**Severe acute respiratory syndrome coronavirus 2 isolate SARS-CoV-2/human/USA/B015025/2022 ORF1ab polyprotein (ORF1ab) gene, partial cds; and ORF1a polyprotein (ORF1ab), surface glycoprotein (S), ORF3a protein (ORF3a), envelope protein (E), membrane glycoprotei...**

GenBank: OM863926.1

[FASTA](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?report=fasta) [Graphics](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?report=graph)

[Go to:](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1" \l "goto2200867187_0)

LOCUS OM863926 29643 bp RNA linear VRL 28-FEB-2022

DEFINITION Severe acute respiratory syndrome coronavirus 2 isolate

SARS-CoV-2/human/USA/B015025/2022 ORF1ab polyprotein (ORF1ab) gene,

partial cds; and ORF1a polyprotein (ORF1ab), surface glycoprotein

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

glycoprotein (M), ORF6 protein (ORF6), ORF7a protein (ORF7a), ORF7b

(ORF7b), ORF8 protein (ORF8), nucleocapsid phosphoprotein (N), and

ORF10 protein (ORF10) genes, complete cds.

ACCESSION OM863926

VERSION OM863926.1

DBLINK BioProject: [PRJNA765540](https://www.ncbi.nlm.nih.gov/bioproject/PRJNA765540)

BioSample: [SAMN26311754](https://www.ncbi.nlm.nih.gov/biosample/SAMN26311754)

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 29643)

AUTHORS Kandel,S., Bird,J.T., Byrum,S.D., Thurman,T.J., Kennedy,J.L. and

Ussery,D.W.

TITLE SARS-CoV2 sequence detection

JOURNAL Unpublished

REFERENCE 2 (bases 1 to 29643)

AUTHORS Kandel,S., Bird,J.T., Byrum,S.D., Thurman,T.J., Kennedy,J.L. and

Ussery,D.W.

TITLE Direct Submission

JOURNAL Submitted (28-FEB-2022) Department of Biomedical Informatics,

University of Arkansas for Medical Sciences, 501 Jack Stephens

Drive, Little Rock, AR 72205, USA

COMMENT ##Assembly-Data-START##

Assembly Method :: Medaka via Artic v1.2.1

Coverage :: NA

Sequencing Technology :: Nanopore GridION

##Assembly-Data-END##

FEATURES Location/Qualifiers

source 1..29643

/organism="Severe acute respiratory syndrome coronavirus

2"

/mol\_type="genomic RNA"

/isolate="SARS-CoV-2/human/USA/B015025/2022"

/isolation\_source="Nasopharyngeal"

/host="Homo sapiens"

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

/country="USA: AR"

/collection\_date="2022-02-07"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=212&to=20604) 212..>20604

/gene="ORF1ab"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?location=212:13396,13396:20604) join(212..13396,13396..>20604)

/gene="ORF1ab"

/ribosomal\_slippage

/codon\_start=1

/product="ORF1ab polyprotein"

/protein\_id="[UMB22495.1](https://www.ncbi.nlm.nih.gov/protein/2200867189)"

/translation="MESLVPGFNEKTHVQLSLPVLQVRDVLVRGFGDSVEEVLSEARQ

HLKDGTCGLVEVEKGVLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGE

TLGVLVPHVGEIPVAYRKVLLRKNGNKGAGGHXYGADLDLGDELGTDPYEDFQENWNT

KHSSGVTRELMRELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEQLDF

IDTKRGVYCCREHEHEIAWYTERSEKSYELQTPFEIKLAKKFDTFNGECPNFVFPLNS

IIKTIQPRVEKKKLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTGDFV

KATCEFCGTENLTKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESGLKT

ILRKGGRTIAFGGCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNLLEI

LQKEKVNINIVGDFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGNFKV

TKGKAKKGAWNIGEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAAITI

LDGISQYSLRLIDAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKLKPV

LDWLEEKFKEGVEFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLVNKF

LALCADSIIIGGAKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEIIFLE

GETLPTEVLTEEVVLKTGDLQPLEQPTSEAVEAPLVGTPVCINGLMLLEIKDTEKYCA

LAPNMMVTNNTFTLKGGAPTKVTFGDDTVIEVQGYKSVNIIFELDERIDKVLNEKCSA

YTVELGTEVNEFACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDESGEFKLA

SHMYCSFYPPDEDEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPEEEQ

EEDWLDDDSQQTVGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSGYLK

LTDNVYIKNADIVEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESDDYI

ATNGPLKVGGSCVLSGHNLAKHCLHVVGPNVNKGEDIQLLKSAYENFNQHEVLLAPLL

SAGIFGADPIHSLRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIAEIP

KEEVKPFITESKPSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGNLHP

DSATLVSDIDITFLKKDAPYIVGDVVQEGVLTAVVIPTKKASGTTEMLAKALRKVPTD

NYITTYPGQGLNGYTVEEAKTVLKKCKSAFYILPSIISNEKQEILGTVSWNLREMLAH

AEETRKLMPVCVETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLINTLN

DLNETLVTMPLGYVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSSKTP

EEHFIETISLAGSYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTTFHLDGEVITFDN

LKTLLSLREVRTIKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPHNSH

EGKTFYVLPNDDTLRVEAFEYYHTTDPSFLGRYMSALNHTKKWKYPQVNGLTSIKWAD

NNCYLATALLTLQQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELGDVR

ETMSYLFQHANLDSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQIPC

TCGKQATKYLVQQESPFVMMSAPPAQYELKHGTFTCASEYTGNYQCGHYKHITSKETL

YCIDGALLTKSSEYKGPITDVFYKENSYTTTIKPVTYKLDGVVCTEIDPKLDNYYKKD

NSYFTEQPIDLVPNQPYPNASFDNFKFVCDNIKFADDLNQLTGYKKPASRELKVTFFP

DLNGDVVAIDYKHYTPSFKKGAKLLHKPIVWHVNNATNKATYKPNTWCIRCLWSTKPV

ETSNSFDVLKSEDAQGMDNLACEDLKPVSEEVVENPTIQKDVLECNVKTTEVVGDIIL

KPANNSLKITEEVGHTDLMAAYVDNSSLTIKKPNELSRVLGLKTLATHGLAAVNSVPW

DTIANYAKPFLNKVVSTTTNIVTRCLNRVCTNYMPYFFTLLLQLCTFTRSTNSRIKAS

MPTTIAKNTVKSVGKFCLEASFNYLKSPNFSKLINIIIWFLLLSVCLGSLIYSTAALG

VLMSNLGMPSYCTGYREGYLNSTNVTIATYCTGSIPCSVCLSGLDSLDTYPSLETIQI

TISSFKWDLTAFGLVAEWFLAYILFTRFFYVLGLAAIMQLFFSYFAVHFISNSWLMWL

IINLVQMAPISAMVRMYIFFASFYYVWKSYVHVVDGCNSSTCMMCYKRNRATRVECTT

IVNGVRRSFYVYANGGKGFCKLHNWNCVNCDTFCAGSTFISDEVARDLSLQFKRPINP

TDQSSYIVDSVTVKNGSIHLYFDKAGQKTYERHSLSHFVNLDNLRANNTKGSLPINVI

VFDGKSKCEESSAKSASVYYSQLMCQPILLLDQALVSDVGDSAEVAVKMFDAYVNTFS

STFNVPMEKLKTLVATAEAELAKNVSLDNVLSTFISAARQGFVDSDVETKDVVECLKL

SHQSDIEVTGDSCNNYMLTYNKVENMTPRDLGACIDCSARHINAQVAKSHNIALIWNV

KDFMSLSEQLRKQIRSAAKKNNLPFKLTCATTRQVVNVVTTKIALKGGKIVNNWLKQL

IKVTLVFLFVAAIFYLITPVHVMSKHTDFSSEIIGYKAIDGGVTRDIASTDTCFANKH

ADFDTWFSQRGGSYTNDKACPLIAAVITREVGFVVPGLPGTILRTTNGDFLHFLPRVF

SAVGNICYTPSKLIEYTDFATSACVLAAECTIFKDASGKPVPYCYDTNVLEGSVAYES

LRPDTRYVLMDGSIIQFPNTYLEGSVRVVTTFDSEYCRHGTCERSEAGVCVSTSGRWV

LNNDYYRSLPGVFCGVDAVNLFTNMFTPLIQPIGALDISASIVAGGIVAIVVTCLAYY

FMRFRRAFGEYSHVVAFNTLLFLMSFIVLCLTPVYSFLPGVYSVIYLYLTFYLTNDVS

FLAHIQWMVMFTPLVPFWITIAYIICISTKHFYWFFSNYLKRRVVFNGVSFSTFEEAA

LCTFLLNKEMYLKLRSDVLLPFTQYNRYLALYNKYKYFSGAMDTTSYREAACCHLAKA

LNDFSNSGSDVLYQPPQISITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNGLWL

DDVVYCPRHVICTSEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVLKLK

VDTANPKTPKYKFVRIQPGQTFSVLACYNGSPSGVYQCAMRHNFTIKGSFLNGSCGSV

GFNIDYDCVSFCYMHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVNVLA

WLYAAVINGDRWFLNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAVLDM

CASLKELLQNGMNGRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHWLLL

TILTSLLVLVQSTQWSLFFFLYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFLLPS

LATVAYFNMVYMPASWVMRIMTWLDMVDTSLKLKDCVMYASAVVLLILMTARTVYDDG

ARRVWTLMNVLTLVYKVYYGNALDQAISMWALIISVTSNYSGVVTTVMFLARGIVFMC

VEYCPIFFITGNTLQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYLVSTQEF

RYMNSQGLLPPKNSIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVLLSVLQQ

LRVESSSKLWAQCVQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKLCEEMLD

NRATLQAIASEFSSLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAKSEFDRD

AAMQRKLEKMADQAMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALNNIINNA

RDGCVPLNIIPLTTAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDADSKIVQ

LSEISMDNSPNLAWPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTACTDDNA

LAYYNTTKGGRFVLALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTPKGPKVK

YLYFIKGLNNLNRGMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAKAYKDYL

ASGGQPITNCVKMLCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDHPNPKGF

CDLKGKYVQIPTTCANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSADAQSFL

NRVCGVSAARLTPCGTGTSTDVVYRAFDIYNDKVAGFAKFLKTNCCRFQEKDEDDNLI

DSYFVVKRHTFSNYQHEETIYNLLKDCPAVAKHDFFKFRIDGDMVPHISRQRLTKYTM

ADLVYALRHFDEGNCDTLKEILVTYNCCDDDYFNKKDWYDFVENPDILRVYANLGERV

RQALLKTVQFCDAMRNAGIVGVLTLDNQDLNGNWYDFGDFIQTTPGSGVPVVDSYYSL

LMPILTLTRALTAESHVDTDLTKPYIKWDLLKYDFTEERLKLFDRYFKYWDQTYHPNC

VNCLDDRCILHCANFNVLFSTVFPLTSFGPLVRKIFVDGVPFVVSTGYHFRELGVVHN

QDVNLHSSRLSFKELLVYAADPAMHAASGNLLLDKRTTCFSVAALTNNVAFQTVKPGN

FNKDFYDFAVSKGFFKEGSSVELKHFFFAQDGNAAISDYDYYRYNLPTMCDIRQLLFV

VEVVDKYFDCYDGGCINANQVIVNNLDKSAGFPFNKWGKARLYYDSMSYEDQDALFAY

TKRNVIPTITQMNLKYAISAKNRARTVAGVSICSTMTNRQFHQKLLKSIAATRGATVV

IGTSKFYGGWHNMLKTVYSDVENPHLMGWDYPKCDRAMPNMLRIMASLVLARKHTTCC

SLSHRFYRLANECAQVLSEMVMCGGSLYVKPGGTSSGDATTAYANSVFNICQAVTANV

NALLSTDGNKIADKYVRNLQHRLYECLYRNRDVDTDFVNEFYAYLRKHFSMMILSDDA

VVCFNSTYASQGLVASIKNFKSVLYYQNNVFMSEAKCWTETDLTKGPHEFCSQHTMLV

KQGDDYVYLPYPDPSRILGAGCFVDDIVKTDGTLMIERFVSLAIDAYPLTKHPNQEYA

DVFHLYLQYIRKLHDELTGHMLDMYSVMLTNDNTSRYWEPEFYEAMYTPHTVLQAVGA

CVLCNSQTSLRCGACIRRPFLCCKCCYDHVISTSHKLVLSVNPYVCNAPGCDVTDVTQ

LYLGGMSYYCKSHKPPISFPLCANGQVFGLYKNTCVGSDNVTDFNAIATCDWTNAGDY

ILANTCTERLKLFAAETLKATEETFKLSYGIATVREVLSDRELHLSWEVGKPRPPLNR

NYVFTGYRVTKNSKVQIGEYTFEKGDYGDAVVYRGTTTYKLNVGDYFVLTSHTVMPLS

APTLVPQEHYVRITGLYPTLNISDEFSSNVANYQKVGMQKYSTLQGPPGTGKSHFAIG

LALYYPSARIVYTACSHAAVDALCEKALKYLPIDKCSRIIPARARVECFDKFKVNSTL

EQYVFCTVNALPETTADIVVFDEISMATNYDLSVVNARLCAKHYVYIGDPAQLPAPRT

LLTKGTLEPEYFNSVCRLMKTIGPDMFLGTCRRCPAEIVDTVSALVYDNKLKAHKDKS

AQCFKMFYKGVITHDVSSAINRPQIGVVREFLTRNPAWRKAVFISPYNSQNAVASKIL

GLPTQTVDSSQGSEYDYVIFTQTTETAHSCNVNRFNVAITRAKVGILCIMSDRDLYDK

LQFTSLEIPRRNVATLQAENVTGLFKDCSKVITGLHPTQAPTHLSVDTKFKTEGLCVD

VPGIPKDMTYRRLISMMGFKMNYQVNGYPNMFITREEAIRHVRAWIGFDVEGCHATRE

AVGTNLPLQLGFSTGVNLVAVPTGYVDTPNNTDFSRVSAKPPPGDQFKHLIPLMYKGL

PWNVVRIKIVQMLSDTLKNLSDRVVFVLWAHGFELTSMKYFVKIGPERTCCLCDRRAT

CFSTASDTYACWHHSIGFDYVYNPFMIDVQQWGFTGNLQSNHDLYCQVHGNAHVASCD

AIMTRCLAVHECFVKRVDWTIEYPIIGDELKINAACRKVQHMVVKAALLADKFPVLHD

IGNPKAIKCVPQADVEWKFYDAQPCSDKAYKIEELFYSYATHSDKFTDGVCLFWNCNV

DRYPANSIVCRFDTRVLSNLNLPGCDGGSLYVNKHAFHTPAFDKSAFVNLKQLPFFYY

SDSPCESHGKQVVSDIDYVPLKSATCITRCNLGGAVCRHHANEYRLYLDAYNMMISAG

FSLWVYKQFDTYNLWNTFTRLQSLENVAFNVVNKGHFDGQQGEVPVSIINNTVYTKVD

GVDVELFENKTTLPVNVAFELWAKRNIKPVPEVKILNNLGVDIAANTVIWDYKRDAPA

HISTIGVCSMTDIAKKPIETICAPLTVFFDGRVDGQVDLFRNARNGVLITEGSVKGLQ

PSVGPKQASLNGVTLIGEAVKTQFNYYKKVDGVVQQLPETYFTQSRNLQEFKPRSQME

IDFLELAMDEFIERYKLEGYAFEHIVYGDFSHSQLGGLHLLIGLAKRFKESPFELEDF

IPMDSTVKNYFITDAQTGSSKCVCSVIDLLLDDFVEIIKSQDLSVVSKVVKVTIDYTE

ISFMLWCKDGHVETFYPKLQSSQAWQ"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22495.1?from=1&to=177) 212..742

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22495.1?from=178&to=815) 743..2656

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22495.1?from=816&to=2760) 2657..8491

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22495.1?from=2761&to=3260) 8492..9991

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22495.1?from=3261&to=3566) 9992..10909

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22495.1?from=3567&to=3853) 10910..11770

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22495.1?from=3854&to=3936) 11771..12019

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22495.1?from=3937&to=4134) 12020..12613

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22495.1?from=4135&to=4247) 12614..12952

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22495.1?from=4248&to=4386) 12953..13369

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22495.1?from=4387&to=5318) join(13370..13396,13396..16164)

/gene="ORF1ab"

/product="RNA-dependent RNA polymerase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22495.1?from=5319&to=5919) 16165..17967

/gene="ORF1ab"

/product="helicase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22495.1?from=5920&to=6446) 17968..19548

/gene="ORF1ab"

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

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22495.1?from=6447&to=6792) 19549..20586

/gene="ORF1ab"

/product="endoRNAse"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22495.1?from=6793&to=6798) 20587..>20604

/gene="ORF1ab"

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

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=212&to=13411) 212..13411

/gene="ORF1ab"

/codon\_start=1

/product="ORF1a polyprotein"

/protein\_id="[UMB22494.1](https://www.ncbi.nlm.nih.gov/protein/2200867188)"

/translation="MESLVPGFNEKTHVQLSLPVLQVRDVLVRGFGDSVEEVLSEARQ

HLKDGTCGLVEVEKGVLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGE

TLGVLVPHVGEIPVAYRKVLLRKNGNKGAGGHXYGADLDLGDELGTDPYEDFQENWNT

KHSSGVTRELMRELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEQLDF

IDTKRGVYCCREHEHEIAWYTERSEKSYELQTPFEIKLAKKFDTFNGECPNFVFPLNS

IIKTIQPRVEKKKLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTGDFV

KATCEFCGTENLTKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESGLKT

ILRKGGRTIAFGGCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNLLEI

LQKEKVNINIVGDFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGNFKV

TKGKAKKGAWNIGEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAAITI

LDGISQYSLRLIDAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKLKPV

LDWLEEKFKEGVEFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLVNKF

LALCADSIIIGGAKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEIIFLE

GETLPTEVLTEEVVLKTGDLQPLEQPTSEAVEAPLVGTPVCINGLMLLEIKDTEKYCA

LAPNMMVTNNTFTLKGGAPTKVTFGDDTVIEVQGYKSVNIIFELDERIDKVLNEKCSA

YTVELGTEVNEFACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDESGEFKLA

SHMYCSFYPPDEDEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPEEEQ

EEDWLDDDSQQTVGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSGYLK

LTDNVYIKNADIVEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESDDYI

ATNGPLKVGGSCVLSGHNLAKHCLHVVGPNVNKGEDIQLLKSAYENFNQHEVLLAPLL

SAGIFGADPIHSLRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIAEIP

KEEVKPFITESKPSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGNLHP

DSATLVSDIDITFLKKDAPYIVGDVVQEGVLTAVVIPTKKASGTTEMLAKALRKVPTD

NYITTYPGQGLNGYTVEEAKTVLKKCKSAFYILPSIISNEKQEILGTVSWNLREMLAH

AEETRKLMPVCVETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLINTLN

DLNETLVTMPLGYVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSSKTP

EEHFIETISLAGSYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTTFHLDGEVITFDN

LKTLLSLREVRTIKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPHNSH

EGKTFYVLPNDDTLRVEAFEYYHTTDPSFLGRYMSALNHTKKWKYPQVNGLTSIKWAD

NNCYLATALLTLQQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELGDVR

ETMSYLFQHANLDSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQIPC

TCGKQATKYLVQQESPFVMMSAPPAQYELKHGTFTCASEYTGNYQCGHYKHITSKETL

YCIDGALLTKSSEYKGPITDVFYKENSYTTTIKPVTYKLDGVVCTEIDPKLDNYYKKD

NSYFTEQPIDLVPNQPYPNASFDNFKFVCDNIKFADDLNQLTGYKKPASRELKVTFFP

DLNGDVVAIDYKHYTPSFKKGAKLLHKPIVWHVNNATNKATYKPNTWCIRCLWSTKPV

ETSNSFDVLKSEDAQGMDNLACEDLKPVSEEVVENPTIQKDVLECNVKTTEVVGDIIL

KPANNSLKITEEVGHTDLMAAYVDNSSLTIKKPNELSRVLGLKTLATHGLAAVNSVPW

DTIANYAKPFLNKVVSTTTNIVTRCLNRVCTNYMPYFFTLLLQLCTFTRSTNSRIKAS

MPTTIAKNTVKSVGKFCLEASFNYLKSPNFSKLINIIIWFLLLSVCLGSLIYSTAALG

VLMSNLGMPSYCTGYREGYLNSTNVTIATYCTGSIPCSVCLSGLDSLDTYPSLETIQI

TISSFKWDLTAFGLVAEWFLAYILFTRFFYVLGLAAIMQLFFSYFAVHFISNSWLMWL

IINLVQMAPISAMVRMYIFFASFYYVWKSYVHVVDGCNSSTCMMCYKRNRATRVECTT

IVNGVRRSFYVYANGGKGFCKLHNWNCVNCDTFCAGSTFISDEVARDLSLQFKRPINP

TDQSSYIVDSVTVKNGSIHLYFDKAGQKTYERHSLSHFVNLDNLRANNTKGSLPINVI

VFDGKSKCEESSAKSASVYYSQLMCQPILLLDQALVSDVGDSAEVAVKMFDAYVNTFS

STFNVPMEKLKTLVATAEAELAKNVSLDNVLSTFISAARQGFVDSDVETKDVVECLKL

SHQSDIEVTGDSCNNYMLTYNKVENMTPRDLGACIDCSARHINAQVAKSHNIALIWNV

KDFMSLSEQLRKQIRSAAKKNNLPFKLTCATTRQVVNVVTTKIALKGGKIVNNWLKQL

IKVTLVFLFVAAIFYLITPVHVMSKHTDFSSEIIGYKAIDGGVTRDIASTDTCFANKH

ADFDTWFSQRGGSYTNDKACPLIAAVITREVGFVVPGLPGTILRTTNGDFLHFLPRVF

SAVGNICYTPSKLIEYTDFATSACVLAAECTIFKDASGKPVPYCYDTNVLEGSVAYES

LRPDTRYVLMDGSIIQFPNTYLEGSVRVVTTFDSEYCRHGTCERSEAGVCVSTSGRWV

LNNDYYRSLPGVFCGVDAVNLFTNMFTPLIQPIGALDISASIVAGGIVAIVVTCLAYY

FMRFRRAFGEYSHVVAFNTLLFLMSFIVLCLTPVYSFLPGVYSVIYLYLTFYLTNDVS

FLAHIQWMVMFTPLVPFWITIAYIICISTKHFYWFFSNYLKRRVVFNGVSFSTFEEAA

LCTFLLNKEMYLKLRSDVLLPFTQYNRYLALYNKYKYFSGAMDTTSYREAACCHLAKA

LNDFSNSGSDVLYQPPQISITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNGLWL

DDVVYCPRHVICTSEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVLKLK

VDTANPKTPKYKFVRIQPGQTFSVLACYNGSPSGVYQCAMRHNFTIKGSFLNGSCGSV

GFNIDYDCVSFCYMHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVNVLA

WLYAAVINGDRWFLNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAVLDM

CASLKELLQNGMNGRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHWLLL

TILTSLLVLVQSTQWSLFFFLYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFLLPS

LATVAYFNMVYMPASWVMRIMTWLDMVDTSLKLKDCVMYASAVVLLILMTARTVYDDG

ARRVWTLMNVLTLVYKVYYGNALDQAISMWALIISVTSNYSGVVTTVMFLARGIVFMC

VEYCPIFFITGNTLQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYLVSTQEF

RYMNSQGLLPPKNSIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVLLSVLQQ

LRVESSSKLWAQCVQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKLCEEMLD

NRATLQAIASEFSSLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAKSEFDRD

AAMQRKLEKMADQAMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALNNIINNA

RDGCVPLNIIPLTTAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDADSKIVQ

LSEISMDNSPNLAWPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTACTDDNA

LAYYNTTKGGRFVLALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTPKGPKVK

YLYFIKGLNNLNRGMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAKAYKDYL

ASGGQPITNCVKMLCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDHPNPKGF

CDLKGKYVQIPTTCANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSADAQSFL

NGFAV"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22494.1?from=1&to=177) 212..742

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22494.1?from=178&to=815) 743..2656

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22494.1?from=816&to=2760) 2657..8491

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22494.1?from=2761&to=3260) 8492..9991

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22494.1?from=3261&to=3566) 9992..10909

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22494.1?from=3567&to=3853) 10910..11770

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22494.1?from=3854&to=3936) 11771..12019

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22494.1?from=3937&to=4134) 12020..12613

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22494.1?from=4135&to=4247) 12614..12952

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22494.1?from=4248&to=4386) 12953..13369

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMB22494.1?from=4387&to=4399) 13370..13408

/gene="ORF1ab"

/product="nsp11"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=13404&to=13431) 13404..13431

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 1"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=13416&to=13470) 13416..13470

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 2"

gap 20605..21490

/estimated\_length=886

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=21491&to=25303) 21491..25303

/gene="S"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=21491&to=25303) 21491..25303

/gene="S"

/codon\_start=1

/product="surface glycoprotein"

/protein\_id="[UMB22496.1](https://www.ncbi.nlm.nih.gov/protein/2200867190)"

/translation="MFVFLVLLPLVSSQCVNLTTRTQSYTNSFTRGVYYPDKVFRSSV

LHSTQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNIIRGWI

FGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLDVYYHKNNKSWMESEFRVYSSA

NNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGYFKIYSKHTPINLGRDLPQGFS

ALEPLVDLPIGINITRFQTLLALHRSYLTPGDSSSGWTAGAAAYYVGYLQPRTFLLKY

NENGTITDAVDCALDPLSETKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCP

FDEVFNATRFASVYAWNRKRISNCVADYSVLYNFAPFFAFKCYGVSPTKLNDLCFTNV

YADSFVIRGNEVSQIAPGQTGNIADYNYKLPDDFTGCVIAWNSNKLDSKVGGNYNYLY

RLFRKSNLKPFERDISTEIYQAGNKPCNGVAGFNCYFPLRSYGFRPTYGVGHQPYRVV

VLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTGVLTESNKKFLPFQQFGRDI

ADTTDAVRDPQTLEILDITPCSFGGVSVITPGTNTSNQVAVLYQGVNCTEVPVAIHAD

QLTPTWRVYSTGSNVFQTRAGCLIGAEYVNNSYECDIPIGAGICASYQTQTKSHRRAR

SVASQSIIAYTMSLGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYIC

GDSTECSNLLLQYGSFCTQLKRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKYFGGFN

FSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLICAQKFNGLT

VLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLY

ENQKLIANQFNSAIGKIQDSLSSTASALGKLQDVVNHNAQALNTLVKQLSSKFGAISS

VLNDILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECV

LGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPR

EGVFVSNGTHWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFK

EELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYE

QYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSCGSCCKFDEDDSEPVL

KGVKLHYT"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=25312&to=26139) 25312..26139

/gene="ORF3a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=25312&to=26139) 25312..26139

/gene="ORF3a"

/codon\_start=1

/product="ORF3a protein"

/protein\_id="[UMB22497.1](https://www.ncbi.nlm.nih.gov/protein/2200867191)"

/translation="MDLFMRIFTIGTVTLKQGEIKDATPSDFVRATATIPIQASLPFG

WLIVGVALLAVFQSASKIITLKKRWQLALSKGVHFVCNLLLLFVTVYSHLLLVAAGLE

APFLYLYALVYFLQSINFVRIIMRLWLCWKCRSKNPLLYDANYFLCWHTNCYDYCIPY

NSVTSSIVITSGDGTTSPISEHDYQIGGYTEKWESGVKDCVVLHSYFTSDYYQLYSTQ

LSTDIGVEHVTFFIYNKIVDEPEEHVQIHTIDGSSGVVNPVMEPIYDEPTTTTSVPL"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=26164&to=26391) 26164..26391

/gene="E"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=26164&to=26391) 26164..26391

/gene="E"

/codon\_start=1

/product="envelope protein"

/protein\_id="[UMB22498.1](https://www.ncbi.nlm.nih.gov/protein/2200867192)"

/translation="MYSFVSEEIGTLIVNSVLLFLAFVVFLLVTLAILTALRLCAYCC

NIVNVSLVKPSFYVYSRIKNLNSSRVPDLLV"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=26442&to=27110) 26442..27110

/gene="M"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=26442&to=27110) 26442..27110

/gene="M"

/codon\_start=1

/product="membrane glycoprotein"

/protein\_id="[UMB22499.1](https://www.ncbi.nlm.nih.gov/protein/2200867193)"

/translation="MADSNGTITVEELKKLLEEWNLVIGFLFLTWICLLQFAYANRNR

FLYIIKLIFLWLLWPVTLTCFVLAAVYRINWITGGIAIAMACLVGLMWLSYFIASFRL

FARTRSMWSFNPETNILLNVPLHGTILTRPLLESELVIGAVILRGHLRIAGHHLGRCD

IKDLPKEITVATSRTLSYYKLGASQRVAGDSGFAAYSRYRIGNYKLNTDHSSSSDNIA

LLVQ"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=27121&to=27306) 27121..27306

/gene="ORF6"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=27121&to=27306) 27121..27306

/gene="ORF6"

/codon\_start=1

/product="ORF6 protein"

/protein\_id="[UMB22500.1](https://www.ncbi.nlm.nih.gov/protein/2200867194)"

/translation="MFHLVDFQVTIAEILLIIMRTFKVSIWNLDYIINLIIKNLSKSL

TENKYSQLDEEQPMEIL"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=27313&to=27678) 27313..27678

/gene="ORF7a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=27313&to=27678) 27313..27678

/gene="ORF7a"

/codon\_start=1

/product="ORF7a protein"

/protein\_id="[UMB22501.1](https://www.ncbi.nlm.nih.gov/protein/2200867195)"

/translation="MKIILFLALITLATCELYHYQECVRGTTVLLKESCSSGTYEGNS

PFHPLADNKFALTCFSTQFAFACPDGVKHVYQLRARSVSPKLFIRQEEVQELYSPIFL

IVAAIVFITLCFTLKRKTE"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=27675&to=27806) 27675..27806

/gene="ORF7b"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=27675&to=27806) 27675..27806

/gene="ORF7b"

/codon\_start=1

/product="ORF7b"

/protein\_id="[UMB22502.1](https://www.ncbi.nlm.nih.gov/protein/2200867196)"

/translation="MIELSLIDFYLCFLAFLLFLVLIMLIIFWFSLELQDHNETCHA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=27813&to=28178) 27813..28178

/gene="ORF8"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=27813&to=28178) 27813..28178

/gene="ORF8"

/codon\_start=1

/product="ORF8 protein"

/protein\_id="[UMB22503.1](https://www.ncbi.nlm.nih.gov/protein/2200867197)"

/translation="MKFLVFLGIITTVAAFHQECSLQSCTQHQPYVVDDPCPIHFYSK

WYIRVGARKSAPLIELCVDEAGSKSPIQYIDIGNYTVSCLPFTINCQEPKLGSLVVRC

SFYEDFLEYHDVRVVLDFI"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=28193&to=29443) 28193..29443

/gene="N"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=28193&to=29443) 28193..29443

/gene="N"

/codon\_start=1

/product="nucleocapsid phosphoprotein"

/protein\_id="[UMB22504.1](https://www.ncbi.nlm.nih.gov/protein/2200867198)"

/translation="MSDNGPQNQRNALRITFGGPSDSTGSNQNGGARSKQRRPQGLPN

NTASWFTALTQHGKEDLKFPRGQGVPINTNSSPDDQIGYYRRATRRIRGGDGKMKDLS

PRWYFYYLGTGPEAGLPYGANKDGIIWVATEGALNTPKDHIGTRNPANNAAIVLQLPQ

GTTLPKGFYAEGSRGGSQASSRSSSRSRNSSRNSTPGSSKRTSPARMAGNGGDAALAL

LLLDRLNQLESKMSGKGQQQQGQTVTKKSAAEASKKPRQKRTATKAYNVTQAFGRRGP

EQTQGNFGDQELIRQGTDYKHWPQIAQFAPSASAFFGMSRIGMEVTPSGTWLTYTGAI

KLDDKDPNFKDQVILLNKHIDAYKTFPPTEPKKDKKKKADETQALPQRQKKQQTVTLL

PAADLDDFSKQLQQSMSRADSTQA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=29468&to=29584) 29468..29584

/gene="ORF10"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=29468&to=29584) 29468..29584

/gene="ORF10"

/codon\_start=1

/product="ORF10 protein"

/protein\_id="[UMB22505.1](https://www.ncbi.nlm.nih.gov/protein/2200867199)"

/translation="MGYINVFAFPFTIYSLLLCRMNSRNYIAQVDVVNFNLT"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=29519&to=29554) 29519..29554

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=29539&to=29567) 29539..29567

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?from=29638&to=29643) 29638..>29643

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

ORIGIN

1 agatctgttc tctaaacgaa ctttaaaatc tgtgtggctg tcactcggct gcatgcttag

61 tgcactcacg cagtataatt aataactaat tactgtcgtt gacaggacac gagtaactcg

121 tctatcttct gcaggctgct tacggtttcg tccgtgttgc agccgatcat cagcacatct

181 aggttttgtc cgggtgtgac cgaaaggtaa gatggagagc cttgtccctg gtttcaacga

241 gaaaacacac gtccaactca gtttgcctgt tttacaggtt cgcgacgtgc tcgtacgtgg

301 ctttggagac tccgtggagg aggtcttatc agaggcacgt caacatctta aagatggcac

361 ttgtggctta gtagaagttg aaaaaggcgt tttgcctcaa cttgaacagc cctatgtgtt

421 catcaaacgt tcggatgctc gaactgcacc tcatggtcat gttatggttg agctggtagc

481 agaactcgaa ggcattcagt acggtcgtag tggtgagaca cttggtgtcc ttgtccctca

541 tgtgggcgaa ataccagtgg cttaccgcaa ggttcttctt cgtaagaacg gtaataaagg

601 agctggtggc catagntacg gcgccgatct agacttaggc gacgagcttg gcactgatcc

661 ttatgaagat tttcaagaaa actggaacac taaacatagc agtggtgtta cccgtgaact

721 catgcgtgag cttaacggag gggcatacac tcgctatgtc gataacaact tctgtggccc

781 tgatggctac cctcttgagt gcattaaaga ccttctagca cgtgctggta aagcttcatg

841 cactttgtcc gaacaactgg actttattga cactaagagg ggtgtatact gctgccgtga

901 acatgagcat gaaattgctt ggtacacgga acgttctgaa aagagctatg aattgcagac

961 accttttgaa attaaattgg caaagaaatt tgacaccttc aatggggaat gtccaaattt

1021 tgtatttccc ttaaattcca taatcaagac tattcaacca agggttgaaa agaaaaagct

1081 tgatggcttt atgggtagaa ttcgatctgt ctatccagtt gcgtcaccaa atgaatgcaa

1141 ccaaatgtgc ctttcaactc tcatgaagtg tgatcattgt ggtgaaactt catggcagac

1201 gggcgatttt gttaaagcca cttgcgaatt ttgtggcact gagaatttga ctaaagaagg

1261 tgccactact tgtggttact taccccaaaa tgctgttgtt aaaatttatt gtccagcatg

1321 tcacaattca gaagtaggac ctgagcatag tcttgccgaa taccataatg aatctggctt

1381 gaaaaccatt cttcgtaagg gtggtcgcac tattgccttt ggaggctgtg tgttctctta

1441 tgttggttgc cataacaagt gtgcctattg ggttccacgt gctagcgcta acataggttg

1501 taaccataca ggtgttgttg gagaaggttc cgaaggtctt aatgacaacc ttcttgaaat

1561 actccaaaaa gagaaagtca acatcaatat tgttggtgac tttaaactta atgaagagat

1621 cgccattatt ttggcatctt tttctgcttc cacaagtgct tttgtggaaa ctgtgaaagg

1681 tttggattat aaagcattca aacaaattgt tgaatcctgt ggtaatttta aagttacaaa

1741 aggaaaagct aaaaaaggtg cctggaatat tggtgaacag aaatcaatac tgagtcctct

1801 ttatgcattt gcatcagagg ctgctcgtgt tgtacgatca attttctccc gcactcttga

1861 aactgctcaa aattctgtgc gtgttttaca gaaggccgct ataacaatac tagatggaat

1921 ttcacagtat tcactgagac tcattgatgc tatgatgttc acatctgatt tggctactaa

1981 caatctagtt gtaatggcct acattacagg tggtgttgtt cagttgactt cgcagtggct

2041 aactaacatc tttggcactg tttatgaaaa actcaaaccc gtccttgatt ggcttgaaga

2101 gaagtttaag gaaggtgtag agtttcttag agacggttgg gaaattgtta aatttatctc

2161 aacctgtgct tgtgaaattg tcggtggaca aattgtcacc tgtgcaaagg aaattaagga

2221 gagtgttcag acattcttta agcttgtaaa taaatttttg gctttgtgtg ctgactctat

2281 cattattggt ggagctaaac ttaaagcctt gaatttaggt gaaacatttg tcacgcactc

2341 aaagggattg tacagaaagt gtgttaaatc cagagaagaa actggcctac tcatgcctct

2401 aaaagcccca aaagaaatta tcttcttaga gggagaaaca cttcccacag aagtgttaac

2461 agaggaagtt gtcttgaaaa ctggtgattt acaaccatta gaacaaccta ctagtgaagc

2521 tgttgaagct ccattggttg gtacaccagt ttgtattaac gggcttatgt tgctcgaaat

2581 caaagacaca gaaaagtact gtgcccttgc acctaatatg atggtaacaa acaatacctt

2641 cacactcaaa ggcggtgcac caacaaaggt tacttttggt gatgacactg tgatagaagt

2701 gcaaggttac aagagtgtga atatcatttt tgaacttgat gaaaggattg ataaagtact

2761 taatgagaag tgctctgcct atacagttga actcggtaca gaagtaaatg agttcgcctg

2821 tgttgtggca gatgctgtca taaaaacttt gcaaccagta tctgaattac ttacaccact

2881 gggcattgat ttagatgagt ggagtatggc tacatactac ttatttgatg agtctggtga

2941 gtttaaattg gcttcacata tgtattgttc tttttaccct ccagatgagg atgaagaaga

3001 aggtgattgt gaagaagaag agtttgagcc atcaactcaa tatgagtatg gtactgaaga

3061 tgattaccaa ggtaaacctt tggaatttgg tgccacttct gctgctcttc aacctgaaga

3121 agagcaagaa gaagattggt tagatgatga tagtcaacaa actgttggtc aacaagacgg

3181 cagtgaggac aatcagacaa ctactattca aacaattgtt gaggttcaac ctcaattaga

3241 gatggaactt acaccagttg ttcagactat tgaagtgaat agttttagtg gttatttaaa

3301 acttactgac aatgtataca ttaaaaatgc agacattgtg gaagaagcta aaaaggtaaa

3361 accaacagtg gttgttaatg cagccaatgt ttaccttaaa catggaggag gtgttgcagg

3421 agccttaaat aaggctacta acaatgccat gcaagttgaa tctgatgatt acatagctac

3481 taatggacca cttaaagtgg gtggtagttg tgttttaagc ggacacaatc ttgctaaaca

3541 ctgtcttcat gttgtcggcc caaatgttaa caaaggtgaa gacattcaac ttcttaagag

3601 tgcttatgaa aattttaatc agcacgaagt tctacttgca ccattattat cagctggtat

3661 ttttggtgct gaccctatac attctttaag agtttgtgta gatactgttc gcacaaatgt

3721 ctacttagct gtctttgata aaaatctcta tgacaaactt gtttcaagct ttttggaaat

3781 gaagagtgaa aagcaagttg aacaaaagat cgctgagatt cctaaagagg aagttaagcc

3841 atttataact gaaagtaaac cttcagttga acagagaaaa caagatgata agaaaatcaa

3901 agcttgtgtt gaagaagtta caacaactct ggaagaaact aagttcctca cagaaaactt

3961 gttactttat attgacatta atggcaatct tcatccagat tctgccactc ttgttagtga

4021 cattgacatc actttcttaa agaaagatgc tccatatata gtgggtgatg ttgttcaaga

4081 gggtgtttta actgctgtgg ttatacctac taaaaaggct agtggcacta ctgaaatgct

4141 agcgaaagct ttgagaaaag tgccaacaga caattatata accacttacc cgggtcaggg

4201 tttaaatggt tacactgtag aggaggcaaa gacagtgctt aaaaagtgta aaagtgcttt

4261 ttacattcta ccatctatta tctctaatga gaagcaagaa attcttggaa ctgtttcttg

4321 gaatttgcga gaaatgcttg cacatgcaga agaaacacgc aaattaatgc ctgtctgtgt

4381 ggaaactaaa gccatagttt caactataca gcgtaaatat aagggtatta aaatacaaga

4441 gggtgtggtt gattatggtg ctagatttta cttttacacc agtaaaacaa ctgtagcgtc

4501 acttatcaac acacttaacg atctaaatga aactcttgtt acaatgccac ttggctatgt

4561 aacacatggc ttaaatttgg aagaagctgc tcggtatatg agatctctca aagtgccagc

4621 tacagtttct gtttcttcac ctgatgctgt tacagcgtat aatggttatc ttacttcttc

4681 ttctaaaaca cctgaagaac attttattga aaccatctca cttgctggtt cctataaaga

4741 ttggtcctat tctggacaat ctacacaact aggtatagaa tttcttaaga gaggtgataa

4801 aagtgtatat tacactagta atcctaccac attccaccta gatggtgaag ttatcacctt

4861 tgacaatctt aagacacttc tttctttgag agaagtgagg actattaagg tgtttacaac

4921 agtagacaac attaacctcc acacgcaagt tgtggacatg tcaatgacat atggacaaca

4981 gtttggtcca acttatttgg atggagctga tgttactaaa ataaaacctc ataattcaca

5041 tgaaggtaaa acattttatg ttttacctaa tgatgacact ctacgtgttg aggcttttga

5101 gtactaccac acaactgatc ctagttttct gggtaggtac atgtcagcat taaatcacac

5161 taaaaagtgg aaatacccac aagttaatgg tttaacttct attaaatggg cagataacaa

5221 ctgttatctt gccactgcat tgttaacact ccaacaaata gagttgaagt ttaatccacc

5281 tgctctacaa gatgcttatt acagagcaag ggctggtgaa gctgctaact tttgtgcact

5341 tatcttagcc tactgtaata agacagtagg tgagttaggt gatgttagag aaacaatgag

5401 ttacttgttt caacatgcca atttagattc ttgcaaaaga gtcttgaacg tggtgtgtaa

5461 aacttgtgga caacagcaga caacccttaa gggtgtagaa gctgttatgt acatgggcac

5521 actttcttat gaacaattta agaaaggtgt tcagatacct tgtacgtgtg gtaaacaagc

5581 tacaaaatat ctagtacaac aggagtcacc ttttgttatg atgtcagcac cacctgctca

5641 gtatgaactt aagcatggta catttacttg tgctagtgag tacactggta attaccagtg

5701 tggtcactat aaacatataa cttctaaaga aactttgtat tgcatagacg gtgctttact

5761 tacaaagtcc tcagaataca aaggtcctat tacggatgtt ttctacaaag aaaacagtta

5821 cacaacaacc ataaaaccag ttacttataa attggatggt gttgtttgta cagaaattga

5881 ccctaagttg gacaattatt ataagaaaga caattcttat ttcacagagc aaccaattga

5941 tcttgtacca aaccaaccat atccaaacgc aagcttcgat aattttaagt ttgtatgtga

6001 taatatcaaa tttgctgatg atttaaacca gttaactggt tataagaaac ctgcttcaag

6061 agagcttaaa gttacatttt tccctgactt aaatggtgat gtggtggcta ttgattataa

6121 acactacaca ccctctttta agaaaggagc taaattgtta cataaaccta ttgtttggca

6181 tgttaacaat gcaactaata aagccacgta taaaccaaat acctggtgta tacgttgtct

6241 ttggagcaca aaaccagttg aaacatcaaa ttcgtttgat gtactgaagt cagaggacgc

6301 gcagggaatg gataatcttg cctgcgaaga tctaaaacca gtctctgaag aagtagtgga

6361 aaatcctacc atacagaaag acgttcttga gtgtaatgtg aaaactaccg aagttgtagg

6421 agacattata cttaaaccag caaataatag tttaaaaatt acagaagagg ttggccacac

6481 agatctaatg gctgcttatg tagacaattc tagtcttact attaagaaac ctaatgaatt

6541 atctagagta ttaggtttga aaacccttgc tactcatggt ttagctgctg ttaatagtgt

6601 cccttgggat actatagcta attatgctaa gccttttctt aacaaagttg ttagtacaac

6661 tactaacata gttacacggt gtttaaaccg tgtttgtact aattatatgc cttatttctt

6721 tactttattg ctacaattgt gtacttttac tagaagtaca aattctagaa ttaaagcatc

6781 tatgccgact actatagcaa agaatactgt taagagtgtc ggtaaatttt gtctagaggc

6841 ttcatttaat tatttgaagt cacctaattt ttctaaactg ataaatatta taatttggtt

6901 tttactatta agtgtttgcc taggttcttt aatctactca accgctgctt taggtgtttt

6961 aatgtctaat ttaggcatgc cttcttactg tactggttac agagaaggct atttgaactc

7021 tactaatgtc actattgcaa cctactgtac tggttctata ccttgtagtg tttgtcttag

7081 tggtttagat tctttagaca cctatccttc tttagaaact atacaaatta ccatttcatc

7141 ttttaaatgg gatttaactg cttttggctt agttgcagag tggtttttgg catatattct

7201 tttcactagg tttttctatg tacttggatt ggctgcaatc atgcaattgt ttttcagcta

7261 ttttgcagta cattttatta gtaattcttg gcttatgtgg ttaataatta atcttgtaca

7321 aatggccccg atttcagcta tggttagaat gtacatcttc tttgcatcat tttattatgt

7381 atggaaaagt tatgtgcatg ttgtagacgg ttgtaattca tcaacttgta tgatgtgtta

7441 caaacgtaat agagcaacaa gagtcgaatg tacaactatt gttaatggtg ttagaaggtc

7501 cttttatgtc tatgctaatg gaggtaaagg cttttgtaaa ctacacaatt ggaattgtgt

7561 taattgtgat acattctgtg ctggtagtac atttattagt gatgaagttg cgagagactt

7621 gtcactacag tttaaaagac caataaatcc tactgaccag tcttcttaca tcgttgatag

7681 tgttacagtg aagaatggtt ccatccatct ttactttgat aaagctggtc aaaagactta

7741 tgaaagacat tctctctctc attttgttaa cttagacaac ctgagagcta ataacactaa

7801 aggttcattg cctattaatg ttatagtttt tgatggtaaa tcaaaatgtg aagaatcatc

7861 tgcaaaatca gcgtctgttt actacagtca gcttatgtgt caacctatac tgttactaga

7921 tcaggcatta gtgtctgatg ttggtgatag tgcggaagtt gcagttaaaa tgtttgatgc

7981 ttacgttaat acgttttcat caacttttaa cgtaccaatg gaaaaactca aaacactagt

8041 tgcaactgca gaagctgaac ttgcaaagaa tgtgtcctta gacaatgtct tatctacttt

8101 tatttcagca gctcggcaag ggtttgttga ttcagatgta gaaactaaag atgttgttga

8161 atgtcttaaa ttgtcacatc aatctgacat agaagttact ggcgatagtt gtaataacta

8221 tatgctcacc tataacaaag ttgaaaacat gacaccccgt gaccttggtg cttgtattga

8281 ctgtagtgcg cgtcatatta atgcgcaggt agcaaaaagt cacaacattg ctttgatatg

8341 gaacgttaaa gatttcatgt cattgtctga acaactacga aaacaaatac gtagtgctgc

8401 taaaaagaat aacttacctt ttaagttgac atgtgcaact actagacaag ttgttaatgt

8461 tgtaacaaca aagatagcac ttaagggtgg taaaattgtt aataattggt tgaagcagtt

8521 aattaaagtt acacttgtgt tcctttttgt tgctgctatt ttctatttaa taacacctgt

8581 tcatgtcatg tctaaacata ctgacttttc aagtgaaatc ataggataca aggctattga

8641 tggtggtgtc actcgtgaca tagcatctac agatacttgt tttgctaaca aacatgctga

8701 ttttgacaca tggtttagcc agcgtggtgg tagttatact aatgacaaag cttgcccatt

8761 gattgctgca gtcataacaa gagaagtggg ttttgtcgtg cctggtttgc ctggcacgat

8821 attacgcaca actaatggtg actttttgca tttcttacct agagttttta gtgcagttgg

8881 taacatctgt tacacaccat caaaacttat agagtacact gactttgcaa catcagcttg

8941 tgttttggct gctgaatgta caatttttaa agatgcttct ggtaagccag taccatattg

9001 ttatgatacc aatgtactag aaggttctgt tgcttatgaa agtttacgcc ctgacacacg

9061 ttatgtgctc atggatggct ctattattca atttcctaac acctaccttg aaggttctgt

9121 tagagtggta acaacttttg attctgagta ctgtaggcac ggcacttgtg aaagatcaga

9181 agctggtgtt tgtgtatcta ctagtggtag atgggtactt aacaatgatt attacagatc

9241 tttaccagga gttttctgtg gtgtagatgc tgtaaattta tttactaata tgtttacacc

9301 actaattcaa cctattggtg ctttggacat atcagcatct atagtagctg gtggtattgt

9361 ggctatcgta gtaacatgcc ttgcctacta ttttatgagg tttagaagag cttttggtga

9421 atacagtcat gtagttgcct ttaatacttt actattcctt atgtcattca ttgtactctg

9481 tttaacacca gtttactcat tcttacctgg tgtttattct gttatttact tgtacttgac

9541 attttatctt actaatgatg tttctttttt agcacatatt cagtggatgg ttatgttcac

9601 acctttagta cctttctgga taacaattgc ttatatcatt tgtatttcca caaagcattt

9661 ctattggttc tttagtaatt acctaaagag acgtgtagtc tttaatggtg tttcctttag

9721 tacttttgaa gaagctgcgc tgtgcacctt tttgttaaat aaagaaatgt atctaaagtt

9781 gcgtagtgat gtgctattac cttttacgca atataataga tacttagctc tttataataa

9841 gtacaagtat tttagtggag caatggatac aactagctac agagaagctg cttgttgtca

9901 tctcgcaaag gctctcaatg acttcagtaa ctcaggttct gatgttcttt accaaccacc

9961 acaaatctct atcacctcag ctgttttgca gagtggtttt agaaaaatgg cattcccatc

10021 tggtaaagtt gagggttgta tggtacaagt aacttgtggt acaactacac ttaacggtct

10081 ttggcttgat gacgtagttt actgtccaag acatgtgatc tgcacctctg aagatatgct

10141 taaccctaat tatgaagatt tactcattcg taagtctaat cataatttct tggtacaggc

10201 tggtaatgtt caactcaggg ttattggaca ttctatgcaa aattgtgtac ttaagcttaa

10261 ggttgataca gccaatccta agacacctaa gtataagttt gttcgcattc aaccaggaca

10321 gactttttca gtgttagctt gttacaatgg ttcaccatct ggtgtttacc aatgtgctat

10381 gagacacaat ttcactatta agggttcatt ccttaatggt tcatgtggta gtgttggttt

10441 taacatagat tatgactgtg tctctttttg ttacatgcac catatggaat taccaactgg

10501 agttcatgct ggcacagact tagaaggtaa cttttatgga ccttttgttg acaggcaaac

10561 agcacaagca gctggtacgg acacaactat tacagttaat gttttagctt ggttgtacgc

10621 tgctgttata aatggagaca ggtggtttct caatcgattt accacaactc ttaatgactt

10681 taaccttgtg gctatgaagt acaattatga acctctaaca caagaccatg ttgacatact

10741 aggacctctt tctgctcaaa ctggaattgc cgttttagat atgtgtgctt cattaaaaga

10801 attactgcaa aatggtatga atggacgtac catattgggt agtgctttat tagaagatga

10861 atttacacct tttgatgttg ttagacaatg ctcaggtgtt actttccaaa gtgcagtgaa

10921 aagaacaatc aagggtacac accactggtt gttactcaca attttgactt cacttttagt

10981 tttagtccag agtactcaat ggtctttgtt cttttttttg tatgaaaatg cctttttacc

11041 ttttgctatg ggtattattg ctatgtctgc ttttgcaatg atgtttgtca aacataagca

11101 tgcatttctc tgtttgtttt tgttaccttc tcttgccact gtagcttatt ttaatatggt

11161 ctatatgcct gctagttggg tgatgcgtat tatgacatgg ttggatatgg ttgatactag

11221 tttgaagcta aaagactgtg ttatgtatgc atcagctgta gtgttactaa tccttatgac

11281 agcaagaact gtgtatgatg atggtgctag gagagtgtgg acacttatga atgtcttgac

11341 actcgtttat aaagtttatt atggtaatgc tttagatcaa gccatttcca tgtgggctct

11401 tataatctct gttacttcta actactcagg tgtagttaca actgtcatgt ttttggccag

11461 aggtattgtt tttatgtgtg ttgagtattg ccctattttc ttcataactg gtaatacact

11521 tcagtgtata atgctagttt attgtttctt aggctatttt tgtacttgtt actttggcct

11581 cttttgttta ctcaaccgct actttagact gactcttggt gtttatgatt acttagtttc

11641 tacacaggag tttagatata tgaattcaca gggactactc ccacccaaga atagcataga

11701 tgccttcaaa ctcaacatta aattgttggg tgttggtggc aaaccttgta tcaaagtagc

11761 cactgtacag tctaaaatgt cagatgtaaa gtgcacatca gtagtcttac tctcagtttt

11821 gcaacaactc agagtagaat catcatctaa attgtgggct caatgtgtcc agttacacaa

11881 tgacattctc ttagctaaag atactactga agcctttgaa aaaatggttt cactactttc

11941 tgttttgctt tccatgcagg gtgctgtaga cataaacaag ctttgtgaag aaatgctgga

12001 caacagggca accttacaag ctatagcctc agagtttagt tcccttccat catatgcagc

12061 ttttgctact gctcaagaag cttatgagca ggctgttgct aatggtgatt ctgaagttgt

12121 tcttaaaaag ttgaagaagt ctttgaatgt ggctaaatct gaatttgacc gtgatgcagc

12181 catgcaacgt aagttggaaa agatggctga tcaagctatg acccaaatgt ataaacaggc

12241 tagatctgag gacaagaggg caaaagttac tagtgctatg cagacaatgc ttttcactat

12301 gcttagaaag ttggataatg atgcactcaa caacattatc aacaatgcaa gagatggttg

12361 tgttcccttg aacataatac ctcttacaac agcagccaaa ctaatggttg tcataccaga

12421 ctataacaca tataaaaata cgtgtgatgg tacaacattt acttatgcat cagcattgtg

12481 ggaaatccaa caggttgtag atgcagatag taaaattgtt caacttagtg aaattagtat

12541 ggacaattca cctaatttag catggcctct tattgtaaca gctttaaggg ccaattctgc

12601 tgtcaaatta cagaataatg agcttagtcc tgttgcacta cgacagatgt cttgtgctgc

12661 cggtactaca caaactgctt gcactgatga caatgcgtta gcttactaca acacaacaaa

12721 gggaggtagg tttgtacttg cactgttatc cgatttacag gatttgaaat gggctagatt

12781 ccctaagagt gatggaactg gtactattta tacagaactg gaaccacctt gtaggtttgt

12841 tacagacaca cctaaaggtc ctaaagtgaa gtatttatac tttattaaag gattaaacaa

12901 cctaaataga ggtatggtac ttggtagttt agctgccaca gtacgtctac aagctggtaa

12961 tgcaacagaa gtgcctgcca attcaactgt attatctttc tgtgcttttg ctgtagatgc

13021 tgctaaagct tacaaagatt atctagctag tgggggacaa ccaatcacta attgtgttaa

13081 gatgttgtgt acacacactg gtactggtca ggcaataaca gttacaccgg aagccaatat

13141 ggatcaagaa tcctttggtg gtgcatcgtg ttgtctgtac tgccgttgcc acatagatca

13201 tccaaatcct aaaggatttt gtgacttaaa aggtaagtat gtacaaatac ctacaacttg

13261 tgctaatgac cctgtgggtt ttacacttaa aaacacagtc tgtaccgtct gcggtatgtg

13321 gaaaggttat ggctgtagtt gtgatcaact ccgcgaaccc atgcttcagt cagctgatgc

13381 acaatcgttt ttaaacgggt ttgcggtgta agtgcagccc gtcttacacc gtgcggcaca

13441 ggcactagta ctgatgtcgt atacagggct tttgacatct acaatgataa agtagctggt

13501 tttgctaaat tcctaaaaac taattgttgt cgcttccaag aaaaggacga agatgacaat

13561 ttaattgatt cttactttgt agttaagaga cacactttct ctaactacca acatgaagaa

13621 acaatttata atttacttaa ggattgtcca gctgttgcta aacatgactt ctttaagttt

13681 agaatagacg gtgacatggt accacatata tcacgtcaac gtcttactaa atacacaatg

13741 gcagacctcg tctatgcttt aaggcatttt gatgaaggta attgtgacac attaaaagaa

13801 atacttgtca catacaattg ttgtgatgat gattatttca ataaaaagga ctggtatgat

13861 tttgtagaaa acccagatat attacgcgta tacgccaact taggtgaacg tgtacgccaa

13921 gctttgttaa aaacagtaca attctgtgat gccatgcgaa atgctggtat tgttggtgta

13981 ctgacattag ataatcaaga tctcaatggt aactggtatg atttcggtga tttcatacaa

14041 accacgccag gtagtggagt tcctgttgta gattcttatt attcattgtt aatgcctata

14101 ttaaccttga ccagggcttt aactgcagag tcacatgttg acactgactt aacaaagcct

14161 tacattaagt gggatttgtt aaaatatgac ttcacggaag agaggttaaa actctttgac

14221 cgttatttta aatattggga tcagacatac cacccaaatt gtgttaactg tttggatgac

14281 agatgcattc tgcattgtgc aaactttaat gttttattct ctacagtgtt cccacttaca

14341 agttttggac cactagtgag aaaaatattt gttgatggtg ttccatttgt agtttcaact

14401 ggataccact tcagagagct aggtgttgta cataatcagg atgtaaactt acatagctct

14461 agacttagtt ttaaggaatt acttgtgtat gctgctgacc ctgctatgca cgctgcttct

14521 ggtaatctat tactagataa acgcactacg tgcttttcag tagctgcact tactaacaat

14581 gttgcttttc aaactgtcaa acccggtaat tttaacaaag acttctatga ctttgctgtg

14641 tctaagggtt tctttaagga aggaagttct gttgaattaa aacacttctt ctttgctcag

14701 gatggtaatg ctgctatcag cgattatgac tactatcgtt ataatctacc aacaatgtgt

14761 gatatcagac aactactatt tgtagttgaa gttgttgata agtactttga ttgttacgat

14821 ggtggctgta ttaatgctaa ccaagtcatc gtcaacaacc tagacaaatc agctggtttt

14881 ccatttaata aatggggtaa ggctagactt tattatgatt caatgagtta tgaggatcaa

14941 gatgcacttt tcgcatatac aaaacgtaat gtcatcccta ctataactca aatgaatctt

15001 aagtatgcca ttagtgcaaa gaatagagct cgcaccgtag ctggtgtctc tatctgtagt

15061 actatgacca atagacagtt tcatcaaaaa ttattgaaat caatagccgc cactagagga

15121 gctactgtag taattggaac aagcaaattc tatggtggtt ggcacaacat gttaaaaact

15181 gtttatagtg atgtagaaaa ccctcacctt atgggttggg attatcctaa atgtgataga

15241 gccatgccta acatgcttag aattatggcc tcacttgttc ttgctcgcaa acatacaacg

15301 tgttgtagct tgtcacaccg tttctataga ttagctaatg agtgtgctca agtattgagt

15361 gaaatggtca tgtgtggcgg ttcactatat gttaaaccag gtggaacctc atcaggagat

15421 gccacaactg cttatgctaa tagtgttttt aacatttgtc aagctgtcac ggccaatgtt

15481 aatgcacttt tatctactga tggtaacaaa attgccgata agtatgtccg caatttacaa

15541 cacagacttt atgagtgtct ctatagaaat agagatgttg acacagactt tgtgaatgag

15601 ttttacgcat atttgcgtaa acatttctca atgatgatac tttctgacga tgctgttgtg

15661 tgtttcaata gcacttatgc atctcaaggt ctagtggcta gcataaagaa ctttaagtca

15721 gttctttatt atcaaaacaa tgtttttatg tctgaagcaa aatgttggac tgagactgac

15781 cttactaaag gacctcatga attttgctct caacatacaa tgctagttaa acagggtgat

15841 gattatgtgt accttcctta cccagatcca tcaagaatcc taggggccgg ctgttttgta

15901 gatgatatcg taaaaacaga tggtacactt atgattgaac ggttcgtgtc tttagctata

15961 gatgcttacc cacttactaa acatcctaat caggagtatg ctgatgtctt tcatttgtac

16021 ttacaataca taagaaagct acatgatgag ttaacaggac acatgttaga catgtattct

16081 gttatgctta ctaatgataa cacttcaagg tattgggaac ctgagtttta tgaggctatg

16141 tacacaccgc atacagtctt acaggctgtt ggggcttgtg ttctttgcaa ttcacagact

16201 tcattaagat gtggtgcttg catacgtaga ccattcttat gttgtaaatg ctgttacgac

16261 catgtcatat caacatcaca taaattagtc ttgtctgtta atccgtatgt ttgcaatgct

16321 ccaggttgtg atgtcacaga tgtgactcaa ctttacttag gaggtatgag ctattattgt

16381 aaatcacata aaccacccat tagttttcca ttgtgtgcta atggacaagt ttttggttta

16441 tataaaaata catgtgttgg tagcgataat gttactgact ttaatgcaat tgcaacatgt

16501 gactggacaa atgctggtga ttacatttta gctaacacct gtactgaaag actcaagctt

16561 tttgcagcag aaacgctcaa agctactgag gagacattta aactgtctta tggtattgct

16621 actgtacgtg aagtgctgtc tgacagagaa ttacatcttt catgggaagt tggtaaacct

16681 agaccaccac ttaaccgaaa ttatgtcttt actggttatc gtgtaactaa aaacagtaaa

16741 gtacaaatag gagagtacac ctttgaaaaa ggtgactatg gtgatgctgt tgtttaccga

16801 ggtacaacaa cttacaaatt aaatgttggt gattattttg tgctgacatc acatacagta

16861 atgccattaa gtgcacctac actagtgcca caagagcact atgttagaat tactggctta

16921 tacccaacac tcaatatctc agatgagttt tctagcaatg ttgcaaatta tcaaaaggtt

16981 ggtatgcaaa agtattctac actccaggga ccacctggta ctggtaagag tcattttgct

17041 attggcctag ctctctacta cccttctgct cgcatagtgt atacagcttg ctctcatgcc

17101 gctgttgatg cactatgtga gaaggcatta aaatatttgc ctatagataa atgtagtaga

17161 attatacctg cacgtgctcg tgtagagtgt tttgataaat tcaaagtgaa ttcaacatta

17221 gaacagtatg tcttttgtac tgtaaatgca ttgcctgaga cgacagcaga tatagttgtc

17281 tttgatgaaa tttcaatggc cacaaattat gatttgagtg ttgtcaatgc cagattatgt

17341 gctaagcact atgtgtacat tggcgaccct gctcaattac ctgcaccacg cacattgcta

17401 actaagggca cactagaacc agaatatttc aattcagtgt gtagacttat gaaaactata

17461 ggtccagaca tgttcctcgg aacttgtcgg cgttgtcctg ctgaaattgt tgacactgtg

17521 agtgctttgg tttatgataa taagcttaaa gcacataaag acaaatcagc tcaatgcttt

17581 aaaatgtttt ataagggtgt tatcacgcat gatgtttcat ctgcaattaa caggccacaa

17641 ataggcgtgg taagagaatt ccttacacgt aaccctgctt ggagaaaagc tgtctttatt

17701 tcaccttata attcacagaa tgctgtagcc tcaaagattt tgggactacc aactcaaact

17761 gttgattcat cacagggctc agaatatgac tatgtcatat tcactcaaac cactgaaaca

17821 gctcactctt gtaatgtaaa cagatttaat gttgctatta ccagagcaaa agtaggcata

17881 ctttgcataa tgtctgatag agacctttat gacaagttgc aatttacaag tcttgaaatt

17941 ccacgtagga atgtggcaac tttacaagct gaaaatgtaa caggactctt taaagattgt

18001 agtaaggtaa tcactgggtt acatcctaca caggcaccta cacacctcag tgttgacact

18061 aaattcaaaa ctgaaggttt atgtgttgac gtacctggca tacctaagga catgacctat

18121 agaagactca tctctatgat gggttttaaa atgaattatc aagttaatgg ttaccctaac

18181 atgtttatca cccgcgaaga agctataaga catgtacgtg catggattgg cttcgatgtc

18241 gaggggtgtc atgctactag agaagctgtt ggtaccaatt tacctttaca gctaggtttt

18301 tctacaggtg ttaacctagt tgctgtacct acaggttatg ttgatacacc taataataca

18361 gatttttcca gagttagtgc taaaccaccg cctggagatc aatttaaaca cctcatacca

18421 cttatgtaca aaggacttcc ttggaatgta gtgcgtataa agattgtaca aatgttaagt

18481 gacacactta aaaatctctc tgacagagtc gtatttgtct tatgggcaca tggctttgag

18541 ttgacatcta tgaagtattt tgtgaaaata ggacctgagc gcacctgttg tctatgtgat

18601 agacgtgcca catgcttttc cactgcttca gacacttatg cctgttggca tcattctatt

18661 ggatttgatt acgtctataa tccgtttatg attgatgttc aacaatgggg ttttacaggt

18721 aacctacaaa gcaaccatga tctgtattgt caagtccatg gtaatgcaca tgtagctagt

18781 tgtgatgcaa tcatgactag gtgtctagct gtccacgagt gctttgttaa gcgtgttgac

18841 tggactattg aatatcctat aattggtgat gaactgaaga ttaatgcggc ttgtagaaag

18901 gttcaacaca tggttgttaa agctgcatta ttagcagaca aattcccagt tcttcacgac

18961 attggtaacc ctaaagctat taagtgtgta cctcaagctg atgtagaatg gaagttctat

19021 gatgcacagc cttgtagtga caaagcttat aaaatagaag aattattcta ttcttatgcc

19081 acacattctg acaaattcac agatggtgta tgcctatttt ggaattgcaa tgtcgataga

19141 tatcctgcta attccattgt ttgtagattt gacactagag tgctatctaa ccttaacttg

19201 cctggttgtg atggtggcag tttgtatgta aataaacatg cattccacac accagctttt

19261 gataaaagtg cttttgttaa tttaaaacaa ttaccatttt tctattactc tgacagtcca

19321 tgtgagtctc atggaaaaca agtagtgtca gatatagatt atgtaccact aaagtctgct

19381 acgtgtataa cacgttgcaa tttaggtggt gctgtctgta gacatcatgc taatgagtac

19441 agattgtatc tcgatgctta taacatgatg atctcagctg gctttagctt gtgggtttac

19501 aaacaatttg atacttataa cctctggaac acttttacaa gacttcagag tttagaaaat

19561 gtggctttta atgttgtaaa taagggacac tttgatggac aacagggtga agtaccagtt

19621 tctatcatta ataacactgt ttacacaaaa gttgatggtg ttgatgtaga attgtttgaa

19681 aataaaacaa cattacctgt taatgtagca tttgagcttt gggctaagcg caacattaaa

19741 ccagtaccag aggtgaaaat actcaataat ttgggtgtgg acattgctgc taatactgtg

19801 atctgggact acaaaagaga tgctccagca catatatcta ctattggtgt ttgttctatg

19861 actgacatag ccaagaaacc aattgaaacg atttgtgcac cactcactgt cttttttgat

19921 ggtagagttg atggtcaagt agacttattt agaaatgccc gtaatggtgt tcttattaca

19981 gagggtagtg ttaaaggttt acaaccatct gtaggtccca aacaagctag tcttaatgga

20041 gtcacattaa ttggagaagc cgtaaaaaca cagttcaatt attataagaa agttgatggt

20101 gttgtccaac aattacctga aacttacttt actcagagta gaaatttaca agaatttaaa

20161 cccaggagtc aaatggaaat tgatttctta gaattagcta tggatgaatt cattgaacgg

20221 tataaattag aaggctatgc cttcgaacat atcgtttatg gagattttag tcatagtcag

20281 ttaggtggtt tacatctact gattggacta gctaaacgtt ttaaggaatc accttttgaa

20341 ttagaagatt ttattcctat ggacagtaca gttaaaaact atttcataac agatgcgcaa

20401 acaggttcat ctaagtgtgt gtgttctgtt attgatttat tacttgatga ttttgttgaa

20461 ataataaaat cccaagattt atctgtagtt tctaaggttg tcaaagtgac tattgactat

20521 acagaaattt catttatgct ttggtgtaaa gatggccatg tagaaacatt ttacccaaaa

20581 ttacaatcta gtcaagcgtg gcaa

[gap 886 bp] [Expand Ns](https://www.ncbi.nlm.nih.gov/nuccore/OM863926.1?expand-gaps=on)

21491 atgtttgttt ttcttgtttt attgccacta gtctctagtc agtgtgttaa

21541 tcttacaacc agaactcaat catacactaa ttctttcaca cgtggtgttt attaccctga

21601 caaagttttc agatcctcag ttttacattc aactcaggac ttgttcttac ctttcttttc

21661 caatgttact tggttccatg ctatacatgt ctctgggacc aatggtacta agaggtttga

21721 taaccctgtc ctaccattta atgatggtgt ttattttgct tccactgaga agtctaacat

21781 aataagaggc tggatttttg gtactacttt agattcgaag acccagtccc tacttattgt

21841 taataacgct actaatgttg ttattaaagt ctgtgaattt caattttgta atgatccatt

21901 tttggatgtt tattaccaca aaaacaacaa aagttggatg gaaagtgagt tcagagttta

21961 ttctagtgcg aataattgca cttttgaata tgtctctcag ccttttctta tggaccttga

22021 aggaaaacag ggtaatttca aaaatcttag ggaatttgtg tttaagaata ttgatggtta

22081 ttttaaaata tattctaagc acacgcctat taatttaggg cgtgatctcc ctcagggttt

22141 ttcggcttta gaaccattgg tagatttgcc aataggtatt aacatcacta ggtttcaaac

22201 tttacttgct ttacatagaa gttatttgac tcctggtgat tcttcttcag gttggacagc

22261 tggtgctgca gcttattatg tgggttatct tcaacctagg acttttctat taaaatataa

22321 tgaaaatgga accattacag atgctgtaga ctgtgcactt gaccctctct cagaaacaaa

22381 gtgtacgttg aaatccttca ctgtagaaaa aggaatctat caaacttcta actttagagt

22441 ccaaccaaca gaatctattg ttagatttcc taatattaca aacttgtgcc cttttgatga

22501 agtttttaac gccaccagat ttgcatctgt ttatgcttgg aacaggaaga gaatcagcaa

22561 ctgtgttgct gattattctg tcctatataa tttcgcacca tttttcgctt ttaagtgtta

22621 tggagtgtct cctactaaat taaatgatct ctgctttact aatgtctatg cagattcatt

22681 tgtaattaga ggtaatgaag tcagccaaat cgctccaggg caaactggaa atattgctga

22741 ttataattat aaattaccag atgattttac aggctgcgtt atagcttgga attctaacaa

22801 gcttgattct aaggttggtg gtaattataa ttacctgtat agattgttta ggaagtctaa

22861 tctcaaacct tttgagagag atatttcaac tgaaatctat caggccggta acaaaccttg

22921 taatggtgtt gcaggtttta attgttactt tcctttacga tcatatggtt tccgacccac

22981 ttatggtgtt ggtcaccaac catacagagt agtagtactt tcttttgaac ttctacatgc

23041 accagcaact gtttgtggac ctaaaaagtc tactaatttg gttaaaaaca aatgtgtcaa

23101 tttcaacttc aatggtttaa caggcacagg tgttcttact gagtctaaca aaaagtttct

23161 gcctttccaa caatttggca gagacattgc tgacactact gatgctgtcc gtgatccaca

23221 gacacttgag attcttgaca ttacaccatg ttcttttggt ggtgtcagtg ttataacacc

23281 aggaacaaat acttctaacc aggttgctgt tctttatcag ggtgttaact gcacagaagt

23341 ccctgttgct attcatgcag atcaacttac tcctacttgg cgtgtttatt ctacaggttc

23401 taatgttttt caaacacgtg caggctgttt aataggggct gaatatgtca acaactcata

23461 tgagtgtgac atacccattg gtgcaggtat atgcgctagt tatcagactc agactaagtc

23521 tcatcggcgg gcacgtagtg tagctagtca atccatcatt gcctacacta tgtcacttgg

23581 tgcagaaaat tcagttgctt actctaataa ctctattgcc atacccacaa attttactat

23641 tagtgttacc acagaaattc taccagtgtc tatgaccaag acatcagtag attgtacaat

23701 gtacatttgt ggtgattcaa ctgaatgcag caatcttttg ttgcaatatg gcagtttttg

23761 tacacaatta aaacgtgctt taactggaat agctgttgaa caagacaaaa acacccaaga

23821 agtttttgca caagtcaaac aaatttacaa aacaccacca attaaatatt ttggtggttt

23881 taatttttca caaatattac cagatccatc aaaaccaagc aagaggtcat ttattgaaga

23941 tctacttttc aacaaagtga cacttgcaga tgctggcttc atcaaacaat atggtgattg

24001 ccttggtgat attgctgcta gagacctcat ttgtgcacaa aagtttaacg gccttactgt

24061 tttgccacct ttgctcacag atgaaatgat tgctcaatac acttctgcac tgttagcggg

24121 tacaatcact tctggttgga cctttggtgc aggtgctgca ttacaaatac catttgctat

24181 gcaaatggct tataggttta atggtattgg agttacacag aatgttctct atgagaacca

24241 aaaattgatt gccaaccaat ttaatagtgc tattggcaaa attcaagact cactttcttc

24301 cacagcaagt gcacttggaa aacttcaaga tgtggtcaac cataatgcac aagctttaaa

24361 cacgcttgtt aaacaactta gctccaaatt tggtgcaatt tcaagtgttt taaatgatat

24421 cctttcacgt cttgacaaag ttgaggctga agtgcaaatt gataggttga tcacaggcag

24481 acttcaaagt ttgcagacat atgtgactca acaattaatt agagctgcag aaatcagagc

24541 ttctgctaat cttgctgcta ctaaaatgtc agagtgtgta cttggacaat caaaaagagt

24601 tgatttttgt ggaaagggct atcatcttat gtccttccct cagtcagcac ctcatggtgt

24661 agtcttcttg catgtgactt atgtccctgc acaagaaaag aacttcacaa ctgctcctgc

24721 catttgtcat gatggaaaag cacactttcc tcgtgaaggt gtctttgttt caaatggcac

24781 acactggttt gtaacacaaa ggaattttta tgaaccacaa atcattacta cagacaacac

24841 atttgtgtct ggtaactgtg atgttgtaat aggaattgtc aacaacacag tttatgatcc

24901 tttgcaacct gaattagatt cattcaagga ggagttagat aaatatttta agaatcatac

24961 atcaccagat gttgatttag gtgacatctc tggcattaat gcttcagttg taaacattca

25021 aaaagaaatt gaccgcctca atgaggttgc caagaattta aatgaatctc tcatcgatct

25081 ccaagaactt ggaaagtatg agcagtatat aaaatggcca tggtacattt ggctaggttt

25141 tatagctggc ttgattgcca tagtaatggt gacaattatg ctttgctgta tgaccagttg

25201 ctgtagttgt ctcaagggct gttgttcttg tggatcctgc tgcaaatttg atgaagacga

25261 ctctgagcca gtgctcaaag gagtcaaatt acattacaca taaacgaact tatggatttg

25321 tttatgagaa tcttcacaat tggaactgta actttgaagc aaggtgaaat caaggatgct

25381 actccttcag attttgttcg cgctactgca acgataccga tacaagcctc actccctttc

25441 ggatggctta ttgttggcgt tgcacttctt gctgtttttc agagcgcttc caaaatcata

25501 actctcaaaa agagatggca actagcactc tccaagggtg ttcactttgt ttgcaacttg

25561 ctgttgttgt ttgtaacagt ttactcacac cttttgctcg ttgctgctgg ccttgaagcc

25621 ccttttctct atctttatgc tttagtctac ttcttgcaga gtataaactt tgtaagaata

25681 ataatgaggc tttggctttg ctggaaatgc cgttccaaaa acccattact ttatgatgcc

25741 aactattttc tttgctggca tactaattgt tacgactatt gtatacctta caatagtgta

25801 acttcttcaa ttgtcattac ttcaggtgat ggcacaacaa gtcctatttc tgaacatgac

25861 taccagattg gtggttatac tgaaaaatgg gaatctggag taaaagactg tgttgtatta

25921 cacagttact tcacttcaga ctattaccag ctgtactcaa ctcaattgag tacagacatt

25981 ggtgttgaac atgttacctt cttcatctac aataaaattg ttgatgagcc tgaagaacat

26041 gtccaaattc acacaatcga cggttcatcc ggagttgtta atccagtaat ggaaccaatt

26101 tatgatgaac cgacgacgac tactagcgtg cctttgtaag cacaagctga tgagtacgaa

26161 cttatgtact cattcgtttc ggaagagata ggtacgttaa tagttaatag cgtacttctt

26221 tttcttgctt tcgtggtatt cttgctagtt acactagcca tccttactgc gcttcgattg

26281 tgtgcgtact gctgcaatat tgttaacgtg agtcttgtaa aaccttcttt ttacgtttac

26341 tctcgtatta aaaatctgaa ttcttctaga gttcctgatc ttctggtcta aacgaactaa

26401 atattatatt agtttttctg tttggaactt taattttagc catggcagat tccaacggta

26461 ctattaccgt tgaagagctt aaaaagctcc ttgaagaatg gaacctagta ataggtttcc

26521 tattccttac atggatttgt cttctacaat ttgcctatgc caacaggaat aggtttttgt

26581 atataattaa gttaattttc ctctggctgt tatggccagt aactttaact tgttttgtgc

26641 ttgctgctgt ttacagaata aattggatca ccggtggaat tgctatcgca atggcttgtc

26701 ttgtaggctt gatgtggctc agctacttca ttgcttcttt cagactgttt gcgcgtacgc

26761 gttccatgtg gtcatttaat ccagaaacta acattcttct caacgtgcca ctccatggca

26821 ctattctgac cagaccgctt ctagaaagtg aactcgtaat cggagctgtg atccttcgtg

26881 gacatcttcg tattgctgga caccatctag gacgctgtga catcaaggac ctgcctaaag

26941 aaatcactgt tgctacatca cgaacgcttt cttattacaa attgggagct tcgcagcgtg

27001 tagcaggtga ctcaggtttt gctgcataca gtcgctacag gattggcaac tataaattaa

27061 acacagacca ttccagtagc agtgacaata ttgctttgct tgtacagtaa gtgacaacag

27121 atgtttcatc tcgttgactt tcaggttact atagcagaga tattactaat tattatgcgg

27181 acttttaaag tttccatttg gaatcttgat tacatcataa acctcataat taaaaattta

27241 tctaagtcac taactgagaa taaatattct caattagatg aagagcaacc aatggagatt

27301 ctctaaacga acatgaaaat tattcttttc ttggcactga taacactcgc tacttgtgag

27361 ctttatcact accaagagtg tgttagaggt acaacagtac ttttaaaaga atcttgctct

27421 tctggaacat acgagggcaa ttcaccattt catcctctag ctgataacaa atttgcactg

27481 acttgcttta gcactcaatt tgcttttgct tgtcctgacg gcgtaaaaca cgtctatcag

27541 ttacgtgcca gatcagtttc acctaaactg ttcatcagac aagaggaagt tcaagaactt

27601 tactctccaa tttttcttat tgttgcggca atagtgttta taacactttg cttcacactc

27661 aaaagaaaga cagaatgatt gaactttcat taattgactt ctatttgtgc tttttagcct

27721 ttctgttatt ccttgtttta attatgctta ttatcttttg gttctcactt gaactgcaag

27781 atcataatga aacttgtcac gcctaaacga acatgaaatt tcttgttttc ttaggaatca

27841 tcacaactgt agctgcattt caccaagaat gtagtttaca gtcatgtact caacatcaac

27901 catatgtagt tgatgacccg tgtcctattc acttctattc taaatggtat attagagtag

27961 gagctagaaa atcagcacct ttaattgaat tgtgcgtgga tgaggctggt tctaaatcac

28021 ccattcagta catcgatatc ggtaattata cagtttcctg tttacctttt acaattaatt

28081 gccaggaacc taaattgggt agtcttgtag tgcgttgttc gttctatgaa gactttttag

28141 agtatcatga cgttcgtgtt gttttagatt tcatctaaac gaacaaactt aaatgtctga

28201 taatggaccc caaaatcagc gaaatgcact ccgcattacg tttggtggac cctcagattc

28261 aactggcagt aaccagaatg gtggggcgcg atcaaaacaa cgtcggcccc aaggtttacc

28321 caataatact gcgtcttggt tcaccgctct cactcaacat ggcaaggaag accttaaatt

28381 ccctcgagga caaggcgttc caattaacac caatagcagt ccagatgacc aaattggcta

28441 ctaccgaaga gctaccagac gaattcgtgg tggtgacggt aaaatgaaag atctcagtcc

28501 aagatggtat ttctactacc taggaactgg gccagaagct ggacttccct atggtgctaa

28561 caaagacggc atcatatggg ttgcaactga gggagccttg aatacaccaa aagatcacat

28621 tggcacccgc aatcctgcta acaatgctgc aatcgtgcta caacttcctc aaggaacaac

28681 attgccaaaa ggcttctacg cagaagggag cagaggcggc agtcaagcct cttctcgttc

28741 ctcatcacgt agtcgcaaca gttcaagaaa ttcaactcca ggcagcagta aacgaacttc

28801 tcctgctaga atggctggca atggcggtga tgctgctctt gctttgctgc tgcttgacag

28861 attgaaccag cttgagagca aaatgtctgg taaaggccaa caacaacaag gccaaactgt

28921 cactaagaaa tctgctgctg aggcttctaa gaagcctcgg caaaaacgta ctgccactaa

28981 agcatacaat gtaacacaag ctttcggcag acgtggtcca gaacaaaccc aaggaaattt

29041 tggggaccag gaactaatca gacaaggaac tgattacaaa cattggccgc aaattgcaca

29101 atttgccccc agcgcttcag cgttcttcgg aatgtcgcgc attggcatgg aagtcacacc

29161 ttcgggaacg tggttgacct acacaggtgc catcaaattg gatgacaaag atccaaattt

29221 caaagatcaa gtcattttgc tgaataagca tattgacgca tacaaaacat tcccaccaac

29281 agagcctaaa aaggacaaaa agaagaaggc tgatgaaact caagccttac cgcagagaca

29341 gaagaaacag caaactgtga ctcttcttcc tgctgcagat ttggatgatt tctccaaaca

29401 attgcaacaa tccatgagcc gtgctgactc aactcaggcc taaactcatg cagaccacac

29461 aaggcagatg ggctatataa acgttttcgc ttttccgttt acgatatata gtctactctt

29521 gtgcagaatg aattctcgta actacatagc acaagtagat gtagttaact ttaatctcac

29581 atagcaatct ttaatcagtg tgtaacatta gggaggactt gaaagagcca ccacattttc

29641 acc

//