**Severe acute respiratory syndrome coronavirus 2 isolate SARS-CoV-2/human/USA/MA-MASPHL-03599/2021 ORF1ab polyprotein (ORF1ab), ORF1a polyprotein (ORF1ab), surface glycoprotein (S), ORF3a protein (ORF3a), envelope protein (E), membrane glycoprotein (M), and ORF...**

GenBank: MZ170364.1

[FASTA](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?report=fasta) [Graphics](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?report=graph)

[Go to:](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?expand-gaps=on" \l "goto2035919541_0)

LOCUS MZ170364 29787 bp RNA linear VRL 12-MAY-2021

DEFINITION Severe acute respiratory syndrome coronavirus 2 isolate

SARS-CoV-2/human/USA/MA-MASPHL-03599/2021 ORF1ab polyprotein

(ORF1ab), ORF1a polyprotein (ORF1ab), surface glycoprotein (S),

ORF3a protein (ORF3a), envelope protein (E), membrane glycoprotein

(M), and ORF6 protein (ORF6) genes, complete cds; ORF7a protein

(ORF7a) and ORF7b (ORF7b) genes, partial cds; ORF8 gene, complete

sequence; and nucleocapsid phosphoprotein (N) and ORF10 protein

(ORF10) genes, complete cds.

ACCESSION MZ170364

VERSION MZ170364.1

DBLINK BioProject: [PRJNA686883](https://www.ncbi.nlm.nih.gov/bioproject/PRJNA686883)

KEYWORDS .

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 29787)

AUTHORS Lang,A.S., Fink,T., Gallagher,G.R. and Smole,S.C.

TITLE Direct Submission

JOURNAL Submitted (12-MAY-2021) DPH, Massachusetts State Public Health Lab,

305 South, Boston, MA 02130, USA

COMMENT ##Assembly-Data-START##

Assembly Method :: BWA v. 0.7.17; iVar v. 1.2.2

Sequencing Technology :: Illumina

##Assembly-Data-END##

FEATURES Location/Qualifiers

source 1..29787

/organism="Severe acute respiratory syndrome coronavirus

2"

/mol\_type="genomic RNA"

/isolate="SARS-CoV-2/human/USA/MA-MASPHL-03599/2021"

/isolation\_source="nasopharyngeal swab"

/host="Homo sapiens"

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

/country="USA"

/collection\_date="2021-04-26"

/note="EPI\_ISL\_2008164"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=226&to=21515) 226..21515

/gene="ORF1ab"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?location=226:13428,13428:21515) join(226..13428,13428..21515)

/gene="ORF1ab"

/ribosomal\_slippage

/codon\_start=1

/product="ORF1ab polyprotein"

/protein\_id="[QVE58899.1](https://www.ncbi.nlm.nih.gov/protein/2035919542)"

/translation="MESLVPGFNEKTHVQLSLPVLQVRDVLVRGFGDSVEEVLSEARQ

HLKDGTCGLVEVEKGVLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGE

TLGVLVPHVGEIPVAYRKVLLRKNGNKGAGGHSYGADLKSFDLGDELGTDPYEDFQEN

WNTKHSSGVTRELMRELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEQ

LDFIDTKRGVYCCREHEHEIAWYTERSEKSYELQTPFEIKLAKKFDTFNGECPNFVFP

LNSIIKTIQPRVEKKKLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTG

DFVKATCEFCGTENLTKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESG

LKTILRKGGRTIAFGGCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNL

LEILQKEKVNINIVGDFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGN

FKVTKGKAKKGAWNIGEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAA

ITILDGISQYSLRLIDAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKL

KPVLDWLEEKFKEGVEFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLV

NKFLALCADSIIIGGAKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEII

FLEGETLPTEVLTEEVVLKTGDLQPLEQPTSXXXXXXXXXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXXAPTKVTFGDDTVIEVQGYKSVNITFELDERIDKVLNEK

CSAYTVELGTEVNEFACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDESGEF

KLASHMYCSFYPPDEDEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPE

EEQEEDWLDDDSQQTVGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSG

YLKLTDNVYIKNADIVEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESD

DYIATNGPLKVGGSCVLSGHNLAKHCLHVVGPNVNKGEDIQLLKSAYENFNQHEVLLA

PLLSAGIFGADPIHSLRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIA

EIPKEEVKPFITESKPSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGN

LHPDSATLVSDIDITFLKKDAPYIVGDVVQEGVLTAVVIPTKKAGGTTEMLAKALRKV

PTDNYITTYPGQGLNGYTVEEAKTVLKKCKSAFYILPSIISNEKQEILGTVSWNLREM

LAHAEETRKLMPVCVETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLIN

TLNDLNETLVTMPLGYVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSS

KTPEEHFIETISLAGSYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTTFHLDGEVIT

FDNLKTLLSLREVRTIKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPH

NSHEGKTFYVLPNDDTLRVEAFEYYHTTDLSFLGRYMSALNHTKKWKYPQVNGLTSIK

WADNNCYLATALLTLQQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELG

DVRETMSYLFQHANLDSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQ

IPCTCGKQATKYLVQQESPFVMMSAPPAQYELKHGTFTCASEYTGNYQCGHYKHITSK

ETLYCIDGALLTKSSEYKGPITDVFYKENSYTTTIKPVTYKLDGVVCTEIDPKLDNYY

KKDNSYFTEQPIDLVPNQPYPNASFDNFKFVCDNIKFADDLNQLTGYKKPASRELKVT

FFPDLNGDVVAIDYKHYTPSFKKGAKLLHKPIVWHVNNATNKATYKPNTWCIRCLWST

KPVETSNSFDVLKSEDVQGMDNLACEDLKPVSEEVVENPTIQKDVLECNVKTTEVVGD

IILKPANNSLKITEEVGHTDLMAAYVDNSSLTIKKPNELSRVLGLKTLATHGLAAVNS

VPWDTIANYAKPFLNKVVSTTTNIVTRCLNRVCTNYMPYFFTLLLQLCTFTRSTNSRI

KASMPTTIAKNTVKSVGKFCLEASFNYLKSPNFSKLINIIIWFLLLSVCLGSLIYSTA

ALGVLMSNLGMPSYCTGYREGYLNSTNVTIATYCTGSIPCSVCLSGLDSLDTYPSLET

IQITISSFKWDLTAFGLVAEWFLAYILFTRFFYVLGLAAIMQLFFSYFAVHFISNSWL

MWLIINLVQMAPISAMVRMYIFFASFYYVWKSYVHVVDGCNSSTCVMCYKRNRATRVE

CTTIVNGVRRSFYVYANGGKGFCKLHNWNCVNCDTFCAGSTFISDEVARDLSLQFKRP

INPTDQSSYIVDSVTVKNGSIHLYFDKAGQKTYERHSLSHFVNLDNLRANNTKGSLPI

NVIVFDGKSKCEESSAKSASVYYSQLMCQPILLLDQALVSDVGDSAEVAVKMFDAYVN

TFSSTFNVPMEKLKTLVATAEAELAKNVSLDNVLSTFISAARQGFVDSDVETKDVVEC

LKLSHQSDIEVTGDSCNNYMLTYNKVENMTPRDLGACIDCSARHINAQVAKSHNIALI

WNVKDFMSLSEQLRKQIRSAAKKNNLPFKLTCATTRQVVNVVTTKIALKGGKIVNNWL

KQLIKVTLVFLFVAAIFYLITPVHVMSKHTDFSSEIIGYKAIDGGVTRDIASTDTCFA

NKHADFDTWFSQRGGSYTNDKACPLIAAVITREVGFVVPGLPGTILRTTNGDFLHFLP

RVFSAVGNICYTPSKLIEYTDFATSACVLAAECTIFKDASGKPVPYCYDTNVLEGSVA

YESLRPDTRYVLMDGSIIQFPNTYLEGSVRVVTTFDSEYCRHGTCERSEAGVCVSTSG

RWVLNNDYYRSLPGVFCGVDAVNLLTNMFTPLIQPIGALDISASIVAGGIVAIVVTCL

AYYFMRFRRAFGEYSHVVAFNTLLFLMSFTVLCLTPVYSFLPGVYSVIYLYLTFYLTN

DVSFLAHIQWMVMFTPLVPFWITIAYIICISTKHFYWFFSNYLKRRVVFNGVSFSTFE

EAALCTFLLNKEMYLKLRSDVLLPLTQYNRYLVLYNKYKYFSGAMDTTSYREAACCHL

AKALNDFSNSGSDVLYQPPQTSITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNG

LWLDDVVYCPRHVICTSEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVL

KLKVDTANPKTPKYKFVRIQPGQTFSVLACYNGSPSGVYQCAMRPNFTIKGSFLNGSC

GSVGFNIDYDCVSFCYMHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVN

VLAWLYAAVINGDRWFLNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAV

LDMCASLKELLQNGMNGRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHW

LLLTILTSLLVLVQSTQWSLFFFLYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFL

LPSLATVAYFNMVYMPASWVMRIMTWLDMVDTSLSGFKLKDCVMYASAVVLLILMTAR

TVYDDGARRVWTLMNVLTLAYKVYYGNALDQAISMWALIISVTSNYSGVVTIVMFLAR

GIVFMCVEYCPIFFITGNTLQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYL

VSTQEFRYMNSQGLLPPKNSIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVL

LSVLQQLRVESSSKLWAQCVQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKL

CEEMLDNRATLQAIASEFSSLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAK

SEFDRDAAMQRKLEKMADQAMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALN

NIINNARDGCVPLNIIPLTTAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDA

DSKIVQLSEISMDNSPNLAWPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTA

CTDDNALAYYNTTKGGRFVLALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTP

KGPKVKYLYFIKGLNNLNRGMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAK

AYKDYLASGGQPITNCVKMLCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDH

PNPKGFCDLKGKYVQIPTTCANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSA

DAQSFLNRVCGVSAARLTPCGTGTSTDVVYRAFDIYNDKVAGFAKFLKTNCCRFQEKD

EDDNLIDSYFVVKRHTFSNYQHEETIYNLLKDCPAVAKHDFFKFRIDGDMVPHISRQR

LTKYTMADLVYALRHFDEGNCDTLKEILVTYNCCDDDYFNKKDWYDFVENPDILRVYA

NLGERVRQALLKTVQFCDAMRNAGIVGVLTLDNQDLNGNWYDFGDFIQTTPGSGVPVV

DSYYSLLMPILTLTRALTAESHVDTDLTKPYIKWDLLKYDFTEERLKLFDRYFKYWDQ

TYHPNCVNCLDDRCILHCANFNVLFSTVFPLTSFGPLVRKIFVDGVPFVVSTGYHFRE

LGVVHNQDVNLHSSRLSFKELLVYAADPAMHAASGNLLLDKRTTCFSVAALTNNVAFQ

TVKPGNFNKDFYDFAVSKGFFKEGSSVELKHFFFAQDGNAAISDYDYYRYNLPTMCDI

RQLLFVVEVVDKYFDCYDGGCINANQVIVNNLDKSAGFPFNKWGKARLYYDSMSYEDQ

DALFAYTKRNVIPTITQMNLKYAISAKNRARTVAGVSICSTMTNRQFHQKLLKSIAAT

RGATVVIGTSKFYGGWHNMLKTVYSDVENPHLMGWDYPKCDRAMPNMLRIMASLVLAR

KHTTCCSLSHRFYRLANECAQVLSEMVMCGSSLYVKPGGTSSGDATTAYANSVFNICQ

AVTANVNALLSTDGNKIADKYVRNLQHRLYECLYRNRDVDTDFVNEFYAYLRKHFSMM

ILSDDAVVCFNSTYASQGLVASIKNFKSVLYYQNNVFMSEAKCWTETDLTKGPHEFCS

QHTMLVKQGDDYVYLPYPDPSRILGAGCFVDDIVKTDGTLMIERFVSLAIDAYPLTKH

PNQEYADVFHLYLQYIRKLHDELTGHMLDMYSVMLTNDNTSRYWEPEFYEAMYTPHTV

LQAVGACVLCNSQTSLRCGACIRRPFLCCKCCYDHVISTSHKLVLSVNPYVCNAPGCD

VTDVTQLYLGGMSYYCKSHKLPISFPLCANGQVFGLYKNTCVGSDNVTDFNAIATCDW

TNAGDYILANTCTERLKLFAAETLKATEETFKLSYGIATVREVLSDRELHLSWEVGKP

RPPLNRNYVFTGYRVTKNSKVQIGEYTFEKGDYGDAVVYRGTTTYKLNVGDYFVLTSH

TVMPLSAPTLVPQEHYVRITGLYPTLNISDEFSSNVANYQKVGMQKYSTLQGPPGTGK

SHFAIGLALYYPSARIVYTACSHAAVDALCEKALKYLPIDKCSRIIPARARVECFDKF

KVNSTLEQYVFCTVNALPETTADIVVFDEISMATNYDLSVVNARLRAKHYVYIGDPAQ

LPAPRTLLTKGTLEPEYFNSVCRLMKTIGPDMFLGTCRRCPAEIVDTVSALVYDNKLK

AHKDKSAQCFKMFYKGVITHDVSSAINRPQIGVVREFLTRNPAWRKAVFISPYNSQNA

VASKILGLPTQTVDSSQGSEYDYVIFTQTTETAHSCNVNRFNVAITRAKVGILCIMSD

RDLYDKLQFTSLEIPRRNVATLQAENVTGLFKDCSKVITGLHPTQAPTHLSVDTKFKT

EGLCVDIPGIPKDMTYRRLISMMGFKMNYQVNGYPNMFITREEAIRHVRAWIGFDVEG

CHATREAVGTNLPLQLGFSTGVNLVAVPTGYVDTPNNTDFSRVSAKPPPGDQFKHLIP

LMYKGLPWNVVRIKIVQMLSDTLKNLSDRVVFVLWAHGFELTSMKYFVKIGPERTCCL

CDRRATCFSTASDTYACWHHSIGFDYVYNPFMIDVQQWGFTGNLQSNHDLYCQVHGNA

HVASCDAIMTRCLAVHECFVKRVDWTIEYPIIGDELKINAACRKVQHMVVKAALLADK

FPVLHDIGNPKAIKCVPQADVEWKFYDAQPCSDKAYKIEELFYSYATHSDKFTDGVCL

FWNCNVDRYPANSIVCRFDTRVLSNLNLPGCDGGXXXXXXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XXXXXXXXLWVYKQFDTYNLWNTFTRLQSLENVAFNVVNKGHFDGQQGEVPVSIINNT

VYTKVDGVDVELFENKTTLPVNVAFELWAKRNIKPVPEVKILNNLGVDIAANTVIWDY

KRDAPAHISTIGVCSMTDIAKKPTETICAPLTVFFDGRVDGQVDLFRNARNGVLITEG

SVKGLQPSVGPKQASLNGVTLIGEAVKTQFNYYKKVDGVVQQLPETYFTQSRNLQEFK

PRSQMEIDFLELAMDEFIERYKLEGYAFEHIVYGDFSHSQLGGLHLLIGLAKRFKESP

FELEDFIPMDSTVKNYFITDAQTGSSKCVCSVIDLLLDDFVEIIKSQDLSVVSKVVKV

TIDYTEISFMLWCKDGHVETFYPKLQSSQAWQPGVAMPNLYKMQRMLLEKCDLQNYGD

SATLPKGIMMNVAKYTQLCQYLNTLTLAVPYNMRVIHFGAGSDKGVAPGTAVLRQWLP

TGTLLVDSDLNDFVSDADSTLIGDCATVHTANKWDLIISDMYDPKTKNVTKENDSKEG

FFTYICGFIQQKLALGGSVAIKITEHSWNADLYKLMGHFAWWTAFVTNVNASSSEAFL

IGCNYLGKPREQIDGYVMHANYIFWRNTNPIQLSSYSLFDMSKFPLKLRGTAVMSLKE

GQINDMILSLLSKGRLIIRENNRVVISSDVLVNN"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58899.1?from=1&to=180) 226..765

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58899.1?from=181&to=818) 766..2679

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58899.1?from=819&to=2763) 2680..8514

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58899.1?from=2764&to=3263) 8515..10014

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58899.1?from=3264&to=3569) 10015..10932

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58899.1?from=3570&to=3859) 10933..11802

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58899.1?from=3860&to=3942) 11803..12051

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58899.1?from=3943&to=4140) 12052..12645

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58899.1?from=4141&to=4253) 12646..12984

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58899.1?from=4254&to=4392) 12985..13401

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58899.1?from=4393&to=5324) join(13402..13428,13428..16196)

/gene="ORF1ab"

/product="RNA-dependent RNA polymerase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58899.1?from=5325&to=5925) 16197..17999

/gene="ORF1ab"

/product="helicase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58899.1?from=5926&to=6452) 18000..19580

/gene="ORF1ab"

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

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58899.1?from=6453&to=6798) 19581..20618

/gene="ORF1ab"

/product="endoRNAse"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58899.1?from=6799&to=7096) 20619..21512

/gene="ORF1ab"

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

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=226&to=13443) 226..13443

/gene="ORF1ab"

/codon\_start=1

/product="ORF1a polyprotein"

/protein\_id="[QVE58900.1](https://www.ncbi.nlm.nih.gov/protein/2035919543)"

/translation="MESLVPGFNEKTHVQLSLPVLQVRDVLVRGFGDSVEEVLSEARQ

HLKDGTCGLVEVEKGVLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGE

TLGVLVPHVGEIPVAYRKVLLRKNGNKGAGGHSYGADLKSFDLGDELGTDPYEDFQEN

WNTKHSSGVTRELMRELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEQ

LDFIDTKRGVYCCREHEHEIAWYTERSEKSYELQTPFEIKLAKKFDTFNGECPNFVFP

LNSIIKTIQPRVEKKKLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTG

DFVKATCEFCGTENLTKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESG

LKTILRKGGRTIAFGGCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNL

LEILQKEKVNINIVGDFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGN

FKVTKGKAKKGAWNIGEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAA

ITILDGISQYSLRLIDAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKL

KPVLDWLEEKFKEGVEFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLV

NKFLALCADSIIIGGAKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEII

FLEGETLPTEVLTEEVVLKTGDLQPLEQPTSXXXXXXXXXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXXAPTKVTFGDDTVIEVQGYKSVNITFELDERIDKVLNEK

CSAYTVELGTEVNEFACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDESGEF

KLASHMYCSFYPPDEDEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPE

EEQEEDWLDDDSQQTVGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSG

YLKLTDNVYIKNADIVEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESD

DYIATNGPLKVGGSCVLSGHNLAKHCLHVVGPNVNKGEDIQLLKSAYENFNQHEVLLA

PLLSAGIFGADPIHSLRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIA

EIPKEEVKPFITESKPSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGN

LHPDSATLVSDIDITFLKKDAPYIVGDVVQEGVLTAVVIPTKKAGGTTEMLAKALRKV

PTDNYITTYPGQGLNGYTVEEAKTVLKKCKSAFYILPSIISNEKQEILGTVSWNLREM

LAHAEETRKLMPVCVETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLIN

TLNDLNETLVTMPLGYVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSS

KTPEEHFIETISLAGSYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTTFHLDGEVIT

FDNLKTLLSLREVRTIKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPH

NSHEGKTFYVLPNDDTLRVEAFEYYHTTDLSFLGRYMSALNHTKKWKYPQVNGLTSIK

WADNNCYLATALLTLQQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELG

DVRETMSYLFQHANLDSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQ

IPCTCGKQATKYLVQQESPFVMMSAPPAQYELKHGTFTCASEYTGNYQCGHYKHITSK

ETLYCIDGALLTKSSEYKGPITDVFYKENSYTTTIKPVTYKLDGVVCTEIDPKLDNYY

KKDNSYFTEQPIDLVPNQPYPNASFDNFKFVCDNIKFADDLNQLTGYKKPASRELKVT

FFPDLNGDVVAIDYKHYTPSFKKGAKLLHKPIVWHVNNATNKATYKPNTWCIRCLWST

KPVETSNSFDVLKSEDVQGMDNLACEDLKPVSEEVVENPTIQKDVLECNVKTTEVVGD

IILKPANNSLKITEEVGHTDLMAAYVDNSSLTIKKPNELSRVLGLKTLATHGLAAVNS

VPWDTIANYAKPFLNKVVSTTTNIVTRCLNRVCTNYMPYFFTLLLQLCTFTRSTNSRI

KASMPTTIAKNTVKSVGKFCLEASFNYLKSPNFSKLINIIIWFLLLSVCLGSLIYSTA

ALGVLMSNLGMPSYCTGYREGYLNSTNVTIATYCTGSIPCSVCLSGLDSLDTYPSLET

IQITISSFKWDLTAFGLVAEWFLAYILFTRFFYVLGLAAIMQLFFSYFAVHFISNSWL

MWLIINLVQMAPISAMVRMYIFFASFYYVWKSYVHVVDGCNSSTCVMCYKRNRATRVE

CTTIVNGVRRSFYVYANGGKGFCKLHNWNCVNCDTFCAGSTFISDEVARDLSLQFKRP

INPTDQSSYIVDSVTVKNGSIHLYFDKAGQKTYERHSLSHFVNLDNLRANNTKGSLPI

NVIVFDGKSKCEESSAKSASVYYSQLMCQPILLLDQALVSDVGDSAEVAVKMFDAYVN

TFSSTFNVPMEKLKTLVATAEAELAKNVSLDNVLSTFISAARQGFVDSDVETKDVVEC

LKLSHQSDIEVTGDSCNNYMLTYNKVENMTPRDLGACIDCSARHINAQVAKSHNIALI

WNVKDFMSLSEQLRKQIRSAAKKNNLPFKLTCATTRQVVNVVTTKIALKGGKIVNNWL

KQLIKVTLVFLFVAAIFYLITPVHVMSKHTDFSSEIIGYKAIDGGVTRDIASTDTCFA

NKHADFDTWFSQRGGSYTNDKACPLIAAVITREVGFVVPGLPGTILRTTNGDFLHFLP

RVFSAVGNICYTPSKLIEYTDFATSACVLAAECTIFKDASGKPVPYCYDTNVLEGSVA

YESLRPDTRYVLMDGSIIQFPNTYLEGSVRVVTTFDSEYCRHGTCERSEAGVCVSTSG

RWVLNNDYYRSLPGVFCGVDAVNLLTNMFTPLIQPIGALDISASIVAGGIVAIVVTCL

AYYFMRFRRAFGEYSHVVAFNTLLFLMSFTVLCLTPVYSFLPGVYSVIYLYLTFYLTN

DVSFLAHIQWMVMFTPLVPFWITIAYIICISTKHFYWFFSNYLKRRVVFNGVSFSTFE

EAALCTFLLNKEMYLKLRSDVLLPLTQYNRYLVLYNKYKYFSGAMDTTSYREAACCHL

AKALNDFSNSGSDVLYQPPQTSITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNG

LWLDDVVYCPRHVICTSEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVL

KLKVDTANPKTPKYKFVRIQPGQTFSVLACYNGSPSGVYQCAMRPNFTIKGSFLNGSC

GSVGFNIDYDCVSFCYMHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVN

VLAWLYAAVINGDRWFLNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAV

LDMCASLKELLQNGMNGRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHW

LLLTILTSLLVLVQSTQWSLFFFLYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFL

LPSLATVAYFNMVYMPASWVMRIMTWLDMVDTSLSGFKLKDCVMYASAVVLLILMTAR

TVYDDGARRVWTLMNVLTLAYKVYYGNALDQAISMWALIISVTSNYSGVVTIVMFLAR

GIVFMCVEYCPIFFITGNTLQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYL

VSTQEFRYMNSQGLLPPKNSIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVL

LSVLQQLRVESSSKLWAQCVQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKL

CEEMLDNRATLQAIASEFSSLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAK

SEFDRDAAMQRKLEKMADQAMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALN

NIINNARDGCVPLNIIPLTTAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDA

DSKIVQLSEISMDNSPNLAWPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTA

CTDDNALAYYNTTKGGRFVLALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTP

KGPKVKYLYFIKGLNNLNRGMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAK

AYKDYLASGGQPITNCVKMLCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDH

PNPKGFCDLKGKYVQIPTTCANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSA

DAQSFLNGFAV"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58900.1?from=1&to=180) 226..765

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58900.1?from=181&to=818) 766..2679

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58900.1?from=819&to=2763) 2680..8514

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58900.1?from=2764&to=3263) 8515..10014

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58900.1?from=3264&to=3569) 10015..10932

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58900.1?from=3570&to=3859) 10933..11802

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58900.1?from=3860&to=3942) 11803..12051

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58900.1?from=3943&to=4140) 12052..12645

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58900.1?from=4141&to=4253) 12646..12984

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58900.1?from=4254&to=4392) 12985..13401

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/QVE58900.1?from=4393&to=4405) 13402..13440

/gene="ORF1ab"

/product="nsp11"

gap 2539..2678

/estimated\_length=140

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=13436&to=13463) 13436..13463

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 1"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=13448&to=13502) 13448..13502

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 2"

gap 19250..19519

/estimated\_length=270

[gene](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=21523&to=25338) 21523..25338

/gene="S"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=21523&to=25338) 21523..25338

/gene="S"

/codon\_start=1

/product="surface glycoprotein"

/protein\_id="[QVE58901.1](https://www.ncbi.nlm.nih.gov/protein/2035919544)"

/translation="MFVFLVLLPLVSSQCVNLRTRTQLPPAYTNSFTRGVYYPDKVFR

SSVLHSTQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNIIR

GWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLDVYYHKNNKSWMESGVYSS

ANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGYFKIYSKHTPINLVRDLPQGF

SVLEPLVDLPIGINITRFQTLLALHRSYLTPGDSSSGWTAGAAAYYVGYLQPRTFLLK

YNENGTITDAVDCALDPLSETKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLC

PFGEVFNATRFASVYAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCFTN

VYADSFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYNYR

YRLFRKSNLKPFERDISTEIYQAGSKPCNGVEGFNCYFPLQSYGFQPTNGVGYQPYRV

VVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTGVLTESNKKFLPFQQFGRD

IADTTDAVRDPQTLEILDITPCSFGGVSVITPGTNTSNQVAVLYQGVNCTEVPVAIHA

DQLTPTWRVYSTGSNVFQTRAGCLIGAEHVNNSYECDIPIGAGICASYQTQTNSRRRA

RSVASQSIIAYTMSLGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYI

CGDSTECSNLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGF

NFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLICAQKFNGL

TVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVL

YENQKLIANQFNSAIGKIQDSLSSTASALGKLQNVVNQNAQALNTLVKQLSSNFGAIS

SVLNDILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSEC

VLGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFP

REGVFVSNGTHWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSF

KEELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKY

EQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSCGSCCKFDEDDSEPV

LKGVKLHYT"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=25347&to=26174) 25347..26174

/gene="ORF3a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=25347&to=26174) 25347..26174

/gene="ORF3a"

/codon\_start=1

/product="ORF3a protein"

/protein\_id="[QVE58902.1](https://www.ncbi.nlm.nih.gov/protein/2035919545)"

/translation="MDLFMRIFTIGTVTLKQGEIKDATPLDFVRATATIPIQASLPFG

WLIVGVALLAVFQSASKIITLKKRWQLALSKGVHFVCNLLLLFVTVYSHLLLVAAGLE

APFLYLYALFYFLQSINFVRIIMRLWLCWKCRSKNPLLYDANYFLCWHTNCYDYCIPY

NSVTSSIVITSGDGTTSPISEHDYQIGGYTEKWESGVKDCVVLHSYFTSDYYQLYSTQ

LSTDTGVEHVTFFIYNKIVDEPEEHVQIHTIDGSSGVVNPVMEPIYDEPTTTTSVPL"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=26199&to=26426) 26199..26426

/gene="E"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=26199&to=26426) 26199..26426

/gene="E"

/codon\_start=1

/product="envelope protein"

/protein\_id="[QVE58903.1](https://www.ncbi.nlm.nih.gov/protein/2035919546)"

/translation="MYSFVSEETGTLIVNSVLLFLAFVVFLLVTLAILTALRLCAYCC

NIVNVSLVKPSFYVYSRVKNLNSSRVPDLLV"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=26477&to=27145) 26477..27145

/gene="M"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=26477&to=27145) 26477..27145

/gene="M"

/codon\_start=1

/product="membrane glycoprotein"

/protein\_id="[QVE58904.1](https://www.ncbi.nlm.nih.gov/protein/2035919547)"

/translation="MADSNGTITVEELKKLLEQWNLVIGFLFLTWICLLQFAYANRNR

FLYIIKLIFLWLLWPVTLACFVLAAVYRINWITGGIATAMACLVGLMWLSYFIASFRL

FARTRSMWSFNPETNILLNVPLHGTILTRPLLESELVIGAVILRGHLRIAGHHLGRCD

IKDLPKEITVATSRTLSYYKLGASQRVAGDSGFAAYSRYRIGNYKLNTDHSSSSDNIA

LLVQ"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=27156&to=27341) 27156..27341

/gene="ORF6"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=27156&to=27341) 27156..27341

/gene="ORF6"

/codon\_start=1

/product="ORF6 protein"

/protein\_id="[QVE58905.1](https://www.ncbi.nlm.nih.gov/protein/2035919548)"

/translation="MFHLVDFQVTIAEILLIIMRTFKVSIWNLDYIINLIIKNLSKSL

TENKYSQLDEEQPMEID"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=27348&to=27563) 27348..>27563

/gene="ORF7a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=27348&to=27563) 27348..>27563

/gene="ORF7a"

/codon\_start=1

/product="ORF7a protein"

/protein\_id="[QVE58906.1](https://www.ncbi.nlm.nih.gov/protein/2035919549)"

/translation="MKIILFLALITLATCELYHYQECVRGTTVLLKEPCSSGTYEGNS

PFHPLADNKFALTCFSTQFAFACPDGVK"

gap 27564..27758

/estimated\_length=195

[gene](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=27759&to=27841) <27759..27841

/gene="ORF7b"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=27759&to=27841) <27759..27841

/gene="ORF7b"

/codon\_start=3

/product="ORF7b"

/protein\_id="[QVE58907.1](https://www.ncbi.nlm.nih.gov/protein/2035919550)"

/translation="LFLVLIMLIIFWFSLELQDHNETCHA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=27848&to=28220) 27848..28220

/gene="ORF8"

[misc\_feature](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=27848&to=28220) 27848..28220

/gene="ORF8"

/note="similar to ORF8 protein"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=28221&to=29480) 28221..29480

/gene="N"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=28221&to=29480) 28221..29480

/gene="N"

/codon\_start=1

/product="nucleocapsid phosphoprotein"

/protein\_id="[QVE58908.1](https://www.ncbi.nlm.nih.gov/protein/2035919551)"

/translation="MSDNGPQNQRNAPRITFGGPSDSTGSNQNGERSGARSKQRRPQG

LPNNTASWFTALTQHGKEGLKFPRGQGVPINTNSSPDDQIGYYRRATRRIRGGDGKMK

DLSPRWYFYYLGTGPEAGLPYGANKDGIIWVATEGALNTPKDHIGTRNPANNAAIVLQ

LPQGTTLPKGFYAEGSRGGSQASSRSSSRSRNSSRNSTPGSSMGTSPARMAGNGGDAA

LALLLLDRLNQLESKMSGKGQQQQGQTVTKKSAAEASKKPRQKRTATKAYNVTQAFGR

RGPEQTQGNFGDQELIRQGTDYKHWPQIAQFAPSASAFFGMSRIGMEVTPSGTWLTYT

GAIKLDDKDPNFKDQVILLNKHIDAYKTFPPTEPKKDKKKKAYETQALPQRQKKQQTV

TLLPAADLDDFSKQLQQSMSSADSTQA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=29505&to=29621) 29505..29621

/gene="ORF10"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=29505&to=29621) 29505..29621

/gene="ORF10"

/codon\_start=1

/product="ORF10 protein"

/protein\_id="[QVE58909.1](https://www.ncbi.nlm.nih.gov/protein/2035919552)"

/translation="MGYINVFAFPFTIYSLLLCRMNSRNYIAQVDVVNFNLT"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=29556&to=29591) 29556..29591

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=29576&to=29604) 29576..29604

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/MZ170364.1?from=29675&to=29715) 29675..29715

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

ORIGIN

1 tttcgatctc ttgtagatct gttctctaaa cgaactttaa aatctgtgtg gctgtcactc

61 ggctgcatgc ttagtgcact cacgcagtat aattaataac taattactgt cgttgacagg

121 acacgagtaa ctcgtctatc ttctgcaggc tgcttacggt ttcgtccgtt ttgcagccga

181 tcatcagcac atctaggttt tgtccgggtg tgaccgaaag gtaagatgga gagccttgtc

241 cctggtttca acgagaaaac acacgtccaa ctcagtttgc ctgttttaca ggttcgcgac

301 gtgctcgtac gtggctttgg agactccgtg gaggaggtct tatcagaggc acgtcaacat

361 cttaaagatg gcacttgtgg cttagtagaa gttgaaaaag gcgttttgcc tcaacttgaa

421 cagccctatg tgttcatcaa acgttcggat gctcgaactg cacctcatgg tcatgttatg

481 gttgagctgg tagcagaact cgaaggcatt cagtacggtc gtagtggtga gacacttggt

541 gtccttgtcc ctcatgtggg cgaaatacca gtggcttacc gcaaggttct tcttcgtaag

601 aacggtaata aaggagctgg tggccatagt tacggcgccg atctaaagtc atttgactta

661 ggcgacgagc ttggcactga tccttatgaa gattttcaag aaaactggaa cactaaacat

721 agcagtggtg ttacccgtga actcatgcgt gagcttaacg gaggggcata cactcgctat

781 gtcgataaca acttctgtgg ccctgatggc taccctcttg agtgcattaa agaccttcta

841 gcacgtgctg gtaaagcttc atgcactttg tccgaacaac tggactttat tgacactaag

901 aggggtgtat actgctgccg tgaacatgag catgaaattg cttggtacac ggaacgttct

961 gaaaagagct atgaattgca gacacctttt gaaattaaat tggcaaagaa atttgacacc

1021 ttcaatgggg aatgtccaaa ttttgtattt cccttaaatt ccataatcaa gactattcaa

1081 ccaagggttg aaaagaaaaa gcttgatggc tttatgggta gaattcgatc tgtctatcca

1141 gttgcgtcac caaatgaatg caaccaaatg tgcctttcaa ctctcatgaa gtgtgatcat

1201 tgtggtgaaa cttcatggca gacgggcgat tttgttaaag ccacttgcga attttgtggc

1261 actgagaatt tgactaaaga aggtgccact acttgtggtt acttacccca aaatgctgtt

1321 gttaaaattt attgtccagc atgtcacaat tcagaagtag gacctgagca tagtcttgcc

1381 gaataccata atgaatctgg cttgaaaacc attcttcgta agggtggtcg cactattgcc

1441 tttggaggct gtgtgttctc ttatgttggt tgccataaca agtgtgccta ttgggttcca

1501 cgtgctagcg ctaacatagg ttgtaaccat acaggtgttg ttggagaagg ttccgaaggt

1561 cttaatgaca accttcttga aatactccaa aaagagaaag tcaacatcaa tattgttggt

1621 gactttaaac ttaatgaaga gatcgccatt attttggcat ctttttctgc ttccacaagt

1681 gcttttgtgg aaactgtgaa aggtttggat tataaagcat tcaaacaaat tgttgaatcc

1741 tgtggtaatt ttaaagttac aaaaggaaaa gctaaaaaag gtgcctggaa tattggtgaa

1801 cagaaatcaa tactgagtcc tctttatgca tttgcatcag aggctgctcg tgttgtacga

1861 tcaattttct cccgcactct tgaaactgct caaaattctg tgcgtgtttt acagaaggcc

1921 gctataacaa tactagatgg aatttcacag tattcactga gactcattga tgctatgatg

1981 ttcacatctg atttggctac taacaatcta gttgtaatgg cctacattac aggtggtgtt

2041 gttcagttga cttcgcagtg gctaactaac atctttggca ctgtttatga aaaactcaaa

2101 cccgtccttg attggcttga agagaagttt aaggaaggtg tagagtttct tagagacggt

2161 tgggaaattg ttaaatttat ctcaacctgt gcttgtgaaa ttgtcggtgg acaaattgtc

2221 acctgtgcaa aggaaattaa ggagagtgtt cagacattct ttaagcttgt aaataaattt

2281 ttggctttgt gtgctgactc tatcattatt ggtggagcta aacttaaagc cttgaattta

2341 ggtgaaacat ttgtcacgca ctcaaaggga ttgtacagaa agtgtgttaa atccagagaa

2401 gaaactggcc tactcatgcc tctaaaagcc ccaaaagaaa ttatcttctt agagggagaa

2461 acacttccta cagaagtgtt aacagaggaa gttgtcttga aaactggtga tttacaacca

2521 ttagaacaac ctactagtnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

2581 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

2641 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnntg caccaacaaa ggttactttt

2701 ggtgatgaca ctgtgataga agtgcaaggt tacaagagtg tgaatatcac ttttgaactt

2761 gatgaaagga ttgataaagt acttaatgag aagtgctctg cctatacagt tgaactcggt

2821 acagaagtaa atgagttcgc ctgtgttgtg gcagatgctg tcataaaaac tttgcaacca

2881 gtatctgaat tacttacacc actgggcatt gatttagatg agtggagtat ggctacatac

2941 tacttatttg atgagtctgg tgagtttaaa ttggcttcac atatgtattg ttctttttac

3001 cctccagatg aggatgaaga agaaggtgat tgtgaagaag aagagtttga gccatcaact

3061 caatatgagt atggtactga agatgattac caaggtaaac ctttggaatt tggtgccact

3121 tctgctgctc ttcaacctga agaagagcaa gaagaagatt ggttagatga tgatagtcaa

3181 caaactgttg gtcaacaaga cggcagtgag gacaatcaga caactactat tcaaacaatt

3241 gttgaggttc aacctcaatt agagatggaa cttacaccag ttgttcagac tattgaagtg

3301 aatagtttta gtggttattt aaaacttact gacaatgtat acattaaaaa tgcagacatt

3361 gtggaagaag ctaaaaaggt aaaaccaaca gtggttgtta atgcagccaa tgtttacctt

3421 aaacatggag gaggtgttgc aggagcctta aataaggcta ctaacaatgc catgcaagtt

3481 gaatctgatg attacatagc tactaatgga ccacttaaag tgggtggtag ttgtgtttta

3541 agcggacaca atcttgctaa acactgtctt catgttgtcg gcccaaatgt taacaaaggt

3601 gaagacattc aacttcttaa gagtgcttat gaaaatttta atcagcacga agttctactt

3661 gcaccattat tatcagctgg tatttttggt gctgacccta tacattcttt aagagtttgt

3721 gtagatactg ttcgcacaaa tgtctactta gctgtctttg ataaaaatct ctatgacaaa

3781 cttgtttcaa gctttttgga aatgaagagt gaaaagcaag ttgaacaaaa gatcgctgag

3841 attcctaaag aggaagttaa gccatttata actgaaagta aaccttcagt tgaacagaga

3901 aaacaagatg ataagaaaat caaagcttgt gttgaagaag ttacaacaac tctggaagaa

3961 actaagttcc tcacagaaaa cttgttactt tatattgaca ttaatggcaa tcttcatcca

4021 gattctgcca ctcttgttag tgacattgac atcactttct taaagaaaga tgctccatat

4081 atagtgggtg atgttgttca agagggtgtt ttaactgctg tggttatacc tactaaaaag

4141 gctggtggca ctactgaaat gctagcgaaa gctttgagaa aagtgccaac agacaattat

4201 ataaccactt acccgggtca gggtttaaat ggttacactg tagaggaggc aaagacagtg

4261 cttaaaaagt gtaaaagtgc cttttacatt ctaccatcta ttatctctaa tgagaagcaa

4321 gaaattcttg gaactgtttc ttggaatttg cgagaaatgc ttgcacatgc agaagaaaca

4381 cgcaaattaa tgcctgtctg tgtggaaact aaagccatag tttcaactat acagcgtaaa

4441 tataagggta ttaaaataca agagggtgtg gttgattatg gtgctagatt ttacttttac

4501 accagtaaaa caactgtagc gtcacttatc aacacactta acgatctaaa tgaaactctt

4561 gttacaatgc cacttggcta tgtaacacat ggcttaaatt tggaagaagc tgctcggtat

4621 atgagatctc tcaaagtgcc agctacagtt tctgtttctt cacctgatgc tgttacagcg

4681 tataatggtt atcttacttc ttcttctaaa acacctgaag aacattttat tgaaaccatc

4741 tcacttgctg gttcctataa agattggtcc tattctggac aatctacaca actaggtata

4801 gaatttctta agagaggtga taaaagtgta tattacacta gtaatcctac cacattccac

4861 ctagatggtg aagttatcac ctttgacaat cttaagacac ttctttcttt gagagaagtg

4921 aggactatta aggtgtttac aacagtagac aacattaacc tccacacgca agttgtggac

4981 atgtcaatga catatggaca acagtttggt ccaacttatt tggatggagc tgatgttact

5041 aaaataaaac ctcataattc acatgaaggt aaaacatttt atgttttacc taatgatgac

5101 actctacgtg ttgaggcttt tgagtactac cacacaactg atcttagttt tctgggtagg

5161 tacatgtcag cattaaatca cactaaaaag tggaaatacc cacaagttaa tggtttaact

5221 tctattaaat gggcagataa caactgttat cttgccactg cattgttaac actccaacaa

5281 atagagttga agtttaatcc acctgctcta caagatgctt attacagagc aagggctggt

5341 gaagctgcta acttttgtgc acttatctta gcctactgta ataagacagt aggtgagtta

5401 ggtgatgtta gagaaacaat gagttacttg tttcaacatg ccaatttaga ttcttgcaaa

5461 agagtcttga acgtggtgtg taaaacttgt ggacaacagc agacaaccct taagggtgta

5521 gaagctgtta tgtacatggg cacgctttct tatgaacaat ttaagaaagg tgttcagata

5581 ccttgtacgt gtggtaaaca agctacaaaa tatctagtac aacaggagtc accttttgtt

5641 atgatgtcag caccacctgc tcagtatgaa cttaagcatg gtacatttac ttgtgctagt

5701 gagtacactg gtaattacca gtgtggtcac tataaacata taacttctaa agaaactttg

5761 tattgcatag acggtgcttt acttacaaag tcctcagaat acaaaggtcc tattacggat

5821 gttttctaca aagaaaacag ttacacaaca accataaaac cagttactta taaattggat

5881 ggtgttgttt gtacagaaat tgaccctaag ttggacaatt attataagaa agacaattct

5941 tatttcacag agcaaccaat tgatcttgta ccaaaccaac catatccaaa cgcaagcttc

6001 gataatttta agtttgtatg tgataatatc aaatttgctg atgatttaaa ccagttaact

6061 ggttataaga aacctgcttc aagagagctt aaagttacat ttttccctga cttaaatggt

6121 gatgtggtgg ctattgatta taaacactac acaccctctt ttaagaaagg agctaaattg

6181 ttacataaac ctattgtttg gcatgttaac aatgcaacta ataaagccac gtataaacca

6241 aatacctggt gtatacgttg tctttggagc acaaaaccag ttgaaacatc aaattcgttt

6301 gatgtactga agtcagagga cgtgcaggga atggataatc ttgcctgcga agatctaaaa

6361 ccagtctctg aagaagtagt ggaaaatcct accatacaga aagacgttct tgagtgtaat

6421 gtgaaaacta ccgaagttgt aggagacatt atacttaaac cagcaaataa tagtttaaaa

6481 attacagaag aggttggcca cacagatcta atggctgctt atgtagacaa ttctagtctt

6541 actattaaga aacctaatga attatctaga gtattaggtt tgaaaaccct tgctactcat

6601 ggtttagctg ctgttaatag tgtcccttgg gatactatag ctaattatgc taagcctttt

6661 cttaacaaag ttgttagtac aactactaac atagttacac ggtgtttaaa ccgtgtttgt

6721 actaattata tgccttattt ctttacttta ttgctacaat tgtgtacttt tactagaagt

6781 acaaattcta gaattaaagc atctatgccg actactatag caaagaatac tgttaagagt

6841 gtcggtaaat tttgtctaga ggcttcattt aattatttga agtcacctaa tttttctaaa

6901 ctgataaata ttataatttg gtttttacta ttaagtgttt gcctaggttc tttaatctac

6961 tcaaccgctg ctttaggtgt tttaatgtct aatttaggca tgccttctta ctgtactggt

7021 tacagagaag gctatttgaa ctctactaat gtcactattg caacctactg tactggttct

7081 ataccttgta gtgtttgtct tagtggttta gattctttag acacctatcc ttctttagaa

7141 actatacaaa ttaccatttc atcttttaaa tgggatttaa ctgcttttgg cttagttgca

7201 gagtggtttt tggcatatat tcttttcact aggtttttct atgtacttgg attggctgca

7261 atcatgcaat tgtttttcag ctattttgca gtacatttta ttagtaattc ttggcttatg

7321 tggttaataa ttaatcttgt acaaatggcc ccgatttcag ctatggttag aatgtacatc

7381 ttctttgcat cattttatta tgtatggaaa agttatgtgc atgttgtaga cggttgtaat

7441 tcatcaactt gtgtgatgtg ttacaaacgt aatagagcaa caagagtcga atgtacaact

7501 attgttaatg gtgttagaag gtccttttat gtctatgcta atggaggtaa aggcttttgc

7561 aaactacaca attggaattg tgttaattgt gatacattct gtgctggtag tacatttatt

7621 agtgatgaag ttgcgagaga cttgtcacta cagtttaaaa gaccaataaa tcctactgac

7681 cagtcttctt acatcgttga tagtgttaca gtgaagaatg gttccatcca tctttacttt

7741 gataaagctg gtcaaaagac ttatgaaaga cattctctct ctcattttgt taacttagac

7801 aacctgagag ctaataacac taaaggttca ttgcctatta atgttatagt ttttgatggt

7861 aaatcaaaat gtgaagaatc atctgcaaaa tcagcgtctg tttactacag tcagcttatg

7921 tgtcaaccta tactgttact agatcaggca ttagtgtctg atgttggtga tagtgcggaa

7981 gttgcagtta aaatgtttga tgcttacgtt aatacgtttt catcaacttt taacgtacca

8041 atggaaaaac tcaaaacact agttgcaact gcagaagctg aacttgcaaa gaatgtgtcc

8101 ttagacaatg tcttatctac ttttatttca gcagctcggc aagggtttgt tgattcagat

8161 gtagaaacta aagatgttgt tgaatgtctt aaattgtcac atcaatctga catagaagtt

8221 actggcgata gttgtaataa ctatatgctc acctataaca aagttgaaaa catgacaccc

8281 cgtgaccttg gtgcttgtat tgactgtagt gcgcgtcata ttaatgcgca ggtagcaaaa

8341 agtcacaaca ttgctttgat atggaacgtt aaagatttca tgtcattgtc tgaacaacta

8401 cgaaaacaaa tacgtagtgc tgctaaaaag aataacttac cttttaagtt gacatgtgca

8461 actactagac aagttgttaa tgttgtaaca acaaagatag cacttaaggg tggtaaaatt

8521 gttaataatt ggttgaagca gttaattaaa gttacacttg tgttcctttt tgttgctgct

8581 attttctatt taataacacc tgttcatgtc atgtctaaac atactgactt ttcaagtgaa

8641 atcataggat acaaggctat tgatggtggt gtcactcgtg acatagcatc tacagatact

8701 tgttttgcta acaaacatgc tgattttgac acatggttta gccagcgtgg tggtagttat

8761 actaatgaca aagcttgccc attgattgct gcagtcataa caagagaagt gggttttgtc

8821 gtgcctggtt tgcctggcac gatattacgc acaactaatg gtgacttttt gcatttctta

8881 cctagagttt ttagtgcagt tggtaacatc tgttacacac catcaaaact tatagagtac

8941 actgactttg caacatcagc ttgtgttttg gctgctgaat gtacaatttt taaagatgct

9001 tctggtaagc cagtaccata ttgttatgat accaatgtac tagaaggttc tgttgcttat

9061 gaaagtttac gccctgacac acgttatgtg ctcatggatg gctctattat tcaatttcct

9121 aacacctacc ttgaaggttc tgttagagtg gtaacaactt ttgattctga gtactgtagg

9181 cacggcactt gtgaaagatc agaagctggt gtttgtgtat ctactagtgg tagatgggta

9241 cttaacaatg attattacag atctttacca ggagttttct gtggtgtaga tgctgtaaat

9301 ttacttacta atatgtttac accactaatt caacctattg gtgctttgga catatcagca

9361 tctatagtag ctggtggtat tgtagctatc gtagtaacat gccttgccta ctattttatg

9421 aggtttagaa gagcttttgg tgaatacagt catgtagttg cctttaatac tttactattc

9481 cttatgtcat tcactgtact ctgtttaaca ccagtttact cattcttacc tggtgtttat

9541 tctgttattt acttgtactt gacattttat cttactaatg atgtttcttt tttagcacat

9601 attcagtgga tggttatgtt cacaccttta gtacctttct ggataacaat tgcttatatc

9661 atttgtattt ccacaaagca tttctattgg ttctttagta attacctaaa gagacgtgta

9721 gtctttaatg gtgtttcctt tagtactttt gaagaagctg cgctgtgcac ctttttgtta

9781 aataaagaaa tgtatctaaa gttgcgtagt gatgtgctat tacctcttac gcaatataat

9841 agatacttag ttctttataa taagtacaag tattttagtg gagcaatgga tacaactagc

9901 tacagagaag ctgcttgttg tcatctcgca aaggctctca atgacttcag taactcaggt

9961 tctgatgttc tttaccaacc accacaaacc tctatcacct cagctgtttt gcagagtggt

10021 tttagaaaaa tggcattccc atctggtaaa gttgagggtt gtatggtaca agtaacttgt

10081 ggtacaacta cacttaacgg tctttggctt gatgacgtag tttactgtcc aagacatgtg

10141 atctgcacct ctgaagacat gcttaaccct aattatgaag atttactcat tcgtaagtct

10201 aatcataatt tcttggtaca ggctggtaat gttcaactca gggttattgg acattctatg

10261 caaaattgtg tacttaagct taaggttgat acagccaatc ctaagacacc taagtataag

10321 tttgttcgca ttcaaccagg acagactttt tcagtgttag cttgttacaa tggttcacca

10381 tctggtgttt accaatgtgc tatgaggccc aatttcacta ttaagggttc attccttaat

10441 ggttcatgtg gtagtgttgg ttttaacata gattatgact gtgtctcttt ttgttacatg

10501 caccatatgg aattaccaac tggagttcat gctggcacag acttagaagg taacttttat

10561 ggaccttttg ttgacaggca aacagcacaa gcagctggta cggacacaac tattacagtt

10621 aatgttttag cttggttgta cgctgctgtt ataaatggag acaggtggtt tctcaatcga

10681 tttaccacaa ctcttaatga ctttaacctt gtggctatga agtacaatta tgaacctcta

10741 acacaagacc atgttgacat actaggacct ctttctgctc aaactggaat tgccgtttta

10801 gatatgtgtg cttcattaaa agaattactg caaaatggta tgaatggacg taccatattg

10861 ggtagtgctt tattagaaga tgaatttaca ccttttgatg ttgttagaca atgctcaggt

10921 gttactttcc aaagtgcagt gaaaagaaca atcaagggta cacaccactg gttgttactc

10981 acaattttga cttcactttt agttttagtc cagagtactc aatggtcttt gttctttttt

11041 ttgtatgaaa atgccttttt accttttgct atgggtatta ttgctatgtc tgcttttgca

11101 atgatgtttg tcaaacataa gcatgcattt ctctgtttgt ttttgttacc ttctcttgcc

11161 actgtagctt attttaatat ggtctatatg cctgctagtt gggtgatgcg tattatgaca

11221 tggttggata tggttgatac tagtttgtct ggttttaagc taaaagactg tgttatgtat

11281 gcatcagctg tagtgttact aatccttatg acagcaagaa ctgtgtatga tgatggtgct

11341 aggagagtgt ggacacttat gaatgtcttg acactcgctt ataaagttta ttatggtaat

11401 gctttagatc aagccatttc catgtgggct cttataatct ctgttacttc taactactca

11461 ggtgtagtta caattgtcat gtttttggcc agaggtattg tttttatgtg tgttgagtat

11521 tgccctattt tcttcataac tggtaataca cttcagtgta taatgctagt ttattgtttc

11581 ttaggctatt tttgtacttg ttactttggc ctcttttgtt tactcaaccg ctactttaga

11641 ctgactcttg gtgtttatga ttacttagtt tctacacagg agtttagata tatgaattca

11701 cagggactac tcccacccaa gaatagcata gatgccttca aactcaacat taaattgttg

11761 ggtgttggtg gcaaaccttg tatcaaagta gccactgtac agtctaaaat gtcagatgta

11821 aagtgcacat cagtagtctt actctcagtt ttgcaacaac tcagagtaga atcatcatct

11881 aaattgtggg ctcaatgtgt ccagttacac aatgacattc tcttagctaa agatactact

11941 gaagcctttg aaaaaatggt ttcactactt tctgttttgc tttccatgca gggtgctgta

12001 gacataaaca agctttgtga agaaatgctg gacaacaggg caaccttaca agctatagcc

12061 tcagagttta gttcccttcc atcatatgca gcttttgcta ctgctcaaga agcttatgag

12121 caggctgttg ctaatggtga ttctgaagtt gttcttaaaa agttgaagaa gtctttgaat

12181 gtggctaaat ctgaatttga ccgtgatgca gccatgcaac gtaagttgga aaagatggct

12241 gatcaagcta tgacccaaat gtataaacag gctagatctg aggacaagag ggcaaaagtt

12301 actagtgcta tgcagacaat gcttttcact atgcttagaa agttggataa tgatgcactc

12361 aacaacatta tcaacaatgc aagagatggt tgtgttccct tgaacataat acctcttaca

12421 acagcagcca aactaatggt tgtcatacca gactataaca catataaaaa tacgtgtgat

12481 ggtacaacat ttacttatgc atcagcattg tgggaaatcc aacaggttgt agatgcagat

12541 agtaaaattg ttcaacttag tgaaattagt atggacaatt cacctaattt agcatggcct

12601 cttattgtaa cagctttaag ggccaattct gctgtcaaat tacagaataa tgagcttagt

12661 cctgttgcac tacgacagat gtcttgtgct gccggtacta cacaaactgc ttgcactgat

12721 gacaatgcgt tagcttacta caacacaaca aagggaggta ggtttgtact tgcactgtta

12781 tccgatttac aggatttgaa atgggctaga ttccctaaga gtgatggaac tggtactatc

12841 tatacagaac tggaaccacc ttgtaggttt gttacagaca cacctaaagg tcctaaagtg

12901 aagtatttat actttattaa aggattaaac aacctaaata gaggtatggt acttggtagt

12961 ttagctgcca cagtacgttt acaagctggt aatgcaacag aagtgcctgc caattcaact

13021 gtattatctt tctgtgcttt tgctgtagat gctgctaaag cttacaaaga ttatctagct

13081 agtgggggac aaccaatcac taattgtgtt aagatgttgt gtacacacac tggtactggt

13141 caggcaataa cagttacacc ggaagccaat atggatcaag aatcctttgg tggtgcatcg

13201 tgttgtctgt actgccgttg ccacatagat catccaaatc ctaaaggatt ttgtgactta

13261 aaaggtaagt atgtacaaat acctacaact tgtgctaatg accctgtggg ttttacactt

13321 aaaaacacag tctgtaccgt ctgcggtatg tggaaaggtt atggctgtag ttgtgatcaa

13381 ctccgcgaac ccatgcttca gtcagctgat gcacaatcgt ttttaaacgg gtttgcggtg

13441 taagtgcagc ccgtcttaca ccgtgcggca caggcactag tactgatgtc gtatacaggg

13501 cttttgacat ctacaatgat aaagtagctg gttttgctaa attcctaaaa actaattgtt

13561 gtcgcttcca agaaaaggac gaagatgaca atttaattga ttcttacttt gtagttaaga

13621 gacacacttt ctctaactac caacatgaag aaacaattta taatttactt aaggattgtc

13681 cagctgttgc taaacatgac ttctttaagt ttagaataga cggtgacatg gtaccacata

13741 tatcacgtca acgtcttact aaatacacaa tggcagacct cgtctatgct ttaaggcatt

13801 ttgatgaagg taattgtgac acattaaaag aaatacttgt cacatacaat tgttgtgatg

13861 atgattattt caataaaaag gactggtatg attttgtaga aaacccagat atattacgcg

13921 tatacgccaa cttaggtgaa cgtgtacgcc aagctttgtt aaaaacagta caattctgtg

13981 atgccatgcg aaatgctggt attgttggtg tactgacatt agataatcaa gatctcaatg

14041 gtaactggta tgatttcggt gatttcatac aaaccacgcc aggtagtgga gttcctgttg

14101 tagattctta ttattcattg ttaatgccta tattaacctt gaccagggct ttaactgcag

14161 agtcacatgt tgacactgac ttaacaaagc cttacattaa gtgggatttg ttaaaatatg

14221 acttcacgga agagaggtta aaactctttg accgttattt taaatattgg gatcagacat

14281 accacccaaa ttgtgttaac tgtttggatg acagatgcat tctgcattgt gcaaacttta

14341 atgttttatt ctctacagtg ttcccactta caagttttgg accactagtg agaaaaatat

14401 ttgttgatgg tgttccattt gtagtttcaa ctggatacca cttcagagag ctaggtgttg

14461 tacataatca ggatgtaaac ttacatagct ctagacttag ttttaaggaa ttacttgtgt

14521 atgctgctga ccctgctatg cacgctgctt ctggtaatct attactagat aaacgcacta

14581 cgtgcttttc agtagctgca cttactaaca atgttgcttt tcaaactgtc aaacccggta

14641 attttaacaa agacttctat gactttgctg tgtctaaggg tttctttaag gaaggaagtt

14701 ctgttgaatt aaaacacttc ttctttgctc aggatggtaa tgctgctatc agcgattatg

14761 actactatcg ttataatcta ccaacaatgt gtgatatcag acaactacta tttgtagttg

14821 aagttgttga taagtacttt gattgttacg atggtggctg tattaatgct aaccaagtca

14881 tcgtcaacaa cctagacaaa tcagctggtt ttccatttaa taaatggggt aaggctagac

14941 tttattatga ttcaatgagt tatgaggatc aagatgcact tttcgcatat acaaaacgta

15001 atgtcatccc tactataact caaatgaatc ttaagtatgc cattagtgca aagaatagag

15061 ctcgcaccgt agctggtgtc tctatctgta gtactatgac caatagacag tttcatcaaa

15121 aattattgaa atcaatagcc gccactagag gagctactgt agtaattgga acaagcaaat

15181 tctatggtgg ttggcacaac atgttaaaaa ctgtttatag tgatgtagaa aaccctcacc

15241 ttatgggttg ggattatcct aaatgtgata gagccatgcc taacatgctt agaattatgg

15301 cctcacttgt tcttgctcgc aaacatacaa cgtgttgtag cttgtcacac cgtttctata

15361 gattagctaa tgagtgtgct caagtattga gtgaaatggt catgtgtggc agttcactat

15421 atgttaaacc aggtggaacc tcatcaggag atgccacaac tgcttatgct aatagtgttt

15481 ttaacatttg tcaagctgtc acggccaatg ttaatgcact tttatctact gatggtaaca

15541 aaattgccga taagtatgtc cgcaatttac aacacagact ttatgagtgt ctctatagaa

15601 atagagatgt tgacacagac tttgtgaatg agttttacgc atatttgcgt aaacatttct

15661 caatgatgat actctctgac gatgctgttg tgtgtttcaa tagcacttat gcatctcaag

15721 gtctagtggc tagcataaag aactttaagt cagttcttta ttatcaaaac aatgttttta

15781 tgtctgaagc aaaatgttgg actgagactg accttactaa aggacctcat gaattttgct

15841 ctcaacatac aatgctagtt aaacagggtg atgattatgt gtaccttcct tacccagatc

15901 catcaagaat cctaggggcc ggctgttttg tagatgatat cgtaaaaaca gatggtacac

15961 ttatgattga acggttcgtg tctttagcta tagatgctta cccacttact aaacatccta

16021 atcaggagta tgctgatgtc tttcatttgt acttacaata cataagaaag ctacatgatg

16081 agttaacagg acacatgtta gacatgtatt ctgttatgct tactaatgat aacacttcaa

16141 ggtattggga acctgagttt tatgaggcta tgtacacacc gcatacagtc ttacaggctg

16201 ttggggcttg tgttctttgc aattcacaga cttcattaag atgtggtgct tgcatacgta

16261 gaccattctt atgttgtaaa tgctgttacg accatgtcat atcaacatca cataaattag

16321 tcttgtctgt taatccgtat gtttgcaatg ctccaggttg tgatgtcaca gatgtgactc

16381 aactttactt aggaggtatg agctattatt gtaaatcaca taaactaccc attagttttc

16441 cattgtgtgc taatggacaa gtttttggtt tatataaaaa tacatgtgtt ggtagcgata

16501 atgttactga ctttaatgca attgcaacat gtgactggac aaatgctggt gattacattt

16561 tagctaacac ctgtactgaa agactcaagc tttttgcagc agaaacgctc aaagctactg

16621 aggagacatt taaactgtct tatggtattg ctactgtacg tgaagtgctg tctgacagag

16681 aattacatct ttcatgggaa gttggtaaac ctagaccacc acttaaccga aattatgtct

16741 ttactggtta tcgtgtaact aaaaacagta aagtacaaat aggagagtac acctttgaaa

16801 aaggtgacta tggtgatgct gttgtttacc gaggtacaac aacttacaaa ttaaatgttg

16861 gtgattattt tgtgctgaca tcacatacag taatgccatt aagtgcacct acactagtgc

16921 cacaagagca ctatgttaga attactggct tatacccaac actcaatatc tcagatgagt

16981 tttctagcaa tgttgcaaat tatcaaaagg ttggtatgca aaagtattct acactccagg

17041 gaccacctgg tactggtaag agtcattttg ctattggcct agctctctac tacccttctg

17101 ctcgcatagt gtatacagct tgctctcatg ccgctgttga tgcactatgt gagaaggcat

17161 taaaatattt gcctatagat aaatgtagta gaattatacc tgcacgtgct cgtgtagagt

17221 gttttgataa attcaaagtg aattcaacat tagaacagta tgtcttttgt actgtaaatg

17281 cattgcctga gacgacagca gatatagttg tctttgatga aatttcaatg gccacaaatt

17341 atgatttgag tgttgtcaat gccagattac gtgctaagca ctatgtgtac attggcgacc

17401 ctgctcaatt acctgcacca cgcacattgc taactaaggg cacactagaa ccagaatatt

17461 tcaattcagt gtgtagactt atgaaaacta taggtccaga catgttcctc ggaacttgtc

17521 ggcgttgtcc tgctgaaatt gttgacactg tgagtgcttt ggtttatgat aataagctta

17581 aagcacataa agacaaatca gctcaatgct ttaaaatgtt ttataagggt gttatcacgc

17641 atgatgtttc atctgcaatt aacaggccac aaataggcgt ggtaagagaa ttccttacac

17701 gtaaccctgc ttggagaaaa gctgtcttta tttcacctta taattcacag aatgctgtag

17761 cctcaaagat tttgggacta ccaactcaaa ctgttgattc atcacagggc tcagaatatg

17821 actatgtcat attcactcaa accactgaaa cagctcactc ttgtaatgta aacagattta

17881 atgttgctat taccagagca aaagtaggca tactttgcat aatgtctgat agagaccttt

17941 atgacaagtt gcaatttaca agtcttgaaa ttccacgtag gaatgtggca actttacaag

18001 ctgaaaatgt aacaggactc tttaaagatt gtagtaaggt aatcactggg ttacatccta

18061 cacaggcacc tacacacctc agtgttgaca ctaaattcaa aactgaaggt ttatgtgttg

18121 acatacctgg catacctaag gacatgacct atagaagact catctctatg atgggtttta

18181 aaatgaatta tcaagttaat ggttacccta acatgtttat cacccgcgaa gaagctataa

18241 gacatgtacg tgcatggatt ggcttcgatg tcgaggggtg tcatgctact agagaagctg

18301 ttggtaccaa tttaccttta cagctaggtt tttctacagg tgttaaccta gttgctgtac

18361 ctacaggtta tgttgataca cctaataata cagatttttc cagagttagt gctaaaccac

18421 cgcctggaga tcaatttaaa cacctcatac cacttatgta caaaggactt ccttggaatg

18481 tagtgcgtat aaagattgta caaatgttaa gtgacacact taaaaatctc tctgacagag

18541 tcgtatttgt cttatgggca catggctttg agttgacatc tatgaagtat tttgtgaaaa

18601 taggacctga gcgcacctgt tgtctatgtg atagacgtgc cacatgcttt tccactgctt

18661 cagacactta tgcctgttgg catcattcta ttggatttga ttacgtctat aatccgttta

18721 tgattgatgt tcaacaatgg ggttttacag gtaacctaca aagcaaccat gatctgtatt

18781 gtcaagtcca tggtaatgca catgtagcta gttgtgatgc aatcatgact aggtgtctag

18841 ctgtccacga gtgctttgtt aagcgtgttg actggactat tgaatatcct ataattggtg

18901 atgaactgaa gattaatgcg gcttgtagaa aggttcaaca catggttgtt aaagctgcat

18961 tattagcaga caaattccca gttcttcacg acattggtaa ccctaaagct attaagtgtg

19021 tacctcaagc tgatgtagaa tggaagttct atgatgcaca gccttgtagt gacaaagctt

19081 ataaaataga agaattattc tattcttatg ccacacattc tgacaaattc acagatggtg

19141 tatgcctatt ttggaattgc aatgtcgata gatatcctgc taattccatt gtttgtagat

19201 ttgacactag agtgctatct aaccttaact tgcctggttg tgatggtggn nnnnnnnnnn

19261 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

19321 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

19381 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

19441 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

19501 nnnnnnnnnn nnnnnnnnnc ttgtgggttt acaaacaatt tgatacttat aacctctgga

19561 acacttttac aagacttcag agtttagaaa atgtggcttt taatgttgta aataagggac

19621 actttgatgg acaacagggt gaagtaccag tttctatcat taataacact gtttacacaa

19681 aagttgatgg tgttgatgta gaattgtttg aaaataaaac aacattacct gttaatgtag

19741 catttgagct ttgggctaag cgcaacatta aaccagtacc agaggtgaaa atactcaata

19801 atttgggtgt ggacattgct gctaatactg tgatctggga ctacaaaaga gatgctccag

19861 cacatatatc tactattggt gtttgttcta tgactgacat agccaagaaa ccaactgaaa

19921 cgatttgtgc accactcact gtcttttttg atggtagagt tgatggtcaa gtagacttat

19981 ttagaaatgc ccgtaatggt gttcttatta cagaaggtag tgttaaaggt ttacaaccat

20041 ctgtaggtcc caaacaagct agtcttaatg gagtcacatt aattggagaa gccgtaaaaa

20101 cacagttcaa ttattataag aaagttgatg gtgttgtcca acaattacct gaaacttact

20161 ttactcagag tagaaattta caagaattta aacccaggag tcaaatggaa attgatttct

20221 tagaattagc tatggatgaa ttcattgaac ggtataaatt agaaggctat gccttcgaac

20281 atatcgttta tggagatttt agtcatagtc agttaggtgg tttacatcta ctgattggac

20341 tagctaaacg ttttaaggaa tcaccttttg aattagaaga ttttattcct atggacagta

20401 cagttaaaaa ctatttcata acagatgcgc aaacaggttc atctaagtgt gtgtgttctg

20461 ttattgattt attacttgat gattttgttg aaataataaa atcccaagat ttatctgtag

20521 tttctaaggt tgtcaaagtg actattgact atacagaaat ttcatttatg ctttggtgta

20581 aagatggcca tgtagaaaca ttttacccaa aattacaatc tagtcaagcg tggcaaccgg

20641 gtgttgctat gcctaatctt tacaaaatgc aaagaatgct attagaaaag tgtgaccttc

20701 aaaattatgg tgatagtgca acattaccta aaggcataat gatgaatgtc gcaaaatata

20761 ctcaactgtg tcaatattta aacacattaa cattagctgt accctataat atgagagtta

20821 tacattttgg tgctggttct gataaaggag ttgcaccagg tacagctgtt ttaagacagt

20881 ggttgcctac gggtacgctg cttgtcgatt cagatcttaa tgactttgtc tctgatgcag

20941 attcaacttt gattggtgat tgtgcaactg tacatacagc taataaatgg gatctcatta

21001 ttagtgatat gtacgaccct aagactaaaa atgttacaaa agaaaatgac tctaaagagg

21061 gttttttcac ttacatttgt gggtttatac aacaaaagct agctcttgga ggttccgtgg

21121 ctataaagat aacagaacat tcttggaatg ctgatcttta taagctcatg ggacacttcg

21181 catggtggac agcctttgtt actaatgtga atgcgtcatc atctgaagca tttttaattg

21241 gatgtaatta tcttggcaaa ccacgcgaac aaatagatgg ttatgtcatg catgcaaatt

21301 acatattttg gaggaataca aatccaattc agttgtcttc ctattcttta tttgacatga

21361 gtaaatttcc ccttaaatta aggggtactg ctgttatgtc tttaaaagaa ggtcaaatca

21421 atgatatgat tttatctctt cttagtaaag gtagacttat aattagagaa aacaacagag

21481 ttgttatttc tagtgatgtt cttgttaaca actaaacgaa caatgtttgt ttttcttgtt

21541 ttattgccac tagtctctag tcagtgtgtt aatcttagaa ccagaactca attaccccct

21601 gcatacacta attctttcac acgtggtgtt tattaccctg acaaagtttt cagatcctca

21661 gttttacatt caactcagga cttgttctta cctttctttt ccaatgttac ttggttccat

21721 gctatacatg tctctgggac caatggtact aagaggtttg ataaccctgt cctaccattt

21781 aatgatggtg tttattttgc ttccactgag aagtctaaca taataagagg ctggattttt

21841 ggtactactt tagattcgaa gacccagtcc ctacttattg ttaataacgc tactaatgtt

21901 gttattaaag tctgtgaatt tcaattttgt aatgatccat ttttggatgt ttattaccac

21961 aaaaacaaca aaagttggat ggaaagtgga gtttattcta gtgcgaataa ttgcactttt

22021 gaatatgtct ctcagccttt tcttatggac cttgaaggaa aacagggtaa tttcaaaaat

22081 cttagggaat ttgtgtttaa gaatattgat ggttatttta aaatatattc taagcacacg

22141 cctattaatt tagtgcgtga tctccctcag ggtttttcgg ttttagaacc attggtagat

22201 ttgccaatag gtattaacat cactaggttt caaactttac ttgctttaca tagaagttat

22261 ttgactcctg gtgattcttc ttcaggttgg acagctggtg ctgcagctta ttatgtgggt

22321 tatcttcaac ctaggacttt tctattaaaa tataatgaaa atggaaccat tacagatgct

22381 gtagactgtg cacttgaccc tctctcagaa acaaagtgta cgttgaaatc cttcactgta

22441 gaaaaaggaa tctatcaaac ttctaacttt agagtccaac caacagaatc tattgttaga

22501 tttcctaata ttacaaactt gtgccctttt ggtgaagttt ttaacgccac cagatttgca

22561 tctgtttatg cttggaacag gaagagaatc agcaactgtg ttgctgatta ttctgtccta

22621 tataattccg catcattttc cacttttaag tgttatggag tgtctcctac taaattaaat

22681 gatctctgct ttactaatgt ctatgcagat tcatttgtaa ttagaggtga tgaagtcaga

22741 caaatcgctc cagggcaaac tggaaagatt gctgattata attataaatt accagatgat

22801 tttacaggct gcgttatagc ttggaattct aacaatcttg attctaaggt tggtggtaat

22861 tataattacc ggtatagatt gtttaggaag tctaatctca aaccttttga gagagatatt

22921 tcaactgaaa tctatcaggc cggtagcaaa ccttgtaatg gtgttgaagg ttttaattgt

22981 tactttcctt tacaatcata tggtttccaa cccactaatg gtgttggtta ccaaccatac

23041 agagtagtag tactttcttt tgaacttcta catgcaccag caactgtttg tggacctaaa

23101 aagtctacta atttggttaa aaacaaatgt gtcaatttca acttcaatgg tttaacaggc

23161 acaggtgttc ttactgagtc taacaaaaag tttctgcctt tccaacaatt tggcagagac

23221 attgctgaca ctactgatgc tgtccgtgat ccacagacac ttgagattct tgacattaca

23281 ccatgttctt ttggtggtgt cagtgttata acaccaggaa caaatacttc taaccaggtt

23341 gctgttcttt atcagggtgt taactgcaca gaagtccctg ttgctattca tgcagatcaa

23401 cttactccta cttggcgtgt ttattctaca ggttctaatg tttttcaaac acgtgcaggc

23461 tgtttaatag gggctgaaca tgtcaacaac tcatatgagt gtgacatacc cattggtgca

23521 ggtatatgcg ctagttatca gactcagact aattctcgtc ggcgggcacg tagtgtagct

23581 agtcaatcca tcattgccta cactatgtca cttggtgcag aaaattcagt tgcttactct

23641 aataactcta ttgccatacc cacaaatttt actattagtg ttaccacaga aattctacca

23701 gtgtctatga ccaagacatc agtagattgt acaatgtaca tttgtggtga ttcaactgaa

23761 tgcagcaatc ttttgttgca atatggcagt ttttgtacac aattaaaccg tgctttaact

23821 ggaatagctg ttgaacaaga caaaaacacc caagaagttt ttgcacaagt caaacaaatt

23881 tacaaaacac caccaattaa agattttggt ggttttaatt tttcacaaat attaccagat

23941 ccatcaaaac caagcaagag gtcatttatt gaagatctac ttttcaacaa agtgacactt

24001 gcagatgctg gcttcatcaa acaatatggt gattgccttg gtgatattgc tgctagagac

24061 ctcatttgtg cacaaaagtt taacggcctt actgttttgc cacctttgct cacagatgaa

24121 atgattgctc aatacacttc tgcactgtta gcgggtacaa tcacttctgg ttggaccttt

24181 ggtgcaggtg ctgcattaca aataccattt gctatgcaaa tggcttatag gtttaatggt

24241 attggagtta cacagaatgt tctctatgag aaccaaaaat tgattgccaa ccaatttaat

24301 agtgctattg gcaaaattca agactcactt tcttccacag caagtgcact tggaaaactt

24361 caaaatgtgg tcaaccaaaa tgcacaagct ttaaacacgc ttgttaaaca acttagctcc

24421 aattttggtg caatttcaag tgttttaaat gatatccttt cacgtcttga caaagttgag

24481 gctgaagtgc aaattgatag gttgatcaca ggcagacttc aaagtttgca gacatatgtg

24541 actcaacaat taattagagc tgcagaaatc agagcttctg ctaatcttgc tgctactaaa

24601 atgtcagagt gtgtacttgg acaatcaaaa agagttgatt tttgtggaaa gggctatcat

24661 cttatgtcct tccctcagtc agcacctcat ggtgtagtct tcttgcatgt gacttatgtc

24721 cctgcacaag aaaagaactt cacaactgct cctgccattt gtcatgatgg aaaagcacac

24781 tttcctcgtg aaggtgtctt tgtttcaaat ggcacacact ggtttgtaac acaaaggaat

24841 ttttatgaac cacaaatcat tactacagac aacacatttg tgtctggtaa ctgtgatgtt

24901 gtaataggaa ttgtcaacaa cacagtttat gatcctttgc aacctgaatt agactcattc

24961 aaggaggagt tagataaata ttttaagaat catacatcac cagatgttga tttaggtgac

25021 atctctggca ttaatgcttc agttgtaaac attcaaaaag aaattgaccg cctcaatgag

25081 gttgccaaga atttaaatga atctctcatc gatctccaag aacttggaaa gtatgagcag

25141 tatataaaat ggccatggta catttggcta ggttttatag ctggcttgat tgccatagta

25201 atggtgacaa ttatgctttg ctgtatgacc agttgctgta gttgtctcaa gggctgttgt

25261 tcttgtggat cctgctgcaa atttgatgaa gacgactctg agccagtgct caaaggagtc

25321 aaattacatt acacataaac gaacttatgg atttgtttat gagaatcttc acaattggaa

25381 ctgtaacttt gaagcaaggt gaaatcaagg atgctactcc tttagatttt gttcgcgcta

25441 ctgcaacgat accgatacaa gcctcactcc ctttcggatg gcttattgtt ggcgttgcac

25501 ttcttgctgt ttttcagagc gcttccaaaa tcataaccct caaaaagaga tggcaactag

25561 cactctccaa gggtgttcac tttgtttgca acttgctgtt gttgtttgta acagtttact

25621 cacacctttt gctcgttgct gctggccttg aagccccttt tctctatctt tatgctttat

25681 tctacttctt gcagagtata aactttgtaa gaataataat gaggctttgg ctttgctgga

25741 aatgccgttc caaaaaccca ttactttatg atgccaacta ttttctttgc tggcatacta

25801 attgttacga ctattgtata ccttacaata gtgtaacttc ttcaattgtc attacttcag

25861 gtgatggcac aacaagtcct atttctgaac atgactacca gattggtggt tatactgaaa

25921 aatgggaatc tggagtaaaa gactgtgttg tattacacag ttacttcact tcagactatt

25981 accagctgta ctcaactcaa ttgagtacag acactggtgt tgaacatgtt accttcttca

26041 tctacaataa aattgttgat gagcctgaag aacatgtcca aattcacaca atcgacggtt

26101 catccggagt tgttaatcca gtaatggaac caatttatga tgaaccgacg acgactacta

26161 gcgtgccttt gtaagcacaa gctgatgagt acgaacttat gtactcattc gtttcggaag

26221 agacaggtac gttaatagtt aatagcgtac ttctttttct tgctttcgtg gtattcttgc

26281 tagttacact agccatcctt actgcgcttc gattgtgtgc gtactgctgc aatattgtta

26341 acgtgagtct tgtaaaacct tctttttacg tttactctcg tgttaaaaat ctgaattctt

26401 ctagagttcc tgatcttctg gtctaaacga actaaatatt atattagttt ttctgtttgg

26461 aactttaatt ttagccatgg cagattccaa cggtactatt accgttgaag agcttaaaaa

26521 gctccttgaa caatggaacc tagtaatagg tttcctattc cttacatgga tttgtcttct

26581 acaatttgcc tatgccaaca ggaataggtt tttgtatata attaagttaa ttttcctctg

26641 gctgttatgg ccagtaactt tagcttgttt tgtgcttgct gctgtttaca gaataaattg

26701 gatcaccggt ggaattgcta ccgcaatggc ttgtcttgta ggcttgatgt ggctcagcta

26761 cttcattgct tctttcagac tgtttgcgcg tacgcgttcc atgtggtcat tcaatccaga

26821 aactaacatt cttctcaacg tgccactcca tggcactatt ctgaccagac cgcttctaga

26881 aagtgaactc gtaatcggag ctgtgatcct tcgtggacat cttcgtattg ctggacacca

26941 tctaggacgc tgtgacatca aggacctgcc taaagaaatc actgttgcta catcacgaac

27001 gctttcttat tacaaattgg gagcttcgca gcgtgtagca ggtgactcag gttttgctgc

27061 atacagtcgc tacaggattg gcaactataa attaaacaca gaccattcca gtagcagtga

27121 caatattgct ttgcttgtac agtaagtgac aacagatgtt tcatctcgtt gactttcagg

27181 ttactatagc agagatatta ctaattatta tgaggacttt taaagtttcc atttggaatc

27241 ttgattacat cataaacctc ataattaaaa atttatctaa gtcactaact gagaataaat

27301 attctcaatt agatgaagag caaccaatgg agattgatta aacgaacatg aaaattattc

27361 ttttcttggc actgataaca ctcgctactt gtgagcttta tcactaccaa gagtgtgtta

27421 gaggtacaac agtactttta aaagaacctt gctcttctgg aacatacgag ggcaattcac

27481 catttcatcc tctagctgat aacaaatttg cactgacttg ctttagcact caatttgctt

27541 ttgcttgtcc tgacggcgta aaannnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

27601 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

27661 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

27721 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnntg ctattccttg ttttaattat

27781 gcttattatc ttttggttct cacttgaact gcaagatcat aatgaaactt gtcacgccta

27841 aacgaacatg aaatttcttg ttttcttagg aatcatcaca actgtagctg catttcacca

27901 agaatgtagt ttacagtcat gtactcaaca tcaaccatat gtagttgatg acccgtgtcc

27961 tattcacttc tattctaaat ggtatattag agtaggagct agaaaatcag cacctttaat

28021 tgaattgtgc gtggatgagg ctggttctaa atcacccatt cagtacatcg atatcggtaa

28081 ttatacagtt tcctgtttac cttttacaat taattgccag gaacctaaat tgggtagtct

28141 tgtagtgcgt tgttcgttct atgaagactt tttagagtat catgacgttc gtgttgtttt

28201 aatctaaacg aacaaactaa atgtctgata atggacccca aaatcagcga aatgcacccc

28261 gcattacgtt tggtggaccc tcagattcaa ctggcagtaa ccagaatgga gaacgcagtg

28321 gggcgcgatc aaaacaacgt cggccccaag gtttacccaa taatactgcg tcttggttca

28381 ccgctctcac tcaacatggc aaggaaggcc ttaaattccc tcgaggacaa ggcgttccaa

28441 ttaacaccaa tagcagtcca gatgaccaaa ttggctacta ccgaagagct accagacgaa

28501 ttcgtggtgg tgacggtaaa atgaaagatc tcagtccaag atggtatttc tactacctag

28561 gaactgggcc agaagctgga cttccctatg gtgctaacaa agacggcatc atatgggttg

28621 caactgaggg agccttgaat acaccaaaag atcacattgg cacccgcaat cctgctaaca

28681 atgctgcaat cgtgctacaa cttcctcaag gaacaacatt gccaaaaggc ttctacgcag

28741 aagggagcag aggcggcagt caagcctctt ctcgttcctc atcacgtagt cgcaacagtt

28801 caagaaattc aactccaggc agcagtatgg gaacttctcc tgctagaatg gctggcaatg

28861 gcggtgatgc tgctcttgct ttgctgctgc ttgacagatt gaaccagctt gagagcaaaa

28921 tgtctggtaa aggccaacaa caacaaggcc aaactgtcac taagaaatct gctgctgagg

28981 cttctaagaa gcctcggcaa aaacgtactg ccactaaagc atacaatgta acacaagctt

29041 tcggcagacg tggtccagaa caaacccaag gaaattttgg ggaccaggaa ctaatcagac

29101 aaggaactga ttacaaacat tggccgcaaa ttgcacaatt tgcccccagc gcttcagcgt

29161 tcttcggaat gtcgcgcatt ggcatggaag tcacaccttc gggaacgtgg ttgacctaca

29221 caggtgccat caaattggat gacaaagatc caaatttcaa agatcaagtc attttgctga

29281 ataagcatat tgacgcatac aaaacattcc caccaacaga gcctaaaaag gacaaaaaga

29341 agaaggctta tgaaactcaa gccttaccgc agagacagaa gaaacagcaa actgtgactc

29401 ttcttcctgc tgcagatttg gatgatttct ccaaacaatt gcaacaatcc atgagcagtg

29461 ctgactcaac tcaggcctaa actcatgcag accacacaag gcagatgggc tatataaacg

29521 ttttcgcttt tccgtttacg atatatagtc tactcttgtg cagaatgaat tctcgtaact

29581 acatagcaca agtagatgta gttaacttta atctcacata gcaatcttta atcagtgtgt

29641 aacattaggg aggacttgaa agagccacca cattttcacc gaggccactc ggagtacgat

29701 cgagtgtaca gtgaacaatg ctagggagag ctgcctatat ggaagagccc taatgtgtaa

29761 aattaatttt agtagtgcta tccccat

//