**Severe acute respiratory syndrome coronavirus 2 isolate SARS-CoV-2/human/USA/MD-CDC-LC0424904/2021 ORF1ab polyprotein (ORF1ab), ORF1a polyprotein (ORF1ab), surface glycoprotein (S), ORF3a protein (ORF3a), envelope protein (E), membrane glycoprotein (M), ORF6 p...**

GenBank: OL994299.1

[FASTA](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?report=fasta) [Graphics](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?report=graph)

[Go to:](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1" \l "goto2169749251_0)

LOCUS OL994299 29387 bp RNA linear VRL 23-DEC-2021

DEFINITION Severe acute respiratory syndrome coronavirus 2 isolate

SARS-CoV-2/human/USA/MD-CDC-LC0424904/2021 ORF1ab polyprotein

(ORF1ab), 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), and nucleocapsid phosphoprotein (N) genes,

complete cds; and ORF10 protein (ORF10) gene, partial cds.

ACCESSION OL994299

VERSION OL994299.1

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

BioSample: [SAMN24312110](https://www.ncbi.nlm.nih.gov/biosample/SAMN24312110)

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 29387)

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 29387)

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 (22-DEC-2021) 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..29387

/organism="Severe acute respiratory syndrome coronavirus

2"

/mol\_type="genomic RNA"

/isolate="SARS-CoV-2/human/USA/MD-CDC-LC0424904/2021"

/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: Maryland"

/collection\_date="2021-12-08"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=73&to=21350) 73..21350

/gene="ORF1ab"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?location=73:13263,13263:21350) join(73..13263,13263..21350)

/gene="ORF1ab"

/ribosomal\_slippage

/codon\_start=1

/product="ORF1ab polyprotein"

/protein\_id="[UHN44338.1](https://www.ncbi.nlm.nih.gov/protein/2169749252)"

/translation="MESLVPGFNEKTHVQLSLPVLQVRDVLVRGFGDSVEEVLSEARQ

HLKDGTCGLVEVEKGVLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGE

TLGVLVPHVGEIPVAYRKVLLRKNGNKGAGGHSYGADLKSFDLGDELGTDPYEDFQEN

WNTKHSSGVTRELMRELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEQ

LDFIDTKRGVYCCREHEHEIAWYTERSEKSYELQTPFEIKLAKKFDTFNGECPNFVFP

LNSIIKTIQPRVEKKKLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTG

DFVKATCEFCGTENLTKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESG

LKTILRKGGRTIAFGGCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNL

LEILQKEKVNINIVGDFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGN

FKVTKGKAKKGAWNIGEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAA

ITILDGISQYSLRLIDAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKL

KPVLDWLEEKFKEGVEFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLV

NKFLALCADSIIIGGAKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEII

FLEGETLPTEVLTEEVVLKTGDLQPLEQPTSEAVEAPLVGTPVCINGLMLLEIKDTEK

YCALAPNMMVTNNTFTLKGGAPTKVTFGDDTVIEVQGYKSVNITFELDERIDKVLNER

CSAYTVELGTEVNEFACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDESGEF

KLASHMYCSFYPPDEDEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPE

EEQEEDWLDDDSQQTVGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSG

YLKLTDNVYIKNADIVEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESD

DYIATNGPLKVGGSCVLSGHNLAKHCLHVVGPNVNKGEDIQLLKSAYENFNQHEVLLA

PLLSAGIFGADPIHSLRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIA

EIPKEEVKPFITESKPSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGN

LHPDSATLVSDIDITFLKKDAPYIVGDVVQEGVLTAVVIPTKKAGGTTEMLAKALRKV

PTDNYITTYPGQGLNGYTVEEAKTVLKKCKSAFYILPSIISNEKQEILGTVSWNLREM

LAHAEETRKLMPVCVETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLIN

TLNDLNETLVTMPLGYVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSS

KTPEEHFIETISLAGSYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTTFHLDGEVIT

FDNLKTLLSLREVRTIKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPH

NSHEGKTFYVLPNDDTLRVEAFEYYHTTDPSFLGRYMSALNHTKKWKYPQVNGLTSIK

WADNNCYLATALLTLQQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELG

DVRETMSYLFQHANLDSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQ

IPCTCGKQATKYLVQQESPFVMMSAPPAQYELKHGTFICASEYTGNYQCGHYKHITSK

ETLYCIDGALLTKSSEYKGPITDVFYKENSYTTTIKPVTYKLDGVVCTEIDPKLDNYY

KKDNSYFTEQPIDLVPNQPYPNASFDNFKFVCDNIKFADDLNQLTGYKKPASRELKVT

FFPDLNGDVVAIDYKHYTPSFKKGAKLLHKPIVWHVNNATNKATYKPNTWCIRCLWST

KPVETSNSFDVLKSEDAQGMDNLACEDLKPVSEEVVENPTIQKDVLECNVKTTEVVGD

IILKPANNIKITEEVGHTDLMAAYVDNSSLTIKKPNELSRVLGLKTLATHGLAAVNSV

PWDTIANYAKPFLNKVVSTTTNIVTRCLNRVCTNYMPYFFTLLLQLCTFTRSTNSRIK

ASMPTTIAKNTVKSVGKFCLEASFNYLKSPNFSKLINIIIWFLLLSVCLGSLIYSTAA

LGVLMSNLGMPSYCTGYREGYLNSTNVTIATYCTGSIPCSVCLSGLDSLDTYPSLETI

QITISSFKWDLTAFGLVAEWFLAYILFTRFFYVLGLAAIMQLFFSYFAVHFISNSWLM

WLIINLVQMAPISAMVRMYIFFASFYYVWKSYVHVVDGCNSSTCMMCYKRNRATRVEC

TTIVNGVRRSFYVYANGGKGFCKLHNWNCVNCDTFCAGSTFISDEVARDLSLQFKRPI

NPTDQSSYIVDSVTVKNGSIHLYFDKAGQKTYERHSLSHFVNLDNLRANNTKGSLPIN

VIVFDGKSKCEESSAKSASVYYSQLMCQPILLLDQALVSDVGDSAEVAVKMFDAYVNT

FSSTFNVPMEKLKTLVATAEAELAKNVSLDNVLSTFISAARQGFVDSDVETKDVVECL

KLSHQSDIEVTGDSCNNYMLTYNKVENMTPRDLGACIDCSARHINAQVAKSHNITLIW

NVKDFMSLSEQLRKQIRSAAKKNNLPFKLTCATTRQVVNVVTTKIALKGGKIVNNWLK

QLIKVTLVFLFVAAIFYLITPVHVMSKHTDFSSEIIGYKAIDGGVTRDIASTDTCFAN

KHADFDTWFSQRGGSYTNDKACPLIAAVITREVGFVVPGLPGTILRTTNGDFLHFLPR

VFSAVGNICYTPSKLIEYTDFATSACVLAAECTIFKDASGKPVPYCYDTNVLEGSVAY

ESLRPDTRYVLMDGSIIQFPNTYLEGSVRVVTTFDSEYCRHGTCERSEAGVCVSTSGR

WVLNNDYYRSLPGVFCGVDAVNLLTNMFTPLIQPIGALDISASIVAGGIVAIVVTCLA

YYFMRFRRAFGEYSHVVAFNTLLFLMSFTVLCLTPVYSFLPGVYSVIYLYLTFYLTND

VSFLAHIQWMVMFTPLVPFWITIAYIICISTKHFYWFFSNYLKRRVVFNGVSFSTFEE

AALCTFLLNKEMYLKLRSDVLLPLTQYNRYLALYNKYKYFSGAMDTTSYREAACCHLA

KALNDFSNSGSDVLYQPPQISITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNGL

WLDDVVYCPRHVICTSEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVLK

LKVDTANPKTPKYKFVRIQPGQTFSVLACYNGSPSGVYQCAMRHNFTIKGSFLNGSCG

SVGFNIDYDCVSFCYMHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVNV

LAWLYAAVINGDRWFLNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAVL

DMCASLKELLQNGMNGRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHWL

LLTILTSLLVLVQSTQWSLFFFLYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFLL

PSLATVAYFNMVYMPASWVMRIMTWLDMVDTSFKLKDCVMYASAVVLLILMTARTVYD

DGARRVWTLMNVLTLVYKVYYGNALDQAISMWALIISVTSNYSGVVTTVMFLARGVVF

MCVEYCPIFFITGNTLQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYLVSTQ

EFRYMNSQGLLPPKNSIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVLLSVL

QQLRVESSSKLWAQCVQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKLCEEM

LDNRATLQAIASEFSSLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAKSEFD

RDAAMQRKLEKMADQAMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALNNIIN

NARDGCVPLNIIPLTTAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDADSKI

VQLSEISMDNSPNLAWPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTACTDD

NALAYYNTTKGGRFVLALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTPKGPK

VKYLYFIKGLNNLNRGMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAKAYKD

YLASGGQPITNCVKMLCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDHPNPK

GFCDLKGKYVQIPTTCANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSADAQS

FLNRVCGVSAARLTPCGTGTSTDVVYRAFDIYNDKVAGFAKFLKTNCCRFQEKDEDDN

LIDSYFVVKRHTFSNYQHEETIYNLLKDCPAVAKHDFFKFRIDGDMVPHISRQRLTKY

TMADLVYALRHFDEGNCDTLKEILVTYNCCDDDYFNKKDWYDFVENPDILRVYANLGE

RVRQALLKTVQFCDAMRNAGIVGVLTLDNQDLNGNWYDFGDFIQTTPGSGVPVVDSYY

SLLMPILTLTRALTAESHVDTDLTKPYIKWDLLKYDFTEERLKLFDRYFKYWDQTYHP

NCVNCLDDRCILHCANFNVLFSTVFPLTSFGPLVRKIFVDGVPFVVSTGYHFRELGVV

HNQDVNLHSSRLSFKELLVYAADPAMHAASGNLLLDKRTTCFSVAALTNNVAFQTVKP

GNFNKDFYDFAVSKGFFKEGSSVELKHFFFAQDGNAAISDYDYYRYNLPTMCDIRQLL

FVVEVVDKYFDCYDGGCINANQVIVNNLDKSAGFPFNKWGKARLYYDSMSYEDQDALF

AYTKRNVIPTITQMNLKYAISAKNRARTVAGVSICSTMTNRQFHQKLLKSIAATRGAT

VVIGTSKFYGGWHNMLKTVYSDVENPHLMGWDYPKCDRAMPNMLRIMASLVLARKHTT

CCSLSHRFYRLANECAQVLSEMVMCGGSLYVKPGGTSSGDATTAYANSVFNICQAVTA

NVNALLSTDGNKIADKYVRNLQHRLYECLYRNRDVDTDFVNEFYAYLRKHFSMMILSD

DAVVCFNSTYASQGLVASIKNFKSVLYYQNNVFMSEAKCWTETDLTKGPHEFCSQHTM

LVKQGDDYVYLPYPDPSRILGAGCFVDDIVKTDGTLMIERFVSLAIDAYPLTKHPNQE

YADVFHLYLQYIRKLHDELTGHMLDMYSVMLTNDNTSRYWEPEFYEAMYTPHTVLQAV

GACVLCNSQTSLRCGACIRRPFLCCKCCYDHVISTSHKLVLSVNPYVCNAPGCDVTDV

TQLYLGGMSYYCKSHKPPISFPLCANGQVFGLYKNTCVGSDNVTDFNAIATCDWTNAG

DYILANTCTERLKLFAAETLKATEETFKLSYGIATVREVLSDRELHLSWEVGKPRPPL

NRNYVFTGYRVTKNSKVQIGEYTFEKGDYGDAVVYRGTTTYKLNVGDYFVLTSHTVMP

LSAPTLVPQEHYVRITGLYPTLNISDEFSSNVANYQKVGMQKYSTLQGPPGTGKSHFA

IGLALYYPSARIVYTACSHAAVDALCEKALKYLPIDKCSRIIPARARVECFDKFKVNS

TLEQYVFCTVNALPETTADIVVFDEISMATNYDLSVVNARLRAKHYVYIGDPAQLPAP

RTLLTKGTLEPEYFNSVCRLMKTIGPDMFLGTCRRCPAEIVDTVSALVYDNKLKAHKD

KSAQCFKMFYKGVITHDVSSAINRPQIGVVREFLTRNPAWRKAVFISPYNSQNAVASK

ILGLPTQTVDSSQGSEYDYVIFTQTTETAHSCNVNRFNVAITRAKVGILCIMSDRDLY

DKLQFTSLEIPRRNVATLQAENVTGLFKDCSKVITGLHPTQAPTHLSVDTKFKTEGLC

VDVPGIPKDMTYRRLISMMGFKMNYQVNGYPNMFITREEAIRHVRAWIGFDVEGCHAT

REAVGTNLPLQLGFSTGVNLVAVPTGYVDTPNNTDFSRVSAKPPPGDQFKHLIPLMYK

GLPWNVVRIKIVQMLSDTLKNLSDRVVFVLWAHGFELTSMKYFVKIGPERTCCLCDRR

ATCFSTASDTYACWHHSIGFDYVYNPFMIDVQQWGFTGNLQSNHDLYCQVHGNAHVAS

CDAIMTRCLAVHECFVKRVDWTIEYPIIGDELKINAACRKVQHMVVKAALLADKFPVL

HDIGNPKAIKCVPQADVEWKFYDAQPCSDKAYKIEELFYSYATHSDKFTDGVCLFWNC

NVDRYPANSIVCRFDTRVLSNLNLPGCDGGSLYVNKHAFHTPAFDKSAFVNLKQLPFF

YYSDSPCESHGKQVVSDIDYVPLKSATCITRCNLGGAVCRHHANEYRLYLDAYNMMIS

AGFSLWVYKQFDTYNLWNTFTRLQSLENVAFNVVNKGHFDGQQGEVPVSIINNTVYTK

VDGVDVELFENKTTLPVNVAFELWAKRNIKPVPEVKILNNLGVDIAANTVIWDYKRDA

PAHISTIGVCSMTDIAKKPTETICAPLTVFFDGRVDGQVDLFRNARNGVLITEGSVKG

LQPSVGPKQASLNGVTLIGEAVKTQFNYYKKVDGVVQQLPETYFTQSRNLQEFKPRSQ

MEIDFLELAMDEFIERYKLEGYAFEHIVYGDFSHSQLGGLHLLIGLAKRFKESPFELE

DFIPMDSTVKNYFITDAQTGSSKCVCSVIDLLLDDFVEIIKSQDLSVVSKVVKVTIDY

TEISFMLWCKDGHVETFYPKLQSSQAWQPGVAMPNLYKMQRMLLEKCDLQNYGDSATL

PKGIMMNVAKYTQLCQYLNTLTLAVPYNMRVIHFGAGSDKGVAPGTAVLRQWLPTGTL

LVDSDLNDFVSDADSTLIGDCATVHTANKWDLIISDMYDPKTKNVTKENDSKEGFFTY

ICGFIQQKLALGGSVAIKITEHSWNADLYKLMGHFAWWTAFVTNVNASSSEAFLIGCN

YLGKPREQIDGYVMHANYIFWRNTNPIQLSSYSLFDMSKFPLKLRGTAVMSLKEGQIN

DMILSLLSKGRLIIRENNRVVISSDVLVNN"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44338.1?from=1&to=180) 73..612

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44338.1?from=181&to=818) 613..2526

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44338.1?from=819&to=2762) 2527..8358

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44338.1?from=2763&to=3262) 8359..9858

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44338.1?from=3263&to=3568) 9859..10776

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44338.1?from=3569&to=3855) 10777..11637

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44338.1?from=3856&to=3938) 11638..11886

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44338.1?from=3939&to=4136) 11887..12480

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44338.1?from=4137&to=4249) 12481..12819

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44338.1?from=4250&to=4388) 12820..13236

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44338.1?from=4389&to=5320) join(13237..13263,13263..16031)

/gene="ORF1ab"

/product="RNA-dependent RNA polymerase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44338.1?from=5321&to=5921) 16032..17834

/gene="ORF1ab"

/product="helicase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44338.1?from=5922&to=6448) 17835..19415

/gene="ORF1ab"

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

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44338.1?from=6449&to=6794) 19416..20453

/gene="ORF1ab"

/product="endoRNAse"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44338.1?from=6795&to=7092) 20454..21347

/gene="ORF1ab"

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

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=73&to=13278) 73..13278

/gene="ORF1ab"

/codon\_start=1

/product="ORF1a polyprotein"

/protein\_id="[UHN44339.1](https://www.ncbi.nlm.nih.gov/protein/2169749253)"

/translation="MESLVPGFNEKTHVQLSLPVLQVRDVLVRGFGDSVEEVLSEARQ

HLKDGTCGLVEVEKGVLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGE

TLGVLVPHVGEIPVAYRKVLLRKNGNKGAGGHSYGADLKSFDLGDELGTDPYEDFQEN

WNTKHSSGVTRELMRELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEQ

LDFIDTKRGVYCCREHEHEIAWYTERSEKSYELQTPFEIKLAKKFDTFNGECPNFVFP

LNSIIKTIQPRVEKKKLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTG

DFVKATCEFCGTENLTKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESG

LKTILRKGGRTIAFGGCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNL

LEILQKEKVNINIVGDFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGN

FKVTKGKAKKGAWNIGEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAA

ITILDGISQYSLRLIDAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKL

KPVLDWLEEKFKEGVEFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLV

NKFLALCADSIIIGGAKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEII

FLEGETLPTEVLTEEVVLKTGDLQPLEQPTSEAVEAPLVGTPVCINGLMLLEIKDTEK

YCALAPNMMVTNNTFTLKGGAPTKVTFGDDTVIEVQGYKSVNITFELDERIDKVLNER

CSAYTVELGTEVNEFACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDESGEF

KLASHMYCSFYPPDEDEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPE

EEQEEDWLDDDSQQTVGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSG

YLKLTDNVYIKNADIVEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESD

DYIATNGPLKVGGSCVLSGHNLAKHCLHVVGPNVNKGEDIQLLKSAYENFNQHEVLLA

PLLSAGIFGADPIHSLRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIA

EIPKEEVKPFITESKPSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGN

LHPDSATLVSDIDITFLKKDAPYIVGDVVQEGVLTAVVIPTKKAGGTTEMLAKALRKV

PTDNYITTYPGQGLNGYTVEEAKTVLKKCKSAFYILPSIISNEKQEILGTVSWNLREM

LAHAEETRKLMPVCVETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLIN

TLNDLNETLVTMPLGYVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSS

KTPEEHFIETISLAGSYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTTFHLDGEVIT

FDNLKTLLSLREVRTIKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPH

NSHEGKTFYVLPNDDTLRVEAFEYYHTTDPSFLGRYMSALNHTKKWKYPQVNGLTSIK

WADNNCYLATALLTLQQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELG

DVRETMSYLFQHANLDSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQ

IPCTCGKQATKYLVQQESPFVMMSAPPAQYELKHGTFICASEYTGNYQCGHYKHITSK

ETLYCIDGALLTKSSEYKGPITDVFYKENSYTTTIKPVTYKLDGVVCTEIDPKLDNYY

KKDNSYFTEQPIDLVPNQPYPNASFDNFKFVCDNIKFADDLNQLTGYKKPASRELKVT

FFPDLNGDVVAIDYKHYTPSFKKGAKLLHKPIVWHVNNATNKATYKPNTWCIRCLWST

KPVETSNSFDVLKSEDAQGMDNLACEDLKPVSEEVVENPTIQKDVLECNVKTTEVVGD

IILKPANNIKITEEVGHTDLMAAYVDNSSLTIKKPNELSRVLGLKTLATHGLAAVNSV

PWDTIANYAKPFLNKVVSTTTNIVTRCLNRVCTNYMPYFFTLLLQLCTFTRSTNSRIK

ASMPTTIAKNTVKSVGKFCLEASFNYLKSPNFSKLINIIIWFLLLSVCLGSLIYSTAA

LGVLMSNLGMPSYCTGYREGYLNSTNVTIATYCTGSIPCSVCLSGLDSLDTYPSLETI

QITISSFKWDLTAFGLVAEWFLAYILFTRFFYVLGLAAIMQLFFSYFAVHFISNSWLM

WLIINLVQMAPISAMVRMYIFFASFYYVWKSYVHVVDGCNSSTCMMCYKRNRATRVEC

TTIVNGVRRSFYVYANGGKGFCKLHNWNCVNCDTFCAGSTFISDEVARDLSLQFKRPI

NPTDQSSYIVDSVTVKNGSIHLYFDKAGQKTYERHSLSHFVNLDNLRANNTKGSLPIN

VIVFDGKSKCEESSAKSASVYYSQLMCQPILLLDQALVSDVGDSAEVAVKMFDAYVNT

FSSTFNVPMEKLKTLVATAEAELAKNVSLDNVLSTFISAARQGFVDSDVETKDVVECL

KLSHQSDIEVTGDSCNNYMLTYNKVENMTPRDLGACIDCSARHINAQVAKSHNITLIW

NVKDFMSLSEQLRKQIRSAAKKNNLPFKLTCATTRQVVNVVTTKIALKGGKIVNNWLK

QLIKVTLVFLFVAAIFYLITPVHVMSKHTDFSSEIIGYKAIDGGVTRDIASTDTCFAN

KHADFDTWFSQRGGSYTNDKACPLIAAVITREVGFVVPGLPGTILRTTNGDFLHFLPR

VFSAVGNICYTPSKLIEYTDFATSACVLAAECTIFKDASGKPVPYCYDTNVLEGSVAY

ESLRPDTRYVLMDGSIIQFPNTYLEGSVRVVTTFDSEYCRHGTCERSEAGVCVSTSGR

WVLNNDYYRSLPGVFCGVDAVNLLTNMFTPLIQPIGALDISASIVAGGIVAIVVTCLA

YYFMRFRRAFGEYSHVVAFNTLLFLMSFTVLCLTPVYSFLPGVYSVIYLYLTFYLTND

VSFLAHIQWMVMFTPLVPFWITIAYIICISTKHFYWFFSNYLKRRVVFNGVSFSTFEE

AALCTFLLNKEMYLKLRSDVLLPLTQYNRYLALYNKYKYFSGAMDTTSYREAACCHLA

KALNDFSNSGSDVLYQPPQISITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNGL

WLDDVVYCPRHVICTSEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVLK

LKVDTANPKTPKYKFVRIQPGQTFSVLACYNGSPSGVYQCAMRHNFTIKGSFLNGSCG

SVGFNIDYDCVSFCYMHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVNV

LAWLYAAVINGDRWFLNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAVL

DMCASLKELLQNGMNGRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHWL

LLTILTSLLVLVQSTQWSLFFFLYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFLL

PSLATVAYFNMVYMPASWVMRIMTWLDMVDTSFKLKDCVMYASAVVLLILMTARTVYD

DGARRVWTLMNVLTLVYKVYYGNALDQAISMWALIISVTSNYSGVVTTVMFLARGVVF

MCVEYCPIFFITGNTLQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYLVSTQ

EFRYMNSQGLLPPKNSIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVLLSVL

QQLRVESSSKLWAQCVQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKLCEEM

LDNRATLQAIASEFSSLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAKSEFD

RDAAMQRKLEKMADQAMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALNNIIN

NARDGCVPLNIIPLTTAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDADSKI

VQLSEISMDNSPNLAWPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTACTDD

NALAYYNTTKGGRFVLALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTPKGPK

VKYLYFIKGLNNLNRGMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAKAYKD

YLASGGQPITNCVKMLCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDHPNPK

GFCDLKGKYVQIPTTCANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSADAQS

FLNGFAV"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44339.1?from=1&to=180) 73..612

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44339.1?from=181&to=818) 613..2526

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44339.1?from=819&to=2762) 2527..8358

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44339.1?from=2763&to=3262) 8359..9858

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44339.1?from=3263&to=3568) 9859..10776

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44339.1?from=3569&to=3855) 10777..11637

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44339.1?from=3856&to=3938) 11638..11886

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44339.1?from=3939&to=4136) 11887..12480

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44339.1?from=4137&to=4249) 12481..12819

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44339.1?from=4250&to=4388) 12820..13236

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UHN44339.1?from=4389&to=4401) 13237..13275

/gene="ORF1ab"

/product="nsp11"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=13271&to=13298) 13271..13298

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 1"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=13283&to=13337) 13283..13337

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 2"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=21358&to=25170) 21358..25170

/gene="S"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=21358&to=25170) 21358..25170

/gene="S"

/codon\_start=1

/product="surface glycoprotein"

/protein\_id="[UHN44340.1](https://www.ncbi.nlm.nih.gov/protein/2169749254)"

/translation="MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFR

SSVLHSTQDLFLPFFSNVTWFHVISGTNGTKRFDNPVLPFNDGVYFASIEKSNIIRGW

IFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLDHKNNKSWMESEFRVYSSANN

CTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGYFKIYSKHTPIIVREPEDLPQGFS

ALEPLVDLPIGINITRFQTLLALHRSYLTPGDSSSGWTAGAAAYYVGYLQPRTFLLKY

NENGTITDAVDCALDPLSETKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCP

FDEVFNATRFASVYAWNRKRISNCVADYSVLYNLAPFFTFKCYGVSPTKLNDLCFTNV

YADSFVIRGDEVRQIAPGQTGNIADYNYKLPDDFTGCVIAWNSNKLDSKVSGNYNYLY

RLFRKSNLKPFERDISTEIYQAGNKPCNGVAGFNCYFPLRSYSFRPTYGVGHQPYRVV

VLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLKGTGVLTESNKKFLPFQQFGRDI

ADTTDAVRDPQTLEILDITPCSFGGVSVITPGTNTSNQVAVLYQGVNCTEVPVAIHAD

QLTPTWRVYSTGSNVFQTRAGCLIGAEYVNNSYECDIPIGAGICASYQTQTKSHRRAR

SVASQSIIAYTMSLGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYIC

GDSTECSNLLLQYGSFCTQLKRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKYFGGFN

FSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLICAQKFNGLT

VLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLY

ENQKLIANQFNSAIGKIQDSLSSTASALGKLQDVVNHNAQALNTLVKQLSSKFGAISS

VLNDIFSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECV

LGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPR

EGVFVSNGTHWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFK

EELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYE

QYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSCGSCCKFDEDDSEPVL

KGVKLHYT"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=25179&to=26006) 25179..26006

/gene="ORF3a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=25179&to=26006) 25179..26006

/gene="ORF3a"

/codon\_start=1

/product="ORF3a protein"

/protein\_id="[UHN44341.1](https://www.ncbi.nlm.nih.gov/protein/2169749255)"

/translation="MDLFMRIFTIGTVTLKQGEIKDATPSDFVRATATIPIQASLPFG

WLIVGVALLAVFQSASKIITLKKRWQLALSKGVHFVCNLLLLFVTVYSHLLLVAAGLE

APFLYLYALVYFLQSINFVRIIMRLWLCWKCRSKNPLLYDANYFLCWHTNCYDYCIPY

NSVTSSIVITSGDGTTSPISEHDYQIGGYTEKWESGVKDCVVLHSYFTSDYYQLYSTQ

LSTDTGVEHVTFFIYNKIVDEPEEHVQIHTIDGSSGVVNPVMEPIYDEPTTTTSVPL"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=26031&to=26258) 26031..26258

/gene="E"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=26031&to=26258) 26031..26258

/gene="E"

/codon\_start=1

/product="envelope protein"

/protein\_id="[UHN44342.1](https://www.ncbi.nlm.nih.gov/protein/2169749256)"

/translation="MYSFVSEEIGTLIVNSVLLFLAFVVFLLVTLAILTALRLCAYCC

NIVNVSLVKPSFYVYSRVKNLNSSRVPDLLV"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=26309&to=26977) 26309..26977

/gene="M"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=26309&to=26977) 26309..26977

/gene="M"

/codon\_start=1

/product="membrane glycoprotein"

/protein\_id="[UHN44343.1](https://www.ncbi.nlm.nih.gov/protein/2169749257)"

/translation="MAGSNGTITVEELKKLLEEWNLVIGFLFLTWICLLQFAYANRNR

FLYIIKLIFLWLLWPVTLTCFVLAAVYRINWITGGIAIAMACLVGLMWLSYFIASFRL

FARTRSMWSFNPETNILLNVPLHGTILTRPLLESELVIGAVILRGHLRIAGHHLGRCD

IKDLPKEITVATSRTLSYYKLGASQRVAGDSGFAAYSRYRIGNYKLNTDHSSSSDNIA

LLVQ"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=26988&to=27173) 26988..27173

/gene="ORF6"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=26988&to=27173) 26988..27173

/gene="ORF6"

/codon\_start=1

/product="ORF6 protein"

/protein\_id="[UHN44344.1](https://www.ncbi.nlm.nih.gov/protein/2169749258)"

/translation="MFHLVDFQVTIAEILLIIMRTFKVSIWNLDYIINLIIKNLSKSL

TENKYSQLDEEQPMEID"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=27180&to=27545) 27180..27545

/gene="ORF7a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=27180&to=27545) 27180..27545

/gene="ORF7a"

/codon\_start=1

/product="ORF7a protein"

/protein\_id="[UHN44345.1](https://www.ncbi.nlm.nih.gov/protein/2169749259)"

/translation="MKIILFLALITLATCELYHYQECVRGTTVLLKEPCSSGTYEGNS

PFHPLADNKFALTCFSTQFAFACPDGVKHVYQLRARSVSPKLFIRQEEVQELYSPIFL

IVAAIVFITLCFTLKRKTE"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=27542&to=27673) 27542..27673

/gene="ORF7b"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=27542&to=27673) 27542..27673

/gene="ORF7b"

/codon\_start=1

/product="ORF7b"

/protein\_id="[UHN44346.1](https://www.ncbi.nlm.nih.gov/protein/2169749260)"

/translation="MIELSLIDFYLCFLAFLLFLVLIMLIIFWFSLELQDHNETCHA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=27680&to=28045) 27680..28045

/gene="ORF8"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=27680&to=28045) 27680..28045

/gene="ORF8"

/codon\_start=1

/product="ORF8 protein"

/protein\_id="[UHN44347.1](https://www.ncbi.nlm.nih.gov/protein/2169749261)"

/translation="MKFLVFLGIITTVAAFHQECSLQSCTQHQPYVVDDPCPIHFYSK

WYIRVGARKSAPLIELCVDEAGSKSPIQYIDIGNYTVSCLPFTINCQEPKLGSLVVRC

SFYEDFLEYHDVRVVLDFI"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=28060&to=29310) 28060..29310

/gene="N"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=28060&to=29310) 28060..29310

/gene="N"

/codon\_start=1

/product="nucleocapsid phosphoprotein"

/protein\_id="[UHN44348.1](https://www.ncbi.nlm.nih.gov/protein/2169749262)"

/translation="MSDNGPQNQRNALRITFGGPSDSTGSNQNGGARSKQRRPQGLPN

NTASWFTALTQHGKEDLKFPRGQGVPINTNSSPDDQIXXXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXTPKDHIGTRNPANNAAIVLQLPQ

GTTLPKGFYAEGSRGGSQASSRSSSRSRNSSRNSTPGSSKRTSPARMAGNGGDAALAL

LLLDRLNQLESKMSGKGQQQQGQTVTKKSAAEASKKPRQKRTATKAYNVTQAFGRRGP

EQTQGNFGDQELIRQGTDYKHWPQIAQFAPSASAFFGMSRIGMEVTPSGTWLTYTGAI

KLDDKDPNFKDQVILLNKHIDAYKTFPPTEPKKDKKKKADETQALPQRQKKQQTVTLL

PAADLDDFSKQLQQSMSSADSTQA"

gap 28304..28468

/estimated\_length=165

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=29335&to=29387) 29335..>29387

/gene="ORF10"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=29335&to=29387) 29335..>29387

/gene="ORF10"

/codon\_start=1

/product="ORF10 protein"

/protein\_id="[UHN44349.1](https://www.ncbi.nlm.nih.gov/protein/2169749263)"

/translation="MGYINVFAFPFTIYSLL"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?from=29386&to=29387) 29386..>29387

/gene="ORF10"

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

ORIGIN

1 ttacggtttc gtccgtgttg cagccgatca tcagcacatc taggtttcgt ncgggtgtga

61 ccgaaaggta agatggagag ccttgtccct ggtttcaacg agaaaacaca cgtccaactc

121 agtttgcctg ttttacaggt tcgcgacgtg ctcgtacgtg gctttggaga ctccgtggag

181 gaggtcttat cagaggcacg tcaacatctt aaagatggca cttgtggctt agtagaagtt

241 gaaaaaggcg ttttgcctca acttgaacag ccctatgtgt tcatcaaacg ttcggatgct

301 cgaactgcac ctcatggtca tgttatggtt gagctggtag cagaactcga aggcattcag

361 tacggtcgta gtggtgagac acttggtgtc cttgtccctc atgtgggcga aataccagtg

421 gcttaccgca aggttcttct tcgtaagaac ggtaataaag gagctggtgg ccatagttac

481 ggcgccgatc taaagtcatt tgacttaggc gacgagcttg gcactgatcc ttatgaagat

541 tttcaagaaa actggaacac taaacatagc agtggtgtta cccgtgaact catgcgtgag

601 cttaacggag gggcatacac tcgctatgtc gataacaact tctgtggccc tgatggctac

661 cctcttgagt gcattaaaga ccttctagca cgtgctggta aagcttcatg cactttgtcc

721 gaacaactgg actttattga cactaagagg ggtgtatact gctgccgtga acatgagcat

781 gaaattgctt ggtacacgga acgttctgaa aagagctatg aattgcagac accttttgaa

841 attaaattgg caaagaaatt tgacaccttc aatggggaat gtccaaattt tgtatttccc

901 ttaaattcca taatcaagac tattcaacca agggttgaaa agaaaaagct tgatggcttt

961 atgggtagaa ttcgatctgt ctatccagtt gcgtcaccaa atgaatgcaa ccaaatgtgc

1021 ctttcaactc tcatgaagtg tgatcattgt ggtgaaactt catggcagac gggcgatttt

1081 gttaaagcca cttgcgaatt ttgtggcact gagaatttga ctaaagaagg tgccactact

1141 tgtggttact taccccaaaa tgctgttgtt aaaatttatt gtccagcatg tcacaattca

1201 gaagtaggac ctgagcatag tcttgccgaa taccataatg aatctggctt gaaaaccatt

1261 cttcgtaagg gtggtcgcac tattgccttt ggaggctgtg tgttctctta tgttggttgc

1321 cataacaagt gtgcctattg ggttccacgt gctagcgcta acataggttg taaccataca

1381 ggtgttgttg gagaaggttc cgaaggtctt aatgacaacc ttcttgaaat actccaaaaa

1441 gagaaagtca acatcaatat tgttggtgac tttaaactta atgaagagat cgccattatt

1501 ttggcatctt tttctgcttc cacaagtgct tttgtggaaa ctgtgaaagg tttggattat

1561 aaagcattca aacaaattgt tgaatcctgt ggtaatttta aagttacaaa aggaaaagct

1621 aaaaaaggtg cctggaatat tggtgaacag aaatcaatac tgagtcctct ttatgcattt

1681 gcatcagagg ctgctcgtgt tgtacgatca attttctccc gcactcttga aactgctcaa

1741 aattctgtgc gtgttttaca gaaggccgct ataacaatac tagatggaat ttcacagtat

1801 tcactgagac tcattgatgc tatgatgttc acatctgatt tggctactaa caatctagtt

1861 gtaatggcct acattacagg tggtgttgtt cagttgactt cgcagtggct aactaacatc

1921 tttggcactg tttatgaaaa actcaaaccc gtccttgatt ggcttgaaga gaagtttaag

1981 gaaggtgtag agtttcttag agacggttgg gaaattgtta aatttatctc aacctgtgct

2041 tgtgaaattg tcggtggaca aattgtcacc tgtgcaaagg aaattaagga gagtgttcag

2101 acattcttta agcttgtaaa taaatttttg gctttgtgtg ctgactctat cattattggt

2161 ggagctaaac ttaaagcctt gaatttaggt gaaacatttg tcacgcactc aaagggattg

2221 tacagaaagt gtgttaaatc cagagaagaa actggcctac tcatgcctct aaaagcccca

2281 aaagaaatta tcttcttaga gggagaaaca cttcccacag aagtgttaac agaggaagtt

2341 gtcttgaaaa ctggtgattt acaaccatta gaacaaccta ctagtgaagc tgttgaagct

2401 ccattggttg gtacaccagt ttgtattaac gggcttatgt tgctcgaaat caaagacaca

2461 gaaaagtact gtgcccttgc acctaatatg atggtaacaa acaatacctt cacactcaaa

2521 ggcggtgcac caacaaaggt tacttttggt gatgacactg tgatagaagt gcaaggttac

2581 aagagtgtga atatcacttt tgaacttgat gaaaggattg ataaagtact taatgagagg

2641 tgctctgcct atacagttga actcggtaca gaagtaaatg agttcgcctg tgttgtggca

2701 gatgctgtca taaaaacttt gcaaccagta tctgaattac ttacaccact gggcattgat

2761 ttagatgagt ggagtatggc tacatactac ttatttgatg agtctggtga gtttaaattg

2821 gcttcacata tgtattgttc tttttaccct ccagatgagg atgaagaaga aggtgattgt

2881 gaagaagaag agtttgagcc atcaactcaa tatgagtatg gtactgaaga tgattaccaa

2941 ggtaaacctt tggaatttgg tgccacttct gctgctcttc aacctgaaga agagcaagaa

3001 gaagattggt tagatgatga tagtcaacaa actgttggtc aacaagacgg cagtgaggac

3061 aatcagacaa ctactattca aacaattgtt gaggttcaac ctcaattaga gatggaactt

3121 acaccagttg ttcagactat tgaagtgaat agttttagtg gttatttaaa acttactgac

3181 aatgtataca ttaaaaatgc agacattgtg gaagaagcta aaaaggtaaa accaacagtg

3241 gttgttaatg cagccaatgt ttaccttaaa catggaggag gtgttgcagg agccttaaat

3301 aaggctacta acaatgccat gcaagttgaa tctgatgatt acatagctac taatggacca

3361 cttaaagtgg gtggtagttg tgttttaagc ggacacaatc ttgctaaaca ctgtcttcat

3421 gttgtcggcc caaatgttaa caaaggtgaa gacattcaac ttcttaagag tgcttatgaa

3481 aattttaatc agcacgaagt tctacttgca ccattattat cagctggtat ttttggtgct

3541 gaccctatac attctttaag agtttgtgta gatactgttc gcacaaatgt ctacttagct

3601 gtctttgata aaaatctcta tgacaaactt gtttcaagct ttttggaaat gaagagtgaa

3661 aagcaagttg aacaaaagat cgctgagatt cctaaagagg aagttaagcc atttataact

3721 gaaagtaaac cttcagttga acagagaaaa caagatgata agaaaatcaa agcttgtgtt

3781 gaagaagtta caacaactct ggaagaaact aagttcctca cagaaaactt gttactttat

3841 attgacatta atggcaatct tcatccagat tctgccactc ttgttagtga cattgacatc

3901 actttcttaa agaaagatgc tccatatata gtgggtgatg ttgttcaaga gggtgtttta

3961 actgctgtgg ttatacctac taaaaaggct ggtggcacta ctgaaatgct agcgaaagct

4021 ttgagaaaag tgccaacaga caattatata accacttacc cgggtcaggg tttaaatggt

4081 tacactgtag aggaggcaaa gacagtgctt aaaaagtgta aaagtgcctt ttacattcta

4141 ccatctatta tctctaatga gaagcaagaa attcttggaa ctgtttcttg gaatttgcga

4201 gaaatgcttg cacatgcaga agaaacacgc aaattaatgc ctgtctgtgt ggaaactaaa

4261 gccatagttt caactataca gcgtaaatat aagggtatta aaatacaaga gggtgtggtt

4321 gattatggtg ctagatttta cttttacacc agtaaaacaa ctgtagcgtc acttatcaac

4381 acacttaacg atctaaatga aactcttgtt acaatgccac ttggctatgt aacacatggc

4441 ttaaatttgg aagaagctgc tcggtatatg agatctctca aagtgccagc tacagtttct

4501 gtttcttcac ctgatgctgt tacagcgtat aatggttatc ttacttcttc ttctaaaaca

4561 cctgaagaac attttattga aaccatctca cttgctggtt cctataaaga ttggtcctat

4621 tctggacaat ctacacaact aggtatagaa tttcttaaga gaggtgataa aagtgtatat

4681 tacactagta atcctaccac attccaccta gatggtgaag ttatcacctt tgacaatctt

4741 aagacacttc tttctttgag agaagtgagg actattaagg tgtttacaac agtagacaac

4801 attaacctcc acacgcaagt tgtggacatg tcaatgacat atggacaaca gtttggtcca

4861 acttatttgg atggagctga tgttactaaa ataaaacctc ataattcaca tgaaggtaaa

4921 acattttatg ttttacctaa tgatgacact ctacgtgttg aggcttttga gtactaccac

4981 acaactgatc ctagttttct gggtaggtac atgtcagcat taaatcacac taaaaagtgg

5041 aaatacccac aagttaatgg tttaacttct attaaatggg cagataacaa ctgttatctt

5101 gccactgcat tgttaacact ccaacaaata gagttgaagt ttaatccacc tgctctacaa

5161 gatgcttatt acagagcaag ggctggtgaa gcggctaact tttgtgcact tatcttagcc

5221 tactgtaata agacagtagg tgagttaggt gatgttagag aaacaatgag ttacttgttt

5281 caacatgcca atttagattc ttgcaaaaga gtcttgaacg tggtgtgtaa aacttgtgga

5341 caacagcaga caacccttaa gggtgtagaa gctgttatgt acatgggcac actttcttat

5401 gaacaattta agaaaggtgt tcagatacct tgtacgtgtg gtaaacaagc tacaaaatat

5461 ctagtacaac aggagtcacc ttttgttatg atgtcagcac cacctgctca gtatgaactt

5521 aagcatggta catttatttg tgctagtgag tacactggta attaccagtg tggtcactat

5581 aaacatataa cttctaaaga aactttgtat tgcatagacg gtgctttact tacaaagtcc

5641 tcagaataca aaggtcctat tacggatgtt ttctacaaag aaaacagtta cacaacaacc

5701 ataaaaccag ttacttataa attggatggt gttgtttgta cagaaattga ccctaagttg

5761 gacaattatt ataagaaaga caattcttat ttcacagagc aaccaattga tcttgtacca

5821 aaccaaccat atccaaacgc aagcttcgat aattttaagt ttgtatgtga taatatcaaa

5881 tttgctgatg atttaaacca gttaactggt tataagaaac ctgcttcaag agagcttaaa

5941 gttacatttt tccctgactt aaatggtgat gtggtggcta ttgattataa acactacaca

6001 ccctctttta agaaaggagc taaattgtta cataaaccta ttgtttggca tgttaacaat

6061 gcaactaata aagccacgta taaaccaaat acctggtgta tacgttgtct ttggagcaca

6121 aaaccagttg aaacatcaaa ttcgtttgat gtactgaagt cagaggacgc gcagggaatg

6181 gataatcttg cctgcgaaga tctaaaacca gtctctgaag aagtagtgga aaatcctacc

6241 atacagaaag acgttcttga gtgtaatgtg aaaactaccg aagttgtagg agacattata

6301 cttaaaccag caaataatat aaaaattaca gaagaggttg gccacacaga tctaatggct

6361 gcttatgtag acaattctag tcttactatt aagaaaccta atgaattatc tagagtatta

6421 ggtttgaaaa cccttgctac tcatggttta gctgctgtta atagtgtccc ttgggatact

6481 atagctaatt atgctaagcc ttttcttaac aaagttgtta gtacaactac taacatagtt

6541 acacggtgtt taaaccgtgt ttgtactaat tatatgcctt atttctttac tttattgcta

6601 caattgtgta cttttactag aagtacaaat tctagaatta aagcatctat gccgactact

6661 atagcaaaga atactgttaa gagtgtcggt aaattttgtc tagaggcttc atttaattat

6721 ttgaagtcac ctaatttttc taaactgata aatattataa tttggttttt actattaagt

6781 gtttgcctag gttctttaat ctactcaacc gctgctttag gtgttttaat gtctaattta

6841 ggcatgcctt cttactgtac tggttacaga gaaggctatt tgaactctac taatgtcact

6901 attgcaacct actgtactgg ttctatacct tgtagtgttt gtcttagtgg tttagattct

6961 ttagacacct atccttcttt agaaactata caaattacca tttcatcttt taaatgggat

7021 ttaactgctt ttggcttagt tgcagagtgg tttttggcat atattctttt cactaggttt

7081 ttctatgtac ttggattggc tgcaatcatg caattgtttt tcagctattt tgcagtacat

7141 tttattagta attcttggct tatgtggtta ataattaatc ttgtacaaat ggccccgatt

7201 tcagctatgg ttagaatgta catcttcttt gcatcatttt attatgtatg gaaaagttat

7261 gtgcatgttg tagacggttg taattcatca acttgtatga tgtgttacaa acgtaataga

7321 gcaacaagag tcgaatgtac aactattgtt aatggtgtta gaaggtcctt ttatgtctat

7381 gctaatggag gtaaaggctt ttgcaaacta cacaattgga attgtgttaa ttgtgataca

7441 ttctgtgctg gtagtacatt tattagtgat gaagttgcga gagacttgtc actacagttt

7501 aaaagaccaa taaatcctac tgaccagtct tcttacatcg ttgatagtgt tacagtgaag

7561 aatggttcca tccatcttta ctttgataaa gctggtcaaa agacttatga aagacattct

7621 ctctctcatt ttgttaactt agacaacctg agagctaata acactaaagg ttcattgcct

7681 attaatgtta tagtttttga tggtaaatca aaatgtgaag aatcatctgc aaaatcagcg

7741 tctgtttact acagtcagct tatgtgtcaa cctatactgt tactagatca ggcattagtg

7801 tctgatgttg gtgatagtgc ggaagttgca gttaaaatgt ttgatgctta cgttaatacg

7861 ttttcatcaa cttttaacgt accaatggaa aaactcaaaa cactagttgc aactgcagaa

7921 gctgaacttg caaagaatgt gtccttagac aatgtcttat ctacttttat ttcagcagct

7981 cggcaagggt ttgttgattc agatgtagaa actaaagatg ttgttgaatg tcttaaattg

8041 tcacatcaat ctgacataga agttactggc gatagttgta ataactatat gctcacctat

8101 aacaaagttg aaaacatgac accccgtgac cttggtgctt gtattgactg tagtgcgcgt

8161 catattaatg cgcaggtagc aaaaagtcac aacattactt tgatatggaa cgttaaagat

8221 ttcatgtcat tgtctgaaca actacgaaaa caaatacgta gtgctgctaa aaagaataac

8281 ttacctttta agttgacatg tgcaactact agacaagttg ttaatgttgt aacaacaaag

8341 atagcactta agggtggtaa aattgttaat aattggttga agcagttaat taaagttaca

8401 cttgtgttcc tttttgttgc tgctattttc tatttaataa cacctgttca tgtcatgtct

8461 aaacatactg acttttcaag tgaaatcata ggatacaagg ctattgatgg tggtgtcact

8521 cgtgacatag catctacaga tacttgtttt gctaacaaac atgctgattt tgacacatgg

8581 tttagccagc gtggtggtag ttatactaat gacaaagctt gcccattgat tgctgcagtc

8641 ataacaagag aagtgggttt tgtcgtgcct ggtttgcctg gcacgatatt acgcacaact

8701 aatggtgact ttttgcattt cttacctaga gtttttagtg cagttggtaa catctgttac

8761 acaccatcaa aacttataga gtacactgac tttgcaacat cagcttgtgt tttggctgct

8821 gaatgtacaa tttttaaaga tgcttctggt aagccagtac catattgtta tgataccaat

8881 gtactagaag gttctgttgc ttatgaaagt ttacgccctg acacacgtta tgtgctcatg

8941 gatggctcta ttattcaatt tcctaacacc taccttgaag gttctgttag agtggtaaca

9001 acttttgatt ctgagtactg taggcacggc acttgtgaaa gatcagaagc tggtgtttgt

9061 gtatctacta gtggtagatg ggtacttaac aatgattatt acagatcttt accaggagtt

9121 ttctgtggtg tagatgctgt aaatttactt actaatatgt ttacaccact aattcaacct

9181 attggtgctt tggacatatc agcatctata gtagctggtg gtattgtagc tatcgtagta

9241 acatgccttg cctactattt tatgaggttt agaagagctt ttggtgaata cagtcatgta

9301 gttgccttta atactttact attccttatg tcattcactg tactctgttt aacaccagtt

9361 tactcattct tacctggtgt ttattctgtt atttacttgt acttgacatt ttatcttact

9421 aatgatgttt cttttttagc acatattcag tggatggtta tgttcacacc tttagtacct

9481 ttctggataa caattgctta tatcatttgt atttccacaa agcatttcta ttggttcttt

9541 agtaattacc taaagagacg tgtagtcttt aatggtgttt cctttagtac ttttgaagaa

9601 gctgcgctgt gcaccttttt gttaaataaa gaaatgtatc taaagttgcg tagtgatgtg

9661 ctattacctc ttacgcaata taatagatac ttagctcttt ataataagta caagtatttt

9721 agtggagcaa tggatacaac tagctacaga gaagctgctt gttgtcatct cgcaaaggct

9781 ctcaatgact tcagtaactc aggttctgat gttctttacc aaccaccaca aatctctatc

9841 acctcagctg ttttgcagag tggttttaga aaaatggcat tcccatctgg taaagttgag

9901 ggttgtatgg tacaagtaac ttgtggtaca actacactta acggtctttg gcttgatgac

9961 gtagtttact gtccaagaca tgtgatctgc acctctgaag acatgcttaa ccctaattat

10021 gaagatttac tcattcgtaa gtctaatcat aatttcttgg tacaggctgg taatgttcaa

10081 ctcagggtta ttggacattc tatgcaaaat tgtgtactta agcttaaggt tgatacagcc

10141 aatcctaaga cacctaagta taagtttgtt cgcattcaac caggacagac tttttcagtg

10201 ttagcttgtt acaatggttc accatctggt gtttaccaat gtgctatgag gcacaatttc

10261 actattaagg gttcattcct taatggttca tgtggtagtg ttggttttaa catagattat

10321 gactgtgtct ctttttgtta catgcaccat atggaattac caactggagt tcatgctggc

10381 acagacttag aaggtaactt ttatggacct tttgttgaca ggcaaacagc acaagcagct

10441 ggtacggaca caactattac agttaatgtt ttagcttggt tgtacgctgc tgttataaat

10501 ggagacaggt ggtttctcaa tcgatttacc acaactctta atgactttaa ccttgtggct

10561 atgaagtaca attatgaacc tctaacacaa gaccatgttg acatactagg acctctttct

10621 gctcaaactg gaattgccgt tttagatatg tgtgcttcat taaaagaatt actgcaaaat

10681 ggtatgaatg gacgtaccat attgggtagt gctttattag aagatgaatt tacacctttt

10741 gatgttgtta gacaatgctc aggtgttact ttccaaagtg cagtgaaaag aacaatcaag

10801 ggtacacacc actggttgtt actcacaatt ttgacttcac ttttagtttt agtccagagt

10861 actcaatggt ctttgttctt ttttttgtat gaaaatgcct ttttaccttt tgctatgggt

10921 attattgcta tgtctgcttt tgcaatgatg tttgtcaaac ataagcatgc atttctctgt

10981 ttgtttttgt taccttctct tgccactgta gcttatttta atatggtcta tatgcctgct

11041 agttgggtga tgcgtattat gacatggttg gatatggttg atactagttt taagctaaaa

11101 gactgtgtta tgtatgcatc agctgtagtg ttactaatcc ttatgacagc aagaactgtg

11161 tatgatgatg gtgctaggag agtgtggaca cttatgaatg tcttgacact cgtttataaa

11221 gtttattatg gtaatgcttt agatcaagcc atttccatgt gggctcttat aatctctgtt

11281 acttctaact actcaggtgt agttacaact gtcatgtttt tggccagagg tgttgttttt

11341 atgtgtgttg agtattgccc tattttcttc ataactggta atacacttca gtgtataatg

11401 ctagtttatt gtttcttagg ctatttttgt acttgttact ttggcctctt ttgtttactc

11461 aaccgctact ttagactgac tcttggtgtt tatgattact tagtttctac acaggagttt

11521 agatatatga attcacaggg actactccca cccaagaata gcatagatgc cttcaaactc

11581 aacattaaat tgttgggtgt tggtggcaaa ccttgtatca aagtagccac tgtacagtct

11641 aaaatgtcag atgtaaagtg cacatcagta gtcttactct cagttttgca acaactcaga

11701 gtagaatcat catctaaatt gtgggctcaa tgtgtccagt tacacaatga cattctctta

11761 gctaaagata ctactgaagc ctttgaaaaa atggtttcac tactttctgt tttgctttcc

11821 atgcagggtg ctgtagacat aaacaagctt tgtgaagaaa tgctggacaa cagggcaacc

11881 ttacaagcta tagcctcaga gtttagttcc cttccatcat atgcagcttt tgctactgct

11941 caagaagctt atgagcaggc tgttgctaat ggtgattctg aagttgttct taaaaagttg

12001 aagaagtctt tgaatgtggc taaatctgaa tttgaccgtg atgcagccat gcaacgtaag

12061 ttggaaaaga tggctgatca agctatgacc caaatgtata aacaggctag atctgaggac

12121 aagagggcaa aagttactag tgctatgcag acaatgcttt tcactatgct tagaaagttg

12181 gataatgatg cactcaacaa cattatcaac aatgcaagag atggttgtgt tcccttgaac

12241 ataatacctc ttacaacagc agccaaacta atggttgtca taccagacta taacacatat

12301 aaaaatacgt gtgatggtac aacatttact tatgcatcag cattgtggga aatccaacag

12361 gttgtagatg cagatagtaa aattgttcaa cttagtgaaa ttagtatgga caattcacct

12421 aatttagcat ggcctcttat tgtaacagct ttaagggcca attctgctgt caaattacag

12481 aataatgagc ttagtcctgt tgcactacga cagatgtctt gtgctgccgg tactacacaa

12541 actgcttgca ctgatgacaa tgcgttagct tactacaaca caacaaaggg aggtaggttt

12601 gtacttgcac tgttatccga tttacaggat ttgaaatggg ctagattccc taagagtgat

12661 ggaactggta ctatctatac agaactggaa ccaccttgta ggtttgttac agacacacct

12721 aaaggtccta aagtgaagta tttatacttt attaaaggat taaacaacct aaatagaggt

12781 atggtacttg gtagtttagc tgccacagta cgtctacaag ctggtaatgc aacagaagtg

12841 cctgccaatt caactgtatt atctttctgt gcttttgctg tagatgctgc taaagcttac

12901 aaagattatc tagctagtgg gggacaacca atcactaatt gtgttaagat gttgtgtaca

12961 cacactggta ctggtcaggc aataacagtc acaccggaag ccaatatgga tcaagaatcc

13021 tttggtggtg catcgtgttg tctgtactgc cgttgccaca tagatcatcc aaatcctaaa

13081 ggattttgtg acttaaaagg taagtatgta caaataccta caacttgtgc taatgaccct

13141 gtgggtttta cacttaaaaa cacagtctgt accgtctgcg gtatgtggaa aggttatggc

13201 tgtagttgtg atcaactccg cgaacccatg cttcagtcag ctgatgcaca atcgttttta

13261 aacgggtttg cggtgtaagt gcagcccgtc ttacaccgtg cggcacaggc actagtactg

13321 atgtcgtata cagggctttt gacatctaca atgataaagt agctggtttt gctaaattcc

13381 taaaaactaa ttgttgtcgc ttccaagaaa aggacgaaga tgacaattta attgattctt

13441 actttgtagt taagagacac actttctcta actaccaaca tgaagaaaca atttataatt

13501 tacttaagga ttgtccagct gttgctaaac atgacttctt taagtttaga atagacggtg

13561 acatggtacc acatatatca cgtcaacgtc ttactaaata cacaatggca gacctcgtct

13621 atgctttaag gcattttgat gaaggtaatt gtgacacatt aaaagaaata cttgtcacat

13681 acaattgttg tgatgatgat tatttcaata aaaaggactg gtatgatttt gtagaaaacc

13741 cagatatatt acgcgtatac gccaacttag gtgaacgtgt acgccaagct ttgttaaaaa

13801 cagtacaatt ctgtgatgcc atgcgaaatg ctggtattgt cggtgtactg acattagata

13861 atcaagatct caatggtaac tggtatgatt tcggtgattt catacaaacc acgccaggta

13921 gtggagttcc tgttgtagat tcttattatt cattgttaat gcctatatta accttgacca

13981 gggctttaac tgcagagtca catgttgaca ctgacttaac aaagccttac attaagtggg

14041 atttgttaaa atatgacttc acggaagaga ggttaaaact ctttgaccgt tattttaaat

14101 attgggatca gacataccac ccaaattgtg ttaactgttt ggatgacaga tgcattctgc

14161 attgtgcaaa ctttaatgtt ttattctcta cagtgttccc acttacaagt tttggaccac

14221 tagtgagaaa aatatttgtt gatggtgttc catttgtagt ttcaactgga taccacttca

14281 gagagctagg tgttgtacat aatcaggatg taaacttaca tagctctaga cttagtttta

14341 aggaattact tgtgtatgct gctgaccctg ctatgcacgc tgcttctggt aatctattac

14401 tagataaacg cactacgtgc ttttcagtag ctgcacttac taacaatgtt gcttttcaaa

14461 ctgtcaaacc cggtaatttt aacaaagact tctatgactt tgctgtgtct aagggtttct

14521 ttaaggaagg aagttctgtt gaattaaaac acttcttctt tgctcaggat ggtaatgctg

14581 ctatcagcga ttatgactac tatcgttata atctaccaac aatgtgtgat atcagacaac

14641 tactatttgt agttgaagtt gttgataagt actttgattg ttacgatggt ggctgtatta

14701 atgctaacca agtcatcgtc aacaacctag acaaatcagc tggttttcca tttaataaat

14761 ggggtaaggc tagactttat tatgattcaa tgagttatga ggatcaagat gcacttttcg

14821 catatacaaa acgtaatgtc atccctacta taactcaaat gaatcttaag tatgccatta

14881 gtgcaaagaa tagagctcgc accgtagctg gtgtctctat ctgtagtact atgaccaata

14941 gacagtttca tcaaaaatta ttgaaatcaa tagccgccac tagaggagct actgtagtaa

15001 ttggaacaag caaattctat ggtggttggc acaatatgtt aaaaactgtt tatagtgatg

15061 tagaaaaccc tcaccttatg ggttgggatt atcctaaatg tgatagagcc atgcctaaca

15121 tgcttagaat tatggcctca cttgttcttg ctcgcaaaca tacaacgtgt tgtagcttgt

15181 cacaccgttt ctatagatta gctaatgagt gtgctcaagt attgagtgaa atggtcatgt

15241 gtggcggttc actatatgtt aaaccaggtg gaacctcatc aggagatgcc acaactgctt

15301 atgctaatag tgtttttaac atttgtcaag ctgtcacggc caatgttaat gcacttttat

15361 ctactgatgg taacaaaatt gccgataagt atgtccgcaa tttacaacac agactttatg

15421 agtgtctcta tagaaataga gatgttgaca cagactttgt gaatgagttt tacgcatatt

15481 tgcgtaaaca tttctcaatg atgatactct ctgacgatgc tgttgtgtgt ttcaatagca

15541 cttatgcatc tcaaggtcta gtggctagca taaagaactt taagtcagtt ctttattatc

15601 aaaacaatgt ttttatgtct gaagcaaaat gttggactga gactgacctt actaaaggac

15661 ctcatgaatt ttgctctcaa catacaatgc tagttaaaca gggtgatgat tatgtgtacc

15721 ttccttaccc agatccatca agaatcctag gggccggctg ttttgtagat gatatcgtaa

15781 aaacagatgg tacacttatg attgaacggt tcgtgtcttt agctatagat gcttacccac

15841 ttactaaaca tcctaatcag gagtatgctg atgtctttca tttgtactta caatacataa

15901 gaaagctaca tgatgagtta acaggacaca tgttagacat gtattctgtt atgcttacta

15961 atgataacac ttcaaggtat tgggaacctg agttttatga ggctatgtac acaccgcata

16021 cagtcttaca ggctgttggg gcttgtgttc tttgcaattc acagacttca ttaagatgtg

16081 gtgcttgcat acgtagacca ttcttatgtt gtaaatgctg ttacgaccat gtcatatcaa

16141 catcacataa attagtcttg tctgttaatc cgtatgtttg caatgctcca ggttgtgatg

16201 tcacagatgt gactcaactt tacttaggag gtatgagcta ttattgtaaa tcacataaac

16261 cacccattag ttttccattg tgtgctaatg gacaagtttt tggtttatat aaaaatacat

16321 gtgttggtag cgataatgtt actgacttta atgcaattgc aacatgtgac tggacaaatg

16381 ctggtgatta cattttagct aacacctgta ctgaaagact caagcttttt gcagcagaaa

16441 cgctcaaagc tactgaggag acatttaaac tgtcttatgg tattgctact gtacgtgaag

16501 tgctgtctga cagagaatta catctttcat gggaagttgg taaacctaga ccaccactta

16561 accgaaatta tgtctttact ggttatcgtg taactaaaaa cagtaaagta caaataggag

16621 agtacacctt tgaaaaaggt gactatggtg atgctgttgt ttaccgaggt acaacaactt

16681 acaaattaaa tgttggtgat tattttgtgc tgacatcaca tacagtaatg ccattaagtg

16741 cacctacact agtgccacaa gagcactatg ttagaattac tggcttatac ccaacactca

16801 atatctcaga tgagttttct agcaatgttg caaattatca aaaggttggt atgcaaaagt

16861 attctacact ccagggacca cctggtactg gtaagagtca ttttgctatt ggcctagctc

16921 tctactaccc ttctgctcgc atagtgtata cagcttgctc tcatgccgct gttgatgcac

16981 tatgtgagaa ggcattaaaa tatttgccta tagataaatg tagtagaatt atacctgcac

17041 gtgctcgtgt agagtgtttt gataaattca aagtgaattc aacattagaa cagtatgtct

17101 tttgtactgt aaatgcattg cctgagacga cagcagatat agttgtcttt gatgaaattt

17161 caatggccac aaattatgat ttgagtgttg tcaatgccag attacgtgct aagcactatg

17221 tgtacattgg cgaccctgct caattacctg caccacgcac attgctaact aagggcacac

17281 tagaaccaga atatttcaat tcagtgtgta gacttatgaa aactataggt ccagacatgt

17341 tcctcggaac ttgtcggcgt tgtcctgctg aaattgttga cactgtgagt gctttggttt

17401 atgataataa gcttaaagca cataaagaca aatcagctca atgctttaaa atgttttata

17461 agggtgttat cacgcatgat gtttcatctg caattaacag gccacaaata ggcgtggtaa

17521 gagaattcct tacacgtaac cctgcttgga gaaaagctgt ctttatttca ccttataatt

17581 cacagaatgc tgtagcctca aagattttgg gactaccaac tcaaactgtt gattcatcac

17641 agggctcaga atatgactat gtcatattca ctcaaaccac tgaaacagct cactcttgta

17701 atgtaaacag atttaatgtt gctattacca gagcaaaagt aggcatactt tgcataatgt

17761 ctgatagaga cctttatgac aagttgcaat ttacaagtct tgaaattcca cgtaggaatg

17821 tggcaacttt acaagctgaa aatgtaacag gactctttaa agattgtagt aaggtaatca

17881 ctgggttaca tcctacacag gcacctacac acctcagtgt tgacactaaa ttcaaaactg

17941 aaggtttatg tgttgacgta cctggcatac ctaaggacat gacctataga agactcatct

18001 ctatgatggg ttttaaaatg aattatcaag ttaatggtta ccctaacatg tttatcaccc

18061 gcgaagaagc tataagacat gtacgtgcat ggattggctt cgatgtcgag gggtgtcatg

18121 ctactagaga agctgttggt accaatttac ctttacagct aggtttttct acaggtgtta

18181 acctagttgc tgtacctaca ggttatgttg atacacctaa taatacagat ttttccagag

18241 ttagtgctaa accaccgcct ggagatcaat ttaaacacct cataccactt atgtacaaag

18301 gacttccttg gaatgtagtg cgtataaaga ttgtacaaat gttaagtgac acacttaaaa

18361 atctctctga cagagtcgta tttgtcttat gggcacatgg ctttgagttg acatctatga

18421 agtattttgt gaaaatagga cctgagcgca cctgttgtct atgtgataga cgtgccacat

18481 gcttttccac tgcttcagac acttatgcct gttggcatca ttctattgga tttgattacg

18541 tctataatcc gtttatgatt gatgttcaac aatggggttt tacaggtaac ctacaaagca

18601 accatgatct gtattgtcaa gtccatggta atgcacatgt agctagttgt gatgcaatca

18661 tgactaggtg tctagctgtc cacgagtgct ttgttaagcg tgttgactgg actattgaat

18721 atcctataat tggtgatgaa ctgaagatta atgcggcttg tagaaaggtt caacacatgg

18781 ttgttaaagc tgcattatta gcagacaaat tcccagttct tcacgacatt ggtaacccta

18841 aagctattaa gtgtgtacct caagctgatg tagaatggaa gttctatgat gcacagcctt

18901 gtagtgacaa agcttataaa atagaagaat tattctattc ttatgccaca cattctgaca

18961 aattcacaga tggtgtatgc ctattttgga attgcaatgt cgatagatat cctgctaatt

19021 ccattgtttg tagatttgac actagagtgc tatctaacct taacttgcct ggttgtgatg

19081 gtggcagttt gtatgtaaat aaacatgcat tccacacacc agcttttgat aaaagtgctt

19141 ttgttaattt aaaacaatta ccatttttct attactctga cagtccatgt gagtctcatg

19201 gaaaacaagt agtgtcagat atagattatg taccactaaa gtctgctacg tgtataacac

19261 gttgcaattt aggtggtgct gtctgtagac atcatgctaa tgagtacaga ttgtatctcg

19321 atgcttataa catgatgatc tcagctggct ttagcttgtg ggtttacaaa caatttgata

19381 cttataacct ctggaacact tttacaagac ttcagagttt agaaaatgtg gcttttaatg

19441 ttgtaaataa gggacacttt gatggacaac agggtgaagt accagtttct atcattaata

19501 acactgttta cacaaaagtt gatggtgttg atgtagaatt gtttgaaaat aaaacaacat

19561 tacctgttaa tgtagcattt gagctttggg ctaagcgcaa cattaaacca gtaccagagg

19621 tgaaaatact caataatttg ggtgtggaca ttgctgctaa tactgtgatc tgggactaca

19681 aaagagatgc tccagcacat atatctacta ttggtgtttg ttctatgact gacatagcca

19741 agaaaccaac tgaaacgatt tgtgcaccac tcactgtctt ttttgatggt agagttgatg

19801 gtcaagtaga cttatttaga aatgcccgta atggtgttct tattacagaa ggtagtgtta

19861 aaggtttaca accatctgta ggtcccaaac aagctagtct taatggagtc acattaattg

19921 gagaagccgt aaaaacacag ttcaattatt ataagaaagt tgatggtgtt gtccaacaat

19981 tacctgaaac ttactttact cagagtagaa atttacaaga atttaaaccc aggagtcaaa

20041 tggaaattga tttcttagaa ttagctatgg atgaattcat tgaacggtat aaattagaag

20101 gctatgcctt cgaacatatc gtttatggag attttagtca tagtcagtta ggtggtttac

20161 atctactgat tggactagct aaacgtttta aggaatcacc ttttgaatta gaagatttta

20221 ttcctatgga cagtacagtt aaaaactatt tcataacaga tgcgcaaaca ggttcatcta

20281 agtgtgtgtg ttctgttatt gatttattac ttgatgattt tgttgaaata ataaaatccc

20341 aagatttatc tgtagtttct aaggttgtca aagtgactat tgactataca gaaatttcat

20401 ttatgctttg gtgtaaagat ggccatgtag aaacatttta cccaaaatta caatctagtc

20461 aagcgtggca accgggtgtt gctatgccta atctttacaa aatgcaaaga atgctattag

20521 aaaagtgtga ccttcaaaat tatggtgata gtgcaacatt acctaaaggc ataatgatga

20581 atgtcgcaaa atatactcaa ctgtgtcaat atttaaacac attaacatta gctgtaccct

20641 ataatatgag agttatacat tttggtgctg gttctgataa aggagttgca ccaggtacag

20701 ctgttttaag acagtggttg cctacgggta cgctgcttgt cgattcagat cttaatgact

20761 ttgtctctga tgcagattca actttgattg gtgattgtgc aactgtacat acagctaata

20821 aatgggatct cattattagt gatatgtacg accctaagac taaaaatgtt acaaaagaaa

20881 atgactctaa agagggtttt ttcacttaca tttgtgggtt tatacaacaa aagctagctc

20941 ttggaggttc cgtggctata aagataacag aacattcttg gaatgctgat ctttataagc

21001 tcatgggaca cttcgcatgg tggacagcct ttgttactaa tgtgaatgcg tcatcatctg

21061 aagcattttt aattggatgt aattatcttg gcaaaccacg cgaacaaata gatggttatg

21121 tcatgcatgc aaattacata ttttggagga atacaaatcc aattcagttg tcttcctatt

21181 ctttatttga catgagtaaa tttcccctta aattaagggg tactgctgtt atgtctttaa

21241 aagaaggtca aatcaatgat atgattttat ctcttcttag taaaggtaga cttataatta

21301 gagaaaacaa cagagttgtt atttctagtg atgttcttgt taacaactaa acgaacaatg

21361 tttgtttttc ttgttttatt gccactagtc tctagtcagt gtgttaatct tacaaccaga

21421 actcaattac cccctgcata cactaattct ttcacacgtg gtgtttatta ccctgacaaa

21481 gttttcagat cctcagtttt acattcaact caggacttgt tcttaccttt cttttccaat

21541 gttacttggt tccatgttat ctctgggacc aatggtacta agaggtttga taaccctgtc

21601 ctaccattta atgatggtgt ttattttgct tccattgaga agtctaacat aataagaggc

21661 tggatttttg gtactacttt agattcgaag acccagtccc tacttattgt taataacgct

21721 actaatgttg ttattaaagt ctgtgaattt caattttgta atgatccatt tttggaccac

21781 aaaaacaaca aaagttggat ggaaagtgag ttcagagttt attctagtgc gaataattgc

21841 acttttgaat atgtctctca gccttttctt atggaccttg aaggaaaaca gggtaatttc

21901 aaaaatctta gggaatttgt gtttaagaat attgatggtt attttaaaat atattctaag

21961 cacacgccta ttatagtgcg tgagccagaa gatctccctc agggtttttc ggctttagaa

22021 ccattggtag atttgccaat aggtattaac atcactaggt ttcaaacttt acttgcttta

22081 catagaagtt atttgactcc tggtgattct tcttcaggtt ggacagctgg tgctgcagct

22141 tattatgtgg gttatcttca acctaggact tttctattaa aatataatga aaatggaacc

22201 attacagatg ctgtagactg tgcacttgac cctctctcag aaacaaagtg tacgttgaaa

22261 tccttcactg tagaaaaagg aatctatcaa acttctaact ttagagtcca accaacagaa

22321 tctattgtta gatttcctaa tattacaaac ttgtgccctt ttgatgaagt ttttaacgcc

22381 accagatttg catctgttta tgcttggaac aggaagagaa tcagcaactg tgttgctgat

22441 tattctgtcc tatataatct cgcaccattt ttcactttta agtgttatgg agtgtctcct

22501 actaaattaa atgatctctg ctttactaat gtctatgcag attcatttgt aattagaggt

22561 gatgaagtca gacaaatcgc tccagggcaa actggaaata ttgctgatta taattataaa

22621 ttaccagatg attttacagg ctgcgttata gcttggaatt ctaacaagct tgattctaag

22681 gttagtggta attataatta cctgtataga ttgtttagga agtctaatct caaacctttt

22741 gagagagata tttcaactga aatctatcag gccggtaaca aaccttgtaa tggtgttgca

22801 ggttttaatt gttactttcc tttacgatca tatagtttcc gacccactta tggtgttggt

22861 caccaaccat acagagtagt agtactttct tttgaacttc tacatgcacc agcaactgtt

22921 tgtggaccta aaaagtctac taatttggtt aaaaacaaat gtgtcaattt caacttcaat

22981 ggtttaaaag gcacaggtgt tcttactgag tctaacaaaa agtttctgcc tttccaacaa

23041 tttggcagag acattgctga cactactgat gctgtccgtg atccacagac acttgagatt

23101 cttgacatta caccatgttc ttttggtggt gtcagtgtta taacaccagg aacaaatact

23161 tctaaccagg ttgctgttct ttatcagggt gttaactgca cagaagtccc tgttgctatt

23221 catgcagatc aacttactcc tacttggcgt gtttattcta caggttctaa tgtttttcaa

23281 acacgtgcag gctgtttaat aggggctgaa tatgtcaaca actcatatga gtgtgacata

23341 cccattggtg caggtatatg cgctagttat cagactcaga ctaagtctca tcggcgggca

23401 cgtagtgtag ctagtcaatc catcattgcc tacactatgt cacttggtgc agaaaattca

23461 gttgcttact ctaataactc tattgccata cccacaaatt ttactattag tgttaccaca

23521 gaaattctac cagtgtctat gaccaagaca tcagtagatt gtacaatgta catttgtggt

23581 gattcaactg aatgcagcaa tcttttgttg caatatggca gtttttgtac acaattaaaa

23641 cgtgctttaa ctggaatagc tgttgaacaa gacaaaaaca cccaagaagt ttttgcacaa

23701 gtcaaacaaa tttacaaaac accaccaatt aaatattttg gtggttttaa tttttcacaa

23761 atattaccag atccatcaaa accaagcaag aggtcattta ttgaagatct acttttcaac

23821 aaagtgacac ttgcagatgc tggcttcatc aaacaatatg gtgattgcct tggtgatatt

23881 gctgctagag acctcatttg tgcacaaaag tttaacggcc ttactgtttt gccacctttg

23941 ctcacagatg aaatgattgc tcaatacact tctgcactgt tagcgggtac aatcacttct

24001 ggttggacct ttggtgcagg tgctgcatta caaataccat ttgctatgca aatggcttat

24061 aggtttaatg gtattggagt tacacagaat gttctctatg agaaccaaaa attgattgcc

24121 aaccaattta atagtgctat tggcaaaatt caagactcac tttcttccac agcaagtgca

24181 cttggaaaac ttcaagatgt ggtcaaccat aatgcacaag ctttaaacac gcttgttaaa

24241 caacttagct ccaaatttgg tgcaatttca agtgttttaa atgatatctt ttcacgtctt

24301 gacaaagttg aggctgaagt gcaaattgat aggttgatca caggcagact tcaaagtttg

24361 cagacatatg tgactcaaca attaattaga gctgcagaaa tcagagcttc tgctaatctt

24421 gctgctacta aaatgtcaga gtgtgtactt ggacaatcaa aaagagttga tttttgtgga

24481 aagggctatc atcttatgtc cttccctcag tcagcacctc atggtgtagt cttcttgcat

24541 gtgacttatg tccctgcaca agaaaagaac ttcacaactg ctcctgccat ttgtcatgat

24601 ggaaaagcac actttcctcg tgaaggtgtc tttgtttcaa atggcacaca ctggtttgta

24661 acacaaagga atttttatga accacaaatc attactacag acaacacatt tgtgtctggt

24721 aactgtgatg ttgtaatagg aattgtcaac aacacagttt atgatccttt gcaacctgaa

24781 ttagattcat tcaaggagga gttagataaa tattttaaga atcatacatc accagatgtt

24841 gatttaggtg acatctctgg cattaatgct tcagttgtaa acattcaaaa agaaattgac

24901 cgcctcaatg aggttgccaa gaatttaaat gaatctctca tcgatctcca agaacttgga

24961 aagtatgagc agtatataaa atggccatgg tacatttggc taggttttat agctggcttg

25021 attgccatag taatggtgac aattatgctt tgctgtatga ccagttgctg tagttgtctc

25081 aagggctgtt gttcttgtgg atcctgctgc aaatttgatg aagacgactc tgagccagtg

25141 ctcaaaggag tcaaattaca ttacacataa acgaacttat ggatttgttt atgagaatct

25201 tcacaattgg aactgtaact ttgaagcaag gtgaaatcaa ggatgctact ccttcagatt

25261 ttgttcgcgc tactgcaacg ataccgatac aagcctcact ccctttcgga tggcttattg

25321 ttggcgttgc acttcttgct gtttttcaga gcgcttccaa aatcataact ctcaaaaaga

25381 gatggcaact agcactctcc aagggtgttc actttgtttg caacttgctg ttgttgtttg

25441 taacagttta ctcacacctt ttgctcgttg ctgctggcct tgaagcccct tttctctatc

25501 tttatgcttt agtctacttc ttgcagagta taaactttgt aagaataata atgaggcttt

25561 ggctttgctg gaaatgccgt tccaaaaacc cattacttta tgatgccaac tattttcttt

25621 gctggcatac taattgttac gactattgta taccttacaa tagtgtaact tcttcaattg

25681 tcattacttc aggtgatggc acaacaagtc ctatttctga acatgactac cagattggtg

25741 gttatactga aaaatgggaa tctggagtaa aagactgtgt tgtattacac agttacttca

25801 cttcagacta ttaccagctg tactcaactc aattgagtac agacactggt gttgaacatg

25861 ttaccttctt catctacaat aaaattgttg atgagcctga agaacatgtc caaattcaca

25921 caatcgacgg ttcatccgga gttgttaatc cagtaatgga accaatttat gatgaaccga

25981 cgacgactac tagcgtgcct ttgtaagcac aagctgatga gtacgaactt atgtactcat

26041 tcgtttcgga agagataggt acgttaatag ttaatagcgt acttcttttt cttgctttcg

26101 tggtattctt gctagttaca ctagccatcc ttactgcgct tcgattgtgt gcgtactgct

26161 gcaatattgt taacgtgagt cttgtaaaac cttcttttta cgtttactct cgtgttaaaa

26221 atctgaattc ttctagagtt cctgatcttc tggtctaaac gaactaaata ttatattagt

26281 ttttctgttt ggaactttaa ttttagccat ggcaggttcc aacggtacta ttaccgttga

26341 agagcttaaa aagctccttg aagaatggaa cctagtaata ggtttcctat tccttacatg

26401 gatttgtctt ctacaatttg cctatgccaa caggaatagg tttttgtata taattaagtt

26461 aattttcctc tggctgttat ggccagtaac tttaacttgt tttgtgcttg ctgctgttta

26521 cagaataaat tggatcaccg gtggaattgc tatcgcaatg gcttgtcttg taggcttgat

26581 gtggctcagc tacttcattg cttctttcag actgtttgcg cgtacgcgtt ccatgtggtc

26641 attcaatcca gaaactaaca ttcttctcaa cgtgccactc catggcacta ttctgaccag

26701 accgcttcta gaaagtgaac tcgtaatcgg agctgtgatc cttcgtggac atcttcgtat

26761 tgctggacac catctaggac gctgtgacat caaggacctg cctaaagaaa tcactgttgc

26821 tacatcacga acgctttctt attacaaatt gggagcttcg cagcgtgtag caggtgactc

26881 aggttttgct gcatacagtc gctacaggat tggcaactat aaattaaaca cagaccattc

26941 cagtagcagt gacaatattg ctttgcttgt acagtaagtg acaacagatg tttcatctcg

27001 ttgactttca ggttactata gcagagatat tactaattat tatgcggact tttaaagttt

27061 ccatttggaa tcttgattac atcataaacc tcataattaa aaatttatct aagtcactaa

27121 ctgagaataa atattctcaa ttagatgaag agcaaccaat ggagattgat taaacgaaca

27181 tgaaaattat tcttttcttg gcactgataa cactcgctac ttgtgagctt tatcactacc

27241 aagagtgtgt tagaggtaca acagtacttt taaaagaacc ttgctcttct ggaacatacg

27301 agggcaattc accatttcat cctctagctg ataacaaatt tgcactgact tgctttagca

27361 ctcaatttgc ttttgcttgt cctgacggcg taaaacacgt ctatcagtta cgtgccagat

27421 cagtttcacc taaactgttc atcagacaag aggaagttca agaactttac tctccaattt

27481 ttcttattgt tgcggcaata gtgtttataa cactttgctt cacactcaaa agaaagacag

27541 aatgattgaa ctttcattaa ttgacttcta tttgtgcttt ttagcctttc tgttattcct

27601 tgttttaatt atgcttatta tcttttggtt ctcacttgaa ctgcaagatc ataatgaaac

27661 ttgtcacgcc taaacgaaca tgaaatttct tgttttctta ggaatcatca caactgtagc

27721 tgcatttcac caagaatgta gtttacagtc atgtactcaa catcaaccat atgtagttga

27781 tgacccgtgt cctattcact tctattctaa atggtatatt agagtaggag ctagaaaatc

27841 agcaccttta attgaattgt gcgtggatga ggctggttct aaatcaccca ttcagtacat

27901 cgatatcggt aattatacag tttcctgttt accttttaca attaattgcc aggaacctaa

27961 attgggtagt cttgtagtgc gttgttcgtt ctatgaagac tttttagagt atcatgacgt

28021 tcgtgttgtt ttagatttca tctaaacgaa caaacttaaa tgtctgataa tggaccccaa

28081 aatcagcgaa atgcactccg cattacgttt ggtggaccct cagattcaac tggcagtaac

28141 cagaatggtg gggcgcgatc aaaacaacgt cggccccaag gtttacccaa taatactgcg

28201 tcttggttca ccgctctcac tcaacatggc aaggaagacc ttaaattccc tcgaggacaa

28261 ggcgttccaa ttaacaccaa tagcagtcca gatgaccaaa ttg

[gap 165 bp] [Expand Ns](https://www.ncbi.nlm.nih.gov/nuccore/OL994299.1?expand-gaps=on)

28469 at acaccaaaag atcacattgg cacccgcaat

28501 cctgctaaca atgctgcaat cgtgctacaa cttcctcaag gaacaacatt gccaaaaggc

28561 ttctacgcag aagggagcag aggcggcagt caagcctctt ctcgttcctc atcacgtagt

28621 cgcaacagtt caagaaattc aactccaggc agcagtaaac gaacttctcc tgctagaatg

28681 gctggcaatg gcggtgatgc tgctcttgct ttgctgctgc ttgacagatt gaaccagctt

28741 gagagcaaaa tgtctggtaa aggccaacaa caacaaggcc aaactgtcac taagaaatct

28801 gctgctgagg cttctaagaa gcctcggcaa aaacgtactg ccactaaagc atacaatgta

28861 acacaagctt tcggcagacg tggtccagaa caaacccaag gaaattttgg ggaccaggaa

28921 ctaatcagac aaggaactga ttacaaacat tggccgcaaa ttgcacaatt tgcccccagc

28981 gcttcagcgt tcttcggaat gtcgcgcatt ggcatggaag tcacaccttc gggaacgtgg

29041 ttgacctaca caggtgccat caaattggat gacaaagatc caaatttcaa agatcaagtc

29101 attttgctga ataagcatat tgacgcatac aaaacattcc caccaacaga gcctaaaaag

29161 gacaaaaaga agaaggctga tgaaactcaa gccttaccgc agagacagaa gaaacagcaa

29221 actgtgactc ttcttcctgc tgcagatttg gatgatttct ccaaacaatt gcaacaatcc

29281 atgagcagtg ctgactcaac tcaggcctaa actcatgcag accacacaag gcagatgggc

29341 tatataaacg ttttcgcttt tccgtttacg atatatagtc tactctt

//