**Severe acute respiratory syndrome coronavirus 2 isolate SARS-CoV-2/human/USA/NH-CDC-LC0491860/2022 ORF1ab polyprotein (ORF1ab) and ORF1a polyprotein (ORF1ab) genes, partial cds; surface glycoprotein (S), ORF3a protein (ORF3a), envelope protein (E), membrane gl...**

GenBank: OM497172.1

[FASTA](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?report=fasta) [Graphics](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?report=graph)

[Go to:](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1" \l "goto2187765653_0)

LOCUS OM497172 29329 bp RNA linear VRL 03-FEB-2022

DEFINITION Severe acute respiratory syndrome coronavirus 2 isolate

SARS-CoV-2/human/USA/NH-CDC-LC0491860/2022 ORF1ab polyprotein

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

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

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

(ORF7a), ORF7b (ORF7b), ORF8 protein (ORF8), and nucleocapsid

phosphoprotein (N) genes, complete cds; and ORF10 protein (ORF10)

gene, partial cds.

ACCESSION OM497172

VERSION OM497172.1

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

BioSample: [SAMN25532709](https://www.ncbi.nlm.nih.gov/biosample/SAMN25532709)

KEYWORDS purposeofsampling:baselinesurveillance.

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

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

Viruses; Riboviria; Orthornavirae; Pisuviricota; Pisoniviricetes;

Nidovirales; Cornidovirineae; Coronaviridae; Orthocoronavirinae;

Betacoronavirus; Sarbecovirus.

REFERENCE 1 (bases 1 to 29329)

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

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

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

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

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

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

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

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

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

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

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

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

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

MacCannell,D.

TITLE CDC Sars CoV2 Sequencing Baseline Constellation

JOURNAL Unpublished

REFERENCE 2 (bases 1 to 29329)

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

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

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

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

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

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

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

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

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

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

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

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

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

MacCannell,D.

TITLE Direct Submission

JOURNAL Submitted (01-FEB-2022) Respiratory Viruses Branch, Division of

Viral Diseases, Centers for Disease Control and Prevention, 1600

Clifton Rd, Atlanta, GA 30329, USA

COMMENT ##Assembly-Data-START##

Assembly Method :: CLC Genomics

Sequencing Technology :: PacBio Sequel II

##Assembly-Data-END##

FEATURES Location/Qualifiers

source 1..29329

/organism="Severe acute respiratory syndrome coronavirus

2"

/mol\_type="genomic RNA"

/isolate="SARS-CoV-2/human/USA/NH-CDC-LC0491860/2022"

/isolation\_source="Nasal Swabs"

/host="Homo sapiens"

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

/country="USA: New Hampshire"

/collection\_date="2022-01-16"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=1&to=21233) <1..21233

/gene="ORF1ab"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?location=1:13146,13146:21233) join(<1..13146,13146..21233)

/gene="ORF1ab"

/ribosomal\_slippage

/codon\_start=1

/product="ORF1ab polyprotein"

/protein\_id="[UKD91960.1](https://www.ncbi.nlm.nih.gov/protein/2187765654)"

/translation="LSLPVLQVRDVLVRGFGDSVEEVLSEARQHLKDGTCGLVEVEKG

VLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGETLGVLVPHVGEIPVA

YRKVLLRKNGNKGAGGHSYGADLKSFDLGDELGTDPYEDFQENWNTKHSSGVTRELMR

ELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEQLDFIDTKRGVYCCRE

HEHEIAWYTERSEKSYELQTPFEIKLAKKFDTFNGECPNFVFPLNSIIKTIQPRVEKK

KLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTGDFVKATCEFCGTENL

TKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESGLKTILRKGGRTIAFG

GCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNLLEILQKEKVNINIVG

DFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGNFKVTKGKAKKGAWNI

GEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAAITILDGISQYSLRLI

DAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKLKPVLDWLEEKFKEGV

EFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLVNKFLALCADSIIIGG

AKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEIIFLEGETLPTEVLTEE

VVLKTGDLQPLEQPTSEAVEAPLVGTPVCINGLMLLEIKDTEKYCALAPNMMVTNNTF

TLKGGAPTKVTFGDDTVIEVQGYKSVNITFELDERIDKVLNERCSAYTVELGTEVNEF

ACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDESGEFKLASHMYCSFYPPDE

DEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPEEEQEEDWLDDDSQQT

VGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSGYLKLTDNVYIKNADI

VEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESDDYIATNGPLKVGGSC

VLSGHNLAKHCLHVVGPNVNKGEDIQLLKSAYENFNQHEVLLAPLLSAGIFGADPIHS

LRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIAEIPKEEVKPFITESK

PSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGNLHPDSATLVSDIDIT

FLKKDAPYIVGDVVQEGVLTAVVIPTKKAGGTTEMLAKALRKVPTDNYITTYPGQGLN

GYTVEEAKTVLKKCKSAFYILPSIISNEKQEILGTVSWNLREMLAHAEETRKLMPVCV

ETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLINTLNDLNETLVTMPLG

YVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSSKTPEEHFIETISLAG

SYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTTFHLDGEVITFDNLKTLLSLREVRT

IKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPHNSHEGKTFYVLPNDD

TLRVEAFEYYHTTDPSFLGRYMSALNHTKKWKYPQVNGLTSIKWADNNCYLATALLTL

QQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELGDVRETMSYLFQHANL

DSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQIPCTCGKQATKYLVQ

QESPFVMMSAPPAQYELKHGTFTCASEYTGNYQCGHYKHITSKETLYCIDGALLTKSS

EYKGPITDVFYKENSYTTTIKPVTYKLDGVVCTEIDPKLDNYYKKDNSYFTEQPIDLV

PNQPYPNASFDNFKFVCDNIKFADDLNQLTGYKKPASRELKVTFFPDLNGDVVAIDYK

HYTPSFKKGAKLLHKPIVWHVNNATNKATYKPNTWCIRCLWSTKPVETSNSFDVLKSE

DAQGMDNLACEDLKPVSEEVVENPTIQKDVLECNVKTTEVVGDIILKPANNIKITEEV

GHTDLMAAYVDNSSLTIKKPNELSRVLGLKTLATHGLAAVNSVPWDTIANYAKPFLNK

VVSTTTNIVTRCLNRVCTNYMPYFFTLLLQLCTFTRSTNSRIKASMPTTIAKNTVKSV

GKFCLEASFNYLKSPNFSKLINIIIWFLLLSVCLGSLIYSTAALGVLMSNLGMPSYCT

GYREGYLNSTNVTIATYCTGSIPCSVCLSGLDSLDTYPSLETIQITISSFKWDLTAFG

LVAEWFLAYILFTRFFYVLGLAAIMQLFFSYFAVHFISNSWLMWLIINLVQMAPISAM

VRMYIFFASFYYVWKSYVHVVDGCNSSTCMMCYKRNRATRVECTTIVNGVRRSFYVYA

NGGKGFCKLHNWNCVNCDTFCAGSTFISDEVARDLSLQFKRPINPTDQSSYIVDSVTV

KNGSIHLYFDKAGQKTYERHSLSHFVNLDNLRANNTKGSLPINVIVFDGKSKCEESSA

KSASVYYSQLMCQPILLLDQALVSDVGDSAEVAVKMFDAYVNTFSSTFNVPMEKLKTL

VATAEAELAKNVSLDNVLSTFISAARQGFVDSDVETKDVVECLKLSHQSDIEVTGDSC

NNYMLTYNKVENMTPRDLGACIDCSARHINAQVAKSHNITLIWNVKDFMSLSEQLRKQ

IRSAAKKNNLPFKLTCATTRQVVNVVTTKIALKGGKIVNNWXXXXXXXXXXXXXXAAI

FYLITPVHVMSKHTDFSSEIIGYKAIDGGVTRDIASTDTCFANKHADFDTWFSQRGGS

YTNDKACPLIAAVITREVGFVVPGLPGTILRTTNGDFLHFLPRVFSAVGNICYTPSKL

IEYTDFATSACVLAAECTIFKDASGKPVPYCYDTNVLEGSVAYESLRPDTRYVLMDGS

IIQFPNTYLEGSVRVVTTFDSEYCRHGTCERSEAGVCVSTSGRWVLNNDYYRSLPGVF

CGVDAVNLLTNMFTPLIQPIGALDISASIVAGGIVAIVVTCLAYYFMRFRRAFGEYSH

VVAFNTLLFLMSFTVLCLTPVYSFLPGVYSVIYLYLTFYLTNDVSFLAHIQWMVMFTP

LVPFWITIAYIICISTKHFYWFFSNYLKRRVVFNGVSFSTFEEAALCTFLLNKEMYLK

LRSDVLLPLTQYNRYLALYNKYKYFSGAMDTTSYREAACCHLAKALNDFSNSGSDVLY

QPPQISITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNGLWLDDVVYCPRHVICT

SEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVLKLKVDTANPKTPKYKF

VRIQPGQTFSVLACYNGSPSGVYQCAMRHNFTIKGSFLNGSCGSVGFNIDYDCVSFCY

MHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVNVLAWLYAAVINGDRWF

LNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAVLDMCASLKELLQNGMN

GRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHWLLLTILTSLLVLVQST

QWSLFFFLYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFLLPSLATVAYFNMVYMP

ASWVMRIMTWLDMVDTSFKLKDCVMYASAVVLLILMTARTVYDDGARRVWTLMNVLTL

VYKVYYGNALDQAISMWALIISVTSNYSGVVTTVMFLARGVVFMCVEYCPIFFITGNT

LQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYLVSTQEFRYMNSQGLLPPKN

SIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVLLSVLQQLRVESSSKLWAQC

VQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKLCEEMLDNRATLQAIASEFS

SLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAKSEFDRDAAMQRKLEKMADQ

AMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALNNIINNARDGCVPLNIIPLT

TAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDADSKIVQLSEISMDNSPNLA

WPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTACTDDNALAYYNTTKGGRFV

LALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTPKGPKVKYLYFIKGLNNLNR

GMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAKAYKDYLASGGQPITNCVKM

LCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDHPNPKGFCDLKGKYVQIPTT

CANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSADAQSFLNRVCGVSAARLTP

CGTGTSTDVVYRAFDIYNDKVAGFAKFLKTNCCRFQEKDEDDNLIDSYFVVKRHTFSN

YQHEETIYNLLKDCPAVAKHDFFKFRIDGDMVPHISRQRLTKYTMADLVYALRHFDEG

NCDTLKEILVTYNCCDDDYFNKKDWYDFVENPDILRVYANLGERVRQALLKTVQFCDA

MRNAGIVGVLTLDNQDLNGNWYDFGDFIQTTPGSGVPVVDSYYSLLMPILTLTRALTA

ESHVDTDLTKPYIKWDLLKYDFTEERLKLFDRYFKYWDQTYHPNCVNCLDDRCILHCA

NFNVLFSTVFPLTSFGPLVRKIFVDGVPFVVSTGYHFRELGVVHNQDVNLHSSRLSFK

ELLVYAADPAMHAASGNLLLDKRTTCFSVAALTNNVAFQTVKPGNFNKDFYDFAVSKG

FFKEGSSVELKHFFFAQDGNAAISDYDYYRYNLPTMCDIRQLLFVVEVVDKYFDCYDG

GCINANQVIVNNLDKSAGFPFNKWGKARLYYDSMSYEDQDALFAYTKRNVIPTITQMN

LKYAISAKNRARTVAGVSICSTMTNRQFHQKLLKSIAATRGATVVIGTSKFYGGWHNM

LKTVYSDVENPHLMGWDYPKCDRAMPNMLRIMASLVLARKHTTCCSLSHRFYRLANEC

AQVLSEMVMCGGSLYVKPGGTSSGDATTAYANSVFNICQAVTANVNALLSTDGNKIAD

KYVRNLQHRLYECLYRNRDVDTDFVNEFYAYLRKHFSMMILSDDAVVCFNSTYASQGL

VASIKNFKSVLYYQNNVFMSEAKCWTETDLTKGPHEFCSQHTMLVKQGDDYVYLPYPD

PSRILGAGCFVDDIVKTDGTLMIERFVSLAIDAYPLTKHPNQEYADVFHLYLQYIRKL

HDELTGHMLDMYSVMLTNDNTSRYWEPEFYEAMYTPHTVLQAVGACVLCNSQTSLRCG

ACIRRPFLCCKCCYDHVISTSHKLVLSVNPYVCNAPGCDVTDVTQLYLGGMSYYCKSH

KPPISFPLCANGQVFGLYKNTCVGSDNVTDFNAIATCDWTNAGDYILANTCTERLKLF

AAETLKATEETFKLSYGIATVREVLSDRELHLSWEVGKPRPPLNRNYVFTGYRVTKNS

KVQIGEYTFEKGDYGDAVVYRGTTTYKLNVGDYFVLTSHTVMPLSAPTLVPQEHYVRI

TGLYPTLNISDEFSSNVANYQKVGMQKYSTLQGPPGTGKSHFAIGLALYYPSARIVYT

ACSHAAVDALCEKALKYLPIDKCSRIIPARARVECFDKFKVNSTLEQYVFCTVNALPE

TTADIVVFDEISMATNYDLSVVNARLRAKHYVYIGDPAQLPAPRTLLTKGTLEPEYFN

SVCRLMKTIGPDMFLGTCRRCPAEIVDTVSALVYDNKLKAHKDKSAQCFKMFYKGVIT

HDVSSAINRPQIGVVREFLTRNPAWRKAVFISPYNSQNAVASKILGLPTQTVDSSQGS

EYDYVIFTQTTETAHSCNVNRFNVAITRAKVGILCIMSDRDLYDKLQFTSLEIPRRNV

ATLQAENVTGLFKDCSKVITGLHPTQAPTHLSVDTKFKTEGLCVDVPGIPKDMTYRRL

ISMMGFKMNYQVNGYPNMFITREEAIRHVRAWIGFDVEGCHATREAVGTNLPLQLGFS

TGVNLVAVPTGYVDTPNNTDFSRVSAKPPPGDQFKHLIPLMYKGLPWNVVRIKIVQML

SDTLKNLSDRVVFVLWAHGFELTSMKYFVKIGPERTCCLCDRRATCFSTASDTYACWH

HSIGFDYVYNPFMIDVQQWGFTGNLQSNHDLYCQVHGNAHVASCDAIMTRCLAVHECF

VKRVDWTIEYPIIGDELKINAACRKVQHMVVKAALLADKFPVLHDIGNPKAIKCVPQA

DVEWKFYDAQPCSDKAYKIEELFYSYATHSDKFTDGVCLFWNCNVDRYPANSIVCRFD

TRVLSNLNLPGCDGGSLYVNKHAFHTPAFDKSAFVNLKQLPFFYYSDSPCESHGKQVV

SDIDYVPLKSATCITRCNLGGAVCRHHANEYRLYLDAYNMMISAGFSLWVYKQFDTYN

LWNTFTRLQSLENVAFNVVNKGHFDGQQGEVPVSIINNTVYTKVDGVDVELFENKTTL

PVNVAFELWAKRNIKPVPEVKILNNLGVDIAANTVIWDYKRDAPAHISTIGVCSMTDI

AKKPTETICAPLTVFFDGRVDGQVDLFRNARNGVLITEGSVKGLQPSVGPKQASLNGV

TLIGEAVKTQFNYYKKVDGVVQQLPETYFTQSRNLQEFKPRSQMEIDFLELAMDEFIE

RYKLEGYAFEHIVYGDFSHSQLGGLHLLIGLAKRFKESPFELEDFIPMDSTVKNYFIT

DAQTGSSKCVCSVIDLLLDDFVEIIKSQDLSVVSKVVKVTIDYTEISFMLWCKDGHVE

TFYPKLQSSQAWQPGVAMPNLYKMQRMLLEKCDLQNYGDSATLPKGIMMNVAKYTQLC

QYLNTLTLAVPYNMRVIHFGAGSDKGVAPGTAVLRQWLPTGTLLVDSDLNDFVSDADS

TLIGDCATVHTANKWDLIISDMYDPKTKNVTKENDSKEGFFTYICGFIQQKLALGGSV

AIKITEHSWNADLYKLMGHFAWWTAFVTNVNASSSEAFLIGCNYLGKPREQIDGYVMH

ANYIFWRNTNPIQLSSYSLFDMSKFPLKLRGTAVMSLKEGQINDMILSLLSKGRLIIR

ENNRVVISSDVLVNN"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91960.1?from=1&to=165) <1..495

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91960.1?from=166&to=803) 496..2409

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91960.1?from=804&to=2747) 2410..8241

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91960.1?from=2748&to=3247) 8242..9741

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91960.1?from=3248&to=3553) 9742..10659

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91960.1?from=3554&to=3840) 10660..11520

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91960.1?from=3841&to=3923) 11521..11769

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91960.1?from=3924&to=4121) 11770..12363

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91960.1?from=4122&to=4234) 12364..12702

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91960.1?from=4235&to=4373) 12703..13119

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91960.1?from=4374&to=5305) join(13120..13146,13146..15914)

/gene="ORF1ab"

/product="RNA-dependent RNA polymerase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91960.1?from=5306&to=5906) 15915..17717

/gene="ORF1ab"

/product="helicase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91960.1?from=5907&to=6433) 17718..19298

/gene="ORF1ab"

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

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91960.1?from=6434&to=6779) 19299..20336

/gene="ORF1ab"

/product="endoRNAse"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91960.1?from=6780&to=7077) 20337..21230

/gene="ORF1ab"

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

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=1&to=13161) <1..13161

/gene="ORF1ab"

/codon\_start=1

/product="ORF1a polyprotein"

/protein\_id="[UKD91961.1](https://www.ncbi.nlm.nih.gov/protein/2187765655)"

/translation="LSLPVLQVRDVLVRGFGDSVEEVLSEARQHLKDGTCGLVEVEKG

VLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGETLGVLVPHVGEIPVA

YRKVLLRKNGNKGAGGHSYGADLKSFDLGDELGTDPYEDFQENWNTKHSSGVTRELMR

ELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEQLDFIDTKRGVYCCRE

HEHEIAWYTERSEKSYELQTPFEIKLAKKFDTFNGECPNFVFPLNSIIKTIQPRVEKK

KLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTGDFVKATCEFCGTENL

TKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESGLKTILRKGGRTIAFG

GCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNLLEILQKEKVNINIVG

DFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGNFKVTKGKAKKGAWNI

GEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAAITILDGISQYSLRLI

DAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKLKPVLDWLEEKFKEGV

EFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLVNKFLALCADSIIIGG

AKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEIIFLEGETLPTEVLTEE

VVLKTGDLQPLEQPTSEAVEAPLVGTPVCINGLMLLEIKDTEKYCALAPNMMVTNNTF

TLKGGAPTKVTFGDDTVIEVQGYKSVNITFELDERIDKVLNERCSAYTVELGTEVNEF

ACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDESGEFKLASHMYCSFYPPDE

DEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPEEEQEEDWLDDDSQQT

VGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSGYLKLTDNVYIKNADI

VEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESDDYIATNGPLKVGGSC

VLSGHNLAKHCLHVVGPNVNKGEDIQLLKSAYENFNQHEVLLAPLLSAGIFGADPIHS

LRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIAEIPKEEVKPFITESK

PSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGNLHPDSATLVSDIDIT

FLKKDAPYIVGDVVQEGVLTAVVIPTKKAGGTTEMLAKALRKVPTDNYITTYPGQGLN

GYTVEEAKTVLKKCKSAFYILPSIISNEKQEILGTVSWNLREMLAHAEETRKLMPVCV

ETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLINTLNDLNETLVTMPLG

YVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSSKTPEEHFIETISLAG

SYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTTFHLDGEVITFDNLKTLLSLREVRT

IKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPHNSHEGKTFYVLPNDD

TLRVEAFEYYHTTDPSFLGRYMSALNHTKKWKYPQVNGLTSIKWADNNCYLATALLTL

QQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELGDVRETMSYLFQHANL

DSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQIPCTCGKQATKYLVQ

QESPFVMMSAPPAQYELKHGTFTCASEYTGNYQCGHYKHITSKETLYCIDGALLTKSS

EYKGPITDVFYKENSYTTTIKPVTYKLDGVVCTEIDPKLDNYYKKDNSYFTEQPIDLV

PNQPYPNASFDNFKFVCDNIKFADDLNQLTGYKKPASRELKVTFFPDLNGDVVAIDYK

HYTPSFKKGAKLLHKPIVWHVNNATNKATYKPNTWCIRCLWSTKPVETSNSFDVLKSE

DAQGMDNLACEDLKPVSEEVVENPTIQKDVLECNVKTTEVVGDIILKPANNIKITEEV

GHTDLMAAYVDNSSLTIKKPNELSRVLGLKTLATHGLAAVNSVPWDTIANYAKPFLNK

VVSTTTNIVTRCLNRVCTNYMPYFFTLLLQLCTFTRSTNSRIKASMPTTIAKNTVKSV

GKFCLEASFNYLKSPNFSKLINIIIWFLLLSVCLGSLIYSTAALGVLMSNLGMPSYCT

GYREGYLNSTNVTIATYCTGSIPCSVCLSGLDSLDTYPSLETIQITISSFKWDLTAFG

LVAEWFLAYILFTRFFYVLGLAAIMQLFFSYFAVHFISNSWLMWLIINLVQMAPISAM

VRMYIFFASFYYVWKSYVHVVDGCNSSTCMMCYKRNRATRVECTTIVNGVRRSFYVYA

NGGKGFCKLHNWNCVNCDTFCAGSTFISDEVARDLSLQFKRPINPTDQSSYIVDSVTV

KNGSIHLYFDKAGQKTYERHSLSHFVNLDNLRANNTKGSLPINVIVFDGKSKCEESSA

KSASVYYSQLMCQPILLLDQALVSDVGDSAEVAVKMFDAYVNTFSSTFNVPMEKLKTL

VATAEAELAKNVSLDNVLSTFISAARQGFVDSDVETKDVVECLKLSHQSDIEVTGDSC

NNYMLTYNKVENMTPRDLGACIDCSARHINAQVAKSHNITLIWNVKDFMSLSEQLRKQ

IRSAAKKNNLPFKLTCATTRQVVNVVTTKIALKGGKIVNNWXXXXXXXXXXXXXXAAI

FYLITPVHVMSKHTDFSSEIIGYKAIDGGVTRDIASTDTCFANKHADFDTWFSQRGGS

YTNDKACPLIAAVITREVGFVVPGLPGTILRTTNGDFLHFLPRVFSAVGNICYTPSKL

IEYTDFATSACVLAAECTIFKDASGKPVPYCYDTNVLEGSVAYESLRPDTRYVLMDGS

IIQFPNTYLEGSVRVVTTFDSEYCRHGTCERSEAGVCVSTSGRWVLNNDYYRSLPGVF

CGVDAVNLLTNMFTPLIQPIGALDISASIVAGGIVAIVVTCLAYYFMRFRRAFGEYSH

VVAFNTLLFLMSFTVLCLTPVYSFLPGVYSVIYLYLTFYLTNDVSFLAHIQWMVMFTP

LVPFWITIAYIICISTKHFYWFFSNYLKRRVVFNGVSFSTFEEAALCTFLLNKEMYLK

LRSDVLLPLTQYNRYLALYNKYKYFSGAMDTTSYREAACCHLAKALNDFSNSGSDVLY

QPPQISITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNGLWLDDVVYCPRHVICT

SEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVLKLKVDTANPKTPKYKF

VRIQPGQTFSVLACYNGSPSGVYQCAMRHNFTIKGSFLNGSCGSVGFNIDYDCVSFCY

MHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVNVLAWLYAAVINGDRWF

LNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAVLDMCASLKELLQNGMN

GRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHWLLLTILTSLLVLVQST

QWSLFFFLYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFLLPSLATVAYFNMVYMP

ASWVMRIMTWLDMVDTSFKLKDCVMYASAVVLLILMTARTVYDDGARRVWTLMNVLTL

VYKVYYGNALDQAISMWALIISVTSNYSGVVTTVMFLARGVVFMCVEYCPIFFITGNT

LQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYLVSTQEFRYMNSQGLLPPKN

SIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVLLSVLQQLRVESSSKLWAQC

VQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKLCEEMLDNRATLQAIASEFS

SLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAKSEFDRDAAMQRKLEKMADQ

AMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALNNIINNARDGCVPLNIIPLT

TAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDADSKIVQLSEISMDNSPNLA

WPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTACTDDNALAYYNTTKGGRFV

LALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTPKGPKVKYLYFIKGLNNLNR

GMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAKAYKDYLASGGQPITNCVKM

LCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDHPNPKGFCDLKGKYVQIPTT

CANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSADAQSFLNGFAV"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91961.1?from=1&to=165) <1..495

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91961.1?from=166&to=803) 496..2409

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91961.1?from=804&to=2747) 2410..8241

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91961.1?from=2748&to=3247) 8242..9741

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91961.1?from=3248&to=3553) 9742..10659

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91961.1?from=3554&to=3840) 10660..11520

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91961.1?from=3841&to=3923) 11521..11769

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91961.1?from=3924&to=4121) 11770..12363

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91961.1?from=4122&to=4234) 12364..12702

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91961.1?from=4235&to=4373) 12703..13119

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UKD91961.1?from=4374&to=4386) 13120..13158

/gene="ORF1ab"

/product="nsp11"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=13154&to=13181) 13154..13181

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 1"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=13166&to=13220) 13166..13220

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 2"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=21241&to=25053) 21241..25053

/gene="S"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=21241&to=25053) 21241..25053

/gene="S"

/codon\_start=1

/product="surface glycoprotein"

/protein\_id="[UKD91962.1](https://www.ncbi.nlm.nih.gov/protein/2187765656)"

/translation="MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFR

SSVLHSTQDLFLPFFSNVTWFHVISGTNGTKRFDNPVLPFNDGVYFASIEKSNIIRGW

IFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLDHKNNKSWMESEFRVYSSANN

CTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGYFKIYSKHTPIIVREPEDLPQGFS

ALEPLVDLPIGINITRFQTLLALHRSYLTPGDSSSGWTAGAAAYYVGYLQPRTFLLKY

NENGTITDAVDCALDPLSETKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCP

FDEVFNATKFASVYAWNRKRISNCVADYSVLYNLAPFFTFKCYGVSPTKLNDLCFTNV

YADSFVIRGDEVRQIAPGQTGNIADYNYKLPDDFTGCVIAWNSNKLDSKVSGNYNYLY

RLFRKSNLKPFERDISTEIYQAGNKPCNGVAGFNCYFPLRSYSFRPTYGVGHQPYRVV

VLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLKGTGVLTESNKKFLPFQQFGRDI

ADTTDAVRDPQTLEILDITPCSFGGVSVITPGTNTSNQVAVLYQGVNCTEVPVAIHAD

QLTPTWRVYSTGSNVFQTRAGCLIGAEYVNNSYECDIPIGAGICASYQTQTKSHRRAR

SVASQSIIAYTMSLGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYIC

GDSTECSNLLLQYGSFCTQLKRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFGGFN

FSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLICAQKFKGLT

VLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLY

ENQKLIANQFNSAIGKIQDSLSSTASALGKLQDVVNHNAQALNTLVKQLSSKFGAISS

VLNDIFSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECV

LGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPR

EGVFVSNGTHWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFK

EELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYE

QYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSCGSCCKFDEDDSEPVL

KGVKLHYT"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=25062&to=25889) 25062..25889

/gene="ORF3a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=25062&to=25889) 25062..25889

/gene="ORF3a"

/codon\_start=1

/product="ORF3a protein"

/protein\_id="[UKD91963.1](https://www.ncbi.nlm.nih.gov/protein/2187765657)"

/translation="MDLFMRIFTIGTVTLKQGEIKDATPSDFVRATATIPIQASLPFG

WLIVGVALLAVFQSASKIITLKKRWQLALSKGVHFVCNLLLLFVTVYSHLLLVAAGLE

APFLYLYALVYFLQSINFVRIIMRLWLCWKCRSKNPLLYDANYFLCWHTNCYDYCIPY

NSVTSSIVITSGDGTTSPISEHDYQIGGYTEKWESGVKDCVVLHSYFTSDYYQLYSTQ

LSTDTGVEHVTFFIYNKIVDEPEEHVQIHTIDGSSGVVNPVMEPIYDEPTTTTSVPL"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=25914&to=26141) 25914..26141

/gene="E"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=25914&to=26141) 25914..26141

/gene="E"

/codon\_start=1

/product="envelope protein"

/protein\_id="[UKD91964.1](https://www.ncbi.nlm.nih.gov/protein/2187765658)"

/translation="MYSFVSEEIGTLIVNSVLLFLAFVVFLLVTLAILTALRLCAYCC

NIVNVSLVKPSFYVYSRVKNLNSSRVPDLLV"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=26192&to=26860) 26192..26860

/gene="M"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=26192&to=26860) 26192..26860

/gene="M"

/codon\_start=1

/product="membrane glycoprotein"

/protein\_id="[UKD91965.1](https://www.ncbi.nlm.nih.gov/protein/2187765659)"

/translation="MAGSNGTITVEELKKLLEEWNLVIGFLFLTWICLLQFAYANRNR

FLYIIKLIFLWLLWPVTLTCFVLAAVYRINWITGGIAIAMACLVGLMWLSYFIASFRL

FARTRSMWSFNPETNILLNVPLHGTILTRPLLESELVIGAVILRGHLRIAGHHLGRCD

IKDLPKEITVATSRTLSYYKLGASQRVAGDSGFAAYSRYRIGNYKLNTDHSSSSDNIA

LLVQ"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=26871&to=27056) 26871..27056

/gene="ORF6"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=26871&to=27056) 26871..27056

/gene="ORF6"

/codon\_start=1

/product="ORF6 protein"

/protein\_id="[UKD91966.1](https://www.ncbi.nlm.nih.gov/protein/2187765660)"

/translation="MFHLVDFQVTIAEILLIIMRTFKVSIWNLDYIINLIIKNLSKSL

TENKYSQLDEEQPMEID"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=27063&to=27428) 27063..27428

/gene="ORF7a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=27063&to=27428) 27063..27428

/gene="ORF7a"

/codon\_start=1

/product="ORF7a protein"

/protein\_id="[UKD91967.1](https://www.ncbi.nlm.nih.gov/protein/2187765661)"

/translation="MKIILFLALITLATCELYHYQECVRGTTVLLKEPCSSGTYEGNS

PFHPLADNKFALTCFSTQFAFACPDGVKHVYQLRARSVSPKLFIRQEEVQELYSPIFL

IVAAIVFITLCFTLKRKTE"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=27425&to=27556) 27425..27556

/gene="ORF7b"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=27425&to=27556) 27425..27556

/gene="ORF7b"

/codon\_start=1

/product="ORF7b"

/protein\_id="[UKD91968.1](https://www.ncbi.nlm.nih.gov/protein/2187765662)"

/translation="MIELSLIDFYLCFLAFLLFLVLIMLIIFWFSLELQDHNETCHA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=27563&to=27928) 27563..27928

/gene="ORF8"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=27563&to=27928) 27563..27928

/gene="ORF8"

/codon\_start=1

/product="ORF8 protein"

/protein\_id="[UKD91969.1](https://www.ncbi.nlm.nih.gov/protein/2187765663)"

/translation="MKFLVFLGIITTVAAFHQECSLQSCTQHQPYVVDDPCPIHFYSK

WYIRVGARKSAPLIELCVDEAGSKSPIQYIDIGNYTVSCLPFTINCQEPKLGSLVVRC

SFYEDFLEYHDVRVVLDFI"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=27943&to=29202) 27943..29202

/gene="N"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=27943&to=29202) 27943..29202

/gene="N"

/codon\_start=1

/product="nucleocapsid phosphoprotein"

/protein\_id="[UKD91970.1](https://www.ncbi.nlm.nih.gov/protein/2187765664)"

/translation="MSDNXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XXXXXXXXYYLGTGPEAGLPYGANKDGIIWVATEGALNTPKDHIGTRNPANNAAIVLQ

LPQGTTLPKGFYAEGSRGGSQASSRSSSRSRNSSRNSTPGSSKRTSPARMAGNGGDAA

LALLLLDRLNQLESKMSGKGQQQQGQTVTKKSAAEASKKPRQKRTATKAYNVTQAFGR

RGPEQTQGNFGDQELIRQGTDYKHWPQIAQFAPSASAFFGMSRIGMEVTPSGTWLTYT

GAIKLDDKDPNFKDQVILLNKHIDAYKTFPPTEPKKDKKKKADETQALPQRQKKQQTV

TLLPAADLDDFSKQLQQSMSSADSTQA"

gap 27956..28270

/estimated\_length=315

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=29227&to=29329) 29227..>29329

/gene="ORF10"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=29227&to=29329) 29227..>29329

/gene="ORF10"

/codon\_start=1

/product="ORF10 protein"

/protein\_id="[UKD91971.1](https://www.ncbi.nlm.nih.gov/protein/2187765665)"

/translation="MGYINVFAFPFTIYSLLLCRMNSRNYIAQVDVVN"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=29278&to=29313) 29278..29313

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?from=29298&to=29326) 29298..29326

/gene="ORF10"

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

ORIGIN

1 ctcagtttgc ctgttttaca ggttcgcgac gtgctcgtac gtggctttgg agactccgtg

61 gaggaggtct tatcagaggc acgtcaacat cttaaagatg gcacttgtgg cttagtagaa

121 gttgaaaaag gcgttttgcc tcaacttgaa cagccctatg tgttcatcaa acgttcggat

181 gctcgaactg cacctcatgg tcatgttatg gttgagctgg tagcagaact cgaaggcatt

241 cagtacggtc gtagtggtga gacacttggt gtccttgtcc ctcatgtggg cgaaatacca

301 gtggcttacc gcaaggttct tcttcgtaag aacggtaata aaggagctgg tggccatagt

361 tacggcgccg atctaaagtc atttgactta ggcgacgagc ttggcactga tccttatgaa

421 gattttcaag aaaactggaa cactaaacat agcagtggtg ttacccgtga actcatgcgt

481 gagcttaacg gaggggcata cactcgctat gtcgataaca acttctgtgg ccctgatggc

541 taccctcttg agtgcattaa agaccttcta gcacgtgctg gtaaagcttc atgcactttg

601 tccgaacaac tggactttat tgacactaag aggggtgtat actgctgccg tgaacatgag

661 catgaaattg cttggtacac ggaacgttct gaaaagagct atgaattgca gacacctttt

721 gaaattaaat tggcaaagaa atttgacacc ttcaatgggg aatgtccaaa ttttgtattt

781 cccttaaatt ccataatcaa gactattcaa ccaagggttg aaaagaaaaa gcttgatggc

841 tttatgggta gaattcgatc tgtctatcca gttgcgtcac caaatgaatg caaccaaatg

901 tgcctttcaa ctctcatgaa gtgtgatcat tgtggtgaaa cttcatggca gacgggcgat

961 tttgttaaag ccacttgcga attttgtggc actgagaatt tgactaaaga aggtgccact

1021 acttgtggtt acttacccca aaatgctgtt gttaaaattt attgtccagc atgtcacaat

1081 tcagaagtag gacctgagca tagtcttgcc gaataccata atgaatctgg cttgaaaacc

1141 attcttcgta agggtggtcg cactattgcc tttggaggct gtgtgttctc ttatgttggt

1201 tgccataaca agtgtgccta ttgggttcca cgtgctagcg ctaacatagg ttgtaaccat

1261 acaggtgttg ttggagaagg ttccgaaggt cttaatgaca accttcttga aatactccaa

1321 aaagagaaag tcaacatcaa tattgttggt gactttaaac ttaatgaaga gatcgccatt

1381 attttggcat ctttttctgc ttccacaagt gcttttgtgg aaactgtgaa aggtttggat

1441 tataaagcat tcaaacaaat tgttgaatcc tgtggtaatt ttaaagttac aaaaggaaaa

1501 gctaaaaaag gtgcctggaa tattggtgaa cagaaatcaa tactgagtcc tctttatgca

1561 tttgcatcag aggctgctcg tgttgtacga tcaattttct cccgcactct tgaaactgct

1621 caaaattctg tgcgtgtttt acagaaggcc gctataacaa tactagatgg aatttcacag

1681 tattcactga gactcattga tgctatgatg ttcacatctg atttggctac taacaatcta

1741 gttgtaatgg cctacattac aggtggtgtt gttcagttga cttcgcagtg gctaactaac

1801 atctttggca ctgtttatga aaaactcaaa cccgtccttg attggcttga agagaagttt

1861 aaggaaggtg tagagtttct tagagacggt tgggaaattg ttaaatttat ctcaacctgt

1921 gcttgtgaaa ttgtcggtgg acaaattgtc acctgtgcaa aggaaattaa ggagagtgtt

1981 cagacattct ttaagcttgt aaataaattt ttggctttgt gtgctgactc tatcattatt

2041 ggtggagcta aacttaaagc cttgaattta ggtgaaacat ttgtcacgca ctcaaaggga

2101 ttgtacagaa agtgtgttaa atccagagaa gaaactggcc tactcatgcc tctaaaagct

2161 ccaaaagaaa ttatcttctt agagggagaa acacttccca cagaagtgtt aacagaggaa

2221 gttgtcttga aaactggtga tttacaacca ttagaacaac ctactagtga agctgttgaa

2281 gctccattgg ttggtacacc agtttgtatt aacgggctta tgttgctcga aatcaaagac

2341 acagaaaagt actgtgccct tgcacctaat atgatggtaa caaacaatac cttcacactc

2401 aaaggcggtg caccaacaaa ggttactttt ggtgatgaca ctgtgataga agtgcaaggt

2461 tacaagagtg tgaatatcac ttttgaactt gatgaaagga ttgataaagt acttaatgag

2521 aggtgctctg cctatacagt tgaactcggt acagaagtaa atgagttcgc ctgtgttgtg

2581 gcagatgctg tcataaaaac tttgcaacca gtatctgaat tacttacacc actgggcatt

2641 gatttagatg agtggagtat ggctacatac tacttatttg atgagtctgg tgagtttaaa

2701 ttggcttcac atatgtattg ttctttttac cctccagatg aggatgaaga agaaggtgat

2761 tgtgaagaag aagagtttga gccatcaact caatatgagt atggtactga agatgattac

2821 caaggtaaac ctttggaatt tggtgccact tctgctgctc ttcaacctga agaagagcaa

2881 gaagaagatt ggttagatga tgatagtcaa caaactgttg gtcaacaaga cggcagtgag

2941 gacaatcaga caactactat tcaaacaatt gttgaggttc aacctcaatt agagatggaa

3001 cttacaccag ttgttcagac tattgaagtg aatagtttta gtggttattt aaaacttact

3061 gacaatgtat acattaaaaa tgcagacatt gtggaagaag ctaaaaaggt aaaaccaaca

3121 gtggttgtta atgcagccaa tgtttacctt aaacatggag gaggtgttgc aggagcctta

3181 aataaggcta ctaacaatgc catgcaagtt gaatctgatg attacatagc tactaatgga

3241 ccacttaaag tgggtggtag ttgtgtttta agcggacaca atcttgctaa acactgtctt

3301 catgttgtcg gcccaaatgt taacaaaggt gaagacattc aacttcttaa gagtgcttat

3361 gaaaatttta atcagcacga agttctactt gcaccattat tatcagctgg tatttttggt

3421 gctgacccta tacattcttt aagagtttgt gtagatactg ttcgcacaaa tgtctactta

3481 gctgtctttg ataaaaatct ctatgacaaa cttgtttcaa gctttttgga aatgaagagt

3541 gaaaagcaag ttgaacaaaa gatcgctgag attcctaaag aggaagttaa gccatttata

3601 actgaaagta aaccttcagt tgaacagaga aaacaagatg ataagaaaat caaagcttgt

3661 gttgaagaag ttacaacaac tctggaagaa actaagttcc tcacagaaaa cttgttactt

3721 tatattgaca ttaatggcaa tcttcatcca gattctgcca ctcttgttag tgacattgac

3781 atcactttct taaagaaaga tgctccatat atagtgggtg atgttgttca agagggtgtt

3841 ttaactgctg tggttatacc tactaaaaag gctggtggca ctactgaaat gctagcgaaa

3901 gctttgagaa aagtgccaac agacaattat ataaccactt acccgggtca gggtttaaat

3961 ggttacactg tagaggaggc aaagacagtg cttaaaaagt gtaaaagtgc cttttacatt

4021 ctaccatcta ttatctctaa tgagaagcaa gaaattcttg gaactgtttc ttggaatttg

4081 cgagaaatgc ttgcacatgc agaagaaaca cgcaaattaa tgcctgtctg tgtggaaact

4141 aaagccatag tttcaactat acagcgtaaa tataagggta ttaaaataca agagggtgtg

4201 gttgattatg gtgctagatt ttacttttac accagtaaaa caactgtagc gtcacttatc

4261 aacacactta acgatctaaa tgaaactctt gttacaatgc cacttggcta tgtaacacat

4321 ggcttaaatt tggaagaagc tgctcggtat atgagatctc tcaaagtgcc agctacagtt

4381 tctgtttctt cacctgatgc tgttacagcg tataatggtt atcttacttc ttcttctaaa

4441 acacctgaag aacattttat tgaaaccatc tcacttgctg gttcctataa agattggtcc

4501 tattctggac aatctacaca actaggtata gaatttctta agagaggtga taaaagtgta

4561 tattacacta gtaatcctac cacattccac ctagatggtg aagttatcac ctttgacaat

4621 cttaagacac ttctttcttt gagagaagtg aggactatta aggtgtttac aacagtagac

4681 aacattaacc tccacacgca agttgtggac atgtcaatga catatggaca acagtttggt

4741 ccaacttatt tggatggagc tgatgttact aaaataaaac ctcataattc acatgaaggt

4801 aaaacatttt atgttttacc taatgatgac actctacgtg ttgaggcttt tgagtactac

4861 cacacaactg atcctagttt tctgggtagg tacatgtcag cattaaatca cactaaaaag

4921 tggaaatacc cacaagttaa tggtttaact tctattaaat gggcagataa caactgttat

4981 cttgccactg cattgttaac actccaacaa atagagttga agtttaatcc acctgctcta

5041 caagatgctt attacagagc aagggctggt gaagcggcta acttttgtgc acttatctta

5101 gcctactgta ataagacagt aggtgagtta ggtgatgtta gagaaacaat gagttacttg

5161 tttcaacatg ccaatttaga ttcttgcaaa agagtcttga acgtggtgtg taaaacttgt

5221 ggacaacagc agacaaccct taagggtgta gaagctgtta tgtacatggg cacactttct

5281 tatgaacaat ttaagaaagg tgttcagata ccttgtacgt gtggtaaaca agctacaaaa

5341 tatctagtac aacaggagtc accttttgtt atgatgtcag caccacctgc tcagtatgaa

5401 cttaagcatg gtacatttac ttgtgctagt gagtacactg gtaattacca gtgtggtcac

5461 tataaacata taacttctaa agaaactttg tattgcatag acggtgcttt acttacaaag

5521 tcctcagaat acaaaggtcc tattacggat gttttctaca aagaaaacag ttacacaaca

5581 accataaaac cagttactta taaattggat ggtgttgttt gtacagaaat tgaccctaag

5641 ttggacaatt attataagaa agacaattct tatttcacag agcaaccaat tgatcttgta

5701 ccaaaccaac catatccaaa cgcaagcttc gataatttta agtttgtatg tgataatatc

5761 aaatttgctg atgatttaaa ccagttaact ggttataaga aacctgcttc aagagagctt

5821 aaagttacat ttttccctga cttaaatggt gatgtggtgg ctattgatta taaacactac

5881 acaccctctt ttaagaaagg agctaaattg ttacataaac ctattgtttg gcatgttaac

5941 aatgcaacta ataaagccac gtataaacca aatacctggt gtatacgttg tctttggagc

6001 acaaaaccag ttgaaacatc aaattcgttt gatgtactga agtcagagga cgcgcaggga

6061 atggataatc ttgcctgcga agatctaaaa ccagtctctg aagaagtagt ggaaaatcct

6121 accatacaga aagacgttct tgagtgtaat gtgaaaacta ccgaagttgt aggagacatt

6181 atacttaaac cagcaaataa tataaaaatt acagaagagg ttggccacac agatctaatg

6241 gctgcttatg tagacaattc tagtcttact attaagaaac ctaatgaatt atctagagta

6301 ttaggtttga aaacccttgc tactcatggt ttagctgctg ttaatagtgt cccttgggat

6361 actatagcta attatgctaa gccttttctt aacaaagttg ttagtacaac tactaacata

6421 gttacacggt gtttaaaccg tgtttgtact aattatatgc cttatttctt tactttattg

6481 ctacaattgt gtacttttac tagaagtaca aattctagaa ttaaagcatc tatgccgact

6541 actatagcaa agaatactgt taagagtgtc ggtaaatttt gtctagaggc ttcatttaat

6601 tatttgaagt cacctaattt ttctaaactg ataaatatta taatttggtt tttactatta

6661 agtgtttgcc taggttcttt aatctactca accgctgctt taggtgtttt aatgtctaat

6721 ttaggcatgc cttcttactg tactggttac agagaaggct atttgaactc tactaatgtc

6781 actattgcaa cctactgtac tggttctata ccttgtagtg tttgtcttag tggtttagat

6841 tctttagaca cctatccttc tttagaaact atacaaatta ccatttcatc ttttaaatgg

6901 gatttaactg cttttggctt agttgcagag tggtttttgg catatattct tttcactagg

6961 tttttctatg tacttggatt ggctgcaatc atgcaattgt ttttcagcta ttttgcagta

7021 cattttatta gtaattcttg gcttatgtgg ttaataatta atcttgtaca aatggccccg

7081 atttcagcta tggttagaat gtacatcttc tttgcatcat tttattatgt atggaaaagt

7141 tatgtgcatg ttgtagacgg ttgtaattca tcaacttgta tgatgtgtta caaacgtaat

7201 agagcaacaa gagtcgaatg tacaactatt gttaatggtg ttagaaggtc cttttatgtc

7261 tatgctaatg gaggtaaagg cttttgcaaa ctacacaatt ggaattgtgt taattgtgat

7321 acattctgtg ctggtagtac atttattagt gatgaagttg cgagagactt gtcactacag

7381 tttaaaagac caataaatcc tactgaccag tcttcttaca tcgttgatag tgttacagtg

7441 aagaatggtt ccatccatct ttactttgat aaagctggtc aaaagactta tgaaagacat

7501 tctctctctc attttgttaa cttagacaac ctgagagcta ataacactaa aggttcattg

7561 cctattaatg ttatagtttt tgatggtaaa tcaaaatgtg aagaatcatc tgcaaaatca

7621 gcgtctgttt actacagtca gcttatgtgt caacctatac tgttactaga tcaggcatta

7681 gtgtctgatg ttggtgatag tgcggaagtt gcagttaaaa tgtttgatgc ttacgttaat

7741 acgttttcat caacttttaa cgtaccaatg gaaaaactca aaacactagt tgcaactgca

7801 gaagctgaac ttgcaaagaa tgtgtcctta gacaatgtct tatctacttt tatttcagca

7861 gctcggcaag ggtttgttga ttcagatgta gaaactaaag atgttgttga atgtcttaaa

7921 ttgtcacatc aatctgacat agaagttact ggcgatagtt gtaataacta tatgctcacc

7981 tataacaaag ttgaaaacat gacaccccgt gaccttggtg cttgtattga ctgtagtgcg

8041 cgtcatatta atgcgcaggt agcaaaaagt cacaacatta ctttgatatg gaacgttaaa

8101 gatttcatgt cattgtctga acaactacga aaacaaatac gtagtgctgc taaaaagaat

8161 aacttacctt ttaagttgac atgtgcaact actagacaag ttgttaatgt tgtaacaaca

8221 aagatagcac ttaagggtgg taaaattgtt aataattggt nnnnnnnnnn nnnnnnnnnn

8281 nnnnnnnnnn nnnnnnnnnn ngctgctatt ttctatttaa taacacctgt tcatgtcatg

8341 tctaaacata ctgacttttc aagtgaaatc ataggataca aggctattga tggtggtgtc

8401 actcgtgaca tagcatctac agatacttgt tttgctaaca aacatgctga ttttgacaca

8461 tggtttagcc agcgtggtgg tagttatact aatgacaaag cttgcccatt gattgctgca

8521 gtcataacaa gagaagtggg ttttgtcgtg cctggtttgc ctggcacgat attacgcaca

8581 actaatggtg actttttgca tttcttacct agagttttta gtgcagttgg taacatctgt

8641 tacacaccat caaaacttat agagtacact gactttgcaa catcagcttg tgttttggct

8701 gctgaatgta caatttttaa agatgcttct ggtaagccag taccatattg ttatgatacc

8761 aatgtactag aaggttctgt tgcttatgaa agtttacgcc ctgacacacg ttatgtgctc

8821 atggatggct ctattattca atttcctaac acctaccttg aaggttctgt tagagtggta

8881 acaacttttg attctgagta ctgtaggcac ggcacttgtg aaagatcaga agctggtgtt

8941 tgtgtatcta ctagtggtag atgggtactt aacaatgatt attacagatc tttaccagga

9001 gttttctgtg gtgtagatgc tgtaaattta cttactaata tgtttacacc actaattcaa

9061 cctattggtg ctttggacat atcagcatct atagtagctg gtggtattgt agctatcgta

9121 gtaacatgcc ttgcctacta ttttatgagg tttagaagag cttttggtga atacagtcat

9181 gtagttgcct ttaatacttt actattcctt atgtcattca ctgtactctg tttaacacca

9241 gtttactcat tcttacctgg tgtttattct gttatttact tgtacttgac attttatctt

9301 actaatgatg tttctttttt agcacatatt cagtggatgg ttatgttcac acctttagta

9361 cctttctgga taacaattgc ttatatcatt tgtatttcca caaagcattt ctattggttc

9421 tttagtaatt acctaaagag acgtgtagtc tttaatggtg tttcctttag tacttttgaa

9481 gaagctgcgc tgtgcacctt tttgttaaat aaagaaatgt atctaaagtt gcgtagtgat

9541 gtgctattac ctcttacgca atataataga tacttagctc tttataataa gtacaagtat

9601 tttagtggag caatggatac aactagctac agagaagctg cttgttgtca tctcgcaaag

9661 gctctcaatg acttcagtaa ctcaggctct gatgttcttt accaaccacc acaaatctct

9721 atcacctcag ctgttttgca gagtggtttt agaaaaatgg cattcccatc tggtaaagtt

9781 gagggttgta tggtacaagt aacttgtggt acaactacac ttaacggtct ttggcttgat

9841 gacgtagttt actgtccaag acatgtgatc tgcacctctg aagacatgct taaccctaat

9901 tatgaagatt tactcattcg taagtctaat cataatttct tggtacaggc tggtaatgtt

9961 caactcaggg ttattggaca ttctatgcaa aattgtgtac ttaagcttaa ggttgataca

10021 gccaatccta agacacctaa gtataagttt gttcgcattc aaccaggaca gactttttca

10081 gtgttagctt gttacaatgg ttcaccatct ggtgtttacc aatgtgctat gaggcacaat

10141 ttcactatta agggttcatt ccttaatggt tcatgtggta gtgttggttt taacatagat

10201 tatgactgtg tctctttttg ttacatgcac catatggaat taccaactgg agttcatgct

10261 ggcacagact tagaaggtaa cttttatgga ccttttgttg acaggcaaac agcacaagca

10321 gctggtacgg acacaactat tacagttaat gttttagctt ggttgtacgc tgctgttata

10381 aatggagaca ggtggtttct caatcgattt accacaactc ttaatgactt taaccttgtg

10441 gctatgaagt acaattatga acctctaaca caagaccatg ttgacatact aggacctctt

10501 tctgctcaaa ctggaattgc cgttttagat atgtgtgctt cattaaaaga attactgcaa

10561 aatggtatga atggacgtac catattgggt agtgctttat tagaagatga atttacacct

10621 tttgatgttg ttagacaatg ctcaggtgtt actttccaaa gtgcagtgaa aagaacaatc

10681 aagggtacac accactggtt gttactcaca attttgactt cacttttagt tttagtccag

10741 agtactcaat ggtctttgtt cttttttttg tatgaaaatg cctttttacc ttttgctatg

10801 ggtattattg ctatgtctgc ttttgcaatg atgtttgtca aacataagca tgcatttctc

10861 tgtttgtttt tgttaccttc tcttgccact gtagcttatt ttaatatggt ctatatgcct

10921 gctagttggg tgatgcgtat tatgacatgg ttggatatgg ttgatactag ttttaagcta

10981 aaagactgtg ttatgtatgc atcagctgta gtgttactaa tccttatgac agcaagaact

11041 gtgtatgatg atggtgctag gagagtgtgg acacttatga atgtcttgac actcgtttat

11101 aaagtttatt atggtaatgc tttagatcaa gccatttcca tgtgggctct tataatctct

11161 gttacttcta actactcagg tgtagttaca actgtcatgt ttttggccag aggtgttgtt

11221 tttatgtgtg ttgagtattg ccctattttc ttcataactg gtaatacact tcagtgtata

11281 atgctagttt attgtttctt aggctatttt tgtacttgtt actttggcct cttttgttta

11341 ctcaaccgct actttagact gactcttggt gtttatgatt acttagtttc tacacaggag

11401 tttagatata tgaattcaca gggactactc ccacccaaga atagcataga tgccttcaaa

11461 ctcaacatta aattgttggg tgttggtggc aaaccttgta tcaaagtagc cactgtacag

11521 tctaaaatgt cagatgtaaa gtgcacatca gtagtcttac tctcagtttt gcaacaactc

11581 agagtagaat catcatctaa attgtgggct caatgtgtcc agttacacaa tgacattctc

11641 ttagctaaag atactactga agcctttgaa aaaatggttt cactactttc tgttttgctt

11701 tccatgcagg gtgctgtaga cataaacaag ctttgtgaag aaatgctgga caacagggca

11761 accttacaag ctatagcctc agagtttagt tcccttccat catatgcagc ttttgctact

11821 gctcaagaag cttatgagca ggctgttgct aatggtgatt ctgaagttgt tcttaaaaag

11881 ttgaagaagt ctttgaatgt ggctaaatct gaatttgacc gtgatgcagc catgcaacgt

11941 aagttggaaa agatggctga tcaagctatg acccaaatgt ataaacaggc tagatctgag

12001 gacaagaggg caaaagttac tagtgctatg cagacaatgc ttttcactat gcttagaaag

12061 ttggataatg atgcactcaa caacattatc aacaatgcaa gagatggttg tgttcccttg

12121 aacataatac ctcttacaac agcagccaaa ctaatggttg tcataccaga ctataacaca

12181 tataaaaata cgtgtgatgg tacaacattt acttatgcat cagcattgtg ggaaatccaa

12241 caggttgtag atgcagatag taaaattgtt caacttagtg aaattagtat ggacaattca

12301 cctaatttag catggcctct tattgtaaca gctttaaggg ccaattctgc tgtcaaatta

12361 cagaataatg agcttagtcc tgttgcacta cgacagatgt cttgtgctgc cggtactaca

12421 caaactgctt gcactgatga caatgcgtta gcttactaca acacaacaaa gggaggtagg

12481 tttgtacttg cactgttatc cgatttacag gatttgaaat gggctagatt ccctaagagt

12541 gatggaactg gtactatcta tacagaactg gaaccacctt gtaggtttgt tacagacaca

12601 cctaaaggtc ctaaagtgaa gtatttatac tttattaaag gattaaacaa cctaaataga

12661 ggtatggtac ttggtagttt agctgccaca gtacgtctac aagctggtaa tgcaacagaa

12721 gtgcctgcca attcaactgt attatctttc tgtgcttttg ctgtagatgc tgctaaagct

12781 tacaaagatt atctagctag tgggggacaa ccaatcacta attgtgttaa gatgttgtgt

12841 acacacactg gtactggtca ggcaataaca gtcacaccgg aagccaatat ggatcaagaa

12901 tcctttggtg gtgcatcgtg ttgtctgtac tgccgttgcc acatagatca tccaaatcct

12961 aaaggatttt gtgacttaaa aggtaagtat gtacaaatac ctacaacttg tgctaatgac

13021 cctgtgggtt ttacacttaa aaacacagtc tgtaccgtct gcggtatgtg gaaaggttat

13081 ggctgtagtt gtgatcaact ccgcgaaccc atgcttcagt cagctgatgc acaatcgttt

13141 ttaaacgggt ttgcggtgta agtgcagccc gtcttacacc gtgcggcaca ggcactagta

13201 ctgatgtcgt atacagggct tttgacatct acaatgataa agtagctggt tttgctaaat

13261 tcctaaaaac taattgttgt cgcttccaag aaaaggacga agatgacaat ttaattgatt

13321 cttactttgt agttaagaga cacactttct ctaactacca acatgaagaa acaatttata

13381 atttacttaa ggattgtcca gctgttgcta aacatgactt ctttaagttt agaatagacg

13441 gtgacatggt accacatata tcacgtcaac gtcttactaa atacacaatg gcagacctcg

13501 tctatgcttt aaggcatttt gatgaaggta attgtgacac attaaaagaa atacttgtca

13561 catacaattg ttgtgatgat gattatttca ataaaaagga ctggtatgat tttgtagaaa

13621 acccagatat attacgcgta tacgccaact taggtgaacg tgtacgccaa gctttgttaa

13681 aaacagtaca attctgtgat gccatgcgaa atgctggtat tgttggtgta ctgacattag

13741 ataatcaaga tctcaatggt aactggtatg atttcggtga tttcatacaa accacgccag

13801 gtagtggagt tcctgttgta gattcttatt attcattgtt aatgcctata ttaaccttga

13861 ccagggcttt aactgcagag tcacatgttg acactgactt aacaaagcct tacattaagt

13921 gggatttgtt aaaatatgac ttcacggaag agaggttaaa actctttgac cgttatttta

13981 aatattggga tcagacatac cacccaaatt gtgttaactg tttggatgac agatgcattc

14041 tgcattgtgc aaactttaat gttttattct ctacagtgtt cccacttaca agttttggac

14101 cactagtgag aaaaatattt gttgatggtg ttccatttgt agtttcaact ggataccact

14161 tcagagagct aggtgttgta cataatcagg atgtaaactt acatagctct agacttagtt

14221 ttaaggaatt acttgtgtat gctgctgacc ctgctatgca cgctgcttct ggtaatctat

14281 tactagataa acgcactacg tgcttttcag tagctgcact tactaacaat gttgcttttc

14341 aaactgtcaa acccggtaat tttaacaaag acttctatga ctttgctgtg tctaagggtt

14401 tctttaagga aggaagttct gttgaattaa aacacttctt ctttgctcag gatggtaatg

14461 ctgctatcag cgattatgac tactatcgtt ataatctacc aacaatgtgt gatatcagac

14521 aactactatt tgtagttgaa gttgttgata agtactttga ttgttacgat ggtggctgta

14581 ttaatgctaa ccaagtcatc gtcaacaacc tagacaaatc agctggtttt ccatttaata

14641 aatggggtaa ggctagactt tattatgatt caatgagtta tgaggatcaa gatgcacttt

14701 tcgcatatac aaaacgtaat gtcatcccta ctataactca aatgaatctt aagtatgcca

14761 ttagtgcaaa gaatagagct cgcaccgtag ctggtgtctc tatctgtagt actatgacca

14821 atagacagtt tcatcaaaaa ttattgaaat caatagccgc cactagagga gctactgtag

14881 taattggaac aagcaaattc tatggtggtt ggcacaatat gttaaaaact gtttatagtg

14941 atgtagaaaa ccctcacctt atgggttggg attatcctaa atgtgataga gccatgccta

15001 acatgcttag aattatggcc tcacttgttc ttgctcgcaa acatacaacg tgttgtagct

15061 tgtcacaccg tttctataga ttagctaatg agtgtgctca agtattgagt gaaatggtca

15121 tgtgtggcgg ttcactatat gttaaaccag gtggaacctc atcaggagat gccacaactg

15181 cttatgctaa tagtgttttt aacatttgtc aagctgtcac ggccaatgtt aatgcacttt

15241 tatctactga tggtaacaaa attgccgata agtatgtccg caatttacaa cacagacttt

15301 atgagtgtct ctatagaaat agagatgttg acacagactt tgtgaatgag ttttacgcat

15361 atttgcgtaa acatttctca atgatgatac tctctgacga tgctgttgtg tgtttcaata

15421 gcacttatgc atctcaaggt ctagtggcta gcataaagaa ctttaagtca gttctttatt

15481 atcaaaacaa tgtttttatg tctgaagcaa aatgttggac tgagactgac cttactaaag

15541 gacctcatga attttgctct caacatacaa tgctagttaa acagggtgat gattatgtgt

15601 accttcctta cccagatcca tcaagaatcc taggggccgg ctgttttgta gatgatatcg

15661 taaaaacaga tggtacactt atgattgaac ggttcgtgtc tttagctata gatgcttacc

15721 cacttactaa acatcctaat caggagtatg ctgatgtctt tcatttgtac ttacaataca

15781 taagaaagct acatgatgag ttaacaggac acatgttaga catgtattct gttatgctta

15841 ctaatgataa cacttcaagg tattgggaac ctgagtttta tgaggctatg tacacaccgc

15901 atacagtctt acaggctgtt ggggcttgtg ttctttgcaa ttcacagact tcattaagat

15961 gtggtgcttg catacgtaga ccattcttat gttgtaaatg ctgttacgac catgtcatat

16021 caacatcaca taaattagtc ttgtctgtta atccgtatgt ttgcaatgct ccaggttgtg

16081 atgtcacaga tgtgactcaa ctttacttag gaggtatgag ctattattgt aaatcacata

16141 aaccacccat tagttttcca ttgtgtgcta atggacaagt ttttggttta tataaaaata

16201 catgtgttgg tagcgataat gttactgact ttaatgcaat tgcaacatgt gactggacaa

16261 atgctggtga ttacatttta gctaacacct gtactgaaag actcaagctt tttgcagcag

16321 aaacgctcaa agctactgag gagacattta aactgtctta tggtattgct actgtacgtg

16381 aagtgctgtc tgacagagaa ttacatcttt catgggaagt tggtaaacct agaccaccac

16441 ttaaccgaaa ttatgtcttt actggttatc gtgtaactaa aaacagtaaa gtacaaatag

16501 gagagtacac ctttgaaaaa ggtgactatg gtgatgctgt tgtttaccga ggtacaacaa

16561 cttacaaatt aaatgttggt gattattttg tgctgacatc acatacagta atgccattaa

16621 gtgcacctac actagtgcca caagagcact atgttagaat tactggctta tacccaacac

16681 tcaatatctc agatgagttt tctagcaatg ttgcaaatta tcaaaaggtt ggtatgcaaa

16741 agtattctac actccaggga ccacctggta ctggtaagag tcattttgct attggcctag

16801 ctctctacta cccttctgct cgcatagtgt atacagcttg ctctcatgcc gctgttgatg

16861 cactatgtga gaaggcatta aaatatttgc ctatagataa atgtagtaga attatacctg

16921 cacgtgctcg tgtagagtgt tttgataaat tcaaagtgaa ttcaacatta gaacagtatg

16981 tcttttgtac tgtaaatgca ttgcctgaga cgacagcaga tatagttgtc tttgatgaaa

17041 tttcaatggc cacaaattat gatttgagtg ttgtcaatgc cagattacgt gctaagcact

17101 atgtgtacat tggcgaccct gctcaattac ctgcaccacg cacattgcta actaagggca

17161 cactagaacc agaatatttc aattcagtgt gtagacttat gaaaactata ggtccagaca

17221 tgttcctcgg aacttgtcgg cgttgtcctg ctgaaattgt tgacactgtg agtgctttgg

17281 tttatgataa taagcttaaa gcacataaag acaaatcagc tcaatgcttt aaaatgtttt

17341 ataagggtgt tatcacgcat gatgtttcat ctgcaattaa caggccacaa ataggcgtgg

17401 taagagaatt ccttacacgt aaccctgctt ggagaaaagc tgtctttatt tcaccttata

17461 attcacagaa tgctgtagcc tcaaagattt tgggactacc aactcaaact gttgattcat

17521 cacagggctc agaatatgac tatgtcatat tcactcaaac cactgaaaca gctcactctt

17581 gtaatgtaaa cagatttaat gttgctatta ccagagcaaa agtaggcata ctttgcataa

17641 tgtctgatag agacctttat gacaagttgc aatttacaag tcttgaaatt ccacgtagga

17701 atgtggcaac tttacaagct gaaaatgtaa caggactctt taaagattgt agtaaggtaa

17761 tcactgggtt acatcctaca caggcaccta cacacctcag tgttgacact aaattcaaaa

17821 ctgaaggttt atgtgttgac gtacctggca tacctaagga catgacctat agaagactca

17881 tctctatgat gggttttaaa atgaattatc aagttaatgg ttaccctaac atgtttatca

17941 cccgcgaaga agctataaga catgtacgtg catggattgg cttcgatgtc gaggggtgtc

18001 atgctactag agaagctgtt ggtaccaatt tacctttaca gctaggtttt tctacaggtg

18061 ttaacctagt tgctgtacct acaggttatg ttgatacacc taataataca gatttttcca

18121 gagttagtgc taaaccaccg cctggagatc aatttaaaca cctcatacca cttatgtaca

18181 aaggacttcc ttggaatgta gtgcgtataa agattgtaca aatgttaagt gacacactta

18241 aaaatctctc tgacagagtc gtatttgtct tatgggcaca tggctttgag ttgacatcta

18301 tgaagtattt tgtgaaaata ggacctgagc gcacctgttg tctatgtgat agacgtgcca

18361 catgcttttc cactgcttca gacacttatg cctgttggca tcattctatt ggatttgatt

18421 acgtctataa tccgtttatg attgatgttc aacaatgggg ttttacaggt aacctacaaa

18481 gcaaccatga tctgtattgt caagtccatg gtaatgcaca tgtagctagt tgtgatgcaa

18541 tcatgactag gtgtctagct gtccacgagt gctttgttaa gcgtgttgac tggactattg

18601 aatatcctat aattggtgat gaactgaaga ttaatgcggc ttgtagaaag gttcaacaca

18661 tggttgttaa agctgcatta ttagcagaca aattcccagt tcttcacgac attggtaacc

18721 ctaaagctat taagtgtgta cctcaagctg atgtagaatg gaagttctat gatgcacagc

18781 cttgtagtga caaagcttat aaaatagaag aattattcta ttcttatgcc acacattctg

18841 acaaattcac agatggtgta tgcctatttt ggaattgcaa tgtcgataga tatcctgcta

18901 attccattgt ttgtagattt gacactagag tgctatctaa ccttaacttg cctggttgtg

18961 atggtggcag tttgtatgta aataaacatg cattccacac accagctttt gataaaagtg

19021 cttttgttaa tttaaaacaa ttaccatttt tctattactc tgacagtcca tgtgagtctc

19081 atggaaaaca agtagtgtca gatatagatt atgtaccact aaagtctgct acgtgtataa

19141 cacgttgcaa tttaggtggt gctgtctgta gacatcatgc taatgagtac agattgtatc

19201 tcgatgctta taacatgatg atctcagctg gctttagctt gtgggtttac aaacaatttg

19261 atacttataa cctctggaac acttttacaa gacttcagag tttagaaaat gtggctttta

19321 atgttgtaaa taagggacac tttgatggac aacagggtga agtaccagtt tctatcatta

19381 ataacactgt ttacacaaaa gttgatggtg ttgatgtaga attgtttgaa aataaaacaa

19441 cattacctgt taatgtagca tttgagcttt gggctaagcg caacattaaa ccagtaccag

19501 aggtgaaaat actcaataat ttgggtgtgg acattgctgc taatactgtg atctgggact

19561 acaaaagaga tgctccagca catatatcta ctattggtgt ttgttctatg actgacatag

19621 ccaagaaacc aactgaaacg atttgtgcac cactcactgt cttttttgat ggtagagttg

19681 atggtcaagt agacttattt agaaatgccc gtaatggtgt tcttattaca gaaggtagtg

19741 ttaaaggttt acaaccatct gtaggtccca aacaagctag tcttaatgga gtcacattaa

19801 ttggagaagc cgtaaaaaca cagttcaatt attataagaa agttgatggt gttgtccaac

19861 aattacctga aacttacttt actcagagta gaaatttaca agaatttaaa cccaggagtc

19921 aaatggaaat tgatttctta gaattagcta tggatgaatt cattgaacgg tataaattag

19981 aaggctatgc cttcgaacat atcgtttatg gagattttag tcatagtcag ttaggtggtt

20041 tacatctact gattggacta gctaaacgtt ttaaggaatc accttttgaa ttagaagatt

20101 ttattcctat ggacagtaca gttaaaaact atttcataac agatgcgcaa acaggttcat

20161 ctaagtgtgt gtgttctgtt attgatttat tacttgatga ttttgttgaa ataataaaat

20221 cccaagattt atctgtagtt tctaaggttg tcaaagtgac tattgactat acagaaattt

20281 catttatgct ttggtgtaaa gatggccatg tagaaacatt ttacccaaaa ttacaatcta

20341 gtcaagcgtg gcaaccgggt gttgctatgc ctaatcttta caaaatgcaa agaatgctat

20401 tagaaaagtg tgaccttcaa aattatggtg atagtgcaac attacctaaa ggcataatga

20461 tgaatgtcgc aaaatatact caactgtgtc aatatttaaa cacattaaca ttagctgtac

20521 cctataatat gagagttata cattttggtg ctggttctga taaaggagtt gcaccaggta

20581 cagctgtttt aagacagtgg ttgcctacgg gtacgctgct tgtcgattca gatcttaatg

20641 actttgtctc tgatgcagat tcaactttga ttggtgattg tgcaactgta catacagcta

20701 ataaatggga tctcattatt agtgatatgt acgaccctaa gactaaaaat gttacaaaag

20761 aaaatgactc taaagagggt tttttcactt acatttgtgg gtttatacaa caaaagctag

20821 ctcttggagg ttccgtggct ataaagataa cagaacattc ttggaatgct gatctttata

20881 agctcatggg acacttcgca tggtggacag cctttgttac taatgtgaat gcgtcatcat

20941 ctgaagcatt tttaattgga tgtaattatc ttggcaaacc acgcgaacaa atagatggtt

21001 atgtcatgca tgcaaattac atattttgga ggaatacaaa tccaattcag ttgtcttcct

21061 attctttatt tgacatgagt aaatttcccc ttaaattaag gggtactgct gttatgtctt

21121 taaaagaagg tcaaatcaat gatatgattt tatctcttct tagtaaaggt agacttataa

21181 ttagagaaaa caacagagtt gttatttcta gtgatgttct tgttaacaac taaacgaaca

21241 atgtttgttt ttcttgtttt attgccacta gtttctagtc agtgtgttaa tcttacaacc

21301 agaactcaat taccccctgc atacactaat tctttcacac gtggtgttta ttaccctgac

21361 aaagttttca gatcctcagt tttacattca actcaggact tgttcttacc tttcttttcc

21421 aatgttactt ggttccatgt tatctctggg accaatggta ctaagaggtt tgataaccct

21481 gtcctaccat ttaatgatgg tgtttatttt gcttccattg agaagtctaa cataataaga

21541 ggctggattt ttggtactac tttagattcg aagacccagt ccctacttat tgttaataac

21601 gctactaatg ttgttattaa agtctgtgaa tttcaatttt gtaatgatcc atttttggac

21661 cacaaaaaca acaaaagttg gatggaaagt gagttcagag tttattctag tgcgaataat

21721 tgcacttttg aatatgtctc tcagcctttt cttatggacc ttgaaggaaa acagggtaat

21781 ttcaaaaatc ttagggaatt tgtgtttaag aatattgatg gttattttaa aatatattct

21841 aagcacacgc ctattatagt gcgtgagcca gaagatctcc ctcagggttt ttcggcttta

21901 gaaccattgg tagatttgcc aataggtatt aacatcacta ggtttcaaac tttacttgct

21961 ttacatagaa gttatttgac tcctggtgat tcttcttcag gttggacagc tggtgctgca

22021 gcttattatg tgggttatct tcaacctagg acttttctat taaaatataa tgaaaatgga

22081 accattacag atgctgtaga ctgtgcactt gaccctctct cagaaacaaa gtgtacgttg

22141 aaatccttta ctgtagaaaa aggaatctat caaacttcta actttagagt ccaaccaaca

22201 gaatctattg ttagatttcc taatattaca aacttgtgcc cttttgatga agtttttaac

22261 gccaccaaat ttgcatctgt ttatgcttgg aacaggaaga gaatcagcaa ctgtgttgct

22321 gattattctg tcctatataa tctcgcacca tttttcactt ttaagtgtta tggagtgtct

22381 cctactaaat taaatgatct ctgctttact aatgtctatg cagattcatt tgtaattaga

22441 ggtgatgaag tcagacaaat cgctccaggg caaactggaa atattgctga ttataattat

22501 aaattaccag atgattttac aggctgcgtt atagcttgga attctaacaa gcttgattct

22561 aaggttagtg gtaattataa ttacctgtat agattgttta ggaagtctaa tctcaaacct

22621 tttgagagag atatttcaac tgaaatctat caggccggta acaaaccttg taatggtgtt

22681 gcaggtttta attgttactt tcctttacga tcatatagtt tccgacccac ttatggtgtt

22741 ggtcaccaac catacagagt agtagtactt tcttttgaac ttctacatgc accagcaact

22801 gtttgtggac ctaaaaagtc tactaatttg gttaaaaaca aatgtgtcaa tttcaacttc

22861 aatggtttaa aaggcacagg tgttcttact gagtctaaca aaaagtttct gcctttccaa

22921 caatttggca gagacattgc tgacactact gatgctgtcc gtgatccaca gacacttgag

22981 attcttgaca ttacaccatg ttcttttggt ggtgtcagtg ttataacacc aggaacaaat

23041 acttctaacc aggttgctgt tctttatcag ggtgttaact gcacagaagt ccctgttgct

23101 attcatgcag atcaacttac tcctacttgg cgtgtttatt ctacaggttc taatgttttt

23161 caaacacgtg caggctgttt aataggggct gaatatgtca acaactcata tgagtgtgac

23221 atacccattg gtgcaggtat atgcgctagt tatcagactc agactaagtc tcatcggcgg

23281 gcacgtagtg tagctagtca atccatcatt gcctacacta tgtcacttgg tgcagaaaat

23341 tcagttgctt actctaataa ctctattgcc atacccacaa attttactat tagtgttacc

23401 acagaaattc taccagtgtc tatgaccaag acatcagtag attgtacaat gtacatttgt

23461 ggtgattcaa ctgaatgcag caatcttttg ttgcaatatg gcagtttttg tacacaatta

23521 aaacgtgctt taactggaat agctgttgaa caagacaaaa acacccaaga agtttttgca

23581 caagtcaaac aaatttacaa aacaccacca attaaagatt ttggtggttt taatttttca

23641 caaatattac cagatccatc aaaaccaagc aagaggtcat ttattgaaga tctacttttc

23701 aacaaagtga cacttgcaga tgctggcttc atcaaacaat atggtgattg ccttggtgat

23761 attgctgcta gagacctcat ttgtgcacaa aagtttaaag gccttactgt tttgccacct

23821 ttgctcacag atgaaatgat tgctcaatac acttctgcac tgttagcggg tacaatcact

23881 tctggttgga cctttggtgc aggtgctgca ttacaaatac catttgctat gcaaatggct

23941 tataggttta atggtattgg agttacacag aatgttctct atgagaacca aaaattgatt

24001 gccaaccaat ttaatagtgc tattggcaaa attcaagact cactttcttc cacagcaagt

24061 gcacttggaa aacttcaaga tgtggtcaac cataatgcac aagctttaaa cacgcttgtt

24121 aaacaactta gctccaaatt tggtgcaatt tcaagtgttt taaatgatat cttttcacgt

24181 cttgacaaag ttgaggctga agtgcaaatt gataggttga tcacaggcag acttcaaagt

24241 ttgcagacat atgtgactca acaattaatt agagctgcag aaatcagagc ttctgctaat

24301 cttgctgcta ctaaaatgtc agagtgtgta cttggacaat caaaaagagt tgatttttgt

24361 ggaaagggct atcatcttat gtccttccct cagtcagcac ctcatggtgt agtcttcttg

24421 catgtgactt atgtccctgc acaagaaaag aacttcacaa ctgctcctgc catttgtcat

24481 gatggaaaag cacactttcc tcgtgaaggt gtctttgttt caaatggcac acactggttt

24541 gtaacacaaa ggaattttta tgaaccacaa atcattacta cagacaacac atttgtgtct

24601 ggtaactgtg atgttgtaat aggaattgtc aacaacacag tttatgatcc tttgcaacct

24661 gaattagatt cattcaagga ggagttagat aaatatttta agaatcatac atcaccagat

24721 gttgatttag gtgacatctc tggcattaat gcttcagttg taaacattca aaaagaaatt

24781 gaccgcctca atgaggttgc caagaattta aatgaatctc tcatcgatct ccaagaactt

24841 ggaaagtatg agcagtatat aaaatggcca tggtacattt ggctaggttt tatagctggc

24901 ttgattgcca tagtaatggt gacaattatg ctttgctgta tgaccagttg ctgtagttgt

24961 ctcaagggct gttgttcttg tggatcctgc tgcaaatttg atgaagacga ctctgagcca

25021 gtgctcaaag gagtcaaatt acattacaca taaacgaact tatggatttg tttatgagaa

25081 tcttcacaat tggaactgta actttgaagc aaggtgaaat caaggatgct actccttcag

25141 attttgttcg cgctactgca acgataccga tacaagcctc actccctttc ggatggctta

25201 ttgttggcgt tgcacttctt gctgtttttc agagcgcttc caaaatcata actctcaaaa

25261 agagatggca actagcactc tccaagggtg ttcactttgt ttgcaacttg ctgttgttgt

25321 ttgtaacagt ttactcacac cttttgctcg ttgctgctgg ccttgaagcc ccttttctct

25381 atctttatgc tttagtctac ttcttgcaga gtataaactt tgtaagaata ataatgaggc

25441 tttggctttg ctggaaatgc cgttccaaaa acccattact ttatgatgcc aactattttc

25501 tttgctggca tactaattgt tacgactatt gtatacctta caatagtgta acttcttcaa

25561 ttgtcattac ttcaggtgat ggcacaacaa gtcctatttc tgaacatgac taccagattg

25621 gtggttatac tgaaaaatgg gaatctggag taaaagactg tgttgtatta cacagttact

25681 tcacttcaga ctattaccag ctgtactcaa ctcaattgag tacagacact ggtgttgaac

25741 atgttacctt cttcatctac aataaaattg ttgatgagcc tgaagaacat gtccaaattc

25801 acacaatcga cggttcatcc ggagttgtta atccagtaat ggaaccaatt tatgatgaac

25861 cgacgacgac tactagcgtg cctttgtaag cacaagctga tgagtacgaa cttatgtact

25921 cattcgtttc ggaagagata ggtacgttaa tagttaatag cgtacttctt tttcttgctt

25981 tcgtggtatt cttgctagtt acactagcca tccttactgc gcttcgattg tgtgcgtact

26041 gctgcaatat tgttaacgtg agtcttgtaa aaccttcttt ttacgtttac tctcgtgtta

26101 aaaatctgaa ttcttctaga gttcctgatc ttctggtcta aacgaactaa atattatatt

26161 agtttttctg tttggaactt taattttagc catggcaggt tccaacggta ctattaccgt

26221 tgaagagctt aaaaagctcc ttgaagaatg gaacctagta ataggtttcc tattccttac

26281 atggatttgt cttctacaat ttgcctatgc caacaggaat aggtttttgt atataattaa

26341 gttaattttc ctctggctgt tatggccagt aactttaact tgttttgtgc ttgctgctgt

26401 ttacagaata aattggatca ccggtggaat tgctatcgca atggcttgtc ttgtaggctt

26461 gatgtggctc agctacttca ttgcttcttt cagactgttt gcgcgtacgc gttccatgtg

26521 gtcattcaat ccagaaacta acattcttct caacgtgcca ctccatggca ctattctgac

26581 cagaccgctt ctagaaagtg aactcgtaat cggagctgtg atccttcgtg gacatcttcg

26641 tattgctgga caccatctag gacgctgtga catcaaggac ctgcctaaag aaatcactgt

26701 tgctacatca cgaacgcttt cttattacaa attgggagct tcgcagcgtg tagcaggtga

26761 ctcaggtttt gctgcataca gtcgctacag gattggcaac tataaattaa acacagacca

26821 ttccagtagc agtgacaata ttgctttgct tgtacagtaa gtgacaacag atgtttcatc

26881 tcgttgactt tcaggttact atagcagaga tattactaat tattatgcgg acttttaaag

26941 tttccatttg gaatcttgat tacatcataa acctcataat taaaaattta tctaagtcac

27001 taactgagaa taaatattct caattagatg aagagcaacc aatggagatt gattaaacga

27061 acatgaaaat tattcttttc ttggcactga taacactcgc tacttgtgag ctttatcact

27121 accaagagtg tgttagaggt acaacagtac ttttaaaaga accttgctct tctggaacat

27181 acgagggcaa ttcaccattt catcctctag ctgataacaa atttgcactg acttgcttta

27241 gcactcaatt tgcttttgct tgtcctgacg gcgtaaaaca cgtctatcag ttacgtgcca

27301 gatcagtttc acctaaactg ttcatcagac aagaggaagt tcaagaactt tactctccaa

27361 tttttcttat tgttgcggca atagtgttta taacactttg cttcacactc aaaagaaaga

27421 cagaatgatt gaactttcat taattgactt ctatttgtgc tttttagcct ttctgttatt

27481 ccttgtttta attatgctta ttatcttttg gttctcactt gaactgcaag atcataatga

27541 aacttgtcac gcctaaacga acatgaaatt tcttgttttc ttaggaatca tcacaactgt

27601 agctgcattt caccaagaat gtagtttaca gtcatgtact caacatcaac catatgtagt

27661 tgatgacccg tgtcctattc acttctattc taaatggtat attagagtag gagctagaaa

27721 atcagcacct ttaattgaat tgtgcgtgga tgaggctggt tctaaatcac ccattcagta

27781 catcgatatc ggtaattata cagtttcctg tttacctttt acaattaatt gccaggaacc

27841 taaattgggt agtcttgtag tgcgttgttc gttctatgaa gactttttag agtatcatga

27901 cgttcgtgtt gttttagatt tcatctaaac gaacaaactt aaatgtctga taatg

[gap 315 bp] [Expand Ns](https://www.ncbi.nlm.nih.gov/nuccore/OM497172.1?expand-gaps=on)

28271 tctactacct aggaactggg ccagaagctg gacttcccta tggtgctaac

28321 aaagacggca tcatatgggt tgcaactgag ggagccttga atacaccaaa agatcacatt

28381 ggcacccgca atcctgctaa caatgctgca atcgtgctac aacttcctca aggaacaaca

28441 ttgccaaaag gcttctacgc agaagggagc agaggcggca gtcaagcctc ttctcgttcc

28501 tcatcacgta gtcgcaacag ttcaagaaat tcaactccag gcagcagtaa acgaacttct

28561 cctgctagaa tggctggcaa tggcggtgat gctgctcttg ctttgctgct gcttgacaga

28621 ttgaaccagc ttgagagcaa aatgtctggt aaaggccaac aacaacaagg ccaaactgtc

28681 actaagaaat ctgctgctga ggcttctaag aagcctcggc aaaaacgtac tgccactaaa

28741 gcatacaatg taacacaagc tttcggcaga cgtggtccag aacaaaccca aggaaatttt

28801 ggggaccagg aactaatcag acaaggaact gattacaaac attggccgca aattgcacaa

28861 tttgccccca gcgcttcagc gttcttcgga atgtcgcgca ttggcatgga agtcacacct

28921 tcgggaacgt ggttgaccta cacaggtgcc atcaaattgg atgacaaaga tccaaatttc

28981 aaagatcaag tcattttgct gaataagcat attgacgcat acaaaacatt cccaccaaca

29041 gagcctaaaa aggacaaaaa gaagaaggct gatgaaactc aagccttacc gcagagacag

29101 aagaaacagc aaactgtgac tcttcttcct gctgcagatt tggatgattt ctccaaacaa

29161 ttgcaacaat ccatgagcag tgctgactca actcaggcct aaactcatgc agaccacaca

29221 aggcagatgg gctatataaa cgttttcgct tttccgttta cgatatatag tctactcttg

29281 tgcagaatga attctcgtaa ctacatagca caagtagatg tagttaact

//