**Severe acute respiratory syndrome coronavirus 2 isolate SARS-CoV-2/human/USA/NJ-CDC-LC0630974/2022, complete genome**

GenBank: ON592247.1

[FASTA](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?report=fasta) [Graphics](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?report=graph)

[Go to:](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1" \l "goto2244076027_0)

LOCUS ON592247 29727 bp RNA linear VRL 24-MAY-2022

DEFINITION Severe acute respiratory syndrome coronavirus 2 isolate

SARS-CoV-2/human/USA/NJ-CDC-LC0630974/2022, complete genome.

ACCESSION ON592247

VERSION ON592247.1

DBLINK BioProject: [PRJNA716984](https://www.ncbi.nlm.nih.gov/bioproject/PRJNA716984)

BioSample: [SAMN28620592](https://www.ncbi.nlm.nih.gov/biosample/SAMN28620592)

KEYWORDS purposeofsampling:baselinesurveillance.

SOURCE Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2)

ORGANISM [Severe acute respiratory syndrome coronavirus 2](https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=2697049)

Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes;

Nidovirales; Cornidovirineae; Coronaviridae; Orthocoronavirinae;

Betacoronavirus; Sarbecovirus.

REFERENCE 1 (bases 1 to 29727)

AUTHORS Howard,D., Batra,D., Cook,P.W., Caravas,J., Rambo-Martin,B.,

Sammons,S., Unoarumhi,Y., Schmerer,M., Lacek,K.A., Kendall,T.,

Caban Figueroa,V., Morrison,S., Gulvick,C., Agarwal,M., Almasri,E.,

Boles,D., Burns,A., Charoensri,N., Cohen,O., Countryman,S.,

Cristobal,M.A., Croy,B., Dale,S., Deshmukh,H., Douglas,A.,

Drouillon,V., Eisenberg,M., Engler,H., Ghatti,R., Gupta,P.,

Hicks,S., Humphrey,J., Iyer,L., Pfefferle,L., Jain,M., Robinson,M.,

Kolli,M., Krueger,B., Kuphal,T., Letovsky,S., Levandoski,M.,

Lukasik,C., Meltzer,J., Norvell,B., Nye,M., Parker,S.,

Petropoulos,C., Pruitt,J., Ragan,S., Ryan,S., Sapeta,M.,

Schroth,J., Selvaraju,S.B., Stevovic,G., Suchanek,A., Throop,A.,

Tilson,L., Urban,T., Voshell,J., Wagner,K., Williams,J.,

Williamson,M., Zeng,Q., Zwiefelhofer,T., Paden,C.R. and

MacCannell,D.

TITLE CDC Sars CoV2 Sequencing Baseline Constellation

JOURNAL Unpublished

REFERENCE 2 (bases 1 to 29727)

AUTHORS Howard,D., Batra,D., Cook,P.W., Caravas,J., Rambo-Martin,B.,

Sammons,S., Unoarumhi,Y., Schmerer,M., Lacek,K.A., Kendall,T.,

Caban Figueroa,V., Morrison,S., Gulvick,C., Sula,E., Agarwal,M.,

Almasri,E., Boles,D., Burns,A., Charoensri,N., Cohen,O.,

Countryman,S., Cristobal,M.A., Croy,B., Dale,S., Deshmukh,H.,

Douglas,A., Drouillon,V., Eisenberg,M., Engler,H., Ghatti,R.,

Gupta,P., Hicks,S., Humphrey,J., Iyer,L., Pfefferle,L., Jain,M.,

Robinson,M., Kolli,M., Krueger,B., Kuphal,T., Letovsky,S.,

Levandoski,M., Lukasik,C., Meltzer,J., Norvell,B., Nye,M.,

Parker,S., Petropoulos,C., Pruitt,J., Ragan,S., Ryan,S., Sapeta,M.,

Schroth,J., Selvaraju,S.B., Stevovic,G., Suchanek,A., Throop,A.,

Tilson,L., Urban,T., Voshell,J., Wagner,K., Williams,J.,

Williamson,M., Zeng,Q., Zwiefelhofer,T., Paden,C.R. and

MacCannell,D.

TITLE Direct Submission

JOURNAL Submitted (24-MAY-2022) Respiratory Viruses Branch, Division of

Viral Diseases, Centers for Disease Control and Prevention, 1600

Clifton Rd, Atlanta, GA 30329, USA

COMMENT ##Assembly-Data-START##

Assembly Method :: CLC Genomics

Sequencing Technology :: PacBio Sequel II

##Assembly-Data-END##

FEATURES Location/Qualifiers

source 1..29727

/organism="Severe acute respiratory syndrome coronavirus

2"

/mol\_type="genomic RNA"

/isolate="SARS-CoV-2/human/USA/NJ-CDC-LC0630974/2022"

/isolation\_source="Nasal Swabs"

/host="Homo sapiens"

/db\_xref="taxon:[2697049](https://www.ncbi.nlm.nih.gov/Taxonomy/Browser/wwwtax.cgi?id=2697049)"

/country="USA: New Jersey"

/collection\_date="2022-05-11"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=227&to=21507) 227..21507

/gene="ORF1ab"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?location=227:13420,13420:21507) join(227..13420,13420..21507)

/gene="ORF1ab"

/ribosomal\_slippage

/codon\_start=1

/product="ORF1ab polyprotein"

/protein\_id="[URC87717.1](https://www.ncbi.nlm.nih.gov/protein/2244076028)"

/translation="MESLVPGFNEKTHVQLSLPVLQVRDVLVRGFGDSVEEVLSEARQ

HLKDGTCGLVEVEKGVLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGE

TLGVLVPHVGEIPVAYRKVLLRKNGNKGAGGHRYGADLKSFDLGDELGTDPYEDFQEN

WNTKHSSGVTRELMRELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEQ

LDFIDTKRGVYCCREHEHEIAWYTERSEKSYELQTPFEIKLAKKFDTFNGECPNFVFP

LNSIIKTIQPRVEKKKLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTG

DFVKATCEFCGTENLTKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESG

LKTILRKGGRTIAFGGCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNL

LEILQKEKVNINIVGDFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGN

FKVTKGKAKKGAWNIGEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAA

ITILDGISQYSLRLIDAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKL

KPVLDWLEEKFKEGVEFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLV

NKFLALCADSIIIGGAKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEII

FLEGETLPTEVLTEEVVLKTGDLQPLEQPTSEAVEAPLVGTPVCINGLMLLEIKDTEK

YCALAPNMMVTNNTFTLKGGAPTKVTFGDDTVIEVQGYKSVNIIFELDERIDKVLNEK

CSAYTVELGTEVNEFACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDESGEF

KLASHMYCSFYPPDEDEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPE

EEQEEDWLDDDSQQTVGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSG

YLKLTDNVYIKNADIVEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESD

DYIATNGPLKVGGSCVLSGHNLAKHCLHVVGPNVNKGEDIQLLKSAYENFNQHEVLLA

PLLSAGIFGADPIHSLRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIA

EIPKEEVKPFITESKPSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGN

LHPDSATLVSDIDITFLKKDAPYIVGDVVQEGVLTAVVIPTKKASGTTEMLAKALRKV

PTDNYITTYPGQGLNGYTVEEAKTVLKKCKSAFYILPSIISNEKQEILGTVSWNLREM

LAHAEETRKLMPVCVETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLIN

TLNDLNETLVTMPLGYVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSS

KTPEEHFIETISLAGSYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTIFHLDGEVIT

FDNLKTLLSLREVRTIKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPH

NSHEGKTFYVLPNDDTLRVEAFEYYHTTDPSFLGRYMSALNHTKKWKYPQVNGLTSIK

WADNNCYLATALLTLQQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELG

DVRETMSYLFQHANLDSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQ

IPCTCGKQATKYLVQQESPFVMMSAPPAQYELKHGTFTCASEYTGNYQCGHYKHITSK

ETLYCIDGALLTKSSEYKGPITDVFYKENSYTTTIKPVTYKLDGVVCTEIDPKLDNYY

KKDNSYFTEQPIDLVPNQPYPNASFDNFKFVCDNIKFADDLNQLTGYKKPASRELKVT

FFPDLNGDVVAIDYKHHTPSFKKGAKLLHKPIVWHVNNATNKATYKPNTWCIRCLWST

KPVETSNSFDVLKSEDAQGMDNLACEDLKPVSEEVVENPTIQKDVLECNVKTTEVVGD

IILKPANNSLKITEEVGHTDLMAAYVDNSSLTIKKPNELSRVLGLKTLATHGLAAVNS

VPWDTIANYAKPFLNKVVSTTTNIVTRCLNRVCTNYMPYFFTLLLQLCTFTRSTNSRI

KASMPTTIAKNTVKSVGKFCLEASFNYLKSPNFSKLINIIIWFLLLSVCLGSLIYSTA

ALGVLMSNLGMPSYCTGYREGYLNSTNVTIATYCTGSIPCSVCLSGLDSLDTYPSLET

IQITISSFKWDLTAFGLVAEWFLAYILFTRFFYVLGLAAIMQLFFSYFAVHFISNSWL

MWLIINLVQMAPISAMVRMYIFFASFYYVWKSYVHVVDGCNSSTCMMCYKRNRATRVE

CTTIVNGVRRSFYVYANGGKGFCKLHNWNCVNCDTFCAGSTFISDEVARDLSLQFKRP

INPTDQSSYIVDSVTVKNGSIHLYFDKAGQKTYERHSLSHFVNLDNLRANNTKGSLPI

NVIVFDGKSKCEESSAKSASVYYSQLMCQPILLLDQALVSDVGDSAEVAVKMFDAYVN

TFSSTFNVPMEKLKTLVATAEAELAKNVSLDNVLSTFISAARQGFVDSDVETKDVVEC

LKLSHQSDIEVTGDSCNNYMLTYNKVENMTPRDLGACIDCSARHINAQVAKSHNIALI

WNVKDFMSLSEQLRKQIRSAAKKNNLPFKLTCATTRQVVNVVTTKIALKGGKIVNNWL

KQLIKVTLVFLFVAAIFYLITPVHVMSKHTDFSSEIIGYKAIDGGVTRDIASTDTCFA

NKHADFDTWFSQRGGSYTNDKACPLIAAVITREVGFVVPGLPGTILRTTNGDFLHFLP

RVFSAVGNICYTPSKLIEYTDFATSACVLAAECTIFKDASGKPVPYCYDTNVLEGSVA

YESLRPDTRYVLMDGSIIQFPNTYLEGSVRVVTTFDSEYCRHGTCERSEAGVCVSTSG

RWVLNNDYYRSLPGVFCGVDAVNLFTNMFTPLIQPIGALDISASIVAGGIVAIVVTCL

AYYFMRFRRAFGEYSHVVAFNTLLFLMSFIVLCLTPVYSFLPGVYSVIYLYLTFYLTN

DVSFLAHIQWMVMFTPLVPFWITIAYIICISTKHFYWFFSNYLKRRVVFNGVSFSTFE

EAALCTFLLNKEMYLKLRSDVLLPFTQYNRYLALYNKYKYFSGAMDTTSYREAACCHL

AKALNDFSNSGSDVLYQPPQISITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNG

LWLDDVVYCPRHVICTSEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVL

KLKVDTANPKTPKYKFVRIQPGQTFSVLACYNGSPSGVYQCAMRHNFTIKGSFLNGSC

GSVGFNIDYDCVSFCYMHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVN

VLAWLYAAVINGDRWFLNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAV

LDMCASLKELLQNGMNGRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHW

LLLTILTSLLVLVQSTQWSLFFFLYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFL

LPSLATVAYFNMVYMPASWVMRIMTWLDMVDTSLKLKDCVMYASAVVLLILMTARTVY

DDGARRVWTLMNVLTLVYKVYYGNALDQAISMWALIISVTSNYSGVVTTVMFLARGIV

FMCVEYCPIFFITGNTLQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYLVST

QEFRYMNSQGLLPPKNSIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVLLSV

LQQLRVESSSKLWAQCVQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKLCEE

MLDNRATLQAIASEFSSLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAKSEF

DRDAAMQRKLEKMADQAMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALNNII

NNARDGCVPLNIIPLTTAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDADSK

IVQLSEISMDNSPNLAWPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTACTD

DNALAYYNTTKGGRFVLALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTPKGP

KVKYLYFIKGLNNLNRGMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAKAYK

DYLASGGQPITNCVKMLCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDHPNP

KGFCDLKGKYVQIPTTCANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSADAQ

SFLNRVCGVSAARLTPCGTGTSTDVVYRAFDIYNDKVAGFAKFLKTNCCRFQEKDEDD

NLIDSYFVVKRHTFSNYQHEETIYNLLKDCPAVAKHDFFKFRIDGDMVPHISRQRLTK

YTMADLVYALRHFDEGNCDTLKEILVTYNCCDDDYFNKKDWYDFVENPDILRVYANLG

ERVRQALLKTVQFCDAMRNAGIVGVLTLDNQDLNGNWYDFGDFIQTTPGSGVPVVDSY

YSLLMPILTLTRALTAESHVDTDLTKPYIKWDLLKYDFTEERLKLFDRYFKYWDQTYH

PNCVNCLDDRCILHCANFNVLFSTVFPLTSFGPLVRKIFVDGVPFVVSTGYHFRELGV

VHNQDVNLHSSRLSFKELLVYAADPAMHAASGNLLLDKRTTCFSVAALTNNVAFQTVK

PGNFNKDFYDFAVSKGFFKEGSSVELKHFFFAQDGNAAISDYDYYRYNLPTMCDIRQL

LFVVEVVDKYFDCYDGGCINANQVIVNNLDKSAGFPFNKWGKARLYYDSMSYEDQDAL

FAYTKRNVIPTITQMNLKYAISAKNRARTVAGVSICSTMTNRQFHQKLLKSIAATRGA

TVVIGTSKFYGGWHNMLKTVYSDVENPHLMGWDYPKCDRAMPNMLRIMASLVLARKHT

TCCSLSHRFYRLANECAQVLSEMVMCGGSLYVKPGGTSSGDATTAYANSVFNICQAVT

ANVNALLSTDGNKIADKYVRNLQHRLYECLYRNRDVDTDFVNEFYAYLRKHFSMMILS

DDAVVCFNSTYASQGLVASIKNFKSVLYYQNNVFMSEAKCWTETDLTKGPHEFCSQHT

MLVKQGDDYVYLPYPDPSRILGAGCFVDDIVKTDGTLMIERFVSLAIDAYPLTKHPNQ

EYADVFHLYLQYIRKLHDELTGHMLDMYSVMLTNDNTSRYWEPEFYEAMYTPHTVLQA

VGACVLCNSQTSLRCGACIRRPFLCCKCCYDHVISTSHKLVLSVNPYVCNAPGCDVTD

VTQLYLGGMSYYCKSHKPPISFPLCANGQVFGLYKNTCVGSDNVTDFNAIATCDWTNA

GDYILANTCTERLKLFAAETLKATEETFKLSYGIATVREVLSDRELHLSWEVGKPRPP

LNRNYVFTGYRVTKNSKVQIGEYTFEKGDYGDAVVYRGTTTYKLNVGDYFVLTSHTVM

PLSAPTLVPQEHYVRITGLYPTLNISDEFSSNVANYQKVGMQKYSTLQGPPGTGKSHF

AIGLALYYPSARIVYTACSHAAVDALCEKALKYLPIDKCSRIIPARARVECFDKFKVN

STLEQYVFCTVNALPETTADIVVFDEISMATNYDLSVVNARLCAKHYVYIGDPAQLPA

PRTLLTKGTLEPEYFNSVCRLMKTIGPDMFLGTCRRCPAEIVDTVSALVYDNKLKAHK

DKSAQCFKMFYKGVITHDVSSAINRPQIGVVREFLTRNPAWRKAVFISPYNSQNAVAS

KILGLPTQTVDSSQGSEYDYVIFTQTTETAHSCNVNRFNVAITRAKVGILCIMSDRDL

YDKLQFTSLEIPRRNVATLQAENVTGLFKDCSKVITGLHPTQAPTHLSVDTKFKTEGL

CVDVPGIPKDMTYRRLISMMGFKMNYQVNGYPNMFITREEAIRHVRAWIGFDVEGCHA

TREAVGTNLPLQLGFSTGVNLVAVPTGYVDTPNNTDFSRVSAKPPPGDQFKHLIPLMY

KGLSWNVVRIKIVQMLSDTLKNLSDRVVFVLWAHGFELTSMKYFVKIGPERTCCLCDR

RATCFSTASDTYACWHHSIGFDYVYNPFMIDVQQWGFTGNLQSNHDLYCQVHGNAHVA

SCDAIMTRCLAVHECFVKRVDWTIEYPIIGDELKINAACRKVQHMVVKAALLADKFPV

LHDIGNPKAIKCVPQADVEWKFYDAQPCSDKAYKIEELFYSYATHSDKFTDGVCLFWN

CNVDRYPANSIVCRFDTRVLSNLNLPGCDGGSLYVNKHAFHTPAFDKSAFVNLKQLPF

FYYSDSPCESHGKQVVSDIDYVPLKSATCITRCNLGGAVCRHHANEYRLYLDAYNMMI

SAGFSLWVYKQFDTYNLWNTFTRLQSLENVAFNVVNKGHFDGQQGEVPVSIINNTVYT

KVDGVDVELFENKTTLPVNVAFELWAKRNIKPVPEVKILNNLGVDIAANTVIWDYKRD

APAHISTIGVCSMTDIAKKPIETICAPLTVFFDGRVDGQVDLFRNARNGVLITEGSVK

GLQPSVGPKQASLNGVTLIGEAVKTQFNYYKKVDGVVQQLPETYFTQSRNLQEFKPRS

QMEIDFLELAMDEFIERYKLEGYAFEHIVYGDFSHSQLGGLHLLIGLAKRFKESPFEL

EDFIPMDSTVKNYFITDAQTGSSKCVCSVIDLLLDDFVEIIKSQDLSVVSKVVKVTID

YTEISFMLWCKDGHVETFYPKLQSSQAWQPGVAMPNLYKMQRMLLEKCDLQNYGDSAT

LPKGIMMNVAKYTQLCQYLNTLTLAVPYNMRVIHFGAGSDKGVAPGTAVLRQWLPTGT

LLVDSDLNDFVSDADSTLIGDCATVHTANKWDLIISDMYDPKTKNVTKENDSKEGFFT

YICGFIQQKLALGGSVAIKITEHSWNADLYKLMGHFAWWTAFVTNVNASSSEAFLIGC

NYLGKPREQIDGYVMHANYIFWRNTNPIQLSSYSLFDMSKFPLKLRGTAVMSLKEGQI

NDMILSLLSKGRLIIRENNRVVISSDVLVNN"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87717.1?from=1&to=180) 227..766

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87717.1?from=181&to=818) 767..2680

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87717.1?from=819&to=2763) 2681..8515

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87717.1?from=2764&to=3263) 8516..10015

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87717.1?from=3264&to=3569) 10016..10933

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87717.1?from=3570&to=3856) 10934..11794

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87717.1?from=3857&to=3939) 11795..12043

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87717.1?from=3940&to=4137) 12044..12637

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87717.1?from=4138&to=4250) 12638..12976

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87717.1?from=4251&to=4389) 12977..13393

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87717.1?from=4390&to=5321) join(13394..13420,13420..16188)

/gene="ORF1ab"

/product="RNA-dependent RNA polymerase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87717.1?from=5322&to=5922) 16189..17991

/gene="ORF1ab"

/product="helicase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87717.1?from=5923&to=6449) 17992..19572

/gene="ORF1ab"

/product="3'-to-5' exonuclease"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87717.1?from=6450&to=6795) 19573..20610

/gene="ORF1ab"

/product="endoRNAse"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87717.1?from=6796&to=7093) 20611..21504

/gene="ORF1ab"

/product="2'-O-ribose methyltransferase"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=227&to=13435) 227..13435

/gene="ORF1ab"

/codon\_start=1

/product="ORF1a polyprotein"

/protein\_id="[URC87718.1](https://www.ncbi.nlm.nih.gov/protein/2244076029)"

/translation="MESLVPGFNEKTHVQLSLPVLQVRDVLVRGFGDSVEEVLSEARQ

HLKDGTCGLVEVEKGVLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGE

TLGVLVPHVGEIPVAYRKVLLRKNGNKGAGGHRYGADLKSFDLGDELGTDPYEDFQEN

WNTKHSSGVTRELMRELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEQ

LDFIDTKRGVYCCREHEHEIAWYTERSEKSYELQTPFEIKLAKKFDTFNGECPNFVFP

LNSIIKTIQPRVEKKKLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTG

DFVKATCEFCGTENLTKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESG

LKTILRKGGRTIAFGGCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNL

LEILQKEKVNINIVGDFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGN

FKVTKGKAKKGAWNIGEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAA

ITILDGISQYSLRLIDAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKL

KPVLDWLEEKFKEGVEFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLV

NKFLALCADSIIIGGAKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEII

FLEGETLPTEVLTEEVVLKTGDLQPLEQPTSEAVEAPLVGTPVCINGLMLLEIKDTEK

YCALAPNMMVTNNTFTLKGGAPTKVTFGDDTVIEVQGYKSVNIIFELDERIDKVLNEK

CSAYTVELGTEVNEFACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDESGEF

KLASHMYCSFYPPDEDEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPE

EEQEEDWLDDDSQQTVGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSG

YLKLTDNVYIKNADIVEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESD

DYIATNGPLKVGGSCVLSGHNLAKHCLHVVGPNVNKGEDIQLLKSAYENFNQHEVLLA

PLLSAGIFGADPIHSLRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIA

EIPKEEVKPFITESKPSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGN

LHPDSATLVSDIDITFLKKDAPYIVGDVVQEGVLTAVVIPTKKASGTTEMLAKALRKV

PTDNYITTYPGQGLNGYTVEEAKTVLKKCKSAFYILPSIISNEKQEILGTVSWNLREM

LAHAEETRKLMPVCVETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLIN

TLNDLNETLVTMPLGYVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSS

KTPEEHFIETISLAGSYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTIFHLDGEVIT

FDNLKTLLSLREVRTIKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPH

NSHEGKTFYVLPNDDTLRVEAFEYYHTTDPSFLGRYMSALNHTKKWKYPQVNGLTSIK

WADNNCYLATALLTLQQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELG

DVRETMSYLFQHANLDSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQ

IPCTCGKQATKYLVQQESPFVMMSAPPAQYELKHGTFTCASEYTGNYQCGHYKHITSK

ETLYCIDGALLTKSSEYKGPITDVFYKENSYTTTIKPVTYKLDGVVCTEIDPKLDNYY

KKDNSYFTEQPIDLVPNQPYPNASFDNFKFVCDNIKFADDLNQLTGYKKPASRELKVT

FFPDLNGDVVAIDYKHHTPSFKKGAKLLHKPIVWHVNNATNKATYKPNTWCIRCLWST

KPVETSNSFDVLKSEDAQGMDNLACEDLKPVSEEVVENPTIQKDVLECNVKTTEVVGD

IILKPANNSLKITEEVGHTDLMAAYVDNSSLTIKKPNELSRVLGLKTLATHGLAAVNS

VPWDTIANYAKPFLNKVVSTTTNIVTRCLNRVCTNYMPYFFTLLLQLCTFTRSTNSRI

KASMPTTIAKNTVKSVGKFCLEASFNYLKSPNFSKLINIIIWFLLLSVCLGSLIYSTA

ALGVLMSNLGMPSYCTGYREGYLNSTNVTIATYCTGSIPCSVCLSGLDSLDTYPSLET

IQITISSFKWDLTAFGLVAEWFLAYILFTRFFYVLGLAAIMQLFFSYFAVHFISNSWL

MWLIINLVQMAPISAMVRMYIFFASFYYVWKSYVHVVDGCNSSTCMMCYKRNRATRVE

CTTIVNGVRRSFYVYANGGKGFCKLHNWNCVNCDTFCAGSTFISDEVARDLSLQFKRP

INPTDQSSYIVDSVTVKNGSIHLYFDKAGQKTYERHSLSHFVNLDNLRANNTKGSLPI

NVIVFDGKSKCEESSAKSASVYYSQLMCQPILLLDQALVSDVGDSAEVAVKMFDAYVN

TFSSTFNVPMEKLKTLVATAEAELAKNVSLDNVLSTFISAARQGFVDSDVETKDVVEC

LKLSHQSDIEVTGDSCNNYMLTYNKVENMTPRDLGACIDCSARHINAQVAKSHNIALI

WNVKDFMSLSEQLRKQIRSAAKKNNLPFKLTCATTRQVVNVVTTKIALKGGKIVNNWL

KQLIKVTLVFLFVAAIFYLITPVHVMSKHTDFSSEIIGYKAIDGGVTRDIASTDTCFA

NKHADFDTWFSQRGGSYTNDKACPLIAAVITREVGFVVPGLPGTILRTTNGDFLHFLP

RVFSAVGNICYTPSKLIEYTDFATSACVLAAECTIFKDASGKPVPYCYDTNVLEGSVA

YESLRPDTRYVLMDGSIIQFPNTYLEGSVRVVTTFDSEYCRHGTCERSEAGVCVSTSG

RWVLNNDYYRSLPGVFCGVDAVNLFTNMFTPLIQPIGALDISASIVAGGIVAIVVTCL

AYYFMRFRRAFGEYSHVVAFNTLLFLMSFIVLCLTPVYSFLPGVYSVIYLYLTFYLTN

DVSFLAHIQWMVMFTPLVPFWITIAYIICISTKHFYWFFSNYLKRRVVFNGVSFSTFE

EAALCTFLLNKEMYLKLRSDVLLPFTQYNRYLALYNKYKYFSGAMDTTSYREAACCHL

AKALNDFSNSGSDVLYQPPQISITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNG

LWLDDVVYCPRHVICTSEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVL

KLKVDTANPKTPKYKFVRIQPGQTFSVLACYNGSPSGVYQCAMRHNFTIKGSFLNGSC

GSVGFNIDYDCVSFCYMHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVN

VLAWLYAAVINGDRWFLNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAV

LDMCASLKELLQNGMNGRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHW

LLLTILTSLLVLVQSTQWSLFFFLYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFL

LPSLATVAYFNMVYMPASWVMRIMTWLDMVDTSLKLKDCVMYASAVVLLILMTARTVY

DDGARRVWTLMNVLTLVYKVYYGNALDQAISMWALIISVTSNYSGVVTTVMFLARGIV

FMCVEYCPIFFITGNTLQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYLVST

QEFRYMNSQGLLPPKNSIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVLLSV

LQQLRVESSSKLWAQCVQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKLCEE

MLDNRATLQAIASEFSSLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAKSEF

DRDAAMQRKLEKMADQAMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALNNII

NNARDGCVPLNIIPLTTAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDADSK

IVQLSEISMDNSPNLAWPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTACTD

DNALAYYNTTKGGRFVLALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTPKGP

KVKYLYFIKGLNNLNRGMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAKAYK

DYLASGGQPITNCVKMLCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDHPNP

KGFCDLKGKYVQIPTTCANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSADAQ

SFLNGFAV"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87718.1?from=1&to=180) 227..766

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87718.1?from=181&to=818) 767..2680

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87718.1?from=819&to=2763) 2681..8515

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87718.1?from=2764&to=3263) 8516..10015

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87718.1?from=3264&to=3569) 10016..10933

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87718.1?from=3570&to=3856) 10934..11794

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87718.1?from=3857&to=3939) 11795..12043

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87718.1?from=3940&to=4137) 12044..12637

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87718.1?from=4138&to=4250) 12638..12976

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87718.1?from=4251&to=4389) 12977..13393

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/URC87718.1?from=4390&to=4402) 13394..13432

/gene="ORF1ab"

/product="nsp11"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=13428&to=13455) 13428..13455

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 1"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=13440&to=13494) 13440..13494

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 2"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=21515&to=25327) 21515..25327

/gene="S"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=21515&to=25327) 21515..25327

/gene="S"

/codon\_start=1

/product="surface glycoprotein"

/protein\_id="[URC87719.1](https://www.ncbi.nlm.nih.gov/protein/2244076030)"

/translation="MFVFLVLLPLVSSQCVNLITRTQSYTNSFTRGVYYPDKVFRSSV

LHSTQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNIIRGWI

FGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLDVYYHKNNKSWMESEFRVYSSA

NNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGYFKIYSKHTPINLGRDLPQGFS

ALEPLVDLPIGINITRFQTLLALHRSYLTPGDSSSGWTAGAAAYYVGYLQPRTFLLKY

NENGTITDAVDCALDPLSETKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCP

FDEVFNATRFASVYAWNRKRISNCVADYSVLYNFAPFFAFKCYGVSPTKLNDLCFTNV

YADSFVIRGNEVSQIAPGQTGNIADYNYKLPDDFTGCVIAWNSNKLDSKVGGNYNYLY

RLFRKSNLKPFERDISTEIYQAGNKPCNGVAGFNCYFPLRSYGFQPTYGVGHQPYRVV

VLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTGVLTESNKKFLPFQQFGRDI

ADTTDAVRDPQTLEILDITPCSFGGVSVITPGTNTSNQVAVLYQGVNCTEVPVAIHAD

QLTPTWRVYSTGSNVFQTRAGCLIGAEYVNNSYECDIPIGAGICASYQTQTKSHRRAR

SVASQSIIAYTMSLGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYIC

GDSTECSNLLLQYGSFCTQLKRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKYFGGFN

FSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLICAQKFNGLT

VLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLY

ENQKLIANQFNSAIGKIQDSLSSTASALGKLQDVVNHNAQALNTLVKQLSSKFGAISS

VLNDILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECV

LGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPR

EGVFVSNGTHWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFK

EELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYE

QYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSCGSCCKFDEDDSEPVL

KGVKLHYT"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=25336&to=26163) 25336..26163

/gene="ORF3a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=25336&to=26163) 25336..26163

/gene="ORF3a"

/codon\_start=1

/product="ORF3a protein"

/protein\_id="[URC87720.1](https://www.ncbi.nlm.nih.gov/protein/2244076031)"

/translation="MDLFMRIFTIGTVTLKQGEIKDATPSDFVRATATIPIQASLPFG

WLIVGVALLAVFQSASKIITLKKRWQLALSKGVHFVCNLLLLFVTVYSHLLLVAAGLE

APFLYLYALVYFLQSINFVRIIMRLWLCWKCRSKNPLLYDANYFLCWHTNCYDYCIPY

NSVTSSIVITSGDGTTSPISEHDYQIGGYTEKWESGVKDCVVLHSYFTSDYYQLYSTQ

LSTDIGVEHVTFFIYNKIVDEPEEHVQIHTIDGSSGVVNPVMEPIYDEPTTTTSVPL"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=26188&to=26415) 26188..26415

/gene="E"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=26188&to=26415) 26188..26415

/gene="E"

/codon\_start=1

/product="envelope protein"

/protein\_id="[URC87721.1](https://www.ncbi.nlm.nih.gov/protein/2244076032)"

/translation="MYSFVSEEIGTLIVNSVLLFLAFVVFLLVTLAILTALRLCAYCC

NIVNVSLVKPSFYVYSRVKNLNSSRVPDLLV"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=26466&to=27134) 26466..27134

/gene="M"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=26466&to=27134) 26466..27134

/gene="M"

/codon\_start=1

/product="membrane glycoprotein"

/protein\_id="[URC87722.1](https://www.ncbi.nlm.nih.gov/protein/2244076033)"

/translation="MADSNGTITVEELKKLLEEWNLVIGFLFLTWICLLQFAYANRNR

FLYIIKLIFLWLLWPVTLTCFVLAAVYRINWITGGIAIAMACLVGLMWLSYFIASFRL

FARTRSMWSFNPETNILLNVPLHGTILTRPLLESELVIGAVILRGHLRIAGHHLGRCD

IKDLPKEITVATSRTLSYYKLGASQRVAGDSGFAAYSRYRIGNYKLNTDHSSSSDNIA

LLVQ"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=27145&to=27330) 27145..27330

/gene="ORF6"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=27145&to=27330) 27145..27330

/gene="ORF6"

/codon\_start=1

/product="ORF6 protein"

/protein\_id="[URC87723.1](https://www.ncbi.nlm.nih.gov/protein/2244076034)"

/translation="MFHLVDFQVTIAEILLIIMRTFKVSIWNLDYIINLIIKNLSKSL

TENKYSQLDEEQPMEIL"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=27337&to=27702) 27337..27702

/gene="ORF7a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=27337&to=27702) 27337..27702

/gene="ORF7a"

/codon\_start=1

/product="ORF7a protein"

/protein\_id="[URC87724.1](https://www.ncbi.nlm.nih.gov/protein/2244076035)"

/translation="MKIILFLALITLATCELYHYQECVRGTTVLLKEPCSSGTYEGNS

PFHPLADNKFALTCFSTQFAFACPDGVKHVYQLRARSVSPKLFIRQEEVQELYSPIFL

IVAAIVFITLCFTLKRKTE"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=27699&to=27830) 27699..27830

/gene="ORF7b"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=27699&to=27830) 27699..27830

/gene="ORF7b"

/codon\_start=1

/product="ORF7b"

/protein\_id="[URC87725.1](https://www.ncbi.nlm.nih.gov/protein/2244076036)"

/translation="MIELSLIDFYLCFLAFLLFLVLIMLIIFWFSLELQDHNETCHA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=27837&to=28202) 27837..28202

/gene="ORF8"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=27837&to=28202) 27837..28202

/gene="ORF8"

/codon\_start=1

/product="ORF8 protein"

/protein\_id="[URC87726.1](https://www.ncbi.nlm.nih.gov/protein/2244076037)"

/translation="MKFLVFLGIITTVAAFHQECSLQSCTQHQPYVVDDPCPIHFYSK

WYIRVGARKSAPLIELCVDEAGSKSPIQYIDIGNYTVSCLPFTINCQEPKLGSLVVRC

SFYEDFLEYHDVRVVLDFI"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=28217&to=29467) 28217..29467

/gene="N"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=28217&to=29467) 28217..29467

/gene="N"

/codon\_start=1

/product="nucleocapsid phosphoprotein"

/protein\_id="[URC87727.1](https://www.ncbi.nlm.nih.gov/protein/2244076038)"

/translation="MSDNGPQNQRNALRITFGGPSDSTGSNQNGGARSKQRRPQGLPN

NTASWFTALTQHGKEDLKFPRGQGVPINTNSSPDDQIGYYRRATRRIRGGDGKMKDLS

PRWYFYYLGTGPEAGLPYGANKDGIIWVATEGALNTPKDHIGTRNPANNAAIVLQLPQ

GTTLPKGFYAEGSRGGSQASSRSSSRSRNSSRNSTPGSSKRTSPARMAGNGGDAALAL

LLLDRLNQLESKMSGKGQQQQGQTVTKKSAAEASKKPRQKRTATKAYNVTQAFGRRGP

EQTQGNFGDQELIRQGTDYKHWPQIAQFAPSASAFFGMSRIGMEVTPSGTWLTYTGAI

KLDDKDPNFKDQVILLNKHIDAYKTFPPTEPKKDKKKKADETQALPQRQKKQQTVTLL

PAADLDDFSKQLQQSMSRADSTQA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=29492&to=29608) 29492..29608

/gene="ORF10"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=29492&to=29608) 29492..29608

/gene="ORF10"

/codon\_start=1

/product="ORF10 protein"

/protein\_id="[URC87728.1](https://www.ncbi.nlm.nih.gov/protein/2244076039)"

/translation="MGYINVFAFPFTIYSLLLCRMNSRNYIAQVDVVNFNLT"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=29543&to=29578) 29543..29578

/gene="ORF10"

/note="Coronavirus 3' UTR pseudoknot stem-loop 1"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=29563&to=29591) 29563..29591

/gene="ORF10"

/note="Coronavirus 3' UTR pseudoknot stem-loop 2"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/ON592247.1?from=29662&to=29676) 29662..29676

/note="Coronavirus 3' stem-loop II-like motif (s2m)"

ORIGIN

1 cttttgatct cttgtagatc tgttctctaa acgaacttta aaatctgtgt ggctgtcact

61 cggctgcatg cttagtgcac tcacgcagta taattaataa ctaattactg tcgttgacag

121 gacacgagta actcgtctat cttctgcagg ctgcttacgg tttcgtccgt gttgcagccg

181 atcatcagca catctaggtt ttgtccgggt gtgaccgaaa ggtaagatgg agagccttgt

241 ccctggtttc aacgagaaaa cacacgtcca actcagtttg cctgttttac aggttcgcga

301 cgtgctcgta cgtggctttg gagactccgt ggaggaggtc ttatcagagg cacgtcaaca

361 tcttaaagat ggcacttgtg gcttagtaga agttgaaaaa ggcgttttgc ctcaacttga

421 acagccctat gtgttcatca aacgttcgga tgctcgaact gcacctcatg gtcatgttat

481 ggttgagctg gtagcagaac tcgaaggcat tcagtacggt cgtagtggtg agacacttgg

541 tgtccttgtc cctcatgtgg gcgaaatacc agtggcttac cgcaaggttc ttcttcgtaa

601 gaacggtaat aaaggagctg gtggccatag gtacggcgcc gatctaaagt catttgactt

661 aggcgacgag cttggcactg atccttatga agattttcaa gaaaactgga acactaaaca

721 tagcagtggt gttacccgtg aactcatgcg tgagcttaac ggaggggcat acactcgcta

781 tgtcgataac aacttctgtg gccctgatgg ctaccctctt gagtgcatta aagaccttct

841 agcacgtgct ggtaaagctt catgcacttt gtccgaacaa ctggacttta ttgacactaa

901 gaggggtgta tactgctgcc gtgaacatga gcatgaaatt gcttggtaca cggaacgttc

961 tgaaaagagc tatgaattgc agacaccttt tgaaattaaa ttggcaaaga aatttgacac

1021 cttcaatggg gaatgtccaa attttgtatt tcccttaaat tccataatca agactattca

1081 accaagggtt gaaaagaaaa agcttgatgg ctttatgggt agaattcgat ctgtctatcc

1141 agttgcgtca ccaaatgaat gcaaccaaat gtgcctttca actctcatga agtgtgatca

1201 ttgtggtgaa acttcatggc agacgggcga ttttgttaaa gccacttgcg aattttgtgg

1261 cactgagaat ttgactaaag aaggtgccac tacttgtggt tacttacccc aaaatgctgt

1321 tgttaaaatt tattgtccag catgtcacaa ttcagaagta ggacctgagc atagtcttgc

1381 cgaataccat aatgaatctg gcttgaaaac cattcttcgt aagggtggtc gcactattgc

1441 ctttggaggc tgtgtgttct cttatgttgg ttgccataac aagtgtgcct attgggttcc

1501 acgtgctagc gctaacatag gttgtaacca tacaggtgtt gttggagaag gttccgaagg

1561 tcttaatgac aaccttcttg aaatactcca aaaagagaaa gtcaacatca atattgttgg

1621 tgactttaaa cttaatgaag agatcgccat tattttggca tctttttctg cttccacaag

1681 tgcttttgtg gaaactgtga aaggtttgga ttataaagca ttcaaacaaa ttgttgaatc

1741 ctgtggtaat tttaaagtta caaaaggaaa agctaaaaaa ggtgcctgga atattggtga

1801 acagaaatca atactgagtc ctctttatgc atttgcatca gaggctgctc gtgttgtacg

1861 atcaattttc tcccgcactc ttgaaactgc tcaaaattct gtgcgtgttt tacagaaggc

1921 cgctataaca atactagatg gaatttcaca gtattcactg agactcattg atgctatgat

1981 gttcacatct gatttggcta ctaacaatct agttgtaatg gcctacatta caggtggtgt

2041 tgttcagttg acttcgcagt ggctaactaa catctttggc actgtttatg aaaaactcaa

2101 acccgtcctt gattggcttg aagagaagtt taaggaaggt gtagagtttc ttagagacgg

2161 ttgggaaatt gttaaattta tctcaacctg tgcttgtgaa attgtcggtg gacaaattgt

2221 cacctgtgca aaggaaatta aggagagtgt tcagacattc tttaagcttg taaataaatt

2281 tttggctttg tgtgctgact ctatcattat tggtggagct aaacttaaag ccttgaattt

2341 aggtgaaaca tttgtcacgc actcaaaggg attgtacaga aagtgtgtta aatccagaga

2401 agaaactggc ctactcatgc ctctaaaagc cccaaaagaa attatcttct tagagggaga

2461 aacacttccc acagaagtgt taacagagga agttgtcttg aaaactggtg atttacaacc

2521 attagaacaa cctactagtg aagctgttga agctccattg gttggtacac cagtttgtat

2581 taacgggctt atgttgctcg aaatcaaaga cacagaaaag tactgtgccc ttgcacctaa

2641 tatgatggta acaaacaata ccttcacact caaaggcggt gcaccaacaa aggttacttt

2701 tggtgatgac actgtgatag aagtgcaagg ttacaagagt gtgaatatca tttttgaact

2761 tgatgaaagg attgataaag tacttaatga gaagtgctct gcctatacag ttgaactcgg

2821 tacagaagta aatgagttcg cctgtgttgt ggcagatgct gtcataaaaa ctttgcaacc

2881 agtatctgaa ttacttacac cactgggcat tgatttagat gagtggagta tggctacata

2941 ctacttattt gatgagtctg gtgagtttaa attggcttca catatgtatt gttcttttta

3001 ccctccagat gaggatgaag aagaaggtga ttgtgaagaa gaagagtttg agccatcaac

3061 tcaatatgag tatggtactg aagatgatta ccaaggtaaa cctttggaat ttggtgccac

3121 ttctgctgct cttcaacctg aagaagagca agaagaagat tggttagatg atgatagtca

3181 acaaactgtt ggtcaacaag acggcagtga ggacaatcag acaactacta ttcaaacaat

3241 tgttgaggtt caacctcaat tagagatgga acttacacca gttgttcaga ctattgaagt

3301 gaatagtttt agtggttatt taaaacttac tgacaatgta tacattaaaa atgcagacat

3361 tgtggaagaa gctaaaaagg taaaaccaac agtggttgtt aatgcagcca atgtttacct

3421 taaacatgga ggaggtgttg caggagcctt aaataaggct actaacaatg ccatgcaagt

3481 tgaatctgat gattacatag ctactaatgg accacttaaa gtgggtggta gttgtgtttt

3541 aagcggacac aatcttgcta aacactgtct tcatgttgtc ggcccaaatg ttaacaaagg

3601 tgaagacatt caacttctta agagtgctta tgaaaatttt aatcagcacg aagttctact

3661 tgcaccatta ttatcagctg gtatttttgg tgctgaccct atacattctt taagagtttg

3721 tgtagatact gttcgcacaa atgtctactt agctgtcttt gataaaaatc tctatgacaa

3781 acttgtttca agctttttgg aaatgaagag tgaaaagcaa gttgaacaaa agatcgctga

3841 gattcctaaa gaggaagtta agccatttat aactgaaagt aaaccttcag ttgaacagag

3901 aaaacaagat gataagaaaa tcaaagcttg tgttgaagaa gttacaacaa ctctggaaga

3961 aactaagttc ctcacagaaa acttgttact ttatattgac attaatggca atcttcatcc

4021 agattctgcc actcttgtta gtgacattga catcactttc ttaaagaaag atgctccata

4081 tatagtgggt gatgttgttc aagagggtgt tttaactgct gtggttatac ctactaaaaa

4141 ggctagtggc actactgaaa tgctagcgaa agctttgaga aaagtgccaa cagacaatta

4201 tataaccact tacccgggtc agggtttaaa tggttacact gtagaggagg caaagacagt

4261 gcttaaaaag tgtaaaagtg ctttttacat tctaccatct attatctcta atgagaagca

4321 agaaattctt ggaactgttt cttggaattt gcgagaaatg cttgcacatg cagaagaaac

4381 acgcaaatta atgcctgtct gtgtggaaac taaagccata gtttcaacta tacagcgtaa

4441 atataagggt attaaaatac aagagggtgt ggttgattat ggtgctagat tttactttta

4501 caccagtaaa acaactgtag cgtcacttat caacacactt aacgatctaa atgaaactct

4561 tgttacaatg ccacttggct atgtaacaca tggcttaaat ttggaagaag ctgctcggta

4621 tatgagatct ctcaaagtgc cagctacagt ttctgtttct tcacctgatg ctgttacagc

4681 gtataatggt tatcttactt cttcttctaa aacacctgaa gaacatttta ttgaaaccat

4741 ctcacttgct ggttcctata aagattggtc ctattctgga caatctacac aactaggtat

4801 agaatttctt aagagaggtg ataaaagtgt atattacact agtaatccta ccatattcca

4861 cctagatggt gaagttatca cctttgacaa tcttaagaca cttctttctt tgagagaagt

4921 gaggactatt aaggtgttta caacagtaga caacattaac ctccacacgc aagttgtgga

4981 catgtcaatg acatatggac aacagtttgg tccaacttat ttggatggag ctgatgttac

5041 taaaataaaa cctcataatt cacatgaagg taaaacattt tatgttttac ctaatgatga

5101 cactctacgt gttgaggctt ttgagtacta ccacacaact gatcctagtt ttctgggtag

5161 gtacatgtca gcattaaatc acactaaaaa gtggaaatac ccacaagtta atggtttaac

5221 ttctattaaa tgggcagata acaactgtta tcttgccact gcattgttaa cactccaaca

5281 aatagagttg aagtttaatc cacctgctct acaagatgct tattacagag caagggctgg

5341 tgaagctgct aacttttgtg cacttatctt agcctactgt aataagacag taggtgagtt

5401 aggtgatgtt agagaaacaa tgagttactt gtttcaacat gccaatttag attcttgcaa

5461 aagagtcttg aacgtggtgt gtaaaacttg tggacaacag cagacaaccc ttaagggtgt

5521 agaagctgtt atgtacatgg gcacactttc ttatgaacaa tttaagaaag gtgttcagat

5581 accttgtacg tgtggtaaac aagctacaaa atatctagta caacaggagt caccttttgt

5641 tatgatgtca gcaccacctg ctcagtatga acttaagcat ggtacattta cttgtgctag

5701 tgagtacact ggtaattacc agtgtggtca ctataaacat ataacttcta aagaaacttt

5761 gtattgcata gacggtgctt tacttacaaa gtcctcagaa tacaaaggtc ctattacgga

5821 tgttttctac aaagaaaaca gttacacaac aaccataaaa ccagttactt ataaattgga

5881 tggtgttgtt tgtacagaaa ttgaccctaa gttggacaat tattataaga aagacaattc

5941 ttatttcaca gagcaaccaa ttgatcttgt accaaaccaa ccatatccaa acgcaagctt

6001 cgataatttt aagtttgtat gtgataatat caaatttgct gatgatttaa accagttaac

6061 tggttataag aaacctgctt caagagagct taaagttaca tttttccctg acttaaatgg

6121 tgatgtggtg gctattgatt ataaacacca cacaccctct tttaagaaag gagctaaatt

6181 gttacataaa cctattgttt ggcatgttaa caatgcaact aataaagcca cgtataaacc

6241 aaatacctgg tgtatacgtt gtctttggag cacaaaacca gttgaaacat caaattcgtt

6301 tgatgtactg aagtcagagg acgcgcaggg aatggataat cttgcctgcg aagatctaaa

6361 accagtctct gaagaagtag tggaaaatcc taccatacag aaagacgttc ttgagtgtaa

6421 tgtgaaaact accgaagttg taggagacat tatacttaaa ccagcaaata atagtttaaa

6481 aattacagaa gaggttggcc acacagatct aatggctgct tatgtagaca attctagtct

6541 tactattaag aaacctaatg aattatctag agtattaggt ttgaaaaccc ttgctactca

6601 tggtttagct gctgttaata gtgtcccttg ggatactata gctaattatg ctaagccttt

6661 tcttaacaaa gttgttagta caactactaa catagttaca cggtgtttaa accgtgtttg

6721 tactaattat atgccttatt tctttacttt attgctacaa ttgtgtactt ttactagaag

6781 tacaaattct agaattaaag catctatgcc gactactata gcaaagaata ctgttaagag

6841 tgtcggtaaa ttttgtctag aggcttcatt taattatttg aagtcaccta atttttctaa

6901 actgataaat attataattt ggtttttact attaagtgtt tgcctaggtt ctttaatcta

6961 ctcaaccgct gctttaggtg ttttaatgtc taatttaggc atgccttctt actgtactgg

7021 ttacagagaa ggctatttga actctactaa tgtcactatt gcaacctact gtactggttc

7081 tataccttgt agtgtttgtc ttagtggttt agattcttta gacacctatc cttctttaga

7141 aactatacaa attaccattt catcttttaa atgggattta actgcttttg gcttagttgc

7201 agagtggttt ttggcatata ttcttttcac taggtttttc tatgtacttg gattggctgc

7261 aatcatgcaa ttgtttttca gctattttgc agtacatttt attagtaatt cttggcttat

7321 gtggttaata attaatcttg tacaaatggc cccgatttca gctatggtta gaatgtacat

7381 cttctttgca tcattttatt atgtatggaa aagttatgtg catgttgtag acggttgtaa

7441 ttcatcaact tgtatgatgt gttacaaacg taatagagca acaagagtcg aatgtacaac

7501 tattgttaat ggtgttagaa ggtcctttta tgtctatgct aatggaggta aaggcttttg

7561 caaactacac aattggaatt gtgttaattg tgatacattc tgtgctggta gtacatttat

7621 tagtgatgaa gttgcgagag acttgtcact acagtttaaa agaccaataa atcctactga

7681 ccagtcttct tacatcgttg atagtgttac agtgaagaat ggttccatcc atctttactt

7741 tgataaagct ggtcaaaaga cttatgaaag acattctctc tctcattttg ttaacttaga

7801 caacctgaga gctaataaca ctaaaggttc attgcctatt aatgttatag tttttgatgg

7861 taaatcaaaa tgtgaagaat catctgcaaa atcagcgtct gtttactaca gtcagcttat

7921 gtgtcaacct atactgttac tagatcaggc attagtgtct gatgttggtg atagtgcgga

7981 agttgcagtt aaaatgtttg atgcttacgt taatacgttt tcatcaactt ttaacgtacc

8041 aatggaaaaa ctcaaaacac tagttgcaac tgcagaagct gaacttgcaa agaatgtgtc

8101 cttagacaat gtcttatcta cttttatttc agcagctcgg caagggtttg ttgattcaga

8161 tgtagaaact aaagatgttg ttgaatgtct taaattgtca catcaatctg acatagaagt

8221 tactggcgat agttgtaata actatatgct cacctataac aaagttgaaa acatgacacc

8281 ccgtgacctt ggtgcttgta ttgactgtag tgcgcgtcat attaatgcgc aggtagcaaa

8341 aagtcacaac attgctttga tatggaacgt taaagatttc atgtcattgt ctgaacaact

8401 acgaaaacaa atacgtagtg ctgctaaaaa gaataactta ccttttaagt tgacatgtgc

8461 aactactaga caagttgtta atgttgtaac aacaaagata gcacttaagg gtggtaaaat

8521 tgttaataat tggttgaagc agttaattaa agttacactt gtgttccttt ttgttgctgc

8581 tattttctat ttaataacac ctgttcatgt catgtctaaa catactgact tttcaagtga

8641 aatcatagga tacaaggcta ttgatggtgg tgtcactcgt gacatagcat ctacagatac

8701 ttgttttgct aacaaacatg ctgattttga cacatggttt agccagcgtg gtggtagtta

8761 tactaatgac aaagcttgcc cattgattgc tgcagtcata acaagagaag tgggttttgt

8821 cgtgcctggt ttgcctggca cgatattacg cacaactaat ggtgactttt tgcatttctt

8881 acctagagtt tttagtgcag ttggtaacat ctgttacaca ccatcaaaac ttatagagta

8941 cactgacttt gcaacatcag cttgtgtttt ggctgctgaa tgtacaattt ttaaagatgc

9001 ttctggtaag ccagtaccat attgttatga taccaatgta ctagaaggtt ctgttgctta

9061 tgaaagttta cgccctgaca cacgttatgt gctcatggat ggctctatta ttcaatttcc

9121 taacacctac cttgaaggtt ctgttagagt ggtaacaact tttgattctg agtactgtag

9181 gcacggcact tgtgaaagat cagaagctgg tgtttgtgta tctactagtg gtagatgggt

9241 acttaacaat gattattaca gatctttacc aggagttttc tgtggtgtag atgctgtaaa

9301 tttatttact aatatgttta caccactaat tcaacctatt ggtgctttgg acatatcagc

9361 atctatagta gctggtggta ttgtggctat cgtagtaaca tgccttgcct actattttat

9421 gaggtttaga agagcttttg gtgaatacag tcatgtagtt gcctttaata ctttactatt

9481 ccttatgtca ttcattgtac tctgtttaac accagtttac tcattcttac ctggtgttta

9541 ttctgttatt tacttgtact tgacatttta tcttactaat gatgtttctt ttttagcaca

9601 tattcagtgg atggttatgt tcacaccttt agtacctttc tggataacaa ttgcttatat

9661 catttgtatt tccacaaagc atttctattg gttctttagt aattacctaa agagacgtgt

9721 agtctttaat ggtgtttcct ttagtacttt tgaagaagct gcgctgtgca cctttttgtt

9781 aaataaagaa atgtatctaa agttgcgtag tgatgtgcta ttacctttta cgcaatataa

9841 tagatactta gctctttata ataagtacaa gtattttagt ggagcaatgg atacaactag

9901 ctacagagaa gctgcttgtt gtcatctcgc aaaggctctc aatgacttca gtaactcagg

9961 ttctgatgtt ctttaccaac caccacaaat ctctatcacc tcagctgttt tgcagagtgg

10021 ttttagaaaa atggcattcc catctggtaa agttgagggt tgtatggtac aagtaacttg

10081 tggtacaact acacttaacg gtctttggct tgatgacgta gtttactgtc caagacatgt

10141 gatctgcacc tctgaagata tgcttaaccc taattatgaa gatttactca ttcgtaagtc

10201 taatcataat ttcttggtac aggctggtaa tgttcaactc agggttattg gacattctat

10261 gcaaaattgt gtacttaagc ttaaggttga tacagccaat cctaagacac ctaagtataa

10321 gtttgttcgc attcaaccag gacagacttt ttcagtgtta gcttgttaca atggttcacc

10381 atctggtgtt taccaatgtg ctatgagaca caatttcact attaagggtt cattccttaa

10441 tggttcatgt ggtagtgttg gttttaacat agattatgac tgtgtctctt tttgttacat

10501 gcaccatatg gaattaccaa ctggagttca tgctggcaca gacttagaag gtaactttta

10561 tggacctttt gttgacaggc aaacagcaca agcagctggt acggacacaa ctattacagt

10621 taatgtttta gcttggttgt acgctgctgt tataaatgga gacaggtggt ttctcaatcg

10681 atttaccaca actcttaatg actttaacct tgtggctatg aagtacaatt atgaacctct

10741 aacacaagac catgttgaca tactaggacc tctttctgct caaactggaa ttgccgtttt

10801 agatatgtgt gcttcattaa aagaattact gcaaaatggt atgaatggac gtaccatatt

10861 gggtagtgct ttattagaag atgaatttac accttttgat gttgttagac aatgctcagg

10921 tgttactttc caaagtgcag tgaaaagaac aatcaagggt acacaccact ggttgttact

10981 cacaattttg acttcacttt tagttttagt ccagagtact caatggtctt tgttcttttt

11041 tttgtatgaa aatgcctttt taccttttgc tatgggtatt attgctatgt ctgcttttgc

11101 aatgatgttt gtcaaacata agcatgcatt tctctgtttg tttttgttac cttctcttgc

11161 cactgtagct tattttaata tggtctatat gcctgctagt tgggtgatgc gtattatgac

11221 atggttggat atggttgata ctagtttgaa gctaaaagac tgtgttatgt atgcatcagc

11281 tgtagtgtta ctaatcctta tgacagcaag aactgtgtat gatgatggtg ctaggagagt

11341 gtggacactt atgaatgtct tgacactcgt ttataaagtt tattatggta atgctttaga

11401 tcaagccatt tccatgtggg ctcttataat ctctgttact tctaactact caggtgtagt

11461 tacaactgtc atgtttttgg ccagaggtat tgtttttatg tgtgttgagt attgccctat

11521 tttcttcata actggtaata cacttcagtg tataatgcta gtttattgtt tcttaggcta

11581 tttttgtact tgttactttg gcctcttttg tttactcaac cgctacttta gactgactct

11641 tggtgtttat gattacttag tttctacaca ggagtttaga tatatgaatt cacagggact

11701 actcccaccc aagaatagca tagatgcctt caaactcaac attaaattgt tgggtgttgg

11761 tggcaaacct tgtatcaaag tagccactgt acagtctaaa atgtcagatg taaagtgcac

11821 atcagtagtc ttactctcag ttttgcaaca actcagagta gaatcatcat ctaaattgtg

11881 ggctcaatgt gtccagttac acaatgacat tctcttagct aaagatacta ctgaagcctt

11941 tgaaaaaatg gtttcactac tttctgtttt gctttccatg cagggtgctg tagacataaa

12001 caagctttgt gaagaaatgc tggacaacag ggcaacctta caagctatag cctcagagtt

12061 tagttccctt ccatcatatg cagcttttgc tactgctcaa gaagcttatg agcaggctgt

12121 tgctaatggt gattctgaag ttgttcttaa aaagttgaag aagtctttga atgtggctaa

12181 atctgaattt gaccgtgatg cagccatgca acgtaagttg gaaaagatgg ctgatcaagc

12241 tatgacccaa atgtataaac aggctagatc tgaggacaag agggcaaaag ttactagtgc

12301 tatgcagaca atgcttttca ctatgcttag aaagttggat aatgatgcac tcaacaacat

12361 tatcaacaat gcaagagatg gttgtgttcc cttgaacata atacctctta caacagcagc

12421 caaactaatg gttgtcatac cagactataa cacatataaa aatacgtgtg atggtacaac

12481 atttacttat gcatcagcat tgtgggaaat ccaacaggtt gtagatgcag atagtaaaat

12541 tgttcaactt agtgaaatta gtatggacaa ttcacctaat ttagcatggc ctcttattgt

12601 aacagcttta agggccaatt ctgctgtcaa attacagaat aatgagctta gtcctgttgc

12661 actacgacag atgtcttgtg ctgccggtac tacacaaact gcttgcactg atgacaatgc

12721 gttagcttac tacaacacaa caaagggagg taggtttgta cttgcactgt tatccgattt

12781 acaggatttg aaatgggcta gattccctaa gagtgatgga actggtacta tttatacaga

12841 actggaacca ccttgtaggt ttgttacaga cacacctaaa ggtcctaaag tgaagtattt

12901 atactttatt aaaggattaa acaacctaaa tagaggtatg gtacttggta gtttagctgc

12961 cacagtacgt ctacaagctg gtaatgcaac agaagtgcct gccaattcaa ctgtattatc

13021 tttctgtgct tttgctgtag atgctgctaa agcttacaaa gattatctag ctagtggggg

13081 acaaccaatc actaattgtg ttaagatgtt gtgtacacac actggtactg gtcaggcaat

13141 aacagttaca ccggaagcca atatggatca agaatccttt ggtggtgcat cgtgttgtct

13201 gtactgccgt tgccacatag atcatccaaa tcctaaagga ttttgtgact taaaaggtaa

13261 gtatgtacaa atacctacaa cttgtgctaa tgaccctgtg ggttttacac ttaaaaacac

13321 agtctgtacc gtctgcggta tgtggaaagg ttatggctgt agttgtgatc aactccgcga

13381 acccatgctt cagtcagctg atgcacaatc gtttttaaac gggtttgcgg tgtaagtgca

13441 gcccgtctta caccgtgcgg cacaggcact agtactgatg tcgtatacag ggcttttgac

13501 atctacaatg ataaagtagc tggttttgct aaattcctaa aaactaattg ttgtcgcttc

13561 caagaaaagg acgaagatga caatttaatt gattcttact ttgtagttaa gagacatact

13621 ttctctaact accaacatga agaaacaatt tataatttac ttaaggattg tccagctgtt

13681 gctaaacatg acttctttaa gtttagaata gacggtgaca tggtaccaca tatatcacgt

13741 caacgtctta ctaaatacac aatggcagac ctcgtctatg ctttaaggca ttttgatgaa

13801 ggtaattgtg acacattaaa agaaatactt gtcacataca attgttgtga tgatgattat

13861 ttcaataaaa aggactggta tgattttgta gaaaacccag atatattacg cgtatacgcc

13921 aacttaggtg aacgtgtacg ccaagctttg ttaaaaacag tacaattctg tgatgccatg

13981 cgaaatgctg gtattgttgg tgtactgaca ttagataatc aagatctcaa tggtaactgg

14041 tatgatttcg gtgatttcat acaaaccacg ccaggtagtg gagttcctgt tgtagattct

14101 tattattcat tgttaatgcc tatattaacc ttgaccaggg ctttaactgc agagtcacat

14161 gttgacactg acttaacaaa gccttacatt aagtgggatt tgttaaaata tgacttcacg

14221 gaagagaggt taaaactctt tgaccgttat tttaaatatt gggatcagac ataccaccca

14281 aattgtgtta actgtttgga tgacagatgc attctgcatt gtgcaaactt taatgtttta

14341 ttctctacag tgttcccact tacaagtttt ggaccactag tgagaaaaat atttgttgat

14401 ggtgttccat ttgtagtttc aactggatac cacttcagag agctaggtgt tgtacataat

14461 caggatgtaa acttacatag ctctagactt agttttaagg aattacttgt gtatgctgct

14521 gaccctgcta tgcacgctgc ttctggtaat ctattactag ataaacgcac tacgtgcttt

14581 tcagtagctg cacttactaa caatgttgct tttcaaactg tcaaacccgg taattttaac

14641 aaagacttct atgactttgc tgtgtctaag ggtttcttta aggaaggaag ttctgttgaa

14701 ttaaaacact tcttctttgc tcaggatggt aatgctgcta tcagcgatta tgactactat

14761 cgttataatc taccaacaat gtgtgatatc agacaactac tatttgtagt tgaagttgtt

14821 gataagtact ttgattgtta cgatggtggc tgtattaatg ctaaccaagt catcgtcaac

14881 aacctagaca aatcagctgg ttttccattt aataaatggg gtaaggctag actttattat

14941 gattcaatga gttatgagga tcaagatgca cttttcgcat atacaaaacg taatgtcatc

15001 cctactataa ctcaaatgaa tcttaagtat gccattagtg caaagaatag agctcgcacc

15061 gtagctggtg tctctatctg tagtactatg accaatagac agtttcatca aaaattattg

15121 aaatcaatag ccgccactag aggagctact gtagtaattg gaacaagcaa attctatggt

15181 ggttggcaca acatgttaaa aactgtttat agtgatgtag aaaaccctca ccttatgggt

15241 tgggattatc ctaaatgtga tagagccatg cctaacatgc ttagaattat ggcctcactt

15301 gttcttgctc gcaaacatac aacgtgttgt agcttgtcac accgtttcta tagattagct

15361 aatgagtgtg ctcaagtatt gagtgaaatg gtcatgtgtg gcggttcact atatgttaaa

15421 ccaggtggaa cctcatcagg agatgccaca actgcttatg ctaatagtgt ttttaacatt

15481 tgtcaagctg tcacggccaa tgttaatgca cttttatcta ctgatggtaa caaaattgcc

15541 gataagtatg tccgcaattt acaacacaga ctttatgagt gtctctatag aaatagagat

15601 gttgacacag actttgtgaa tgagttttac gcatatttgc gtaaacattt ctcaatgatg

15661 atactttctg acgatgctgt tgtgtgtttc aatagcactt atgcatctca aggtctagtg

15721 gctagcataa agaactttaa gtcagttctt tattatcaaa acaatgtttt tatgtctgaa

15781 gcaaaatgtt ggactgagac tgaccttact aaaggacctc atgaattttg ctctcaacat

15841 acaatgctag ttaaacaggg tgatgattat gtgtaccttc cttacccaga tccatcaaga

15901 atcctagggg ccggctgttt tgtagatgat atcgtaaaaa cagatggtac acttatgatt

15961 gaacggttcg tgtctttagc tatagatgct tacccactta ctaaacatcc taatcaggag

16021 tatgctgatg tctttcattt gtacttacaa tacataagaa agctacatga tgagttaaca

16081 ggacacatgt tagacatgta ttctgttatg cttactaatg ataacacttc aaggtattgg

16141 gaacctgagt tttatgaggc tatgtacaca ccgcatacag tcttacaggc tgttggggct

16201 tgtgttcttt gcaattcaca gacttcatta agatgtggtg cttgcatacg tagaccattc

16261 ttatgttgta aatgctgtta cgaccatgtc atatcaacat cacataaatt agtcttgtct

16321 gttaatccgt atgtttgcaa tgctccaggt tgtgatgtca cagatgtgac tcaactttac

16381 ttaggaggta tgagctatta ttgtaaatca cataaaccac ccattagttt tccattgtgt

16441 gctaatggac aagtttttgg tttatataaa aatacatgtg ttggtagcga taatgttact

16501 gactttaatg caattgcaac atgtgactgg acaaatgctg gtgattacat tttagctaac

16561 acctgtactg aaagactcaa gctttttgca gcagaaacgc tcaaagctac tgaggagaca

16621 tttaaactgt cttatggtat tgctactgta cgtgaagtgc tgtctgacag agaattacat

16681 ctttcatggg aagttggtaa acctagacca ccacttaacc gaaattatgt ctttactggt

16741 tatcgtgtaa ctaaaaacag taaagtacaa ataggagagt acacctttga aaaaggtgac

16801 tatggtgatg ctgttgttta ccgaggtaca acaacttaca aattaaatgt tggtgattat

16861 tttgtgctga catcacatac agtaatgcca ttaagtgcac ctacactagt gccacaagag

16921 cactatgtta gaattactgg cttataccca acactcaata tctcagatga gttttctagc

16981 aatgttgcaa attatcaaaa ggttggtatg caaaagtatt ctacactcca gggaccacct

17041 ggtactggta agagtcattt tgctattggc ctagctctct actacccttc tgctcgcata

17101 gtgtatacag cttgctctca tgccgctgtt gatgcactat gtgagaaggc attaaaatat

17161 ttgcctatag ataaatgtag tagaattata cctgcacgtg ctcgtgtaga gtgttttgat

17221 aaattcaaag tgaattcaac attagaacag tatgtctttt gtactgtaaa tgcattgcct

17281 gagacgacag cagatatagt tgtctttgat gaaatttcaa tggccacaaa ttatgatttg

17341 agtgttgtca atgccagatt atgtgctaag cactatgtgt acattggcga ccctgctcaa

17401 ttacctgcac cacgcacatt gctaactaag ggcacactag aaccagaata tttcaattca

17461 gtgtgtagac ttatgaaaac tataggtcca gacatgttcc tcggaacttg tcggcgttgt

17521 cctgctgaaa ttgttgacac tgtgagtgct ttggtttatg ataataagct taaagcacat

17581 aaagacaaat cagctcaatg ctttaaaatg ttttataagg gtgttatcac gcatgatgtt

17641 tcatctgcaa ttaacaggcc acaaataggc gtggtaagag aattccttac acgtaaccct

17701 gcttggagaa aagctgtctt tatttcacct tataattcac agaatgctgt agcctcaaag

17761 attttgggac taccaactca aactgttgat tcatcacagg gctcagaata tgactatgtc

17821 atattcactc aaaccactga aacagctcac tcttgtaatg taaacagatt taatgttgct

17881 attaccagag caaaagtagg catactttgc ataatgtctg atagagacct ttatgacaag

17941 ttgcaattta caagtcttga aattccacgt aggaatgtgg caactttaca agctgaaaat

18001 gtaacaggac tctttaaaga ttgtagtaag gtaatcactg ggttacatcc tacacaggca

18061 cctacacacc tcagtgttga cactaaattc aaaactgaag gtttatgtgt tgacgtacct

18121 ggcataccta aggacatgac ctatagaaga ctcatctcta tgatgggttt taaaatgaat

18181 tatcaagtta atggttaccc taacatgttt atcacccgcg aagaagctat aagacatgta

18241 cgtgcatgga ttggcttcga tgtcgagggg tgtcatgcta ctagagaagc tgttggtacc

18301 aatttacctt tacagctagg tttttctaca ggtgttaacc tagttgctgt acctacaggt

18361 tatgttgata cacctaataa tacagatttt tccagagtta gtgctaaacc accgcctgga

18421 gatcaattta aacacctcat accacttatg tacaaaggac tttcttggaa tgtagtgcgt

18481 ataaagattg tacaaatgtt aagtgacaca cttaaaaatc tctctgacag agtcgtattt

18541 gtcttatggg cacatggctt tgagttgaca tctatgaagt attttgtgaa aataggacct

18601 gagcgcacct gttgtctatg tgatagacgt gccacatgct tttccactgc ttcagacact

18661 tatgcctgtt ggcatcattc tattggattt gattacgtct ataatccgtt tatgattgat

18721 gttcaacaat ggggttttac aggtaaccta caaagcaacc atgatctgta ttgtcaagtc

18781 catggtaatg cacatgtagc tagttgtgat gcaatcatga ctaggtgtct agctgtccac

18841 gagtgctttg ttaagcgtgt tgactggact attgaatatc ctataattgg tgatgaactg

18901 aagattaatg cggcttgtag aaaggttcaa cacatggttg ttaaagctgc attattagca

18961 gacaaattcc cagttcttca cgacattggt aaccctaaag ctattaagtg tgtacctcaa

19021 gctgatgtag aatggaagtt ctatgatgca cagccttgta gtgacaaagc ttataaaata

19081 gaagaattat tctattctta tgccacacat tctgacaaat tcacagatgg tgtatgccta

19141 ttttggaatt gcaatgtcga tagatatcct gctaattcca ttgtttgtag atttgacact

19201 agagtgctat ctaaccttaa cttgcctggt tgtgatggtg gcagtttgta tgtaaataaa

19261 catgcattcc acacaccagc ttttgataaa agtgcttttg ttaatttaaa acaattacca

19321 tttttctatt actctgacag tccatgtgag tctcatggaa aacaagtagt gtcagatata

19381 gattatgtac cactaaagtc tgctacgtgt ataacacgtt gcaatttagg tggtgctgtc

19441 tgtagacatc atgctaatga gtacagattg tatctcgatg cttataacat gatgatctca

19501 gctggcttta gcttgtgggt ttacaaacaa tttgatactt ataacctctg gaacactttt

19561 acaagacttc agagtttaga aaatgtggct tttaatgttg taaataaggg acactttgat

19621 ggacaacagg gtgaagtacc agtttctatc attaataaca ctgtttacac aaaagttgat

19681 ggtgttgatg tagaattgtt tgaaaataaa acaacattac ctgttaatgt agcatttgag

19741 ctttgggcta agcgcaacat taaaccagta ccagaggtga aaatactcaa taatttgggt

19801 gtggacattg ctgctaatac tgtgatctgg gactacaaaa gagatgctcc agcacatata

19861 tctactattg gtgtttgttc tatgactgac atagccaaga aaccaattga aacgatttgt

19921 gcaccactca ctgtcttttt tgatggtaga gttgatggtc aagtagactt atttagaaat

19981 gcccgtaatg gtgttcttat tacagagggt agtgttaaag gtttacaacc atctgtaggt

20041 cccaaacaag ctagtcttaa tggagtcaca ttaattggag aagccgtaaa aacacagttc

20101 aattattata agaaagttga tggtgttgtc caacaattac ctgaaactta ctttactcag

20161 agtagaaatt tacaagaatt taaacccagg agtcaaatgg aaattgattt cttagaatta

20221 gctatggatg aattcattga acggtataaa ttagaaggct atgccttcga acatatcgtt

20281 tatggagatt ttagtcatag tcagttaggt ggtttacatc tactgattgg actagctaaa

20341 cgttttaagg aatcaccttt tgaattagaa gattttattc ctatggacag tacagttaaa

20401 aactatttca taacagatgc gcaaacaggt tcatctaagt gtgtgtgttc tgttattgat

20461 ttattacttg atgattttgt tgaaataata aaatcccaag atttatctgt agtttctaag

20521 gttgtcaaag tgactattga ctatacagaa atttcattta tgctttggtg taaagatggc

20581 catgtagaaa cattttaccc aaaattacaa tctagtcaag cgtggcaacc gggtgttgct

20641 atgcctaatc tttacaaaat gcaaagaatg ctattagaaa agtgtgacct tcaaaattat

20701 ggtgatagtg caacattacc taaaggcata atgatgaatg tcgcaaaata tactcaactg

20761 tgtcaatatt taaacacatt aacattagct gtaccctata atatgagagt tatacatttt

20821 ggtgctggtt ctgataaagg agttgcacca ggtacagctg ttttaagaca gtggttgcct

20881 acgggtacgc tgcttgtcga ttcagatctt aatgactttg tctctgatgc agattcaact

20941 ttgattggtg attgtgcaac tgtacataca gctaataaat gggatctcat tattagtgat

21001 atgtacgacc ctaagactaa aaatgttaca aaagaaaatg actctaaaga gggttttttc

21061 acttacattt gtgggtttat acaacaaaag ctagctcttg gaggttccgt ggctataaag

21121 ataacagaac attcttggaa tgctgatctt tataagctca tgggacactt cgcatggtgg

21181 acagcctttg ttactaatgt gaatgcgtca tcatctgaag catttttaat tggatgtaat

21241 tatcttggca aaccacgcga acaaatagat ggttatgtca tgcatgcaaa ttacatattt

21301 tggaggaata caaatccaat tcagttgtct tcctattctt tatttgacat gagtaaattt

21361 ccccttaaat taaggggtac tgctgttatg tctttaaaag aaggtcaaat caatgatatg

21421 attttatctc ttcttagtaa aggtagactt ataattagag aaaacaacag agttgttatt

21481 tctagtgatg ttcttgttaa caactaaacg aacaatgttt gtttttcttg ttttattgcc

21541 actagtctct agtcagtgtg ttaatcttat aaccagaact caatcataca ctaattcttt

21601 cacacgtggt gtttattacc ctgacaaagt tttcagatcc tcagttttac attcaactca

21661 ggacttgttc ttacctttct tttccaatgt tacttggttc catgctatac atgtctctgg

21721 gaccaatggt actaagaggt ttgataaccc tgtcctacca tttaatgatg gtgtttattt

21781 tgcttccact gagaagtcta acataataag aggctggatt tttggtacta ctttagattc

21841 gaagacccag tccctactta ttgttaataa cgctactaat gttgttatta aagtctgtga

21901 atttcaattt tgtaatgatc catttttgga tgtttattac cacaaaaaca acaaaagttg

21961 gatggaaagt gagttcagag tttattctag tgcgaataat tgcacttttg aatatgtctc

22021 tcagcctttt cttatggacc ttgaaggaaa acagggtaat ttcaaaaatc ttagggaatt

22081 tgtgtttaag aatattgatg gttattttaa aatatattct aagcacacgc ctattaattt

22141 agggcgtgat ctccctcagg gtttttcggc tttagaacca ttggtagatt tgccaatagg

22201 tattaacatc actaggtttc aaactttact tgctttacat agaagttatt tgactcctgg

22261 tgattcttct tcaggttgga cagctggtgc tgcagcttat tatgtgggtt atcttcaacc

22321 taggactttt ctattaaaat ataatgaaaa tggaaccatt acagatgctg tagactgtgc

22381 acttgaccct ctctcagaaa caaagtgtac gttgaaatcc ttcactgtag aaaaaggaat

22441 ctatcaaact tctaacttta gagtccaacc aacagaatct attgttagat ttcctaatat

22501 tacaaacttg tgcccttttg atgaagtttt taacgccacc agatttgcat ctgtttatgc

22561 ttggaacagg aagagaatca gcaactgtgt tgctgattat tctgtcctat ataatttcgc

22621 accatttttc gcttttaagt gttatggagt gtctcctact aaattaaatg atctctgctt

22681 tactaatgtc tatgcagatt catttgtaat tagaggtaat gaagtcagcc aaatcgctcc

22741 agggcaaact ggaaatattg ctgattataa ttataaatta ccagatgatt ttacaggctg

22801 cgttatagct tggaattcta acaagcttga ttctaaggtt ggtggtaatt ataattacct

22861 gtatagattg tttaggaagt ctaatctcaa accttttgag agagatattt caactgaaat

22921 ctatcaggcc ggtaacaaac cttgtaatgg tgttgcaggt tttaattgtt actttccttt

22981 acgatcatat ggtttccaac ccacttatgg tgttggtcac caaccataca gagtagtagt

23041 actttctttt gaacttctac atgcaccagc aactgtttgt ggacctaaaa agtctactaa

23101 tttggttaaa aacaaatgtg tcaatttcaa cttcaatggt ttaacaggca caggtgttct

23161 tactgagtct aacaaaaagt ttctgccttt ccaacaattt ggcagagaca ttgctgacac

23221 tactgatgct gtccgtgatc cacagacact tgagattctt gacattacac catgttcttt

23281 tggtggtgtc agtgttataa caccaggaac aaatacttct aaccaggttg ctgttcttta

23341 tcagggtgtt aactgcacag aagtccctgt tgctattcat gcagatcaac ttactcctac

23401 ttggcgtgtt tattctacag gttctaatgt ttttcaaaca cgtgcaggct gtttaatagg

23461 ggctgaatat gtcaacaact catatgagtg tgacataccc attggtgcag gtatatgcgc

23521 tagttatcag actcagacta agtctcatcg gcgggcacgt agtgtagcta gtcaatccat

23581 cattgcctac actatgtcac ttggtgcaga aaattcagtt gcttactcta ataactctat

23641 tgccataccc acaaatttta ctattagtgt taccacagaa attctaccag tgtctatgac

23701 caagacatca gtagattgta caatgtacat ttgtggtgat tcaactgaat gcagcaatct

23761 tttgttgcaa tatggcagtt tttgtacaca attaaaacgt gctttaactg gaatagctgt

23821 tgaacaagac aaaaacaccc aagaagtttt tgcacaagtc aaacaaattt acaaaacacc

23881 accaattaaa tattttggtg gttttaattt ttcacaaata ttaccagatc catcaaaacc

23941 aagcaagagg tcatttattg aagatctact tttcaacaaa gtgacacttg cagatgctgg

24001 cttcatcaaa caatatggtg attgccttgg tgatattgct gctagagacc tcatttgtgc

24061 acaaaagttt aacggcctta ctgttttgcc acctttgctc acagatgaaa tgattgctca

24121 atacacttct gcactgttag cgggtacaat cacttctggt tggacctttg gtgcaggtgc

24181 tgcattacaa ataccatttg ctatgcaaat ggcttatagg tttaatggta ttggagttac

24241 acagaatgtt ctctatgaga accaaaaatt gattgccaac caatttaata gtgctattgg

24301 caaaattcaa gactcacttt cttccacagc aagtgcactt ggaaaacttc aagatgtggt

24361 caaccataat gcacaagctt taaacacgct tgttaaacaa cttagctcca aatttggtgc

24421 aatttcaagt gttttaaatg atatcctttc acgtcttgac aaagttgagg ctgaagtgca

24481 aattgatagg ttgatcacag gcagacttca aagtttgcag acatatgtga ctcaacaatt

24541 aattagagct gcagaaatca gagcttctgc taatcttgct gctactaaaa tgtcagagtg

24601 tgtacttgga caatcaaaaa gagttgattt ttgtggaaag ggctatcatc ttatgtcctt

24661 ccctcagtca gcacctcatg gtgtagtctt cttgcatgtg acttatgtcc ctgcacaaga

24721 aaagaacttc acaactgctc ctgccatttg tcatgatgga aaagcacact ttcctcgtga

24781 aggtgtcttt gtttcaaatg gcacacactg gtttgtaaca caaaggaatt tttatgaacc

24841 acaaatcatt actacagaca acacatttgt gtctggtaac tgtgatgttg taataggaat

24901 tgtcaacaac acagtttatg atcctttgca acctgaatta gattcattca aggaggagtt

24961 agataaatat tttaagaatc atacatcacc agatgttgat ttaggtgaca tctctggcat

25021 taatgcttca gttgtaaaca ttcaaaaaga aattgaccgc ctcaatgagg ttgccaagaa

25081 tttaaatgaa tctctcatcg atctccaaga acttggaaag tatgagcagt atataaaatg

25141 gccatggtac atttggctag gttttatagc tggcttgatt gccatagtaa tggtgacaat

25201 tatgctttgc tgtatgacca gttgctgtag ttgtctcaag ggctgttgtt cttgtggatc

25261 ctgctgcaaa tttgatgaag acgactctga gccagtgctc aaaggagtca aattacatta

25321 cacataaacg aacttatgga tttgtttatg agaatcttca caattggaac tgtaactttg

25381 aagcaaggtg aaatcaagga tgctactcct tcagattttg ttcgcgctac tgcaacgata

25441 ccgatacaag cctcactccc tttcggatgg cttattgttg gcgttgcact tcttgctgtt

25501 tttcagagcg cttccaaaat cataactctc aaaaagagat ggcaactagc actctccaag

25561 ggtgttcact ttgtttgcaa cttgctgttg ttgtttgtaa cagtttactc acaccttttg

25621 ctcgttgctg ctggccttga agcccctttt ctctatcttt atgctttagt ctacttcttg

25681 cagagtataa actttgtaag aataataatg aggctttggc tttgctggaa atgccgttcc

25741 aaaaacccat tactttatga tgccaactat tttctttgct ggcatactaa ttgttacgac

25801 tattgtatac cttacaatag tgtaacttct tcaattgtca ttacttcagg tgatggcaca

25861 acaagtccta tttctgaaca tgactaccag attggtggtt atactgaaaa atgggaatct

25921 ggagtaaaag actgtgttgt attacacagt tacttcactt cagactatta ccagctgtac

25981 tcaactcaat tgagtacaga cattggtgtt gaacatgtta ccttcttcat ctacaataaa

26041 attgttgatg agcctgaaga acatgtccaa attcacacaa tcgacggttc atccggagtt

26101 gttaatccag taatggaacc aatttatgat gaaccgacga cgactactag cgtgcctttg

26161 taagcacaag ctgatgagta cgaacttatg tactcattcg tttcggaaga gataggtacg

26221 ttaatagtta atagcgtact tctttttctt gctttcgtgg tattcttgct agttacacta

26281 gccatcctta ctgcgcttcg attgtgtgcg tactgctgca atattgttaa cgtgagtctt

26341 gtaaaacctt ctttttacgt ttactctcgt gttaaaaatc tgaattcttc tagagttcct

26401 gatcttctgg tctaaacgaa ctaaatatta tattagtttt tctgtttgga actttaattt

26461 tagccatggc agattccaac ggtactatta ccgttgaaga gcttaaaaag ctccttgaag

26521 aatggaacct agtaataggt ttcctattcc ttacatggat ttgtcttcta caatttgcct

26581 atgccaacag gaataggttt ttgtatataa ttaagttaat tttcctctgg ctgttatggc

26641 cagtaacttt aacttgtttt gtgcttgctg ctgtttacag aataaattgg atcaccggtg

26701 gaattgctat cgcaatggct tgtcttgtag gcttgatgtg gctcagctac ttcattgctt

26761 ctttcagact gtttgcgcgt acgcgttcca tgtggtcatt taatccagaa actaacattc

26821 ttctcaacgt gccactccat ggcactattc tgaccagacc gcttctagaa agtgaactcg

26881 taatcggagc tgtgatcctt cgtggacatc ttcgtattgc tggacaccat ctaggacgct

26941 gtgacatcaa ggacctgcct aaagaaatca ctgttgctac atcacgaacg ctttcttatt

27001 acaaattggg agcttcgcag cgtgtagcag gtgactcagg ttttgctgca tacagtcgct

27061 acaggattgg caactataaa ttaaacacag accattccag tagcagtgac aatattgctt

27121 tgcttgtaca gtaagtgaca acagatgttt catctcgttg actttcaggt tactatagca

27181 gagatattac taattattat gcggactttt aaagtttcca tttggaatct tgattacatc

27241 ataaacctca taattaaaaa tttatctaag tcactaactg agaataaata ttctcaatta

27301 gatgaagagc aaccaatgga gattctctaa acgaacatga aaattattct tttcttggca

27361 ctgataacac tcgctacttg tgagctttat cactaccaag agtgtgttag aggtacaaca

27421 gtacttttaa aagaaccttg ctcttctgga acatacgagg gcaattcacc atttcatcct

27481 ctagctgata acaaatttgc actgacttgc tttagcactc aatttgcttt tgcttgtcct

27541 gacggcgtaa aacacgtcta tcagttacgt gccagatcag tttcacctaa actgttcatc

27601 agacaagagg aagttcaaga actttactct ccaatttttc ttattgttgc ggcaatagtg

27661 tttataacac tttgcttcac actcaaaaga aagacagaat gattgaactt tcattaattg

27721 acttctattt gtgcttttta gcctttctgt tattccttgt tttaattatg cttattatct

27781 tttggttctc acttgaactg caagatcata atgaaacttg tcacgcctaa acgaacatga

27841 aatttcttgt tttcttagga atcatcacaa ctgtagctgc atttcaccaa gaatgtagtt

27901 tacagtcatg tactcaacat caaccatatg tagttgatga cccgtgtcct attcacttct

27961 attctaaatg gtatattaga gtaggagcta gaaaatcagc acctttaatt gaattgtgcg

28021 tggatgaggc tggttctaaa tcacccattc agtacatcga tatcggtaat tatacagttt

28081 cctgtttacc ttttacaatt aattgccagg aacctaaatt gggtagtctt gtagtgcgtt

28141 gttcgttcta tgaagacttt ttagagtatc atgacgttcg tgttgtttta gatttcatct

28201 aaacgaacaa acttaaatgt ctgataatgg accccaaaat cagcgaaatg cactccgcat

28261 tacgtttggt ggaccctcag attcaactgg cagtaaccag aatggtgggg cgcgatcaaa

28321 acaacgtcgg ccccaaggtt tacccaataa tactgcgtct tggttcaccg ctctcactca

28381 acatggcaag gaagacctta aattccctcg aggacaaggc gttccaatta acaccaatag

28441 cagtccagat gaccaaattg gctactaccg aagagctacc agacgaattc gtggtggtga

28501 cggtaaaatg aaagatctca gtccaagatg gtatttctac tacctaggaa ctgggccaga

28561 agctggactt ccctatggtg ctaacaaaga cggcatcata tgggttgcaa ctgagggagc

28621 cttgaataca ccaaaagatc acattggcac ccgcaatcct gctaacaatg ctgcaatcgt

28681 gctacaactt cctcaaggaa caacattgcc aaaaggcttc tacgcagaag ggagcagagg

28741 cggcagtcaa gcctcttctc gttcctcatc acgtagtcgc aacagttcaa gaaattcaac

28801 tccaggcagc agtaaacgaa cttctcctgc tagaatggct ggcaatggcg gtgatgctgc

28861 tcttgctttg ctgctgcttg acagattgaa ccagcttgag agcaaaatgt ctggtaaagg

28921 ccaacaacaa caaggccaaa ctgtcactaa gaaatctgct gctgaggctt ctaagaagcc

28981 tcggcaaaaa cgtactgcca ctaaagcata caatgtaaca caagctttcg gcagacgtgg

29041 tccagaacaa acccaaggaa attttgggga ccaggaacta atcagacaag gaactgatta

29101 caaacattgg ccgcaaattg cacaatttgc ccccagcgct tcagcgttct tcggaatgtc

29161 gcgcattggc atggaagtca caccttcggg aacgtggttg acctacacag gtgccatcaa

29221 attggatgac aaagatccaa atttcaaaga tcaagtcatt ttgctgaata agcatattga

29281 cgcatacaaa acattcccac caacagagcc taaaaaggac aaaaagaaga aggctgatga

29341 aactcaagcc ttaccgcaga gacagaagaa acagcaaact gtgactcttc ttcctgctgc

29401 agatttggat gatttctcca aacaattgca acaatccatg agccgtgctg actcaactca

29461 ggcctaaact catgcagacc acacaaggca gatgggctat ataaacgttt tcgcttttcc

29521 gtttacgata tatagtctac tcttgtgcag aatgaattct cgtaactaca tagcacaagt

29581 agatgtagtt aactttaatc tcacatagca atctttaatc agtgtgtaac attagggagg

29641 acttgaaaga gccaccacat tttcacctac agtgaacaat gctagggaga gctgcctata

29701 tggaagagcc ctaatgtgta aaattaa

//