54').runAll;
16556
16557 model.result('pg40').run;
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16558 model.result('pg40').run;
16559 model.result('pg40').feature('ptgr2').set('expr', 'TN');
16560 model.result('pg40').run;
16561 model.result('pg40').feature('ptgr2').set('expr', 'ThN');
16562 model.result('pg40').run;
16563 model.result('pg40').feature('ptgr2').set('expr', 'As');
16564 model.result('pg40').run;
16565
16566 model.component('comp1').physics('Ci').active(false);
16567
16568 model.component('comp1').variable('var24').set('Ci', '0[M]');
16569
16570 model.sol('sol54').runAll;
16571
16572 model.result('pg40').run;
16573 model.result('pg40').run;
16574 model.result('pg40').feature('ptgr2').set('expr', 'Vab');
16575 model.result('pg40').run;
16576 model.result('pg40').feature('ptgr2').set('expr', 'Vaint');
16577 model.result('pg40').run;
16578
16579 model.label('Covid vaccines model_mRNA_run_As_nonvirus.mph');
16580
16581 model.result('pg40').run;
16582 model.result('pg40').feature('ptgr2').set('expr', 'As');
16583 model.result('pg40').run;
16584 model.result('pg40').feature('ptgr2').set('expr', 'SVa');
16585 model.result('pg40').run;
16586 model.result('pg40').feature('ptgr2').set('expr', 'As');
16587 model.result('pg40').run;
16588 model.result('pg40').feature('ptgr2').set('expr', 'Va');
16589 model.result('pg40').run;
16590 model.result('pg40').feature('ptgr2').set('expr', 'VaPro');
16591 model.result('pg40').run;
16592
16593 model.sol('sol54').feature('t1').set('maxstepconstraintbdf', 'const');
16594 model.sol('sol54').feature('t1').set('maxstepbdf', 1);
16595 model.sol('sol54').runAll;
16596
16597 model.result('pg40').run;
16598
16599 model.label('Covid vaccines model_mRNA_run_As_nonvirus_timestep_1d.mph');
16600
16601 model.result('pg40').run;
16602
16603 model.component('comp1').physics('Cb').feature('dode1').setIndex('f', ↙
'+KonACE2V*Ci*ACE2-KoffACE2V*Cb-Kd*Cb/100-Kint*Cb', 0);
16604 model.component('comp1').physics('Cb').feature('dode1').setIndex('f', ↙
'+KonACE2V*Ci*ACE2-KoffACE2V*Cb-Kd*Cb-Kint*Cb', 0);
16605 model.component('comp1').physics('Ci').feature('cdeq1').setIndex('f', ↙
```

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'(Q_lung*y78-(Q_lung-L_lung)*Ci)/vv_lung-KsACE2*sACE2*Ci-KonACE2V*Ci*ACE2+KoffACE2V*Cb- ↙
Kd*Ci-Kv*Ci*A+Ka*(1-IF/(Kif+IF))*Vint', 0);
16606 model.component('comp1').physics('DC').feature('dode1').setIndex('f', 'SDC- ↙
bD*DC*Ci-dDC*DC-KTregDC*Treg*DC', 0);
16607 model.component('comp1').physics.create('dode5', 'DomainODE', {'u39'});
16608
16609 model.study('std1').feature('param').activate('dode5', true);
16610 model.study('std1').feature('time').activate('dode5', true);
16611
16612 model.component('comp1').physics('dode5').field('dimensionless').component(1, ↙
'Treg');
16613 model.component('comp1').physics('dode5').prop('Units').setIndex ↙
('CustomSourceTermUnit', '1/s', 0, 0);
16614 model.component('comp1').physics('dode5').feature('dode1').setIndex('f', 'Streg', ↙
0);
16615 model.component('comp1').physics('dode5').feature('dode1').setIndex('f', ↙
'STreg+pTreg*Treg*(a/(1+c))-dTreg*Treg', 0);
16616
16617 model.component('comp1').variable.create('var25');
16618 model.component('comp1').variable('var25').set('KTregDC', 'hT');
16619 model.component('comp1').variable('var25').set('STreg', 'SDC');
16620 model.component('comp1').variable('var25').set('pTreg', 'hT');
16621 model.component('comp1').variable('var25').set('dTreg', 'dDC');
16622
16623 model.component('comp1').physics('DCi').feature('dode1').setIndex('f', 'bD*DC*Ci- ↙
dDCi*DCiKTregDC*Treg*DCi', 0);
16624 model.component('comp1').physics('DCi').feature('dode1').setIndex('f', 'bD*DC*Ci- ↙
dDCi*DCi-KTregDC*Treg*DCi', 0);
16625
16626 model.sol('sol54').clearSolutionData;
16627
16628 model.label('Covid vaccines model_mRNA_Treg.mph');
16629
16630 model.sol('sol54').runAll;
16631
16632 model.result('pg40').run;
16633 model.result('pg40').run;
16634 model.result('pg40').feature('ptgr2').set('expr', 'As');
16635 model.result('pg40').run;
16636 model.result('pg40').feature('ptgr2').set('expr', 'ThN');
16637 model.result('pg40').run;
16638 model.result('pg40').feature('ptgr2').set('expr', 'ThE');
16639 model.result('pg40').run;
16640 model.result('pg40').feature('ptgr2').set('expr', 'DC');
16641 model.result('pg40').run;
16642 model.result('pg40').feature('ptgr2').set('expr', 'DCi');
16643 model.result('pg40').run;
16644 model.result('pg40').feature('ptgr2').set('expr', 'Treg');
16645 model.result('pg40').run;
16646
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16647 model.component('comp1').physics('DCi').feature('init1').set('DCi', 1.5);
16648
16649 model.sol('sol54').runAll;
16650
16651 model.result('pg40').run;
16652 model.result('pg40').run;
16653 model.result('pg40').feature('ptgr2').set('expr', 'DC');
16654 model.result('pg40').run;
16655 model.result('pg40').feature('ptgr2').set('expr', 'DCi');
16656 model.result('pg40').run;
16657 model.result('pg40').feature('ptgr2').set('expr', 'ThN');
16658 model.result('pg40').run;
16659 model.result('pg40').feature('ptgr2').set('expr', 'ThE');
16660 model.result('pg40').run;
16661 model.result('pg40').feature('ptgr2').set('expr', 'VaPro');
16662 model.result('pg40').run;
16663
16664 model.label('Covid vaccines model_mRNA_Treg_run.mph');
16665
16666 model.result('pg40').run;
16667 model.result('pg40').feature('ptgr2').set('expr', 'Va');
16668 model.result('pg40').run;
16669 model.result('pg40').feature('ptgr2').set('expr', 'Vab');
16670 model.result('pg40').run;
16671 model.result('pg40').feature('ptgr2').set('expr', 'Vaint');
16672 model.result('pg40').run;
16673 model.result('pg40').feature('ptgr2').set('expr', 'VaPro');
16674 model.result('pg40').run;
16675 model.result('pg40').run;
16676 model.result('pg40').feature('ptgr2').set('expr', 'A');
16677 model.result('pg40').run;
16678 model.result('pg40').run;
16679 model.result('pg40').feature('ptgr2').set('expr', 'y200');
16680 model.result('pg40').run;
16681 model.result('pg40').feature('ptgr2').set('expr', 'y201');
16682 model.result('pg40').run;
16683 model.result('pg40').feature('ptgr2').set('expr', 'y202');
16684 model.result('pg40').run;
16685 model.result('pg40').feature('ptgr2').set('expr', 'y203');
16686 model.result('pg40').run;
16687 model.result('pg40').feature('ptgr2').set('expr', 'y204');
16688 model.result('pg40').run;
16689 model.result('pg40').feature('ptgr2').set('expr', 'y205');
16690 model.result('pg40').run;
16691 model.result('pg40').feature('ptgr2').set('expr', 'y206');
16692 model.result('pg40').run;
16693 model.result('pg40').feature('ptgr2').set('expr', 'A');
16694 model.result('pg40').run;
16695 model.result('pg40').run;
16696 model.result('pg40').feature('ptgr2').set('expr', 'Ci');
```

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16697 model.result('pg40').run;
16698 model.result('pg40').feature('ptgr2').set('expr', 'Vint');
16699 model.result('pg40').run;
16700 model.result('pg40').feature('ptgr2').set('expr', 'Cb');
16701 model.result('pg40').run;
16702 model.result('pg40').feature('ptgr2').set('expr', 'In');
16703 model.result('pg40').run;
16704
16705 model.component('comp1').variable('var1').set('phic', '2.3e-9[ml/h]*0');
16706
16707 model.sol('sol54').clearSolutionData;
16708
16709 model.label('Covid vaccines model_mRNA_Treg_run_phic0 - Copy.mph');
16710
16711 model.result('pg40').run;
16712 model.result('pg40').run;
16713 model.result('pg40').run;
16714
16715 model.sol('sol54').runAll;
16716
16717 model.result('pg40').run;
16718
16719 model.label('Covid vaccines model_mRNA_Treg_run_phic0 - Copy_run.mph');
16720
16721 model.result('pg40').run;
16722 model.result('pg40').run;
16723 model.result('pg40').feature('ptgr2').set('expr', 'H');
16724 model.result('pg40').run;
16725 model.result('pg40').feature('ptgr2').set('expr', 'A');
16726 model.result('pg40').run;
16727 model.result('pg40').run;
16728
16729 model.component('comp1').physics('ThN').feature('dode1').setIndex('f', 'SThN- ↙
hTE*DCi*ThN*((VaPro/(1+VaPro))(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))- ↙
dThN*ThN', 0);
16730 model.component('comp1').physics('ThN').feature('dode1').setIndex('f', 'SThN- ↙
hTE*DCi*ThN*((VaPro/(1+VaPro))(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))- ↙
dThN*ThN', 0);
16731 model.component('comp1').physics('ThN').feature('dode1').setIndex('f', 'SThN- ↙
hTE*DCi*ThN*((VaPro/(1+VaPro))+(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))- ↙
dThN*ThN', 0);
16732 model.component('comp1').physics('ThE').feature('dode1').setIndex('f', ↙
'hTE*DCi*ThN*((VaPro/(1+VaPro))+(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1)) ↙
+rN*ThE*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-pThM*ThE- ↙
eTE*ThE*PD1bPDL1/As', 0);
16733 model.component('comp1').physics('TN').feature('dode1').setIndex('f', 'STN- ↙
hT*DCi*TN*((VaPro/(1+VaPro))+(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))- ↙
dTN*TN', 0);
16734 model.component('comp1').physics('TE').feature('dode1').setIndex('f', 'hT*DCi*TN* ↙
((VaPro/(1+VaPro))+(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))+rT*TE*(As/ ↙
```

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(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-pTM*TE-eTE*TE*PD1bPDL1/As', 0);
16735 model.component('comp1').physics('BN').feature('dode1').setIndex('f', 'SB- ↙
hT*DCi*ThE*((VaPro/(1+VaPro))+(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))- ↙
dB*BN', 0);
16736 model.component('comp1').physics('BA').feature('dode1').setIndex('f', ↙
'hT*DCi*ThE*((VaPro/(1+VaPro))+(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1)) ↙
+rB*ThE*BA-dBA*BA-pS*BA-pL*(ThE+ThM)*BA', 0);
16737 model.component('comp1').physics('Va').feature('dode1').setIndex('f', 'SVa+ ↙
(Q_lung*Va-(Q_lung-L_lung)*Va)/vv_lung/1000-Koncellva*Va*H+Koffcellva*Va*H-Kdva*Va', ↙
0);
16738 model.component('comp1').physics('Vab').feature('dode1').setIndex('f', ↙
'+Koncellva*Va*H-Koffcellva*Va*H-KintVa*Vab', 0);
16739 model.component('comp1').physics('Vab').feature('dode1').setIndex('f', ↙
'+Koncellva*Va*H-Koffcellva*Va*H-KintVa*Vab-Kdvad*Va', 0);
16740 model.component('comp1').physics('Vaint').feature('dode1').setIndex('f', ↙
'KintVa*Vab-daint', 0);
16741 model.component('comp1').physics('Vaint').feature('dode1').setIndex('f', ↙
'KintVa*Vab-dVaint', 0);
16742 model.component('comp1').physics('VaPro').feature('dode1').setIndex('f', ↙
'Kpro*Vaint-dVaPro', 0);
16743
16744 model.component('comp1').variable('var24').set('Kdvad', 'Kdva');
16745 model.component('comp1').variable('var24').set('dVaint', '1e-6[mole/m^3/s]');
16746 model.component('comp1').variable('var24').set('dVaPro', 'dVaint');
16747
16748 model.sol('sol54').clearSolutionData;
16749
16750 model.label('Covid vaccines model_mRNA_Treg_run_phic0 - Copy_run_degradation. ↙
mph');
16751
16752 model.sol('sol54').runAll;
16753
16754 model.result('pg40').run;
16755 model.result('pg40').run;
16756 model.result('pg40').feature('ptgr2').set('expr', 'VaPro');
16757 model.result('pg40').run;
16758 model.result('pg40').feature('ptgr2').set('expr', 'Vaint');
16759 model.result('pg40').run;
16760 model.result('pg40').feature('ptgr2').set('expr', 'Vab');
16761 model.result('pg40').run;
16762 model.result('pg40').feature('ptgr2').set('expr', 'Va');
16763 model.result('pg40').run;
16764 model.result('pg40').feature('ptgr2').set('expr', 'VaPro');
16765 model.result('pg40').run;
16766
16767 model.component('comp1').variable('var24').set('dVaint', '1e-2[mole/m^3/s]');
16768 model.component('comp1').variable('var24').set('dVaPro', 'dVaint/2');
16769
16770 model.result('pg40').run;
16771
```

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16772 model.study('std1').feature('time').set('tlist', 'range(0,1,140)');
16773
16774 model.component('comp1').variable('var24').set('dVaint', '3e-4[mole/m^3/s]');
16775
16776 model.result('pg40').run;
16777 model.result('pg40').feature('ptgr2').set('expr', 'A');
16778 model.result('pg40').run;
16779 model.result('pg40').feature('ptgr2').set('expr', 'BN');
16780 model.result('pg40').run;
16781 model.result('pg40').run;
16782 model.result('pg40').feature('ptgr2').set('expr', 'SB-hT*DCi*ThE*((VaPro/ ↙
(1+VaPro))+(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-dB*BN');
16783 model.result('pg40').run;
16784 model.result('pg40').run;
16785 model.result('pg40').feature('ptgr2').set('expr', 'SB');
16786 model.result('pg40').run;
16787 model.result('pg40').feature('ptgr2').set('expr', 'SB-hT*DCi*ThE*((VaPro/ ↙
(1+VaPro))+(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-dB*BN');
16788 model.result('pg40').run;
16789 model.result('pg40').feature('ptgr2').set('expr', 'SB-dB*BN');
16790 model.result('pg40').run;
16791
16792 model.component('comp1').variable('var1').set('SB', 'B0*1[1/s]');
16793
16794 model.result('pg40').run;
16795 model.result('pg40').feature('ptgr2').set('expr', 'BA');
16796 model.result('pg40').run;
16797 model.result('pg40').feature('ptgr2').set('expr', 'A');
16798 model.result('pg40').run;
16799 model.result('pg40').run;
16800 model.result('pg40').feature('ptgr2').set('expr', 'BN');
16801 model.result('pg40').run;
16802 model.result('pg40').feature('ptgr2').set('expr', 'BA');
16803 model.result('pg40').run;
16804 model.result('pg40').run;
16805 model.result('pg40').feature('ptgr2').set('expr', 'SB-hT*DCi*ThE*((VaPro/ ↙
(1+VaPro))+(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-dB*BN');
16806 model.result('pg40').run;
16807 model.result('pg40').feature('ptgr2').set('expr', 'hT*DCi*ThE*((VaPro/(1+VaPro))+ ↙
(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))');
16808 model.result('pg40').run;
16809 model.result('pg40').feature('ptgr2').set('expr', 'c');
16810 model.result('pg40').run;
16811 model.result('pg40').run;
16812 model.result('pg40').feature('ptgr2').set('expr', 'c0');
16813 model.result('pg40').run;
16814 model.result('pg40').feature('ptgr2').set('expr', '(Q_lung*y301*c0-(Q_lung- ↙
L_lung)*c+Kc_innate*(n+ma)*vv_lung*c0+kciec*(iec+In) ↙
*vv_lung*c0+SAT1R*AT1bAngII*vv_lung+ KcIL6R*sIL6RbIL6*(KcEC*ec+KcH*H)*vv_lung- ↙
KAT1RMAsR*MAsR*1[pg/fmol]*vv_lung- KAT1RAT2R*AT2R*1[pg/M]-d_s*Ci*vv_lung*1[pg/mole]) ↙
```

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/vv_lung');
16815 model.result('pg40').run;
16816 model.result('pg40').feature('ptgr2').set('expr', '(Q_lung*y301*c0-(Q_lung- ↙
L_lung)*c+Kc_innate*(n+ma)*vv_lung*c0+kciec*(iec+In) ↙
*vv_lung*c0+SAT1R*AT1bAngII*vv_lung+ KcIL6R*sIL6RbIL6*(KcEC*ec+KcH*H)*vv_lung- ↙
KAT1RMAsR*MAsR*1[pg/fmol]*vv_lung- KAT1RAT2R*AT2R*1[pg/M]-d_s/1000*Ci*vv_lung*1 ↙
[pg/mole])/vv_lung');
16817 model.result('pg40').run;
16818 model.result('pg40').feature('ptgr2').set('expr', 'Q_lung*y301*c0-(Q_lung-L_lung) ↙
*c');
16819 model.result('pg40').run;
16820 model.result('pg40').feature('ptgr2').set('expr', 'A');
16821 model.result('pg40').run;
16822 model.result('pg40').feature('ptgr2').set('expr', 'BA');
16823 model.result('pg40').run;
16824 model.result('pg40').feature('ptgr2').set('expr', 'SB-hT*DCi*ThE*((VaPro/ ↙
(1+VaPro))+(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-dB*BN');
16825 model.result('pg40').run;
16826 model.result('pg40').feature('ptgr2').set('expr', 'hT*DCi*ThE*((VaPro/(1+VaPro))+ ↙
(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))');
16827 model.result('pg40').run;
16828 model.result('pg40').feature('ptgr2').set('expr', 'hT*DCi*ThE*((VaPro/(1+VaPro))+ ↙
(As/(1+As)))');
16829 model.result('pg40').run;
16830 model.result('pg40').feature('ptgr2').set('expr', 'VaPro');
16831 model.result('pg40').run;
16832 model.result('pg40').feature('ptgr2').set('expr', 'DC');
16833 model.result('pg40').run;
16834 model.result('pg40').feature('ptgr2').set('expr', 'DCi');
16835 model.result('pg40').run;
16836
16837 model.component('comp1').physics('DCi').feature('dode1').setIndex('f', 'bD*DC*Ci- ↙
dDCi*DCi-KTregDC*Treg*DCi/1000', 0);
16838 model.component('comp1').physics('DCi').feature('dode1').setIndex('f', 'bD*DC*Ci- ↙
dDCi*DCi/100-KTregDC*Treg*DCi/1000', 0);
16839 model.component('comp1').physics('DCi').feature('dode1').setIndex('f', 'bD*DC*Ci- ↙
dDCi*DCi-KTregDC*Treg*DCi+bD*DC*((VaPro/(1+VaPro))', 0);
16840 model.component('comp1').physics('DCi').feature('dode1').setIndex('f', 'bD*DC*Ci- ↙
dDCi*DCi-KTregDC*Treg*DCi+bD*DC*(VaPro/(1+VaPro))', 0);
16841 model.component('comp1').physics('DCi').feature('dode1').setIndex('f', 'bD*DC*Ci- ↙
dDCi*DCi-KTregDC*Treg*DCi+1e-2[1/s]*DC*(VaPro/(1+VaPro))', 0);
16842 model.component('comp1').physics('DC').feature('dode1').setIndex('f', 'SDC- ↙
bD*DC*Ci-dDC*DC-KTregDC*Treg*DC-1e-2[1/s]*DC*(VaPro/(1+VaPro))', 0);
16843
16844 model.result('pg40').run;
16845 model.result('pg40').feature('ptgr2').set('expr', 'A');
16846 model.result('pg40').run;
16847 model.result('pg40').feature('ptgr2').set('expr', 'BN');
16848 model.result('pg40').run;
16849 model.result('pg40').feature('ptgr2').set('expr', 'BA');
```

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16850 model.result('pg40').run;
16851 model.result('pg40').run;
16852
16853 model.component('comp1').physics('BA').feature('dode1').setIndex('f', ↙
'hT*DCi*ThE*((VaPro/(1+VaPro))+(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1)) ↙
+rB*ThE*BA-dBA/100*BA-pS*BA-pL*(ThE+ThM)*BA', 0);
16854
16855 model.result('pg40').run;
16856 model.result('pg40').feature.duplicate('ptgr3', 'ptgr2');
16857 model.result('pg40').run;
16858 model.result('pg40').feature('ptgr3').set('expr', 'A');
16859 model.result('pg40').run;
16860 model.result('pg40').feature('ptgr3').active(false);
16861 model.result('pg40').run;
16862 model.result('pg40').feature.remove('ptgr3');
16863 model.result('pg40').run;
16864 model.result('pg40').run;
16865 model.result('pg40').feature('ptgr2').set('expr', 'DC');
16866 model.result('pg40').run;
16867 model.result('pg40').feature('ptgr2').set('expr', 'DCi');
16868 model.result('pg40').run;
16869
16870 model.component('comp1').physics('DCi').feature('dode1').setIndex('f', 'bD*DC*Ci- ↙
dDCi*DCi/100-KTregDC*Treg*DCi/100+1e-2[1/s]*DC*(VaPro/(1+VaPro))', 0);
16871 model.component('comp1').physics('DC').feature('dode1').setIndex('f', 'SDC- ↙
bD*DC*Ci-dDC*DC/100-KTregDC*Treg*DC/100-1e-2[1/s]*DC*(VaPro/(1+VaPro))', 0);
16872
16873 model.result('pg40').run;
16874 model.result('pg40').feature('ptgr2').set('expr', 'DC');
16875 model.result('pg40').run;
16876 model.result('pg40').feature('ptgr2').set('expr', 'BN');
16877 model.result('pg40').run;
16878 model.result('pg40').run;
16879 model.result('pg40').feature('ptgr2').set('expr', 'hT*DCi*ThE*((VaPro/(1+VaPro))+ ↙
(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))');
16880 model.result('pg40').run;
16881 model.result('pg40').feature('ptgr2').set('expr', 'BA');
16882 model.result('pg40').run;
16883 model.result('pg40').run;
16884 model.result('pg40').feature('ptgr2').set('expr', 'DCi');
16885 model.result('pg40').run;
16886 model.result('pg40').feature('ptgr2').set('expr', 'A');
16887 model.result('pg40').run;
16888 model.result('pg40').run;
16889 model.result('pg40').feature('ptgr2').set('expr', 'PS');
16890 model.result('pg40').run;
16891 model.result('pg40').feature('ptgr2').set('expr', 'PL');
16892 model.result('pg40').run;
16893
16894 model.component('comp1').physics('BA').feature('dode1').setIndex('f', ↙
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'hT*100*DCi*ThE*((VaPro/(1+VaPro))+(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/ ↙
(KT+PD1bPDL1))+rB*ThE*BA-dBA/10000*BA-pS*BA-pL*(ThE+ThM)*BA', 0);
16895
16896 model.result('pg40').run;
16897 model.result('pg40').feature('ptgr2').set('expr', 'BN');
16898 model.result('pg40').run;
16899 model.result('pg40').feature('ptgr2').set('expr', 'BA');
16900 model.result('pg40').run;
16901
16902 model.component('comp1').physics('BN').feature('dode1').setIndex('f', 'SB- ↙
hT*100*DCi*ThE*((VaPro/(1+VaPro))+(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/ ↙
(KT+PD1bPDL1))-dB*BN', 0);
16903
16904 model.result('pg40').run;
16905 model.result('pg40').run;
16906 model.result('pg40').feature('ptgr2').set('expr', 'DCi');
16907 model.result('pg40').run;
16908 model.result('pg40').feature('ptgr2').set('expr', 'ThE');
16909 model.result('pg40').run;
16910
16911 model.component('comp1').physics('DCi').feature('dode1').setIndex('f', 'bD*DC*Ci- ↙
dDCi*DCi/1000-KTregDC*Treg*DCi/1000+1e-2[1/s]*DC*(VaPro/(1+VaPro))', 0);
16912 model.component('comp1').physics('DC').feature('dode1').setIndex('f', 'SDC- ↙
bD*DC*Ci-dDC*DC/1000-KTregDC*Treg*DC/1000-1e-2[1/s]*DC*(VaPro/(1+VaPro))', 0);
16913 model.component('comp1').physics('ThN').feature('dode1').setIndex('f', 'SThN- ↙
hTE*DCi*ThN*((VaPro/(1+VaPro))+(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))- ↙
dThN*ThN/100', 0);
16914 model.component('comp1').physics('ThE').feature('dode1').setIndex('f', ↙
'hTE*DCi*ThN*((VaPro/(1+VaPro))+(As/(1+As)))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1)) ↙
+rN*ThE*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/(KT+PD1bPDL1))-pThM*ThE/100- ↙
eTE*ThE*PD1bPDL1/As', 0);
16915
16916 model.result('pg40').run;
16917 model.result('pg40').feature('ptgr2').set('expr', 'DCi');
16918 model.result('pg40').run;
16919 model.result('pg40').feature('ptgr2').set('expr', 'BN');
16920 model.result('pg40').run;
16921 model.result('pg40').feature('ptgr2').set('expr', 'BA');
16922 model.result('pg40').run;
16923 model.result('pg40').feature('ptgr2').set('expr', 'SVa');
16924 model.result('pg40').run;
16925 model.result('pg40').feature('ptgr2').set('expr', 'VaPro');
16926 model.result('pg40').run;
16927 model.result('pg40').feature('ptgr2').set('expr', 'A');
16928 model.result('pg40').run;
16929 model.result('pg40').run;
16930 model.result('pg40').feature('ptgr2').set('expr', 'PS');
16931 model.result('pg40').run;
16932 model.result('pg40').feature('ptgr2').set('expr', 'PL');
16933 model.result('pg40').run;
```

```
16934
16935 model.component('comp1').physics('A').feature('dode1').setIndex('f', ↙
'(Q_lung*y201-(Q_lung-L_lung)*A+pAS*PS*vv_lung*1000+pAL*PL*vv_lung*1000- ↙
kav*Ci*A*vv_lung-KaiecIn*(iec+In)*A*vv_lung-Ka*A*vv_lung)/vv_lung', 0);
16936
16937 model.result('pg40').run;
16938 model.result('pg40').feature('ptgr2').set('expr', 'A');
16939 model.result('pg40').run;
16940
16941 model.component('comp1').physics('A').feature('dode1').setIndex('f', ↙
'(Q_lung*y201-(Q_lung-L_lung)*A+pAS*PS*vv_lung*1000+pAL*PL*vv_lung*1000- ↙
kav*Ci*A*vv_lung-KaiecIn*(iec+In)*A*vv_lung-Ka/1000*A*vv_lung)/vv_lung', 0);
16942
16943 model.result('pg40').run;
16944 model.result('pg40').feature('ptgr2').set('expr', 'In');
16945 model.result('pg40').run;
16946 model.result('pg40').feature('ptgr2').set('expr', 'A');
16947 model.result('pg40').run;
16948
16949 model.component('comp1').physics('A').feature('dode1').setIndex('f', ↙
'(Q_lung*y201-(Q_lung-L_lung)*A*0+pAS*PS*vv_lung*1000+pAL*PL*vv_lung*1000- ↙
kav*Ci*A*vv_lung*0-KaiecIn*(iec+In)*A*vv_lung*0-Ka*0*A*vv_lung)/vv_lung', 0);
16950
16951 model.result('pg40').run;
16952 model.result('pg40').feature('ptgr2').set('expr', '(Q_lung*y201-(Q_lung-L_lung) ↙
*A*0+pAS*PS*vv_lung*1000+pAL*PL*vv_lung*1000-kav*Ci*A*vv_lung*0-KaiecIn*(iec+In) ↙
*A*vv_lung*0-Ka*0*A*vv_lung)/vv_lung');
16953 model.result('pg40').run;
16954 model.result('pg40').feature('ptgr2').set('expr', 'A');
16955 model.result('pg40').run;
16956 model.result('pg40').run;
16957 model.result('pg40').feature('ptgr2').set('expr', '(Q_lung*y201-(Q_lung-L_lung) ↙
*A*0+pAS*PS*vv_lung*1000+pAL*PL*vv_lung*1000-kav*Ci*A*vv_lung*0-KaiecIn*(iec+In) ↙
*A*vv_lung*0-Ka*0*A*vv_lung)/vv_lung');
16958 model.result('pg40').run;
16959 model.result('pg40').feature('ptgr2').set('expr', ↙
'pAS*PS*vv_lung*1000+pAL*PL*vv_lung*1000');
16960 model.result('pg40').run;
16961 model.result('pg40').feature('ptgr2').set('expr', 'pAS*PS*vv_lung*1000');
16962 model.result('pg40').run;
16963 model.result('pg40').feature('ptgr2').set('expr', '+pAL*PL*vv_lung*1000');
16964 model.result('pg40').run;
16965 model.result('pg40').feature('ptgr2').set('expr', 'PS');
16966 model.result('pg40').run;
16967
16968 model.label('Covid vaccines model_mRNA_Treg_run_phic0 - ↙
Copy_run_degradation_run2.mph');
16969
16970 model.result('pg40').run;
16971 model.result('pg40').feature('ptgr2').set('expr', 'VaPro');
```

```
16972 model.result('pg40').run;
16973
16974 model.component('comp1').physics('DC').feature('dode1').setIndex('f', 'SDC- ↙
bD*DC*Ci-dDC*DC-KTregDC*Treg*DC-1e-2[1/s]*DC*(VaPro/(1+VaPro))', 0);
16975 model.component('comp1').physics('DCi').feature('dode1').setIndex('f', 'bD*DC*Ci- ↙
dDCi*DCi-KTregDC*Treg*DCi+1e-2[1/s]*DC*(VaPro/(1+VaPro))', 0);
16976 model.component('comp1').physics('ThN').feature('dode1').setIndex('f', 'SThN- ↙
hTE*DCi*ThN*((VaPro/(1+VaPro)))-dThN*ThN', 0);
16977 model.component('comp1').physics('ThE').feature('dode1').setIndex('f', ↙
'hTE*DCi*ThN*((VaPro/(1+VaPro)))+rN*ThE*(As/(1+As))*(c/(1+c))*(IF/(Kif+IF))*(KT/ ↙
(KT+PD1bPDL1))-pThM*ThE/100-eTE*ThE*PD1bPDL1/As', 0);
16978 model.component('comp1').physics('ThE').feature('dode1').setIndex('f', ↙
'hTE*DCi*ThN*((VaPro/(1+VaPro)))-pThM*ThE-eTE*ThE*PD1bPDL1', 0);
16979 model.component('comp1').physics('TN').feature('dode1').setIndex('f', 'STN- ↙
hT*DCi*TN*((VaPro/(1+VaPro))-dTN*TN', 0);
16980 model.component('comp1').physics('TN').feature('dode1').setIndex('f', 'STN- ↙
hT*DCi*TN*((VaPro/(1+VaPro)))-dTN*TN', 0);
16981 model.component('comp1').physics('TE').feature('dode1').setIndex('f', 'hT*DCi*TN* ↙
((VaPro/(1+VaPro))-pTM*TE-eTE*TE*PD1bPDL1', 0);
16982 model.component('comp1').physics('TE').feature('dode1').setIndex('f', 'hT*DCi*TN* ↙
((VaPro/(1+VaPro)))-pTM*TE-eTE*TE*PD1bPDL1', 0);
16983 model.component('comp1').physics('BN').feature('dode1').setIndex('f', 'SB- ↙
hT*100*DCi*ThE*((VaPro/(1+VaPro)))-dB*BN', 0);
16984 model.component('comp1').physics('BA').feature('dode1').setIndex('f', ↙
'hT*100*DCi*ThE*((VaPro/(1+VaPro)))+rB*ThE*BA-dBA*BA-pS*BA-pL*(ThE+ThM)*BA', 0);
16985 model.component('comp1').physics('A').feature('dode1').setIndex('f', ↙
'(Q_lung*y201*0-(Q_lung-L_lung)*A*0+pAS*PS*vv_lung+pAL*PL*vv_lung-kav*Ci*A*vv_lung- ↙
KaiecIn*(iec+In)*A*vv_lung-Ka*A*vv_lung)/vv_lung', 0);
16986
16987 model.result('pg40').run;
16988 model.result('pg40').feature('ptgr2').set('expr', 'A');
16989 model.result('pg40').run;
16990 model.result('pg40').run;
16991 model.result('pg40').feature('ptgr2').set('expr', 'PL');
16992 model.result('pg40').run;
16993 model.result('pg40').feature('ptgr2').set('expr', 'PS');
16994 model.result('pg40').run;
16995 model.result('pg40').feature('ptgr2').set('expr', 'VaPro');
16996 model.result('pg40').run;
16997 model.result('pg40').feature('ptgr2').set('expr', 'BA');
16998 model.result('pg40').run;
16999 model.result('pg40').feature('ptgr2').set('expr', 'ThE');
17000 model.result('pg40').run;
17001 model.result('pg40').run;
17002 model.result('pg40').feature('ptgr2').set('expr', 'DC');
17003 model.result('pg40').run;
17004 model.result('pg40').feature('ptgr2').set('expr', 'DCi');
17005 model.result('pg40').run;
17006 model.result('pg40').run;
17007 model.result('pg40').run;
```

```
17008 model.result('pg40').feature('ptgr2').set('expr', 'Treg');
17009 model.result('pg40').run;
17010 model.result('pg40').run;
17011 model.result('pg40').feature('ptgr2').set('expr', 'a');
17012 model.result('pg40').run;
17013 model.result('pg40').feature('ptgr2').set('expr', '((VaPro/(1+VaPro)))');
17014 model.result('pg40').run;
17015 model.result('pg40').feature('ptgr2').set('expr', 'VaPro');
17016 model.result('pg40').run;
17017 model.result('pg40').feature('ptgr2').set('expr', '((VaPro/(7000[mole/m^3] ↙
+VaPro)))');
17018 model.result('pg40').run;
17019
17020 model.component('comp1').physics('DC').feature('dode1').setIndex('f', 'SDC- ↙
bD*DC*Ci-dDC*DC-KTregDC*Treg*DC-1e-2[1/s]*DC*((VaPro/(7000[mole/m^3]+VaPro)))', 0);
17021 model.component('comp1').physics('DCi').feature('dode1').setIndex('f', 'bD*DC*Ci- ↙
dDCi*DCi-KTregDC*Treg*DCi+1e-2[1/s]*DC*((VaPro/(7000[mole/m^3]+VaPro)))', 0);
17022 model.component('comp1').physics('ThN').feature('dode1').setIndex('f', 'SThN- ↙
hTE*DCi*ThN*((VaPro/(7000[mole/m^3]+VaPro)))-dThN*ThN', 0);
17023 model.component('comp1').physics('ThE').feature('dode1').setIndex('f', ↙
'hTE*DCi*ThN*((VaPro/(7000[mole/m^3]+VaPro)))-pThM*ThE-eTE*ThE*PD1bPDL1', 0);
17024 model.component('comp1').physics('TN').feature('dode1').setIndex('f', 'STN- ↙
hT*DCi*TN*((VaPro/(7000[mole/m^3]+VaPro)))-dTN*TN', 0);
17025 model.component('comp1').physics('TE').feature('dode1').setIndex('f', 'hT*DCi*TN* ↙
((VaPro/(7000[mole/m^3]+VaPro)))-pTM*TE-eTE*TE*PD1bPDL1', 0);
17026 model.component('comp1').physics('BN').feature('dode1').setIndex('f', 'SB- ↙
hT*100*DCi*ThE*((VaPro/(7000[mole/m^3]+VaPro)))-dB*BN', 0);
17027 model.component('comp1').physics('BA').feature('dode1').setIndex('f',↙
'hT*100*DCi*ThE*((VaPro/(7000[mole/m^3]+VaPro)))+rB*ThE*BA-dBA*BA-pS*BA-pL*(ThE+ThM) ↙
*BA', 0);
17028
17029 model.result('pg40').run;
17030 model.result('pg40').feature('ptgr2').set('expr', 'A');
17031 model.result('pg40').feature('ptgr2').set('unit', '');
17032 model.result('pg40').run;
17033 model.result('pg40').feature('ptgr2').set('unit', '1');
17034 model.result('pg40').run;
17035 model.result('pg40').run;
17036 model.result('pg40').feature('ptgr2').set('expr', 'BA');
17037 model.result('pg40').run;
17038 model.result('pg40').feature('ptgr2').set('expr', 'DC');
17039 model.result('pg40').run;
17040 model.result('pg40').feature('ptgr2').set('expr', 'DCi');
17041 model.result('pg40').run;
17042
17043 model.component('comp1').physics('DC').feature('dode1').setIndex('f', 'SDC- ↙
bD*DC*Ci*0-dDC*DC/100-KTregDC*Treg*DC*0-1e-2[1/s]*DC*((VaPro/(7000[mole/m^3]+VaPro)))', ↙
0);
17044 model.component('comp1').physics('DCi').feature('dode1').setIndex('f', ↙
'bD*DC*Ci*0-dDCi*DCi*0-KTregDC*Treg*DCi*0+1e-2[1/s]*DC*((VaPro/(7000[mole/m^3] ↙
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+VaPro)))', 0);
17045 model.component('comp1').physics('DCi').feature('dode1').setIndex('f', ↙
'bD*DC*Ci*0-dDCi*DCi/100-KTregDC*Treg*DCi*0+1e-2[1/s]*DC*((VaPro/(7000[mole/m^3] ↙
+VaPro)))', 0);
17046 model.component('comp1').physics('ThN').feature('dode1').setIndex('f', 'SThN- ↙
hTE*DCi*ThN*((VaPro/(7000[mole/m^3]+VaPro)))-dThN*ThN/100', 0);
17047 model.component('comp1').physics('ThE').feature('dode1').setIndex('f', ↙
'hTE*DCi*ThN*((VaPro/(7000[mole/m^3]+VaPro)))-pThM*ThE-eTE*ThE*PD1bPDL1*0', 0);
17048 model.component('comp1').physics('TN').feature('dode1').setIndex('f', 'STN- ↙
hT*DCi*TN*((VaPro/(7000[mole/m^3]+VaPro)))-dTN*TN/100', 0);
17049 model.component('comp1').physics('TE').feature('dode1').setIndex('f', 'hT*DCi*TN* ↙
((VaPro/(7000[mole/m^3]+VaPro)))-pTM*TE-eTE*TE*PD1bPDL1*0', 0);
17050 model.component('comp1').physics('BN').feature('dode1').setIndex('f', 'SB- ↙
hT*100*DCi*ThE*((VaPro/(7000[mole/m^3]+VaPro)))-dB*BN/100', 0);
17051 model.component('comp1').physics('BA').feature('dode1').setIndex('f', ↙
'hT*100*DCi*ThE*((VaPro/(7000[mole/m^3]+VaPro)))+rB*ThE*BA-dBA*BA/10000-pS*BA-pL* ↙
(ThE+ThM)*BA', 0);
17052 model.component('comp1').physics('PL').feature('dode1').setIndex('f', 'pL* ↙
(ThE+ThM)*BA-dL*PL/100', 0);
17053 model.component('comp1').physics('PS').feature('dode1').setIndex('f', 'pS*BA- ↙
dS*PS/100', 0);
17054 model.component('comp1').physics('A').feature('dode1').setIndex('f', ↙
'(Q_lung*y201*0-(Q_lung-L_lung)*A*0+pAS*PS*vv_lung+pAL*PL*vv_lung-kav*Ci*A*vv_lung- ↙
KaiecIn*(iec+In)*A*vv_lung-Ka*A*vv_lung/1000)/vv_lung', 0);
17055 model.component('comp1').physics('ThM').feature('dode1').setIndex('f', 'pThM*ThE- ↙
dThM*ThM/100', 0);
17056 model.component('comp1').physics('TM').feature('dode1').setIndex('f', 'pTM*TE- ↙
dTM*TM/100', 0);
17057
17058 model.result('pg40').run;
17059 model.result('pg40').feature('ptgr2').set('expr', 'PL');
17060 model.result('pg40').run;
17061 model.result('pg40').feature('ptgr2').set('expr', 'PS');
17062 model.result('pg40').run;
17063
17064 model.component('comp1').physics('A').feature('dode1').setIndex('f', ↙
'(Q_lung*y201*0-(Q_lung-L_lung)*A*0+pAS*PS*vv_lung+pAL*PL*vv_lung-kav*Ci*A*vv_lung- ↙
KaiecIn*(iec+In)*A*vv_lung-Ka*A*vv_lung/10000)/vv_lung', 0);
17065
17066 model.result('pg40').run;
17067 model.result('pg40').feature('ptgr2').set('expr', 'PL');
17068 model.result('pg40').run;
17069 model.result('pg40').feature('ptgr2').set('expr', 'A');
17070 model.result('pg40').run;
17071
17072 model.component('comp1').physics('A').feature('dode1').setIndex('f', ↙
'(Q_lung*y201*0-(Q_lung-L_lung)*A*0+pAS*PS*vv_lung+pAL*PL*vv_lung-kav*Ci*A*vv_lung- ↙
KaiecIn*(iec+In)*A*vv_lung-Ka*A*vv_lung*0)/vv_lung', 0);
17073
17074 model.result('pg40').run;
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17075 model.result('pg40').feature('ptgr2').set('expr', 'iec');
17076 model.result('pg40').run;
17077
17078 model.component('comp1').physics('A').feature('dode1').setIndex('f', ↙
'(Q_lung*y201*0-(Q_lung-L_lung)*A*0+pAS*PS*vv_lung+pAL*PL*vv_lung-kav*Ci*A*vv_lung*0- ↙
KaiecIn*(iec+In)*A*vv_lung*0-Ka*A*vv_lung*0)/vv_lung', 0);
17079
17080 model.result('pg40').run;
17081 model.result('pg40').feature('ptgr2').set('expr', 'A');
17082 model.result('pg40').run;
17083 model.result('pg40').feature('ptgr2').set('expr', 'VaPro');
17084 model.result('pg40').run;
17085 model.result('pg40').feature('ptgr2').set('expr', '((VaPro/(7000[mole/m^3] ↙
+VaPro)))');
17086 model.result('pg40').run;
17087 model.result('pg40').feature('ptgr2').set('expr', 'PL');
17088 model.result('pg40').run;
17089 model.result('pg40').feature('ptgr2').set('expr', 'BA');
17090 model.result('pg40').run;
17091 model.result('pg40').feature('ptgr2').set('expr', 'DCi');
17092 model.result('pg40').run;
17093 model.result('pg40').feature('ptgr2').set('expr', 'ThE');
17094 model.result('pg40').run;
17095 model.result('pg40').feature('ptgr2').set('expr', 'A');
17096 model.result('pg40').run;
17097 model.result('pg40').feature('ptgr2').set('expr', 'VaPro');
17098 model.result('pg40').run;
17099 model.result('pg40').feature('ptgr2').set('expr', 'TN');
17100 model.result('pg40').run;
17101 model.result('pg40').feature('ptgr2').set('expr', 'TE');
17102 model.result('pg40').run;
17103
17104 model.study.create('std2');
17105 model.study('std2').create('time', 'Transient');
17106 model.study('std2').feature('time').activate('AGT', true);
17107 model.study('std2').feature('time').activate('Renin', true);
17108 model.study('std2').feature('time').activate('AngI', true);
17109 model.study('std2').feature('time').activate('AngII', true);
17110 model.study('std2').feature('time').activate('Ang17', true);
17111 model.study('std2').feature('time').activate('Ang19', true);
17112 model.study('std2').feature('time').activate('AngIII', true);
17113 model.study('std2').feature('time').activate('AngIV', true);
17114 model.study('std2').feature('time').activate('AT1bAngII', true);
17115 model.study('std2').feature('time').activate('AT2bAngII', true);
17116 model.study('std2').feature('time').activate('AT4bAngIV', true);
17117 model.study('std2').feature('time').activate('MAsbAng17', true);
17118 model.study('std2').feature('time').activate('Cb', true);
17119 model.study('std2').feature('time').activate('H', true);
17120 model.study('std2').feature('time').activate('Vint', true);
17121 model.study('std2').feature('time').activate('In', true);
```

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17122 model.study('std2').feature('time').activate('Ci', true);
17123 model.study('std2').feature('time').activate('n', true);
17124 model.study('std2').feature('time').activate('ma', true);
17125 model.study('std2').feature('time').activate('c', true);
17126 model.study('std2').feature('time').activate('a', true);
17127 model.study('std2').feature('time').activate('AT1R', true);
17128 model.study('std2').feature('time').activate('AT2R', true);
17129 model.study('std2').feature('time').activate('MAsR', true);
17130 model.study('std2').feature('time').activate('AT4R', true);
17131 model.study('std2').feature('time').activate('ACE2', true);
17132 model.study('std2').feature('time').activate('ACE2bAngI', true);
17133 model.study('std2').feature('time').activate('ACE2bAngII', true);
17134 model.study('std2').feature('time').activate('IL6', true);
17135 model.study('std2').feature('time').activate('IL6R', true);
17136 model.study('std2').feature('time').activate('IL6RbIL6', true);
17137 model.study('std2').feature('time').activate('sIL6RbIL6', true);
17138 model.study('std2').feature('time').activate('sIL6R', true);
17139 model.study('std2').feature('time').activate('sACE2', true);
17140 model.study('std2').feature('time').activate('ec', true);
17141 model.study('std2').feature('time').activate('iec', true);
17142 model.study('std2').feature('time').activate('dode', true);
17143 model.study('std2').feature('time').activate('dode2', true);
17144 model.study('std2').feature('time').activate('dode3', true);
17145 model.study('std2').feature('time').activate('dode4', true);
17146 model.study('std2').feature('time').activate('dode7', true);
17147 model.study('std2').feature('time').activate('dode9', true);
17148 model.study('std2').feature('time').activate('dode10', true);
17149 model.study('std2').feature('time').activate('dode11', true);
17150 model.study('std2').feature('time').activate('dode12', true);
17151 model.study('std2').feature('time').activate('dode13', true);
17152 model.study('std2').feature('time').activate('dode14', true);
17153 model.study('std2').feature('time').activate('dode15', true);
17154 model.study('std2').feature('time').activate('dode16', true);
17155 model.study('std2').feature('time').activate('dode17', true);
17156 model.study('std2').feature('time').activate('dode18', true);
17157 model.study('std2').feature('time').activate('dode19', true);
17158 model.study('std2').feature('time').activate('dode20', true);
17159 model.study('std2').feature('time').activate('dode21', true);
17160 model.study('std2').feature('time').activate('dode22', true);
17161 model.study('std2').feature('time').activate('dode24', true);
17162 model.study('std2').feature('time').activate('dode23', true);
17163 model.study('std2').feature('time').activate('dode25', true);
17164 model.study('std2').feature('time').activate('dode26', true);
17165 model.study('std2').feature('time').activate('dode27', true);
17166 model.study('std2').feature('time').activate('dode28', true);
17167 model.study('std2').feature('time').activate('dode29', true);
17168 model.study('std2').feature('time').activate('dode30', true);
17169 model.study('std2').feature('time').activate('dode31', true);
17170 model.study('std2').feature('time').activate('dode32', true);
17171 model.study('std2').feature('time').activate('dode33', true);
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17172 model.study('std2').feature('time').activate('dode34', true);
17173 model.study('std2').feature('time').activate('dode35', true);
17174 model.study('std2').feature('time').activate('dode36', true);
17175 model.study('std2').feature('time').activate('dode37', true);
17176 model.study('std2').feature('time').activate('dode38', true);
17177 model.study('std2').feature('time').activate('dode39', true);
17178 model.study('std2').feature('time').activate('dode40', true);
17179 model.study('std2').feature('time').activate('dode41', true);
17180 model.study('std2').feature('time').activate('dode42', true);
17181 model.study('std2').feature('time').activate('dode43', true);
17182 model.study('std2').feature('time').activate('dode44', true);
17183 model.study('std2').feature('time').activate('PD1bPDL1', true);
17184 model.study('std2').feature('time').activate('antiPD1', true);
17185 model.study('std2').feature('time').activate('PDL_1', true);
17186 model.study('std2').feature('time').activate('PD1', true);
17187 model.study('std2').feature('time').activate('NETs', true);
17188 model.study('std2').feature('time').activate('IF', true);
17189 model.study('std2').feature('time').activate('DC', true);
17190 model.study('std2').feature('time').activate('DCi', true);
17191 model.study('std2').feature('time').activate('ThN', true);
17192 model.study('std2').feature('time').activate('ThE', true);
17193 model.study('std2').feature('time').activate('TN', true);
17194 model.study('std2').feature('time').activate('TE', true);
17195 model.study('std2').feature('time').activate('BN', true);
17196 model.study('std2').feature('time').activate('BA', true);
17197 model.study('std2').feature('time').activate('PL', true);
17198 model.study('std2').feature('time').activate('PS', true);
17199 model.study('std2').feature('time').activate('A', true);
17200 model.study('std2').feature('time').activate('y200', true);
17201 model.study('std2').feature('time').activate('ThM', true);
17202 model.study('std2').feature('time').activate('TM', true);
17203 model.study('std2').feature('time').activate('y300', true);
17204 model.study('std2').feature('time').activate('Va', true);
17205 model.study('std2').feature('time').activate('Vab', true);
17206 model.study('std2').feature('time').activate('Vaint', true);
17207 model.study('std2').feature('time').activate('VaTran', true);
17208 model.study('std2').feature('time').activate('VaPro', true);
17209 model.study('std2').feature('time').activate('dode5', true);
17210
17211 model.sol.create('sol55');
17212 model.sol('sol55').study('std2');
17213
17214 model.study('std2').feature('time').set('notlistsolnum', 1);
17215 model.study('std2').feature('time').set('notsolnum', '1');
17216 model.study('std2').feature('time').set('listsolnum', 1);
17217 model.study('std2').feature('time').set('solnum', '1');
17218
17219 model.sol('sol55').create('st1', 'StudyStep');
17220 model.sol('sol55').feature('st1').set('study', 'std2');
17221 model.sol('sol55').feature('st1').set('studystep', 'time');
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17222 model.sol('sol55').create('v1', 'Variables');
17223 model.sol('sol55').feature('v1').set('control', 'time');
17224 model.sol('sol55').create('t1', 'Time');
17225 model.sol('sol55').feature('t1').set('tlist', 'range(0,0.1,1)');
17226 model.sol('sol55').feature('t1').set('plot', 'off');
17227 model.sol('sol55').feature('t1').set('plotgroup', 'pg40');
17228 model.sol('sol55').feature('t1').set('plotfreq', 'tout');
17229 model.sol('sol55').feature('t1').set('probesel', 'all');
17230 model.sol('sol55').feature('t1').set('probes', {});
17231 model.sol('sol55').feature('t1').set('probefreq', 'tsteps');
17232 model.sol('sol55').feature('t1').set('atolglobalvaluemethod', 'factor');
17233 model.sol('sol55').feature('t1').set('endtimeinterpolation', true);
17234 model.sol('sol55').feature('t1').set('control', 'time');
17235 model.sol('sol55').feature('t1').create('se1', 'Segregated');
17236 model.sol('sol55').feature('t1').feature('se1').feature.remove('ssDef');
17237 model.sol('sol55').feature('t1').feature('se1').create('ss1', 'SegregatedStep');
17238 model.sol('sol55').feature('t1').feature('se1').feature('ss1').set('segvar', ↙
{'comp1_A'});
17239 model.sol('sol55').feature('t1').feature('se1').feature('ss1').set('linsolver', ↙
'dDef');
17240 model.sol('sol55').feature('t1').feature('se1').feature('ss1').label('Domain ODEs ↙
and DAEs 45r');
17241 model.sol('sol55').feature('t1').feature('se1').create('ss2', 'SegregatedStep');
17242 model.sol('sol55').feature('t1').feature('se1').feature('ss2').set('segvar', ↙
{'comp1_a'});
17243 model.sol('sol55').feature('t1').feature('se1').feature('ss2').set('linsolver', ↙
'dDef');
17244 model.sol('sol55').feature('t1').feature('se1').feature('ss2').label('Domain ODEs ↙
and DAEs 2b');
17245 model.sol('sol55').feature('t1').feature('se1').create('ss3', 'SegregatedStep');
17246 model.sol('sol55').feature('t1').feature('se1').feature('ss3').set('segvar', ↙
{'comp1_ACE2'});
17247 model.sol('sol55').feature('t1').feature('se1').feature('ss3').set('linsolver', ↙
'dDef');
17248 model.sol('sol55').feature('t1').feature('se1').feature('ss3').label('Domain ODEs ↙
and DAEs 5b');
17249 model.sol('sol55').feature('t1').feature('se1').create('ss4', 'SegregatedStep');
17250 model.sol('sol55').feature('t1').feature('se1').feature('ss4').set('segvar', ↙
{'comp1_ACE2bAngI'});
17251 model.sol('sol55').feature('t1').feature('se1').feature('ss4').set('linsolver', ↙
'dDef');
17252 model.sol('sol55').feature('t1').feature('se1').feature('ss4').label('Domain ODEs ↙
and DAEs 6b');
17253 model.sol('sol55').feature('t1').feature('se1').create('ss5', 'SegregatedStep');
17254 model.sol('sol55').feature('t1').feature('se1').feature('ss5').set('segvar', ↙
{'comp1_ACE2bAngII'});
17255 model.sol('sol55').feature('t1').feature('se1').feature('ss5').set('linsolver', ↙
'dDef');
17256 model.sol('sol55').feature('t1').feature('se1').feature('ss5').label('Domain ODEs ↙
and DAEs 7a');
```

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17257 model.sol('sol55').feature('t1').feature('se1').create('ss6', 'SegregatedStep');
17258 model.sol('sol55').feature('t1').feature('se1').feature('ss6').set('segvar', ↙
{'comp1_AGT'});
17259 model.sol('sol55').feature('t1').feature('se1').feature('ss6').set('linsolver', ↙
'dDef');
17260 model.sol('sol55').feature('t1').feature('se1').feature('ss6').label('Domain ODEs ↙
and DAEs 2');
17261 model.sol('sol55').feature('t1').feature('se1').create('ss7', 'SegregatedStep');
17262 model.sol('sol55').feature('t1').feature('se1').feature('ss7').set('segvar', ↙
{'comp1_Ang17'});
17263 model.sol('sol55').feature('t1').feature('se1').feature('ss7').set('linsolver', ↙
'dDef');
17264 model.sol('sol55').feature('t1').feature('se1').feature('ss7').label('Domain ODEs ↙
and DAEs 5');
17265 model.sol('sol55').feature('t1').feature('se1').create('ss8', 'SegregatedStep');
17266 model.sol('sol55').feature('t1').feature('se1').feature('ss8').set('segvar', ↙
{'comp1_Ang19'});
17267 model.sol('sol55').feature('t1').feature('se1').feature('ss8').set('linsolver', ↙
'dDef');
17268 model.sol('sol55').feature('t1').feature('se1').feature('ss8').label('Domain ODEs ↙
and DAEs 15');
17269 model.sol('sol55').feature('t1').feature('se1').create('ss9', 'SegregatedStep');
17270 model.sol('sol55').feature('t1').feature('se1').feature('ss9').set('segvar', ↙
{'comp1_AngI'});
17271 model.sol('sol55').feature('t1').feature('se1').feature('ss9').set('linsolver', ↙
'dDef');
17272 model.sol('sol55').feature('t1').feature('se1').feature('ss9').label('Domain ODEs ↙
and DAEs 3');
17273 model.sol('sol55').feature('t1').feature('se1').create('ss10', 'SegregatedStep');
17274 model.sol('sol55').feature('t1').feature('se1').feature('ss10').set('segvar', ↙
{'comp1_AngII'});
17275 model.sol('sol55').feature('t1').feature('se1').feature('ss10').set('linsolver', ↙
'dDef');
17276 model.sol('sol55').feature('t1').feature('se1').feature('ss10').label('Domain ↙
ODEs and DAEs 4');
17277 model.sol('sol55').feature('t1').feature('se1').create('ss11', 'SegregatedStep');
17278 model.sol('sol55').feature('t1').feature('se1').feature('ss11').set('segvar', ↙
{'comp1_AngIII'});
17279 model.sol('sol55').feature('t1').feature('se1').feature('ss11').set('linsolver', ↙
'dDef');
17280 model.sol('sol55').feature('t1').feature('se1').feature('ss11').label('Domain ↙
ODEs and DAEs 16');
17281 model.sol('sol55').feature('t1').feature('se1').create('ss12', 'SegregatedStep');
17282 model.sol('sol55').feature('t1').feature('se1').feature('ss12').set('segvar', ↙
{'comp1_AngIV'});
17283 model.sol('sol55').feature('t1').feature('se1').feature('ss12').set('linsolver', ↙
'dDef');
17284 model.sol('sol55').feature('t1').feature('se1').feature('ss12').label('Domain ↙
ODEs and DAEs 6');
17285 model.sol('sol55').feature('t1').feature('se1').create('ss13', 'SegregatedStep');
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17286 model.sol('sol55').feature('t1').feature('se1').feature('ss13').set('segvar', ↙
{'comp1_antiPD1'});
17287 model.sol('sol55').feature('t1').feature('se1').feature('ss13').set('linsolver', ↙
'dDef');
17288 model.sol('sol55').feature('t1').feature('se1').feature('ss13').label('Domain ↙
ODEs and DAEs 46');
17289 model.sol('sol55').feature('t1').feature('se1').create('ss14', 'SegregatedStep');
17290 model.sol('sol55').feature('t1').feature('se1').feature('ss14').set('segvar', ↙
{'comp1_AT1bAngII'});
17291 model.sol('sol55').feature('t1').feature('se1').feature('ss14').set('linsolver', ↙
'dDef');
17292 model.sol('sol55').feature('t1').feature('se1').feature('ss14').label('Domain ↙
ODEs and DAEs 7');
17293 model.sol('sol55').feature('t1').feature('se1').create('ss15', 'SegregatedStep');
17294 model.sol('sol55').feature('t1').feature('se1').feature('ss15').set('segvar', ↙
{'comp1_AT1R'});
17295 model.sol('sol55').feature('t1').feature('se1').feature('ss15').set('linsolver', ↙
'dDef');
17296 model.sol('sol55').feature('t1').feature('se1').feature('ss15').label('Domain ↙
ODEs and DAEs 19');
17297 model.sol('sol55').feature('t1').feature('se1').create('ss16', 'SegregatedStep');
17298 model.sol('sol55').feature('t1').feature('se1').feature('ss16').set('segvar', ↙
{'comp1_AT2bAngII'});
17299 model.sol('sol55').feature('t1').feature('se1').feature('ss16').set('linsolver', ↙
'dDef');
17300 model.sol('sol55').feature('t1').feature('se1').feature('ss16').label('Domain ↙
ODEs and DAEs 8');
17301 model.sol('sol55').feature('t1').feature('se1').create('ss17', 'SegregatedStep');
17302 model.sol('sol55').feature('t1').feature('se1').feature('ss17').set('segvar', ↙
{'comp1_AT2R'});
17303 model.sol('sol55').feature('t1').feature('se1').feature('ss17').set('linsolver', ↙
'dDef');
17304 model.sol('sol55').feature('t1').feature('se1').feature('ss17').label('Domain ↙
ODEs and DAEs 2c');
17305 model.sol('sol55').feature('t1').feature('se1').create('ss18', 'SegregatedStep');
17306 model.sol('sol55').feature('t1').feature('se1').feature('ss18').set('segvar', ↙
{'comp1_AT4bAngIV'});
17307 model.sol('sol55').feature('t1').feature('se1').feature('ss18').set('linsolver', ↙
'dDef');
17308 model.sol('sol55').feature('t1').feature('se1').feature('ss18').label('Domain ↙
ODEs and DAEs 17');
17309 model.sol('sol55').feature('t1').feature('se1').create('ss19', 'SegregatedStep');
17310 model.sol('sol55').feature('t1').feature('se1').feature('ss19').set('segvar', ↙
{'comp1_AT4R'});
17311 model.sol('sol55').feature('t1').feature('se1').feature('ss19').set('linsolver', ↙
'dDef');
17312 model.sol('sol55').feature('t1').feature('se1').feature('ss19').label('Domain ↙
ODEs and DAEs 4b');
17313 model.sol('sol55').feature('t1').feature('se1').create('ss20', 'SegregatedStep');
17314 model.sol('sol55').feature('t1').feature('se1').feature('ss20').set('segvar', ↙
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{'comp1_BA'});
17315 model.sol('sol55').feature('t1').feature('se1').feature('ss20').set('linsolver', ↙
'dDef');
17316 model.sol('sol55').feature('t1').feature('se1').feature('ss20').label('Domain ↙
ODEs and DAEs 45o');
17317 model.sol('sol55').feature('t1').feature('se1').create('ss21', 'SegregatedStep');
17318 model.sol('sol55').feature('t1').feature('se1').feature('ss21').set('segvar', ↙
{'comp1_BN'});
17319 model.sol('sol55').feature('t1').feature('se1').feature('ss21').set('linsolver', ↙
'dDef');
17320 model.sol('sol55').feature('t1').feature('se1').feature('ss21').label('Domain ↙
ODEs and DAEs 45n');
17321 model.sol('sol55').feature('t1').feature('se1').create('ss22', 'SegregatedStep');
17322 model.sol('sol55').feature('t1').feature('se1').feature('ss22').set('segvar', ↙
{'comp1_c'});
17323 model.sol('sol55').feature('t1').feature('se1').feature('ss22').set('linsolver', ↙
'dDef');
17324 model.sol('sol55').feature('t1').feature('se1').feature('ss22').label('Domain ↙
ODEs and DAEs 12');
17325 model.sol('sol55').feature('t1').feature('se1').create('ss23', 'SegregatedStep');
17326 model.sol('sol55').feature('t1').feature('se1').feature('ss23').set('segvar', ↙
{'comp1_Cb'});
17327 model.sol('sol55').feature('t1').feature('se1').feature('ss23').set('linsolver', ↙
'dDef');
17328 model.sol('sol55').feature('t1').feature('se1').feature('ss23').label('Domain ↙
ODEs and DAEs 9');
17329 model.sol('sol55').feature('t1').feature('se1').create('ss24', 'SegregatedStep');
17330 model.sol('sol55').feature('t1').feature('se1').feature('ss24').set('segvar', ↙
{'comp1_DC'});
17331 model.sol('sol55').feature('t1').feature('se1').feature('ss24').set('linsolver', ↙
'dDef');
17332 model.sol('sol55').feature('t1').feature('se1').feature('ss24').label('Domain ↙
ODEs and DAEs 45i');
17333 model.sol('sol55').feature('t1').feature('se1').create('ss25', 'SegregatedStep');
17334 model.sol('sol55').feature('t1').feature('se1').feature('ss25').set('segvar', ↙
{'comp1_DCi'});
17335 model.sol('sol55').feature('t1').feature('se1').feature('ss25').set('linsolver', ↙
'dDef');
17336 model.sol('sol55').feature('t1').feature('se1').feature('ss25').label('Domain ↙
ODEs and DAEs 45j');
17337 model.sol('sol55').feature('t1').feature('se1').create('ss26', 'SegregatedStep');
17338 model.sol('sol55').feature('t1').feature('se1').feature('ss26').set('segvar', ↙
{'comp1_y5'});
17339 model.sol('sol55').feature('t1').feature('se1').feature('ss26').set('linsolver', ↙
'dDef');
17340 model.sol('sol55').feature('t1').feature('se1').feature('ss26').label('Domain ↙
ODEs and DAEs 23');
17341 model.sol('sol55').feature('t1').feature('se1').create('ss27', 'SegregatedStep');
17342 model.sol('sol55').feature('t1').feature('se1').feature('ss27').set('segvar', ↙
{'comp1_y15'});
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17343 model.sol('sol55').feature('t1').feature('se1').feature('ss27').set('linsolver', ↙
'dDef');
17344 model.sol('sol55').feature('t1').feature('se1').feature('ss27').label('Domain ↙
ODEs and DAEs 10a');
17345 model.sol('sol55').feature('t1').feature('se1').create('ss28', 'SegregatedStep');
17346 model.sol('sol55').feature('t1').feature('se1').feature('ss28').set('segvar', ↙
{'comp1_y107' 'comp1_y1072'});
17347 model.sol('sol55').feature('t1').feature('se1').feature('ss28').set('linsolver', ↙
'dDef');
17348 model.sol('sol55').feature('t1').feature('se1').feature('ss28').label('Domain ↙
ODEs and DAEs 11a');
17349 model.sol('sol55').feature('t1').feature('se1').create('ss29', 'SegregatedStep');
17350 model.sol('sol55').feature('t1').feature('se1').feature('ss29').set('segvar', ↙
{'comp1_y87'});
17351 model.sol('sol55').feature('t1').feature('se1').feature('ss29').set('linsolver', ↙
'dDef');
17352 model.sol('sol55').feature('t1').feature('se1').feature('ss29').label('Domain ↙
ODEs and DAEs 12a');
17353 model.sol('sol55').feature('t1').feature('se1').create('ss30', 'SegregatedStep');
17354 model.sol('sol55').feature('t1').feature('se1').feature('ss30').set('segvar', ↙
{'comp1_y18'});
17355 model.sol('sol55').feature('t1').feature('se1').feature('ss30').set('linsolver', ↙
'dDef');
17356 model.sol('sol55').feature('t1').feature('se1').feature('ss30').label('Domain ↙
ODEs and DAEs 13a');
17357 model.sol('sol55').feature('t1').feature('se1').create('ss31', 'SegregatedStep');
17358 model.sol('sol55').feature('t1').feature('se1').feature('ss31').set('segvar', ↙
{'comp1_y19'});
17359 model.sol('sol55').feature('t1').feature('se1').feature('ss31').set('linsolver', ↙
'dDef');
17360 model.sol('sol55').feature('t1').feature('se1').feature('ss31').label('Domain ↙
ODEs and DAEs 14a');
17361 model.sol('sol55').feature('t1').feature('se1').create('ss32', 'SegregatedStep');
17362 model.sol('sol55').feature('t1').feature('se1').feature('ss32').set('segvar', ↙
{'comp1_y108' 'comp1_y1082'});
17363 model.sol('sol55').feature('t1').feature('se1').feature('ss32').set('linsolver', ↙
'dDef');
17364 model.sol('sol55').feature('t1').feature('se1').feature('ss32').label('Domain ↙
ODEs and DAEs 15a');
17365 model.sol('sol55').feature('t1').feature('se1').create('ss33', 'SegregatedStep');
17366 model.sol('sol55').feature('t1').feature('se1').feature('ss33').set('segvar', ↙
{'comp1_y102'});
17367 model.sol('sol55').feature('t1').feature('se1').feature('ss33').set('linsolver', ↙
'dDef');
17368 model.sol('sol55').feature('t1').feature('se1').feature('ss33').label('Domain ↙
ODEs and DAEs 16a');
17369 model.sol('sol55').feature('t1').feature('se1').create('ss34', 'SegregatedStep');
17370 model.sol('sol55').feature('t1').feature('se1').feature('ss34').set('segvar', ↙
{'comp1_y22'});
17371 model.sol('sol55').feature('t1').feature('se1').feature('ss34').set('linsolver', ↙
```

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'dDef');
17372 model.sol('sol55').feature('t1').feature('se1').feature('ss34').label('Domain ↙
ODEs and DAEs 17a');
17373 model.sol('sol55').feature('t1').feature('se1').create('ss35', 'SegregatedStep');
17374 model.sol('sol55').feature('t1').feature('se1').feature('ss35').set('segvar', ↙
{'comp1_y23'});
17375 model.sol('sol55').feature('t1').feature('se1').feature('ss35').set('linsolver', ↙
'dDef');
17376 model.sol('sol55').feature('t1').feature('se1').feature('ss35').label('Domain ↙
ODEs and DAEs 18a');
17377 model.sol('sol55').feature('t1').feature('se1').create('ss36', 'SegregatedStep');
17378 model.sol('sol55').feature('t1').feature('se1').feature('ss36').set('segvar', ↙
{'comp1_y109' 'comp1_y1092'});
17379 model.sol('sol55').feature('t1').feature('se1').feature('ss36').set('linsolver', ↙
'dDef');
17380 model.sol('sol55').feature('t1').feature('se1').feature('ss36').label('Domain ↙
ODEs and DAEs 19a');
17381 model.sol('sol55').feature('t1').feature('se1').create('ss37', 'SegregatedStep');
17382 model.sol('sol55').feature('t1').feature('se1').feature('ss37').set('segvar', ↙
{'comp1_y78'});
17383 model.sol('sol55').feature('t1').feature('se1').feature('ss37').set('linsolver', ↙
'dDef');
17384 model.sol('sol55').feature('t1').feature('se1').feature('ss37').label('Domain ↙
ODEs and DAEs 2h');
17385 model.sol('sol55').feature('t1').feature('se1').create('ss38', 'SegregatedStep');
17386 model.sol('sol55').feature('t1').feature('se1').feature('ss38').set('segvar', ↙
{'comp1_y92'});
17387 model.sol('sol55').feature('t1').feature('se1').feature('ss38').set('linsolver', ↙
'dDef');
17388 model.sol('sol55').feature('t1').feature('se1').feature('ss38').label('Domain ↙
ODEs and DAEs 20a');
17389 model.sol('sol55').feature('t1').feature('se1').create('ss39', 'SegregatedStep');
17390 model.sol('sol55').feature('t1').feature('se1').feature('ss39').set('segvar', ↙
{'comp1_y26'});
17391 model.sol('sol55').feature('t1').feature('se1').feature('ss39').set('linsolver', ↙
'dDef');
17392 model.sol('sol55').feature('t1').feature('se1').feature('ss39').label('Domain ↙
ODEs and DAEs 21a');
17393 model.sol('sol55').feature('t1').feature('se1').create('ss40', 'SegregatedStep');
17394 model.sol('sol55').feature('t1').feature('se1').feature('ss40').set('segvar', ↙
{'comp1_y27'});
17395 model.sol('sol55').feature('t1').feature('se1').feature('ss40').set('linsolver', ↙
'dDef');
17396 model.sol('sol55').feature('t1').feature('se1').feature('ss40').label('Domain ↙
ODEs and DAEs 22a');
17397 model.sol('sol55').feature('t1').feature('se1').create('ss41', 'SegregatedStep');
17398 model.sol('sol55').feature('t1').feature('se1').feature('ss41').set('segvar', ↙
{'comp1_y110' 'comp1_y1102'});
17399 model.sol('sol55').feature('t1').feature('se1').feature('ss41').set('linsolver', ↙
'dDef');
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17400 model.sol('sol55').feature('t1').feature('se1').feature('ss41').label('Domain ↙
ODEs and DAEs 23a');
17401 model.sol('sol55').feature('t1').feature('se1').create('ss42', 'SegregatedStep');
17402 model.sol('sol55').feature('t1').feature('se1').feature('ss42').set('segvar', ↙
{'comp1_y90'});
17403 model.sol('sol55').feature('t1').feature('se1').feature('ss42').set('linsolver', ↙
'dDef');
17404 model.sol('sol55').feature('t1').feature('se1').feature('ss42').label('Domain ↙
ODEs and DAEs 24');
17405 model.sol('sol55').feature('t1').feature('se1').create('ss43', 'SegregatedStep');
17406 model.sol('sol55').feature('t1').feature('se1').feature('ss43').set('segvar', ↙
{'comp1_y30'});
17407 model.sol('sol55').feature('t1').feature('se1').feature('ss43').set('linsolver', ↙
'dDef');
17408 model.sol('sol55').feature('t1').feature('se1').feature('ss43').label('Domain ↙
ODEs and DAEs 25');
17409 model.sol('sol55').feature('t1').feature('se1').create('ss44', 'SegregatedStep');
17410 model.sol('sol55').feature('t1').feature('se1').feature('ss44').set('segvar', ↙
{'comp1_y31'});
17411 model.sol('sol55').feature('t1').feature('se1').feature('ss44').set('linsolver', ↙
'dDef');
17412 model.sol('sol55').feature('t1').feature('se1').feature('ss44').label('Domain ↙
ODEs and DAEs 26');
17413 model.sol('sol55').feature('t1').feature('se1').create('ss45', 'SegregatedStep');
17414 model.sol('sol55').feature('t1').feature('se1').feature('ss45').set('segvar', ↙
{'comp1_y111' 'comp1_y1112'});
17415 model.sol('sol55').feature('t1').feature('se1').feature('ss45').set('linsolver', ↙
'dDef');
17416 model.sol('sol55').feature('t1').feature('se1').feature('ss45').label('Domain ↙
ODEs and DAEs 27');
17417 model.sol('sol55').feature('t1').feature('se1').create('ss46', 'SegregatedStep');
17418 model.sol('sol55').feature('t1').feature('se1').feature('ss46').set('segvar', ↙
{'comp1_y103'});
17419 model.sol('sol55').feature('t1').feature('se1').feature('ss46').set('linsolver', ↙
'dDef');
17420 model.sol('sol55').feature('t1').feature('se1').feature('ss46').label('Domain ↙
ODEs and DAEs 28');
17421 model.sol('sol55').feature('t1').feature('se1').create('ss47', 'SegregatedStep');
17422 model.sol('sol55').feature('t1').feature('se1').feature('ss47').set('segvar', ↙
{'comp1_y54'});
17423 model.sol('sol55').feature('t1').feature('se1').feature('ss47').set('linsolver', ↙
'dDef');
17424 model.sol('sol55').feature('t1').feature('se1').feature('ss47').label('Domain ↙
ODEs and DAEs 29');
17425 model.sol('sol55').feature('t1').feature('se1').create('ss48', 'SegregatedStep');
17426 model.sol('sol55').feature('t1').feature('se1').feature('ss48').set('segvar', ↙
{'comp1_y85'});
17427 model.sol('sol55').feature('t1').feature('se1').feature('ss48').set('linsolver', ↙
'dDef');
17428 model.sol('sol55').feature('t1').feature('se1').feature('ss48').label('Domain ↙
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ODEs and DAEs 3d');
17429 model.sol('sol55').feature('t1').feature('se1').create('ss49', 'SegregatedStep');
17430 model.sol('sol55').feature('t1').feature('se1').feature('ss49').set('segvar', ↙
{'comp1_y55'});
17431 model.sol('sol55').feature('t1').feature('se1').feature('ss49').set('linsolver', ↙
'dDef');
17432 model.sol('sol55').feature('t1').feature('se1').feature('ss49').label('Domain ↙
ODEs and DAEs 30');
17433 model.sol('sol55').feature('t1').feature('se1').create('ss50', 'SegregatedStep');
17434 model.sol('sol55').feature('t1').feature('se1').feature('ss50').set('segvar', ↙
{'comp1_y117' 'comp1_y1172'});
17435 model.sol('sol55').feature('t1').feature('se1').feature('ss50').set('linsolver', ↙
'dDef');
17436 model.sol('sol55').feature('t1').feature('se1').feature('ss50').label('Domain ↙
ODEs and DAEs 31');
17437 model.sol('sol55').feature('t1').feature('se1').create('ss51', 'SegregatedStep');
17438 model.sol('sol55').feature('t1').feature('se1').feature('ss51').set('segvar', ↙
{'comp1_y94'});
17439 model.sol('sol55').feature('t1').feature('se1').feature('ss51').set('linsolver', ↙
'dDef');
17440 model.sol('sol55').feature('t1').feature('se1').feature('ss51').label('Domain ↙
ODEs and DAEs 32');
17441 model.sol('sol55').feature('t1').feature('se1').create('ss52', 'SegregatedStep');
17442 model.sol('sol55').feature('t1').feature('se1').feature('ss52').set('segvar', ↙
{'comp1_y62'});
17443 model.sol('sol55').feature('t1').feature('se1').feature('ss52').set('linsolver', ↙
'dDef');
17444 model.sol('sol55').feature('t1').feature('se1').feature('ss52').label('Domain ↙
ODEs and DAEs 33');
17445 model.sol('sol55').feature('t1').feature('se1').create('ss53', 'SegregatedStep');
17446 model.sol('sol55').feature('t1').feature('se1').feature('ss53').set('segvar', ↙
{'comp1_y63'});
17447 model.sol('sol55').feature('t1').feature('se1').feature('ss53').set('linsolver', ↙
'dDef');
17448 model.sol('sol55').feature('t1').feature('se1').feature('ss53').label('Domain ↙
ODEs and DAEs 34');
17449 model.sol('sol55').feature('t1').feature('se1').create('ss54', 'SegregatedStep');
17450 model.sol('sol55').feature('t1').feature('se1').feature('ss54').set('segvar', ↙
{'comp1_y119' 'comp1_y1192'});
17451 model.sol('sol55').feature('t1').feature('se1').feature('ss54').set('linsolver', ↙
'dDef');
17452 model.sol('sol55').feature('t1').feature('se1').feature('ss54').label('Domain ↙
ODEs and DAEs 35');
17453 model.sol('sol55').feature('t1').feature('se1').create('ss55', 'SegregatedStep');
17454 model.sol('sol55').feature('t1').feature('se1').feature('ss55').set('segvar', ↙
{'comp1_y70'});
17455 model.sol('sol55').feature('t1').feature('se1').feature('ss55').set('linsolver', ↙
'dDef');
17456 model.sol('sol55').feature('t1').feature('se1').feature('ss55').label('Domain ↙
ODEs and DAEs 36');
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17457 model.sol('sol55').feature('t1').feature('se1').create('ss56', 'SegregatedStep');
17458 model.sol('sol55').feature('t1').feature('se1').feature('ss56').set('segvar', ↙
{'comp1_y71'});
17459 model.sol('sol55').feature('t1').feature('se1').feature('ss56').set('linsolver', ↙
'dDef');
17460 model.sol('sol55').feature('t1').feature('se1').feature('ss56').label('Domain ↙
ODEs and DAEs 37');
17461 model.sol('sol55').feature('t1').feature('se1').create('ss57', 'SegregatedStep');
17462 model.sol('sol55').feature('t1').feature('se1').feature('ss57').set('segvar', ↙
{'comp1_y121' 'comp1_y1212'});
17463 model.sol('sol55').feature('t1').feature('se1').feature('ss57').set('linsolver', ↙
'dDef');
17464 model.sol('sol55').feature('t1').feature('se1').feature('ss57').label('Domain ↙
ODEs and DAEs 38');
17465 model.sol('sol55').feature('t1').feature('se1').create('ss58', 'SegregatedStep');
17466 model.sol('sol55').feature('t1').feature('se1').feature('ss58').set('segvar', ↙
{'comp1_y98'});
17467 model.sol('sol55').feature('t1').feature('se1').feature('ss58').set('linsolver', ↙
'dDef');
17468 model.sol('sol55').feature('t1').feature('se1').feature('ss58').label('Domain ↙
ODEs and DAEs 39');
17469 model.sol('sol55').feature('t1').feature('se1').create('ss59', 'SegregatedStep');
17470 model.sol('sol55').feature('t1').feature('se1').feature('ss59').set('segvar', ↙
{'comp1_y86'});
17471 model.sol('sol55').feature('t1').feature('se1').feature('ss59').set('linsolver', ↙
'dDef');
17472 model.sol('sol55').feature('t1').feature('se1').feature('ss59').label('Domain ↙
ODEs and DAEs 4a');
17473 model.sol('sol55').feature('t1').feature('se1').create('ss60', 'SegregatedStep');
17474 model.sol('sol55').feature('t1').feature('se1').feature('ss60').set('segvar', ↙
{'comp1_y74'});
17475 model.sol('sol55').feature('t1').feature('se1').feature('ss60').set('linsolver', ↙
'dDef');
17476 model.sol('sol55').feature('t1').feature('se1').feature('ss60').label('Domain ↙
ODEs and DAEs 40');
17477 model.sol('sol55').feature('t1').feature('se1').create('ss61', 'SegregatedStep');
17478 model.sol('sol55').feature('t1').feature('se1').feature('ss61').set('segvar', ↙
{'comp1_y75'});
17479 model.sol('sol55').feature('t1').feature('se1').feature('ss61').set('linsolver', ↙
'dDef');
17480 model.sol('sol55').feature('t1').feature('se1').feature('ss61').label('Domain ↙
ODEs and DAEs 41');
17481 model.sol('sol55').feature('t1').feature('se1').create('ss62', 'SegregatedStep');
17482 model.sol('sol55').feature('t1').feature('se1').feature('ss62').set('segvar', ↙
{'comp1_y124' 'comp1_y1242'});
17483 model.sol('sol55').feature('t1').feature('se1').feature('ss62').set('linsolver', ↙
'dDef');
17484 model.sol('sol55').feature('t1').feature('se1').feature('ss62').label('Domain ↙
ODEs and DAEs 42');
17485 model.sol('sol55').feature('t1').feature('se1').create('ss63', 'SegregatedStep');
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17486 model.sol('sol55').feature('t1').feature('se1').feature('ss63').set('segvar', ↙
{'comp1_y125'});
17487 model.sol('sol55').feature('t1').feature('se1').feature('ss63').set('linsolver', ↙
'dDef');
17488 model.sol('sol55').feature('t1').feature('se1').feature('ss63').label('Domain ↙
ODEs and DAEs 43');
17489 model.sol('sol55').feature('t1').feature('se1').create('ss64', 'SegregatedStep');
17490 model.sol('sol55').feature('t1').feature('se1').feature('ss64').set('segvar', ↙
{'comp1_y96'});
17491 model.sol('sol55').feature('t1').feature('se1').feature('ss64').set('linsolver', ↙
'dDef');
17492 model.sol('sol55').feature('t1').feature('se1').feature('ss64').label('Domain ↙
ODEs and DAEs 44');
17493 model.sol('sol55').feature('t1').feature('se1').create('ss65', 'SegregatedStep');
17494 model.sol('sol55').feature('t1').feature('se1').feature('ss65').set('segvar', ↙
{'comp1_Treg'});
17495 model.sol('sol55').feature('t1').feature('se1').feature('ss65').set('linsolver', ↙
'dDef');
17496 model.sol('sol55').feature('t1').feature('se1').feature('ss65').label('Domain ↙
ODEs and DAEs 5f');
17497 model.sol('sol55').feature('t1').feature('se1').create('ss66', 'SegregatedStep');
17498 model.sol('sol55').feature('t1').feature('se1').feature('ss66').set('segvar', ↙
{'comp1_y105' 'comp1_y1052'});
17499 model.sol('sol55').feature('t1').feature('se1').feature('ss66').set('linsolver', ↙
'dDef');
17500 model.sol('sol55').feature('t1').feature('se1').feature('ss66').label('Domain ↙
ODEs and DAEs 7b');
17501 model.sol('sol55').feature('t1').feature('se1').create('ss67', 'SegregatedStep');
17502 model.sol('sol55').feature('t1').feature('se1').feature('ss67').set('segvar', ↙
{'comp1_y14'});
17503 model.sol('sol55').feature('t1').feature('se1').feature('ss67').set('linsolver', ↙
'dDef');
17504 model.sol('sol55').feature('t1').feature('se1').feature('ss67').label('Domain ↙
ODEs and DAEs 9a');
17505 model.sol('sol55').feature('t1').feature('se1').create('ss68', 'SegregatedStep');
17506 model.sol('sol55').feature('t1').feature('se1').feature('ss68').set('segvar', ↙
{'comp1_ec' 'comp1_ec2' 'comp1_ec3' 'comp1_ec4' 'comp1_ec5' 'comp1_ec6' 'comp1_ec7' ↙
'comp1_ec8' 'comp1_ec9' 'comp1_ec10'  ...
17507 'comp1_ec11' 'comp1_ec12'});
17508 model.sol('sol55').feature('t1').feature('se1').feature('ss68').set('linsolver', ↙
'dDef');
17509 model.sol('sol55').feature('t1').feature('se1').feature('ss68').label('Domain ↙
ODEs and DAEs 22');
17510 model.sol('sol55').feature('t1').feature('se1').create('ss69', 'SegregatedStep');
17511 model.sol('sol55').feature('t1').feature('se1').feature('ss69').set('segvar', ↙
{'comp1_H'});
17512 model.sol('sol55').feature('t1').feature('se1').feature('ss69').set('linsolver', ↙
'dDef');
17513 model.sol('sol55').feature('t1').feature('se1').feature('ss69').label('Domain ↙
ODEs and DAEs 2a');
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17514 model.sol('sol55').feature('t1').feature('se1').create('ss70', 'SegregatedStep');
17515 model.sol('sol55').feature('t1').feature('se1').feature('ss70').set('segvar', ↙
{'comp1_iec' 'comp1_iec2' 'comp1_iec3' 'comp1_iec4' 'comp1_iec5' 'comp1_iec6' ↙
'comp1_iec7' 'comp1_iec8' 'comp1_iec9' 'comp1_iec10'  ...
17516 'comp1_iec11' 'comp1_iec12'});
17517 model.sol('sol55').feature('t1').feature('se1').feature('ss70').set('linsolver', ↙
'dDef');
17518 model.sol('sol55').feature('t1').feature('se1').feature('ss70').label('Domain ↙
ODEs and DAEs 2g');
17519 model.sol('sol55').feature('t1').feature('se1').create('ss71', 'SegregatedStep');
17520 model.sol('sol55').feature('t1').feature('se1').feature('ss71').set('segvar', ↙
{'comp1_IF'});
17521 model.sol('sol55').feature('t1').feature('se1').feature('ss71').set('linsolver', ↙
'dDef');
17522 model.sol('sol55').feature('t1').feature('se1').feature('ss71').label('Domain ↙
ODEs and DAEs 46c');
17523 model.sol('sol55').feature('t1').feature('se1').create('ss72', 'SegregatedStep');
17524 model.sol('sol55').feature('t1').feature('se1').feature('ss72').set('segvar', ↙
{'comp1_IL6'});
17525 model.sol('sol55').feature('t1').feature('se1').feature('ss72').set('linsolver', ↙
'dDef');
17526 model.sol('sol55').feature('t1').feature('se1').feature('ss72').label('Domain ↙
ODEs and DAEs 20');
17527 model.sol('sol55').feature('t1').feature('se1').create('ss73', 'SegregatedStep');
17528 model.sol('sol55').feature('t1').feature('se1').feature('ss73').set('segvar', ↙
{'comp1_IL6R'});
17529 model.sol('sol55').feature('t1').feature('se1').feature('ss73').set('linsolver', ↙
'dDef');
17530 model.sol('sol55').feature('t1').feature('se1').feature('ss73').label('Domain ↙
ODEs and DAEs 2d');
17531 model.sol('sol55').feature('t1').feature('se1').create('ss74', 'SegregatedStep');
17532 model.sol('sol55').feature('t1').feature('se1').feature('ss74').set('segvar', ↙
{'comp1_IL6RbIL6'});
17533 model.sol('sol55').feature('t1').feature('se1').feature('ss74').set('linsolver', ↙
'dDef');
17534 model.sol('sol55').feature('t1').feature('se1').feature('ss74').label('Domain ↙
ODEs and DAEs 3c');
17535 model.sol('sol55').feature('t1').feature('se1').create('ss75', 'SegregatedStep');
17536 model.sol('sol55').feature('t1').feature('se1').feature('ss75').set('segvar', ↙
{'comp1_In'});
17537 model.sol('sol55').feature('t1').feature('se1').feature('ss75').set('linsolver', ↙
'dDef');
17538 model.sol('sol55').feature('t1').feature('se1').feature('ss75').label('Domain ↙
ODEs and DAEs 6a');
17539 model.sol('sol55').feature('t1').feature('se1').create('ss76', 'SegregatedStep');
17540 model.sol('sol55').feature('t1').feature('se1').feature('ss76').set('segvar', ↙
{'comp1_ma'});
17541 model.sol('sol55').feature('t1').feature('se1').feature('ss76').set('linsolver', ↙
'dDef');
17542 model.sol('sol55').feature('t1').feature('se1').feature('ss76').label('Domain ↙
```

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ODEs and DAEs 11');
17543 model.sol('sol55').feature('t1').feature('se1').create('ss77', 'SegregatedStep');
17544 model.sol('sol55').feature('t1').feature('se1').feature('ss77').set('segvar', ↙
{'comp1_MAsbAng17'});
17545 model.sol('sol55').feature('t1').feature('se1').feature('ss77').set('linsolver', ↙
'dDef');
17546 model.sol('sol55').feature('t1').feature('se1').feature('ss77').label('Domain ↙
ODEs and DAEs 18');
17547 model.sol('sol55').feature('t1').feature('se1').create('ss78', 'SegregatedStep');
17548 model.sol('sol55').feature('t1').feature('se1').feature('ss78').set('segvar', ↙
{'comp1_MAsR'});
17549 model.sol('sol55').feature('t1').feature('se1').feature('ss78').set('linsolver', ↙
'dDef');
17550 model.sol('sol55').feature('t1').feature('se1').feature('ss78').label('Domain ↙
ODEs and DAEs 3b');
17551 model.sol('sol55').feature('t1').feature('se1').create('ss79', 'SegregatedStep');
17552 model.sol('sol55').feature('t1').feature('se1').feature('ss79').set('segvar', ↙
{'comp1_n'});
17553 model.sol('sol55').feature('t1').feature('se1').feature('ss79').set('linsolver', ↙
'dDef');
17554 model.sol('sol55').feature('t1').feature('se1').feature('ss79').label('Domain ↙
ODEs and DAEs 10');
17555 model.sol('sol55').feature('t1').feature('se1').create('ss80', 'SegregatedStep');
17556 model.sol('sol55').feature('t1').feature('se1').feature('ss80').set('segvar', ↙
{'comp1_NETs'});
17557 model.sol('sol55').feature('t1').feature('se1').feature('ss80').set('linsolver', ↙
'dDef');
17558 model.sol('sol55').feature('t1').feature('se1').feature('ss80').label('Domain ↙
ODEs and DAEs 45e');
17559 model.sol('sol55').feature('t1').feature('se1').create('ss81', 'SegregatedStep');
17560 model.sol('sol55').feature('t1').feature('se1').feature('ss81').set('segvar', ↙
{'comp1_PD1'});
17561 model.sol('sol55').feature('t1').feature('se1').feature('ss81').set('linsolver', ↙
'dDef');
17562 model.sol('sol55').feature('t1').feature('se1').feature('ss81').label('Domain ↙
ODEs and DAEs 45f');
17563 model.sol('sol55').feature('t1').feature('se1').create('ss82', 'SegregatedStep');
17564 model.sol('sol55').feature('t1').feature('se1').feature('ss82').set('segvar', ↙
{'comp1_PD1bPDL1'});
17565 model.sol('sol55').feature('t1').feature('se1').feature('ss82').set('linsolver', ↙
'dDef');
17566 model.sol('sol55').feature('t1').feature('se1').feature('ss82').label('Domain ↙
ODEs and DAEs 45g');
17567 model.sol('sol55').feature('t1').feature('se1').create('ss83', 'SegregatedStep');
17568 model.sol('sol55').feature('t1').feature('se1').feature('ss83').set('segvar', ↙
{'comp1_PDL1'});
17569 model.sol('sol55').feature('t1').feature('se1').feature('ss83').set('linsolver', ↙
'dDef');
17570 model.sol('sol55').feature('t1').feature('se1').feature('ss83').label('Domain ↙
ODEs and DAEs 47');
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17571 model.sol('sol55').feature('t1').feature('se1').create('ss84', 'SegregatedStep');
17572 model.sol('sol55').feature('t1').feature('se1').feature('ss84').set('segvar', ↙
{'comp1_PL'});
17573 model.sol('sol55').feature('t1').feature('se1').feature('ss84').set('linsolver', ↙
'dDef');
17574 model.sol('sol55').feature('t1').feature('se1').feature('ss84').label('Domain ↙
ODEs and DAEs 45p');
17575 model.sol('sol55').feature('t1').feature('se1').create('ss85', 'SegregatedStep');
17576 model.sol('sol55').feature('t1').feature('se1').feature('ss85').set('segvar', ↙
{'comp1_PS'});
17577 model.sol('sol55').feature('t1').feature('se1').feature('ss85').set('linsolver', ↙
'dDef');
17578 model.sol('sol55').feature('t1').feature('se1').feature('ss85').label('Domain ↙
ODEs and DAEs 45q');
17579 model.sol('sol55').feature('t1').feature('se1').create('ss86', 'SegregatedStep');
17580 model.sol('sol55').feature('t1').feature('se1').feature('ss86').set('segvar', ↙
{'comp1_Renin'});
17581 model.sol('sol55').feature('t1').feature('se1').feature('ss86').set('linsolver', ↙
'dDef');
17582 model.sol('sol55').feature('t1').feature('se1').feature('ss86').label('Domain ↙
ODEs and DAEs 14');
17583 model.sol('sol55').feature('t1').feature('se1').create('ss87', 'SegregatedStep');
17584 model.sol('sol55').feature('t1').feature('se1').feature('ss87').set('segvar', ↙
{'comp1_sACE2'});
17585 model.sol('sol55').feature('t1').feature('se1').feature('ss87').set('linsolver', ↙
'dDef');
17586 model.sol('sol55').feature('t1').feature('se1').feature('ss87').label('Domain ↙
ODEs and DAEs 2f');
17587 model.sol('sol55').feature('t1').feature('se1').create('ss88', 'SegregatedStep');
17588 model.sol('sol55').feature('t1').feature('se1').feature('ss88').set('segvar', ↙
{'comp1_sIL6R'});
17589 model.sol('sol55').feature('t1').feature('se1').feature('ss88').set('linsolver', ↙
'dDef');
17590 model.sol('sol55').feature('t1').feature('se1').feature('ss88').label('Domain ↙
ODEs and DAEs 21');
17591 model.sol('sol55').feature('t1').feature('se1').create('ss89', 'SegregatedStep');
17592 model.sol('sol55').feature('t1').feature('se1').feature('ss89').set('segvar', ↙
{'comp1_sIL6RbIL6'});
17593 model.sol('sol55').feature('t1').feature('se1').feature('ss89').set('linsolver', ↙
'dDef');
17594 model.sol('sol55').feature('t1').feature('se1').feature('ss89').label('Domain ↙
ODEs and DAEs');
17595 model.sol('sol55').feature('t1').feature('se1').create('ss90', 'SegregatedStep');
17596 model.sol('sol55').feature('t1').feature('se1').feature('ss90').set('segvar', ↙
{'comp1_TE'});
17597 model.sol('sol55').feature('t1').feature('se1').feature('ss90').set('linsolver', ↙
'dDef');
17598 model.sol('sol55').feature('t1').feature('se1').feature('ss90').label('Domain ↙
ODEs and DAEs 45m');
17599 model.sol('sol55').feature('t1').feature('se1').create('ss91', 'SegregatedStep');
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17600 model.sol('sol55').feature('t1').feature('se1').feature('ss91').set('segvar', ↙
{'comp1_ThE'});
17601 model.sol('sol55').feature('t1').feature('se1').feature('ss91').set('linsolver', ↙
'dDef');
17602 model.sol('sol55').feature('t1').feature('se1').feature('ss91').label('Domain ↙
ODEs and DAEs 45k');
17603 model.sol('sol55').feature('t1').feature('se1').create('ss92', 'SegregatedStep');
17604 model.sol('sol55').feature('t1').feature('se1').feature('ss92').set('segvar', ↙
{'comp1_ThM'});
17605 model.sol('sol55').feature('t1').feature('se1').feature('ss92').set('linsolver', ↙
'dDef');
17606 model.sol('sol55').feature('t1').feature('se1').feature('ss92').label('Domain ↙
ODEs and DAEs 45t');
17607 model.sol('sol55').feature('t1').feature('se1').create('ss93', 'SegregatedStep');
17608 model.sol('sol55').feature('t1').feature('se1').feature('ss93').set('segvar', ↙
{'comp1_ThN'});
17609 model.sol('sol55').feature('t1').feature('se1').feature('ss93').set('linsolver', ↙
'dDef');
17610 model.sol('sol55').feature('t1').feature('se1').feature('ss93').label('Domain ↙
ODEs and DAEs 46d');
17611 model.sol('sol55').feature('t1').feature('se1').create('ss94', 'SegregatedStep');
17612 model.sol('sol55').feature('t1').feature('se1').feature('ss94').set('segvar', ↙
{'comp1_TM'});
17613 model.sol('sol55').feature('t1').feature('se1').feature('ss94').set('linsolver', ↙
'dDef');
17614 model.sol('sol55').feature('t1').feature('se1').feature('ss94').label('Domain ↙
ODEs and DAEs 45u');
17615 model.sol('sol55').feature('t1').feature('se1').create('ss95', 'SegregatedStep');
17616 model.sol('sol55').feature('t1').feature('se1').feature('ss95').set('segvar', ↙
{'comp1_TN'});
17617 model.sol('sol55').feature('t1').feature('se1').feature('ss95').set('linsolver', ↙
'dDef');
17618 model.sol('sol55').feature('t1').feature('se1').feature('ss95').label('Domain ↙
ODEs and DAEs 45l');
17619 model.sol('sol55').feature('t1').feature('se1').create('ss96', 'SegregatedStep');
17620 model.sol('sol55').feature('t1').feature('se1').feature('ss96').set('segvar', ↙
{'comp1_Va'});
17621 model.sol('sol55').feature('t1').feature('se1').feature('ss96').set('linsolver', ↙
'dDef');
17622 model.sol('sol55').feature('t1').feature('se1').feature('ss96').label('Domain ↙
ODEs and DAEs 5c');
17623 model.sol('sol55').feature('t1').feature('se1').create('ss97', 'SegregatedStep');
17624 model.sol('sol55').feature('t1').feature('se1').feature('ss97').set('segvar', ↙
{'comp1_Vab'});
17625 model.sol('sol55').feature('t1').feature('se1').feature('ss97').set('linsolver', ↙
'dDef');
17626 model.sol('sol55').feature('t1').feature('se1').feature('ss97').label('Domain ↙
ODEs and DAEs 6d');
17627 model.sol('sol55').feature('t1').feature('se1').create('ss98', 'SegregatedStep');
17628 model.sol('sol55').feature('t1').feature('se1').feature('ss98').set('segvar', ↙
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{'comp1_Vaint'});
17629 model.sol('sol55').feature('t1').feature('se1').feature('ss98').set('linsolver', ↙
'dDef');
17630 model.sol('sol55').feature('t1').feature('se1').feature('ss98').label('Domain ↙
ODEs and DAEs 5d');
17631 model.sol('sol55').feature('t1').feature('se1').create('ss99', 'SegregatedStep');
17632 model.sol('sol55').feature('t1').feature('se1').feature('ss99').set('segvar', ↙
{'comp1_VaPro'});
17633 model.sol('sol55').feature('t1').feature('se1').feature('ss99').set('linsolver', ↙
'dDef');
17634 model.sol('sol55').feature('t1').feature('se1').feature('ss99').label('Domain ↙
ODEs and DAEs 5e');
17635 model.sol('sol55').feature('t1').feature('se1').create('ss100', ↙
'SegregatedStep');
17636 model.sol('sol55').feature('t1').feature('se1').feature('ss100').set('segvar', ↙
{'comp1_Vint' 'comp1_Vint1' 'comp1_Vint2' 'comp1_Vint3' 'comp1_Vint4' 'comp1_Vint5' ↙
'comp1_Vint6' 'comp1_Vint7' 'comp1_Vint8' 'comp1_Vint9'});
17637 model.sol('sol55').feature('t1').feature('se1').feature('ss100').set('linsolver', ↙
'dDef');
17638 model.sol('sol55').feature('t1').feature('se1').feature('ss100').label('Domain ↙
ODEs and DAEs 3a');
17639 model.sol('sol55').feature('t1').feature('se1').create('ss101', ↙
'SegregatedStep');
17640 model.sol('sol55').feature('t1').feature('se1').feature('ss101').set('segvar', ↙
{'comp1_y200' 'comp1_y201' 'comp1_y202' 'comp1_y203' 'comp1_y204' 'comp1_y205' ↙
'comp1_y206' 'comp1_y207' 'comp1_y208' 'comp1_y209'  ...
17641 'comp1_y210'});
17642 model.sol('sol55').feature('t1').feature('se1').feature('ss101').set('linsolver', ↙
'dDef');
17643 model.sol('sol55').feature('t1').feature('se1').feature('ss101').label('Domain ↙
ODEs and DAEs 45s');
17644 model.sol('sol55').feature('t1').feature('se1').create('ss102', ↙
'SegregatedStep');
17645 model.sol('sol55').feature('t1').feature('se1').feature('ss102').set('segvar', ↙
{'comp1_y300' 'comp1_y301' 'comp1_y302' 'comp1_y303' 'comp1_y304' 'comp1_y305' ↙
'comp1_y306' 'comp1_y307' 'comp1_y308' 'comp1_y309'  ...
17646 'comp1_y310'});
17647 model.sol('sol55').feature('t1').feature('se1').feature('ss102').set('linsolver', ↙
'dDef');
17648 model.sol('sol55').feature('t1').feature('se1').feature('ss102').label('Domain ↙
ODEs and DAEs 45v');
17649 model.sol('sol55').feature('t1').feature.remove('fcDef');
17650 model.sol('sol55').attach('std2');
17651
17652 model.study('std1').create('time2', 'Transient');
17653 model.study('std1').feature('time2').set('useinitsol', true);
17654 model.study('std1').feature('time2').set('initstudy', 'std1');
17655 model.study('std1').feature('time2').set('solnum', 'last');
17656 model.study('std1').feature('time2').set('usesol', true);
17657 model.study('std1').feature('time2').active(false);
```

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17658
17659 model.component('comp1').physics('Ci').active(true);
17660
17661 model.study('std2').feature('time').setIndex('activate', false, 205);
17662 model.study('std2').feature('time').setIndex('activate', false, 201);
17663 model.study('std2').feature('time').setIndex('activate', false, 199);
17664 model.study('std2').feature('time').setIndex('activate', false, 197);
17665 model.study('std2').feature('time').set('tlist', 'range(0,5,140)');
17666 model.study('std2').feature('time').set('tunit', 'd');
17667 model.study('std2').feature('time').setIndex('activate', false, 33);
17668 model.study('std2').feature('time').setIndex('activate', true, 197);
17669 model.study('std2').feature('time').setIndex('activate', true, 199);
17670 model.study('std2').feature('time').setIndex('activate', true, 201);
17671 model.study('std2').feature('time').setIndex('activate', true, 205);
17672 model.study('std2').feature('time').set('useinitsol', true);
17673 model.study('std2').feature('time').set('initmethod', 'sol');
17674 model.study('std2').feature('time').set('initstudy', 'std1');
17675 model.study('std2').feature('time').set('solnum', 37);
17676 model.study('std1').feature('time').setIndex('activate', false, 205);
17677 model.study('std1').feature('time').setIndex('activate', false, 201);
17678 model.study('std1').feature('time').setIndex('activate', false, 199);
17679 model.study('std1').feature('time').setIndex('activate', false, 197);
17680 model.study('std1').feature('time').set('tlist', 'range(0,1,40)');
17681 model.study('std2').feature('time').set('solnum', 'last');
17682 model.study('std2').feature('time').set('usesol', true);
17683 model.study('std2').feature('time').set('notsolmethod', 'init');
17684 model.study('std2').feature('time').set('usesol', false);
17685
17686 model.component('comp1').variable('var24').remove('Ci');
17687
17688 model.sol('sol55').study('std2');
17689
17690 model.study('std2').feature('time').set('notlistsolnum', 1);
17691 model.study('std2').feature('time').set('notsolnum', '1');
17692 model.study('std2').feature('time').set('listsolnum', 1);
17693 model.study('std2').feature('time').set('solnum', 'last');
17694
17695 model.sol('sol55').feature.remove('t1');
17696 model.sol('sol55').feature.remove('v1');
17697 model.sol('sol55').feature.remove('st1');
17698 model.sol('sol55').create('st1', 'StudyStep');
17699 model.sol('sol55').feature('st1').set('study', 'std2');
17700 model.sol('sol55').feature('st1').set('studystep', 'time');
17701 model.sol('sol55').create('v1', 'Variables');
17702 model.sol('sol55').feature('v1').set('control', 'time');
17703 model.sol('sol55').create('t1', 'Time');
17704 model.sol('sol55').feature('t1').set('tlist', 'range(0,5,140)');
17705 model.sol('sol55').feature('t1').set('plot', 'off');
17706 model.sol('sol55').feature('t1').set('plotgroup', 'pg40');
17707 model.sol('sol55').feature('t1').set('plotfreq', 'tout');
```

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17708 model.sol('sol55').feature('t1').set('probesel', 'all');
17709 model.sol('sol55').feature('t1').set('probes', {});
17710 model.sol('sol55').feature('t1').set('probefreq', 'tsteps');
17711 model.sol('sol55').feature('t1').set('atolglobalvaluemethod', 'factor');
17712 model.sol('sol55').feature('t1').set('endtimeinterpolation', true);
17713 model.sol('sol55').feature('t1').set('control', 'time');
17714 model.sol('sol55').feature('t1').create('se1', 'Segregated');
17715 model.sol('sol55').feature('t1').feature('se1').feature.remove('ssDef');
17716 model.sol('sol55').feature('t1').feature('se1').create('ss1', 'SegregatedStep');
17717 model.sol('sol55').feature('t1').feature('se1').feature('ss1').set('segvar', ↙
{'comp1_A'});
17718 model.sol('sol55').feature('t1').feature('se1').feature('ss1').set('linsolver', ↙
'dDef');
17719 model.sol('sol55').feature('t1').feature('se1').feature('ss1').label('Domain ODEs ↙
and DAEs 45r');
17720 model.sol('sol55').feature('t1').feature('se1').create('ss2', 'SegregatedStep');
17721 model.sol('sol55').feature('t1').feature('se1').feature('ss2').set('segvar', ↙
{'comp1_a'});
17722 model.sol('sol55').feature('t1').feature('se1').feature('ss2').set('linsolver', ↙
'dDef');
17723 model.sol('sol55').feature('t1').feature('se1').feature('ss2').label('Domain ODEs ↙
and DAEs 2b');
17724 model.sol('sol55').feature('t1').feature('se1').create('ss3', 'SegregatedStep');
17725 model.sol('sol55').feature('t1').feature('se1').feature('ss3').set('segvar', ↙
{'comp1_ACE2'});
17726 model.sol('sol55').feature('t1').feature('se1').feature('ss3').set('linsolver', ↙
'dDef');
17727 model.sol('sol55').feature('t1').feature('se1').feature('ss3').label('Domain ODEs ↙
and DAEs 5b');
17728 model.sol('sol55').feature('t1').feature('se1').create('ss4', 'SegregatedStep');
17729 model.sol('sol55').feature('t1').feature('se1').feature('ss4').set('segvar', ↙
{'comp1_ACE2bAngI'});
17730 model.sol('sol55').feature('t1').feature('se1').feature('ss4').set('linsolver', ↙
'dDef');
17731 model.sol('sol55').feature('t1').feature('se1').feature('ss4').label('Domain ODEs ↙
and DAEs 6b');
17732 model.sol('sol55').feature('t1').feature('se1').create('ss5', 'SegregatedStep');
17733 model.sol('sol55').feature('t1').feature('se1').feature('ss5').set('segvar', ↙
{'comp1_ACE2bAngII'});
17734 model.sol('sol55').feature('t1').feature('se1').feature('ss5').set('linsolver', ↙
'dDef');
17735 model.sol('sol55').feature('t1').feature('se1').feature('ss5').label('Domain ODEs ↙
and DAEs 7a');
17736 model.sol('sol55').feature('t1').feature('se1').create('ss6', 'SegregatedStep');
17737 model.sol('sol55').feature('t1').feature('se1').feature('ss6').set('segvar', ↙
{'comp1_AGT'});
17738 model.sol('sol55').feature('t1').feature('se1').feature('ss6').set('linsolver', ↙
'dDef');
17739 model.sol('sol55').feature('t1').feature('se1').feature('ss6').label('Domain ODEs ↙
and DAEs 2');
```

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17740 model.sol('sol55').feature('t1').feature('se1').create('ss7', 'SegregatedStep');
17741 model.sol('sol55').feature('t1').feature('se1').feature('ss7').set('segvar', ↙
{'comp1_Ang17'});
17742 model.sol('sol55').feature('t1').feature('se1').feature('ss7').set('linsolver', ↙
'dDef');
17743 model.sol('sol55').feature('t1').feature('se1').feature('ss7').label('Domain ODEs ↙
and DAEs 5');
17744 model.sol('sol55').feature('t1').feature('se1').create('ss8', 'SegregatedStep');
17745 model.sol('sol55').feature('t1').feature('se1').feature('ss8').set('segvar', ↙
{'comp1_Ang19'});
17746 model.sol('sol55').feature('t1').feature('se1').feature('ss8').set('linsolver', ↙
'dDef');
17747 model.sol('sol55').feature('t1').feature('se1').feature('ss8').label('Domain ODEs ↙
and DAEs 15');
17748 model.sol('sol55').feature('t1').feature('se1').create('ss9', 'SegregatedStep');
17749 model.sol('sol55').feature('t1').feature('se1').feature('ss9').set('segvar', ↙
{'comp1_AngI'});
17750 model.sol('sol55').feature('t1').feature('se1').feature('ss9').set('linsolver', ↙
'dDef');
17751 model.sol('sol55').feature('t1').feature('se1').feature('ss9').label('Domain ODEs ↙
and DAEs 3');
17752 model.sol('sol55').feature('t1').feature('se1').create('ss10', 'SegregatedStep');
17753 model.sol('sol55').feature('t1').feature('se1').feature('ss10').set('segvar', ↙
{'comp1_AngII'});
17754 model.sol('sol55').feature('t1').feature('se1').feature('ss10').set('linsolver', ↙
'dDef');
17755 model.sol('sol55').feature('t1').feature('se1').feature('ss10').label('Domain ↙
ODEs and DAEs 4');
17756 model.sol('sol55').feature('t1').feature('se1').create('ss11', 'SegregatedStep');
17757 model.sol('sol55').feature('t1').feature('se1').feature('ss11').set('segvar', ↙
{'comp1_AngIII'});
17758 model.sol('sol55').feature('t1').feature('se1').feature('ss11').set('linsolver', ↙
'dDef');
17759 model.sol('sol55').feature('t1').feature('se1').feature('ss11').label('Domain ↙
ODEs and DAEs 16');
17760 model.sol('sol55').feature('t1').feature('se1').create('ss12', 'SegregatedStep');
17761 model.sol('sol55').feature('t1').feature('se1').feature('ss12').set('segvar', ↙
{'comp1_AngIV'});
17762 model.sol('sol55').feature('t1').feature('se1').feature('ss12').set('linsolver', ↙
'dDef');
17763 model.sol('sol55').feature('t1').feature('se1').feature('ss12').label('Domain ↙
ODEs and DAEs 6');
17764 model.sol('sol55').feature('t1').feature('se1').create('ss13', 'SegregatedStep');
17765 model.sol('sol55').feature('t1').feature('se1').feature('ss13').set('segvar', ↙
{'comp1_antiPD1'});
17766 model.sol('sol55').feature('t1').feature('se1').feature('ss13').set('linsolver', ↙
'dDef');
17767 model.sol('sol55').feature('t1').feature('se1').feature('ss13').label('Domain ↙
ODEs and DAEs 46');
17768 model.sol('sol55').feature('t1').feature('se1').create('ss14', 'SegregatedStep');
```

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17769 model.sol('sol55').feature('t1').feature('se1').feature('ss14').set('segvar', ↙
{'comp1_AT1bAngII'});
17770 model.sol('sol55').feature('t1').feature('se1').feature('ss14').set('linsolver', ↙
'dDef');
17771 model.sol('sol55').feature('t1').feature('se1').feature('ss14').label('Domain ↙
ODEs and DAEs 7');
17772 model.sol('sol55').feature('t1').feature('se1').create('ss15', 'SegregatedStep');
17773 model.sol('sol55').feature('t1').feature('se1').feature('ss15').set('segvar', ↙
{'comp1_AT1R'});
17774 model.sol('sol55').feature('t1').feature('se1').feature('ss15').set('linsolver', ↙
'dDef');
17775 model.sol('sol55').feature('t1').feature('se1').feature('ss15').label('Domain ↙
ODEs and DAEs 19');
17776 model.sol('sol55').feature('t1').feature('se1').create('ss16', 'SegregatedStep');
17777 model.sol('sol55').feature('t1').feature('se1').feature('ss16').set('segvar', ↙
{'comp1_AT2bAngII'});
17778 model.sol('sol55').feature('t1').feature('se1').feature('ss16').set('linsolver', ↙
'dDef');
17779 model.sol('sol55').feature('t1').feature('se1').feature('ss16').label('Domain ↙
ODEs and DAEs 8');
17780 model.sol('sol55').feature('t1').feature('se1').create('ss17', 'SegregatedStep');
17781 model.sol('sol55').feature('t1').feature('se1').feature('ss17').set('segvar', ↙
{'comp1_AT2R'});
17782 model.sol('sol55').feature('t1').feature('se1').feature('ss17').set('linsolver', ↙
'dDef');
17783 model.sol('sol55').feature('t1').feature('se1').feature('ss17').label('Domain ↙
ODEs and DAEs 2c');
17784 model.sol('sol55').feature('t1').feature('se1').create('ss18', 'SegregatedStep');
17785 model.sol('sol55').feature('t1').feature('se1').feature('ss18').set('segvar', ↙
{'comp1_AT4bAngIV'});
17786 model.sol('sol55').feature('t1').feature('se1').feature('ss18').set('linsolver', ↙
'dDef');
17787 model.sol('sol55').feature('t1').feature('se1').feature('ss18').label('Domain ↙
ODEs and DAEs 17');
17788 model.sol('sol55').feature('t1').feature('se1').create('ss19', 'SegregatedStep');
17789 model.sol('sol55').feature('t1').feature('se1').feature('ss19').set('segvar', ↙
{'comp1_AT4R'});
17790 model.sol('sol55').feature('t1').feature('se1').feature('ss19').set('linsolver', ↙
'dDef');
17791 model.sol('sol55').feature('t1').feature('se1').feature('ss19').label('Domain ↙
ODEs and DAEs 4b');
17792 model.sol('sol55').feature('t1').feature('se1').create('ss20', 'SegregatedStep');
17793 model.sol('sol55').feature('t1').feature('se1').feature('ss20').set('segvar', ↙
{'comp1_BA'});
17794 model.sol('sol55').feature('t1').feature('se1').feature('ss20').set('linsolver', ↙
'dDef');
17795 model.sol('sol55').feature('t1').feature('se1').feature('ss20').label('Domain ↙
ODEs and DAEs 45o');
17796 model.sol('sol55').feature('t1').feature('se1').create('ss21', 'SegregatedStep');
17797 model.sol('sol55').feature('t1').feature('se1').feature('ss21').set('segvar', ↙
```

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{'comp1_BN'});
17798 model.sol('sol55').feature('t1').feature('se1').feature('ss21').set('linsolver', ↙
'dDef');
17799 model.sol('sol55').feature('t1').feature('se1').feature('ss21').label('Domain ↙
ODEs and DAEs 45n');
17800 model.sol('sol55').feature('t1').feature('se1').create('ss22', 'SegregatedStep');
17801 model.sol('sol55').feature('t1').feature('se1').feature('ss22').set('segvar', ↙
{'comp1_c'});
17802 model.sol('sol55').feature('t1').feature('se1').feature('ss22').set('linsolver', ↙
'dDef');
17803 model.sol('sol55').feature('t1').feature('se1').feature('ss22').label('Domain ↙
ODEs and DAEs 12');
17804 model.sol('sol55').feature('t1').feature('se1').create('ss23', 'SegregatedStep');
17805 model.sol('sol55').feature('t1').feature('se1').feature('ss23').set('segvar', ↙
{'comp1_Cb'});
17806 model.sol('sol55').feature('t1').feature('se1').feature('ss23').set('linsolver', ↙
'dDef');
17807 model.sol('sol55').feature('t1').feature('se1').feature('ss23').label('Domain ↙
ODEs and DAEs 9');
17808 model.sol('sol55').feature('t1').feature('se1').create('ss24', 'SegregatedStep');
17809 model.sol('sol55').feature('t1').feature('se1').feature('ss24').set('segvar', ↙
{'comp1_DC'});
17810 model.sol('sol55').feature('t1').feature('se1').feature('ss24').set('linsolver', ↙
'dDef');
17811 model.sol('sol55').feature('t1').feature('se1').feature('ss24').label('Domain ↙
ODEs and DAEs 45i');
17812 model.sol('sol55').feature('t1').feature('se1').create('ss25', 'SegregatedStep');
17813 model.sol('sol55').feature('t1').feature('se1').feature('ss25').set('segvar', ↙
{'comp1_DCi'});
17814 model.sol('sol55').feature('t1').feature('se1').feature('ss25').set('linsolver', ↙
'dDef');
17815 model.sol('sol55').feature('t1').feature('se1').feature('ss25').label('Domain ↙
ODEs and DAEs 45j');
17816 model.sol('sol55').feature('t1').feature('se1').create('ss26', 'SegregatedStep');
17817 model.sol('sol55').feature('t1').feature('se1').feature('ss26').set('segvar', ↙
{'comp1_y5'});
17818 model.sol('sol55').feature('t1').feature('se1').feature('ss26').set('linsolver', ↙
'dDef');
17819 model.sol('sol55').feature('t1').feature('se1').feature('ss26').label('Domain ↙
ODEs and DAEs 23');
17820 model.sol('sol55').feature('t1').feature('se1').create('ss27', 'SegregatedStep');
17821 model.sol('sol55').feature('t1').feature('se1').feature('ss27').set('segvar', ↙
{'comp1_y15'});
17822 model.sol('sol55').feature('t1').feature('se1').feature('ss27').set('linsolver', ↙
'dDef');
17823 model.sol('sol55').feature('t1').feature('se1').feature('ss27').label('Domain ↙
ODEs and DAEs 10a');
17824 model.sol('sol55').feature('t1').feature('se1').create('ss28', 'SegregatedStep');
17825 model.sol('sol55').feature('t1').feature('se1').feature('ss28').set('segvar', ↙
{'comp1_y107' 'comp1_y1072'});
```

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17826 model.sol('sol55').feature('t1').feature('se1').feature('ss28').set('linsolver', ↙
'dDef');
17827 model.sol('sol55').feature('t1').feature('se1').feature('ss28').label('Domain ↙
ODEs and DAEs 11a');
17828 model.sol('sol55').feature('t1').feature('se1').create('ss29', 'SegregatedStep');
17829 model.sol('sol55').feature('t1').feature('se1').feature('ss29').set('segvar', ↙
{'comp1_y87'});
17830 model.sol('sol55').feature('t1').feature('se1').feature('ss29').set('linsolver', ↙
'dDef');
17831 model.sol('sol55').feature('t1').feature('se1').feature('ss29').label('Domain ↙
ODEs and DAEs 12a');
17832 model.sol('sol55').feature('t1').feature('se1').create('ss30', 'SegregatedStep');
17833 model.sol('sol55').feature('t1').feature('se1').feature('ss30').set('segvar', ↙
{'comp1_y18'});
17834 model.sol('sol55').feature('t1').feature('se1').feature('ss30').set('linsolver', ↙
'dDef');
17835 model.sol('sol55').feature('t1').feature('se1').feature('ss30').label('Domain ↙
ODEs and DAEs 13a');
17836 model.sol('sol55').feature('t1').feature('se1').create('ss31', 'SegregatedStep');
17837 model.sol('sol55').feature('t1').feature('se1').feature('ss31').set('segvar', ↙
{'comp1_y19'});
17838 model.sol('sol55').feature('t1').feature('se1').feature('ss31').set('linsolver', ↙
'dDef');
17839 model.sol('sol55').feature('t1').feature('se1').feature('ss31').label('Domain ↙
ODEs and DAEs 14a');
17840 model.sol('sol55').feature('t1').feature('se1').create('ss32', 'SegregatedStep');
17841 model.sol('sol55').feature('t1').feature('se1').feature('ss32').set('segvar', ↙
{'comp1_y108' 'comp1_y1082'});
17842 model.sol('sol55').feature('t1').feature('se1').feature('ss32').set('linsolver', ↙
'dDef');
17843 model.sol('sol55').feature('t1').feature('se1').feature('ss32').label('Domain ↙
ODEs and DAEs 15a');
17844 model.sol('sol55').feature('t1').feature('se1').create('ss33', 'SegregatedStep');
17845 model.sol('sol55').feature('t1').feature('se1').feature('ss33').set('segvar', ↙
{'comp1_y102'});
17846 model.sol('sol55').feature('t1').feature('se1').feature('ss33').set('linsolver', ↙
'dDef');
17847 model.sol('sol55').feature('t1').feature('se1').feature('ss33').label('Domain ↙
ODEs and DAEs 16a');
17848 model.sol('sol55').feature('t1').feature('se1').create('ss34', 'SegregatedStep');
17849 model.sol('sol55').feature('t1').feature('se1').feature('ss34').set('segvar', ↙
{'comp1_y22'});
17850 model.sol('sol55').feature('t1').feature('se1').feature('ss34').set('linsolver', ↙
'dDef');
17851 model.sol('sol55').feature('t1').feature('se1').feature('ss34').label('Domain ↙
ODEs and DAEs 17a');
17852 model.sol('sol55').feature('t1').feature('se1').create('ss35', 'SegregatedStep');
17853 model.sol('sol55').feature('t1').feature('se1').feature('ss35').set('segvar', ↙
{'comp1_y23'});
17854 model.sol('sol55').feature('t1').feature('se1').feature('ss35').set('linsolver', ↙
```

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'dDef');
17855 model.sol('sol55').feature('t1').feature('se1').feature('ss35').label('Domain ↙
ODEs and DAEs 18a');
17856 model.sol('sol55').feature('t1').feature('se1').create('ss36', 'SegregatedStep');
17857 model.sol('sol55').feature('t1').feature('se1').feature('ss36').set('segvar', ↙
{'comp1_y109' 'comp1_y1092'});
17858 model.sol('sol55').feature('t1').feature('se1').feature('ss36').set('linsolver', ↙
'dDef');
17859 model.sol('sol55').feature('t1').feature('se1').feature('ss36').label('Domain ↙
ODEs and DAEs 19a');
17860 model.sol('sol55').feature('t1').feature('se1').create('ss37', 'SegregatedStep');
17861 model.sol('sol55').feature('t1').feature('se1').feature('ss37').set('segvar', ↙
{'comp1_y78'});
17862 model.sol('sol55').feature('t1').feature('se1').feature('ss37').set('linsolver', ↙
'dDef');
17863 model.sol('sol55').feature('t1').feature('se1').feature('ss37').label('Domain ↙
ODEs and DAEs 2h');
17864 model.sol('sol55').feature('t1').feature('se1').create('ss38', 'SegregatedStep');
17865 model.sol('sol55').feature('t1').feature('se1').feature('ss38').set('segvar', ↙
{'comp1_y92'});
17866 model.sol('sol55').feature('t1').feature('se1').feature('ss38').set('linsolver', ↙
'dDef');
17867 model.sol('sol55').feature('t1').feature('se1').feature('ss38').label('Domain ↙
ODEs and DAEs 20a');
17868 model.sol('sol55').feature('t1').feature('se1').create('ss39', 'SegregatedStep');
17869 model.sol('sol55').feature('t1').feature('se1').feature('ss39').set('segvar', ↙
{'comp1_y26'});
17870 model.sol('sol55').feature('t1').feature('se1').feature('ss39').set('linsolver', ↙
'dDef');
17871 model.sol('sol55').feature('t1').feature('se1').feature('ss39').label('Domain ↙
ODEs and DAEs 21a');
17872 model.sol('sol55').feature('t1').feature('se1').create('ss40', 'SegregatedStep');
17873 model.sol('sol55').feature('t1').feature('se1').feature('ss40').set('segvar', ↙
{'comp1_y27'});
17874 model.sol('sol55').feature('t1').feature('se1').feature('ss40').set('linsolver', ↙
'dDef');
17875 model.sol('sol55').feature('t1').feature('se1').feature('ss40').label('Domain ↙
ODEs and DAEs 22a');
17876 model.sol('sol55').feature('t1').feature('se1').create('ss41', 'SegregatedStep');
17877 model.sol('sol55').feature('t1').feature('se1').feature('ss41').set('segvar', ↙
{'comp1_y110' 'comp1_y1102'});
17878 model.sol('sol55').feature('t1').feature('se1').feature('ss41').set('linsolver', ↙
'dDef');
17879 model.sol('sol55').feature('t1').feature('se1').feature('ss41').label('Domain ↙
ODEs and DAEs 23a');
17880 model.sol('sol55').feature('t1').feature('se1').create('ss42', 'SegregatedStep');
17881 model.sol('sol55').feature('t1').feature('se1').feature('ss42').set('segvar', ↙
{'comp1_y90'});
17882 model.sol('sol55').feature('t1').feature('se1').feature('ss42').set('linsolver', ↙
'dDef');
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17883 model.sol('sol55').feature('t1').feature('se1').feature('ss42').label('Domain ↙
ODEs and DAEs 24');
17884 model.sol('sol55').feature('t1').feature('se1').create('ss43', 'SegregatedStep');
17885 model.sol('sol55').feature('t1').feature('se1').feature('ss43').set('segvar', ↙
{'comp1_y30'});
17886 model.sol('sol55').feature('t1').feature('se1').feature('ss43').set('linsolver', ↙
'dDef');
17887 model.sol('sol55').feature('t1').feature('se1').feature('ss43').label('Domain ↙
ODEs and DAEs 25');
17888 model.sol('sol55').feature('t1').feature('se1').create('ss44', 'SegregatedStep');
17889 model.sol('sol55').feature('t1').feature('se1').feature('ss44').set('segvar', ↙
{'comp1_y31'});
17890 model.sol('sol55').feature('t1').feature('se1').feature('ss44').set('linsolver', ↙
'dDef');
17891 model.sol('sol55').feature('t1').feature('se1').feature('ss44').label('Domain ↙
ODEs and DAEs 26');
17892 model.sol('sol55').feature('t1').feature('se1').create('ss45', 'SegregatedStep');
17893 model.sol('sol55').feature('t1').feature('se1').feature('ss45').set('segvar', ↙
{'comp1_y111' 'comp1_y1112'});
17894 model.sol('sol55').feature('t1').feature('se1').feature('ss45').set('linsolver', ↙
'dDef');
17895 model.sol('sol55').feature('t1').feature('se1').feature('ss45').label('Domain ↙
ODEs and DAEs 27');
17896 model.sol('sol55').feature('t1').feature('se1').create('ss46', 'SegregatedStep');
17897 model.sol('sol55').feature('t1').feature('se1').feature('ss46').set('segvar', ↙
{'comp1_y103'});
17898 model.sol('sol55').feature('t1').feature('se1').feature('ss46').set('linsolver', ↙
'dDef');
17899 model.sol('sol55').feature('t1').feature('se1').feature('ss46').label('Domain ↙
ODEs and DAEs 28');
17900 model.sol('sol55').feature('t1').feature('se1').create('ss47', 'SegregatedStep');
17901 model.sol('sol55').feature('t1').feature('se1').feature('ss47').set('segvar', ↙
{'comp1_y54'});
17902 model.sol('sol55').feature('t1').feature('se1').feature('ss47').set('linsolver', ↙
'dDef');
17903 model.sol('sol55').feature('t1').feature('se1').feature('ss47').label('Domain ↙
ODEs and DAEs 29');
17904 model.sol('sol55').feature('t1').feature('se1').create('ss48', 'SegregatedStep');
17905 model.sol('sol55').feature('t1').feature('se1').feature('ss48').set('segvar', ↙
{'comp1_y85'});
17906 model.sol('sol55').feature('t1').feature('se1').feature('ss48').set('linsolver', ↙
'dDef');
17907 model.sol('sol55').feature('t1').feature('se1').feature('ss48').label('Domain ↙
ODEs and DAEs 3d');
17908 model.sol('sol55').feature('t1').feature('se1').create('ss49', 'SegregatedStep');
17909 model.sol('sol55').feature('t1').feature('se1').feature('ss49').set('segvar', ↙
{'comp1_y55'});
17910 model.sol('sol55').feature('t1').feature('se1').feature('ss49').set('linsolver', ↙
'dDef');
17911 model.sol('sol55').feature('t1').feature('se1').feature('ss49').label('Domain ↙
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ODEs and DAEs 30');
17912 model.sol('sol55').feature('t1').feature('se1').create('ss50', 'SegregatedStep');
17913 model.sol('sol55').feature('t1').feature('se1').feature('ss50').set('segvar', ↙
{'comp1_y117' 'comp1_y1172'});
17914 model.sol('sol55').feature('t1').feature('se1').feature('ss50').set('linsolver', ↙
'dDef');
17915 model.sol('sol55').feature('t1').feature('se1').feature('ss50').label('Domain ↙
ODEs and DAEs 31');
17916 model.sol('sol55').feature('t1').feature('se1').create('ss51', 'SegregatedStep');
17917 model.sol('sol55').feature('t1').feature('se1').feature('ss51').set('segvar', ↙
{'comp1_y94'});
17918 model.sol('sol55').feature('t1').feature('se1').feature('ss51').set('linsolver', ↙
'dDef');
17919 model.sol('sol55').feature('t1').feature('se1').feature('ss51').label('Domain ↙
ODEs and DAEs 32');
17920 model.sol('sol55').feature('t1').feature('se1').create('ss52', 'SegregatedStep');
17921 model.sol('sol55').feature('t1').feature('se1').feature('ss52').set('segvar', ↙
{'comp1_y62'});
17922 model.sol('sol55').feature('t1').feature('se1').feature('ss52').set('linsolver', ↙
'dDef');
17923 model.sol('sol55').feature('t1').feature('se1').feature('ss52').label('Domain ↙
ODEs and DAEs 33');
17924 model.sol('sol55').feature('t1').feature('se1').create('ss53', 'SegregatedStep');
17925 model.sol('sol55').feature('t1').feature('se1').feature('ss53').set('segvar', ↙
{'comp1_y63'});
17926 model.sol('sol55').feature('t1').feature('se1').feature('ss53').set('linsolver', ↙
'dDef');
17927 model.sol('sol55').feature('t1').feature('se1').feature('ss53').label('Domain ↙
ODEs and DAEs 34');
17928 model.sol('sol55').feature('t1').feature('se1').create('ss54', 'SegregatedStep');
17929 model.sol('sol55').feature('t1').feature('se1').feature('ss54').set('segvar', ↙
{'comp1_y119' 'comp1_y1192'});
17930 model.sol('sol55').feature('t1').feature('se1').feature('ss54').set('linsolver', ↙
'dDef');
17931 model.sol('sol55').feature('t1').feature('se1').feature('ss54').label('Domain ↙
ODEs and DAEs 35');
17932 model.sol('sol55').feature('t1').feature('se1').create('ss55', 'SegregatedStep');
17933 model.sol('sol55').feature('t1').feature('se1').feature('ss55').set('segvar', ↙
{'comp1_y70'});
17934 model.sol('sol55').feature('t1').feature('se1').feature('ss55').set('linsolver', ↙
'dDef');
17935 model.sol('sol55').feature('t1').feature('se1').feature('ss55').label('Domain ↙
ODEs and DAEs 36');
17936 model.sol('sol55').feature('t1').feature('se1').create('ss56', 'SegregatedStep');
17937 model.sol('sol55').feature('t1').feature('se1').feature('ss56').set('segvar', ↙
{'comp1_y71'});
17938 model.sol('sol55').feature('t1').feature('se1').feature('ss56').set('linsolver', ↙
'dDef');
17939 model.sol('sol55').feature('t1').feature('se1').feature('ss56').label('Domain ↙
ODEs and DAEs 37');
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17940 model.sol('sol55').feature('t1').feature('se1').create('ss57', 'SegregatedStep');
17941 model.sol('sol55').feature('t1').feature('se1').feature('ss57').set('segvar', ↙
{'comp1_y121' 'comp1_y1212'});
17942 model.sol('sol55').feature('t1').feature('se1').feature('ss57').set('linsolver', ↙
'dDef');
17943 model.sol('sol55').feature('t1').feature('se1').feature('ss57').label('Domain ↙
ODEs and DAEs 38');
17944 model.sol('sol55').feature('t1').feature('se1').create('ss58', 'SegregatedStep');
17945 model.sol('sol55').feature('t1').feature('se1').feature('ss58').set('segvar', ↙
{'comp1_y98'});
17946 model.sol('sol55').feature('t1').feature('se1').feature('ss58').set('linsolver', ↙
'dDef');
17947 model.sol('sol55').feature('t1').feature('se1').feature('ss58').label('Domain ↙
ODEs and DAEs 39');
17948 model.sol('sol55').feature('t1').feature('se1').create('ss59', 'SegregatedStep');
17949 model.sol('sol55').feature('t1').feature('se1').feature('ss59').set('segvar', ↙
{'comp1_y86'});
17950 model.sol('sol55').feature('t1').feature('se1').feature('ss59').set('linsolver', ↙
'dDef');
17951 model.sol('sol55').feature('t1').feature('se1').feature('ss59').label('Domain ↙
ODEs and DAEs 4a');
17952 model.sol('sol55').feature('t1').feature('se1').create('ss60', 'SegregatedStep');
17953 model.sol('sol55').feature('t1').feature('se1').feature('ss60').set('segvar', ↙
{'comp1_y74'});
17954 model.sol('sol55').feature('t1').feature('se1').feature('ss60').set('linsolver', ↙
'dDef');
17955 model.sol('sol55').feature('t1').feature('se1').feature('ss60').label('Domain ↙
ODEs and DAEs 40');
17956 model.sol('sol55').feature('t1').feature('se1').create('ss61', 'SegregatedStep');
17957 model.sol('sol55').feature('t1').feature('se1').feature('ss61').set('segvar', ↙
{'comp1_y75'});
17958 model.sol('sol55').feature('t1').feature('se1').feature('ss61').set('linsolver', ↙
'dDef');
17959 model.sol('sol55').feature('t1').feature('se1').feature('ss61').label('Domain ↙
ODEs and DAEs 41');
17960 model.sol('sol55').feature('t1').feature('se1').create('ss62', 'SegregatedStep');
17961 model.sol('sol55').feature('t1').feature('se1').feature('ss62').set('segvar', ↙
{'comp1_y124' 'comp1_y1242'});
17962 model.sol('sol55').feature('t1').feature('se1').feature('ss62').set('linsolver', ↙
'dDef');
17963 model.sol('sol55').feature('t1').feature('se1').feature('ss62').label('Domain ↙
ODEs and DAEs 42');
17964 model.sol('sol55').feature('t1').feature('se1').create('ss63', 'SegregatedStep');
17965 model.sol('sol55').feature('t1').feature('se1').feature('ss63').set('segvar', ↙
{'comp1_y125'});
17966 model.sol('sol55').feature('t1').feature('se1').feature('ss63').set('linsolver', ↙
'dDef');
17967 model.sol('sol55').feature('t1').feature('se1').feature('ss63').label('Domain ↙
ODEs and DAEs 43');
17968 model.sol('sol55').feature('t1').feature('se1').create('ss64', 'SegregatedStep');
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17969 model.sol('sol55').feature('t1').feature('se1').feature('ss64').set('segvar', ↙
{'comp1_y96'});
17970 model.sol('sol55').feature('t1').feature('se1').feature('ss64').set('linsolver', ↙
'dDef');
17971 model.sol('sol55').feature('t1').feature('se1').feature('ss64').label('Domain ↙
ODEs and DAEs 44');
17972 model.sol('sol55').feature('t1').feature('se1').create('ss65', 'SegregatedStep');
17973 model.sol('sol55').feature('t1').feature('se1').feature('ss65').set('segvar', ↙
{'comp1_Treg'});
17974 model.sol('sol55').feature('t1').feature('se1').feature('ss65').set('linsolver', ↙
'dDef');
17975 model.sol('sol55').feature('t1').feature('se1').feature('ss65').label('Domain ↙
ODEs and DAEs 5f');
17976 model.sol('sol55').feature('t1').feature('se1').create('ss66', 'SegregatedStep');
17977 model.sol('sol55').feature('t1').feature('se1').feature('ss66').set('segvar', ↙
{'comp1_y105' 'comp1_y1052'});
17978 model.sol('sol55').feature('t1').feature('se1').feature('ss66').set('linsolver', ↙
'dDef');
17979 model.sol('sol55').feature('t1').feature('se1').feature('ss66').label('Domain ↙
ODEs and DAEs 7b');
17980 model.sol('sol55').feature('t1').feature('se1').create('ss67', 'SegregatedStep');
17981 model.sol('sol55').feature('t1').feature('se1').feature('ss67').set('segvar', ↙
{'comp1_y14'});
17982 model.sol('sol55').feature('t1').feature('se1').feature('ss67').set('linsolver', ↙
'dDef');
17983 model.sol('sol55').feature('t1').feature('se1').feature('ss67').label('Domain ↙
ODEs and DAEs 9a');
17984 model.sol('sol55').feature('t1').feature('se1').create('ss68', 'SegregatedStep');
17985 model.sol('sol55').feature('t1').feature('se1').feature('ss68').set('segvar', ↙
{'comp1_ec' 'comp1_ec2' 'comp1_ec3' 'comp1_ec4' 'comp1_ec5' 'comp1_ec6' 'comp1_ec7' ↙
'comp1_ec8' 'comp1_ec9' 'comp1_ec10'  ...
17986 'comp1_ec11' 'comp1_ec12'});
17987 model.sol('sol55').feature('t1').feature('se1').feature('ss68').set('linsolver', ↙
'dDef');
17988 model.sol('sol55').feature('t1').feature('se1').feature('ss68').label('Domain ↙
ODEs and DAEs 22');
17989 model.sol('sol55').feature('t1').feature('se1').create('ss69', 'SegregatedStep');
17990 model.sol('sol55').feature('t1').feature('se1').feature('ss69').set('segvar', ↙
{'comp1_H'});
17991 model.sol('sol55').feature('t1').feature('se1').feature('ss69').set('linsolver', ↙
'dDef');
17992 model.sol('sol55').feature('t1').feature('se1').feature('ss69').label('Domain ↙
ODEs and DAEs 2a');
17993 model.sol('sol55').feature('t1').feature('se1').create('ss70', 'SegregatedStep');
17994 model.sol('sol55').feature('t1').feature('se1').feature('ss70').set('segvar', ↙
{'comp1_iec' 'comp1_iec2' 'comp1_iec3' 'comp1_iec4' 'comp1_iec5' 'comp1_iec6' ↙
'comp1_iec7' 'comp1_iec8' 'comp1_iec9' 'comp1_iec10'  ...
17995 'comp1_iec11' 'comp1_iec12'});
17996 model.sol('sol55').feature('t1').feature('se1').feature('ss70').set('linsolver', ↙
'dDef');
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17997 model.sol('sol55').feature('t1').feature('se1').feature('ss70').label('Domain ↙
ODEs and DAEs 2g');
17998 model.sol('sol55').feature('t1').feature('se1').create('ss71', 'SegregatedStep');
17999 model.sol('sol55').feature('t1').feature('se1').feature('ss71').set('segvar', ↙
{'comp1_IF'});
18000 model.sol('sol55').feature('t1').feature('se1').feature('ss71').set('linsolver', ↙
'dDef');
18001 model.sol('sol55').feature('t1').feature('se1').feature('ss71').label('Domain ↙
ODEs and DAEs 46c');
18002 model.sol('sol55').feature('t1').feature('se1').create('ss72', 'SegregatedStep');
18003 model.sol('sol55').feature('t1').feature('se1').feature('ss72').set('segvar', ↙
{'comp1_IL6'});
18004 model.sol('sol55').feature('t1').feature('se1').feature('ss72').set('linsolver', ↙
'dDef');
18005 model.sol('sol55').feature('t1').feature('se1').feature('ss72').label('Domain ↙
ODEs and DAEs 20');
18006 model.sol('sol55').feature('t1').feature('se1').create('ss73', 'SegregatedStep');
18007 model.sol('sol55').feature('t1').feature('se1').feature('ss73').set('segvar', ↙
{'comp1_IL6R'});
18008 model.sol('sol55').feature('t1').feature('se1').feature('ss73').set('linsolver', ↙
'dDef');
18009 model.sol('sol55').feature('t1').feature('se1').feature('ss73').label('Domain ↙
ODEs and DAEs 2d');
18010 model.sol('sol55').feature('t1').feature('se1').create('ss74', 'SegregatedStep');
18011 model.sol('sol55').feature('t1').feature('se1').feature('ss74').set('segvar', ↙
{'comp1_IL6RbIL6'});
18012 model.sol('sol55').feature('t1').feature('se1').feature('ss74').set('linsolver', ↙
'dDef');
18013 model.sol('sol55').feature('t1').feature('se1').feature('ss74').label('Domain ↙
ODEs and DAEs 3c');
18014 model.sol('sol55').feature('t1').feature('se1').create('ss75', 'SegregatedStep');
18015 model.sol('sol55').feature('t1').feature('se1').feature('ss75').set('segvar', ↙
{'comp1_In'});
18016 model.sol('sol55').feature('t1').feature('se1').feature('ss75').set('linsolver', ↙
'dDef');
18017 model.sol('sol55').feature('t1').feature('se1').feature('ss75').label('Domain ↙
ODEs and DAEs 6a');
18018 model.sol('sol55').feature('t1').feature('se1').create('ss76', 'SegregatedStep');
18019 model.sol('sol55').feature('t1').feature('se1').feature('ss76').set('segvar', ↙
{'comp1_ma'});
18020 model.sol('sol55').feature('t1').feature('se1').feature('ss76').set('linsolver', ↙
'dDef');
18021 model.sol('sol55').feature('t1').feature('se1').feature('ss76').label('Domain ↙
ODEs and DAEs 11');
18022 model.sol('sol55').feature('t1').feature('se1').create('ss77', 'SegregatedStep');
18023 model.sol('sol55').feature('t1').feature('se1').feature('ss77').set('segvar', ↙
{'comp1_MAsbAng17'});
18024 model.sol('sol55').feature('t1').feature('se1').feature('ss77').set('linsolver', ↙
'dDef');
18025 model.sol('sol55').feature('t1').feature('se1').feature('ss77').label('Domain ↙
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ODEs and DAEs 18');
18026 model.sol('sol55').feature('t1').feature('se1').create('ss78', 'SegregatedStep');
18027 model.sol('sol55').feature('t1').feature('se1').feature('ss78').set('segvar', ↙
{'comp1_MAsR'});
18028 model.sol('sol55').feature('t1').feature('se1').feature('ss78').set('linsolver', ↙
'dDef');
18029 model.sol('sol55').feature('t1').feature('se1').feature('ss78').label('Domain ↙
ODEs and DAEs 3b');
18030 model.sol('sol55').feature('t1').feature('se1').create('ss79', 'SegregatedStep');
18031 model.sol('sol55').feature('t1').feature('se1').feature('ss79').set('segvar', ↙
{'comp1_n'});
18032 model.sol('sol55').feature('t1').feature('se1').feature('ss79').set('linsolver', ↙
'dDef');
18033 model.sol('sol55').feature('t1').feature('se1').feature('ss79').label('Domain ↙
ODEs and DAEs 10');
18034 model.sol('sol55').feature('t1').feature('se1').create('ss80', 'SegregatedStep');
18035 model.sol('sol55').feature('t1').feature('se1').feature('ss80').set('segvar', ↙
{'comp1_NETs'});
18036 model.sol('sol55').feature('t1').feature('se1').feature('ss80').set('linsolver', ↙
'dDef');
18037 model.sol('sol55').feature('t1').feature('se1').feature('ss80').label('Domain ↙
ODEs and DAEs 45e');
18038 model.sol('sol55').feature('t1').feature('se1').create('ss81', 'SegregatedStep');
18039 model.sol('sol55').feature('t1').feature('se1').feature('ss81').set('segvar', ↙
{'comp1_PD1'});
18040 model.sol('sol55').feature('t1').feature('se1').feature('ss81').set('linsolver', ↙
'dDef');
18041 model.sol('sol55').feature('t1').feature('se1').feature('ss81').label('Domain ↙
ODEs and DAEs 45f');
18042 model.sol('sol55').feature('t1').feature('se1').create('ss82', 'SegregatedStep');
18043 model.sol('sol55').feature('t1').feature('se1').feature('ss82').set('segvar', ↙
{'comp1_PD1bPDL1'});
18044 model.sol('sol55').feature('t1').feature('se1').feature('ss82').set('linsolver', ↙
'dDef');
18045 model.sol('sol55').feature('t1').feature('se1').feature('ss82').label('Domain ↙
ODEs and DAEs 45g');
18046 model.sol('sol55').feature('t1').feature('se1').create('ss83', 'SegregatedStep');
18047 model.sol('sol55').feature('t1').feature('se1').feature('ss83').set('segvar', ↙
{'comp1_PDL1'});
18048 model.sol('sol55').feature('t1').feature('se1').feature('ss83').set('linsolver', ↙
'dDef');
18049 model.sol('sol55').feature('t1').feature('se1').feature('ss83').label('Domain ↙
ODEs and DAEs 47');
18050 model.sol('sol55').feature('t1').feature('se1').create('ss84', 'SegregatedStep');
18051 model.sol('sol55').feature('t1').feature('se1').feature('ss84').set('segvar', ↙
{'comp1_PL'});
18052 model.sol('sol55').feature('t1').feature('se1').feature('ss84').set('linsolver', ↙
'dDef');
18053 model.sol('sol55').feature('t1').feature('se1').feature('ss84').label('Domain ↙
ODEs and DAEs 45p');
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18054 model.sol('sol55').feature('t1').feature('se1').create('ss85', 'SegregatedStep');
18055 model.sol('sol55').feature('t1').feature('se1').feature('ss85').set('segvar', ↙
{'comp1_PS'});
18056 model.sol('sol55').feature('t1').feature('se1').feature('ss85').set('linsolver', ↙
'dDef');
18057 model.sol('sol55').feature('t1').feature('se1').feature('ss85').label('Domain ↙
ODEs and DAEs 45q');
18058 model.sol('sol55').feature('t1').feature('se1').create('ss86', 'SegregatedStep');
18059 model.sol('sol55').feature('t1').feature('se1').feature('ss86').set('segvar', ↙
{'comp1_Renin'});
18060 model.sol('sol55').feature('t1').feature('se1').feature('ss86').set('linsolver', ↙
'dDef');
18061 model.sol('sol55').feature('t1').feature('se1').feature('ss86').label('Domain ↙
ODEs and DAEs 14');
18062 model.sol('sol55').feature('t1').feature('se1').create('ss87', 'SegregatedStep');
18063 model.sol('sol55').feature('t1').feature('se1').feature('ss87').set('segvar', ↙
{'comp1_sACE2'});
18064 model.sol('sol55').feature('t1').feature('se1').feature('ss87').set('linsolver', ↙
'dDef');
18065 model.sol('sol55').feature('t1').feature('se1').feature('ss87').label('Domain ↙
ODEs and DAEs 2f');
18066 model.sol('sol55').feature('t1').feature('se1').create('ss88', 'SegregatedStep');
18067 model.sol('sol55').feature('t1').feature('se1').feature('ss88').set('segvar', ↙
{'comp1_sIL6R'});
18068 model.sol('sol55').feature('t1').feature('se1').feature('ss88').set('linsolver', ↙
'dDef');
18069 model.sol('sol55').feature('t1').feature('se1').feature('ss88').label('Domain ↙
ODEs and DAEs 21');
18070 model.sol('sol55').feature('t1').feature('se1').create('ss89', 'SegregatedStep');
18071 model.sol('sol55').feature('t1').feature('se1').feature('ss89').set('segvar', ↙
{'comp1_sIL6RbIL6'});
18072 model.sol('sol55').feature('t1').feature('se1').feature('ss89').set('linsolver', ↙
'dDef');
18073 model.sol('sol55').feature('t1').feature('se1').feature('ss89').label('Domain ↙
ODEs and DAEs');
18074 model.sol('sol55').feature('t1').feature('se1').create('ss90', 'SegregatedStep');
18075 model.sol('sol55').feature('t1').feature('se1').feature('ss90').set('segvar', ↙
{'comp1_TE'});
18076 model.sol('sol55').feature('t1').feature('se1').feature('ss90').set('linsolver', ↙
'dDef');
18077 model.sol('sol55').feature('t1').feature('se1').feature('ss90').label('Domain ↙
ODEs and DAEs 45m');
18078 model.sol('sol55').feature('t1').feature('se1').create('ss91', 'SegregatedStep');
18079 model.sol('sol55').feature('t1').feature('se1').feature('ss91').set('segvar', ↙
{'comp1_ThE'});
18080 model.sol('sol55').feature('t1').feature('se1').feature('ss91').set('linsolver', ↙
'dDef');
18081 model.sol('sol55').feature('t1').feature('se1').feature('ss91').label('Domain ↙
ODEs and DAEs 45k');
18082 model.sol('sol55').feature('t1').feature('se1').create('ss92', 'SegregatedStep');
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18083 model.sol('sol55').feature('t1').feature('se1').feature('ss92').set('segvar', ↙
{'comp1_ThM'});
18084 model.sol('sol55').feature('t1').feature('se1').feature('ss92').set('linsolver', ↙
'dDef');
18085 model.sol('sol55').feature('t1').feature('se1').feature('ss92').label('Domain ↙
ODEs and DAEs 45t');
18086 model.sol('sol55').feature('t1').feature('se1').create('ss93', 'SegregatedStep');
18087 model.sol('sol55').feature('t1').feature('se1').feature('ss93').set('segvar', ↙
{'comp1_ThN'});
18088 model.sol('sol55').feature('t1').feature('se1').feature('ss93').set('linsolver', ↙
'dDef');
18089 model.sol('sol55').feature('t1').feature('se1').feature('ss93').label('Domain ↙
ODEs and DAEs 46d');
18090 model.sol('sol55').feature('t1').feature('se1').create('ss94', 'SegregatedStep');
18091 model.sol('sol55').feature('t1').feature('se1').feature('ss94').set('segvar', ↙
{'comp1_TM'});
18092 model.sol('sol55').feature('t1').feature('se1').feature('ss94').set('linsolver', ↙
'dDef');
18093 model.sol('sol55').feature('t1').feature('se1').feature('ss94').label('Domain ↙
ODEs and DAEs 45u');
18094 model.sol('sol55').feature('t1').feature('se1').create('ss95', 'SegregatedStep');
18095 model.sol('sol55').feature('t1').feature('se1').feature('ss95').set('segvar', ↙
{'comp1_TN'});
18096 model.sol('sol55').feature('t1').feature('se1').feature('ss95').set('linsolver', ↙
'dDef');
18097 model.sol('sol55').feature('t1').feature('se1').feature('ss95').label('Domain ↙
ODEs and DAEs 45l');
18098 model.sol('sol55').feature('t1').feature('se1').create('ss96', 'SegregatedStep');
18099 model.sol('sol55').feature('t1').feature('se1').feature('ss96').set('segvar', ↙
{'comp1_Va'});
18100 model.sol('sol55').feature('t1').feature('se1').feature('ss96').set('linsolver', ↙
'dDef');
18101 model.sol('sol55').feature('t1').feature('se1').feature('ss96').label('Domain ↙
ODEs and DAEs 5c');
18102 model.sol('sol55').feature('t1').feature('se1').create('ss97', 'SegregatedStep');
18103 model.sol('sol55').feature('t1').feature('se1').feature('ss97').set('segvar', ↙
{'comp1_Vab'});
18104 model.sol('sol55').feature('t1').feature('se1').feature('ss97').set('linsolver', ↙
'dDef');
18105 model.sol('sol55').feature('t1').feature('se1').feature('ss97').label('Domain ↙
ODEs and DAEs 6d');
18106 model.sol('sol55').feature('t1').feature('se1').create('ss98', 'SegregatedStep');
18107 model.sol('sol55').feature('t1').feature('se1').feature('ss98').set('segvar', ↙
{'comp1_Vaint'});
18108 model.sol('sol55').feature('t1').feature('se1').feature('ss98').set('linsolver', ↙
'dDef');
18109 model.sol('sol55').feature('t1').feature('se1').feature('ss98').label('Domain ↙
ODEs and DAEs 5d');
18110 model.sol('sol55').feature('t1').feature('se1').create('ss99', 'SegregatedStep');
18111 model.sol('sol55').feature('t1').feature('se1').feature('ss99').set('segvar', ↙
```

```
{'comp1_VaPro'});
18112 model.sol('sol55').feature('t1').feature('se1').feature('ss99').set('linsolver', ↙
'dDef');
18113 model.sol('sol55').feature('t1').feature('se1').feature('ss99').label('Domain ↙
ODEs and DAEs 5e');
18114 model.sol('sol55').feature('t1').feature('se1').create('ss100', ↙
'SegregatedStep');
18115 model.sol('sol55').feature('t1').feature('se1').feature('ss100').set('segvar', ↙
{'comp1_Vint' 'comp1_Vint1' 'comp1_Vint2' 'comp1_Vint3' 'comp1_Vint4' 'comp1_Vint5' ↙
'comp1_Vint6' 'comp1_Vint7' 'comp1_Vint8' 'comp1_Vint9'});
18116 model.sol('sol55').feature('t1').feature('se1').feature('ss100').set('linsolver', ↙
'dDef');
18117 model.sol('sol55').feature('t1').feature('se1').feature('ss100').label('Domain ↙
ODEs and DAEs 3a');
18118 model.sol('sol55').feature('t1').feature('se1').create('ss101', ↙
'SegregatedStep');
18119 model.sol('sol55').feature('t1').feature('se1').feature('ss101').set('segvar', ↙
{'comp1_y200' 'comp1_y201' 'comp1_y202' 'comp1_y203' 'comp1_y204' 'comp1_y205' ↙
'comp1_y206' 'comp1_y207' 'comp1_y208' 'comp1_y209'  ...
18120 'comp1_y210'});
18121 model.sol('sol55').feature('t1').feature('se1').feature('ss101').set('linsolver', ↙
'dDef');
18122 model.sol('sol55').feature('t1').feature('se1').feature('ss101').label('Domain ↙
ODEs and DAEs 45s');
18123 model.sol('sol55').feature('t1').feature('se1').create('ss102', ↙
'SegregatedStep');
18124 model.sol('sol55').feature('t1').feature('se1').feature('ss102').set('segvar', ↙
{'comp1_y300' 'comp1_y301' 'comp1_y302' 'comp1_y303' 'comp1_y304' 'comp1_y305' ↙
'comp1_y306' 'comp1_y307' 'comp1_y308' 'comp1_y309'  ...
18125 'comp1_y310'});
18126 model.sol('sol55').feature('t1').feature('se1').feature('ss102').set('linsolver', ↙
'dDef');
18127 model.sol('sol55').feature('t1').feature('se1').feature('ss102').label('Domain ↙
ODEs and DAEs 45v');
18128 model.sol('sol55').feature('t1').feature.remove('fcDef');
18129 model.sol('sol55').attach('std2');
18130
18131 model.result.create('pg41', 'PlotGroup3D');
18132 model.result('pg41').set('data', 'dset5');
18133 model.result('pg41').create('slc1', 'Slice');
18134 model.result('pg41').feature('slc1').set('expr', 'AGT');
18135 model.result.create('pg42', 'PlotGroup3D');
18136 model.result('pg42').set('data', 'dset5');
18137 model.result('pg42').create('slc1', 'Slice');
18138 model.result('pg42').feature('slc1').set('expr', 'Renin');
18139 model.result.create('pg43', 'PlotGroup3D');
18140 model.result('pg43').set('data', 'dset5');
18141 model.result('pg43').create('slc1', 'Slice');
18142 model.result('pg43').feature('slc1').set('expr', 'AngI');
18143 model.result.create('pg44', 'PlotGroup3D');
```

```
model.result('pg44').set('data', 'dset5');
model.result('pg44').create('slc1', 'Slice');
model.result('pg44').feature('slc1').set('expr', 'AngII');
model.result.create('pg45', 'PlotGroup3D');
model.result('pg45').set('data', 'dset5');
model.result('pg45').create('slc1', 'Slice');
model.result('pg45').feature('slc1').set('expr', 'Ang17');
model.result.create('pg46', 'PlotGroup3D');
model.result('pg46').set('data', 'dset5');
model.result('pg46').create('slc1', 'Slice');
model.result('pg46').feature('slc1').set('expr', 'Ang19');
model.result.create('pg47', 'PlotGroup3D');
model.result('pg47').set('data', 'dset5');
model.result('pg47').create('slc1', 'Slice');
model.result('pg47').feature('slc1').set('expr', 'AngIII');
model.result.create('pg48', 'PlotGroup3D');
model.result('pg48').set('data', 'dset5');
model.result('pg48').create('slc1', 'Slice');
model.result('pg48').feature('slc1').set('expr', 'AngIV');
model.result.create('pg49', 'PlotGroup3D');
model.result('pg49').set('data', 'dset5');
model.result('pg49').create('slc1', 'Slice');
model.result('pg49').feature('slc1').set('expr', 'AT1bAngII');
model.result.create('pg50', 'PlotGroup3D');
model.result('pg50').set('data', 'dset5');
model.result('pg50').create('slc1', 'Slice');
model.result('pg50').feature('slc1').set('expr', 'AT2bAngII');
model.result.create('pg51', 'PlotGroup3D');
model.result('pg51').set('data', 'dset5');
model.result('pg51').create('slc1', 'Slice');
model.result('pg51').feature('slc1').set('expr', 'AT4bAngIV');
model.result.create('pg52', 'PlotGroup3D');
model.result('pg52').set('data', 'dset5');
model.result('pg52').create('slc1', 'Slice');
model.result('pg52').feature('slc1').set('expr', 'MAsbAng17');
model.result.create('pg53', 'PlotGroup3D');
model.result('pg53').set('data', 'dset5');
model.result('pg53').create('slc1', 'Slice');
model.result('pg53').feature('slc1').set('expr', 'Cb');
model.result.create('pg54', 'PlotGroup3D');
model.result('pg54').set('data', 'dset5');
model.result('pg54').create('slc1', 'Slice');
model.result('pg54').feature('slc1').set('expr', 'H');
model.result.create('pg55', 'PlotGroup3D');
model.result('pg55').set('data', 'dset5');
model.result('pg55').create('slc1', 'Slice');
model.result('pg55').feature('slc1').set('expr', 'Vint');
model.result.create('pg56', 'PlotGroup3D');
model.result('pg56').set('data', 'dset5');
model.result('pg56').create('slc1', 'Slice');
```

```
model.result('pg56').feature('slc1').set('expr', 'In');
model.result.create('pg57', 'PlotGroup3D');
model.result('pg57').set('data', 'dset5');
model.result('pg57').create('slc1', 'Slice');
model.result('pg57').feature('slc1').set('expr', 'n');
model.result.create('pg58', 'PlotGroup3D');
model.result('pg58').set('data', 'dset5');
model.result('pg58').create('slc1', 'Slice');
model.result('pg58').feature('slc1').set('expr', 'ma');
model.result.create('pg59', 'PlotGroup3D');
model.result('pg59').set('data', 'dset5');
model.result('pg59').create('slc1', 'Slice');
model.result('pg59').feature('slc1').set('expr', 'c');
model.result.create('pg60', 'PlotGroup3D');
model.result('pg60').set('data', 'dset5');
model.result('pg60').create('slc1', 'Slice');
model.result('pg60').feature('slc1').set('expr', 'a');
model.result.create('pg61', 'PlotGroup3D');
model.result('pg61').set('data', 'dset5');
model.result('pg61').create('slc1', 'Slice');
model.result('pg61').feature('slc1').set('expr', 'AT1R');
model.result.create('pg62', 'PlotGroup3D');
model.result('pg62').set('data', 'dset5');
model.result('pg62').create('slc1', 'Slice');
model.result('pg62').feature('slc1').set('expr', 'AT2R');
model.result.create('pg63', 'PlotGroup3D');
model.result('pg63').set('data', 'dset5');
model.result('pg63').create('slc1', 'Slice');
model.result('pg63').feature('slc1').set('expr', 'MAsR');
model.result.create('pg64', 'PlotGroup3D');
model.result('pg64').set('data', 'dset5');
model.result('pg64').create('slc1', 'Slice');
model.result('pg64').feature('slc1').set('expr', 'AT4R');
model.result.create('pg65', 'PlotGroup3D');
model.result('pg65').set('data', 'dset5');
model.result('pg65').create('slc1', 'Slice');
model.result('pg65').feature('slc1').set('expr', 'ACE2');
model.result.create('pg66', 'PlotGroup3D');
model.result('pg66').set('data', 'dset5');
model.result('pg66').create('slc1', 'Slice');
model.result('pg66').feature('slc1').set('expr', 'ACE2bAngI');
model.result.create('pg67', 'PlotGroup3D');
model.result('pg67').set('data', 'dset5');
model.result('pg67').create('slc1', 'Slice');
model.result('pg67').feature('slc1').set('expr', 'ACE2bAngII');
model.result.create('pg68', 'PlotGroup3D');
model.result('pg68').set('data', 'dset5');
model.result('pg68').create('slc1', 'Slice');
model.result('pg68').feature('slc1').set('expr', 'IL6');
model.result.create('pg69', 'PlotGroup3D');
```

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model.result('pg69').set('data', 'dset5');
model.result('pg69').create('slc1', 'Slice');
model.result('pg69').feature('slc1').set('expr', 'IL6R');
model.result.create('pg70', 'PlotGroup3D');
model.result('pg70').set('data', 'dset5');
model.result('pg70').create('slc1', 'Slice');
model.result('pg70').feature('slc1').set('expr', 'IL6RbIL6');
model.result.create('pg71', 'PlotGroup3D');
model.result('pg71').set('data', 'dset5');
model.result('pg71').create('slc1', 'Slice');
model.result('pg71').feature('slc1').set('expr', 'sIL6RbIL6');
model.result.create('pg72', 'PlotGroup3D');
model.result('pg72').set('data', 'dset5');
model.result('pg72').create('slc1', 'Slice');
model.result('pg72').feature('slc1').set('expr', 'sIL6R');
model.result.create('pg73', 'PlotGroup3D');
model.result('pg73').set('data', 'dset5');
model.result('pg73').create('slc1', 'Slice');
model.result('pg73').feature('slc1').set('expr', 'sACE2');
model.result.create('pg74', 'PlotGroup3D');
model.result('pg74').set('data', 'dset5');
model.result('pg74').create('slc1', 'Slice');
model.result('pg74').feature('slc1').set('expr', 'ec');
model.result.create('pg75', 'PlotGroup3D');
model.result('pg75').set('data', 'dset5');
model.result('pg75').create('slc1', 'Slice');
model.result('pg75').feature('slc1').set('expr', 'iec');
model.result.create('pg76', 'PlotGroup3D');
model.result('pg76').set('data', 'dset5');
model.result('pg76').create('slc1', 'Slice');
model.result('pg76').feature('slc1').set('expr', 'y5');
model.result.create('pg77', 'PlotGroup3D');
model.result('pg77').set('data', 'dset5');
model.result('pg77').create('slc1', 'Slice');
model.result('pg77').feature('slc1').set('expr', 'y78');
model.result.create('pg78', 'PlotGroup3D');
model.result('pg78').set('data', 'dset5');
model.result('pg78').create('slc1', 'Slice');
model.result('pg78').feature('slc1').set('expr', 'y85');
model.result.create('pg79', 'PlotGroup3D');
model.result('pg79').set('data', 'dset5');
model.result('pg79').create('slc1', 'Slice');
model.result('pg79').feature('slc1').set('expr', 'y86');
model.result.create('pg80', 'PlotGroup3D');
model.result('pg80').set('data', 'dset5');
model.result('pg80').create('slc1', 'Slice');
model.result('pg80').feature('slc1').set('expr', 'y105');
model.result.create('pg81', 'PlotGroup3D');
model.result('pg81').set('data', 'dset5');
model.result('pg81').create('slc1', 'Slice');
```

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model.result('pg81').feature('slc1').set('expr', 'y14');
model.result.create('pg82', 'PlotGroup3D');
model.result('pg82').set('data', 'dset5');
model.result('pg82').create('slc1', 'Slice');
model.result('pg82').feature('slc1').set('expr', 'y15');
model.result.create('pg83', 'PlotGroup3D');
model.result('pg83').set('data', 'dset5');
model.result('pg83').create('slc1', 'Slice');
model.result('pg83').feature('slc1').set('expr', 'y107');
model.result.create('pg84', 'PlotGroup3D');
model.result('pg84').set('data', 'dset5');
model.result('pg84').create('slc1', 'Slice');
model.result('pg84').feature('slc1').set('expr', 'y87');
model.result.create('pg85', 'PlotGroup3D');
model.result('pg85').set('data', 'dset5');
model.result('pg85').create('slc1', 'Slice');
model.result('pg85').feature('slc1').set('expr', 'y18');
model.result.create('pg86', 'PlotGroup3D');
model.result('pg86').set('data', 'dset5');
model.result('pg86').create('slc1', 'Slice');
model.result('pg86').feature('slc1').set('expr', 'y19');
model.result.create('pg87', 'PlotGroup3D');
model.result('pg87').set('data', 'dset5');
model.result('pg87').create('slc1', 'Slice');
model.result('pg87').feature('slc1').set('expr', 'y108');
model.result.create('pg88', 'PlotGroup3D');
model.result('pg88').set('data', 'dset5');
model.result('pg88').create('slc1', 'Slice');
model.result('pg88').feature('slc1').set('expr', 'y102');
model.result.create('pg89', 'PlotGroup3D');
model.result('pg89').set('data', 'dset5');
model.result('pg89').create('slc1', 'Slice');
model.result('pg89').feature('slc1').set('expr', 'y22');
model.result.create('pg90', 'PlotGroup3D');
model.result('pg90').set('data', 'dset5');
model.result('pg90').create('slc1', 'Slice');
model.result('pg90').feature('slc1').set('expr', 'y23');
model.result.create('pg91', 'PlotGroup3D');
model.result('pg91').set('data', 'dset5');
model.result('pg91').create('slc1', 'Slice');
model.result('pg91').feature('slc1').set('expr', 'y109');
model.result.create('pg92', 'PlotGroup3D');
model.result('pg92').set('data', 'dset5');
model.result('pg92').create('slc1', 'Slice');
model.result('pg92').feature('slc1').set('expr', 'y92');
model.result.create('pg93', 'PlotGroup3D');
model.result('pg93').set('data', 'dset5');
model.result('pg93').create('slc1', 'Slice');
model.result('pg93').feature('slc1').set('expr', 'y26');
model.result.create('pg94', 'PlotGroup3D');
```

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model.result('pg94').set('data', 'dset5');
model.result('pg94').create('slc1', 'Slice');
model.result('pg94').feature('slc1').set('expr', 'y27');
model.result.create('pg95', 'PlotGroup3D');
model.result('pg95').set('data', 'dset5');
model.result('pg95').create('slc1', 'Slice');
model.result('pg95').feature('slc1').set('expr', 'y90');
model.result.create('pg96', 'PlotGroup3D');
model.result('pg96').set('data', 'dset5');
model.result('pg96').create('slc1', 'Slice');
model.result('pg96').feature('slc1').set('expr', 'y110');
model.result.create('pg97', 'PlotGroup3D');
model.result('pg97').set('data', 'dset5');
model.result('pg97').create('slc1', 'Slice');
model.result('pg97').feature('slc1').set('expr', 'y30');
model.result.create('pg98', 'PlotGroup3D');
model.result('pg98').set('data', 'dset5');
model.result('pg98').create('slc1', 'Slice');
model.result('pg98').feature('slc1').set('expr', 'y31');
model.result.create('pg99', 'PlotGroup3D');
model.result('pg99').set('data', 'dset5');
model.result('pg99').create('slc1', 'Slice');
model.result('pg99').feature('slc1').set('expr', 'y111');
model.result.create('pg100', 'PlotGroup3D');
model.result('pg100').set('data', 'dset5');
model.result('pg100').create('slc1', 'Slice');
model.result('pg100').feature('slc1').set('expr', 'y103');
model.result.create('pg101', 'PlotGroup3D');
model.result('pg101').set('data', 'dset5');
model.result('pg101').create('slc1', 'Slice');
model.result('pg101').feature('slc1').set('expr', 'y54');
model.result.create('pg102', 'PlotGroup3D');
model.result('pg102').set('data', 'dset5');
model.result('pg102').create('slc1', 'Slice');
model.result('pg102').feature('slc1').set('expr', 'y55');
model.result.create('pg103', 'PlotGroup3D');
model.result('pg103').set('data', 'dset5');
model.result('pg103').create('slc1', 'Slice');
model.result('pg103').feature('slc1').set('expr', 'y117');
model.result.create('pg104', 'PlotGroup3D');
model.result('pg104').set('data', 'dset5');
model.result('pg104').create('slc1', 'Slice');
model.result('pg104').feature('slc1').set('expr', 'y94');
model.result.create('pg105', 'PlotGroup3D');
model.result('pg105').set('data', 'dset5');
model.result('pg105').create('slc1', 'Slice');
model.result('pg105').feature('slc1').set('expr', 'y62');
model.result.create('pg106', 'PlotGroup3D');
model.result('pg106').set('data', 'dset5');
model.result('pg106').create('slc1', 'Slice');
```

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model.result('pg106').feature('slc1').set('expr', 'y63');
model.result.create('pg107', 'PlotGroup3D');
model.result('pg107').set('data', 'dset5');
model.result('pg107').create('slc1', 'Slice');
model.result('pg107').feature('slc1').set('expr', 'y119');
model.result.create('pg108', 'PlotGroup3D');
model.result('pg108').set('data', 'dset5');
model.result('pg108').create('slc1', 'Slice');
model.result('pg108').feature('slc1').set('expr', 'y70');
model.result.create('pg109', 'PlotGroup3D');
model.result('pg109').set('data', 'dset5');
model.result('pg109').create('slc1', 'Slice');
model.result('pg109').feature('slc1').set('expr', 'y71');
model.result.create('pg110', 'PlotGroup3D');
model.result('pg110').set('data', 'dset5');
model.result('pg110').create('slc1', 'Slice');
model.result('pg110').feature('slc1').set('expr', 'y121');
model.result.create('pg111', 'PlotGroup3D');
model.result('pg111').set('data', 'dset5');
model.result('pg111').create('slc1', 'Slice');
model.result('pg111').feature('slc1').set('expr', 'y98');
model.result.create('pg112', 'PlotGroup3D');
model.result('pg112').set('data', 'dset5');
model.result('pg112').create('slc1', 'Slice');
model.result('pg112').feature('slc1').set('expr', 'y74');
model.result.create('pg113', 'PlotGroup3D');
model.result('pg113').set('data', 'dset5');
model.result('pg113').create('slc1', 'Slice');
model.result('pg113').feature('slc1').set('expr', 'y75');
model.result.create('pg114', 'PlotGroup3D');
model.result('pg114').set('data', 'dset5');
model.result('pg114').create('slc1', 'Slice');
model.result('pg114').feature('slc1').set('expr', 'y124');
model.result.create('pg115', 'PlotGroup3D');
model.result('pg115').set('data', 'dset5');
model.result('pg115').create('slc1', 'Slice');
model.result('pg115').feature('slc1').set('expr', 'y125');
model.result.create('pg116', 'PlotGroup3D');
model.result('pg116').set('data', 'dset5');
model.result('pg116').create('slc1', 'Slice');
model.result('pg116').feature('slc1').set('expr', 'y96');
model.result.create('pg117', 'PlotGroup3D');
model.result('pg117').set('data', 'dset5');
model.result('pg117').create('slc1', 'Slice');
model.result('pg117').feature('slc1').set('expr', 'PD1bPDL1');
model.result.create('pg118', 'PlotGroup3D');
model.result('pg118').set('data', 'dset5');
model.result('pg118').create('slc1', 'Slice');
model.result('pg118').feature('slc1').set('expr', 'antiPD1');
model.result.create('pg119', 'PlotGroup3D');
```

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model.result('pg119').set('data', 'dset5');
model.result('pg119').create('slc1', 'Slice');
model.result('pg119').feature('slc1').set('expr', 'PDL1');
model.result.create('pg120', 'PlotGroup3D');
model.result('pg120').set('data', 'dset5');
model.result('pg120').create('slc1', 'Slice');
model.result('pg120').feature('slc1').set('expr', 'PD1');
model.result.create('pg121', 'PlotGroup3D');
model.result('pg121').set('data', 'dset5');
model.result('pg121').create('slc1', 'Slice');
model.result('pg121').feature('slc1').set('expr', 'NETs');
model.result.create('pg122', 'PlotGroup3D');
model.result('pg122').set('data', 'dset5');
model.result('pg122').create('slc1', 'Slice');
model.result('pg122').feature('slc1').set('expr', 'IF');
model.result.create('pg123', 'PlotGroup3D');
model.result('pg123').set('data', 'dset5');
model.result('pg123').create('slc1', 'Slice');
model.result('pg123').feature('slc1').set('expr', 'DC');
model.result.create('pg124', 'PlotGroup3D');
model.result('pg124').set('data', 'dset5');
model.result('pg124').create('slc1', 'Slice');
model.result('pg124').feature('slc1').set('expr', 'DCi');
model.result.create('pg125', 'PlotGroup3D');
model.result('pg125').set('data', 'dset5');
model.result('pg125').create('slc1', 'Slice');
model.result('pg125').feature('slc1').set('expr', 'ThN');
model.result.create('pg126', 'PlotGroup3D');
model.result('pg126').set('data', 'dset5');
model.result('pg126').create('slc1', 'Slice');
model.result('pg126').feature('slc1').set('expr', 'ThE');
model.result.create('pg127', 'PlotGroup3D');
model.result('pg127').set('data', 'dset5');
model.result('pg127').create('slc1', 'Slice');
model.result('pg127').feature('slc1').set('expr', 'TN');
model.result.create('pg128', 'PlotGroup3D');
model.result('pg128').set('data', 'dset5');
model.result('pg128').create('slc1', 'Slice');
model.result('pg128').feature('slc1').set('expr', 'TE');
model.result.create('pg129', 'PlotGroup3D');
model.result('pg129').set('data', 'dset5');
model.result('pg129').create('slc1', 'Slice');
model.result('pg129').feature('slc1').set('expr', 'BN');
model.result.create('pg130', 'PlotGroup3D');
model.result('pg130').set('data', 'dset5');
model.result('pg130').create('slc1', 'Slice');
model.result('pg130').feature('slc1').set('expr', 'BA');
model.result.create('pg131', 'PlotGroup3D');
model.result('pg131').set('data', 'dset5');
model.result('pg131').create('slc1', 'Slice');
```

```
model.result('pg131').feature('slc1').set('expr', 'PL');
model.result.create('pg132', 'PlotGroup3D');
model.result('pg132').set('data', 'dset5');
model.result('pg132').create('slc1', 'Slice');
model.result('pg132').feature('slc1').set('expr', 'PS');
model.result.create('pg133', 'PlotGroup3D');
model.result('pg133').set('data', 'dset5');
model.result('pg133').create('slc1', 'Slice');
model.result('pg133').feature('slc1').set('expr', 'A');
model.result.create('pg134', 'PlotGroup3D');
model.result('pg134').set('data', 'dset5');
model.result('pg134').create('slc1', 'Slice');
model.result('pg134').feature('slc1').set('expr', 'y200');
model.result.create('pg135', 'PlotGroup3D');
model.result('pg135').set('data', 'dset5');
model.result('pg135').create('slc1', 'Slice');
model.result('pg135').feature('slc1').set('expr', 'ThM');
model.result.create('pg136', 'PlotGroup3D');
model.result('pg136').set('data', 'dset5');
model.result('pg136').create('slc1', 'Slice');
model.result('pg136').feature('slc1').set('expr', 'TM');
model.result.create('pg137', 'PlotGroup3D');
model.result('pg137').set('data', 'dset5');
model.result('pg137').create('slc1', 'Slice');
model.result('pg137').feature('slc1').set('expr', 'y300');
model.result.create('pg138', 'PlotGroup3D');
model.result('pg138').set('data', 'dset5');
model.result('pg138').create('slc1', 'Slice');
model.result('pg138').feature('slc1').set('expr', 'Va');
model.result.create('pg139', 'PlotGroup3D');
model.result('pg139').set('data', 'dset5');
model.result('pg139').create('slc1', 'Slice');
model.result('pg139').feature('slc1').set('expr', 'Vab');
model.result.create('pg140', 'PlotGroup3D');
model.result('pg140').set('data', 'dset5');
model.result('pg140').create('slc1', 'Slice');
model.result('pg140').feature('slc1').set('expr', 'Vaint');
model.result.create('pg141', 'PlotGroup3D');
model.result('pg141').set('data', 'dset5');
model.result('pg141').create('slc1', 'Slice');
model.result('pg141').feature('slc1').set('expr', 'VaPro');
model.result.create('pg142', 'PlotGroup3D');
model.result('pg142').set('data', 'dset5');
model.result('pg142').create('slc1', 'Slice');
model.result('pg142').feature('slc1').set('expr', 'Treg');

model.sol('sol55').runFromTo('st1', 'v1');

model.result('pg41').run;
model.result('pg40').run;
```

```
model.result('pg40').feature('ptgr2').set('expr', 'Ci');
model.result('pg40').run;
model.result('pg40').run;

model.study('std2').feature('time').set('plot', true);

model.sol('sol55').study('std2');

model.study('std2').feature('time').set('notlistsolnum', 1);
model.study('std2').feature('time').set('notsolnum', '1');
model.study('std2').feature('time').set('listsolnum', 1);
model.study('std2').feature('time').set('solnum', 'last');

model.sol('sol55').feature.remove('t1');
model.sol('sol55').feature.remove('v1');
model.sol('sol55').feature.remove('st1');
model.sol('sol55').create('st1', 'StudyStep');
model.sol('sol55').feature('st1').set('study', 'std2');
model.sol('sol55').feature('st1').set('studystep', 'time');
model.sol('sol55').create('v1', 'Variables');
model.sol('sol55').feature('v1').set('control', 'time');
model.sol('sol55').create('t1', 'Time');
model.sol('sol55').feature('t1').set('tlist', 'range(0,5,140)');
model.sol('sol55').feature('t1').set('plot', 'on');
model.sol('sol55').feature('t1').set('plotgroup', 'pg40');
model.sol('sol55').feature('t1').set('plotfreq', 'tout');
model.sol('sol55').feature('t1').set('probesel', 'all');
model.sol('sol55').feature('t1').set('probes', {});
model.sol('sol55').feature('t1').set('probefreq', 'tsteps');
model.sol('sol55').feature('t1').set('atolglobalvaluemethod', 'factor');
model.sol('sol55').feature('t1').set('endtimeinterpolation', true);
model.sol('sol55').feature('t1').set('control', 'time');
model.sol('sol55').feature('t1').create('se1', 'Segregated');
model.sol('sol55').feature('t1').feature('se1').feature.remove('ssDef');
model.sol('sol55').feature('t1').feature('se1').create('ss1', 'SegregatedStep');
model.sol('sol55').feature('t1').feature('se1').feature('ss1').set('segvar', ↙
{'comp1_A'});
model.sol('sol55').feature('t1').feature('se1').feature('ss1').set('linsolver', ↙
'dDef');
model.sol('sol55').feature('t1').feature('se1').feature('ss1').label('Domain ODEs ↙
and DAEs 45r');
model.sol('sol55').feature('t1').feature('se1').create('ss2', 'SegregatedStep');
model.sol('sol55').feature('t1').feature('se1').feature('ss2').set('segvar', ↙
{'comp1_a'});
model.sol('sol55').feature('t1').feature('se1').feature('ss2').set('linsolver', ↙
'dDef');
model.sol('sol55').feature('t1').feature('se1').feature('ss2').label('Domain ODEs ↙
and DAEs 2b');
model.sol('sol55').feature('t1').feature('se1').create('ss3', 'SegregatedStep');
model.sol('sol55').feature('t1').feature('se1').feature('ss3').set('segvar', ↙
```

```
{'comp1_ACE2'});
18588 model.sol('sol55').feature('t1').feature('se1').feature('ss3').set('linsolver', ↙
'dDef');
18589 model.sol('sol55').feature('t1').feature('se1').feature('ss3').label('Domain ODEs ↙
and DAEs 5b');
18590 model.sol('sol55').feature('t1').feature('se1').create('ss4', 'SegregatedStep');
18591 model.sol('sol55').feature('t1').feature('se1').feature('ss4').set('segvar', ↙
{'comp1_ACE2bAngI'});
18592 model.sol('sol55').feature('t1').feature('se1').feature('ss4').set('linsolver', ↙
'dDef');
18593 model.sol('sol55').feature('t1').feature('se1').feature('ss4').label('Domain ODEs ↙
and DAEs 6b');
18594 model.sol('sol55').feature('t1').feature('se1').create('ss5', 'SegregatedStep');
18595 model.sol('sol55').feature('t1').feature('se1').feature('ss5').set('segvar', ↙
{'comp1_ACE2bAngII'});
18596 model.sol('sol55').feature('t1').feature('se1').feature('ss5').set('linsolver', ↙
'dDef');
18597 model.sol('sol55').feature('t1').feature('se1').feature('ss5').label('Domain ODEs ↙
and DAEs 7a');
18598 model.sol('sol55').feature('t1').feature('se1').create('ss6', 'SegregatedStep');
18599 model.sol('sol55').feature('t1').feature('se1').feature('ss6').set('segvar', ↙
{'comp1_AGT'});
18600 model.sol('sol55').feature('t1').feature('se1').feature('ss6').set('linsolver', ↙
'dDef');
18601 model.sol('sol55').feature('t1').feature('se1').feature('ss6').label('Domain ODEs ↙
and DAEs 2');
18602 model.sol('sol55').feature('t1').feature('se1').create('ss7', 'SegregatedStep');
18603 model.sol('sol55').feature('t1').feature('se1').feature('ss7').set('segvar', ↙
{'comp1_Ang17'});
18604 model.sol('sol55').feature('t1').feature('se1').feature('ss7').set('linsolver', ↙
'dDef');
18605 model.sol('sol55').feature('t1').feature('se1').feature('ss7').label('Domain ODEs ↙
and DAEs 5');
18606 model.sol('sol55').feature('t1').feature('se1').create('ss8', 'SegregatedStep');
18607 model.sol('sol55').feature('t1').feature('se1').feature('ss8').set('segvar', ↙
{'comp1_Ang19'});
18608 model.sol('sol55').feature('t1').feature('se1').feature('ss8').set('linsolver', ↙
'dDef');
18609 model.sol('sol55').feature('t1').feature('se1').feature('ss8').label('Domain ODEs ↙
and DAEs 15');
18610 model.sol('sol55').feature('t1').feature('se1').create('ss9', 'SegregatedStep');
18611 model.sol('sol55').feature('t1').feature('se1').feature('ss9').set('segvar', ↙
{'comp1_AngI'});
18612 model.sol('sol55').feature('t1').feature('se1').feature('ss9').set('linsolver', ↙
'dDef');
18613 model.sol('sol55').feature('t1').feature('se1').feature('ss9').label('Domain ODEs ↙
and DAEs 3');
18614 model.sol('sol55').feature('t1').feature('se1').create('ss10', 'SegregatedStep');
18615 model.sol('sol55').feature('t1').feature('se1').feature('ss10').set('segvar', ↙
{'comp1_AngII'});
```

```
18616 model.sol('sol55').feature('t1').feature('se1').feature('ss10').set('linsolver', ↙
'dDef');
18617 model.sol('sol55').feature('t1').feature('se1').feature('ss10').label('Domain ↙
ODEs and DAEs 4');
18618 model.sol('sol55').feature('t1').feature('se1').create('ss11', 'SegregatedStep');
18619 model.sol('sol55').feature('t1').feature('se1').feature('ss11').set('segvar', ↙
{'comp1_AngIII'});
18620 model.sol('sol55').feature('t1').feature('se1').feature('ss11').set('linsolver', ↙
'dDef');
18621 model.sol('sol55').feature('t1').feature('se1').feature('ss11').label('Domain ↙
ODEs and DAEs 16');
18622 model.sol('sol55').feature('t1').feature('se1').create('ss12', 'SegregatedStep');
18623 model.sol('sol55').feature('t1').feature('se1').feature('ss12').set('segvar', ↙
{'comp1_AngIV'});
18624 model.sol('sol55').feature('t1').feature('se1').feature('ss12').set('linsolver', ↙
'dDef');
18625 model.sol('sol55').feature('t1').feature('se1').feature('ss12').label('Domain ↙
ODEs and DAEs 6');
18626 model.sol('sol55').feature('t1').feature('se1').create('ss13', 'SegregatedStep');
18627 model.sol('sol55').feature('t1').feature('se1').feature('ss13').set('segvar', ↙
{'comp1_antiPD1'});
18628 model.sol('sol55').feature('t1').feature('se1').feature('ss13').set('linsolver', ↙
'dDef');
18629 model.sol('sol55').feature('t1').feature('se1').feature('ss13').label('Domain ↙
ODEs and DAEs 46');
18630 model.sol('sol55').feature('t1').feature('se1').create('ss14', 'SegregatedStep');
18631 model.sol('sol55').feature('t1').feature('se1').feature('ss14').set('segvar', ↙
{'comp1_AT1bAngII'});
18632 model.sol('sol55').feature('t1').feature('se1').feature('ss14').set('linsolver', ↙
'dDef');
18633 model.sol('sol55').feature('t1').feature('se1').feature('ss14').label('Domain ↙
ODEs and DAEs 7');
18634 model.sol('sol55').feature('t1').feature('se1').create('ss15', 'SegregatedStep');
18635 model.sol('sol55').feature('t1').feature('se1').feature('ss15').set('segvar', ↙
{'comp1_AT1R'});
18636 model.sol('sol55').feature('t1').feature('se1').feature('ss15').set('linsolver', ↙
'dDef');
18637 model.sol('sol55').feature('t1').feature('se1').feature('ss15').label('Domain ↙
ODEs and DAEs 19');
18638 model.sol('sol55').feature('t1').feature('se1').create('ss16', 'SegregatedStep');
18639 model.sol('sol55').feature('t1').feature('se1').feature('ss16').set('segvar', ↙
{'comp1_AT2bAngII'});
18640 model.sol('sol55').feature('t1').feature('se1').feature('ss16').set('linsolver', ↙
'dDef');
18641 model.sol('sol55').feature('t1').feature('se1').feature('ss16').label('Domain ↙
ODEs and DAEs 8');
18642 model.sol('sol55').feature('t1').feature('se1').create('ss17', 'SegregatedStep');
18643 model.sol('sol55').feature('t1').feature('se1').feature('ss17').set('segvar', ↙
{'comp1_AT2R'});
18644 model.sol('sol55').feature('t1').feature('se1').feature('ss17').set('linsolver', ↙
```

```
'dDef');
18645 model.sol('sol55').feature('t1').feature('se1').feature('ss17').label('Domain ↙
ODEs and DAEs 2c');
18646 model.sol('sol55').feature('t1').feature('se1').create('ss18', 'SegregatedStep');
18647 model.sol('sol55').feature('t1').feature('se1').feature('ss18').set('segvar', ↙
{'comp1_AT4bAngIV'});
18648 model.sol('sol55').feature('t1').feature('se1').feature('ss18').set('linsolver', ↙
'dDef');
18649 model.sol('sol55').feature('t1').feature('se1').feature('ss18').label('Domain ↙
ODEs and DAEs 17');
18650 model.sol('sol55').feature('t1').feature('se1').create('ss19', 'SegregatedStep');
18651 model.sol('sol55').feature('t1').feature('se1').feature('ss19').set('segvar', ↙
{'comp1_AT4R'});
18652 model.sol('sol55').feature('t1').feature('se1').feature('ss19').set('linsolver', ↙
'dDef');
18653 model.sol('sol55').feature('t1').feature('se1').feature('ss19').label('Domain ↙
ODEs and DAEs 4b');
18654 model.sol('sol55').feature('t1').feature('se1').create('ss20', 'SegregatedStep');
18655 model.sol('sol55').feature('t1').feature('se1').feature('ss20').set('segvar', ↙
{'comp1_BA'});
18656 model.sol('sol55').feature('t1').feature('se1').feature('ss20').set('linsolver', ↙
'dDef');
18657 model.sol('sol55').feature('t1').feature('se1').feature('ss20').label('Domain ↙
ODEs and DAEs 45o');
18658 model.sol('sol55').feature('t1').feature('se1').create('ss21', 'SegregatedStep');
18659 model.sol('sol55').feature('t1').feature('se1').feature('ss21').set('segvar', ↙
{'comp1_BN'});
18660 model.sol('sol55').feature('t1').feature('se1').feature('ss21').set('linsolver', ↙
'dDef');
18661 model.sol('sol55').feature('t1').feature('se1').feature('ss21').label('Domain ↙
ODEs and DAEs 45n');
18662 model.sol('sol55').feature('t1').feature('se1').create('ss22', 'SegregatedStep');
18663 model.sol('sol55').feature('t1').feature('se1').feature('ss22').set('segvar', ↙
{'comp1_c'});
18664 model.sol('sol55').feature('t1').feature('se1').feature('ss22').set('linsolver', ↙
'dDef');
18665 model.sol('sol55').feature('t1').feature('se1').feature('ss22').label('Domain ↙
ODEs and DAEs 12');
18666 model.sol('sol55').feature('t1').feature('se1').create('ss23', 'SegregatedStep');
18667 model.sol('sol55').feature('t1').feature('se1').feature('ss23').set('segvar', ↙
{'comp1_Cb'});
18668 model.sol('sol55').feature('t1').feature('se1').feature('ss23').set('linsolver', ↙
'dDef');
18669 model.sol('sol55').feature('t1').feature('se1').feature('ss23').label('Domain ↙
ODEs and DAEs 9');
18670 model.sol('sol55').feature('t1').feature('se1').create('ss24', 'SegregatedStep');
18671 model.sol('sol55').feature('t1').feature('se1').feature('ss24').set('segvar', ↙
{'comp1_DC'});
18672 model.sol('sol55').feature('t1').feature('se1').feature('ss24').set('linsolver', ↙
'dDef');
```

```
18673 model.sol('sol55').feature('t1').feature('se1').feature('ss24').label('Domain ↙
ODEs and DAEs 45i');
18674 model.sol('sol55').feature('t1').feature('se1').create('ss25', 'SegregatedStep');
18675 model.sol('sol55').feature('t1').feature('se1').feature('ss25').set('segvar', ↙
{'comp1_DCi'});
18676 model.sol('sol55').feature('t1').feature('se1').feature('ss25').set('linsolver', ↙
'dDef');
18677 model.sol('sol55').feature('t1').feature('se1').feature('ss25').label('Domain ↙
ODEs and DAEs 45j');
18678 model.sol('sol55').feature('t1').feature('se1').create('ss26', 'SegregatedStep');
18679 model.sol('sol55').feature('t1').feature('se1').feature('ss26').set('segvar', ↙
{'comp1_y5'});
18680 model.sol('sol55').feature('t1').feature('se1').feature('ss26').set('linsolver', ↙
'dDef');
18681 model.sol('sol55').feature('t1').feature('se1').feature('ss26').label('Domain ↙
ODEs and DAEs 23');
18682 model.sol('sol55').feature('t1').feature('se1').create('ss27', 'SegregatedStep');
18683 model.sol('sol55').feature('t1').feature('se1').feature('ss27').set('segvar', ↙
{'comp1_y15'});
18684 model.sol('sol55').feature('t1').feature('se1').feature('ss27').set('linsolver', ↙
'dDef');
18685 model.sol('sol55').feature('t1').feature('se1').feature('ss27').label('Domain ↙
ODEs and DAEs 10a');
18686 model.sol('sol55').feature('t1').feature('se1').create('ss28', 'SegregatedStep');
18687 model.sol('sol55').feature('t1').feature('se1').feature('ss28').set('segvar', ↙
{'comp1_y107' 'comp1_y1072'});
18688 model.sol('sol55').feature('t1').feature('se1').feature('ss28').set('linsolver', ↙
'dDef');
18689 model.sol('sol55').feature('t1').feature('se1').feature('ss28').label('Domain ↙
ODEs and DAEs 11a');
18690 model.sol('sol55').feature('t1').feature('se1').create('ss29', 'SegregatedStep');
18691 model.sol('sol55').feature('t1').feature('se1').feature('ss29').set('segvar', ↙
{'comp1_y87'});
18692 model.sol('sol55').feature('t1').feature('se1').feature('ss29').set('linsolver', ↙
'dDef');
18693 model.sol('sol55').feature('t1').feature('se1').feature('ss29').label('Domain ↙
ODEs and DAEs 12a');
18694 model.sol('sol55').feature('t1').feature('se1').create('ss30', 'SegregatedStep');
18695 model.sol('sol55').feature('t1').feature('se1').feature('ss30').set('segvar', ↙
{'comp1_y18'});
18696 model.sol('sol55').feature('t1').feature('se1').feature('ss30').set('linsolver', ↙
'dDef');
18697 model.sol('sol55').feature('t1').feature('se1').feature('ss30').label('Domain ↙
ODEs and DAEs 13a');
18698 model.sol('sol55').feature('t1').feature('se1').create('ss31', 'SegregatedStep');
18699 model.sol('sol55').feature('t1').feature('se1').feature('ss31').set('segvar', ↙
{'comp1_y19'});
18700 model.sol('sol55').feature('t1').feature('se1').feature('ss31').set('linsolver', ↙
'dDef');
18701 model.sol('sol55').feature('t1').feature('se1').feature('ss31').label('Domain ↙
```

```
ODEs and DAEs 14a');
18702 model.sol('sol55').feature('t1').feature('se1').create('ss32', 'SegregatedStep');
18703 model.sol('sol55').feature('t1').feature('se1').feature('ss32').set('segvar', ↙
{'comp1_y108' 'comp1_y1082'});
18704 model.sol('sol55').feature('t1').feature('se1').feature('ss32').set('linsolver', ↙
'dDef');
18705 model.sol('sol55').feature('t1').feature('se1').feature('ss32').label('Domain ↙
ODEs and DAEs 15a');
18706 model.sol('sol55').feature('t1').feature('se1').create('ss33', 'SegregatedStep');
18707 model.sol('sol55').feature('t1').feature('se1').feature('ss33').set('segvar', ↙
{'comp1_y102'});
18708 model.sol('sol55').feature('t1').feature('se1').feature('ss33').set('linsolver', ↙
'dDef');
18709 model.sol('sol55').feature('t1').feature('se1').feature('ss33').label('Domain ↙
ODEs and DAEs 16a');
18710 model.sol('sol55').feature('t1').feature('se1').create('ss34', 'SegregatedStep');
18711 model.sol('sol55').feature('t1').feature('se1').feature('ss34').set('segvar', ↙
{'comp1_y22'});
18712 model.sol('sol55').feature('t1').feature('se1').feature('ss34').set('linsolver', ↙
'dDef');
18713 model.sol('sol55').feature('t1').feature('se1').feature('ss34').label('Domain ↙
ODEs and DAEs 17a');
18714 model.sol('sol55').feature('t1').feature('se1').create('ss35', 'SegregatedStep');
18715 model.sol('sol55').feature('t1').feature('se1').feature('ss35').set('segvar', ↙
{'comp1_y23'});
18716 model.sol('sol55').feature('t1').feature('se1').feature('ss35').set('linsolver', ↙
'dDef');
18717 model.sol('sol55').feature('t1').feature('se1').feature('ss35').label('Domain ↙
ODEs and DAEs 18a');
18718 model.sol('sol55').feature('t1').feature('se1').create('ss36', 'SegregatedStep');
18719 model.sol('sol55').feature('t1').feature('se1').feature('ss36').set('segvar', ↙
{'comp1_y109' 'comp1_y1092'});
18720 model.sol('sol55').feature('t1').feature('se1').feature('ss36').set('linsolver', ↙
'dDef');
18721 model.sol('sol55').feature('t1').feature('se1').feature('ss36').label('Domain ↙
ODEs and DAEs 19a');
18722 model.sol('sol55').feature('t1').feature('se1').create('ss37', 'SegregatedStep');
18723 model.sol('sol55').feature('t1').feature('se1').feature('ss37').set('segvar', ↙
{'comp1_y78'});
18724 model.sol('sol55').feature('t1').feature('se1').feature('ss37').set('linsolver', ↙
'dDef');
18725 model.sol('sol55').feature('t1').feature('se1').feature('ss37').label('Domain ↙
ODEs and DAEs 2h');
18726 model.sol('sol55').feature('t1').feature('se1').create('ss38', 'SegregatedStep');
18727 model.sol('sol55').feature('t1').feature('se1').feature('ss38').set('segvar', ↙
{'comp1_y92'});
18728 model.sol('sol55').feature('t1').feature('se1').feature('ss38').set('linsolver', ↙
'dDef');
18729 model.sol('sol55').feature('t1').feature('se1').feature('ss38').label('Domain ↙
ODEs and DAEs 20a');
```

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18730 model.sol('sol55').feature('t1').feature('se1').create('ss39', 'SegregatedStep');
18731 model.sol('sol55').feature('t1').feature('se1').feature('ss39').set('segvar', ↙
{'comp1_y26'});
18732 model.sol('sol55').feature('t1').feature('se1').feature('ss39').set('linsolver', ↙
'dDef');
18733 model.sol('sol55').feature('t1').feature('se1').feature('ss39').label('Domain ↙
ODEs and DAEs 21a');
18734 model.sol('sol55').feature('t1').feature('se1').create('ss40', 'SegregatedStep');
18735 model.sol('sol55').feature('t1').feature('se1').feature('ss40').set('segvar', ↙
{'comp1_y27'});
18736 model.sol('sol55').feature('t1').feature('se1').feature('ss40').set('linsolver', ↙
'dDef');
18737 model.sol('sol55').feature('t1').feature('se1').feature('ss40').label('Domain ↙
ODEs and DAEs 22a');
18738 model.sol('sol55').feature('t1').feature('se1').create('ss41', 'SegregatedStep');
18739 model.sol('sol55').feature('t1').feature('se1').feature('ss41').set('segvar', ↙
{'comp1_y110' 'comp1_y1102'});
18740 model.sol('sol55').feature('t1').feature('se1').feature('ss41').set('linsolver', ↙
'dDef');
18741 model.sol('sol55').feature('t1').feature('se1').feature('ss41').label('Domain ↙
ODEs and DAEs 23a');
18742 model.sol('sol55').feature('t1').feature('se1').create('ss42', 'SegregatedStep');
18743 model.sol('sol55').feature('t1').feature('se1').feature('ss42').set('segvar', ↙
{'comp1_y90'});
18744 model.sol('sol55').feature('t1').feature('se1').feature('ss42').set('linsolver', ↙
'dDef');
18745 model.sol('sol55').feature('t1').feature('se1').feature('ss42').label('Domain ↙
ODEs and DAEs 24');
18746 model.sol('sol55').feature('t1').feature('se1').create('ss43', 'SegregatedStep');
18747 model.sol('sol55').feature('t1').feature('se1').feature('ss43').set('segvar', ↙
{'comp1_y30'});
18748 model.sol('sol55').feature('t1').feature('se1').feature('ss43').set('linsolver', ↙
'dDef');
18749 model.sol('sol55').feature('t1').feature('se1').feature('ss43').label('Domain ↙
ODEs and DAEs 25');
18750 model.sol('sol55').feature('t1').feature('se1').create('ss44', 'SegregatedStep');
18751 model.sol('sol55').feature('t1').feature('se1').feature('ss44').set('segvar', ↙
{'comp1_y31'});
18752 model.sol('sol55').feature('t1').feature('se1').feature('ss44').set('linsolver', ↙
'dDef');
18753 model.sol('sol55').feature('t1').feature('se1').feature('ss44').label('Domain ↙
ODEs and DAEs 26');
18754 model.sol('sol55').feature('t1').feature('se1').create('ss45', 'SegregatedStep');
18755 model.sol('sol55').feature('t1').feature('se1').feature('ss45').set('segvar', ↙
{'comp1_y111' 'comp1_y1112'});
18756 model.sol('sol55').feature('t1').feature('se1').feature('ss45').set('linsolver', ↙
'dDef');
18757 model.sol('sol55').feature('t1').feature('se1').feature('ss45').label('Domain ↙
ODEs and DAEs 27');
18758 model.sol('sol55').feature('t1').feature('se1').create('ss46', 'SegregatedStep');
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18759 model.sol('sol55').feature('t1').feature('se1').feature('ss46').set('segvar', ↙
{'comp1_y103'});
18760 model.sol('sol55').feature('t1').feature('se1').feature('ss46').set('linsolver', ↙
'dDef');
18761 model.sol('sol55').feature('t1').feature('se1').feature('ss46').label('Domain ↙
ODEs and DAEs 28');
18762 model.sol('sol55').feature('t1').feature('se1').create('ss47', 'SegregatedStep');
18763 model.sol('sol55').feature('t1').feature('se1').feature('ss47').set('segvar', ↙
{'comp1_y54'});
18764 model.sol('sol55').feature('t1').feature('se1').feature('ss47').set('linsolver', ↙
'dDef');
18765 model.sol('sol55').feature('t1').feature('se1').feature('ss47').label('Domain ↙
ODEs and DAEs 29');
18766 model.sol('sol55').feature('t1').feature('se1').create('ss48', 'SegregatedStep');
18767 model.sol('sol55').feature('t1').feature('se1').feature('ss48').set('segvar', ↙
{'comp1_y85'});
18768 model.sol('sol55').feature('t1').feature('se1').feature('ss48').set('linsolver', ↙
'dDef');
18769 model.sol('sol55').feature('t1').feature('se1').feature('ss48').label('Domain ↙
ODEs and DAEs 3d');
18770 model.sol('sol55').feature('t1').feature('se1').create('ss49', 'SegregatedStep');
18771 model.sol('sol55').feature('t1').feature('se1').feature('ss49').set('segvar', ↙
{'comp1_y55'});
18772 model.sol('sol55').feature('t1').feature('se1').feature('ss49').set('linsolver', ↙
'dDef');
18773 model.sol('sol55').feature('t1').feature('se1').feature('ss49').label('Domain ↙
ODEs and DAEs 30');
18774 model.sol('sol55').feature('t1').feature('se1').create('ss50', 'SegregatedStep');
18775 model.sol('sol55').feature('t1').feature('se1').feature('ss50').set('segvar', ↙
{'comp1_y117' 'comp1_y1172'});
18776 model.sol('sol55').feature('t1').feature('se1').feature('ss50').set('linsolver', ↙
'dDef');
18777 model.sol('sol55').feature('t1').feature('se1').feature('ss50').label('Domain ↙
ODEs and DAEs 31');
18778 model.sol('sol55').feature('t1').feature('se1').create('ss51', 'SegregatedStep');
18779 model.sol('sol55').feature('t1').feature('se1').feature('ss51').set('segvar', ↙
{'comp1_y94'});
18780 model.sol('sol55').feature('t1').feature('se1').feature('ss51').set('linsolver', ↙
'dDef');
18781 model.sol('sol55').feature('t1').feature('se1').feature('ss51').label('Domain ↙
ODEs and DAEs 32');
18782 model.sol('sol55').feature('t1').feature('se1').create('ss52', 'SegregatedStep');
18783 model.sol('sol55').feature('t1').feature('se1').feature('ss52').set('segvar', ↙
{'comp1_y62'});
18784 model.sol('sol55').feature('t1').feature('se1').feature('ss52').set('linsolver', ↙
'dDef');
18785 model.sol('sol55').feature('t1').feature('se1').feature('ss52').label('Domain ↙
ODEs and DAEs 33');
18786 model.sol('sol55').feature('t1').feature('se1').create('ss53', 'SegregatedStep');
18787 model.sol('sol55').feature('t1').feature('se1').feature('ss53').set('segvar', ↙
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{'comp1_y63'});
18788 model.sol('sol55').feature('t1').feature('se1').feature('ss53').set('linsolver', ↙
'dDef');
18789 model.sol('sol55').feature('t1').feature('se1').feature('ss53').label('Domain ↙
ODEs and DAEs 34');
18790 model.sol('sol55').feature('t1').feature('se1').create('ss54', 'SegregatedStep');
18791 model.sol('sol55').feature('t1').feature('se1').feature('ss54').set('segvar', ↙
{'comp1_y119' 'comp1_y1192'});
18792 model.sol('sol55').feature('t1').feature('se1').feature('ss54').set('linsolver', ↙
'dDef');
18793 model.sol('sol55').feature('t1').feature('se1').feature('ss54').label('Domain ↙
ODEs and DAEs 35');
18794 model.sol('sol55').feature('t1').feature('se1').create('ss55', 'SegregatedStep');
18795 model.sol('sol55').feature('t1').feature('se1').feature('ss55').set('segvar', ↙
{'comp1_y70'});
18796 model.sol('sol55').feature('t1').feature('se1').feature('ss55').set('linsolver', ↙
'dDef');
18797 model.sol('sol55').feature('t1').feature('se1').feature('ss55').label('Domain ↙
ODEs and DAEs 36');
18798 model.sol('sol55').feature('t1').feature('se1').create('ss56', 'SegregatedStep');
18799 model.sol('sol55').feature('t1').feature('se1').feature('ss56').set('segvar', ↙
{'comp1_y71'});
18800 model.sol('sol55').feature('t1').feature('se1').feature('ss56').set('linsolver', ↙
'dDef');
18801 model.sol('sol55').feature('t1').feature('se1').feature('ss56').label('Domain ↙
ODEs and DAEs 37');
18802 model.sol('sol55').feature('t1').feature('se1').create('ss57', 'SegregatedStep');
18803 model.sol('sol55').feature('t1').feature('se1').feature('ss57').set('segvar', ↙
{'comp1_y121' 'comp1_y1212'});
18804 model.sol('sol55').feature('t1').feature('se1').feature('ss57').set('linsolver', ↙
'dDef');
18805 model.sol('sol55').feature('t1').feature('se1').feature('ss57').label('Domain ↙
ODEs and DAEs 38');
18806 model.sol('sol55').feature('t1').feature('se1').create('ss58', 'SegregatedStep');
18807 model.sol('sol55').feature('t1').feature('se1').feature('ss58').set('segvar', ↙
{'comp1_y98'});
18808 model.sol('sol55').feature('t1').feature('se1').feature('ss58').set('linsolver', ↙
'dDef');
18809 model.sol('sol55').feature('t1').feature('se1').feature('ss58').label('Domain ↙
ODEs and DAEs 39');
18810 model.sol('sol55').feature('t1').feature('se1').create('ss59', 'SegregatedStep');
18811 model.sol('sol55').feature('t1').feature('se1').feature('ss59').set('segvar', ↙
{'comp1_y86'});
18812 model.sol('sol55').feature('t1').feature('se1').feature('ss59').set('linsolver', ↙
'dDef');
18813 model.sol('sol55').feature('t1').feature('se1').feature('ss59').label('Domain ↙
ODEs and DAEs 4a');
18814 model.sol('sol55').feature('t1').feature('se1').create('ss60', 'SegregatedStep');
18815 model.sol('sol55').feature('t1').feature('se1').feature('ss60').set('segvar', ↙
{'comp1_y74'});
```

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18816 model.sol('sol55').feature('t1').feature('se1').feature('ss60').set('linsolver', ↙
'dDef');
18817 model.sol('sol55').feature('t1').feature('se1').feature('ss60').label('Domain ↙
ODEs and DAEs 40');
18818 model.sol('sol55').feature('t1').feature('se1').create('ss61', 'SegregatedStep');
18819 model.sol('sol55').feature('t1').feature('se1').feature('ss61').set('segvar', ↙
{'comp1_y75'});
18820 model.sol('sol55').feature('t1').feature('se1').feature('ss61').set('linsolver', ↙
'dDef');
18821 model.sol('sol55').feature('t1').feature('se1').feature('ss61').label('Domain ↙
ODEs and DAEs 41');
18822 model.sol('sol55').feature('t1').feature('se1').create('ss62', 'SegregatedStep');
18823 model.sol('sol55').feature('t1').feature('se1').feature('ss62').set('segvar', ↙
{'comp1_y124' 'comp1_y1242'});
18824 model.sol('sol55').feature('t1').feature('se1').feature('ss62').set('linsolver', ↙
'dDef');
18825 model.sol('sol55').feature('t1').feature('se1').feature('ss62').label('Domain ↙
ODEs and DAEs 42');
18826 model.sol('sol55').feature('t1').feature('se1').create('ss63', 'SegregatedStep');
18827 model.sol('sol55').feature('t1').feature('se1').feature('ss63').set('segvar', ↙
{'comp1_y125'});
18828 model.sol('sol55').feature('t1').feature('se1').feature('ss63').set('linsolver', ↙
'dDef');
18829 model.sol('sol55').feature('t1').feature('se1').feature('ss63').label('Domain ↙
ODEs and DAEs 43');
18830 model.sol('sol55').feature('t1').feature('se1').create('ss64', 'SegregatedStep');
18831 model.sol('sol55').feature('t1').feature('se1').feature('ss64').set('segvar', ↙
{'comp1_y96'});
18832 model.sol('sol55').feature('t1').feature('se1').feature('ss64').set('linsolver', ↙
'dDef');
18833 model.sol('sol55').feature('t1').feature('se1').feature('ss64').label('Domain ↙
ODEs and DAEs 44');
18834 model.sol('sol55').feature('t1').feature('se1').create('ss65', 'SegregatedStep');
18835 model.sol('sol55').feature('t1').feature('se1').feature('ss65').set('segvar', ↙
{'comp1_Treg'});
18836 model.sol('sol55').feature('t1').feature('se1').feature('ss65').set('linsolver', ↙
'dDef');
18837 model.sol('sol55').feature('t1').feature('se1').feature('ss65').label('Domain ↙
ODEs and DAEs 5f');
18838 model.sol('sol55').feature('t1').feature('se1').create('ss66', 'SegregatedStep');
18839 model.sol('sol55').feature('t1').feature('se1').feature('ss66').set('segvar', ↙
{'comp1_y105' 'comp1_y1052'});
18840 model.sol('sol55').feature('t1').feature('se1').feature('ss66').set('linsolver', ↙
'dDef');
18841 model.sol('sol55').feature('t1').feature('se1').feature('ss66').label('Domain ↙
ODEs and DAEs 7b');
18842 model.sol('sol55').feature('t1').feature('se1').create('ss67', 'SegregatedStep');
18843 model.sol('sol55').feature('t1').feature('se1').feature('ss67').set('segvar', ↙
{'comp1_y14'});
18844 model.sol('sol55').feature('t1').feature('se1').feature('ss67').set('linsolver', ↙
```

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'dDef');
18845 model.sol('sol55').feature('t1').feature('se1').feature('ss67').label('Domain ↙
ODEs and DAEs 9a');
18846 model.sol('sol55').feature('t1').feature('se1').create('ss68', 'SegregatedStep');
18847 model.sol('sol55').feature('t1').feature('se1').feature('ss68').set('segvar', ↙
{'comp1_ec' 'comp1_ec2' 'comp1_ec3' 'comp1_ec4' 'comp1_ec5' 'comp1_ec6' 'comp1_ec7' ↙
'comp1_ec8' 'comp1_ec9' 'comp1_ec10'  ...
18848 'comp1_ec11' 'comp1_ec12'});
18849 model.sol('sol55').feature('t1').feature('se1').feature('ss68').set('linsolver', ↙
'dDef');
18850 model.sol('sol55').feature('t1').feature('se1').feature('ss68').label('Domain ↙
ODEs and DAEs 22');
18851 model.sol('sol55').feature('t1').feature('se1').create('ss69', 'SegregatedStep');
18852 model.sol('sol55').feature('t1').feature('se1').feature('ss69').set('segvar', ↙
{'comp1_H'});
18853 model.sol('sol55').feature('t1').feature('se1').feature('ss69').set('linsolver', ↙
'dDef');
18854 model.sol('sol55').feature('t1').feature('se1').feature('ss69').label('Domain ↙
ODEs and DAEs 2a');
18855 model.sol('sol55').feature('t1').feature('se1').create('ss70', 'SegregatedStep');
18856 model.sol('sol55').feature('t1').feature('se1').feature('ss70').set('segvar', ↙
{'comp1_iec' 'comp1_iec2' 'comp1_iec3' 'comp1_iec4' 'comp1_iec5' 'comp1_iec6' ↙
'comp1_iec7' 'comp1_iec8' 'comp1_iec9' 'comp1_iec10'  ...
18857 'comp1_iec11' 'comp1_iec12'});
18858 model.sol('sol55').feature('t1').feature('se1').feature('ss70').set('linsolver', ↙
'dDef');
18859 model.sol('sol55').feature('t1').feature('se1').feature('ss70').label('Domain ↙
ODEs and DAEs 2g');
18860 model.sol('sol55').feature('t1').feature('se1').create('ss71', 'SegregatedStep');
18861 model.sol('sol55').feature('t1').feature('se1').feature('ss71').set('segvar', ↙
{'comp1_IF'});
18862 model.sol('sol55').feature('t1').feature('se1').feature('ss71').set('linsolver', ↙
'dDef');
18863 model.sol('sol55').feature('t1').feature('se1').feature('ss71').label('Domain ↙
ODEs and DAEs 46c');
18864 model.sol('sol55').feature('t1').feature('se1').create('ss72', 'SegregatedStep');
18865 model.sol('sol55').feature('t1').feature('se1').feature('ss72').set('segvar', ↙
{'comp1_IL6'});
18866 model.sol('sol55').feature('t1').feature('se1').feature('ss72').set('linsolver', ↙
'dDef');
18867 model.sol('sol55').feature('t1').feature('se1').feature('ss72').label('Domain ↙
ODEs and DAEs 20');
18868 model.sol('sol55').feature('t1').feature('se1').create('ss73', 'SegregatedStep');
18869 model.sol('sol55').feature('t1').feature('se1').feature('ss73').set('segvar', ↙
{'comp1_IL6R'});
18870 model.sol('sol55').feature('t1').feature('se1').feature('ss73').set('linsolver', ↙
'dDef');
18871 model.sol('sol55').feature('t1').feature('se1').feature('ss73').label('Domain ↙
ODEs and DAEs 2d');
18872 model.sol('sol55').feature('t1').feature('se1').create('ss74', 'SegregatedStep');
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18873 model.sol('sol55').feature('t1').feature('se1').feature('ss74').set('segvar', ↙
{'comp1_IL6RbIL6'});
18874 model.sol('sol55').feature('t1').feature('se1').feature('ss74').set('linsolver', ↙
'dDef');
18875 model.sol('sol55').feature('t1').feature('se1').feature('ss74').label('Domain ↙
ODEs and DAEs 3c');
18876 model.sol('sol55').feature('t1').feature('se1').create('ss75', 'SegregatedStep');
18877 model.sol('sol55').feature('t1').feature('se1').feature('ss75').set('segvar', ↙
{'comp1_In'});
18878 model.sol('sol55').feature('t1').feature('se1').feature('ss75').set('linsolver', ↙
'dDef');
18879 model.sol('sol55').feature('t1').feature('se1').feature('ss75').label('Domain ↙
ODEs and DAEs 6a');
18880 model.sol('sol55').feature('t1').feature('se1').create('ss76', 'SegregatedStep');
18881 model.sol('sol55').feature('t1').feature('se1').feature('ss76').set('segvar', ↙
{'comp1_ma'});
18882 model.sol('sol55').feature('t1').feature('se1').feature('ss76').set('linsolver', ↙
'dDef');
18883 model.sol('sol55').feature('t1').feature('se1').feature('ss76').label('Domain ↙
ODEs and DAEs 11');
18884 model.sol('sol55').feature('t1').feature('se1').create('ss77', 'SegregatedStep');
18885 model.sol('sol55').feature('t1').feature('se1').feature('ss77').set('segvar', ↙
{'comp1_MAsbAng17'});
18886 model.sol('sol55').feature('t1').feature('se1').feature('ss77').set('linsolver', ↙
'dDef');
18887 model.sol('sol55').feature('t1').feature('se1').feature('ss77').label('Domain ↙
ODEs and DAEs 18');
18888 model.sol('sol55').feature('t1').feature('se1').create('ss78', 'SegregatedStep');
18889 model.sol('sol55').feature('t1').feature('se1').feature('ss78').set('segvar', ↙
{'comp1_MAsR'});
18890 model.sol('sol55').feature('t1').feature('se1').feature('ss78').set('linsolver', ↙
'dDef');
18891 model.sol('sol55').feature('t1').feature('se1').feature('ss78').label('Domain ↙
ODEs and DAEs 3b');
18892 model.sol('sol55').feature('t1').feature('se1').create('ss79', 'SegregatedStep');
18893 model.sol('sol55').feature('t1').feature('se1').feature('ss79').set('segvar', ↙
{'comp1_n'});
18894 model.sol('sol55').feature('t1').feature('se1').feature('ss79').set('linsolver', ↙
'dDef');
18895 model.sol('sol55').feature('t1').feature('se1').feature('ss79').label('Domain ↙
ODEs and DAEs 10');
18896 model.sol('sol55').feature('t1').feature('se1').create('ss80', 'SegregatedStep');
18897 model.sol('sol55').feature('t1').feature('se1').feature('ss80').set('segvar', ↙
{'comp1_NETs'});
18898 model.sol('sol55').feature('t1').feature('se1').feature('ss80').set('linsolver', ↙
'dDef');
18899 model.sol('sol55').feature('t1').feature('se1').feature('ss80').label('Domain ↙
ODEs and DAEs 45e');
18900 model.sol('sol55').feature('t1').feature('se1').create('ss81', 'SegregatedStep');
18901 model.sol('sol55').feature('t1').feature('se1').feature('ss81').set('segvar', ↙
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{'comp1_PD1'});
18902 model.sol('sol55').feature('t1').feature('se1').feature('ss81').set('linsolver', ↙
'dDef');
18903 model.sol('sol55').feature('t1').feature('se1').feature('ss81').label('Domain ↙
ODEs and DAEs 45f');
18904 model.sol('sol55').feature('t1').feature('se1').create('ss82', 'SegregatedStep');
18905 model.sol('sol55').feature('t1').feature('se1').feature('ss82').set('segvar', ↙
{'comp1_PD1bPDL1'});
18906 model.sol('sol55').feature('t1').feature('se1').feature('ss82').set('linsolver', ↙
'dDef');
18907 model.sol('sol55').feature('t1').feature('se1').feature('ss82').label('Domain ↙
ODEs and DAEs 45g');
18908 model.sol('sol55').feature('t1').feature('se1').create('ss83', 'SegregatedStep');
18909 model.sol('sol55').feature('t1').feature('se1').feature('ss83').set('segvar', ↙
{'comp1_PDL1'});
18910 model.sol('sol55').feature('t1').feature('se1').feature('ss83').set('linsolver', ↙
'dDef');
18911 model.sol('sol55').feature('t1').feature('se1').feature('ss83').label('Domain ↙
ODEs and DAEs 47');
18912 model.sol('sol55').feature('t1').feature('se1').create('ss84', 'SegregatedStep');
18913 model.sol('sol55').feature('t1').feature('se1').feature('ss84').set('segvar', ↙
{'comp1_PL'});
18914 model.sol('sol55').feature('t1').feature('se1').feature('ss84').set('linsolver', ↙
'dDef');
18915 model.sol('sol55').feature('t1').feature('se1').feature('ss84').label('Domain ↙
ODEs and DAEs 45p');
18916 model.sol('sol55').feature('t1').feature('se1').create('ss85', 'SegregatedStep');
18917 model.sol('sol55').feature('t1').feature('se1').feature('ss85').set('segvar', ↙
{'comp1_PS'});
18918 model.sol('sol55').feature('t1').feature('se1').feature('ss85').set('linsolver', ↙
'dDef');
18919 model.sol('sol55').feature('t1').feature('se1').feature('ss85').label('Domain ↙
ODEs and DAEs 45q');
18920 model.sol('sol55').feature('t1').feature('se1').create('ss86', 'SegregatedStep');
18921 model.sol('sol55').feature('t1').feature('se1').feature('ss86').set('segvar', ↙
{'comp1_Renin'});
18922 model.sol('sol55').feature('t1').feature('se1').feature('ss86').set('linsolver', ↙
'dDef');
18923 model.sol('sol55').feature('t1').feature('se1').feature('ss86').label('Domain ↙
ODEs and DAEs 14');
18924 model.sol('sol55').feature('t1').feature('se1').create('ss87', 'SegregatedStep');
18925 model.sol('sol55').feature('t1').feature('se1').feature('ss87').set('segvar', ↙
{'comp1_sACE2'});
18926 model.sol('sol55').feature('t1').feature('se1').feature('ss87').set('linsolver', ↙
'dDef');
18927 model.sol('sol55').feature('t1').feature('se1').feature('ss87').label('Domain ↙
ODEs and DAEs 2f');
18928 model.sol('sol55').feature('t1').feature('se1').create('ss88', 'SegregatedStep');
18929 model.sol('sol55').feature('t1').feature('se1').feature('ss88').set('segvar', ↙
{'comp1_sIL6R'});
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18930 model.sol('sol55').feature('t1').feature('se1').feature('ss88').set('linsolver', ↙
'dDef');
18931 model.sol('sol55').feature('t1').feature('se1').feature('ss88').label('Domain ↙
ODEs and DAEs 21');
18932 model.sol('sol55').feature('t1').feature('se1').create('ss89', 'SegregatedStep');
18933 model.sol('sol55').feature('t1').feature('se1').feature('ss89').set('segvar', ↙
{'comp1_sIL6RbIL6'});
18934 model.sol('sol55').feature('t1').feature('se1').feature('ss89').set('linsolver', ↙
'dDef');
18935 model.sol('sol55').feature('t1').feature('se1').feature('ss89').label('Domain ↙
ODEs and DAEs');
18936 model.sol('sol55').feature('t1').feature('se1').create('ss90', 'SegregatedStep');
18937 model.sol('sol55').feature('t1').feature('se1').feature('ss90').set('segvar', ↙
{'comp1_TE'});
18938 model.sol('sol55').feature('t1').feature('se1').feature('ss90').set('linsolver', ↙
'dDef');
18939 model.sol('sol55').feature('t1').feature('se1').feature('ss90').label('Domain ↙
ODEs and DAEs 45m');
18940 model.sol('sol55').feature('t1').feature('se1').create('ss91', 'SegregatedStep');
18941 model.sol('sol55').feature('t1').feature('se1').feature('ss91').set('segvar', ↙
{'comp1_ThE'});
18942 model.sol('sol55').feature('t1').feature('se1').feature('ss91').set('linsolver', ↙
'dDef');
18943 model.sol('sol55').feature('t1').feature('se1').feature('ss91').label('Domain ↙
ODEs and DAEs 45k');
18944 model.sol('sol55').feature('t1').feature('se1').create('ss92', 'SegregatedStep');
18945 model.sol('sol55').feature('t1').feature('se1').feature('ss92').set('segvar', ↙
{'comp1_ThM'});
18946 model.sol('sol55').feature('t1').feature('se1').feature('ss92').set('linsolver', ↙
'dDef');
18947 model.sol('sol55').feature('t1').feature('se1').feature('ss92').label('Domain ↙
ODEs and DAEs 45t');
18948 model.sol('sol55').feature('t1').feature('se1').create('ss93', 'SegregatedStep');
18949 model.sol('sol55').feature('t1').feature('se1').feature('ss93').set('segvar', ↙
{'comp1_ThN'});
18950 model.sol('sol55').feature('t1').feature('se1').feature('ss93').set('linsolver', ↙
'dDef');
18951 model.sol('sol55').feature('t1').feature('se1').feature('ss93').label('Domain ↙
ODEs and DAEs 46d');
18952 model.sol('sol55').feature('t1').feature('se1').create('ss94', 'SegregatedStep');
18953 model.sol('sol55').feature('t1').feature('se1').feature('ss94').set('segvar', ↙
{'comp1_TM'});
18954 model.sol('sol55').feature('t1').feature('se1').feature('ss94').set('linsolver', ↙
'dDef');
18955 model.sol('sol55').feature('t1').feature('se1').feature('ss94').label('Domain ↙
ODEs and DAEs 45u');
18956 model.sol('sol55').feature('t1').feature('se1').create('ss95', 'SegregatedStep');
18957 model.sol('sol55').feature('t1').feature('se1').feature('ss95').set('segvar', ↙
{'comp1_TN'});
18958 model.sol('sol55').feature('t1').feature('se1').feature('ss95').set('linsolver', ↙
```

```
'dDef');
18959 model.sol('sol55').feature('t1').feature('se1').feature('ss95').label('Domain ↙
ODEs and DAEs 45l');
18960 model.sol('sol55').feature('t1').feature('se1').create('ss96', 'SegregatedStep');
18961 model.sol('sol55').feature('t1').feature('se1').feature('ss96').set('segvar', ↙
{'comp1_Va'});
18962 model.sol('sol55').feature('t1').feature('se1').feature('ss96').set('linsolver', ↙
'dDef');
18963 model.sol('sol55').feature('t1').feature('se1').feature('ss96').label('Domain ↙
ODEs and DAEs 5c');
18964 model.sol('sol55').feature('t1').feature('se1').create('ss97', 'SegregatedStep');
18965 model.sol('sol55').feature('t1').feature('se1').feature('ss97').set('segvar', ↙
{'comp1_Vab'});
18966 model.sol('sol55').feature('t1').feature('se1').feature('ss97').set('linsolver', ↙
'dDef');
18967 model.sol('sol55').feature('t1').feature('se1').feature('ss97').label('Domain ↙
ODEs and DAEs 6d');
18968 model.sol('sol55').feature('t1').feature('se1').create('ss98', 'SegregatedStep');
18969 model.sol('sol55').feature('t1').feature('se1').feature('ss98').set('segvar', ↙
{'comp1_Vaint'});
18970 model.sol('sol55').feature('t1').feature('se1').feature('ss98').set('linsolver', ↙
'dDef');
18971 model.sol('sol55').feature('t1').feature('se1').feature('ss98').label('Domain ↙
ODEs and DAEs 5d');
18972 model.sol('sol55').feature('t1').feature('se1').create('ss99', 'SegregatedStep');
18973 model.sol('sol55').feature('t1').feature('se1').feature('ss99').set('segvar', ↙
{'comp1_VaPro'});
18974 model.sol('sol55').feature('t1').feature('se1').feature('ss99').set('linsolver', ↙
'dDef');
18975 model.sol('sol55').feature('t1').feature('se1').feature('ss99').label('Domain ↙
ODEs and DAEs 5e');
18976 model.sol('sol55').feature('t1').feature('se1').create('ss100', ↙
'SegregatedStep');
18977 model.sol('sol55').feature('t1').feature('se1').feature('ss100').set('segvar', ↙
{'comp1_Vint' 'comp1_Vint1' 'comp1_Vint2' 'comp1_Vint3' 'comp1_Vint4' 'comp1_Vint5' ↙
'comp1_Vint6' 'comp1_Vint7' 'comp1_Vint8' 'comp1_Vint9'});
18978 model.sol('sol55').feature('t1').feature('se1').feature('ss100').set('linsolver', ↙
'dDef');
18979 model.sol('sol55').feature('t1').feature('se1').feature('ss100').label('Domain ↙
ODEs and DAEs 3a');
18980 model.sol('sol55').feature('t1').feature('se1').create('ss101', ↙
'SegregatedStep');
18981 model.sol('sol55').feature('t1').feature('se1').feature('ss101').set('segvar', ↙
{'comp1_y200' 'comp1_y201' 'comp1_y202' 'comp1_y203' 'comp1_y204' 'comp1_y205' ↙
'comp1_y206' 'comp1_y207' 'comp1_y208' 'comp1_y209'  ...
18982 'comp1_y210'});
18983 model.sol('sol55').feature('t1').feature('se1').feature('ss101').set('linsolver', ↙
'dDef');
18984 model.sol('sol55').feature('t1').feature('se1').feature('ss101').label('Domain ↙
ODEs and DAEs 45s');
```

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18985 model.sol('sol55').feature('t1').feature('se1').create('ss102', ↙
'SegregatedStep');
18986 model.sol('sol55').feature('t1').feature('se1').feature('ss102').set('segvar', ↙
{'comp1_y300' 'comp1_y301' 'comp1_y302' 'comp1_y303' 'comp1_y304' 'comp1_y305' ↙
'comp1_y306' 'comp1_y307' 'comp1_y308' 'comp1_y309'  ...
18987 'comp1_y310'});
18988 model.sol('sol55').feature('t1').feature('se1').feature('ss102').set('linsolver', ↙
'dDef');
18989 model.sol('sol55').feature('t1').feature('se1').feature('ss102').label('Domain ↙
ODEs and DAEs 45v');
18990 model.sol('sol55').feature('t1').feature.remove('fcDef');
18991 model.sol('sol55').attach('std2');
18992 model.sol('sol55').study('std2');
18993
18994 model.study('std2').feature('time').set('notlistsolnum', 1);
18995 model.study('std2').feature('time').set('notsolnum', '1');
18996 model.study('std2').feature('time').set('listsolnum', 1);
18997 model.study('std2').feature('time').set('solnum', 'last');
18998
18999 model.sol('sol55').feature.remove('t1');
19000 model.sol('sol55').feature.remove('v1');
19001 model.sol('sol55').feature.remove('st1');
19002 model.sol('sol55').create('st1', 'StudyStep');
19003 model.sol('sol55').feature('st1').set('study', 'std2');
19004 model.sol('sol55').feature('st1').set('studystep', 'time');
19005 model.sol('sol55').create('v1', 'Variables');
19006 model.sol('sol55').feature('v1').set('control', 'time');
19007 model.sol('sol55').create('t1', 'Time');
19008 model.sol('sol55').feature('t1').set('tlist', 'range(0,5,140)');
19009 model.sol('sol55').feature('t1').set('plot', 'on');
19010 model.sol('sol55').feature('t1').set('plotgroup', 'pg40');
19011 model.sol('sol55').feature('t1').set('plotfreq', 'tout');
19012 model.sol('sol55').feature('t1').set('probesel', 'all');
19013 model.sol('sol55').feature('t1').set('probes', {});
19014 model.sol('sol55').feature('t1').set('probefreq', 'tsteps');
19015 model.sol('sol55').feature('t1').set('atolglobalvaluemethod', 'factor');
19016 model.sol('sol55').feature('t1').set('endtimeinterpolation', true);
19017 model.sol('sol55').feature('t1').set('control', 'time');
19018 model.sol('sol55').feature('t1').create('se1', 'Segregated');
19019 model.sol('sol55').feature('t1').feature('se1').feature.remove('ssDef');
19020 model.sol('sol55').feature('t1').feature('se1').create('ss1', 'SegregatedStep');
19021 model.sol('sol55').feature('t1').feature('se1').feature('ss1').set('segvar', ↙
{'comp1_A'});
19022 model.sol('sol55').feature('t1').feature('se1').feature('ss1').set('linsolver', ↙
'dDef');
19023 model.sol('sol55').feature('t1').feature('se1').feature('ss1').label('Domain ODEs ↙
and DAEs 45r');
19024 model.sol('sol55').feature('t1').feature('se1').create('ss2', 'SegregatedStep');
19025 model.sol('sol55').feature('t1').feature('se1').feature('ss2').set('segvar', ↙
{'comp1_a'});
```

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19026 model.sol('sol55').feature('t1').feature('se1').feature('ss2').set('linsolver', ↙
'dDef');
19027 model.sol('sol55').feature('t1').feature('se1').feature('ss2').label('Domain ODEs ↙
and DAEs 2b');
19028 model.sol('sol55').feature('t1').feature('se1').create('ss3', 'SegregatedStep');
19029 model.sol('sol55').feature('t1').feature('se1').feature('ss3').set('segvar', ↙
{'comp1_ACE2'});
19030 model.sol('sol55').feature('t1').feature('se1').feature('ss3').set('linsolver', ↙
'dDef');
19031 model.sol('sol55').feature('t1').feature('se1').feature('ss3').label('Domain ODEs ↙
and DAEs 5b');
19032 model.sol('sol55').feature('t1').feature('se1').create('ss4', 'SegregatedStep');
19033 model.sol('sol55').feature('t1').feature('se1').feature('ss4').set('segvar', ↙
{'comp1_ACE2bAngI'});
19034 model.sol('sol55').feature('t1').feature('se1').feature('ss4').set('linsolver', ↙
'dDef');
19035 model.sol('sol55').feature('t1').feature('se1').feature('ss4').label('Domain ODEs ↙
and DAEs 6b');
19036 model.sol('sol55').feature('t1').feature('se1').create('ss5', 'SegregatedStep');
19037 model.sol('sol55').feature('t1').feature('se1').feature('ss5').set('segvar', ↙
{'comp1_ACE2bAngII'});
19038 model.sol('sol55').feature('t1').feature('se1').feature('ss5').set('linsolver', ↙
'dDef');
19039 model.sol('sol55').feature('t1').feature('se1').feature('ss5').label('Domain ODEs ↙
and DAEs 7a');
19040 model.sol('sol55').feature('t1').feature('se1').create('ss6', 'SegregatedStep');
19041 model.sol('sol55').feature('t1').feature('se1').feature('ss6').set('segvar', ↙
{'comp1_AGT'});
19042 model.sol('sol55').feature('t1').feature('se1').feature('ss6').set('linsolver', ↙
'dDef');
19043 model.sol('sol55').feature('t1').feature('se1').feature('ss6').label('Domain ODEs ↙
and DAEs 2');
19044 model.sol('sol55').feature('t1').feature('se1').create('ss7', 'SegregatedStep');
19045 model.sol('sol55').feature('t1').feature('se1').feature('ss7').set('segvar', ↙
{'comp1_Ang17'});
19046 model.sol('sol55').feature('t1').feature('se1').feature('ss7').set('linsolver', ↙
'dDef');
19047 model.sol('sol55').feature('t1').feature('se1').feature('ss7').label('Domain ODEs ↙
and DAEs 5');
19048 model.sol('sol55').feature('t1').feature('se1').create('ss8', 'SegregatedStep');
19049 model.sol('sol55').feature('t1').feature('se1').feature('ss8').set('segvar', ↙
{'comp1_Ang19'});
19050 model.sol('sol55').feature('t1').feature('se1').feature('ss8').set('linsolver', ↙
'dDef');
19051 model.sol('sol55').feature('t1').feature('se1').feature('ss8').label('Domain ODEs ↙
and DAEs 15');
19052 model.sol('sol55').feature('t1').feature('se1').create('ss9', 'SegregatedStep');
19053 model.sol('sol55').feature('t1').feature('se1').feature('ss9').set('segvar', ↙
{'comp1_AngI'});
19054 model.sol('sol55').feature('t1').feature('se1').feature('ss9').set('linsolver', ↙
```

```
'dDef');
19055 model.sol('sol55').feature('t1').feature('se1').feature('ss9').label('Domain ODEs ↙
and DAEs 3');
19056 model.sol('sol55').feature('t1').feature('se1').create('ss10', 'SegregatedStep');
19057 model.sol('sol55').feature('t1').feature('se1').feature('ss10').set('segvar', ↙
{'comp1_AngII'});
19058 model.sol('sol55').feature('t1').feature('se1').feature('ss10').set('linsolver', ↙
'dDef');
19059 model.sol('sol55').feature('t1').feature('se1').feature('ss10').label('Domain ↙
ODEs and DAEs 4');
19060 model.sol('sol55').feature('t1').feature('se1').create('ss11', 'SegregatedStep');
19061 model.sol('sol55').feature('t1').feature('se1').feature('ss11').set('segvar', ↙
{'comp1_AngIII'});
19062 model.sol('sol55').feature('t1').feature('se1').feature('ss11').set('linsolver', ↙
'dDef');
19063 model.sol('sol55').feature('t1').feature('se1').feature('ss11').label('Domain ↙
ODEs and DAEs 16');
19064 model.sol('sol55').feature('t1').feature('se1').create('ss12', 'SegregatedStep');
19065 model.sol('sol55').feature('t1').feature('se1').feature('ss12').set('segvar', ↙
{'comp1_AngIV'});
19066 model.sol('sol55').feature('t1').feature('se1').feature('ss12').set('linsolver', ↙
'dDef');
19067 model.sol('sol55').feature('t1').feature('se1').feature('ss12').label('Domain ↙
ODEs and DAEs 6');
19068 model.sol('sol55').feature('t1').feature('se1').create('ss13', 'SegregatedStep');
19069 model.sol('sol55').feature('t1').feature('se1').feature('ss13').set('segvar', ↙
{'comp1_antiPD1'});
19070 model.sol('sol55').feature('t1').feature('se1').feature('ss13').set('linsolver', ↙
'dDef');
19071 model.sol('sol55').feature('t1').feature('se1').feature('ss13').label('Domain ↙
ODEs and DAEs 46');
19072 model.sol('sol55').feature('t1').feature('se1').create('ss14', 'SegregatedStep');
19073 model.sol('sol55').feature('t1').feature('se1').feature('ss14').set('segvar', ↙
{'comp1_AT1bAngII'});
19074 model.sol('sol55').feature('t1').feature('se1').feature('ss14').set('linsolver', ↙
'dDef');
19075 model.sol('sol55').feature('t1').feature('se1').feature('ss14').label('Domain ↙
ODEs and DAEs 7');
19076 model.sol('sol55').feature('t1').feature('se1').create('ss15', 'SegregatedStep');
19077 model.sol('sol55').feature('t1').feature('se1').feature('ss15').set('segvar', ↙
{'comp1_AT1R'});
19078 model.sol('sol55').feature('t1').feature('se1').feature('ss15').set('linsolver', ↙
'dDef');
19079 model.sol('sol55').feature('t1').feature('se1').feature('ss15').label('Domain ↙
ODEs and DAEs 19');
19080 model.sol('sol55').feature('t1').feature('se1').create('ss16', 'SegregatedStep');
19081 model.sol('sol55').feature('t1').feature('se1').feature('ss16').set('segvar', ↙
{'comp1_AT2bAngII'});
19082 model.sol('sol55').feature('t1').feature('se1').feature('ss16').set('linsolver', ↙
'dDef');
```

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19083 model.sol('sol55').feature('t1').feature('se1').feature('ss16').label('Domain ↙
ODEs and DAEs 8');
19084 model.sol('sol55').feature('t1').feature('se1').create('ss17', 'SegregatedStep');
19085 model.sol('sol55').feature('t1').feature('se1').feature('ss17').set('segvar', ↙
{'comp1_AT2R'});
19086 model.sol('sol55').feature('t1').feature('se1').feature('ss17').set('linsolver', ↙
'dDef');
19087 model.sol('sol55').feature('t1').feature('se1').feature('ss17').label('Domain ↙
ODEs and DAEs 2c');
19088 model.sol('sol55').feature('t1').feature('se1').create('ss18', 'SegregatedStep');
19089 model.sol('sol55').feature('t1').feature('se1').feature('ss18').set('segvar', ↙
{'comp1_AT4bAngIV'});
19090 model.sol('sol55').feature('t1').feature('se1').feature('ss18').set('linsolver', ↙
'dDef');
19091 model.sol('sol55').feature('t1').feature('se1').feature('ss18').label('Domain ↙
ODEs and DAEs 17');
19092 model.sol('sol55').feature('t1').feature('se1').create('ss19', 'SegregatedStep');
19093 model.sol('sol55').feature('t1').feature('se1').feature('ss19').set('segvar', ↙
{'comp1_AT4R'});
19094 model.sol('sol55').feature('t1').feature('se1').feature('ss19').set('linsolver', ↙
'dDef');
19095 model.sol('sol55').feature('t1').feature('se1').feature('ss19').label('Domain ↙
ODEs and DAEs 4b');
19096 model.sol('sol55').feature('t1').feature('se1').create('ss20', 'SegregatedStep');
19097 model.sol('sol55').feature('t1').feature('se1').feature('ss20').set('segvar', ↙
{'comp1_BA'});
19098 model.sol('sol55').feature('t1').feature('se1').feature('ss20').set('linsolver', ↙
'dDef');
19099 model.sol('sol55').feature('t1').feature('se1').feature('ss20').label('Domain ↙
ODEs and DAEs 45o');
19100 model.sol('sol55').feature('t1').feature('se1').create('ss21', 'SegregatedStep');
19101 model.sol('sol55').feature('t1').feature('se1').feature('ss21').set('segvar', ↙
{'comp1_BN'});
19102 model.sol('sol55').feature('t1').feature('se1').feature('ss21').set('linsolver', ↙
'dDef');
19103 model.sol('sol55').feature('t1').feature('se1').feature('ss21').label('Domain ↙
ODEs and DAEs 45n');
19104 model.sol('sol55').feature('t1').feature('se1').create('ss22', 'SegregatedStep');
19105 model.sol('sol55').feature('t1').feature('se1').feature('ss22').set('segvar', ↙
{'comp1_c'});
19106 model.sol('sol55').feature('t1').feature('se1').feature('ss22').set('linsolver', ↙
'dDef');
19107 model.sol('sol55').feature('t1').feature('se1').feature('ss22').label('Domain ↙
ODEs and DAEs 12');
19108 model.sol('sol55').feature('t1').feature('se1').create('ss23', 'SegregatedStep');
19109 model.sol('sol55').feature('t1').feature('se1').feature('ss23').set('segvar', ↙
{'comp1_Cb'});
19110 model.sol('sol55').feature('t1').feature('se1').feature('ss23').set('linsolver', ↙
'dDef');
19111 model.sol('sol55').feature('t1').feature('se1').feature('ss23').label('Domain ↙
```

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ODEs and DAEs 9');
19112 model.sol('sol55').feature('t1').feature('se1').create('ss24', 'SegregatedStep');
19113 model.sol('sol55').feature('t1').feature('se1').feature('ss24').set('segvar', ↙
{'comp1_DC'});
19114 model.sol('sol55').feature('t1').feature('se1').feature('ss24').set('linsolver', ↙
'dDef');
19115 model.sol('sol55').feature('t1').feature('se1').feature('ss24').label('Domain ↙
ODEs and DAEs 45i');
19116 model.sol('sol55').feature('t1').feature('se1').create('ss25', 'SegregatedStep');
19117 model.sol('sol55').feature('t1').feature('se1').feature('ss25').set('segvar', ↙
{'comp1_DCi'});
19118 model.sol('sol55').feature('t1').feature('se1').feature('ss25').set('linsolver', ↙
'dDef');
19119 model.sol('sol55').feature('t1').feature('se1').feature('ss25').label('Domain ↙
ODEs and DAEs 45j');
19120 model.sol('sol55').feature('t1').feature('se1').create('ss26', 'SegregatedStep');
19121 model.sol('sol55').feature('t1').feature('se1').feature('ss26').set('segvar', ↙
{'comp1_y5'});
19122 model.sol('sol55').feature('t1').feature('se1').feature('ss26').set('linsolver', ↙
'dDef');
19123 model.sol('sol55').feature('t1').feature('se1').feature('ss26').label('Domain ↙
ODEs and DAEs 23');
19124 model.sol('sol55').feature('t1').feature('se1').create('ss27', 'SegregatedStep');
19125 model.sol('sol55').feature('t1').feature('se1').feature('ss27').set('segvar', ↙
{'comp1_y15'});
19126 model.sol('sol55').feature('t1').feature('se1').feature('ss27').set('linsolver', ↙
'dDef');
19127 model.sol('sol55').feature('t1').feature('se1').feature('ss27').label('Domain ↙
ODEs and DAEs 10a');
19128 model.sol('sol55').feature('t1').feature('se1').create('ss28', 'SegregatedStep');
19129 model.sol('sol55').feature('t1').feature('se1').feature('ss28').set('segvar', ↙
{'comp1_y107' 'comp1_y1072'});
19130 model.sol('sol55').feature('t1').feature('se1').feature('ss28').set('linsolver', ↙
'dDef');
19131 model.sol('sol55').feature('t1').feature('se1').feature('ss28').label('Domain ↙
ODEs and DAEs 11a');
19132 model.sol('sol55').feature('t1').feature('se1').create('ss29', 'SegregatedStep');
19133 model.sol('sol55').feature('t1').feature('se1').feature('ss29').set('segvar', ↙
{'comp1_y87'});
19134 model.sol('sol55').feature('t1').feature('se1').feature('ss29').set('linsolver', ↙
'dDef');
19135 model.sol('sol55').feature('t1').feature('se1').feature('ss29').label('Domain ↙
ODEs and DAEs 12a');
19136 model.sol('sol55').feature('t1').feature('se1').create('ss30', 'SegregatedStep');
19137 model.sol('sol55').feature('t1').feature('se1').feature('ss30').set('segvar', ↙
{'comp1_y18'});
19138 model.sol('sol55').feature('t1').feature('se1').feature('ss30').set('linsolver', ↙
'dDef');
19139 model.sol('sol55').feature('t1').feature('se1').feature('ss30').label('Domain ↙
ODEs and DAEs 13a');
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19140 model.sol('sol55').feature('t1').feature('se1').create('ss31', 'SegregatedStep');
19141 model.sol('sol55').feature('t1').feature('se1').feature('ss31').set('segvar', ↙
{'comp1_y19'});
19142 model.sol('sol55').feature('t1').feature('se1').feature('ss31').set('linsolver', ↙
'dDef');
19143 model.sol('sol55').feature('t1').feature('se1').feature('ss31').label('Domain ↙
ODEs and DAEs 14a');
19144 model.sol('sol55').feature('t1').feature('se1').create('ss32', 'SegregatedStep');
19145 model.sol('sol55').feature('t1').feature('se1').feature('ss32').set('segvar', ↙
{'comp1_y108' 'comp1_y1082'});
19146 model.sol('sol55').feature('t1').feature('se1').feature('ss32').set('linsolver', ↙
'dDef');
19147 model.sol('sol55').feature('t1').feature('se1').feature('ss32').label('Domain ↙
ODEs and DAEs 15a');
19148 model.sol('sol55').feature('t1').feature('se1').create('ss33', 'SegregatedStep');
19149 model.sol('sol55').feature('t1').feature('se1').feature('ss33').set('segvar', ↙
{'comp1_y102'});
19150 model.sol('sol55').feature('t1').feature('se1').feature('ss33').set('linsolver', ↙
'dDef');
19151 model.sol('sol55').feature('t1').feature('se1').feature('ss33').label('Domain ↙
ODEs and DAEs 16a');
19152 model.sol('sol55').feature('t1').feature('se1').create('ss34', 'SegregatedStep');
19153 model.sol('sol55').feature('t1').feature('se1').feature('ss34').set('segvar', ↙
{'comp1_y22'});
19154 model.sol('sol55').feature('t1').feature('se1').feature('ss34').set('linsolver', ↙
'dDef');
19155 model.sol('sol55').feature('t1').feature('se1').feature('ss34').label('Domain ↙
ODEs and DAEs 17a');
19156 model.sol('sol55').feature('t1').feature('se1').create('ss35', 'SegregatedStep');
19157 model.sol('sol55').feature('t1').feature('se1').feature('ss35').set('segvar', ↙
{'comp1_y23'});
19158 model.sol('sol55').feature('t1').feature('se1').feature('ss35').set('linsolver', ↙
'dDef');
19159 model.sol('sol55').feature('t1').feature('se1').feature('ss35').label('Domain ↙
ODEs and DAEs 18a');
19160 model.sol('sol55').feature('t1').feature('se1').create('ss36', 'SegregatedStep');
19161 model.sol('sol55').feature('t1').feature('se1').feature('ss36').set('segvar', ↙
{'comp1_y109' 'comp1_y1092'});
19162 model.sol('sol55').feature('t1').feature('se1').feature('ss36').set('linsolver', ↙
'dDef');
19163 model.sol('sol55').feature('t1').feature('se1').feature('ss36').label('Domain ↙
ODEs and DAEs 19a');
19164 model.sol('sol55').feature('t1').feature('se1').create('ss37', 'SegregatedStep');
19165 model.sol('sol55').feature('t1').feature('se1').feature('ss37').set('segvar', ↙
{'comp1_y78'});
19166 model.sol('sol55').feature('t1').feature('se1').feature('ss37').set('linsolver', ↙
'dDef');
19167 model.sol('sol55').feature('t1').feature('se1').feature('ss37').label('Domain ↙
ODEs and DAEs 2h');
19168 model.sol('sol55').feature('t1').feature('se1').create('ss38', 'SegregatedStep');
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19169 model.sol('sol55').feature('t1').feature('se1').feature('ss38').set('segvar', ↙
{'comp1_y92'});
19170 model.sol('sol55').feature('t1').feature('se1').feature('ss38').set('linsolver', ↙
'dDef');
19171 model.sol('sol55').feature('t1').feature('se1').feature('ss38').label('Domain ↙
ODEs and DAEs 20a');
19172 model.sol('sol55').feature('t1').feature('se1').create('ss39', 'SegregatedStep');
19173 model.sol('sol55').feature('t1').feature('se1').feature('ss39').set('segvar', ↙
{'comp1_y26'});
19174 model.sol('sol55').feature('t1').feature('se1').feature('ss39').set('linsolver', ↙
'dDef');
19175 model.sol('sol55').feature('t1').feature('se1').feature('ss39').label('Domain ↙
ODEs and DAEs 21a');
19176 model.sol('sol55').feature('t1').feature('se1').create('ss40', 'SegregatedStep');
19177 model.sol('sol55').feature('t1').feature('se1').feature('ss40').set('segvar', ↙
{'comp1_y27'});
19178 model.sol('sol55').feature('t1').feature('se1').feature('ss40').set('linsolver', ↙
'dDef');
19179 model.sol('sol55').feature('t1').feature('se1').feature('ss40').label('Domain ↙
ODEs and DAEs 22a');
19180 model.sol('sol55').feature('t1').feature('se1').create('ss41', 'SegregatedStep');
19181 model.sol('sol55').feature('t1').feature('se1').feature('ss41').set('segvar', ↙
{'comp1_y110' 'comp1_y1102'});
19182 model.sol('sol55').feature('t1').feature('se1').feature('ss41').set('linsolver', ↙
'dDef');
19183 model.sol('sol55').feature('t1').feature('se1').feature('ss41').label('Domain ↙
ODEs and DAEs 23a');
19184 model.sol('sol55').feature('t1').feature('se1').create('ss42', 'SegregatedStep');
19185 model.sol('sol55').feature('t1').feature('se1').feature('ss42').set('segvar', ↙
{'comp1_y90'});
19186 model.sol('sol55').feature('t1').feature('se1').feature('ss42').set('linsolver', ↙
'dDef');
19187 model.sol('sol55').feature('t1').feature('se1').feature('ss42').label('Domain ↙
ODEs and DAEs 24');
19188 model.sol('sol55').feature('t1').feature('se1').create('ss43', 'SegregatedStep');
19189 model.sol('sol55').feature('t1').feature('se1').feature('ss43').set('segvar', ↙
{'comp1_y30'});
19190 model.sol('sol55').feature('t1').feature('se1').feature('ss43').set('linsolver', ↙
'dDef');
19191 model.sol('sol55').feature('t1').feature('se1').feature('ss43').label('Domain ↙
ODEs and DAEs 25');
19192 model.sol('sol55').feature('t1').feature('se1').create('ss44', 'SegregatedStep');
19193 model.sol('sol55').feature('t1').feature('se1').feature('ss44').set('segvar', ↙
{'comp1_y31'});
19194 model.sol('sol55').feature('t1').feature('se1').feature('ss44').set('linsolver', ↙
'dDef');
19195 model.sol('sol55').feature('t1').feature('se1').feature('ss44').label('Domain ↙
ODEs and DAEs 26');
19196 model.sol('sol55').feature('t1').feature('se1').create('ss45', 'SegregatedStep');
19197 model.sol('sol55').feature('t1').feature('se1').feature('ss45').set('segvar', ↙
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{'comp1_y111' 'comp1_y1112'});
19198 model.sol('sol55').feature('t1').feature('se1').feature('ss45').set('linsolver', ↙
'dDef');
19199 model.sol('sol55').feature('t1').feature('se1').feature('ss45').label('Domain ↙
ODEs and DAEs 27');
19200 model.sol('sol55').feature('t1').feature('se1').create('ss46', 'SegregatedStep');
19201 model.sol('sol55').feature('t1').feature('se1').feature('ss46').set('segvar', ↙
{'comp1_y103'});
19202 model.sol('sol55').feature('t1').feature('se1').feature('ss46').set('linsolver', ↙
'dDef');
19203 model.sol('sol55').feature('t1').feature('se1').feature('ss46').label('Domain ↙
ODEs and DAEs 28');
19204 model.sol('sol55').feature('t1').feature('se1').create('ss47', 'SegregatedStep');
19205 model.sol('sol55').feature('t1').feature('se1').feature('ss47').set('segvar', ↙
{'comp1_y54'});
19206 model.sol('sol55').feature('t1').feature('se1').feature('ss47').set('linsolver', ↙
'dDef');
19207 model.sol('sol55').feature('t1').feature('se1').feature('ss47').label('Domain ↙
ODEs and DAEs 29');
19208 model.sol('sol55').feature('t1').feature('se1').create('ss48', 'SegregatedStep');
19209 model.sol('sol55').feature('t1').feature('se1').feature('ss48').set('segvar', ↙
{'comp1_y85'});
19210 model.sol('sol55').feature('t1').feature('se1').feature('ss48').set('linsolver', ↙
'dDef');
19211 model.sol('sol55').feature('t1').feature('se1').feature('ss48').label('Domain ↙
ODEs and DAEs 3d');
19212 model.sol('sol55').feature('t1').feature('se1').create('ss49', 'SegregatedStep');
19213 model.sol('sol55').feature('t1').feature('se1').feature('ss49').set('segvar', ↙
{'comp1_y55'});
19214 model.sol('sol55').feature('t1').feature('se1').feature('ss49').set('linsolver', ↙
'dDef');
19215 model.sol('sol55').feature('t1').feature('se1').feature('ss49').label('Domain ↙
ODEs and DAEs 30');
19216 model.sol('sol55').feature('t1').feature('se1').create('ss50', 'SegregatedStep');
19217 model.sol('sol55').feature('t1').feature('se1').feature('ss50').set('segvar', ↙
{'comp1_y117' 'comp1_y1172'});
19218 model.sol('sol55').feature('t1').feature('se1').feature('ss50').set('linsolver', ↙
'dDef');
19219 model.sol('sol55').feature('t1').feature('se1').feature('ss50').label('Domain ↙
ODEs and DAEs 31');
19220 model.sol('sol55').feature('t1').feature('se1').create('ss51', 'SegregatedStep');
19221 model.sol('sol55').feature('t1').feature('se1').feature('ss51').set('segvar', ↙
{'comp1_y94'});
19222 model.sol('sol55').feature('t1').feature('se1').feature('ss51').set('linsolver', ↙
'dDef');
19223 model.sol('sol55').feature('t1').feature('se1').feature('ss51').label('Domain ↙
ODEs and DAEs 32');
19224 model.sol('sol55').feature('t1').feature('se1').create('ss52', 'SegregatedStep');
19225 model.sol('sol55').feature('t1').feature('se1').feature('ss52').set('segvar', ↙
{'comp1_y62'});
```

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19226 model.sol('sol55').feature('t1').feature('se1').feature('ss52').set('linsolver', ↙
'dDef');
19227 model.sol('sol55').feature('t1').feature('se1').feature('ss52').label('Domain ↙
ODEs and DAEs 33');
19228 model.sol('sol55').feature('t1').feature('se1').create('ss53', 'SegregatedStep');
19229 model.sol('sol55').feature('t1').feature('se1').feature('ss53').set('segvar', ↙
{'comp1_y63'});
19230 model.sol('sol55').feature('t1').feature('se1').feature('ss53').set('linsolver', ↙
'dDef');
19231 model.sol('sol55').feature('t1').feature('se1').feature('ss53').label('Domain ↙
ODEs and DAEs 34');
19232 model.sol('sol55').feature('t1').feature('se1').create('ss54', 'SegregatedStep');
19233 model.sol('sol55').feature('t1').feature('se1').feature('ss54').set('segvar', ↙
{'comp1_y119' 'comp1_y1192'});
19234 model.sol('sol55').feature('t1').feature('se1').feature('ss54').set('linsolver', ↙
'dDef');
19235 model.sol('sol55').feature('t1').feature('se1').feature('ss54').label('Domain ↙
ODEs and DAEs 35');
19236 model.sol('sol55').feature('t1').feature('se1').create('ss55', 'SegregatedStep');
19237 model.sol('sol55').feature('t1').feature('se1').feature('ss55').set('segvar', ↙
{'comp1_y70'});
19238 model.sol('sol55').feature('t1').feature('se1').feature('ss55').set('linsolver', ↙
'dDef');
19239 model.sol('sol55').feature('t1').feature('se1').feature('ss55').label('Domain ↙
ODEs and DAEs 36');
19240 model.sol('sol55').feature('t1').feature('se1').create('ss56', 'SegregatedStep');
19241 model.sol('sol55').feature('t1').feature('se1').feature('ss56').set('segvar', ↙
{'comp1_y71'});
19242 model.sol('sol55').feature('t1').feature('se1').feature('ss56').set('linsolver', ↙
'dDef');
19243 model.sol('sol55').feature('t1').feature('se1').feature('ss56').label('Domain ↙
ODEs and DAEs 37');
19244 model.sol('sol55').feature('t1').feature('se1').create('ss57', 'SegregatedStep');
19245 model.sol('sol55').feature('t1').feature('se1').feature('ss57').set('segvar', ↙
{'comp1_y121' 'comp1_y1212'});
19246 model.sol('sol55').feature('t1').feature('se1').feature('ss57').set('linsolver', ↙
'dDef');
19247 model.sol('sol55').feature('t1').feature('se1').feature('ss57').label('Domain ↙
ODEs and DAEs 38');
19248 model.sol('sol55').feature('t1').feature('se1').create('ss58', 'SegregatedStep');
19249 model.sol('sol55').feature('t1').feature('se1').feature('ss58').set('segvar', ↙
{'comp1_y98'});
19250 model.sol('sol55').feature('t1').feature('se1').feature('ss58').set('linsolver', ↙
'dDef');
19251 model.sol('sol55').feature('t1').feature('se1').feature('ss58').label('Domain ↙
ODEs and DAEs 39');
19252 model.sol('sol55').feature('t1').feature('se1').create('ss59', 'SegregatedStep');
19253 model.sol('sol55').feature('t1').feature('se1').feature('ss59').set('segvar', ↙
{'comp1_y86'});
19254 model.sol('sol55').feature('t1').feature('se1').feature('ss59').set('linsolver', ↙
```

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'dDef');
19255 model.sol('sol55').feature('t1').feature('se1').feature('ss59').label('Domain ↙
ODEs and DAEs 4a');
19256 model.sol('sol55').feature('t1').feature('se1').create('ss60', 'SegregatedStep');
19257 model.sol('sol55').feature('t1').feature('se1').feature('ss60').set('segvar', ↙
{'comp1_y74'});
19258 model.sol('sol55').feature('t1').feature('se1').feature('ss60').set('linsolver', ↙
'dDef');
19259 model.sol('sol55').feature('t1').feature('se1').feature('ss60').label('Domain ↙
ODEs and DAEs 40');
19260 model.sol('sol55').feature('t1').feature('se1').create('ss61', 'SegregatedStep');
19261 model.sol('sol55').feature('t1').feature('se1').feature('ss61').set('segvar', ↙
{'comp1_y75'});
19262 model.sol('sol55').feature('t1').feature('se1').feature('ss61').set('linsolver', ↙
'dDef');
19263 model.sol('sol55').feature('t1').feature('se1').feature('ss61').label('Domain ↙
ODEs and DAEs 41');
19264 model.sol('sol55').feature('t1').feature('se1').create('ss62', 'SegregatedStep');
19265 model.sol('sol55').feature('t1').feature('se1').feature('ss62').set('segvar', ↙
{'comp1_y124' 'comp1_y1242'});
19266 model.sol('sol55').feature('t1').feature('se1').feature('ss62').set('linsolver', ↙
'dDef');
19267 model.sol('sol55').feature('t1').feature('se1').feature('ss62').label('Domain ↙
ODEs and DAEs 42');
19268 model.sol('sol55').feature('t1').feature('se1').create('ss63', 'SegregatedStep');
19269 model.sol('sol55').feature('t1').feature('se1').feature('ss63').set('segvar', ↙
{'comp1_y125'});
19270 model.sol('sol55').feature('t1').feature('se1').feature('ss63').set('linsolver', ↙
'dDef');
19271 model.sol('sol55').feature('t1').feature('se1').feature('ss63').label('Domain ↙
ODEs and DAEs 43');
19272 model.sol('sol55').feature('t1').feature('se1').create('ss64', 'SegregatedStep');
19273 model.sol('sol55').feature('t1').feature('se1').feature('ss64').set('segvar', ↙
{'comp1_y96'});
19274 model.sol('sol55').feature('t1').feature('se1').feature('ss64').set('linsolver', ↙
'dDef');
19275 model.sol('sol55').feature('t1').feature('se1').feature('ss64').label('Domain ↙
ODEs and DAEs 44');
19276 model.sol('sol55').feature('t1').feature('se1').create('ss65', 'SegregatedStep');
19277 model.sol('sol55').feature('t1').feature('se1').feature('ss65').set('segvar', ↙
{'comp1_Treg'});
19278 model.sol('sol55').feature('t1').feature('se1').feature('ss65').set('linsolver', ↙
'dDef');
19279 model.sol('sol55').feature('t1').feature('se1').feature('ss65').label('Domain ↙
ODEs and DAEs 5f');
19280 model.sol('sol55').feature('t1').feature('se1').create('ss66', 'SegregatedStep');
19281 model.sol('sol55').feature('t1').feature('se1').feature('ss66').set('segvar', ↙
{'comp1_y105' 'comp1_y1052'});
19282 model.sol('sol55').feature('t1').feature('se1').feature('ss66').set('linsolver', ↙
'dDef');
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19283 model.sol('sol55').feature('t1').feature('se1').feature('ss66').label('Domain ↙
ODEs and DAEs 7b');
19284 model.sol('sol55').feature('t1').feature('se1').create('ss67', 'SegregatedStep');
19285 model.sol('sol55').feature('t1').feature('se1').feature('ss67').set('segvar', ↙
{'comp1_y14'});
19286 model.sol('sol55').feature('t1').feature('se1').feature('ss67').set('linsolver', ↙
'dDef');
19287 model.sol('sol55').feature('t1').feature('se1').feature('ss67').label('Domain ↙
ODEs and DAEs 9a');
19288 model.sol('sol55').feature('t1').feature('se1').create('ss68', 'SegregatedStep');
19289 model.sol('sol55').feature('t1').feature('se1').feature('ss68').set('segvar', ↙
{'comp1_ec' 'comp1_ec2' 'comp1_ec3' 'comp1_ec4' 'comp1_ec5' 'comp1_ec6' 'comp1_ec7' ↙
'comp1_ec8' 'comp1_ec9' 'comp1_ec10'  ...
19290 'comp1_ec11' 'comp1_ec12'});
19291 model.sol('sol55').feature('t1').feature('se1').feature('ss68').set('linsolver', ↙
'dDef');
19292 model.sol('sol55').feature('t1').feature('se1').feature('ss68').label('Domain ↙
ODEs and DAEs 22');
19293 model.sol('sol55').feature('t1').feature('se1').create('ss69', 'SegregatedStep');
19294 model.sol('sol55').feature('t1').feature('se1').feature('ss69').set('segvar', ↙
{'comp1_H'});
19295 model.sol('sol55').feature('t1').feature('se1').feature('ss69').set('linsolver', ↙
'dDef');
19296 model.sol('sol55').feature('t1').feature('se1').feature('ss69').label('Domain ↙
ODEs and DAEs 2a');
19297 model.sol('sol55').feature('t1').feature('se1').create('ss70', 'SegregatedStep');
19298 model.sol('sol55').feature('t1').feature('se1').feature('ss70').set('segvar', ↙
{'comp1_iec' 'comp1_iec2' 'comp1_iec3' 'comp1_iec4' 'comp1_iec5' 'comp1_iec6' ↙
'comp1_iec7' 'comp1_iec8' 'comp1_iec9' 'comp1_iec10'  ...
19299 'comp1_iec11' 'comp1_iec12'});
19300 model.sol('sol55').feature('t1').feature('se1').feature('ss70').set('linsolver', ↙
'dDef');
19301 model.sol('sol55').feature('t1').feature('se1').feature('ss70').label('Domain ↙
ODEs and DAEs 2g');
19302 model.sol('sol55').feature('t1').feature('se1').create('ss71', 'SegregatedStep');
19303 model.sol('sol55').feature('t1').feature('se1').feature('ss71').set('segvar', ↙
{'comp1_IF'});
19304 model.sol('sol55').feature('t1').feature('se1').feature('ss71').set('linsolver', ↙
'dDef');
19305 model.sol('sol55').feature('t1').feature('se1').feature('ss71').label('Domain ↙
ODEs and DAEs 46c');
19306 model.sol('sol55').feature('t1').feature('se1').create('ss72', 'SegregatedStep');
19307 model.sol('sol55').feature('t1').feature('se1').feature('ss72').set('segvar', ↙
{'comp1_IL6'});
19308 model.sol('sol55').feature('t1').feature('se1').feature('ss72').set('linsolver', ↙
'dDef');
19309 model.sol('sol55').feature('t1').feature('se1').feature('ss72').label('Domain ↙
ODEs and DAEs 20');
19310 model.sol('sol55').feature('t1').feature('se1').create('ss73', 'SegregatedStep');
19311 model.sol('sol55').feature('t1').feature('se1').feature('ss73').set('segvar', ↙
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{'comp1_IL6R'});
19312 model.sol('sol55').feature('t1').feature('se1').feature('ss73').set('linsolver', ↙
'dDef');
19313 model.sol('sol55').feature('t1').feature('se1').feature('ss73').label('Domain ↙
ODEs and DAEs 2d');
19314 model.sol('sol55').feature('t1').feature('se1').create('ss74', 'SegregatedStep');
19315 model.sol('sol55').feature('t1').feature('se1').feature('ss74').set('segvar', ↙
{'comp1_IL6RbIL6'});
19316 model.sol('sol55').feature('t1').feature('se1').feature('ss74').set('linsolver', ↙
'dDef');
19317 model.sol('sol55').feature('t1').feature('se1').feature('ss74').label('Domain ↙
ODEs and DAEs 3c');
19318 model.sol('sol55').feature('t1').feature('se1').create('ss75', 'SegregatedStep');
19319 model.sol('sol55').feature('t1').feature('se1').feature('ss75').set('segvar', ↙
{'comp1_In'});
19320 model.sol('sol55').feature('t1').feature('se1').feature('ss75').set('linsolver', ↙
'dDef');
19321 model.sol('sol55').feature('t1').feature('se1').feature('ss75').label('Domain ↙
ODEs and DAEs 6a');
19322 model.sol('sol55').feature('t1').feature('se1').create('ss76', 'SegregatedStep');
19323 model.sol('sol55').feature('t1').feature('se1').feature('ss76').set('segvar', ↙
{'comp1_ma'});
19324 model.sol('sol55').feature('t1').feature('se1').feature('ss76').set('linsolver', ↙
'dDef');
19325 model.sol('sol55').feature('t1').feature('se1').feature('ss76').label('Domain ↙
ODEs and DAEs 11');
19326 model.sol('sol55').feature('t1').feature('se1').create('ss77', 'SegregatedStep');
19327 model.sol('sol55').feature('t1').feature('se1').feature('ss77').set('segvar', ↙
{'comp1_MAsbAng17'});
19328 model.sol('sol55').feature('t1').feature('se1').feature('ss77').set('linsolver', ↙
'dDef');
19329 model.sol('sol55').feature('t1').feature('se1').feature('ss77').label('Domain ↙
ODEs and DAEs 18');
19330 model.sol('sol55').feature('t1').feature('se1').create('ss78', 'SegregatedStep');
19331 model.sol('sol55').feature('t1').feature('se1').feature('ss78').set('segvar', ↙
{'comp1_MAsR'});
19332 model.sol('sol55').feature('t1').feature('se1').feature('ss78').set('linsolver', ↙
'dDef');
19333 model.sol('sol55').feature('t1').feature('se1').feature('ss78').label('Domain ↙
ODEs and DAEs 3b');
19334 model.sol('sol55').feature('t1').feature('se1').create('ss79', 'SegregatedStep');
19335 model.sol('sol55').feature('t1').feature('se1').feature('ss79').set('segvar', ↙
{'comp1_n'});
19336 model.sol('sol55').feature('t1').feature('se1').feature('ss79').set('linsolver', ↙
'dDef');
19337 model.sol('sol55').feature('t1').feature('se1').feature('ss79').label('Domain ↙
ODEs and DAEs 10');
19338 model.sol('sol55').feature('t1').feature('se1').create('ss80', 'SegregatedStep');
19339 model.sol('sol55').feature('t1').feature('se1').feature('ss80').set('segvar', ↙
{'comp1_NETs'});
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19340 model.sol('sol55').feature('t1').feature('se1').feature('ss80').set('linsolver', ↙
'dDef');
19341 model.sol('sol55').feature('t1').feature('se1').feature('ss80').label('Domain ↙
ODEs and DAEs 45e');
19342 model.sol('sol55').feature('t1').feature('se1').create('ss81', 'SegregatedStep');
19343 model.sol('sol55').feature('t1').feature('se1').feature('ss81').set('segvar', ↙
{'comp1_PD1'});
19344 model.sol('sol55').feature('t1').feature('se1').feature('ss81').set('linsolver', ↙
'dDef');
19345 model.sol('sol55').feature('t1').feature('se1').feature('ss81').label('Domain ↙
ODEs and DAEs 45f');
19346 model.sol('sol55').feature('t1').feature('se1').create('ss82', 'SegregatedStep');
19347 model.sol('sol55').feature('t1').feature('se1').feature('ss82').set('segvar', ↙
{'comp1_PD1bPDL1'});
19348 model.sol('sol55').feature('t1').feature('se1').feature('ss82').set('linsolver', ↙
'dDef');
19349 model.sol('sol55').feature('t1').feature('se1').feature('ss82').label('Domain ↙
ODEs and DAEs 45g');
19350 model.sol('sol55').feature('t1').feature('se1').create('ss83', 'SegregatedStep');
19351 model.sol('sol55').feature('t1').feature('se1').feature('ss83').set('segvar', ↙
{'comp1_PDL1'});
19352 model.sol('sol55').feature('t1').feature('se1').feature('ss83').set('linsolver', ↙
'dDef');
19353 model.sol('sol55').feature('t1').feature('se1').feature('ss83').label('Domain ↙
ODEs and DAEs 47');
19354 model.sol('sol55').feature('t1').feature('se1').create('ss84', 'SegregatedStep');
19355 model.sol('sol55').feature('t1').feature('se1').feature('ss84').set('segvar', ↙
{'comp1_PL'});
19356 model.sol('sol55').feature('t1').feature('se1').feature('ss84').set('linsolver', ↙
'dDef');
19357 model.sol('sol55').feature('t1').feature('se1').feature('ss84').label('Domain ↙
ODEs and DAEs 45p');
19358 model.sol('sol55').feature('t1').feature('se1').create('ss85', 'SegregatedStep');
19359 model.sol('sol55').feature('t1').feature('se1').feature('ss85').set('segvar', ↙
{'comp1_PS'});
19360 model.sol('sol55').feature('t1').feature('se1').feature('ss85').set('linsolver', ↙
'dDef');
19361 model.sol('sol55').feature('t1').feature('se1').feature('ss85').label('Domain ↙
ODEs and DAEs 45q');
19362 model.sol('sol55').feature('t1').feature('se1').create('ss86', 'SegregatedStep');
19363 model.sol('sol55').feature('t1').feature('se1').feature('ss86').set('segvar', ↙
{'comp1_Renin'});
19364 model.sol('sol55').feature('t1').feature('se1').feature('ss86').set('linsolver', ↙
'dDef');
19365 model.sol('sol55').feature('t1').feature('se1').feature('ss86').label('Domain ↙
ODEs and DAEs 14');
19366 model.sol('sol55').feature('t1').feature('se1').create('ss87', 'SegregatedStep');
19367 model.sol('sol55').feature('t1').feature('se1').feature('ss87').set('segvar', ↙
{'comp1_sACE2'});
19368 model.sol('sol55').feature('t1').feature('se1').feature('ss87').set('linsolver', ↙
```

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'dDef');
19369 model.sol('sol55').feature('t1').feature('se1').feature('ss87').label('Domain ↙
ODEs and DAEs 2f');
19370 model.sol('sol55').feature('t1').feature('se1').create('ss88', 'SegregatedStep');
19371 model.sol('sol55').feature('t1').feature('se1').feature('ss88').set('segvar', ↙
{'comp1_sIL6R'});
19372 model.sol('sol55').feature('t1').feature('se1').feature('ss88').set('linsolver', ↙
'dDef');
19373 model.sol('sol55').feature('t1').feature('se1').feature('ss88').label('Domain ↙
ODEs and DAEs 21');
19374 model.sol('sol55').feature('t1').feature('se1').create('ss89', 'SegregatedStep');
19375 model.sol('sol55').feature('t1').feature('se1').feature('ss89').set('segvar', ↙
{'comp1_sIL6RbIL6'});
19376 model.sol('sol55').feature('t1').feature('se1').feature('ss89').set('linsolver', ↙
'dDef');
19377 model.sol('sol55').feature('t1').feature('se1').feature('ss89').label('Domain ↙
ODEs and DAEs');
19378 model.sol('sol55').feature('t1').feature('se1').create('ss90', 'SegregatedStep');
19379 model.sol('sol55').feature('t1').feature('se1').feature('ss90').set('segvar', ↙
{'comp1_TE'});
19380 model.sol('sol55').feature('t1').feature('se1').feature('ss90').set('linsolver', ↙
'dDef');
19381 model.sol('sol55').feature('t1').feature('se1').feature('ss90').label('Domain ↙
ODEs and DAEs 45m');
19382 model.sol('sol55').feature('t1').feature('se1').create('ss91', 'SegregatedStep');
19383 model.sol('sol55').feature('t1').feature('se1').feature('ss91').set('segvar', ↙
{'comp1_ThE'});
19384 model.sol('sol55').feature('t1').feature('se1').feature('ss91').set('linsolver', ↙
'dDef');
19385 model.sol('sol55').feature('t1').feature('se1').feature('ss91').label('Domain ↙
ODEs and DAEs 45k');
19386 model.sol('sol55').feature('t1').feature('se1').create('ss92', 'SegregatedStep');
19387 model.sol('sol55').feature('t1').feature('se1').feature('ss92').set('segvar', ↙
{'comp1_ThM'});
19388 model.sol('sol55').feature('t1').feature('se1').feature('ss92').set('linsolver', ↙
'dDef');
19389 model.sol('sol55').feature('t1').feature('se1').feature('ss92').label('Domain ↙
ODEs and DAEs 45t');
19390 model.sol('sol55').feature('t1').feature('se1').create('ss93', 'SegregatedStep');
19391 model.sol('sol55').feature('t1').feature('se1').feature('ss93').set('segvar', ↙
{'comp1_ThN'});
19392 model.sol('sol55').feature('t1').feature('se1').feature('ss93').set('linsolver', ↙
'dDef');
19393 model.sol('sol55').feature('t1').feature('se1').feature('ss93').label('Domain ↙
ODEs and DAEs 46d');
19394 model.sol('sol55').feature('t1').feature('se1').create('ss94', 'SegregatedStep');
19395 model.sol('sol55').feature('t1').feature('se1').feature('ss94').set('segvar', ↙
{'comp1_TM'});
19396 model.sol('sol55').feature('t1').feature('se1').feature('ss94').set('linsolver', ↙
'dDef');
```

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19397 model.sol('sol55').feature('t1').feature('se1').feature('ss94').label('Domain ↙
ODEs and DAEs 45u');
19398 model.sol('sol55').feature('t1').feature('se1').create('ss95', 'SegregatedStep');
19399 model.sol('sol55').feature('t1').feature('se1').feature('ss95').set('segvar', ↙
{'comp1_TN'});
19400 model.sol('sol55').feature('t1').feature('se1').feature('ss95').set('linsolver', ↙
'dDef');
19401 model.sol('sol55').feature('t1').feature('se1').feature('ss95').label('Domain ↙
ODEs and DAEs 45l');
19402 model.sol('sol55').feature('t1').feature('se1').create('ss96', 'SegregatedStep');
19403 model.sol('sol55').feature('t1').feature('se1').feature('ss96').set('segvar', ↙
{'comp1_Va'});
19404 model.sol('sol55').feature('t1').feature('se1').feature('ss96').set('linsolver', ↙
'dDef');
19405 model.sol('sol55').feature('t1').feature('se1').feature('ss96').label('Domain ↙
ODEs and DAEs 5c');
19406 model.sol('sol55').feature('t1').feature('se1').create('ss97', 'SegregatedStep');
19407 model.sol('sol55').feature('t1').feature('se1').feature('ss97').set('segvar', ↙
{'comp1_Vab'});
19408 model.sol('sol55').feature('t1').feature('se1').feature('ss97').set('linsolver', ↙
'dDef');
19409 model.sol('sol55').feature('t1').feature('se1').feature('ss97').label('Domain ↙
ODEs and DAEs 6d');
19410 model.sol('sol55').feature('t1').feature('se1').create('ss98', 'SegregatedStep');
19411 model.sol('sol55').feature('t1').feature('se1').feature('ss98').set('segvar', ↙
{'comp1_Vaint'});
19412 model.sol('sol55').feature('t1').feature('se1').feature('ss98').set('linsolver', ↙
'dDef');
19413 model.sol('sol55').feature('t1').feature('se1').feature('ss98').label('Domain ↙
ODEs and DAEs 5d');
19414 model.sol('sol55').feature('t1').feature('se1').create('ss99', 'SegregatedStep');
19415 model.sol('sol55').feature('t1').feature('se1').feature('ss99').set('segvar', ↙
{'comp1_VaPro'});
19416 model.sol('sol55').feature('t1').feature('se1').feature('ss99').set('linsolver', ↙
'dDef');
19417 model.sol('sol55').feature('t1').feature('se1').feature('ss99').label('Domain ↙
ODEs and DAEs 5e');
19418 model.sol('sol55').feature('t1').feature('se1').create('ss100',↙
'SegregatedStep');
19419 model.sol('sol55').feature('t1').feature('se1').feature('ss100').set('segvar', ↙
{'comp1_Vint' 'comp1_Vint1' 'comp1_Vint2' 'comp1_Vint3' 'comp1_Vint4' 'comp1_Vint5' ↙
'comp1_Vint6' 'comp1_Vint7' 'comp1_Vint8' 'comp1_Vint9'});
19420 model.sol('sol55').feature('t1').feature('se1').feature('ss100').set('linsolver', ↙
'dDef');
19421 model.sol('sol55').feature('t1').feature('se1').feature('ss100').label('Domain ↙
ODEs and DAEs 3a');
19422 model.sol('sol55').feature('t1').feature('se1').create('ss101',↙
'SegregatedStep');
19423 model.sol('sol55').feature('t1').feature('se1').feature('ss101').set('segvar', ↙
{'comp1_y200' 'comp1_y201' 'comp1_y202' 'comp1_y203' 'comp1_y204' 'comp1_y205' ↙
```

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'comp1_y206' 'comp1_y207' 'comp1_y208' 'comp1_y209'  ...
19424 'comp1_y210'});
19425 model.sol('sol55').feature('t1').feature('se1').feature('ss101').set('linsolver', ↙
'dDef');
19426 model.sol('sol55').feature('t1').feature('se1').feature('ss101').label('Domain ↙
ODEs and DAEs 45s');
19427 model.sol('sol55').feature('t1').feature('se1').create('ss102', ↙
'SegregatedStep');
19428 model.sol('sol55').feature('t1').feature('se1').feature('ss102').set('segvar', ↙
{'comp1_y300' 'comp1_y301' 'comp1_y302' 'comp1_y303' 'comp1_y304' 'comp1_y305' ↙
'comp1_y306' 'comp1_y307' 'comp1_y308' 'comp1_y309'  ...
19429 'comp1_y310'});
19430 model.sol('sol55').feature('t1').feature('se1').feature('ss102').set('linsolver', ↙
'dDef');
19431 model.sol('sol55').feature('t1').feature('se1').feature('ss102').label('Domain ↙
ODEs and DAEs 45v');
19432 model.sol('sol55').feature('t1').feature.remove('fcDef');
19433 model.sol('sol55').attach('std2');
19434 model.sol('sol55').feature('t1').create('fc1', 'FullyCoupled');
19435 model.sol('sol55').feature('t1').feature('dDef').set('linsolver', 'pardiso');
19436 model.sol('sol55').runAll;
19437
19438 model.result('pg41').run;
19439 model.result('pg40').run;
19440 model.result('pg41').run;
19441 model.result('pg41').setIndex('looplevel', 29, 0);
19442 model.result('pg41').run;
19443 model.result('pg41').set('data', 'dset4');
19444 model.result('pg41').set('looplevel', [37]);
19445 model.result('pg41').run;
19446 model.result('pg41').run;
19447 model.result('pg41').run;
19448 model.result('pg41').run;
19449 model.result('pg41').run;
19450 model.result('pg41').feature('slc1').set('expr', 'VaPro');
19451 model.result('pg41').run;
19452 model.result('pg41').run;
19453 model.result('pg41').set('data', 'dset5');
19454 model.result('pg41').run;
19455 model.result('pg41').run;
19456 model.result('pg41').run;
19457 model.result('pg41').set('data', 'dset4');
19458 model.result('pg41').run;
19459 model.result('pg41').run;
19460 model.result('pg41').run;
19461 model.result('pg41').run;
19462 model.result('pg41').feature('slc1').set('expr', 'Ci');
19463 model.result('pg41').run;
19464 model.result('pg41').run;
19465 model.result('pg41').set('looplevel', [2]);
```

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19466 model.result('pg41').run;
19467 model.result('pg41').run;
19468 model.result('pg41').run;
19469 model.result('pg41').set('data', 'dset5');
19470 model.result('pg41').run;
19471 model.result('pg41').run;
19472 model.result('pg41').run;
19473 model.result('pg41').setIndex('looplevel', 29, 0);
19474 model.result('pg41').run;
19475
19476 model.component('comp1').physics('Ci').active(false);
19477
19478 model.component('comp1').variable('var24').set('Ci', '0[M]');
19479
19480 model.sol('sol54').runAll;
19481
19482 model.result('pg40').run;
19483 model.result('pg41').run;
19484 model.result('pg40').run;
19485 model.result('pg40').run;
19486 model.result('pg41').run;
19487 model.result('pg41').feature('slc1').set('expr', 'VaPro');
19488 model.result('pg41').run;
19489 model.result('pg41').run;
19490 model.result('pg41').set('data', 'dset4');
19491 model.result('pg41').run;
19492 model.result('pg41').run;
19493 model.result('pg41').setIndex('looplevel', 41, 0);
19494 model.result('pg41').run;
19495
19496 model.sol('sol55').runAll;
19497
19498 model.result('pg42').run;
19499 model.result('pg41').run;
19500 model.result('pg41').run;
19501 model.result('pg41').set('data', 'dset5');
19502 model.result('pg41').run;
19503 model.result('pg41').setIndex('looplevel', 4, 0);
19504 model.result('pg41').run;
19505 model.result('pg41').setIndex('looplevel', 13, 0);
19506 model.result('pg41').run;
19507 model.result('pg41').run;
19508 model.result('pg40').run;
19509 model.result('pg40').feature('ptgr2').set('expr', 'A');
19510 model.result('pg40').run;
19511 model.result('pg40').feature('ptgr2').set('expr', 'pAS');
19512 model.result('pg40').run;
19513 model.result('pg40').feature('ptgr2').set('unit', '1/d');
19514 model.result('pg40').run;
19515 model.result('pg40').feature('ptgr2').set('expr', 'pAL');
```

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19516 model.result('pg40').run;
19517
19518 model.study('std1').feature.remove('param');
19519 model.study('std1').create('sens', 'Sensitivity');
19520 model.study('std1').feature('sens').set('optobj', {'comp1.KtiecIn'});
19521 model.study('std1').feature('sens').set('descr', {''});
19522 model.study('std1').feature('sens').set('optobj', {'comp1.KtiecIn' 'comp1. ↙
AT4RbANGIV__0'});
19523 model.study('std1').feature('sens').set('descr', {'' ''});
19524 model.study('std1').feature('sens').set('gradientMethod', 'adjoint');
19525 model.study('std1').feature('sens').set('optobj', {'comp1.KtiecIn' 'comp1. ↙
AT4RbANGIV__0' 'comp1.disinf_Intestine'});
19526 model.study('std1').feature('sens').set('descr', {'' '' ''});
19527
19528 model.component('comp1').physics.create('sens', 'Sensitivity', 'geom1');
19529
19530 model.study('std1').feature('sens').activate('sens', true);
19531 model.study('std1').feature('time').activate('sens', true);
19532 model.study('std1').feature('time2').activate('sens', true);
19533 model.study('std2').feature('time').activate('sens', true);
19534
19535 model.component('comp1').physics('sens').create('cvar1', 'ControlVariableField', ↙
3);
19536 model.component('comp1').physics('sens').feature('cvar1').set ↙
('shapeFunctionType', 'shdisc');
19537 model.component('comp1').physics('sens').feature('cvar1').set('order', 0);
19538 model.component('comp1').physics('sens').feature('cvar1').selection.set([1]);
19539 model.component('comp1').physics('sens').feature('cvar1').selection.all;
19540
19541 model.sol('sol54').runAll;
19542
19543 model.result('pg40').run;
19544 model.result('pg142').run;
19545 model.result('pg142').run;
19546 model.result('pg142').feature('slc1').set('expr', 'fsens(p)');
19547 model.result('pg142').run;
19548 model.result('pg142').feature('slc1').set('expr', 'fsens(A)');
19549 model.result('pg142').run;
19550 model.result('pg142').run;
19551 model.result('pg142').feature('slc1').set('expr', 'KtiecIn');
19552 model.result('pg142').run;
19553 model.result('pg142').run;
19554 model.result('pg142').set('data', 'dset4');
19555 model.result('pg142').run;
19556 model.result('pg142').feature('slc1').set('expr', 'fsens(KtiecIn)');
19557 model.result('pg142').feature.remove('slc1');
19558 model.result('pg142').run;
19559 model.result('pg142').create('vol1', 'Volume');
19560 model.result('pg142').run;
19561 model.result('pg142').feature('vol1').set('expr', 'p');
```

```
model.result('pg142').run;
model.result('pg142').feature('vol1').set('expr', 'fsens(KtiecIn)');
model.result('pg142').run;
model.result('pg142').setIndex('looplevel', 'interp', 0);
model.result('pg142').setIndex('looplevel', 41, 0);
model.result('pg142').set('data', 'dset5');
model.result('pg142').run;
model.result('pg142').feature('vol1').set('expr', 'fsens(p)');
model.result('pg142').feature('vol1').set('data', 'dset4');

model.study('std1').feature('time').set('pdistrib', false);

model.component('comp1').physics('sens').feature('cvar1').set↙
('fieldVariableName', 'psen');
model.component('comp1').physics('sens').feature('cvar1').set('order', 2);

model.sol('sol54').runAll;

model.result('pg40').run;
model.result('pg142').run;
model.result('pg142').set('data', 'dset4');

model.component('comp1').variable('var1').rename('dB', 'dB_old');

model.component('comp1').physics('sens').feature('cvar1').set↙
('fieldVariableName', 'dB');
model.component('comp1').physics('sens').feature('cvar1').set('initialValue', ↙
'2e-3 [1/d]');
model.component('comp1').physics('sens').feature('cvar1').set('scale', '1e-4');

model.sol('sol54').runFromTo('st1', 'v1');

model.result('pg40').run;

model.sol('sol54').runAll;

model.result('pg40').run;
model.result('pg142').run;
model.result('pg142').feature('vol1').set('expr', 'fsens(dB)');
model.result('pg142').feature('vol1').setIndex('looplevel', 41, 0);
model.result('pg142').feature('vol1').set('expr', 'dB');
model.result('pg142').run;
model.result('pg142').run;
model.result('pg142').run;
model.result('pg142').setIndex('looplevel', 41, 0);
model.result('pg142').run;
model.result('pg142').run;
model.result('pg142').feature('vol1').set('solutionparams', 'manual');
model.result('pg142').run;
model.result('pg142').run;
```

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19609 model.result('pg142').feature('vol1').set('expr', 'fsens(dB)');
19610 model.result('pg142').run;
19611 model.result('pg142').run;
19612 model.result('pg40').run;
19613 model.result('pg40').feature('ptgr2').set('expr', 'dB');
19614 model.result('pg40').run;
19615 model.result('pg40').feature('ptgr2').set('expr', 'fsens(dB)');
19616
19617 model.study('std2').create('sens', 'Sensitivity');
19618 model.study('std2').feature.remove('sens');
19619 model.study('std1').create('stat', 'Stationary');
19620 model.study('std1').feature.remove('sens');
19621 model.study('std1').feature.remove('stat');
19622 model.study.create('std3');
19623 model.study('std3').create('stat', 'Stationary');
19624 model.study('std3').feature('stat').activate('AGT', true);
19625 model.study('std3').feature('stat').activate('Renin', true);
19626 model.study('std3').feature('stat').activate('AngI', true);
19627 model.study('std3').feature('stat').activate('AngII', true);
19628 model.study('std3').feature('stat').activate('Ang17', true);
19629 model.study('std3').feature('stat').activate('Ang19', true);
19630 model.study('std3').feature('stat').activate('AngIII', true);
19631 model.study('std3').feature('stat').activate('AngIV', true);
19632 model.study('std3').feature('stat').activate('AT1bAngII', true);
19633 model.study('std3').feature('stat').activate('AT2bAngII', true);
19634 model.study('std3').feature('stat').activate('AT4bAngIV', true);
19635 model.study('std3').feature('stat').activate('MAsbAng17', true);
19636 model.study('std3').feature('stat').activate('Cb', true);
19637 model.study('std3').feature('stat').activate('H', true);
19638 model.study('std3').feature('stat').activate('Vint', true);
19639 model.study('std3').feature('stat').activate('In', true);
19640 model.study('std3').feature('stat').activate('Ci', true);
19641 model.study('std3').feature('stat').activate('n', true);
19642 model.study('std3').feature('stat').activate('ma', true);
19643 model.study('std3').feature('stat').activate('c', true);
19644 model.study('std3').feature('stat').activate('a', true);
19645 model.study('std3').feature('stat').activate('AT1R', true);
19646 model.study('std3').feature('stat').activate('AT2R', true);
19647 model.study('std3').feature('stat').activate('MAsR', true);
19648 model.study('std3').feature('stat').activate('AT4R', true);
19649 model.study('std3').feature('stat').activate('ACE2', true);
19650 model.study('std3').feature('stat').activate('ACE2bAngI', true);
19651 model.study('std3').feature('stat').activate('ACE2bAngII', true);
19652 model.study('std3').feature('stat').activate('IL6', true);
19653 model.study('std3').feature('stat').activate('IL6R', true);
19654 model.study('std3').feature('stat').activate('IL6RbIL6', true);
19655 model.study('std3').feature('stat').activate('sIL6RbIL6', true);
19656 model.study('std3').feature('stat').activate('sIL6R', true);
19657 model.study('std3').feature('stat').activate('sACE2', true);
19658 model.study('std3').feature('stat').activate('ec', true);
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19659 model.study('std3').feature('stat').activate('iec', true);
19660 model.study('std3').feature('stat').activate('dode', true);
19661 model.study('std3').feature('stat').activate('dode2', true);
19662 model.study('std3').feature('stat').activate('dode3', true);
19663 model.study('std3').feature('stat').activate('dode4', true);
19664 model.study('std3').feature('stat').activate('dode7', true);
19665 model.study('std3').feature('stat').activate('dode9', true);
19666 model.study('std3').feature('stat').activate('dode10', true);
19667 model.study('std3').feature('stat').activate('dode11', true);
19668 model.study('std3').feature('stat').activate('dode12', true);
19669 model.study('std3').feature('stat').activate('dode13', true);
19670 model.study('std3').feature('stat').activate('dode14', true);
19671 model.study('std3').feature('stat').activate('dode15', true);
19672 model.study('std3').feature('stat').activate('dode16', true);
19673 model.study('std3').feature('stat').activate('dode17', true);
19674 model.study('std3').feature('stat').activate('dode18', true);
19675 model.study('std3').feature('stat').activate('dode19', true);
19676 model.study('std3').feature('stat').activate('dode20', true);
19677 model.study('std3').feature('stat').activate('dode21', true);
19678 model.study('std3').feature('stat').activate('dode22', true);
19679 model.study('std3').feature('stat').activate('dode24', true);
19680 model.study('std3').feature('stat').activate('dode23', true);
19681 model.study('std3').feature('stat').activate('dode25', true);
19682 model.study('std3').feature('stat').activate('dode26', true);
19683 model.study('std3').feature('stat').activate('dode27', true);
19684 model.study('std3').feature('stat').activate('dode28', true);
19685 model.study('std3').feature('stat').activate('dode29', true);
19686 model.study('std3').feature('stat').activate('dode30', true);
19687 model.study('std3').feature('stat').activate('dode31', true);
19688 model.study('std3').feature('stat').activate('dode32', true);
19689 model.study('std3').feature('stat').activate('dode33', true);
19690 model.study('std3').feature('stat').activate('dode34', true);
19691 model.study('std3').feature('stat').activate('dode35', true);
19692 model.study('std3').feature('stat').activate('dode36', true);
19693 model.study('std3').feature('stat').activate('dode37', true);
19694 model.study('std3').feature('stat').activate('dode38', true);
19695 model.study('std3').feature('stat').activate('dode39', true);
19696 model.study('std3').feature('stat').activate('dode40', true);
19697 model.study('std3').feature('stat').activate('dode41', true);
19698 model.study('std3').feature('stat').activate('dode42', true);
19699 model.study('std3').feature('stat').activate('dode43', true);
19700 model.study('std3').feature('stat').activate('dode44', true);
19701 model.study('std3').feature('stat').activate('PD1bPDL1', true);
19702 model.study('std3').feature('stat').activate('antiPD1', true);
19703 model.study('std3').feature('stat').activate('PDL_1', true);
19704 model.study('std3').feature('stat').activate('PD1', true);
19705 model.study('std3').feature('stat').activate('NETs', true);
19706 model.study('std3').feature('stat').activate('IF', true);
19707 model.study('std3').feature('stat').activate('DC', true);
19708 model.study('std3').feature('stat').activate('DCi', true);
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19709 model.study('std3').feature('stat').activate('ThN', true);
19710 model.study('std3').feature('stat').activate('ThE', true);
19711 model.study('std3').feature('stat').activate('TN', true);
19712 model.study('std3').feature('stat').activate('TE', true);
19713 model.study('std3').feature('stat').activate('BN', true);
19714 model.study('std3').feature('stat').activate('BA', true);
19715 model.study('std3').feature('stat').activate('PL', true);
19716 model.study('std3').feature('stat').activate('PS', true);
19717 model.study('std3').feature('stat').activate('A', true);
19718 model.study('std3').feature('stat').activate('y200', true);
19719 model.study('std3').feature('stat').activate('ThM', true);
19720 model.study('std3').feature('stat').activate('TM', true);
19721 model.study('std3').feature('stat').activate('y300', true);
19722 model.study('std3').feature('stat').activate('Va', true);
19723 model.study('std3').feature('stat').activate('Vab', true);
19724 model.study('std3').feature('stat').activate('Vaint', true);
19725 model.study('std3').feature('stat').activate('VaTran', true);
19726 model.study('std3').feature('stat').activate('VaPro', true);
19727 model.study('std3').feature('stat').activate('dode5', true);
19728 model.study('std3').feature('stat').activate('sens', true);
19729 model.study('std3').feature('stat').set('useinitsol', true);
19730 model.study('std3').feature('stat').set('initmethod', 'sol');
19731 model.study('std3').feature('stat').set('initstudy', 'std3');
19732 model.study('std3').feature('stat').set('solnum', 'last');
19733 model.study('std3').create('sens', 'Sensitivity');
19734 model.study('std3').feature('sens').set('optobj', {'comp1.Kif'});
19735 model.study('std3').feature('sens').set('descr', {''});
19736 model.study('std3').feature('sens').set('optobj', {'comp1.KtiecIn'});
19737 model.study('std3').feature('sens').set('descr', {''});
19738 model.study('std3').feature('sens').set('optobj', {'comp1.KtiecIn' 'comp1. ↙
KtiecIn'});
19739 model.study('std3').feature('sens').set('descr', {'' ''});
19740 model.study('std3').feature('sens').remove('descr', 0);
19741 model.study('std3').feature('sens').remove('optobjEvaluateFor', 0);
19742 model.study('std3').feature('sens').remove('optobj', [0]);
19743 model.study('std3').feature('sens').set('optobj', {'comp1.KtiecIn' 'comp1.Kif'});
19744 model.study('std3').feature('sens').set('descr', {'' ''});
19745 model.study('std3').feature('stat').set('initstudy', 'std1');
19746
19747 model.sol.create('sol56');
19748 model.sol('sol56').study('std3');
19749
19750 model.study('std3').feature('stat').set('notlistsolnum', 1);
19751 model.study('std3').feature('stat').set('notsolnum', '1');
19752 model.study('std3').feature('stat').set('listsolnum', 1);
19753 model.study('std3').feature('stat').set('solnum', 'last');
19754
19755 model.sol('sol56').create('st1', 'StudyStep');
19756 model.sol('sol56').feature('st1').set('study', 'std3');
19757 model.sol('sol56').feature('st1').set('studystep', 'stat');
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model.sol('sol56').create('v1', 'Variables');
model.sol('sol56').feature('v1').set('control', 'stat');
model.sol('sol56').create('s1', 'Stationary');
model.sol('sol56').feature('s1').create('sn1', 'Sensitivity');
model.sol('sol56').feature('s1').feature('sn1').set('control', 'sens');
model.sol('sol56').feature('s1').create('se1', 'Segregated');
model.sol('sol56').feature('s1').feature('se1').feature.remove('ssDef');
model.sol('sol56').feature('s1').feature('se1').create('ss1', 'SegregatedStep');
model.sol('sol56').feature('s1').feature('se1').feature('ss1').set('segvar', ↙
{'comp1_A' 'comp1_dB'});
model.sol('sol56').feature('s1').feature('se1').feature('ss1').set('linsolver', ↙
'dDef');
model.sol('sol56').feature('s1').feature('se1').feature('ss1').label('Domain ODEs ↙
and DAEs 45r');
model.sol('sol56').feature('s1').feature('se1').create('ss2', 'SegregatedStep');
model.sol('sol56').feature('s1').feature('se1').feature('ss2').set('segvar', ↙
{'comp1_a' 'comp1_dB'});
model.sol('sol56').feature('s1').feature('se1').feature('ss2').set('linsolver', ↙
'dDef');
model.sol('sol56').feature('s1').feature('se1').feature('ss2').label('Domain ODEs ↙
and DAEs 2b');
model.sol('sol56').feature('s1').feature('se1').create('ss3', 'SegregatedStep');
model.sol('sol56').feature('s1').feature('se1').feature('ss3').set('segvar', ↙
{'comp1_ACE2' 'comp1_dB'});
model.sol('sol56').feature('s1').feature('se1').feature('ss3').set('linsolver', ↙
'dDef');
model.sol('sol56').feature('s1').feature('se1').feature('ss3').label('Domain ODEs ↙
and DAEs 5b');
model.sol('sol56').feature('s1').feature('se1').create('ss4', 'SegregatedStep');
model.sol('sol56').feature('s1').feature('se1').feature('ss4').set('segvar', ↙
{'comp1_ACE2bAngI' 'comp1_dB'});
model.sol('sol56').feature('s1').feature('se1').feature('ss4').set('linsolver', ↙
'dDef');
model.sol('sol56').feature('s1').feature('se1').feature('ss4').label('Domain ODEs ↙
and DAEs 6b');
model.sol('sol56').feature('s1').feature('se1').create('ss5', 'SegregatedStep');
model.sol('sol56').feature('s1').feature('se1').feature('ss5').set('segvar', ↙
{'comp1_ACE2bAngII' 'comp1_dB'});
model.sol('sol56').feature('s1').feature('se1').feature('ss5').set('linsolver', ↙
'dDef');
model.sol('sol56').feature('s1').feature('se1').feature('ss5').label('Domain ODEs ↙
and DAEs 7a');
model.sol('sol56').feature('s1').feature('se1').create('ss6', 'SegregatedStep');
model.sol('sol56').feature('s1').feature('se1').feature('ss6').set('segvar', ↙
{'comp1_AGT' 'comp1_dB'});
model.sol('sol56').feature('s1').feature('se1').feature('ss6').set('linsolver', ↙
'dDef');
model.sol('sol56').feature('s1').feature('se1').feature('ss6').label('Domain ODEs ↙
and DAEs 2');
model.sol('sol56').feature('s1').feature('se1').create('ss7', 'SegregatedStep');
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19790 model.sol('sol56').feature('s1').feature('se1').feature('ss7').set('segvar', ↙
{'comp1_Ang17' 'comp1_dB'});
19791 model.sol('sol56').feature('s1').feature('se1').feature('ss7').set('linsolver', ↙
'dDef');
19792 model.sol('sol56').feature('s1').feature('se1').feature('ss7').label('Domain ODEs ↙
and DAEs 5');
19793 model.sol('sol56').feature('s1').feature('se1').create('ss8', 'SegregatedStep');
19794 model.sol('sol56').feature('s1').feature('se1').feature('ss8').set('segvar', ↙
{'comp1_Ang19' 'comp1_dB'});
19795 model.sol('sol56').feature('s1').feature('se1').feature('ss8').set('linsolver', ↙
'dDef');
19796 model.sol('sol56').feature('s1').feature('se1').feature('ss8').label('Domain ODEs ↙
and DAEs 15');
19797 model.sol('sol56').feature('s1').feature('se1').create('ss9', 'SegregatedStep');
19798 model.sol('sol56').feature('s1').feature('se1').feature('ss9').set('segvar', ↙
{'comp1_AngI' 'comp1_dB'});
19799 model.sol('sol56').feature('s1').feature('se1').feature('ss9').set('linsolver', ↙
'dDef');
19800 model.sol('sol56').feature('s1').feature('se1').feature('ss9').label('Domain ODEs ↙
and DAEs 3');
19801 model.sol('sol56').feature('s1').feature('se1').create('ss10', 'SegregatedStep');
19802 model.sol('sol56').feature('s1').feature('se1').feature('ss10').set('segvar', ↙
{'comp1_AngII' 'comp1_dB'});
19803 model.sol('sol56').feature('s1').feature('se1').feature('ss10').set('linsolver', ↙
'dDef');
19804 model.sol('sol56').feature('s1').feature('se1').feature('ss10').label('Domain ↙
ODEs and DAEs 4');
19805 model.sol('sol56').feature('s1').feature('se1').create('ss11', 'SegregatedStep');
19806 model.sol('sol56').feature('s1').feature('se1').feature('ss11').set('segvar', ↙
{'comp1_AngIII' 'comp1_dB'});
19807 model.sol('sol56').feature('s1').feature('se1').feature('ss11').set('linsolver', ↙
'dDef');
19808 model.sol('sol56').feature('s1').feature('se1').feature('ss11').label('Domain ↙
ODEs and DAEs 16');
19809 model.sol('sol56').feature('s1').feature('se1').create('ss12', 'SegregatedStep');
19810 model.sol('sol56').feature('s1').feature('se1').feature('ss12').set('segvar', ↙
{'comp1_AngIV' 'comp1_dB'});
19811 model.sol('sol56').feature('s1').feature('se1').feature('ss12').set('linsolver', ↙
'dDef');
19812 model.sol('sol56').feature('s1').feature('se1').feature('ss12').label('Domain ↙
ODEs and DAEs 6');
19813 model.sol('sol56').feature('s1').feature('se1').create('ss13', 'SegregatedStep');
19814 model.sol('sol56').feature('s1').feature('se1').feature('ss13').set('segvar', ↙
{'comp1_antiPD1' 'comp1_dB'});
19815 model.sol('sol56').feature('s1').feature('se1').feature('ss13').set('linsolver', ↙
'dDef');
19816 model.sol('sol56').feature('s1').feature('se1').feature('ss13').label('Domain ↙
ODEs and DAEs 46');
19817 model.sol('sol56').feature('s1').feature('se1').create('ss14', 'SegregatedStep');
19818 model.sol('sol56').feature('s1').feature('se1').feature('ss14').set('segvar', ↙
```

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{'comp1_AT1bAngII' 'comp1_dB'});
19819 model.sol('sol56').feature('s1').feature('se1').feature('ss14').set('linsolver', ↙
'dDef');
19820 model.sol('sol56').feature('s1').feature('se1').feature('ss14').label('Domain ↙
ODEs and DAEs 7');
19821 model.sol('sol56').feature('s1').feature('se1').create('ss15', 'SegregatedStep');
19822 model.sol('sol56').feature('s1').feature('se1').feature('ss15').set('segvar', ↙
{'comp1_AT1R' 'comp1_dB'});
19823 model.sol('sol56').feature('s1').feature('se1').feature('ss15').set('linsolver', ↙
'dDef');
19824 model.sol('sol56').feature('s1').feature('se1').feature('ss15').label('Domain ↙
ODEs and DAEs 19');
19825 model.sol('sol56').feature('s1').feature('se1').create('ss16', 'SegregatedStep');
19826 model.sol('sol56').feature('s1').feature('se1').feature('ss16').set('segvar', ↙
{'comp1_AT2bAngII' 'comp1_dB'});
19827 model.sol('sol56').feature('s1').feature('se1').feature('ss16').set('linsolver', ↙
'dDef');
19828 model.sol('sol56').feature('s1').feature('se1').feature('ss16').label('Domain ↙
ODEs and DAEs 8');
19829 model.sol('sol56').feature('s1').feature('se1').create('ss17', 'SegregatedStep');
19830 model.sol('sol56').feature('s1').feature('se1').feature('ss17').set('segvar', ↙
{'comp1_AT2R' 'comp1_dB'});
19831 model.sol('sol56').feature('s1').feature('se1').feature('ss17').set('linsolver', ↙
'dDef');
19832 model.sol('sol56').feature('s1').feature('se1').feature('ss17').label('Domain ↙
ODEs and DAEs 2c');
19833 model.sol('sol56').feature('s1').feature('se1').create('ss18', 'SegregatedStep');
19834 model.sol('sol56').feature('s1').feature('se1').feature('ss18').set('segvar', ↙
{'comp1_AT4bAngIV' 'comp1_dB'});
19835 model.sol('sol56').feature('s1').feature('se1').feature('ss18').set('linsolver', ↙
'dDef');
19836 model.sol('sol56').feature('s1').feature('se1').feature('ss18').label('Domain ↙
ODEs and DAEs 17');
19837 model.sol('sol56').feature('s1').feature('se1').create('ss19', 'SegregatedStep');
19838 model.sol('sol56').feature('s1').feature('se1').feature('ss19').set('segvar', ↙
{'comp1_AT4R' 'comp1_dB'});
19839 model.sol('sol56').feature('s1').feature('se1').feature('ss19').set('linsolver', ↙
'dDef');
19840 model.sol('sol56').feature('s1').feature('se1').feature('ss19').label('Domain ↙
ODEs and DAEs 4b');
19841 model.sol('sol56').feature('s1').feature('se1').create('ss20', 'SegregatedStep');
19842 model.sol('sol56').feature('s1').feature('se1').feature('ss20').set('segvar', ↙
{'comp1_BA' 'comp1_dB'});
19843 model.sol('sol56').feature('s1').feature('se1').feature('ss20').set('linsolver', ↙
'dDef');
19844 model.sol('sol56').feature('s1').feature('se1').feature('ss20').label('Domain ↙
ODEs and DAEs 45o');
19845 model.sol('sol56').feature('s1').feature('se1').create('ss21', 'SegregatedStep');
19846 model.sol('sol56').feature('s1').feature('se1').feature('ss21').set('segvar', ↙
{'comp1_BN' 'comp1_dB'});
```

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19847 model.sol('sol56').feature('s1').feature('se1').feature('ss21').set('linsolver', ↙
'dDef');
19848 model.sol('sol56').feature('s1').feature('se1').feature('ss21').label('Domain ↙
ODEs and DAEs 45n');
19849 model.sol('sol56').feature('s1').feature('se1').create('ss22', 'SegregatedStep');
19850 model.sol('sol56').feature('s1').feature('se1').feature('ss22').set('segvar', ↙
{'comp1_c' 'comp1_dB'});
19851 model.sol('sol56').feature('s1').feature('se1').feature('ss22').set('linsolver', ↙
'dDef');
19852 model.sol('sol56').feature('s1').feature('se1').feature('ss22').label('Domain ↙
ODEs and DAEs 12');
19853 model.sol('sol56').feature('s1').feature('se1').create('ss23', 'SegregatedStep');
19854 model.sol('sol56').feature('s1').feature('se1').feature('ss23').set('segvar', ↙
{'comp1_Cb' 'comp1_dB'});
19855 model.sol('sol56').feature('s1').feature('se1').feature('ss23').set('linsolver', ↙
'dDef');
19856 model.sol('sol56').feature('s1').feature('se1').feature('ss23').label('Domain ↙
ODEs and DAEs 9');
19857 model.sol('sol56').feature('s1').feature('se1').create('ss24', 'SegregatedStep');
19858 model.sol('sol56').feature('s1').feature('se1').feature('ss24').set('segvar', ↙
{'comp1_DC' 'comp1_dB'});
19859 model.sol('sol56').feature('s1').feature('se1').feature('ss24').set('linsolver', ↙
'dDef');
19860 model.sol('sol56').feature('s1').feature('se1').feature('ss24').label('Domain ↙
ODEs and DAEs 45i');
19861 model.sol('sol56').feature('s1').feature('se1').create('ss25', 'SegregatedStep');
19862 model.sol('sol56').feature('s1').feature('se1').feature('ss25').set('segvar', ↙
{'comp1_DCi' 'comp1_dB'});
19863 model.sol('sol56').feature('s1').feature('se1').feature('ss25').set('linsolver', ↙
'dDef');
19864 model.sol('sol56').feature('s1').feature('se1').feature('ss25').label('Domain ↙
ODEs and DAEs 45j');
19865 model.sol('sol56').feature('s1').feature('se1').create('ss26', 'SegregatedStep');
19866 model.sol('sol56').feature('s1').feature('se1').feature('ss26').set('segvar', ↙
{'comp1_y5' 'comp1_dB'});
19867 model.sol('sol56').feature('s1').feature('se1').feature('ss26').set('linsolver', ↙
'dDef');
19868 model.sol('sol56').feature('s1').feature('se1').feature('ss26').label('Domain ↙
ODEs and DAEs 23');
19869 model.sol('sol56').feature('s1').feature('se1').create('ss27', 'SegregatedStep');
19870 model.sol('sol56').feature('s1').feature('se1').feature('ss27').set('segvar', ↙
{'comp1_y15' 'comp1_dB'});
19871 model.sol('sol56').feature('s1').feature('se1').feature('ss27').set('linsolver', ↙
'dDef');
19872 model.sol('sol56').feature('s1').feature('se1').feature('ss27').label('Domain ↙
ODEs and DAEs 10a');
19873 model.sol('sol56').feature('s1').feature('se1').create('ss28', 'SegregatedStep');
19874 model.sol('sol56').feature('s1').feature('se1').feature('ss28').set('segvar', ↙
{'comp1_y107' 'comp1_y1072' 'comp1_dB'});
19875 model.sol('sol56').feature('s1').feature('se1').feature('ss28').set('linsolver', ↙
```

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'dDef');
19876 model.sol('sol56').feature('s1').feature('se1').feature('ss28').label('Domain ↙
ODEs and DAEs 11a');
19877 model.sol('sol56').feature('s1').feature('se1').create('ss29', 'SegregatedStep');
19878 model.sol('sol56').feature('s1').feature('se1').feature('ss29').set('segvar', ↙
{'comp1_y87' 'comp1_dB'});
19879 model.sol('sol56').feature('s1').feature('se1').feature('ss29').set('linsolver', ↙
'dDef');
19880 model.sol('sol56').feature('s1').feature('se1').feature('ss29').label('Domain ↙
ODEs and DAEs 12a');
19881 model.sol('sol56').feature('s1').feature('se1').create('ss30', 'SegregatedStep');
19882 model.sol('sol56').feature('s1').feature('se1').feature('ss30').set('segvar', ↙
{'comp1_y18' 'comp1_dB'});
19883 model.sol('sol56').feature('s1').feature('se1').feature('ss30').set('linsolver', ↙
'dDef');
19884 model.sol('sol56').feature('s1').feature('se1').feature('ss30').label('Domain ↙
ODEs and DAEs 13a');
19885 model.sol('sol56').feature('s1').feature('se1').create('ss31', 'SegregatedStep');
19886 model.sol('sol56').feature('s1').feature('se1').feature('ss31').set('segvar', ↙
{'comp1_y19' 'comp1_dB'});
19887 model.sol('sol56').feature('s1').feature('se1').feature('ss31').set('linsolver', ↙
'dDef');
19888 model.sol('sol56').feature('s1').feature('se1').feature('ss31').label('Domain ↙
ODEs and DAEs 14a');
19889 model.sol('sol56').feature('s1').feature('se1').create('ss32', 'SegregatedStep');
19890 model.sol('sol56').feature('s1').feature('se1').feature('ss32').set('segvar', ↙
{'comp1_y108' 'comp1_y1082' 'comp1_dB'});
19891 model.sol('sol56').feature('s1').feature('se1').feature('ss32').set('linsolver', ↙
'dDef');
19892 model.sol('sol56').feature('s1').feature('se1').feature('ss32').label('Domain ↙
ODEs and DAEs 15a');
19893 model.sol('sol56').feature('s1').feature('se1').create('ss33', 'SegregatedStep');
19894 model.sol('sol56').feature('s1').feature('se1').feature('ss33').set('segvar', ↙
{'comp1_y102' 'comp1_dB'});
19895 model.sol('sol56').feature('s1').feature('se1').feature('ss33').set('linsolver', ↙
'dDef');
19896 model.sol('sol56').feature('s1').feature('se1').feature('ss33').label('Domain ↙
ODEs and DAEs 16a');
19897 model.sol('sol56').feature('s1').feature('se1').create('ss34', 'SegregatedStep');
19898 model.sol('sol56').feature('s1').feature('se1').feature('ss34').set('segvar', ↙
{'comp1_y22' 'comp1_dB'});
19899 model.sol('sol56').feature('s1').feature('se1').feature('ss34').set('linsolver', ↙
'dDef');
19900 model.sol('sol56').feature('s1').feature('se1').feature('ss34').label('Domain ↙
ODEs and DAEs 17a');
19901 model.sol('sol56').feature('s1').feature('se1').create('ss35', 'SegregatedStep');
19902 model.sol('sol56').feature('s1').feature('se1').feature('ss35').set('segvar', ↙
{'comp1_y23' 'comp1_dB'});
19903 model.sol('sol56').feature('s1').feature('se1').feature('ss35').set('linsolver', ↙
'dDef');
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19904 model.sol('sol56').feature('s1').feature('se1').feature('ss35').label('Domain ↙
ODEs and DAEs 18a');
19905 model.sol('sol56').feature('s1').feature('se1').create('ss36', 'SegregatedStep');
19906 model.sol('sol56').feature('s1').feature('se1').feature('ss36').set('segvar', ↙
{'comp1_y109' 'comp1_y1092' 'comp1_dB'});
19907 model.sol('sol56').feature('s1').feature('se1').feature('ss36').set('linsolver', ↙
'dDef');
19908 model.sol('sol56').feature('s1').feature('se1').feature('ss36').label('Domain ↙
ODEs and DAEs 19a');
19909 model.sol('sol56').feature('s1').feature('se1').create('ss37', 'SegregatedStep');
19910 model.sol('sol56').feature('s1').feature('se1').feature('ss37').set('segvar', ↙
{'comp1_y78' 'comp1_dB'});
19911 model.sol('sol56').feature('s1').feature('se1').feature('ss37').set('linsolver', ↙
'dDef');
19912 model.sol('sol56').feature('s1').feature('se1').feature('ss37').label('Domain ↙
ODEs and DAEs 2h');
19913 model.sol('sol56').feature('s1').feature('se1').create('ss38', 'SegregatedStep');
19914 model.sol('sol56').feature('s1').feature('se1').feature('ss38').set('segvar', ↙
{'comp1_y92' 'comp1_dB'});
19915 model.sol('sol56').feature('s1').feature('se1').feature('ss38').set('linsolver', ↙
'dDef');
19916 model.sol('sol56').feature('s1').feature('se1').feature('ss38').label('Domain ↙
ODEs and DAEs 20a');
19917 model.sol('sol56').feature('s1').feature('se1').create('ss39', 'SegregatedStep');
19918 model.sol('sol56').feature('s1').feature('se1').feature('ss39').set('segvar', ↙
{'comp1_y26' 'comp1_dB'});
19919 model.sol('sol56').feature('s1').feature('se1').feature('ss39').set('linsolver', ↙
'dDef');
19920 model.sol('sol56').feature('s1').feature('se1').feature('ss39').label('Domain ↙
ODEs and DAEs 21a');
19921 model.sol('sol56').feature('s1').feature('se1').create('ss40', 'SegregatedStep');
19922 model.sol('sol56').feature('s1').feature('se1').feature('ss40').set('segvar', ↙
{'comp1_y27' 'comp1_dB'});
19923 model.sol('sol56').feature('s1').feature('se1').feature('ss40').set('linsolver', ↙
'dDef');
19924 model.sol('sol56').feature('s1').feature('se1').feature('ss40').label('Domain ↙
ODEs and DAEs 22a');
19925 model.sol('sol56').feature('s1').feature('se1').create('ss41', 'SegregatedStep');
19926 model.sol('sol56').feature('s1').feature('se1').feature('ss41').set('segvar', ↙
{'comp1_y110' 'comp1_y1102' 'comp1_dB'});
19927 model.sol('sol56').feature('s1').feature('se1').feature('ss41').set('linsolver', ↙
'dDef');
19928 model.sol('sol56').feature('s1').feature('se1').feature('ss41').label('Domain ↙
ODEs and DAEs 23a');
19929 model.sol('sol56').feature('s1').feature('se1').create('ss42', 'SegregatedStep');
19930 model.sol('sol56').feature('s1').feature('se1').feature('ss42').set('segvar', ↙
{'comp1_y90' 'comp1_dB'});
19931 model.sol('sol56').feature('s1').feature('se1').feature('ss42').set('linsolver', ↙
'dDef');
19932 model.sol('sol56').feature('s1').feature('se1').feature('ss42').label('Domain ↙
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ODEs and DAEs 24');
19933 model.sol('sol56').feature('s1').feature('se1').create('ss43', 'SegregatedStep');
19934 model.sol('sol56').feature('s1').feature('se1').feature('ss43').set('segvar', ↙
{'comp1_y30' 'comp1_dB'});
19935 model.sol('sol56').feature('s1').feature('se1').feature('ss43').set('linsolver', ↙
'dDef');
19936 model.sol('sol56').feature('s1').feature('se1').feature('ss43').label('Domain ↙
ODEs and DAEs 25');
19937 model.sol('sol56').feature('s1').feature('se1').create('ss44', 'SegregatedStep');
19938 model.sol('sol56').feature('s1').feature('se1').feature('ss44').set('segvar', ↙
{'comp1_y31' 'comp1_dB'});
19939 model.sol('sol56').feature('s1').feature('se1').feature('ss44').set('linsolver', ↙
'dDef');
19940 model.sol('sol56').feature('s1').feature('se1').feature('ss44').label('Domain ↙
ODEs and DAEs 26');
19941 model.sol('sol56').feature('s1').feature('se1').create('ss45', 'SegregatedStep');
19942 model.sol('sol56').feature('s1').feature('se1').feature('ss45').set('segvar', ↙
{'comp1_y111' 'comp1_y1112' 'comp1_dB'});
19943 model.sol('sol56').feature('s1').feature('se1').feature('ss45').set('linsolver', ↙
'dDef');
19944 model.sol('sol56').feature('s1').feature('se1').feature('ss45').label('Domain ↙
ODEs and DAEs 27');
19945 model.sol('sol56').feature('s1').feature('se1').create('ss46', 'SegregatedStep');
19946 model.sol('sol56').feature('s1').feature('se1').feature('ss46').set('segvar', ↙
{'comp1_y103' 'comp1_dB'});
19947 model.sol('sol56').feature('s1').feature('se1').feature('ss46').set('linsolver', ↙
'dDef');
19948 model.sol('sol56').feature('s1').feature('se1').feature('ss46').label('Domain ↙
ODEs and DAEs 28');
19949 model.sol('sol56').feature('s1').feature('se1').create('ss47', 'SegregatedStep');
19950 model.sol('sol56').feature('s1').feature('se1').feature('ss47').set('segvar', ↙
{'comp1_y54' 'comp1_dB'});
19951 model.sol('sol56').feature('s1').feature('se1').feature('ss47').set('linsolver', ↙
'dDef');
19952 model.sol('sol56').feature('s1').feature('se1').feature('ss47').label('Domain ↙
ODEs and DAEs 29');
19953 model.sol('sol56').feature('s1').feature('se1').create('ss48', 'SegregatedStep');
19954 model.sol('sol56').feature('s1').feature('se1').feature('ss48').set('segvar', ↙
{'comp1_y85' 'comp1_dB'});
19955 model.sol('sol56').feature('s1').feature('se1').feature('ss48').set('linsolver', ↙
'dDef');
19956 model.sol('sol56').feature('s1').feature('se1').feature('ss48').label('Domain ↙
ODEs and DAEs 3d');
19957 model.sol('sol56').feature('s1').feature('se1').create('ss49', 'SegregatedStep');
19958 model.sol('sol56').feature('s1').feature('se1').feature('ss49').set('segvar', ↙
{'comp1_y55' 'comp1_dB'});
19959 model.sol('sol56').feature('s1').feature('se1').feature('ss49').set('linsolver', ↙
'dDef');
19960 model.sol('sol56').feature('s1').feature('se1').feature('ss49').label('Domain ↙
ODEs and DAEs 30');
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19961 model.sol('sol56').feature('s1').feature('se1').create('ss50', 'SegregatedStep');
19962 model.sol('sol56').feature('s1').feature('se1').feature('ss50').set('segvar', ↙
{'comp1_y117' 'comp1_y1172' 'comp1_dB'});
19963 model.sol('sol56').feature('s1').feature('se1').feature('ss50').set('linsolver', ↙
'dDef');
19964 model.sol('sol56').feature('s1').feature('se1').feature('ss50').label('Domain ↙
ODEs and DAEs 31');
19965 model.sol('sol56').feature('s1').feature('se1').create('ss51', 'SegregatedStep');
19966 model.sol('sol56').feature('s1').feature('se1').feature('ss51').set('segvar', ↙
{'comp1_y94' 'comp1_dB'});
19967 model.sol('sol56').feature('s1').feature('se1').feature('ss51').set('linsolver', ↙
'dDef');
19968 model.sol('sol56').feature('s1').feature('se1').feature('ss51').label('Domain ↙
ODEs and DAEs 32');
19969 model.sol('sol56').feature('s1').feature('se1').create('ss52', 'SegregatedStep');
19970 model.sol('sol56').feature('s1').feature('se1').feature('ss52').set('segvar', ↙
{'comp1_y62' 'comp1_dB'});
19971 model.sol('sol56').feature('s1').feature('se1').feature('ss52').set('linsolver', ↙
'dDef');
19972 model.sol('sol56').feature('s1').feature('se1').feature('ss52').label('Domain ↙
ODEs and DAEs 33');
19973 model.sol('sol56').feature('s1').feature('se1').create('ss53', 'SegregatedStep');
19974 model.sol('sol56').feature('s1').feature('se1').feature('ss53').set('segvar', ↙
{'comp1_y63' 'comp1_dB'});
19975 model.sol('sol56').feature('s1').feature('se1').feature('ss53').set('linsolver', ↙
'dDef');
19976 model.sol('sol56').feature('s1').feature('se1').feature('ss53').label('Domain ↙
ODEs and DAEs 34');
19977 model.sol('sol56').feature('s1').feature('se1').create('ss54', 'SegregatedStep');
19978 model.sol('sol56').feature('s1').feature('se1').feature('ss54').set('segvar', ↙
{'comp1_y119' 'comp1_y1192' 'comp1_dB'});
19979 model.sol('sol56').feature('s1').feature('se1').feature('ss54').set('linsolver', ↙
'dDef');
19980 model.sol('sol56').feature('s1').feature('se1').feature('ss54').label('Domain ↙
ODEs and DAEs 35');
19981 model.sol('sol56').feature('s1').feature('se1').create('ss55', 'SegregatedStep');
19982 model.sol('sol56').feature('s1').feature('se1').feature('ss55').set('segvar', ↙
{'comp1_y70' 'comp1_dB'});
19983 model.sol('sol56').feature('s1').feature('se1').feature('ss55').set('linsolver', ↙
'dDef');
19984 model.sol('sol56').feature('s1').feature('se1').feature('ss55').label('Domain ↙
ODEs and DAEs 36');
19985 model.sol('sol56').feature('s1').feature('se1').create('ss56', 'SegregatedStep');
19986 model.sol('sol56').feature('s1').feature('se1').feature('ss56').set('segvar', ↙
{'comp1_y71' 'comp1_dB'});
19987 model.sol('sol56').feature('s1').feature('se1').feature('ss56').set('linsolver', ↙
'dDef');
19988 model.sol('sol56').feature('s1').feature('se1').feature('ss56').label('Domain ↙
ODEs and DAEs 37');
19989 model.sol('sol56').feature('s1').feature('se1').create('ss57', 'SegregatedStep');
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19990 model.sol('sol56').feature('s1').feature('se1').feature('ss57').set('segvar', ↙
{'comp1_y121' 'comp1_y1212' 'comp1_dB'});
19991 model.sol('sol56').feature('s1').feature('se1').feature('ss57').set('linsolver', ↙
'dDef');
19992 model.sol('sol56').feature('s1').feature('se1').feature('ss57').label('Domain ↙
ODEs and DAEs 38');
19993 model.sol('sol56').feature('s1').feature('se1').create('ss58', 'SegregatedStep');
19994 model.sol('sol56').feature('s1').feature('se1').feature('ss58').set('segvar', ↙
{'comp1_y98' 'comp1_dB'});
19995 model.sol('sol56').feature('s1').feature('se1').feature('ss58').set('linsolver', ↙
'dDef');
19996 model.sol('sol56').feature('s1').feature('se1').feature('ss58').label('Domain ↙
ODEs and DAEs 39');
19997 model.sol('sol56').feature('s1').feature('se1').create('ss59', 'SegregatedStep');
19998 model.sol('sol56').feature('s1').feature('se1').feature('ss59').set('segvar', ↙
{'comp1_y86' 'comp1_dB'});
19999 model.sol('sol56').feature('s1').feature('se1').feature('ss59').set('linsolver', ↙
'dDef');
20000 model.sol('sol56').feature('s1').feature('se1').feature('ss59').label('Domain ↙
ODEs and DAEs 4a');
20001 model.sol('sol56').feature('s1').feature('se1').create('ss60', 'SegregatedStep');
20002 model.sol('sol56').feature('s1').feature('se1').feature('ss60').set('segvar', ↙
{'comp1_y74' 'comp1_dB'});
20003 model.sol('sol56').feature('s1').feature('se1').feature('ss60').set('linsolver', ↙
'dDef');
20004 model.sol('sol56').feature('s1').feature('se1').feature('ss60').label('Domain ↙
ODEs and DAEs 40');
20005 model.sol('sol56').feature('s1').feature('se1').create('ss61', 'SegregatedStep');
20006 model.sol('sol56').feature('s1').feature('se1').feature('ss61').set('segvar', ↙
{'comp1_y75' 'comp1_dB'});
20007 model.sol('sol56').feature('s1').feature('se1').feature('ss61').set('linsolver', ↙
'dDef');
20008 model.sol('sol56').feature('s1').feature('se1').feature('ss61').label('Domain ↙
ODEs and DAEs 41');
20009 model.sol('sol56').feature('s1').feature('se1').create('ss62', 'SegregatedStep');
20010 model.sol('sol56').feature('s1').feature('se1').feature('ss62').set('segvar', ↙
{'comp1_y124' 'comp1_y1242' 'comp1_dB'});
20011 model.sol('sol56').feature('s1').feature('se1').feature('ss62').set('linsolver', ↙
'dDef');
20012 model.sol('sol56').feature('s1').feature('se1').feature('ss62').label('Domain ↙
ODEs and DAEs 42');
20013 model.sol('sol56').feature('s1').feature('se1').create('ss63', 'SegregatedStep');
20014 model.sol('sol56').feature('s1').feature('se1').feature('ss63').set('segvar', ↙
{'comp1_y125' 'comp1_dB'});
20015 model.sol('sol56').feature('s1').feature('se1').feature('ss63').set('linsolver', ↙
'dDef');
20016 model.sol('sol56').feature('s1').feature('se1').feature('ss63').label('Domain ↙
ODEs and DAEs 43');
20017 model.sol('sol56').feature('s1').feature('se1').create('ss64', 'SegregatedStep');
20018 model.sol('sol56').feature('s1').feature('se1').feature('ss64').set('segvar', ↙
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{'comp1_y96' 'comp1_dB'});
20019 model.sol('sol56').feature('s1').feature('se1').feature('ss64').set('linsolver', ↙
'dDef');
20020 model.sol('sol56').feature('s1').feature('se1').feature('ss64').label('Domain ↙
ODEs and DAEs 44');
20021 model.sol('sol56').feature('s1').feature('se1').create('ss65', 'SegregatedStep');
20022 model.sol('sol56').feature('s1').feature('se1').feature('ss65').set('segvar', ↙
{'comp1_Treg' 'comp1_dB'});
20023 model.sol('sol56').feature('s1').feature('se1').feature('ss65').set('linsolver', ↙
'dDef');
20024 model.sol('sol56').feature('s1').feature('se1').feature('ss65').label('Domain ↙
ODEs and DAEs 5f');
20025 model.sol('sol56').feature('s1').feature('se1').create('ss66', 'SegregatedStep');
20026 model.sol('sol56').feature('s1').feature('se1').feature('ss66').set('segvar', ↙
{'comp1_y105' 'comp1_y1052' 'comp1_dB'});
20027 model.sol('sol56').feature('s1').feature('se1').feature('ss66').set('linsolver', ↙
'dDef');
20028 model.sol('sol56').feature('s1').feature('se1').feature('ss66').label('Domain ↙
ODEs and DAEs 7b');
20029 model.sol('sol56').feature('s1').feature('se1').create('ss67', 'SegregatedStep');
20030 model.sol('sol56').feature('s1').feature('se1').feature('ss67').set('segvar', ↙
{'comp1_y14' 'comp1_dB'});
20031 model.sol('sol56').feature('s1').feature('se1').feature('ss67').set('linsolver', ↙
'dDef');
20032 model.sol('sol56').feature('s1').feature('se1').feature('ss67').label('Domain ↙
ODEs and DAEs 9a');
20033 model.sol('sol56').feature('s1').feature('se1').create('ss68', 'SegregatedStep');
20034 model.sol('sol56').feature('s1').feature('se1').feature('ss68').set('segvar', ↙
{'comp1_ec' 'comp1_ec2' 'comp1_ec3' 'comp1_ec4' 'comp1_ec5' 'comp1_ec6' 'comp1_ec7' ↙
'comp1_ec8' 'comp1_ec9' 'comp1_ec10'  ...
20035 'comp1_ec11' 'comp1_ec12' 'comp1_dB'});
20036 model.sol('sol56').feature('s1').feature('se1').feature('ss68').set('linsolver', ↙
'dDef');
20037 model.sol('sol56').feature('s1').feature('se1').feature('ss68').label('Domain ↙
ODEs and DAEs 22');
20038 model.sol('sol56').feature('s1').feature('se1').create('ss69', 'SegregatedStep');
20039 model.sol('sol56').feature('s1').feature('se1').feature('ss69').set('segvar', ↙
{'comp1_H' 'comp1_dB'});
20040 model.sol('sol56').feature('s1').feature('se1').feature('ss69').set('linsolver', ↙
'dDef');
20041 model.sol('sol56').feature('s1').feature('se1').feature('ss69').label('Domain ↙
ODEs and DAEs 2a');
20042 model.sol('sol56').feature('s1').feature('se1').create('ss70', 'SegregatedStep');
20043 model.sol('sol56').feature('s1').feature('se1').feature('ss70').set('segvar', ↙
{'comp1_iec' 'comp1_iec2' 'comp1_iec3' 'comp1_iec4' 'comp1_iec5' 'comp1_iec6' ↙
'comp1_iec7' 'comp1_iec8' 'comp1_iec9' 'comp1_iec10'  ...
20044 'comp1_iec11' 'comp1_iec12' 'comp1_dB'});
20045 model.sol('sol56').feature('s1').feature('se1').feature('ss70').set('linsolver', ↙
'dDef');
20046 model.sol('sol56').feature('s1').feature('se1').feature('ss70').label('Domain ↙
```

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ODEs and DAEs 2g');
20047 model.sol('sol56').feature('s1').feature('se1').create('ss71', 'SegregatedStep');
20048 model.sol('sol56').feature('s1').feature('se1').feature('ss71').set('segvar', ↙
{'comp1_IF' 'comp1_dB'});
20049 model.sol('sol56').feature('s1').feature('se1').feature('ss71').set('linsolver', ↙
'dDef');
20050 model.sol('sol56').feature('s1').feature('se1').feature('ss71').label('Domain ↙
ODEs and DAEs 46c');
20051 model.sol('sol56').feature('s1').feature('se1').create('ss72', 'SegregatedStep');
20052 model.sol('sol56').feature('s1').feature('se1').feature('ss72').set('segvar', ↙
{'comp1_IL6' 'comp1_dB'});
20053 model.sol('sol56').feature('s1').feature('se1').feature('ss72').set('linsolver', ↙
'dDef');
20054 model.sol('sol56').feature('s1').feature('se1').feature('ss72').label('Domain ↙
ODEs and DAEs 20');
20055 model.sol('sol56').feature('s1').feature('se1').create('ss73', 'SegregatedStep');
20056 model.sol('sol56').feature('s1').feature('se1').feature('ss73').set('segvar', ↙
{'comp1_IL6R' 'comp1_dB'});
20057 model.sol('sol56').feature('s1').feature('se1').feature('ss73').set('linsolver', ↙
'dDef');
20058 model.sol('sol56').feature('s1').feature('se1').feature('ss73').label('Domain ↙
ODEs and DAEs 2d');
20059 model.sol('sol56').feature('s1').feature('se1').create('ss74', 'SegregatedStep');
20060 model.sol('sol56').feature('s1').feature('se1').feature('ss74').set('segvar', ↙
{'comp1_IL6RbIL6' 'comp1_dB'});
20061 model.sol('sol56').feature('s1').feature('se1').feature('ss74').set('linsolver', ↙
'dDef');
20062 model.sol('sol56').feature('s1').feature('se1').feature('ss74').label('Domain ↙
ODEs and DAEs 3c');
20063 model.sol('sol56').feature('s1').feature('se1').create('ss75', 'SegregatedStep');
20064 model.sol('sol56').feature('s1').feature('se1').feature('ss75').set('segvar', ↙
{'comp1_In' 'comp1_dB'});
20065 model.sol('sol56').feature('s1').feature('se1').feature('ss75').set('linsolver', ↙
'dDef');
20066 model.sol('sol56').feature('s1').feature('se1').feature('ss75').label('Domain ↙
ODEs and DAEs 6a');
20067 model.sol('sol56').feature('s1').feature('se1').create('ss76', 'SegregatedStep');
20068 model.sol('sol56').feature('s1').feature('se1').feature('ss76').set('segvar', ↙
{'comp1_ma' 'comp1_dB'});
20069 model.sol('sol56').feature('s1').feature('se1').feature('ss76').set('linsolver', ↙
'dDef');
20070 model.sol('sol56').feature('s1').feature('se1').feature('ss76').label('Domain ↙
ODEs and DAEs 11');
20071 model.sol('sol56').feature('s1').feature('se1').create('ss77', 'SegregatedStep');
20072 model.sol('sol56').feature('s1').feature('se1').feature('ss77').set('segvar', ↙
{'comp1_MAsbAng17' 'comp1_dB'});
20073 model.sol('sol56').feature('s1').feature('se1').feature('ss77').set('linsolver', ↙
'dDef');
20074 model.sol('sol56').feature('s1').feature('se1').feature('ss77').label('Domain ↙
ODEs and DAEs 18');
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20075 model.sol('sol56').feature('s1').feature('se1').create('ss78', 'SegregatedStep');
20076 model.sol('sol56').feature('s1').feature('se1').feature('ss78').set('segvar', ↙
{'comp1_MAsR' 'comp1_dB'});
20077 model.sol('sol56').feature('s1').feature('se1').feature('ss78').set('linsolver', ↙
'dDef');
20078 model.sol('sol56').feature('s1').feature('se1').feature('ss78').label('Domain ↙
ODEs and DAEs 3b');
20079 model.sol('sol56').feature('s1').feature('se1').create('ss79', 'SegregatedStep');
20080 model.sol('sol56').feature('s1').feature('se1').feature('ss79').set('segvar', ↙
{'comp1_n' 'comp1_dB'});
20081 model.sol('sol56').feature('s1').feature('se1').feature('ss79').set('linsolver', ↙
'dDef');
20082 model.sol('sol56').feature('s1').feature('se1').feature('ss79').label('Domain ↙
ODEs and DAEs 10');
20083 model.sol('sol56').feature('s1').feature('se1').create('ss80', 'SegregatedStep');
20084 model.sol('sol56').feature('s1').feature('se1').feature('ss80').set('segvar', ↙
{'comp1_NETs' 'comp1_dB'});
20085 model.sol('sol56').feature('s1').feature('se1').feature('ss80').set('linsolver', ↙
'dDef');
20086 model.sol('sol56').feature('s1').feature('se1').feature('ss80').label('Domain ↙
ODEs and DAEs 45e');
20087 model.sol('sol56').feature('s1').feature('se1').create('ss81', 'SegregatedStep');
20088 model.sol('sol56').feature('s1').feature('se1').feature('ss81').set('segvar', ↙
{'comp1_PD1' 'comp1_dB'});
20089 model.sol('sol56').feature('s1').feature('se1').feature('ss81').set('linsolver', ↙
'dDef');
20090 model.sol('sol56').feature('s1').feature('se1').feature('ss81').label('Domain ↙
ODEs and DAEs 45f');
20091 model.sol('sol56').feature('s1').feature('se1').create('ss82', 'SegregatedStep');
20092 model.sol('sol56').feature('s1').feature('se1').feature('ss82').set('segvar', ↙
{'comp1_PD1bPDL1' 'comp1_dB'});
20093 model.sol('sol56').feature('s1').feature('se1').feature('ss82').set('linsolver', ↙
'dDef');
20094 model.sol('sol56').feature('s1').feature('se1').feature('ss82').label('Domain ↙
ODEs and DAEs 45g');
20095 model.sol('sol56').feature('s1').feature('se1').create('ss83', 'SegregatedStep');
20096 model.sol('sol56').feature('s1').feature('se1').feature('ss83').set('segvar', ↙
{'comp1_PDL1' 'comp1_dB'});
20097 model.sol('sol56').feature('s1').feature('se1').feature('ss83').set('linsolver', ↙
'dDef');
20098 model.sol('sol56').feature('s1').feature('se1').feature('ss83').label('Domain ↙
ODEs and DAEs 47');
20099 model.sol('sol56').feature('s1').feature('se1').create('ss84', 'SegregatedStep');
20100 model.sol('sol56').feature('s1').feature('se1').feature('ss84').set('segvar', ↙
{'comp1_PL' 'comp1_dB'});
20101 model.sol('sol56').feature('s1').feature('se1').feature('ss84').set('linsolver', ↙
'dDef');
20102 model.sol('sol56').feature('s1').feature('se1').feature('ss84').label('Domain ↙
ODEs and DAEs 45p');
20103 model.sol('sol56').feature('s1').feature('se1').create('ss85', 'SegregatedStep');
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20104 model.sol('sol56').feature('s1').feature('se1').feature('ss85').set('segvar', ↙
{'comp1_PS' 'comp1_dB'});
20105 model.sol('sol56').feature('s1').feature('se1').feature('ss85').set('linsolver', ↙
'dDef');
20106 model.sol('sol56').feature('s1').feature('se1').feature('ss85').label('Domain ↙
ODEs and DAEs 45q');
20107 model.sol('sol56').feature('s1').feature('se1').create('ss86', 'SegregatedStep');
20108 model.sol('sol56').feature('s1').feature('se1').feature('ss86').set('segvar', ↙
{'comp1_Renin' 'comp1_dB'});
20109 model.sol('sol56').feature('s1').feature('se1').feature('ss86').set('linsolver', ↙
'dDef');
20110 model.sol('sol56').feature('s1').feature('se1').feature('ss86').label('Domain ↙
ODEs and DAEs 14');
20111 model.sol('sol56').feature('s1').feature('se1').create('ss87', 'SegregatedStep');
20112 model.sol('sol56').feature('s1').feature('se1').feature('ss87').set('segvar', ↙
{'comp1_sACE2' 'comp1_dB'});
20113 model.sol('sol56').feature('s1').feature('se1').feature('ss87').set('linsolver', ↙
'dDef');
20114 model.sol('sol56').feature('s1').feature('se1').feature('ss87').label('Domain ↙
ODEs and DAEs 2f');
20115 model.sol('sol56').feature('s1').feature('se1').create('ss88', 'SegregatedStep');
20116 model.sol('sol56').feature('s1').feature('se1').feature('ss88').set('segvar', ↙
{'comp1_sIL6R' 'comp1_dB'});
20117 model.sol('sol56').feature('s1').feature('se1').feature('ss88').set('linsolver', ↙
'dDef');
20118 model.sol('sol56').feature('s1').feature('se1').feature('ss88').label('Domain ↙
ODEs and DAEs 21');
20119 model.sol('sol56').feature('s1').feature('se1').create('ss89', 'SegregatedStep');
20120 model.sol('sol56').feature('s1').feature('se1').feature('ss89').set('segvar', ↙
{'comp1_sIL6RbIL6' 'comp1_dB'});
20121 model.sol('sol56').feature('s1').feature('se1').feature('ss89').set('linsolver', ↙
'dDef');
20122 model.sol('sol56').feature('s1').feature('se1').feature('ss89').label('Domain ↙
ODEs and DAEs');
20123 model.sol('sol56').feature('s1').feature('se1').create('ss90', 'SegregatedStep');
20124 model.sol('sol56').feature('s1').feature('se1').feature('ss90').set('segvar', ↙
{'comp1_TE' 'comp1_dB'});
20125 model.sol('sol56').feature('s1').feature('se1').feature('ss90').set('linsolver', ↙
'dDef');
20126 model.sol('sol56').feature('s1').feature('se1').feature('ss90').label('Domain ↙
ODEs and DAEs 45m');
20127 model.sol('sol56').feature('s1').feature('se1').create('ss91', 'SegregatedStep');
20128 model.sol('sol56').feature('s1').feature('se1').feature('ss91').set('segvar', ↙
{'comp1_ThE' 'comp1_dB'});
20129 model.sol('sol56').feature('s1').feature('se1').feature('ss91').set('linsolver', ↙
'dDef');
20130 model.sol('sol56').feature('s1').feature('se1').feature('ss91').label('Domain ↙
ODEs and DAEs 45k');
20131 model.sol('sol56').feature('s1').feature('se1').create('ss92', 'SegregatedStep');
20132 model.sol('sol56').feature('s1').feature('se1').feature('ss92').set('segvar', ↙
```

```
{'comp1_ThM' 'comp1_dB'});
20133 model.sol('sol56').feature('s1').feature('se1').feature('ss92').set('linsolver', ↙
'dDef');
20134 model.sol('sol56').feature('s1').feature('se1').feature('ss92').label('Domain ↙
ODEs and DAEs 45t');
20135 model.sol('sol56').feature('s1').feature('se1').create('ss93', 'SegregatedStep');
20136 model.sol('sol56').feature('s1').feature('se1').feature('ss93').set('segvar', ↙
{'comp1_ThN' 'comp1_dB'});
20137 model.sol('sol56').feature('s1').feature('se1').feature('ss93').set('linsolver', ↙
'dDef');
20138 model.sol('sol56').feature('s1').feature('se1').feature('ss93').label('Domain ↙
ODEs and DAEs 46d');
20139 model.sol('sol56').feature('s1').feature('se1').create('ss94', 'SegregatedStep');
20140 model.sol('sol56').feature('s1').feature('se1').feature('ss94').set('segvar', ↙
{'comp1_TM' 'comp1_dB'});
20141 model.sol('sol56').feature('s1').feature('se1').feature('ss94').set('linsolver', ↙
'dDef');
20142 model.sol('sol56').feature('s1').feature('se1').feature('ss94').label('Domain ↙
ODEs and DAEs 45u');
20143 model.sol('sol56').feature('s1').feature('se1').create('ss95', 'SegregatedStep');
20144 model.sol('sol56').feature('s1').feature('se1').feature('ss95').set('segvar', ↙
{'comp1_TN' 'comp1_dB'});
20145 model.sol('sol56').feature('s1').feature('se1').feature('ss95').set('linsolver', ↙
'dDef');
20146 model.sol('sol56').feature('s1').feature('se1').feature('ss95').label('Domain ↙
ODEs and DAEs 45l');
20147 model.sol('sol56').feature('s1').feature('se1').create('ss96', 'SegregatedStep');
20148 model.sol('sol56').feature('s1').feature('se1').feature('ss96').set('segvar', ↙
{'comp1_Va' 'comp1_dB'});
20149 model.sol('sol56').feature('s1').feature('se1').feature('ss96').set('linsolver', ↙
'dDef');
20150 model.sol('sol56').feature('s1').feature('se1').feature('ss96').label('Domain ↙
ODEs and DAEs 5c');
20151 model.sol('sol56').feature('s1').feature('se1').create('ss97', 'SegregatedStep');
20152 model.sol('sol56').feature('s1').feature('se1').feature('ss97').set('segvar', ↙
{'comp1_Vab' 'comp1_dB'});
20153 model.sol('sol56').feature('s1').feature('se1').feature('ss97').set('linsolver', ↙
'dDef');
20154 model.sol('sol56').feature('s1').feature('se1').feature('ss97').label('Domain ↙
ODEs and DAEs 6d');
20155 model.sol('sol56').feature('s1').feature('se1').create('ss98', 'SegregatedStep');
20156 model.sol('sol56').feature('s1').feature('se1').feature('ss98').set('segvar', ↙
{'comp1_Vaint' 'comp1_dB'});
20157 model.sol('sol56').feature('s1').feature('se1').feature('ss98').set('linsolver', ↙
'dDef');
20158 model.sol('sol56').feature('s1').feature('se1').feature('ss98').label('Domain ↙
ODEs and DAEs 5d');
20159 model.sol('sol56').feature('s1').feature('se1').create('ss99', 'SegregatedStep');
20160 model.sol('sol56').feature('s1').feature('se1').feature('ss99').set('segvar', ↙
{'comp1_VaPro' 'comp1_dB'});
```

```
20161 model.sol('sol56').feature('s1').feature('se1').feature('ss99').set('linsolver', ↙
'dDef');
20162 model.sol('sol56').feature('s1').feature('se1').feature('ss99').label('Domain ↙
ODEs and DAEs 5e');
20163 model.sol('sol56').feature('s1').feature('se1').create('ss100', ↙
'SegregatedStep');
20164 model.sol('sol56').feature('s1').feature('se1').feature('ss100').set('segvar', ↙
{'comp1_Vint' 'comp1_Vint1' 'comp1_Vint2' 'comp1_Vint3' 'comp1_Vint4' 'comp1_Vint5' ↙
'comp1_Vint6' 'comp1_Vint7' 'comp1_Vint8' 'comp1_Vint9'  ...
20165 'comp1_dB'});
20166 model.sol('sol56').feature('s1').feature('se1').feature('ss100').set('linsolver', ↙
'dDef');
20167 model.sol('sol56').feature('s1').feature('se1').feature('ss100').label('Domain ↙
ODEs and DAEs 3a');
20168 model.sol('sol56').feature('s1').feature('se1').create('ss101', ↙
'SegregatedStep');
20169 model.sol('sol56').feature('s1').feature('se1').feature('ss101').set('segvar', ↙
{'comp1_y200' 'comp1_y201' 'comp1_y202' 'comp1_y203' 'comp1_y204' 'comp1_y205' ↙
'comp1_y206' 'comp1_y207' 'comp1_y208' 'comp1_y209'  ...
20170 'comp1_y210' 'comp1_dB'});
20171 model.sol('sol56').feature('s1').feature('se1').feature('ss101').set('linsolver', ↙
'dDef');
20172 model.sol('sol56').feature('s1').feature('se1').feature('ss101').label('Domain ↙
ODEs and DAEs 45s');
20173 model.sol('sol56').feature('s1').feature('se1').create('ss102', ↙
'SegregatedStep');
20174 model.sol('sol56').feature('s1').feature('se1').feature('ss102').set('segvar', ↙
{'comp1_y300' 'comp1_y301' 'comp1_y302' 'comp1_y303' 'comp1_y304' 'comp1_y305' ↙
'comp1_y306' 'comp1_y307' 'comp1_y308' 'comp1_y309'  ...
20175 'comp1_y310' 'comp1_dB'});
20176 model.sol('sol56').feature('s1').feature('se1').feature('ss102').set('linsolver', ↙
'dDef');
20177 model.sol('sol56').feature('s1').feature('se1').feature('ss102').label('Domain ↙
ODEs and DAEs 45v');
20178 model.sol('sol56').feature('s1').feature.remove('fcDef');
20179 model.sol('sol56').attach('std3');
20180
20181 model.result.create('pg143', 'PlotGroup3D');
20182 model.result('pg143').set('data', 'dset6');
20183 model.result('pg143').create('slc1', 'Slice');
20184 model.result('pg143').feature('slc1').set('expr', 'AGT');
20185 model.result.create('pg144', 'PlotGroup3D');
20186 model.result('pg144').set('data', 'dset6');
20187 model.result('pg144').create('slc1', 'Slice');
20188 model.result('pg144').feature('slc1').set('expr', 'Renin');
20189 model.result.create('pg145', 'PlotGroup3D');
20190 model.result('pg145').set('data', 'dset6');
20191 model.result('pg145').create('slc1', 'Slice');
20192 model.result('pg145').feature('slc1').set('expr', 'AngI');
20193 model.result.create('pg146', 'PlotGroup3D');
```

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model.result('pg146').set('data', 'dset6');
model.result('pg146').create('slc1', 'Slice');
model.result('pg146').feature('slc1').set('expr', 'AngII');
model.result.create('pg147', 'PlotGroup3D');
model.result('pg147').set('data', 'dset6');
model.result('pg147').create('slc1', 'Slice');
model.result('pg147').feature('slc1').set('expr', 'Ang17');
model.result.create('pg148', 'PlotGroup3D');
model.result('pg148').set('data', 'dset6');
model.result('pg148').create('slc1', 'Slice');
model.result('pg148').feature('slc1').set('expr', 'Ang19');
model.result.create('pg149', 'PlotGroup3D');
model.result('pg149').set('data', 'dset6');
model.result('pg149').create('slc1', 'Slice');
model.result('pg149').feature('slc1').set('expr', 'AngIII');
model.result.create('pg150', 'PlotGroup3D');
model.result('pg150').set('data', 'dset6');
model.result('pg150').create('slc1', 'Slice');
model.result('pg150').feature('slc1').set('expr', 'AngIV');
model.result.create('pg151', 'PlotGroup3D');
model.result('pg151').set('data', 'dset6');
model.result('pg151').create('slc1', 'Slice');
model.result('pg151').feature('slc1').set('expr', 'AT1bAngII');
model.result.create('pg152', 'PlotGroup3D');
model.result('pg152').set('data', 'dset6');
model.result('pg152').create('slc1', 'Slice');
model.result('pg152').feature('slc1').set('expr', 'AT2bAngII');
model.result.create('pg153', 'PlotGroup3D');
model.result('pg153').set('data', 'dset6');
model.result('pg153').create('slc1', 'Slice');
model.result('pg153').feature('slc1').set('expr', 'AT4bAngIV');
model.result.create('pg154', 'PlotGroup3D');
model.result('pg154').set('data', 'dset6');
model.result('pg154').create('slc1', 'Slice');
model.result('pg154').feature('slc1').set('expr', 'MAsbAng17');
model.result.create('pg155', 'PlotGroup3D');
model.result('pg155').set('data', 'dset6');
model.result('pg155').create('slc1', 'Slice');
model.result('pg155').feature('slc1').set('expr', 'Cb');
model.result.create('pg156', 'PlotGroup3D');
model.result('pg156').set('data', 'dset6');
model.result('pg156').create('slc1', 'Slice');
model.result('pg156').feature('slc1').set('expr', 'H');
model.result.create('pg157', 'PlotGroup3D');
model.result('pg157').set('data', 'dset6');
model.result('pg157').create('slc1', 'Slice');
model.result('pg157').feature('slc1').set('expr', 'Vint');
model.result.create('pg158', 'PlotGroup3D');
model.result('pg158').set('data', 'dset6');
model.result('pg158').create('slc1', 'Slice');
```

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model.result('pg158').feature('slc1').set('expr', 'In');
model.result.create('pg159', 'PlotGroup3D');
model.result('pg159').set('data', 'dset6');
model.result('pg159').create('slc1', 'Slice');
model.result('pg159').feature('slc1').set('expr', 'n');
model.result.create('pg160', 'PlotGroup3D');
model.result('pg160').set('data', 'dset6');
model.result('pg160').create('slc1', 'Slice');
model.result('pg160').feature('slc1').set('expr', 'ma');
model.result.create('pg161', 'PlotGroup3D');
model.result('pg161').set('data', 'dset6');
model.result('pg161').create('slc1', 'Slice');
model.result('pg161').feature('slc1').set('expr', 'c');
model.result.create('pg162', 'PlotGroup3D');
model.result('pg162').set('data', 'dset6');
model.result('pg162').create('slc1', 'Slice');
model.result('pg162').feature('slc1').set('expr', 'a');
model.result.create('pg163', 'PlotGroup3D');
model.result('pg163').set('data', 'dset6');
model.result('pg163').create('slc1', 'Slice');
model.result('pg163').feature('slc1').set('expr', 'AT1R');
model.result.create('pg164', 'PlotGroup3D');
model.result('pg164').set('data', 'dset6');
model.result('pg164').create('slc1', 'Slice');
model.result('pg164').feature('slc1').set('expr', 'AT2R');
model.result.create('pg165', 'PlotGroup3D');
model.result('pg165').set('data', 'dset6');
model.result('pg165').create('slc1', 'Slice');
model.result('pg165').feature('slc1').set('expr', 'MAsR');
model.result.create('pg166', 'PlotGroup3D');
model.result('pg166').set('data', 'dset6');
model.result('pg166').create('slc1', 'Slice');
model.result('pg166').feature('slc1').set('expr', 'AT4R');
model.result.create('pg167', 'PlotGroup3D');
model.result('pg167').set('data', 'dset6');
model.result('pg167').create('slc1', 'Slice');
model.result('pg167').feature('slc1').set('expr', 'ACE2');
model.result.create('pg168', 'PlotGroup3D');
model.result('pg168').set('data', 'dset6');
model.result('pg168').create('slc1', 'Slice');
model.result('pg168').feature('slc1').set('expr', 'ACE2bAngI');
model.result.create('pg169', 'PlotGroup3D');
model.result('pg169').set('data', 'dset6');
model.result('pg169').create('slc1', 'Slice');
model.result('pg169').feature('slc1').set('expr', 'ACE2bAngII');
model.result.create('pg170', 'PlotGroup3D');
model.result('pg170').set('data', 'dset6');
model.result('pg170').create('slc1', 'Slice');
model.result('pg170').feature('slc1').set('expr', 'IL6');
model.result.create('pg171', 'PlotGroup3D');
```

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model.result('pg171').set('data', 'dset6');
model.result('pg171').create('slc1', 'Slice');
model.result('pg171').feature('slc1').set('expr', 'IL6R');
model.result.create('pg172', 'PlotGroup3D');
model.result('pg172').set('data', 'dset6');
model.result('pg172').create('slc1', 'Slice');
model.result('pg172').feature('slc1').set('expr', 'IL6RbIL6');
model.result.create('pg173', 'PlotGroup3D');
model.result('pg173').set('data', 'dset6');
model.result('pg173').create('slc1', 'Slice');
model.result('pg173').feature('slc1').set('expr', 'sIL6RbIL6');
model.result.create('pg174', 'PlotGroup3D');
model.result('pg174').set('data', 'dset6');
model.result('pg174').create('slc1', 'Slice');
model.result('pg174').feature('slc1').set('expr', 'sIL6R');
model.result.create('pg175', 'PlotGroup3D');
model.result('pg175').set('data', 'dset6');
model.result('pg175').create('slc1', 'Slice');
model.result('pg175').feature('slc1').set('expr', 'sACE2');
model.result.create('pg176', 'PlotGroup3D');
model.result('pg176').set('data', 'dset6');
model.result('pg176').create('slc1', 'Slice');
model.result('pg176').feature('slc1').set('expr', 'ec');
model.result.create('pg177', 'PlotGroup3D');
model.result('pg177').set('data', 'dset6');
model.result('pg177').create('slc1', 'Slice');
model.result('pg177').feature('slc1').set('expr', 'iec');
model.result.create('pg178', 'PlotGroup3D');
model.result('pg178').set('data', 'dset6');
model.result('pg178').create('slc1', 'Slice');
model.result('pg178').feature('slc1').set('expr', 'y5');
model.result.create('pg179', 'PlotGroup3D');
model.result('pg179').set('data', 'dset6');
model.result('pg179').create('slc1', 'Slice');
model.result('pg179').feature('slc1').set('expr', 'y78');
model.result.create('pg180', 'PlotGroup3D');
model.result('pg180').set('data', 'dset6');
model.result('pg180').create('slc1', 'Slice');
model.result('pg180').feature('slc1').set('expr', 'y85');
model.result.create('pg181', 'PlotGroup3D');
model.result('pg181').set('data', 'dset6');
model.result('pg181').create('slc1', 'Slice');
model.result('pg181').feature('slc1').set('expr', 'y86');
model.result.create('pg182', 'PlotGroup3D');
model.result('pg182').set('data', 'dset6');
model.result('pg182').create('slc1', 'Slice');
model.result('pg182').feature('slc1').set('expr', 'y105');
model.result.create('pg183', 'PlotGroup3D');
model.result('pg183').set('data', 'dset6');
model.result('pg183').create('slc1', 'Slice');
```

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20344 model.result('pg183').feature('slc1').set('expr', 'y14');
20345 model.result.create('pg184', 'PlotGroup3D');
20346 model.result('pg184').set('data', 'dset6');
20347 model.result('pg184').create('slc1', 'Slice');
20348 model.result('pg184').feature('slc1').set('expr', 'y15');
20349 model.result.create('pg185', 'PlotGroup3D');
20350 model.result('pg185').set('data', 'dset6');
20351 model.result('pg185').create('slc1', 'Slice');
20352 model.result('pg185').feature('slc1').set('expr', 'y107');
20353 model.result.create('pg186', 'PlotGroup3D');
20354 model.result('pg186').set('data', 'dset6');
20355 model.result('pg186').create('slc1', 'Slice');
20356 model.result('pg186').feature('slc1').set('expr', 'y87');
20357 model.result.create('pg187', 'PlotGroup3D');
20358 model.result('pg187').set('data', 'dset6');
20359 model.result('pg187').create('slc1', 'Slice');
20360 model.result('pg187').feature('slc1').set('expr', 'y18');
20361 model.result.create('pg188', 'PlotGroup3D');
20362 model.result('pg188').set('data', 'dset6');
20363 model.result('pg188').create('slc1', 'Slice');
20364 model.result('pg188').feature('slc1').set('expr', 'y19');
20365 model.result.create('pg189', 'PlotGroup3D');
20366 model.result('pg189').set('data', 'dset6');
20367 model.result('pg189').create('slc1', 'Slice');
20368 model.result('pg189').feature('slc1').set('expr', 'y108');
20369 model.result.create('pg190', 'PlotGroup3D');
20370 model.result('pg190').set('data', 'dset6');
20371 model.result('pg190').create('slc1', 'Slice');
20372 model.result('pg190').feature('slc1').set('expr', 'y102');
20373 model.result.create('pg191', 'PlotGroup3D');
20374 model.result('pg191').set('data', 'dset6');
20375 model.result('pg191').create('slc1', 'Slice');
20376 model.result('pg191').feature('slc1').set('expr', 'y22');
20377 model.result.create('pg192', 'PlotGroup3D');
20378 model.result('pg192').set('data', 'dset6');
20379 model.result('pg192').create('slc1', 'Slice');
20380 model.result('pg192').feature('slc1').set('expr', 'y23');
20381 model.result.create('pg193', 'PlotGroup3D');
20382 model.result('pg193').set('data', 'dset6');
20383 model.result('pg193').create('slc1', 'Slice');
20384 model.result('pg193').feature('slc1').set('expr', 'y109');
20385 model.result.create('pg194', 'PlotGroup3D');
20386 model.result('pg194').set('data', 'dset6');
20387 model.result('pg194').create('slc1', 'Slice');
20388 model.result('pg194').feature('slc1').set('expr', 'y92');
20389 model.result.create('pg195', 'PlotGroup3D');
20390 model.result('pg195').set('data', 'dset6');
20391 model.result('pg195').create('slc1', 'Slice');
20392 model.result('pg195').feature('slc1').set('expr', 'y26');
20393 model.result.create('pg196', 'PlotGroup3D');
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20394 model.result('pg196').set('data', 'dset6');
20395 model.result('pg196').create('slc1', 'Slice');
20396 model.result('pg196').feature('slc1').set('expr', 'y27');
20397 model.result.create('pg197', 'PlotGroup3D');
20398 model.result('pg197').set('data', 'dset6');
20399 model.result('pg197').create('slc1', 'Slice');
20400 model.result('pg197').feature('slc1').set('expr', 'y90');
20401 model.result.create('pg198', 'PlotGroup3D');
20402 model.result('pg198').set('data', 'dset6');
20403 model.result('pg198').create('slc1', 'Slice');
20404 model.result('pg198').feature('slc1').set('expr', 'y110');
20405 model.result.create('pg199', 'PlotGroup3D');
20406 model.result('pg199').set('data', 'dset6');
20407 model.result('pg199').create('slc1', 'Slice');
20408 model.result('pg199').feature('slc1').set('expr', 'y30');
20409 model.result.create('pg200', 'PlotGroup3D');
20410 model.result('pg200').set('data', 'dset6');
20411 model.result('pg200').create('slc1', 'Slice');
20412 model.result('pg200').feature('slc1').set('expr', 'y31');
20413 model.result.create('pg201', 'PlotGroup3D');
20414 model.result('pg201').set('data', 'dset6');
20415 model.result('pg201').create('slc1', 'Slice');
20416 model.result('pg201').feature('slc1').set('expr', 'y111');
20417 model.result.create('pg202', 'PlotGroup3D');
20418 model.result('pg202').set('data', 'dset6');
20419 model.result('pg202').create('slc1', 'Slice');
20420 model.result('pg202').feature('slc1').set('expr', 'y103');
20421 model.result.create('pg203', 'PlotGroup3D');
20422 model.result('pg203').set('data', 'dset6');
20423 model.result('pg203').create('slc1', 'Slice');
20424 model.result('pg203').feature('slc1').set('expr', 'y54');
20425 model.result.create('pg204', 'PlotGroup3D');
20426 model.result('pg204').set('data', 'dset6');
20427 model.result('pg204').create('slc1', 'Slice');
20428 model.result('pg204').feature('slc1').set('expr', 'y55');
20429 model.result.create('pg205', 'PlotGroup3D');
20430 model.result('pg205').set('data', 'dset6');
20431 model.result('pg205').create('slc1', 'Slice');
20432 model.result('pg205').feature('slc1').set('expr', 'y117');
20433 model.result.create('pg206', 'PlotGroup3D');
20434 model.result('pg206').set('data', 'dset6');
20435 model.result('pg206').create('slc1', 'Slice');
20436 model.result('pg206').feature('slc1').set('expr', 'y94');
20437 model.result.create('pg207', 'PlotGroup3D');
20438 model.result('pg207').set('data', 'dset6');
20439 model.result('pg207').create('slc1', 'Slice');
20440 model.result('pg207').feature('slc1').set('expr', 'y62');
20441 model.result.create('pg208', 'PlotGroup3D');
20442 model.result('pg208').set('data', 'dset6');
20443 model.result('pg208').create('slc1', 'Slice');
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20444 model.result('pg208').feature('slc1').set('expr', 'y63');
20445 model.result.create('pg209', 'PlotGroup3D');
20446 model.result('pg209').set('data', 'dset6');
20447 model.result('pg209').create('slc1', 'Slice');
20448 model.result('pg209').feature('slc1').set('expr', 'y119');
20449 model.result.create('pg210', 'PlotGroup3D');
20450 model.result('pg210').set('data', 'dset6');
20451 model.result('pg210').create('slc1', 'Slice');
20452 model.result('pg210').feature('slc1').set('expr', 'y70');
20453 model.result.create('pg211', 'PlotGroup3D');
20454 model.result('pg211').set('data', 'dset6');
20455 model.result('pg211').create('slc1', 'Slice');
20456 model.result('pg211').feature('slc1').set('expr', 'y71');
20457 model.result.create('pg212', 'PlotGroup3D');
20458 model.result('pg212').set('data', 'dset6');
20459 model.result('pg212').create('slc1', 'Slice');
20460 model.result('pg212').feature('slc1').set('expr', 'y121');
20461 model.result.create('pg213', 'PlotGroup3D');
20462 model.result('pg213').set('data', 'dset6');
20463 model.result('pg213').create('slc1', 'Slice');
20464 model.result('pg213').feature('slc1').set('expr', 'y98');
20465 model.result.create('pg214', 'PlotGroup3D');
20466 model.result('pg214').set('data', 'dset6');
20467 model.result('pg214').create('slc1', 'Slice');
20468 model.result('pg214').feature('slc1').set('expr', 'y74');
20469 model.result.create('pg215', 'PlotGroup3D');
20470 model.result('pg215').set('data', 'dset6');
20471 model.result('pg215').create('slc1', 'Slice');
20472 model.result('pg215').feature('slc1').set('expr', 'y75');
20473 model.result.create('pg216', 'PlotGroup3D');
20474 model.result('pg216').set('data', 'dset6');
20475 model.result('pg216').create('slc1', 'Slice');
20476 model.result('pg216').feature('slc1').set('expr', 'y124');
20477 model.result.create('pg217', 'PlotGroup3D');
20478 model.result('pg217').set('data', 'dset6');
20479 model.result('pg217').create('slc1', 'Slice');
20480 model.result('pg217').feature('slc1').set('expr', 'y125');
20481 model.result.create('pg218', 'PlotGroup3D');
20482 model.result('pg218').set('data', 'dset6');
20483 model.result('pg218').create('slc1', 'Slice');
20484 model.result('pg218').feature('slc1').set('expr', 'y96');
20485 model.result.create('pg219', 'PlotGroup3D');
20486 model.result('pg219').set('data', 'dset6');
20487 model.result('pg219').create('slc1', 'Slice');
20488 model.result('pg219').feature('slc1').set('expr', 'PD1bPDL1');
20489 model.result.create('pg220', 'PlotGroup3D');
20490 model.result('pg220').set('data', 'dset6');
20491 model.result('pg220').create('slc1', 'Slice');
20492 model.result('pg220').feature('slc1').set('expr', 'antiPD1');
20493 model.result.create('pg221', 'PlotGroup3D');
```

```
model.result('pg221').set('data', 'dset6');
model.result('pg221').create('slc1', 'Slice');
model.result('pg221').feature('slc1').set('expr', 'PDL1');
model.result.create('pg222', 'PlotGroup3D');
model.result('pg222').set('data', 'dset6');
model.result('pg222').create('slc1', 'Slice');
model.result('pg222').feature('slc1').set('expr', 'PD1');
model.result.create('pg223', 'PlotGroup3D');
model.result('pg223').set('data', 'dset6');
model.result('pg223').create('slc1', 'Slice');
model.result('pg223').feature('slc1').set('expr', 'NETs');
model.result.create('pg224', 'PlotGroup3D');
model.result('pg224').set('data', 'dset6');
model.result('pg224').create('slc1', 'Slice');
model.result('pg224').feature('slc1').set('expr', 'IF');
model.result.create('pg225', 'PlotGroup3D');
model.result('pg225').set('data', 'dset6');
model.result('pg225').create('slc1', 'Slice');
model.result('pg225').feature('slc1').set('expr', 'DC');
model.result.create('pg226', 'PlotGroup3D');
model.result('pg226').set('data', 'dset6');
model.result('pg226').create('slc1', 'Slice');
model.result('pg226').feature('slc1').set('expr', 'DCi');
model.result.create('pg227', 'PlotGroup3D');
model.result('pg227').set('data', 'dset6');
model.result('pg227').create('slc1', 'Slice');
model.result('pg227').feature('slc1').set('expr', 'ThN');
model.result.create('pg228', 'PlotGroup3D');
model.result('pg228').set('data', 'dset6');
model.result('pg228').create('slc1', 'Slice');
model.result('pg228').feature('slc1').set('expr', 'ThE');
model.result.create('pg229', 'PlotGroup3D');
model.result('pg229').set('data', 'dset6');
model.result('pg229').create('slc1', 'Slice');
model.result('pg229').feature('slc1').set('expr', 'TN');
model.result.create('pg230', 'PlotGroup3D');
model.result('pg230').set('data', 'dset6');
model.result('pg230').create('slc1', 'Slice');
model.result('pg230').feature('slc1').set('expr', 'TE');
model.result.create('pg231', 'PlotGroup3D');
model.result('pg231').set('data', 'dset6');
model.result('pg231').create('slc1', 'Slice');
model.result('pg231').feature('slc1').set('expr', 'BN');
model.result.create('pg232', 'PlotGroup3D');
model.result('pg232').set('data', 'dset6');
model.result('pg232').create('slc1', 'Slice');
model.result('pg232').feature('slc1').set('expr', 'BA');
model.result.create('pg233', 'PlotGroup3D');
model.result('pg233').set('data', 'dset6');
model.result('pg233').create('slc1', 'Slice');
```

```
20544 model.result('pg233').feature('slc1').set('expr', 'PL');
20545 model.result.create('pg234', 'PlotGroup3D');
20546 model.result('pg234').set('data', 'dset6');
20547 model.result('pg234').create('slc1', 'Slice');
20548 model.result('pg234').feature('slc1').set('expr', 'PS');
20549 model.result.create('pg235', 'PlotGroup3D');
20550 model.result('pg235').set('data', 'dset6');
20551 model.result('pg235').create('slc1', 'Slice');
20552 model.result('pg235').feature('slc1').set('expr', 'A');
20553 model.result.create('pg236', 'PlotGroup3D');
20554 model.result('pg236').set('data', 'dset6');
20555 model.result('pg236').create('slc1', 'Slice');
20556 model.result('pg236').feature('slc1').set('expr', 'y200');
20557 model.result.create('pg237', 'PlotGroup3D');
20558 model.result('pg237').set('data', 'dset6');
20559 model.result('pg237').create('slc1', 'Slice');
20560 model.result('pg237').feature('slc1').set('expr', 'ThM');
20561 model.result.create('pg238', 'PlotGroup3D');
20562 model.result('pg238').set('data', 'dset6');
20563 model.result('pg238').create('slc1', 'Slice');
20564 model.result('pg238').feature('slc1').set('expr', 'TM');
20565 model.result.create('pg239', 'PlotGroup3D');
20566 model.result('pg239').set('data', 'dset6');
20567 model.result('pg239').create('slc1', 'Slice');
20568 model.result('pg239').feature('slc1').set('expr', 'y300');
20569 model.result.create('pg240', 'PlotGroup3D');
20570 model.result('pg240').set('data', 'dset6');
20571 model.result('pg240').create('slc1', 'Slice');
20572 model.result('pg240').feature('slc1').set('expr', 'Va');
20573 model.result.create('pg241', 'PlotGroup3D');
20574 model.result('pg241').set('data', 'dset6');
20575 model.result('pg241').create('slc1', 'Slice');
20576 model.result('pg241').feature('slc1').set('expr', 'Vab');
20577 model.result.create('pg242', 'PlotGroup3D');
20578 model.result('pg242').set('data', 'dset6');
20579 model.result('pg242').create('slc1', 'Slice');
20580 model.result('pg242').feature('slc1').set('expr', 'Vaint');
20581 model.result.create('pg243', 'PlotGroup3D');
20582 model.result('pg243').set('data', 'dset6');
20583 model.result('pg243').create('slc1', 'Slice');
20584 model.result('pg243').feature('slc1').set('expr', 'VaPro');
20585 model.result.create('pg244', 'PlotGroup3D');
20586 model.result('pg244').set('data', 'dset6');
20587 model.result('pg244').create('slc1', 'Slice');
20588 model.result('pg244').feature('slc1').set('expr', 'Treg');
20589 model.result.create('pg245', 'PlotGroup3D');
20590 model.result('pg245').set('data', 'dset6');
20591 model.result('pg245').create('slc1', 'Slice');
20592 model.result('pg245').feature('slc1').set('expr', 'fsens(dB)');
20593 model.result('pg245').feature('slc1').set('descr', 'Sensitivity w.r.t. dB');
```

```
20594 model.result.remove('pg165');
20595 model.result.remove('pg164');
20596 model.result.remove('pg167');
20597 model.result.remove('pg200');
20598 model.result.remove('pg166');
20599 model.result.remove('pg169');
20600 model.result.remove('pg202');
20601 model.result.remove('pg168');
20602 model.result.remove('pg201');
20603 model.result.remove('pg204');
20604 model.result.remove('pg203');
20605 model.result.remove('pg161');
20606 model.result.remove('pg160');
20607 model.result.remove('pg163');
20608 model.result.remove('pg162');
20609 model.result.remove('pg176');
20610 model.result.remove('pg175');
20611 model.result.remove('pg178');
20612 model.result.remove('pg211');
20613 model.result.remove('pg177');
20614 model.result.remove('pg210');
20615 model.result.remove('pg213');
20616 model.result.remove('pg179');
20617 model.result.remove('pg212');
20618 model.result.remove('pg215');
20619 model.result.remove('pg214');
20620 model.result.remove('pg170');
20621 model.result.remove('pg172');
20622 model.result.remove('pg171');
20623 model.result.remove('pg174');
20624 model.result.remove('pg173');
20625 model.result.remove('pg206');
20626 model.result.remove('pg205');
20627 model.result.remove('pg208');
20628 model.result.remove('pg207');
20629 model.result.remove('pg209');
20630 model.result.remove('pg143');
20631 model.result.remove('pg145');
20632 model.result.remove('pg144');
20633 model.result.remove('pg147');
20634 model.result.remove('pg146');
20635 model.result.remove('pg149');
20636 model.result.remove('pg148');
20637 model.result.remove('pg154');
20638 model.result.remove('pg153');
20639 model.result.remove('pg156');
20640 model.result.remove('pg155');
20641 model.result.remove('pg158');
20642 model.result.remove('pg157');
20643 model.result.remove('pg159');
```

```
20644 model.result.remove('pg150');
20645 model.result.remove('pg152');
20646 model.result.remove('pg151');
20647 model.result.remove('pg242');
20648 model.result.remove('pg241');
20649 model.result.remove('pg244');
20650 model.result.remove('pg243');
20651 model.result.remove('pg245');
20652 model.result.remove('pg240');
20653 model.result.remove('pg239');
20654 model.result.remove('pg238');
20655 model.result.remove('pg187');
20656 model.result.remove('pg220');
20657 model.result.remove('pg186');
20658 model.result.remove('pg189');
20659 model.result.remove('pg222');
20660 model.result.remove('pg188');
20661 model.result.remove('pg221');
20662 model.result.remove('pg224');
20663 model.result.remove('pg223');
20664 model.result.remove('pg226');
20665 model.result.remove('pg225');
20666 model.result.remove('pg181');
20667 model.result.remove('pg180');
20668 model.result.remove('pg183');
20669 model.result.remove('pg182');
20670 model.result.remove('pg185');
20671 model.result.remove('pg184');
20672 model.result.remove('pg217');
20673 model.result.remove('pg216');
20674 model.result.remove('pg219');
20675 model.result.remove('pg218');
20676 model.result.remove('pg198');
20677 model.result.remove('pg231');
20678 model.result.remove('pg197');
20679 model.result.remove('pg230');
20680 model.result.remove('pg233');
20681 model.result.remove('pg199');
20682 model.result.remove('pg232');
20683 model.result.remove('pg235');
20684 model.result.remove('pg234');
20685 model.result.remove('pg237');
20686 model.result.remove('pg236');
20687 model.result.remove('pg190');
20688 model.result.remove('pg192');
20689 model.result.remove('pg191');
20690 model.result.remove('pg194');
20691 model.result.remove('pg193');
20692 model.result.remove('pg196');
20693 model.result.remove('pg195');
```

```
model.result.remove('pg228');
model.result.remove('pg227');
model.result.remove('pg229');

model.study('std3').feature('stat').setIndex('activate', false, 1);
model.study('std3').feature('stat').setIndex('activate', true, 1);
model.study.create('std4');
model.study('std4').create('time', 'Transient');
model.study('std4').feature('time').activate('AGT', true);
model.study('std4').feature('time').activate('Renin', true);
model.study('std4').feature('time').activate('AngI', true);
model.study('std4').feature('time').activate('AngII', true);
model.study('std4').feature('time').activate('Ang17', true);
model.study('std4').feature('time').activate('Ang19', true);
model.study('std4').feature('time').activate('AngIII', true);
model.study('std4').feature('time').activate('AngIV', true);
model.study('std4').feature('time').activate('AT1bAngII', true);
model.study('std4').feature('time').activate('AT2bAngII', true);
model.study('std4').feature('time').activate('AT4bAngIV', true);
model.study('std4').feature('time').activate('MAsbAng17', true);
model.study('std4').feature('time').activate('Cb', true);
model.study('std4').feature('time').activate('H', true);
model.study('std4').feature('time').activate('Vint', true);
model.study('std4').feature('time').activate('In', true);
model.study('std4').feature('time').activate('Ci', true);
model.study('std4').feature('time').activate('n', true);
model.study('std4').feature('time').activate('ma', true);
model.study('std4').feature('time').activate('c', true);
model.study('std4').feature('time').activate('a', true);
model.study('std4').feature('time').activate('AT1R', true);
model.study('std4').feature('time').activate('AT2R', true);
model.study('std4').feature('time').activate('MAsR', true);
model.study('std4').feature('time').activate('AT4R', true);
model.study('std4').feature('time').activate('ACE2', true);
model.study('std4').feature('time').activate('ACE2bAngI', true);
model.study('std4').feature('time').activate('ACE2bAngII', true);
model.study('std4').feature('time').activate('IL6', true);
model.study('std4').feature('time').activate('IL6R', true);
model.study('std4').feature('time').activate('IL6RbIL6', true);
model.study('std4').feature('time').activate('sIL6RbIL6', true);
model.study('std4').feature('time').activate('sIL6R', true);
model.study('std4').feature('time').activate('sACE2', true);
model.study('std4').feature('time').activate('ec', true);
model.study('std4').feature('time').activate('iec', true);
model.study('std4').feature('time').activate('dode', true);
model.study('std4').feature('time').activate('dode2', true);
model.study('std4').feature('time').activate('dode3', true);
model.study('std4').feature('time').activate('dode4', true);
model.study('std4').feature('time').activate('dode7', true);
model.study('std4').feature('time').activate('dode9', true);
```

```
20744 model.study('std4').feature('time').activate('dode10', true);
20745 model.study('std4').feature('time').activate('dode11', true);
20746 model.study('std4').feature('time').activate('dode12', true);
20747 model.study('std4').feature('time').activate('dode13', true);
20748 model.study('std4').feature('time').activate('dode14', true);
20749 model.study('std4').feature('time').activate('dode15', true);
20750 model.study('std4').feature('time').activate('dode16', true);
20751 model.study('std4').feature('time').activate('dode17', true);
20752 model.study('std4').feature('time').activate('dode18', true);
20753 model.study('std4').feature('time').activate('dode19', true);
20754 model.study('std4').feature('time').activate('dode20', true);
20755 model.study('std4').feature('time').activate('dode21', true);
20756 model.study('std4').feature('time').activate('dode22', true);
20757 model.study('std4').feature('time').activate('dode24', true);
20758 model.study('std4').feature('time').activate('dode23', true);
20759 model.study('std4').feature('time').activate('dode25', true);
20760 model.study('std4').feature('time').activate('dode26', true);
20761 model.study('std4').feature('time').activate('dode27', true);
20762 model.study('std4').feature('time').activate('dode28', true);
20763 model.study('std4').feature('time').activate('dode29', true);
20764 model.study('std4').feature('time').activate('dode30', true);
20765 model.study('std4').feature('time').activate('dode31', true);
20766 model.study('std4').feature('time').activate('dode32', true);
20767 model.study('std4').feature('time').activate('dode33', true);
20768 model.study('std4').feature('time').activate('dode34', true);
20769 model.study('std4').feature('time').activate('dode35', true);
20770 model.study('std4').feature('time').activate('dode36', true);
20771 model.study('std4').feature('time').activate('dode37', true);
20772 model.study('std4').feature('time').activate('dode38', true);
20773 model.study('std4').feature('time').activate('dode39', true);
20774 model.study('std4').feature('time').activate('dode40', true);
20775 model.study('std4').feature('time').activate('dode41', true);
20776 model.study('std4').feature('time').activate('dode42', true);
20777 model.study('std4').feature('time').activate('dode43', true);
20778 model.study('std4').feature('time').activate('dode44', true);
20779 model.study('std4').feature('time').activate('PD1bPDL1', true);
20780 model.study('std4').feature('time').activate('antiPD1', true);
20781 model.study('std4').feature('time').activate('PDL_1', true);
20782 model.study('std4').feature('time').activate('PD1', true);
20783 model.study('std4').feature('time').activate('NETs', true);
20784 model.study('std4').feature('time').activate('IF', true);
20785 model.study('std4').feature('time').activate('DC', true);
20786 model.study('std4').feature('time').activate('DCi', true);
20787 model.study('std4').feature('time').activate('ThN', true);
20788 model.study('std4').feature('time').activate('ThE', true);
20789 model.study('std4').feature('time').activate('TN', true);
20790 model.study('std4').feature('time').activate('TE', true);
20791 model.study('std4').feature('time').activate('BN', true);
20792 model.study('std4').feature('time').activate('BA', true);
20793 model.study('std4').feature('time').activate('PL', true);
```

```
model.study('std4').feature('time').activate('PS', true);
model.study('std4').feature('time').activate('A', true);
model.study('std4').feature('time').activate('y200', true);
model.study('std4').feature('time').activate('ThM', true);
model.study('std4').feature('time').activate('TM', true);
model.study('std4').feature('time').activate('y300', true);
model.study('std4').feature('time').activate('Va', true);
model.study('std4').feature('time').activate('Vab', true);
model.study('std4').feature('time').activate('Vaint', true);
model.study('std4').feature('time').activate('VaTran', true);
model.study('std4').feature('time').activate('VaPro', true);
model.study('std4').feature('time').activate('dode5', true);
model.study('std4').feature('time').activate('sens', true);
model.study('std3').create('time', 'Transient');
model.study('std4').create('sens', 'Sensitivity');
model.study.remove('std4');
model.study.remove('std3');
model.study('std1').create('stat', 'Stationary');
model.study('std1').feature('stat').set('useinitsol', true);
model.study('std1').feature('stat').set('initmethod', 'sol');
model.study('std1').feature('stat').set('initstudy', 'std2');
model.study('std1').feature('stat').set('solnum', 'last');
model.study('std1').feature('stat').set('initstudy', 'std1');
model.study('std1').create('sens', 'Sensitivity');
model.study('std1').feature('sens').set('optobj', {'comp1.Kif'});
model.study('std1').feature('sens').set('descr', {''});
model.study('std1').feature('sens').set('optobj', {'comp1.Kif' 'comp1.KtiecIn'});
model.study('std1').feature('sens').set('descr', {'' ''});

model.sol('sol54').runAll;

model.result('pg40').run;
model.result('pg40').run;
model.result('pg40').run;
model.result('pg142').run;
model.result('pg142').run;
model.result('pg40').run;
model.result('pg40').run;
model.result('pg40').feature('ptgr2').set('expr', 'dB');
model.result('pg40').run;
model.result('pg40').feature('ptgr2').set('expr', 'fsens(dB)');
model.result('pg40').feature('ptgr2').set('data', 'parent');
model.result('pg40').feature('ptgr2').selection.all;
model.result.numerical.create('pev2', 'EvalPoint');
model.result.numerical('pev2').set('data', 'cpt1');
model.result.numerical('pev2').set('expr', {});
model.result.numerical('pev2').set('descr', {});
model.result.numerical('pev2').setIndex('expr', 'fsens(dB)', 0);
model.result.table.create('tbl2', 'Table');
model.result.table('tbl2').comments('Point Evaluation 2');
```

```
20844 model.result.numerical('pev2').set('table', 'tbl2');
20845 model.result.numerical.remove('pev2');
20846
20847 model.component('comp1').physics('sens').feature('cvar1').set('order', 0);
20848
20849 model.result('pg40').run;
20850
20851 model.sol('sol54').runAll;
20852
20853 model.result('pg142').run;
20854 model.result('pg142').feature('vol1').set('expr', 'Va');
20855 model.result('pg142').run;
20856 model.result('pg142').feature('vol1').set('data', 'dset5');
20857 model.result('pg142').run;
20858 model.result('pg142').run;
20859 model.result('pg142').set('data', 'dset5');
20860 model.result('pg142').run;
20861 model.result('pg142').set('data', 'none');
20862 model.result('pg142').run;
20863 model.result('pg142').run;
20864 model.result('pg142').feature('vol1').set('data', 'dset4');
20865 model.result('pg142').run;
20866 model.result('pg142').feature('vol1').set('expr', 'dB');
20867 model.result('pg142').run;
20868 model.result('pg142').feature('vol1').setIndex('looplevel', 40, 0);
20869 model.result('pg142').run;
20870 model.result('pg142').feature('vol1').set('data', 'dset5');
20871 model.result('pg142').run;
20872 model.result('pg142').feature('vol1').setIndex('looplevel', 4, 0);
20873 model.result('pg142').run;
20874 model.result('pg142').feature('vol1').set('data', 'dset4');
20875 model.result('pg142').run;
20876 model.result('pg142').feature('vol1').set('expr', 'fsens(dB)');
20877 model.result('pg142').feature('vol1').setIndex('looplevel', 41, 0);
20878
20879 model.label('Covid vaccines model_mRNA_Treg_run_phic0 - ↙
Copy_run_degradation_run3_tow study_run_test_sen.mph');
20880 model.label('Covid vaccine model.mph');
20881
20882 out = model;
20883
```