**Severe acute respiratory syndrome coronavirus 2 isolate SARS-CoV-2/human/USA/MN-CDC-IBX150382730538/2022 ORF1ab polyprotein (ORF1ab), ORF1a polyprotein (ORF1ab), surface glycoprotein (S), ORF3a protein (ORF3a), envelope protein (E), membrane glycoprotein (M), ...**

GenBank: OM983266.1

[FASTA](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?report=fasta) [Graphics](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?report=graph)

[Go to:](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1" \l "goto2207888503_0)

LOCUS OM983266 29785 bp RNA linear VRL 14-MAR-2022

DEFINITION Severe acute respiratory syndrome coronavirus 2 isolate

SARS-CoV-2/human/USA/MN-CDC-IBX150382730538/2022 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), nucleocapsid phosphoprotein (N), and ORF10

protein (ORF10) genes, complete cds.

ACCESSION OM983266

VERSION OM983266.1

DBLINK BioProject: [PRJNA731149](https://www.ncbi.nlm.nih.gov/bioproject/PRJNA731149)

BioSample: [SAMN26588835](https://www.ncbi.nlm.nih.gov/biosample/SAMN26588835)

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 29785)

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., Bixby,C.,

Wang,Y., Schultz,J., Goswami,C., Hager,R., Grimwood,R., Paden,C.R.

and MacCannell,D.

TITLE CDC Sars CoV2 Sequencing Baseline Constellation

JOURNAL Unpublished

REFERENCE 2 (bases 1 to 29785)

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., Bixby,C.,

Wang,Y., Schultz,J., Goswami,C., Hager,R., Grimwood,R., Paden,C.R.

and MacCannell,D.

TITLE Direct Submission

JOURNAL Submitted (12-MAR-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 :: DRAGEN Covid Lineage App V3.5.6

Sequencing Technology :: Illumina NovaSeq 6000

##Assembly-Data-END##

FEATURES Location/Qualifiers

source 1..29785

/organism="Severe acute respiratory syndrome coronavirus

2"

/mol\_type="genomic RNA"

/isolate="SARS-CoV-2/human/USA/MN-CDC-

IBX150382730538/2022"

/isolation\_source="nasal swab"

/host="Homo sapiens"

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

/country="USA: Minnesota"

/collection\_date="2022-03-04"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=235&to=21512) 235..21512

/gene="ORF1ab"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?location=235:13425,13425:21512) join(235..13425,13425..21512)

/gene="ORF1ab"

/ribosomal\_slippage

/codon\_start=1

/product="ORF1ab polyprotein"

/protein\_id="[UNE73548.1](https://www.ncbi.nlm.nih.gov/protein/2207888504)"

/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

IPCTCGKQATKYLVQQESPFVMMSAPPAQYELKHGTFTCASEYTGNYQCGHYKHITSK

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/UNE73548.1?from=1&to=180) 235..774

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73548.1?from=181&to=818) 775..2688

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73548.1?from=819&to=2762) 2689..8520

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73548.1?from=2763&to=3262) 8521..10020

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73548.1?from=3263&to=3568) 10021..10938

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73548.1?from=3569&to=3855) 10939..11799

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73548.1?from=3856&to=3938) 11800..12048

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73548.1?from=3939&to=4136) 12049..12642

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73548.1?from=4137&to=4249) 12643..12981

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73548.1?from=4250&to=4388) 12982..13398

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73548.1?from=4389&to=5320) join(13399..13425,13425..16193)

/gene="ORF1ab"

/product="RNA-dependent RNA polymerase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73548.1?from=5321&to=5921) 16194..17996

/gene="ORF1ab"

/product="helicase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73548.1?from=5922&to=6448) 17997..19577

/gene="ORF1ab"

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

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73548.1?from=6449&to=6794) 19578..20615

/gene="ORF1ab"

/product="endoRNAse"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73548.1?from=6795&to=7092) 20616..21509

/gene="ORF1ab"

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

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=235&to=13440) 235..13440

/gene="ORF1ab"

/codon\_start=1

/product="ORF1a polyprotein"

/protein\_id="[UNE73549.1](https://www.ncbi.nlm.nih.gov/protein/2207888505)"

/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

IPCTCGKQATKYLVQQESPFVMMSAPPAQYELKHGTFTCASEYTGNYQCGHYKHITSK

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/UNE73549.1?from=1&to=180) 235..774

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73549.1?from=181&to=818) 775..2688

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73549.1?from=819&to=2762) 2689..8520

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73549.1?from=2763&to=3262) 8521..10020

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73549.1?from=3263&to=3568) 10021..10938

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73549.1?from=3569&to=3855) 10939..11799

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73549.1?from=3856&to=3938) 11800..12048

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73549.1?from=3939&to=4136) 12049..12642

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73549.1?from=4137&to=4249) 12643..12981

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73549.1?from=4250&to=4388) 12982..13398

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNE73549.1?from=4389&to=4401) 13399..13437

/gene="ORF1ab"

/product="nsp11"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=13433&to=13460) 13433..13460

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 1"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=13445&to=13499) 13445..13499

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 2"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=21520&to=25332) 21520..25332

/gene="S"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=21520&to=25332) 21520..25332

/gene="S"

/codon\_start=1

/product="surface glycoprotein"

/protein\_id="[UNE73550.1](https://www.ncbi.nlm.nih.gov/protein/2207888506)"

/translation="MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFR

SSVLHSTQDLFLPFFSNVTWFHVISGTNGTKRFDNPVLPFNDGVYFASIEKSNIIRGW

IFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLDHKNNKSWMESEFRVYSSANN

CTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGYFKIYSKHTPIIVREPEDLPQGFS

ALEPLVDLPIGINITRFQTLLALHRSYLTPGDSSSGWTAGAAAYYVGYLQPRTFLLKY

NENGTITDAVDCALDPLSETKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCP

FDEVFNATKFASVYAWNRKRISNCVADYSVLYNLAPFFTFKCYGVSPTKLNDLCFTNV

YADSFVIRGDEVRQIAPGQTGNIADYNYKLPDDFTGCVIAWNSNKLDSKVSGNYNYLY

RLFRKSNLKPFERDISTEIYQAGSKPCNGVAGFNCYFPLRSYSFRPTYGVGHQPYRVV

VLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLKGTGVLTESNKKFLPFQQFGRDI

ADTTDAVRDPQTLEILDITPCSFGGVSVITPGTNTSNQVAVLYQGVNCTEVPVAIHAD

QLTPTWRVYSTGSNVFQTRAGCLIGAEYVNNSYECDIPIGAGICASYQTQTKSHRRAR

SVASQSIIAYTMSLGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYIC

GDSTECSNLLLQYGSFCTQLKRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKYFGGFN

FSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLICAQKFKGLT

VLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLY

ENQKLIANQFNSAIGKIQDSLSSTASALGKLQDVVNHNAQALNTLVKQLSSKFGAISS

VLNDIFSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECV

LGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPR

EGVFVSNGTHWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFK

EELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYE

QYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSCGSCCKFDEDDSEPVL

KGVKLHYT"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=25341&to=26168) 25341..26168

/gene="ORF3a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=25341&to=26168) 25341..26168

/gene="ORF3a"

/codon\_start=1

/product="ORF3a protein"

/protein\_id="[UNE73551.1](https://www.ncbi.nlm.nih.gov/protein/2207888507)"

/translation="MDLFMRIFTIGTVTLKQGEIKDATPSDFVRATATIPIQASLPFG

WLIVGVALLAVFQSASKIITLKKRWQLALSKGVHFVCNLLLLFVTVYSHLLLVAAGLE

APFLYLYALVYFLQSINFVRIIMRLWLCWKCRSKNPLLYDANYFLCWHTNCYDYCIPY

NSVTSSIVITSGDGTTSPISEHDYQIGGYTEKWESGVKDCVVLHSYFTSDYYQLYSTQ

LSTDTGVEHVTFFIYNKIVDEPEEHVQIHTIDGSSGVVNPVMEPIYDEPTTTTSVPL"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=26193&to=26420) 26193..26420

/gene="E"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=26193&to=26420) 26193..26420

/gene="E"

/codon\_start=1

/product="envelope protein"

/protein\_id="[UNE73552.1](https://www.ncbi.nlm.nih.gov/protein/2207888508)"

/translation="MYSFVSEEIGTLIVNSVLLFLAFVVFLLVTLAILTALRLCAYCC

NIVNVSLVKPSFYVYSRVKNLNSSRVPDLLV"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=26471&to=27139) 26471..27139

/gene="M"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=26471&to=27139) 26471..27139

/gene="M"

/codon\_start=1

/product="membrane glycoprotein"

/protein\_id="[UNE73553.1](https://www.ncbi.nlm.nih.gov/protein/2207888509)"

/translation="MAGSNGTITVEELKKLLEEWNLVIGFLFLTWICLLQFAYANRNR

FLYIIKLIFLWLLWPVTLTCFVLAAVYRINWITGGIAIAMACLVGLMWLSYFIASFRL

FARTRSMWSFNPETNILLNVPLHGTILTRPLLESELVIGAVILRGHLXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXSDNIA

LLVQ"

gap 26919..27107

/estimated\_length=189

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=27150&to=27335) 27150..27335

/gene="ORF6"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=27150&to=27335) 27150..27335

/gene="ORF6"

/codon\_start=1

/product="ORF6 protein"

/protein\_id="[UNE73554.1](https://www.ncbi.nlm.nih.gov/protein/2207888510)"

/translation="MFHLVDFQVTIAEILLIIMRTFKVSIWNLDYIINLIIKNLSKSL

TENKYSQLDEEQPMEID"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=27342&to=27707) 27342..27707

/gene="ORF7a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=27342&to=27707) 27342..27707

/gene="ORF7a"

/codon\_start=1

/product="ORF7a protein"

/protein\_id="[UNE73555.1](https://www.ncbi.nlm.nih.gov/protein/2207888511)"

/translation="MKIILFLALITLATCELYHYQECVRGTTVLLKEPCSSGTYEGNS

PFHPLADNKFALTCFSTQFAFACPDGVKHVYQLRARSVSPKLFIRQEEVQELYSPIFL

IVAAIVFITLCFTLKRKTE"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=27704&to=27835) 27704..27835

/gene="ORF7b"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=27704&to=27835) 27704..27835

/gene="ORF7b"

/codon\_start=1

/product="ORF7b"

/protein\_id="[UNE73556.1](https://www.ncbi.nlm.nih.gov/protein/2207888512)"

/translation="MIELSLIDFYLCFLAFLLFLVLIMLIIFWFSLELQDHNETCHA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=27842&to=28207) 27842..28207

/gene="ORF8"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=27842&to=28207) 27842..28207

/gene="ORF8"

/codon\_start=1

/product="ORF8 protein"

/protein\_id="[UNE73557.1](https://www.ncbi.nlm.nih.gov/protein/2207888513)"

/translation="MKFLVFLGIITTVAAFHQECSLQSCTQHQPYVVDDPCPIHFYSK

WYIRVGARKSAPLIELCVDEAGSKSPIQYIDIGNYTVSCLPFTINCQEPKLGSLVVRC

SFYEDFLEYHDVRVVLDFI"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=28222&to=29472) 28222..29472

/gene="N"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=28222&to=29472) 28222..29472

/gene="N"

/codon\_start=1

/product="nucleocapsid phosphoprotein"

/protein\_id="[UNE73558.1](https://www.ncbi.nlm.nih.gov/protein/2207888514)"

/translation="MSDNGPQNQRNALRITFGGPSDSTGSNQNGGARSKQRRPQGLPN

NTASWFTALTQHGKEDLKFPRGQGVPINTNSSPDDQIGYYRRATRRIRGGDGKMKDLS

PRWYFYYLGTGPEAGLPYGANKDGIIWVATEGALNTPKDHIGTRNPANNAAIVLQLPQ

GTTLPKGFYAEGSRGGSQASSRSSSRSRNSSRNSTPGSSKRTSPARMAGNGGDAALAL

LLLDRLNQLESKMSGKGQQQQGQTVTKKSAAEASKKPRQKRTATKAYNVTQAFGRRGP

EQTQGNFGDQELIRQGTDYKHWPQIAQFAPSASAFFGMSRIGMEVTPSGTWLTYTGAI

KLDDKDPNFKDQVILLNKHIDAYKTFPPTEPKKDKKKKADETQALPQRQKKQQTVTLL

PAADLDDFSKQLQQSMSSADSTQA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=29497&to=29613) 29497..29613

/gene="ORF10"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=29497&to=29613) 29497..29613

/gene="ORF10"

/codon\_start=1

/product="ORF10 protein"

/protein\_id="[UNE73559.1](https://www.ncbi.nlm.nih.gov/protein/2207888515)"

/translation="MGYINVFAFPFTIYSLLLCRMNSRNYIAQVDVVNFNLT"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=29548&to=29583) 29548..29583

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=29568&to=29596) 29568..29596

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?from=29667&to=29707) 29667..29707

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

ORIGIN

1 ccaaccaact ttcgatctct tgtagatctg ttctctaaac gaactttaaa atctgtgtgg

61 ctgtcactcg gctgcatgct tagtgcactc acgcagtata attaataact aattactgtc

121 gttgacagga cacgagtaac tcgtctatct tctgcaggct gcttacggtt tcgtccgtgt

181 tgcagccgat catcagcaca tctaggtttt gtccgggtgt gaccgaaagg taagatggag

241 agccttgtcc ctggtttcaa cgagaaaaca cacgtccaac tcagtttgcc tgttttacag

301 gttcgcgacg tgctcgtacg tggctttgga gactccgtgg aggaggtctt atcagaggca

361 cgtcaacatc ttaaagatgg cacttgtggc ttagtagaag ttgaaaaagg cgttttgcct

421 caacttgaac agccctatgt gttcatcaaa cgttcggatg ctcgaactgc acctcatggt

481 catgttatgg ttgagctggt agcagaactc gaaggcattc agtacggtcg tagtggtgag

541 acacttggtg tccttgtccc tcatgtgggc gaaataccag tggcttaccg caaggttctt

601 cttcgtaaga acggtaataa aggagctggt ggccatagtt acggcgccga tctaaagtca

661 tttgacttag gcgacgagct tggcactgat ccttatgaag attttcaaga aaactggaac

721 actaaacata gcagtggtgt tacccgtgaa ctcatgcgtg agcttaacgg aggggcatac

781 actcgctatg tcgataacaa cttctgtggc cctgatggct accctcttga gtgcattaaa

841 gaccttctag cacgtgctgg taaagcttca tgcactttgt ccgaacaact ggactttatt

901 gacactaaga ggggtgtata ctgctgccgt gaacatgagc atgaaattgc ttggtacacg

961 gaacgttctg aaaagagcta tgaattgcag acaccttttg aaattaaatt ggcaaagaaa

1021 tttgacacct tcaatgggga atgtccaaat tttgtatttc ccttaaattc cataatcaag

1081 actattcaac caagggttga aaagaaaaag cttgatggct ttatgggtag aattcgatct

1141 gtctatccag ttgcgtcacc aaatgaatgc aaccaaatgt gcctttcaac tctcatgaag

1201 tgtgatcatt gtggtgaaac ttcatggcag acgggcgatt ttgttaaagc cacttgcgaa

1261 ttttgtggca ctgagaattt gactaaagaa ggtgccacta cttgtggtta cttaccccaa

1321 aatgctgttg ttaaaattta ttgtccagca tgtcacaatt cagaagtagg acctgagcat

1381 agtcttgccg aataccataa tgaatctggc ttgaaaacca ttcttcgtaa gggtggtcgc

1441 actattgcct ttggaggctg tgtgttctct tatgttggtt gccataacaa gtgtgcctat

1501 tgggttccac gtgctagcgc taacataggt tgtaaccata caggtgttgt tggagaaggt

1561 tccgaaggtc ttaatgacaa ccttcttgaa atactccaaa aagagaaagt caacatcaat

1621 attgttggtg actttaaact taatgaagag atcgccatta ttttggcatc tttttctgct

1681 tccacaagtg cttttgtgga aactgtgaaa ggtttggatt ataaagcatt caaacaaatt

1741 gttgaatcct gtggtaattt taaagttaca aaaggaaaag ctaaaaaagg tgcctggaat

1801 attggtgaac agaaatcaat actgagtcct ctttatgcat ttgcatcaga ggctgctcgt

1861 gttgtacgat caattttctc ccgcactctt gaaactgctc aaaattctgt gcgtgtttta

1921 cagaaggccg ctataacaat actagatgga atttcacagt attcactgag actcattgat

1981 gctatgatgt tcacatctga tttggctact aacaatctag ttgtaatggc ctacattaca

2041 ggtggtgttg ttcagttgac ttcgcagtgg ctaactaaca tctttggcac tgtttatgaa

2101 aaactcaaac ccgtccttga ttggcttgaa gagaagttta aggaaggtgt agagtttctt

2161 agagacggtt gggaaattgt taaatttatc tcaacctgtg cttgtgaaat tgtcggtgga

2221 caaattgtca cctgtgcaaa ggaaattaag gagagtgttc agacattctt taagcttgta

2281 aataaatttt tggctttgtg tgctgactct atcattattg gtggagctaa acttaaagcc

2341 ttgaatttag gtgaaacatt tgtcacgcac tcaaagggat tgtacagaaa gtgtgttaaa

2401 tccagagaag aaactggcct actcatgcct ctaaaagctc caaaagaaat tatcttctta

2461 gagggagaaa cacttcccac agaagtgtta acagaggaag ttgtcttgaa aactggtgat

2521 ttacaaccat tagaacaacc tactagtgaa gctgttgaag ctccattggt tggtacacca

2581 gtttgtatta acgggcttat gttgctcgaa atcaaagaca cagaaaagta ctgtgccctt

2641 gcacctaata tgatggtaac aaacaatacc ttcacactca aaggcggtgc accaacaaag

2701 gttacttttg gtgatgacac tgtgatagaa gtgcaaggtt acaagagtgt gaatatcact

2761 tttgaacttg atgaaaggat tgataaagta cttaatgaga ggtgctctgc ctatacagtt

2821 gaactcggta cagaagtaaa tgagttcgcc tgtgttgtgg cagatgctgt cataaaaact

2881 ttgcaaccag tatctgaatt acttacacca ctgggcattg atttagatga gtggagtatg

2941 gctacatact acttatttga tgagtctggt gagtttaaat tggcttcaca tatgtattgt

3001 tctttttacc ctccagatga ggatgaagaa gaaggtgatt gtgaagaaga agagtttgag

3061 ccatcaactc aatatgagta tggtactgaa gatgattacc aaggtaaacc tttggaattt

3121 ggtgccactt ctgctgctct tcaacctgaa gaagagcaag aagaagattg gttagatgat

3181 gatagtcaac aaactgttgg tcaacaagac ggcagtgagg acaatcagac aactactatt

3241 caaacaattg ttgaggttca acctcaatta gagatggaac ttacaccagt tgttcagact

3301 attgaagtga atagttttag tggttattta aaacttactg acaatgtata cattaaaaat

3361 gcagacattg tggaagaagc taaaaaggta aaaccaacag tggttgttaa tgcagccaat

3421 gtttacctta aacatggagg aggtgttgca ggagccttaa ataaggctac taacaatgcc

3481 atgcaagttg aatctgatga ttacatagct actaatggac cacttaaagt gggtggtagt

3541 tgtgttttaa gcggacacaa tcttgctaaa cactgtcttc atgttgtcgg cccaaatgtt

3601 aacaaaggtg aagacattca acttcttaag agtgcttatg aaaattttaa tcagcacgaa

3661 gttctacttg caccattatt atcagctggt atttttggtg ctgaccctat acattcttta

3721 agagtttgtg tagatactgt tcgcacaaat gtctacttag ctgtctttga taaaaatctc

3781 tatgacaaac ttgtttcaag ctttttggaa atgaagagtg aaaagcaagt tgaacaaaag

3841 atcgctgaga ttcctaaaga ggaagttaag ccatttataa ctgaaagtaa accttcagtt

3901 gaacagagaa aacaagatga taagaaaatc aaagcttgtg ttgaagaagt tacaacaact

3961 ctggaagaaa ctaagttcct cacagaaaac ttgttacttt atattgacat taatggcaat

4021 cttcatccag attctgccac tcttgttagt gacattgaca tcactttctt aaagaaagat

4081 gctccatata tagtgggtga tgttgttcaa gagggtgttt taactgctgt ggttatacct

4141 actaaaaagg ctggtggcac tactgaaatg ctagcgaaag ctttgagaaa agtgccaaca

4201 gacaattata taaccactta cccgggtcag ggtttaaatg gttacactgt agaggaggca

4261 aagacagtgc ttaaaaagtg taaaagtgcc ttttacattc taccatctat tatctctaat

4321 gagaagcaag aaattcttgg aactgtttct tggaatttgc gagaaatgct tgcacatgca

4381 gaagaaacac gcaaattaat gcctgtctgt gtggaaacta aagccatagt ttcaactata

4441 cagcgtaaat ataagggtat taaaatacaa gagggtgtgg ttgattatgg tgctagattt

4501 tacttttaca ccagtaaaac aactgtagcg tcacttatca acacacttaa cgatctaaat

4561 gaaactcttg ttacaatgcc acttggctat gtaacacatg gcttaaattt ggaagaagct

4621 gctcggtata tgagatctct caaagtgcca gctacagttt ctgtttcttc acctgatgct

4681 gttacagcgt ataatggtta tcttacttct tcttctaaaa cacctgaaga acattttatt

4741 gaaaccatct cacttgctgg ttcctataaa gattggtcct attctggaca atctacacaa

4801 ctaggtatag aatttcttaa gagaggtgat aaaagtgtat attacactag taatcctacc

4861 acattccacc tagatggtga agttatcacc tttgacaatc ttaagacact tctttctttg

4921 agagaagtga ggactattaa ggtgtttaca acagtagaca acattaacct ccacacgcaa

4981 gttgtggaca tgtcaatgac atatggacaa cagtttggtc caacttattt ggatggagct

5041 gatgttacta aaataaaacc tcataattca catgaaggta aaacatttta tgttttacct

5101 aatgatgaca ctctacgtgt tgaggctttt gagtactacc acacaactga tcctagtttt

5161 ctgggtaggt acatgtcagc attaaatcac actaaaaagt ggaaataccc acaagttaat

5221 ggtttaactt ctattaaatg ggcagataac aactgttatc ttgccactgc attgttaaca

5281 ctccaacaaa tagagttgaa gtttaatcca cctgctctac aagatgctta ttacagagca

5341 agggctggtg aagcggctaa cttttgtgca cttatcttag cctactgtaa taagacagta

5401 ggtgagttag gtgatgttag agaaacaatg agttacttgt ttcaacatgc caatttagat

5461 tcttgcaaaa gagtcttgaa tgtggtgtgt aaaacttgtg gacaacagca gacaaccctt

5521 aagggtgtag aagctgttat gtacatgggc acactttctt atgaacaatt taagaaaggt

5581 gttcagatac cttgtacgtg tggtaaacaa gctacaaaat atctagtaca acaggagtca

5641 ccttttgtta tgatgtcagc accacctgct cagtatgaac ttaagcatgg tacatttact

5701 tgtgctagtg agtacactgg taattaccag tgtggtcact ataaacatat aacttctaaa

5761 gaaactttgt attgcataga cggtgcttta cttacaaagt cctcagaata caaaggtcct

5821 attacggatg ttttctacaa agaaaacagt tacacaacaa ccataaaacc agttacttat

5881 aaattggatg gtgttgtttg tacagaaatt gaccctaagt tggacaatta ttataagaaa

5941 gacaattctt atttcacaga gcaaccaatt gatcttgtac caaaccaacc atatccaaac

6001 gcaagcttcg ataattttaa gtttgtatgt gataatatca aatttgctga tgatttaaac

6061 cagttaactg gttataagaa acctgcttca agagagctta aagttacatt tttccctgac

6121 ttaaatggtg atgtggtggc tattgattat aaacactaca caccctcttt taagaaagga

6181 gctaaattgt tacataaacc tattgtttgg catgttaaca atgcaactaa taaagccacg

6241 tataaaccaa atacctggtg tatacgttgt ctttggagca caaaaccagt tgaaacatca

6301 aattcgtttg atgtactgaa gtcagaggac gcgcagggaa tggataatct tgcctgcgaa

6361 gatctaaaac cagtctctga agaagtagtg gaaaatccta ccatacagaa agacgttctt

6421 gagtgtaatg tgaaaactac cgaagttgta ggagacatta tacttaaacc agcaaataat

6481 ataaaaatta cagaagaggt tggccacaca gatctaatgg ctgcttatgt agacaattct

6541 agtcttacta ttaagaaacc taatgaatta tctagagtat taggtttgaa aacccttgct

6601 actcatggtt tagctgctgt taatagtgtc ccttgggata ctatagctaa ttatgctaag

6661 ccttttctta acaaagttgt tagtacaact actaacatag ttacacggtg tttaaaccgt

6721 gtttgtacta attatatgcc ttatttcttt actttattgc tacaattgtg tacttttact

6781 agaagtacaa attctagaat taaagcatct atgccgacta ctatagcaaa gaatactgtt

6841 aagagtgtcg gtaaattttg tctagaggct tcatttaatt atttgaagtc acctaatttt

6901 tctaaactga taaatattat aatttggttt ttactattaa gtgtttgcct aggttcttta

6961 atctactcaa ccgctgcttt aggtgtttta atgtctaatt taggcatgcc ttcttactgt

7021 actggttaca gagaaggcta tttgaactct actaatgtca ctattgcaac ctactgtact

7081 ggttctatac cttgtagtgt ttgtcttagt ggtttagatt ctttagacac ctatccttct

7141 ttagaaacta tacaaattac catttcatct tttaaatggg atttaactgc ttttggctta

7201 gttgcagagt ggtttttggc atatattctt ttcactaggt ttttctatgt acttggattg

7261 gctgcaatca tgcaattgtt tttcagctat tttgcagtac attttattag taattcttgg

7321 cttatgtggt taataattaa tcttgtacaa atggccccga tttcagctat ggttagaatg

7381 tacatcttct ttgcatcatt ttattatgta tggaaaagtt atgtgcatgt tgtagacggt

7441 tgtaattcat caacttgtat gatgtgttac aaacgtaata gagcaacaag agtcgaatgt

7501 acaactattg ttaatggtgt tagaaggtcc ttttatgtct atgctaatgg aggtaaaggc

7561 ttttgcaaac tacacaattg gaattgtgtt aattgtgata cattctgtgc tggtagtaca

7621 tttattagtg atgaagttgc gagagacttg tcactacagt ttaaaagacc aataaatcct

7681 actgaccagt cttcttacat cgttgatagt gttacagtga agaatggttc catccatctt

7741 tactttgata aagctggtca aaagacttat gaaagacatt ctctctctca ttttgttaac

7801 ttagacaacc tgagagctaa taacactaaa ggttcattgc ctattaatgt tatagttttt

7861 gatggtaaat caaaatgtga agaatcatct gcaaaatcag cgtctgttta ctacagtcag

7921 cttatgtgtc aacctatact gttactagat caggcattag tgtctgatgt tggtgatagt

7981 gcggaagttg cagttaaaat gtttgatgct tacgttaata cgttttcatc aacttttaac

8041 gtaccaatgg aaaaactcaa aacactagtt gcaactgcag aagctgaact tgcaaagaat

8101 gtgtccttag acaatgtctt atctactttt atttcagcag ctcggcaagg gtttgttgat

8161 tcagatgtag aaactaaaga tgttgttgaa tgtcttaaat tgtcacatca atctgacata

8221 gaagttactg gcgatagttg taataactat atgctcacct ataacaaagt tgaaaacatg

8281 acaccccgtg accttggtgc ttgtattgac tgtagtgcgc gtcatattaa tgcgcaggta

8341 gcaaaaagtc acaacattac tttgatatgg aacgttaaag atttcatgtc attgtctgaa

8401 caactacgaa aacaaatacg tagtgctgct aaaaagaata acttaccttt taagttgaca

8461 tgtgcaacta ctagacaagt tgttaatgtt gtaacaacaa agatagcact taagggtggt

8521 aaaattgtta ataattggtt gaagcagtta attaaagtta cacttgtgtt cctttttgtt

8581 gctgctattt tctatttaat aacacctgtt catgtcatgt ctaaacatac tgacttttca

8641 agtgaaatca taggatacaa ggctattgat ggtggtgtca ctcgtgacat agcatctaca

8701 gatacttgtt ttgctaacaa acatgctgat tttgacacat ggtttagcca gcgtggtggt

8761 agttatacta atgacaaagc ttgcccattg attgctgcag tcataacaag agaagtgggt

8821 tttgtcgtgc ctggtttgcc tggcacgata ttacgcacaa ctaatggtga ctttttgcat

8881 ttcttaccta gagtttttag tgcagttggt aacatctgtt acacaccatc aaaacttata

8941 gagtacactg actttgcaac atcagcttgt gttttggctg ctgaatgtac aatttttaaa

9001 gatgcttctg gtaagccagt accatattgt tatgatacca atgtactaga aggttctgtt

9061 gcttatgaaa gtttacgccc tgacacacgt tatgtgctca tggatggctc tattattcaa

9121 tttcctaaca cctaccttga aggttctgtt agagtggtaa caacttttga ttctgagtac

9181 tgtaggcacg gcacttgtga aagatcagaa gctggtgttt gtgtatctac tagtggtaga

9241 tgggtactta acaatgatta ttacagatct ttaccaggag ttttctgtgg tgtagatgct

9301 gtaaatttac ttactaatat gtttacacca ctaattcaac ctattggtgc tttggacata

9361 tcagcatcta tagtagctgg tggtattgta gctatcgtag taacatgcct tgcctactat

9421 tttatgaggt ttagaagagc ttttggtgaa tacagtcatg tagttgcctt taatacttta

9481 ctattcctta tgtcattcac tgtactctgt ttaacaccag tttactcatt cttacctggt

9541 gtttattctg ttatttactt gtacttgaca ttttatctta ctaatgatgt ttctttttta

9601 gcacatattc agtggatggt tatgttcaca cctttagtac ctttctggat aacaattgct

9661 tatatcattt gtatttccac aaagcatttc tattggttct ttagtaatta cctaaagaga

9721 cgtgtagtct ttaatggtgt ttcctttagt acttttgaag aagctgcgct gtgcaccttt

9781 ttgttaaata aagaaatgta tctaaagttg cgtagtgatg tgctattacc tcttacgcaa

9841 tataatagat acttagctct ttataataag tacaagtatt ttagtggagc aatggataca

9901 actagctaca gagaagctgc ttgttgtcat ctcgcaaagg ctctcaatga cttcagtaac

9961 tcaggttctg atgttcttta ccaaccacca caaatctcta tcacctcagc tgttttgcag

10021 agtggtttta gaaaaatggc attcccatct ggtaaagttg agggttgtat ggtacaagta

10081 acttgtggta caactacact taacggtctt tggcttgatg acgtagttta ctgtccaaga

10141 catgtgatct gcacctctga agacatgctt aaccctaatt atgaagattt actcattcgt

10201 aagtctaatc ataatttctt ggtacaggct ggtaatgttc aactcagggt tattggacat

10261 tctatgcaaa attgtgtact taagcttaag gttgatacag ccaatcctaa gacacctaag

10321 tataagtttg ttcgcattca accaggacag actttttcag tgttagcttg ttacaatggt

10381 tcaccatctg gtgtttacca atgtgctatg aggcacaatt tcactattaa gggttcattc

10441 cttaatggtt catgtggtag tgttggtttt aacatagatt atgactgtgt ctctttttgt

10501 tacatgcacc atatggaatt accaactgga gttcatgctg gcacagactt agaaggtaac

10561 ttttatggac cttttgttga caggcaaaca gcacaagcag ctggtacgga cacaactatt

10621 acagttaatg ttttagcttg gttgtacgct gctgttataa atggagacag gtggtttctc

10681 aatcgattta ccacaactct taatgacttt aaccttgtgg ctatgaagta caattatgaa

10741 cctctaacac aagaccatgt tgacatacta ggacctcttt ctgctcaaac tggaattgcc

10801 gttttagata tgtgtgcttc attaaaagaa ttactgcaaa atggtatgaa tggacgtacc

10861 atattgggta gtgctttatt agaagatgaa tttacacctt ttgatgttgt tagacaatgc

10921 tcaggtgtta ctttccaaag tgcagtgaaa agaacaatca agggtacaca ccactggttg

10981 ttactcacaa ttttgacttc acttttagtt ttagtccaga gtactcaatg gtctttgttc

11041 ttttttttgt atgaaaatgc ctttttacct tttgctatgg gtattattgc tatgtctgct

11101 tttgcaatga tgtttgtcaa acataagcat gcatttctct gtttgttttt gttaccttct

11161 cttgccactg tagcttattt taatatggtc tatatgcctg ctagttgggt gatgcgtatt

11221 atgacatggt tggatatggt tgatactagt tttaagctaa aagactgtgt tatgtatgca

11281 tcagctgtag tgttactaat ccttatgaca gcaagaactg tgtatgatga tggtgctagg

11341 agagtgtgga cacttatgaa tgtcttgaca ctcgtttata aagtttatta tggtaatgct

11401 ttagatcaag ccatttccat gtgggctctt ataatctctg ttacttctaa ctactcaggt

11461 gtagttacaa ctgtcatgtt tttggccaga ggtgttgttt ttatgtgtgt tgagtattgc

11521 cctattttct tcataactgg taatacactt cagtgtataa tgctagttta ttgtttctta

11581 ggctattttt gtacttgtta ctttggcctc ttttgtttac tcaaccgcta ctttagactg

11641 actcttggtg tttatgatta cttagtttct acacaggagt ttagatatat gaattcacag

11701 ggactactcc cacccaagaa tagcatagat gccttcaaac tcaacattaa attgttgggt

11761 gttggtggca aaccttgtat caaagtagcc actgtacagt ctaaaatgtc agatgtaaag

11821 tgcacatcag tagtcttact ctcagttttg caacaactca gagtagaatc atcatctaaa

11881 ttgtgggctc aatgtgtcca gttacacaat gacattctct tagctaaaga tactactgaa

11941 gcctttgaaa aaatggtttc actactttct gttttgcttt ccatgcaggg tgctgtagac

12001 ataaacaagc tttgtgaaga aatgctggac aacagggcaa ccttacaagc tatagcctca

12061 gagtttagtt cccttccatc atatgcagct tttgctactg ctcaagaagc ttatgagcag

12121 gctgttgcta atggtgattc tgaagttgtt cttaaaaagt tgaagaagtc tttgaatgtg

12181 gctaaatctg aatttgaccg tgatgcagcc atgcaacgta agttggaaaa gatggctgat

12241 caagctatga cccaaatgta taaacaggct agatctgagg acaagagggc aaaagttact

12301 agtgctatgc agacaatgct tttcactatg cttagaaagt tggataatga tgcactcaac

12361 aacattatca acaatgcaag agatggttgt gttcccttga acataatacc tcttacaaca

12421 gcagccaaac taatggttgt cataccagac tataacacat ataaaaatac gtgtgatggt

12481 acaacattta cttatgcatc agcattgtgg gaaatccaac aggttgtaga tgcagatagt

12541 aaaattgttc aacttagtga aattagtatg gacaattcac ctaatttagc atggcctctt

12601 attgtaacag ctttaagggc caattctgct gtcaaattac agaataatga gcttagtcct

12661 gttgcactac gacagatgtc ttgtgctgcc ggtactacac aaactgcttg cactgatgac

12721 aatgcgttag cttactacaa cacaacaaag ggaggtaggt ttgtacttgc actgttatcc

12781 gatttacagg atttgaaatg ggctagattc cctaagagtg atggaactgg tactatctat

12841 acagaactgg aaccaccttg taggtttgtt acagacacac ctaaaggtcc taaagtgaag

12901 tatttatact ttattaaagg attaaacaac ctaaatagag gtatggtact tggtagttta

12961 gctgccacag tacgtctaca agctggtaat gcaacagaag tgcctgccaa ttcaactgta

13021 ttatctttct gtgcttttgc tgtagatgct gctaaagctt acaaagatta tctagctagt

13081 gggggacaac caatcactaa ttgtgttaag atgttgtgta cacacactgg tactggtcag

13141 gcaataacag tcacaccgga agccaatatg gatcaagaat cctttggtgg tgcatcgtgt

13201 tgtctgtact gccgttgcca catagatcat ccaaatccta aaggattttg tgacttaaaa

13261 ggtaagtatg tacaaatacc tacaacttgt gctaatgacc ctgtgggttt tacacttaaa

13321 aacacagtct gtaccgtctg cggtatgtgg aaaggttatg gctgtagttg tgatcaactc

13381 cgcgaaccca tgcttcagtc agctgatgca caatcgtttt taaacgggtt tgcggtgtaa

13441 gtgcagcccg tcttacaccg tgcggcacag gcactagtac tgatgtcgta tacagggctt

13501 ttgacatcta caatgataaa gtagctggtt ttgctaaatt cctaaaaact aattgttgtc

13561 gcttccaaga aaaggacgaa gatgacaatt taattgattc ttactttgta gttaagagac

13621 acactttctc taactaccaa catgaagaaa caatttataa tttacttaag gattgtccag

13681 ctgttgctaa acatgacttc tttaagttta gaatagacgg tgacatggta ccacatatat

13741 cacgtcaacg tcttactaaa tacacaatgg cagacctcgt ctatgcttta aggcattttg

13801 atgaaggtaa ttgtgacaca ttaaaagaaa tacttgtcac atacaattgt tgtgatgatg

13861 attatttcaa taaaaaggac tggtatgatt ttgtagaaaa cccagatata ttacgcgtat

13921 acgccaactt aggtgaacgt gtacgccaag ctttgttaaa aacagtacaa ttctgtgatg

13981 ccatgcgaaa tgctggtatt gttggtgtac tgacattaga taatcaagat ctcaatggta

14041 actggtatga tttcggtgat ttcatacaaa ccacgccagg tagtggagtt cctgttgtag

14101 attcttatta ttcattgtta atgcctatat taaccttgac cagggcttta actgcagagt

14161 cacatgttga cactgactta acaaagcctt acattaagtg ggatttgtta aaatatgact

14221 tcacggaaga gaggttaaaa ctctttgacc gttattttaa atattgggat cagacatacc

14281 acccaaattg tgttaactgt ttggatgaca gatgcattct gcattgtgca aactttaatg

14341 ttttattctc tacagtgttc ccacttacaa gttttggacc actagtgaga aaaatatttg

14401 ttgatggtgt tccatttgta gtttcaactg gataccactt cagagagcta ggtgttgtac

14461 ataatcagga tgtaaactta catagctcta gacttagttt taaggaatta cttgtgtatg

14521 ctgctgaccc tgctatgcac gctgcttctg gtaatctatt actagataaa cgcactacgt

14581 gcttttcagt agctgcactt actaacaatg ttgcttttca aactgtcaaa cccggtaatt

14641 ttaacaaaga cttctatgac tttgctgtgt ctaagggttt ctttaaggaa ggaagttctg

14701 ttgaattaaa acacttcttc tttgctcagg atggtaatgc tgctatcagc gattatgact

14761 actatcgtta taatctacca acaatgtgtg atatcagaca actactattt gtagttgaag

14821 ttgttgataa gtactttgat tgttacgatg gtggctgtat taatgctaac caagtcatcg

14881 tcaacaacct agacaaatca gctggttttc catttaataa atggggtaag gctagacttt

14941 attatgattc aatgagttat gaggatcaag atgcactttt cgcatataca aaacgtaatg

15001 tcatccctac tataactcaa atgaatctta agtatgccat tagtgcaaag aatagagctc

15061 gcaccgtagc tggtgtctct atctgtagta ctatgaccaa tagacagttt catcaaaaat

15121 tattgaaatc aatagccgcc actagaggag ctactgtagt aattggaaca agcaaattct

15181 atggtggttg gcacaatatg ttaaaaactg tttatagtga tgtagaaaac cctcacctta

15241 tgggttggga ttatcctaaa tgtgatagag ccatgcctaa catgcttaga attatggcct

15301 cacttgttct tgctcgcaaa catacaacgt gttgtagctt gtcacaccgt ttctatagat

15361 tagctaatga gtgtgctcaa gtattgagtg aaatggtcat gtgtggcggt tcactatatg

15421 ttaaaccagg tggaacctca tcaggagatg ccacaactgc ttatgctaat agtgttttta

15481 acatttgtca agctgtcacg gccaatgtta atgcactttt atctactgat ggtaacaaaa

15541 ttgccgataa gtatgtccgc aatttacaac acagacttta tgagtgtctc tatagaaata

15601 gagatgttga cacagacttt gtgaatgagt tttacgcata tttgcgtaaa catttctcaa

15661 tgatgatact ctctgacgat gctgttgtgt gtttcaatag cacttatgca tctcaaggtc

15721 tagtggctag cataaagaac tttaagtcag ttctttatta tcaaaacaat gtttttatgt

15781 ctgaagcaaa atgttggact gagactgacc ttactaaagg acctcatgaa ttttgctctc

15841 aacatacaat gctagttaaa cagggtgatg attatgtgta ccttccttac ccagatccat

15901 caagaatcct aggggccggc tgttttgtag atgatatcgt aaaaacagat ggtacactta

15961 tgattgaacg gttcgtgtct ttagctatag atgcttaccc acttactaaa catcctaatc

16021 aggagtatgc tgatgtcttt catttgtact tacaatacat aagaaagcta catgatgagt

16081 taacaggaca catgttagac atgtattctg ttatgcttac taatgataac acttcaaggt

16141 attgggaacc tgagttttat gaggctatgt acacaccgca tacagtctta caggctgttg

16201 gggcttgtgt tctttgcaat tcacagactt cattaagatg tggtgcttgc atacgtagac

16261 cattcttatg ttgtaaatgc tgttacgacc atgtcatatc aacatcacat aaattagtct

16321 tgtctgttaa tccgtatgtt tgcaatgctc caggttgtga tgtcacagat gtgactcaac

16381 tttacttagg aggtatgagc tattattgta aatcacataa accacccatt agttttccat

16441 tgtgtgctaa tggacaagtt tttggtttat ataaaaatac atgtgttggt agcgataatg

16501 ttactgactt taatgcaatt gcaacatgtg actggacaaa tgctggtgat tacattttag

16561 ctaacacctg tactgaaaga ctcaagcttt ttgcagcaga aacgctcaaa gctactgagg

16621 agacatttaa actgtcttat ggtattgcta ctgtacgtga agtgctgtct gacagagaat

16681 tacatctttc atgggaagtt ggtaaaccta gaccaccact taaccgaaat tatgtcttta

16741 ctggttatcg tgtaactaaa aacagtaaag tacaaatagg agagtacacc tttgaaaaag

16801 gtgactatgg tgatgctgtt gtttaccgag gtacaacaac ttacaaatta aatgttggtg

16861 attattttgt gctgacatca catacagtaa tgccattaag tgcacctaca ctagtgccac

16921 aagagcacta tgttagaatt actggcttat acccaacact taatatctca gatgagtttt

16981 ctagcaatgt tgcaaattat caaaaggttg gtatgcaaaa gtattctaca ctccagggac

17041 cacctggtac tggtaagagt cattttgcta ttggcctagc tctctactac ccttctgctc

17101 gcatagtgta tacagcttgc tctcatgccg ctgttgatgc actatgtgag aaggcattaa

17161 aatatttgcc tatagataaa tgtagtagaa ttatacctgc acgtgctcgt gtagagtgtt

17221 ttgataaatt caaagtgaat tcaacattag aacagtatgt cttttgtact gtaaatgcat

17281 tgcctgagac gacagcagat atagttgtct ttgatgaaat ttcaatggcc acaaattatg

17341 atttgagtgt tgtcaatgcc agattacgtg ctaagcacta tgtgtacatt ggcgaccctg

17401 ctcaattacc tgcaccacgc acattgctaa ctaagggcac actagaacca gaatatttca

17461 attcagtgtg tagacttatg aaaactatag gtccagacat gttcctcgga acttgtcggc

17521 gttgtcctgc tgaaattgtt gacactgtga gtgctttggt ttatgataat aagcttaaag

17581 cacataaaga caaatcagct caatgcttta aaatgtttta taagggtgtt atcacgcatg

17641 atgtttcatc tgcaattaac aggccacaaa taggcgtggt aagagaattc cttacacgta

17701 accctgcttg gagaaaagct gtctttattt caccttataa ttcacagaat gctgtagcct

17761 caaagatttt gggactacca actcaaactg ttgattcatc acagggctca gaatatgact

17821 atgtcatatt cactcaaacc actgaaacag ctcactcttg taatgtaaac agatttaatg

17881 ttgctattac cagagcaaaa gtaggcatac tttgcataat gtctgataga gacctttatg

17941 acaagttgca atttacaagt cttgaaattc cacgtaggaa tgtggcaact ttacaagctg

18001 aaaatgtaac aggactcttt aaagattgta gtaaggtaat cactgggtta catcctacac

18061 aggcacctac acacctcagt gttgacacta aattcaaaac tgaaggttta tgtgttgacg

18121 tacctggcat acctaaggac atgacctata gaagactcat ctctatgatg ggttttaaaa

18181 tgaattatca agttaatggt taccctaaca tgtttatcac ccgcgaagaa gctataagac

18241 atgtacgtgc atggattggc ttcgatgtcg aggggtgtca tgctactaga gaagctgttg

18301 gtaccaattt acctttacag ctaggttttt ctacaggtgt taacctagtt gctgtaccta

18361 caggttatgt tgatacacct aataatacag atttttccag agttagtgct aaaccaccgc

18421 ctggagatca atttaaacac ctcataccac ttatgtacaa aggacttcct tggaatgtag

18481 tgcgtataaa gattgtacaa atgttaagtg acacacttaa aaatctctct gacagagtcg

18541 tatttgtctt atgggcacat ggctttgagt tgacatctat gaagtatttt gtgaaaatag

18601 gacctgagcg cacctgttgt ctatgtgata gacgtgccac atgcttttcc actgcttcag

18661 acacttatgc ctgttggcat cattctattg gatttgatta cgtctataat ccgtttatga

18721 ttgatgttca acaatggggt tttacaggta acctacaaag caaccatgat ctgtattgtc

18781 aagtccatgg taatgcacat gtagctagtt gtgatgcaat catgactagg tgtctagctg

18841 tccacgagtg ctttgttaag cgtgttgact ggactattga atatcctata attggtgatg

18901 aactgaagat taatgcggct tgtagaaagg ttcaacacat ggttgttaaa gctgcattat

18961 tagcagacaa attcccagtt cttcacgaca ttggtaaccc taaagctatt aagtgtgtac

19021 ctcaagctga tgtagaatgg aagttctatg atgcacagcc ttgtagtgac aaagcttata

19081 aaatagaaga attattctat tcttatgcca cacattctga caaattcaca gatggtgtat

19141 gcctattttg gaattgcaat gtcgatagat atcctgctaa ttccattgtt tgtagatttg

19201 acactagagt gctatctaac cttaacttgc ctggttgtga tggtggcagt ttgtatgtaa

19261 ataaacatgc attccacaca ccagcttttg ataaaagtgc ttttgttaat ttaaaacaat

19321 taccattttt ctattactct gacagtccat gtgagtctca tggaaaacaa gtagtgtcag

19381 atatagatta tgtaccacta aagtctgcta cgtgtataac acgttgcaat ttaggtggtg

19441 ctgtctgtag acatcatgct aatgagtaca gattgtatct cgatgcttat aacatgatga

19501 tctcagctgg ctttagcttg tgggtttaca aacaatttga tacttataac ctctggaaca

19561 cttttacaag acttcagagt ttagaaaatg tggcttttaa tgttgtaaat aagggacact

19621 ttgatggaca acagggtgaa gtaccagttt ctatcattaa taacactgtt tacacaaaag

19681 ttgatggtgt tgatgtagaa ttgtttgaaa ataaaacaac attacctgtt aatgtagcat

19741 ttgagctttg ggctaagcgc aacattaaac cagtaccaga ggtgaaaata ctcaataatt

19801 tgggtgtgga cattgctgct aatactgtga tctgggacta caaaagagat gctccagcac

19861 atatatctac tattggtgtt tgttctatga ctgacatagc caagaaacca actgaaacga

19921 tttgtgcacc actcactgtc ttttttgatg gtagagttga tggtcaagta gacttattta

19981 gaaatgcccg taatggtgtt cttattacag aaggtagtgt taaaggttta caaccatctg

20041 taggtcccaa acaagctagt cttaatggag tcacattaat tggagaagcc gtaaaaacac

20101 agttcaatta ttataagaaa gttgatggtg ttgtccaaca attacctgaa acttacttta

20161 ctcagagtag aaatttacaa gaatttaaac ccaggagtca aatggaaatt gatttcttag

20221 aattagctat ggatgaattc attgaacggt ataaattaga aggctatgcc ttcgaacata

20281 tcgtttatgg agattttagt catagtcagt taggtggttt acatctactg attggactag

20341 ctaaacgttt taaggaatca ccttttgaat tagaagattt tattcctatg gacagtacag

20401 ttaaaaacta tttcataaca gatgcgcaaa caggttcatc taagtgtgtg tgttctgtta

20461 ttgatttatt acttgatgat tttgttgaaa taataaaatc ccaagattta tctgtagttt

20521 ctaaggttgt caaagtgact attgactata cagaaatttc atttatgctt tggtgtaaag

20581 atggccatgt agaaacattt tacccaaaat tacaatctag tcaagcgtgg caaccgggtg

20641 ttgctatgcc taatctttac aaaatgcaaa gaatgctatt agaaaagtgt gaccttcaaa

20701 attatggtga tagtgcaaca ttacctaaag gcataatgat gaatgtcgca aaatatactc

20761 aactgtgtca atatttaaac acattaacat tagctgtacc ctataatatg agagttatac

20821 attttggtgc tggttctgat aaaggagttg caccaggtac agctgtttta agacagtggt

20881 tgcctacggg tacgctgctt gtcgattcag atcttaatga ctttgtctct gatgcagatt

20941 caactttgat tggtgattgt gcaactgtac atacagctaa taaatgggat ctcattatta

21001 gtgatatgta cgaccctaag actaaaaatg ttacaaaaga aaatgactct aaagagggtt

21061 ttttcactta catttgtggg tttatacaac aaaagctagc tcttggaggt tccgtggcta

21121 taaagataac agaacattct tggaatgctg atctttataa gctcatggga cacttcgcat

21181 ggtggacagc ctttgttact aatgtgaatg cgtcatcatc tgaagcattt ttaattggat

21241 gtaattatct tggcaaacca cgcgaacaaa tagatggtta tgtcatgcat gcaaattaca

21301 tattttggag gaatacaaat ccaattcagt tgtcttccta ttctttattt gacatgagta

21361 aatttcccct taaattaagg ggtactgctg ttatgtcttt aaaagaaggt caaatcaatg

21421 atatgatttt atctcttctt agtaaaggta gacttataat tagagaaaac aacagagttg

21481 ttatttctag tgatgttctt gttaacaact aaacgaacaa tgtttgtttt tcttgtttta

21541 ttgccactag tctctagtca gtgtgttaat cttacaacca gaactcaatt accccctgca

21601 tacactaatt ctttcacacg tggtgtttat taccctgaca aagttttcag atcctcagtt

21661 ttacattcaa ctcaggactt gttcttacct ttcttttcca atgttacttg gttccatgtt

21721 atctctggga ccaatggtac taagaggttt gataaccctg tcctaccatt taatgatggt

21781 gtttattttg cttccattga gaagtctaac ataataagag gctggatttt tggtactact

21841 ttagattcga agacccagtc cctacttatt gttaataacg ctactaatgt tgttattaaa

21901 gtctgtgaat ttcaattttg taatgatcca tttttggacc acaaaaacaa caaaagttgg

21961 atggaaagtg agttcagagt ttattctagt gcgaataatt gcacttttga atatgtctct

22021 cagccttttc ttatggacct tgaaggaaaa cagggtaatt tcaaaaatct tagggaattt

22081 gtgtttaaga atattgatgg ttattttaaa atatattcta agcacacgcc tattatagtg

22141 cgtgagccag aagatctccc tcagggtttt tcggctttag aaccattggt agatttgcca

22201 ataggtatta acatcactag gtttcaaact ttacttgctt tacatagaag ttatttgact

22261 cctggtgatt cttcttcagg ttggacagct ggtgctgcag cttattatgt gggttatctt

22321 caacctagga cttttctatt aaaatataat gaaaatggaa ccattacaga tgctgtagac

22381 tgtgcacttg accctctctc agaaacaaag tgtacgttga aatccttcac tgtagaaaaa

22441 ggaatctatc aaacttctaa ctttagagtc caaccaacag aatctattgt tagatttcct

22501 aatattacaa acttgtgccc ttttgatgaa gtttttaacg ccaccaaatt tgcatctgtt

22561 tatgcttgga acaggaagag aatcagcaac tgtgttgctg attattctgt cctatataat

22621 ctcgcaccat ttttcacttt taagtgttat ggagtgtctc ctactaaatt aaatgatctc

22681 tgctttacta atgtctatgc agattcattt gtaattagag gtgatgaagt cagacaaatc

22741 gctccagggc aaactggaaa tattgctgat tataattata aattaccaga tgattttaca

22801 ggctgcgtta tagcttggaa ttctaacaag cttgattcta aggttagtgg taattataat

22861 tacctgtata gattgtttag gaagtctaat ctcaaacctt ttgagagaga tatttcaact

22921 gaaatctatc aggccggtag caaaccttgt aatggtgttg caggttttaa ttgttacttt

22981 cctttacgat catatagttt ccgacccact tatggtgttg gtcaccaacc atacagagta

23041 gtagtacttt cttttgaact tctacatgca ccagcaactg tttgtggacc taaaaagtct

23101 actaatttgg ttaaaaacaa atgtgtcaat ttcaacttca atggtttaaa aggcacaggt

23161 gttcttactg agtctaacaa aaagtttctg cctttccaac aatttggcag agacattgct

23221 gacactactg atgctgtccg tgatccacag acacttgaga ttcttgacat tacaccatgt

23281 tcttttggtg gtgtcagtgt tataacacca ggaacaaata cttctaacca ggttgctgtt

23341 ctttatcagg gtgttaactg cacagaagtc cctgttgcta ttcatgcaga tcaacttact

23401 cctacttggc gtgtttattc tacaggttct aatgtttttc aaacacgtgc aggctgttta

23461 ataggggctg aatatgtcaa caactcatat gagtgtgaca tacccattgg tgcaggtata

23521 tgcgctagtt atcagactca gactaagtct catcggcggg cacgtagtgt agctagtcaa

23581 tccatcattg cctacactat gtcacttggt gcagaaaatt cagttgctta ctctaataac

23641 tctattgcca tacccacaaa ttttactatt agtgttacca cagaaattct accagtgtct

23701 atgaccaaga catcagtaga ttgtacaatg tacatttgtg gtgattcaac tgaatgcagc

23761 aatcttttgt tgcaatatgg cagtttttgt acacaattaa aacgtgcttt aactggaata

23821 gctgttgaac aagacaaaaa cacccaagaa gtttttgcac aagtcaaaca aatttacaaa

23881 acaccaccaa ttaaatattt tggtggtttt aatttttcac aaatattacc agatccatca

23941 aaaccaagca agaggtcatt tattgaagat ctacttttca acaaagtgac acttgcagat

24001 gctggcttca tcaaacaata tggtgattgc cttggtgata ttgctgctag agacctcatt

24061 tgtgcacaaa agtttaaagg ccttactgtt ttgccacctt tgctcacaga tgaaatgatt

24121 gctcaataca cttctgcact gttagcgggt acaatcactt ctggttggac ctttggtgca

24181 ggtgctgcat tacaaatacc atttgctatg caaatggctt ataggtttaa tggtattgga

24241 gttacacaga atgttctcta tgagaaccaa aaattgattg ccaaccaatt taatagtgct

24301 attggcaaaa ttcaagactc actttcttcc acagcaagtg cacttggaaa acttcaagat

24361 gtggtcaacc ataatgcaca agctttaaac acgcttgtta aacaacttag ctccaaattt

24421 ggtgcaattt caagtgtttt aaatgatatc ttttcacgtc ttgacaaagt tgaggctgaa

24481 gtgcaaattg ataggttgat cacaggcaga cttcaaagtt tgcagacata tgtgactcaa

24541 caattaatta gagctgcaga aatcagagct tctgctaatc ttgctgctac taaaatgtca

24601 gagtgtgtac ttggacaatc aaaaagagtt gatttttgtg gaaagggcta tcatcttatg

24661 tccttccctc agtcagcacc tcatggtgta gtcttcttgc atgtgactta tgtccctgca

24721 caagaaaaga acttcacaac tgctcctgcc atttgtcatg atggaaaagc acactttcct

24781 cgtgaaggtg tctttgtttc aaatggcaca cactggtttg taacacaaag gaatttttat

24841 gaaccacaaa tcattactac agacaacaca tttgtgtctg gtaactgtga tgttgtaata

24901 ggaattgtca acaacacagt ttatgatcct ttgcaacctg aattagattc attcaaggag

24961 gagttagata aatattttaa gaatcataca tcaccagatg ttgatttagg tgacatctct

25021 ggcattaatg cttcagttgt aaacattcaa aaagaaattg accgcctcaa tgaggttgcc

25081 aagaatttaa atgaatctct catcgatctc caagaacttg gaaagtatga gcagtatata

25141 aaatggccat ggtacatttg gctaggtttt atagctggct tgattgccat agtaatggtg

25201 acaattatgc tttgctgtat gaccagttgc tgtagttgtc tcaagggctg ttgttcttgt

25261 ggatcctgct gcaaatttga tgaagacgac tctgagccag tgctcaaagg agtcaaatta

25321 cattacacat aaacgaactt atggatttgt ttatgagaat cttcacaatt ggaactgtaa

25381 ctttgaagca aggtgaaatc aaggatgcta ctccttcaga ttttgttcgc gctactgcaa

25441 cgataccgat acaagcctca ctccctttcg gatggcttat tgttggcgtt gcacttcttg

25501 ctgtttttca gagcgcttcc aaaatcataa ctctcaaaaa gagatggcaa ctagcactct

25561 ccaagggtgt tcactttgtt tgcaacttgc tgttgttgtt tgtaacagtt tactcacacc

25621 ttttgctcgt tgctgctggc cttgaagccc cttttctcta tctttatgct ttagtctact

25681 tcttgcagag tataaacttt gtaagaataa taatgaggct ttggctttgc tggaaatgcc

25741 gttccaaaaa cccattactt tatgatgcca actattttct ttgctggcat actaattgtt

25801 acgactattg tataccttac aatagtgtaa cttcttcaat tgtcattact tcaggtgatg

25861 gcacaacaag tcctatttct gaacatgact accagattgg tggttatact gaaaaatggg

25921 aatctggagt aaaagactgt gttgtattac acagttactt cacttcagac tattaccagc

25981 tgtactcaac tcaattgagt acagacactg gtgttgaaca tgttaccttc ttcatctaca

26041 ataaaattgt tgatgagcct gaagaacatg tccaaattca cacaatcgac ggttcatccg

26101 gagttgttaa tccagtaatg gaaccaattt atgatgaacc gacgacgact actagcgtgc

26161 ctttgtaagc acaagctgat gagtacgaac ttatgtactc attcgtttcg gaagagatag

26221 gtacgttaat agttaatagc gtacttcttt ttcttgcttt cgtggtattc ttgctagtta

26281 cactagccat ccttactgcg cttcgattgt gtgcgtactg ctgcaatatt gttaacgtga

26341 gtcttgtaaa accttctttt tacgtttact ctcgtgttaa aaatctgaat tcttctagag

26401 ttcctgatct tctggtctaa acgaactaaa tattatatta gtttttctgt ttggaacttt

26461 aattttagcc atggcaggtt ccaacggtac tattaccgtt gaagagctta aaaagctcct

26521 tgaagaatgg aacctagtaa taggtttcct attccttaca tggatttgtc ttctacaatt

26581 tgcctatgcc aacaggaata ggtttttgta tataattaag ttaattttcc tctggctgtt

26641 atggccagta actttaactt gttttgtgct tgctgctgtt tacagaataa attggatcac

26701 cggtggaatt gctatcgcaa tggcttgtct tgtaggcttg atgtggctca gctacttcat

26761 tgcttctttc agactgtttg cgcgtacgcg ttccatgtgg tcattcaatc cagaaactaa

26821 cattcttctc aacgtgccac tccatggcac tattctgacc agaccgcttc tagaaagtga

26881 actcgtaatc ggagctgtga tccttcgtgg acatcttc

[gap 189 bp] [Expand Ns](https://www.ncbi.nlm.nih.gov/nuccore/OM983266.1?expand-gaps=on)

27108 gca gtgacaatat

27121 tgctttgctt gtacagtaag tgacaacaga tgtttcatct cgttgacttt caggttacta

27181 tagcagagat attactaatt attatgcgga cttttaaagt ttccatttgg aatcttgatt

27241 acatcataaa cctcataatt aaaaatttat ctaagtcact aactgagaat aaatattctc

27301 aattagatga agagcaacca atggagattg attaaacgaa catgaaaatt attcttttct

27361 tggcactgat aacactcgct acttgtgagc tttatcacta ccaagagtgt gttagaggta

27421 caacagtact tttaaaagaa ccttgctctt ctggaacata cgagggcaat tcaccatttc

27481 atcctctagc tgataacaaa tttgcactga cttgctttag cactcaattt gcttttgctt

27541 gtcctgacgg cgtaaaacac gtctatcagt tacgtgccag atcagtttca cctaaactgt

27601 tcatcagaca agaggaagtt caagaacttt actctccaat ttttcttatt gttgcggcaa

27661 tagtgtttat aacactttgc ttcacactca aaagaaagac agaatgattg aactttcatt

27721 aattgacttc tatttgtgct ttttagcctt tctgttattc cttgttttaa ttatgcttat

27781 tatcttttgg ttctcacttg aactgcaaga tcataatgaa acttgtcacg cctaaacgaa

27841 catgaaattt cttgttttct taggaatcat cacaactgta gctgcatttc accaagaatg

27901 tagtttacag tcatgtactc aacatcaacc atatgtagtt gatgacccgt gtcctattca

27961 cttctattct aaatggtata ttagagtagg agctagaaaa tcagcacctt taattgaatt

28021 gtgcgtggat gaggctggtt ctaaatcacc cattcagtac atcgatatcg gtaattatac

28081 agtttcctgt ttacctttta caattaattg ccaggaacct aaattgggta gtcttgtagt

28141 gcgttgttcg ttctatgaag actttttaga gtatcatgac gttcgtgttg ttttagattt

28201 catctaaacg aacaaactta aatgtctgat aatggacccc aaaatcagcg aaatgcactc

28261 cgcattacgt ttggtggacc ctcagattca actggcagta accagaatgg tggggcgcga

28321 tcaaaacaac gtcggcccca aggtttaccc aataatactg cgtcttggtt caccgctctc

28381 actcaacatg gcaaggaaga ccttaaattc cctcgaggac aaggcgttcc aattaacacc

28441 aatagcagtc cagatgacca aattggctac taccgaagag ctaccagacg aattcgtggt

28501 ggtgacggta aaatgaaaga tctcagtcca agatggtatt tttactacct aggaactggg

28561 ccagaagctg gacttcccta tggtgctaac aaagacggca tcatatgggt tgcaactgag

28621 ggagccttga atacaccaaa agatcacatt ggcacccgca atcctgctaa caatgctgca

28681 atcgtgctac aacttcctca aggaacaaca ttgccaaaag gcttctacgc agaagggagc

28741 agaggcggca gtcaagcctc ttctcgttcc tcatcacgta gtcgcaacag ttcaagaaat

28801 tcaactccag gcagcagtaa acgaacttct cctgctagaa tggctggcaa tggcggtgat

28861 gctgctcttg ctttgctgct gcttgacaga ttgaaccagc ttgagagcaa aatgtctggt

28921 aaaggccaac aacaacaagg ccaaactgtc actaagaaat ctgctgctga ggcttctaag

28981 aagcctcggc aaaaacgtac tgccactaaa gcatacaatg taacacaagc tttcggcaga

29041 cgtggtccag aacaaaccca aggaaatttt ggggaccagg aactaatcag acaaggaact

29101 gattacaaac attggccgca aattgcacaa tttgccccca gcgcttcagc gttcttcgga

29161 atgtcgcgca ttggcatgga agtcacacct tcgggaacgt ggttgaccta cacaggtgcc

29221 atcaaattgg atgacaaaga tccaaatttc aaagatcaag tcattttgct gaataagcat

29281 attgacgcat acaaaacatt cccaccaaca gagcctaaaa aggacaaaaa gaagaaggct

29341 gatgaaactc aagccttacc gcagagacag aagaaacagc aaactgtgac tcttcttcct

29401 gctgcagatt tggatgattt ctccaaacaa ttgcaacaat ccatgagcag tgctgactca

29461 actcaggcct aaactcatgc agaccacaca aggcagatgg gctatataaa cgttttcgct

29521 tttccgttta cgatatatag tctactcttg tgcagaatga attctcgtaa ctacatagca

29581 caagtagatg tagttaactt taatctcaca tagcaatctt taatcagtgt gtaacattag

29641 ggaggacttg aaagagccac cacattttca ccgaggccac gcggagtacg atcgagtgta

29701 cagtgaacaa tgctagggag agctgcctat atggaagagc cctaatgtgt aaaattaatt

29761 ttagtagtgc tatccccatg tgatt

//