**Severe acute respiratory syndrome coronavirus 2 isolate SARS-CoV-2/human/USA/CA-CDC-FG-280689/2022, complete genome**

GenBank: OM878325.1

[FASTA](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?report=fasta) [Graphics](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?report=graph)

[Go to:](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1" \l "goto2201839534_0)

LOCUS OM878325 29783 bp RNA linear VRL 02-MAR-2022

DEFINITION Severe acute respiratory syndrome coronavirus 2 isolate

SARS-CoV-2/human/USA/CA-CDC-FG-280689/2022, complete genome.

ACCESSION OM878325

VERSION OM878325.1

DBLINK BioProject: [PRJNA731152](https://www.ncbi.nlm.nih.gov/bioproject/PRJNA731152)

BioSample: [SAMN26327720](https://www.ncbi.nlm.nih.gov/biosample/SAMN26327720)

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 29783)

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., Gao,H., Li,M.,

Gao,J., Fierro,J., Sapra,B., Tsai,B., Meng,Y., Ng,D., Xie,J.,

Paden,C.R. and MacCannell,D.

TITLE CDC Sars CoV2 Sequencing Baseline Constellation

JOURNAL Unpublished

REFERENCE 2 (bases 1 to 29783)

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., Gao,H., Li,M.,

Gao,J., Fierro,J., Sapra,B., Tsai,B., Meng,Y., Ng,D., Xie,J.,

Paden,C.R. and MacCannell,D.

TITLE Direct Submission

JOURNAL Submitted (01-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 :: BWA; iVar 1.3

Sequencing Technology :: Illumina NovaSeq

##Assembly-Data-END##

FEATURES Location/Qualifiers

source 1..29783

/organism="Severe acute respiratory syndrome coronavirus

2"

/mol\_type="genomic RNA"

/isolate="SARS-CoV-2/human/USA/CA-CDC-FG-280689/2022"

/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: California"

/collection\_date="2022-02-14"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=229&to=21506) 229..21506

/gene="ORF1ab"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?location=229:13419,13419:21506) join(229..13419,13419..21506)

/gene="ORF1ab"

/ribosomal\_slippage

/codon\_start=1

/product="ORF1ab polyprotein"

/protein\_id="[UMF55003.1](https://www.ncbi.nlm.nih.gov/protein/2201839535)"

/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

AALCTFLLNKEMYLKLRSDVLLPXTQYNRYLALYNKYKYFSGAMDTTSYREAACCHLA

KALNDFSNSGSDVLYQPPQISITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNGL

WLDDVVYCPRHVICTSEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVLK

LKVDTANPKTPKYKFVRIQPGQTFSVLACYNGSPSGVYQCAMRHNFTIKGSFLNGSCG

SVGFNIDYDCVSFCYMHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVNV

LAWLYAAVINGDRWFLNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAVL

DMCASLKELLQNGMNGRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHWL

LLTILTSLLVLVQSTQWSLFFFLYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFLL

PSLATVAYFNMVYMPASWVMRIMTWLDMVDTSFKLKDCVMYASAVVLLILMTARTXYD

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/UMF55003.1?from=1&to=180) 229..768

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55003.1?from=181&to=818) 769..2682

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55003.1?from=819&to=2762) 2683..8514

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55003.1?from=2763&to=3262) 8515..10014

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55003.1?from=3263&to=3568) 10015..10932

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55003.1?from=3569&to=3855) 10933..11793

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55003.1?from=3856&to=3938) 11794..12042

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55003.1?from=3939&to=4136) 12043..12636

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55003.1?from=4137&to=4249) 12637..12975

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55003.1?from=4250&to=4388) 12976..13392

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55003.1?from=4389&to=5320) join(13393..13419,13419..16187)

/gene="ORF1ab"

/product="RNA-dependent RNA polymerase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55003.1?from=5321&to=5921) 16188..17990

/gene="ORF1ab"

/product="helicase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55003.1?from=5922&to=6448) 17991..19571

/gene="ORF1ab"

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

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55003.1?from=6449&to=6794) 19572..20609

/gene="ORF1ab"

/product="endoRNAse"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55003.1?from=6795&to=7092) 20610..21503

/gene="ORF1ab"

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

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=229&to=13434) 229..13434

/gene="ORF1ab"

/codon\_start=1

/product="ORF1a polyprotein"

/protein\_id="[UMF55004.1](https://www.ncbi.nlm.nih.gov/protein/2201839536)"

/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

AALCTFLLNKEMYLKLRSDVLLPXTQYNRYLALYNKYKYFSGAMDTTSYREAACCHLA

KALNDFSNSGSDVLYQPPQISITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNGL

WLDDVVYCPRHVICTSEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVLK

LKVDTANPKTPKYKFVRIQPGQTFSVLACYNGSPSGVYQCAMRHNFTIKGSFLNGSCG

SVGFNIDYDCVSFCYMHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVNV

LAWLYAAVINGDRWFLNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAVL

DMCASLKELLQNGMNGRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHWL

LLTILTSLLVLVQSTQWSLFFFLYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFLL

PSLATVAYFNMVYMPASWVMRIMTWLDMVDTSFKLKDCVMYASAVVLLILMTARTXYD

DGARRVWTLMNVLTLVYKVYYGNALDQAISMWALIISVTSNYSGVVTTVMFLARGVVF

MCVEYCPIFFITGNTLQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYLVSTQ

EFRYMNSQGLLPPKNSIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVLLSVL

QQLRVESSSKLWAQCVQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKLCEEM

LDNRATLQAIASEFSSLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAKSEFD

RDAAMQRKLEKMADQAMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALNNIIN

NARDGCVPLNIIPLTTAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDADSKI

VQLSEISMDNSPNLAWPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTACTDD

NALAYYNTTKGGRFVLALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTPKGPK

VKYLYFIKGLNNLNRGMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAKAYKD

YLASGGQPITNCVKMLCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDHPNPK

GFCDLKGKYVQIPTTCANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSADAQS

FLNGFAV"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55004.1?from=1&to=180) 229..768

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55004.1?from=181&to=818) 769..2682

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55004.1?from=819&to=2762) 2683..8514

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55004.1?from=2763&to=3262) 8515..10014

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55004.1?from=3263&to=3568) 10015..10932

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55004.1?from=3569&to=3855) 10933..11793

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55004.1?from=3856&to=3938) 11794..12042

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55004.1?from=3939&to=4136) 12043..12636

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55004.1?from=4137&to=4249) 12637..12975

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55004.1?from=4250&to=4388) 12976..13392

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMF55004.1?from=4389&to=4401) 13393..13431

/gene="ORF1ab"

/product="nsp11"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=13427&to=13454) 13427..13454

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 1"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=13439&to=13493) 13439..13493

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 2"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=21514&to=25326) 21514..25326

/gene="S"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=21514&to=25326) 21514..25326

/gene="S"

/codon\_start=1

/product="surface glycoprotein"

/protein\_id="[UMF55005.1](https://www.ncbi.nlm.nih.gov/protein/2201839537)"

/translation="MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFR

SSVLHSTQDLFLPFFSNVTWFHVISGTNGTKRFDNPVLPFNDGVYFASIEKSNIIRGW

IFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLDHKNNKSWMESEFRVYSSANN

CTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGYFKIYSKHTPIIVREPEDLPQGFS

ALEPLVDLPIGINITRFQTLLALHRSYLTPGDSSSGWTAGAAAYYVGYLQPRTFLLKY

NENGTITDAVDCALDPLSETKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCP

FDEVFNATRFASVYAWNRKRISNCVADYSVLYNFAPFFAFKCYGVSPTKLNDLCFTNV

YADSFVIRGNEVSQIAPGQTGNIADYNYKLPDDFTGCVIAWNSNKLDSKVSGNYNYLY

RLFRKSNLKPFERDISTEIYQAGNKPCNGVAGFNCYFPLRSYSFRPTYGVGHQPYRVV

VLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLKGTGVLTESNKKFLPFQQFGRDI

ADTTDAVRDPQTLEILDITPCSFGGVSVITPGTNTSNQVAVLYQGVNCTEVPVAIHAD

QLTPTWRVYSTGSNVFQTRAGCLIGAEYVNNSYECDIPIGAGICASYQTQTKSHRRAR

SVASQSIIAYTMSLGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYIC

GDSTECSNLLLQYGSFCTQLKRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKYFGGFN

FSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLICAQKFKGLT

VLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLY

ENQKLIANQFNSAIGKIQDSLSSTASALGKLQDVVNHNAQALNTLVKQLSSKFGAISS

VLNDIFSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECV

LGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPR

EGVFVSNGTHWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFK

EELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYE

QYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSCGSCCKFDEDDSEPVL

KGVKLHYT"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=25335&to=26162) 25335..26162

/gene="ORF3a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=25335&to=26162) 25335..26162

/gene="ORF3a"

/codon\_start=1

/product="ORF3a protein"

/protein\_id="[UMF55006.1](https://www.ncbi.nlm.nih.gov/protein/2201839538)"

/translation="MDLFMRIFTIGTVTLKQGEIKDATPSDFVRATATIPIQASLPFG

WLIVGVALLAVFQSASKIITLKKRWQLALSKGVHFVCNLLLLFVTVYSHLLLVAAGLE

APFLYLYALVYFLQSINFVRIIMRLWLCWKCRSKNPLLYDANYFLCWHTNCYDYCIPY

NSVTSSIVITSGDGTTSPISEHDYQIGGYTEKWESGVKDCVVLHSYFTSDYYQLYSTQ

LSTDTGVEHVTFFIYNKIVDEPEEHVQIHTIDGSSGVVNPVMEPIYDEPTTTTSVPL"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=26187&to=26414) 26187..26414

/gene="E"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=26187&to=26414) 26187..26414

/gene="E"

/codon\_start=1

/product="envelope protein"

/protein\_id="[UMF55007.1](https://www.ncbi.nlm.nih.gov/protein/2201839539)"

/translation="MYSFVSEEIGTLIVNSVLLFLAFVVFLLVTLAILTALRLCAYCC

NIVNVSLVKPSFYVYSRVKNLNSSRVPDLLV"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=26465&to=27133) 26465..27133

/gene="M"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=26465&to=27133) 26465..27133

/gene="M"

/codon\_start=1

/product="membrane glycoprotein"

/protein\_id="[UMF55008.1](https://www.ncbi.nlm.nih.gov/protein/2201839540)"

/translation="MAGSNGTITVEELKKLLEEWNLVIGFLFLTWICLLQFAYANRNR

FLYIIKLIFLWLLWPVTLTCFVLAAVYRINWITGGIAIAMACLVGLMWLSYFIASFRL

FARTRSMWSFNPETNILLNVPLHGTILTRPLLESELVIGAVILRGHLRIAGHHLGRCD

IKDLPKEITVATSRTLSYYKLGASQRVAGDSGFAAYSRYRIGNYKLNTDHSSSSDNIA

LLVQ"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=27144&to=27329) 27144..27329

/gene="ORF6"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=27144&to=27329) 27144..27329

/gene="ORF6"

/codon\_start=1

/product="ORF6 protein"

/protein\_id="[UMF55009.1](https://www.ncbi.nlm.nih.gov/protein/2201839541)"

/translation="MFHLVDFQVTIAEILLIIMRTFKVSIWNLDYIINLIIKNLSKSL

TENKYSQLDEEQPMEID"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=27336&to=27701) 27336..27701

/gene="ORF7a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=27336&to=27701) 27336..27701

/gene="ORF7a"

/codon\_start=1

/product="ORF7a protein"

/protein\_id="[UMF55010.1](https://www.ncbi.nlm.nih.gov/protein/2201839542)"

/translation="MKIILFLALITLATCELYHYQECVRGTTVLLKEPCSSGTYEGNS

PFYPLADNKFALTCFSTQFAFACPDGVKHVYQLRARSVSPKLFIRQEEVQELYSPIFL

IVAAIVFITLCFTLKRKTE"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=27698&to=27829) 27698..27829

/gene="ORF7b"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=27698&to=27829) 27698..27829

/gene="ORF7b"

/codon\_start=1

/product="ORF7b"

/protein\_id="[UMF55011.1](https://www.ncbi.nlm.nih.gov/protein/2201839543)"

/translation="MIELSLIDFYLCFLAFLLFLVLIMLIIFWFSLELQDHNETCHA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=27836&to=28201) 27836..28201

/gene="ORF8"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=27836&to=28201) 27836..28201

/gene="ORF8"

/codon\_start=1

/product="ORF8 protein"

/protein\_id="[UMF55012.1](https://www.ncbi.nlm.nih.gov/protein/2201839544)"

/translation="MKFLVFLGIITTVAAFHQECSLQSCTQHQPYVVDDPCPIHFYSK

WYIRVGARKSAPLIELCVDEAGSKSPIQYIDIGNYTVSCLPFTINCQEPKLGSLVVRC

SFYEDFLEYHDVRVVLDFI"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=28216&to=29466) 28216..29466

/gene="N"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=28216&to=29466) 28216..29466

/gene="N"

/codon\_start=1

/product="nucleocapsid phosphoprotein"

/protein\_id="[UMF55013.1](https://www.ncbi.nlm.nih.gov/protein/2201839545)"

/translation="MSDNGPQNQRNALRITFGGPSDSTGSNQNGGARSKQRRPQGLPN

NTASWFTALTQHGKEDLKFPRGQGVPINTNSSPDDQIGYYRRATRRIRGGDGKMKDLS

PRWYFYYLGTGPEAGLPYGANKDGIIWVATEGALNTPKDHIGTRNPANNAAIVLQLPQ

GTTLPKGFYAEGSRGGSQASSRSSSRSRNSSRNSTPGSSKRTSPARMAGNGGDAALAL

LLLDRLNQLESKMSGKGQQQQGQTVTKKSAAEASKKPRQKRTATKAYNVTQAFGRRGP

EQTQGNFGDQELIRQGTDYKHWPQIAQFAPSASAFFGMSRIGMEVTPSGTWLTYTGAI

KLDDKDPNFKDQVILLNKHIDAYKTFPPTEPKKDKKKKADETQALPQRQKKQQTVTLL

PAADLDDFSKQLQQSMSSADSTQA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=29491&to=29607) 29491..29607

/gene="ORF10"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=29491&to=29607) 29491..29607

/gene="ORF10"

/codon\_start=1

/product="ORF10 protein"

/protein\_id="[UMF55014.1](https://www.ncbi.nlm.nih.gov/protein/2201839546)"

/translation="MGYINVFAFPFTIYSLLLCRMNSRNYIAQVDVVNFNLT"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=29542&to=29577) 29542..29577

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=29562&to=29590) 29562..29590

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM878325.1?from=29661&to=29701) 29661..29701

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

ORIGIN

1 aacttttgat ctcttgtaga tctgttctct aaacgaactt taaaatctgt gtggctgtca

61 ctcggctgca tgcttagtgc actcacgcag tataattaat aactaattac tgtcgttgac

121 aggacacgag taactcgtct atcttctgca ggctgcttac ggtttcgtcc gtgttgcagc

181 cgatcatcag cacatctagg ttttgtccgg gtgtgaccga aaggtaagat ggagagcctt

241 gtccctggtt tcaacgagaa aacacacgtc caactcagtt tgcctgtttt acaggttcgc

301 gacgtgctcg tacgtggctt tggagactcc gtggaggagg tcttatcaga ggcacgtcaa

361 catcttaaag atggcacttg tggcttagta gaagttgaaa aaggcgtttt gcctcaactt

421 gaacagccct atgtgttcat caaacgttcg gatgctcgaa ctgcacctca tggtcatgtt

481 atggttgagc tggtagcaga actcgaaggc attcagtacg gtcgtagtgg tgagacactt

541 ggtgtccttg tccctcatgt gggcgaaata ccagtggctt accgcaaggt tcttcttcgt

601 aagaacggta ataaaggagc tggtggccat agttacggcg ccgatctaaa gtcatttgac

661 ttaggcgacg agcttggcac tgatccttat gaagattttc aagaaaactg gaacactaaa

721 catagcagtg gtgttacccg tgaactcatg cgtgagctta acggaggggc atacactcgc

781 tatgtcgata acaacttctg tggccctgat ggctaccctc ttgagtgcat taaagacctt

841 ctagcacgtg ctggtaaagc ttcatgcact ttgtccgaac aactggactt tattgacact

901 aagaggggtg tatactgctg ccgtgaacat gagcatgaaa ttgcttggta cacggaacgt

961 tctgaaaaga gctatgaatt gcagacacct tttgaaatta aattggcaaa gaaatttgac

1021 accttcaatg gggaatgtcc aaattttgta tttcccttaa attccataat caagactatt

1081 caaccaaggg ttgaaaagaa aaagcttgat ggctttatgg gtagaattcg atctgtctat

1141 ccagttgcgt caccaaatga atgcaaccaa atgtgccttt caactctcat gaagtgtgat

1201 cattgtggtg aaacttcatg gcagacgggc gattttgtta aagccacttg cgaattttgt

1261 ggcactgaga atttgactaa agaaggtgcc actacttgtg gttacttacc ccaaaatgct

1321 gttgttaaaa tttattgtcc agcatgtcac aattcagaag taggacctga gcatagtctt

1381 gccgaatacc ataatgaatc tggcttgaaa accattcttc gtaagggtgg tcgcactatt

1441 gcctttggag gctgtgtgtt ctcttatgtt ggttgccata acaagtgtgc ctattgggtt

1501 ccacgtgcta gcgctaacat aggttgtaac catacaggtg ttgttggaga aggttccgaa

1561 ggtcttaatg acaaccttct tgaaatactc caaaaagaga aagtcaacat caatattgtt

1621 ggtgacttta aacttaatga agagatcgcc attattttgg catctttttc tgcttccaca

1681 agtgcttttg tggaaactgt gaaaggtttg gattataaag cattcaaaca aattgttgaa

1741 tcctgtggta attttaaagt tacaaaagga aaagctaaaa aaggtgcctg gaatattggt

1801 gaacagaaat caatactgag tcctctttat gcatttgcat cagaggctgc tcgtgttgta

1861 cgatcaattt tctcccgcac tcttgaaact gctcaaaatt ctgtgcgtgt tttacagaag

1921 gccgctataa caatactaga tggaatttca cagtattcac tgagactcat tgatgctatg

1981 atgttcacat ctgatttggc tactaacaat ctagttgtaa tggcctacat tacaggtggt

2041 gttgttcagt tgacttcgca gtggctaact aacatctttg gcactgttta tgaaaaactc

2101 aaacccgtcc ttgattggct tgaagagaag tttaaggaag gtgtagagtt tcttagagac

2161 ggttgggaaa ttgttaaatt tatctcaacc tgtgcttgtg aaattgtcgg tggacaaatt

2221 gtcacctgtg caaaggaaat taaggagagt gttcagacat tctttaagct tgtaaataaa

2281 tttttggctt tgtgtgctga ctctatcatt attggtggag ctaaacttaa agccttgaat

2341 ttaggtgaaa catttgtcac gcactcaaag ggattgtaca gaaagtgtgt taaatccaga

2401 gaagaaactg gcctactcat gcctctaaaa gccccaaaag aaattatctt cttagaggga

2461 gaaacacttc ccacagaagt gttaacagag gaagttgtct tgaaaactgg tgatttacaa

2521 ccattagaac aacctactag tgaagctgtt gaagctccat tggttggtac accagtttgt

2581 attaacgggc ttatgttgct cgaaatcaaa gacacagaaa agtactgtgc ccttgcacct

2641 aatatgatgg taacaaacaa taccttcaca ctcaaaggcg gtgcaccaac aaaggttact

2701 tttggtgatg acactgtgat agaagtgcaa ggttacaaga gtgtgaatat cacttttgaa

2761 cttgatgaaa ggattgataa agtacttaat gagaggtgct ctgcctatac agttgaactc

2821 ggtacagaag taaatgagtt cgcctgtgtt gtggcagatg ctgtcataaa aactttgcaa

2881 ccagtatctg aattacttac accactgggc attgatttag atgagtggag tatggctaca

2941 tactacttat ttgatgagtc tggtgagttt aaattggctt cacatatgta ttgttctttt

3001 taccctccag atgaggatga agaagaaggt gattgtgaag aagaagagtt tgagccatca

3061 actcaatatg agtatggtac tgaagatgat taccaaggta aacctttgga atttggtgcc

3121 acttctgctg ctcttcaacc tgaagaagag caagaagaag attggttaga tgatgatagt

3181 caacaaactg ttggtcaaca agacggcagt gaggacaatc agacaactac tattcaaaca

3241 attgttgagg ttcaacctca attagagatg gaacttacac cagttgttca gactattgaa

3301 gtgaatagtt ttagtggtta tttaaaactt actgacaatg tatacattaa aaatgcagac

3361 attgtggaag aagctaaaaa ggtaaaacca acagtggttg ttaatgcagc caatgtttac

3421 cttaaacatg gaggaggtgt tgcaggagcc ttaaataagg ctactaacaa tgccatgcaa

3481 gttgaatctg atgattacat agctactaat ggaccactta aagtgggtgg tagttgtgtt

3541 ttaagcggac acaatcttgc taaacactgt cttcatgttg tcggcccaaa tgttaacaaa

3601 ggtgaagaca ttcaacttct taagagtgct tatgaaaatt ttaatcagca cgaagttcta

3661 cttgcaccat tattatcagc tggtattttt ggtgctgacc ctatacattc tttaagagtt

3721 tgtgtagata ctgttcgcac aaatgtctac ttagctgtct ttgataaaaa tctctatgac

3781 aaacttgttt caagcttttt ggaaatgaag agtgaaaagc aagttgaaca aaagatcgct

3841 gagattccta aagaggaagt taagccattt ataactgaaa gtaaaccttc agttgaacag

3901 agaaaacaag atgataagaa aatcaaagct tgtgttgaag aagttacaac aactctggaa

3961 gaaactaagt tcctcacaga aaacttgtta ctttatattg acattaatgg caatcttcat

4021 ccagattctg ccactcttgt tagtgacatt gacatcactt tcttaaagaa agatgctcca

4081 tatatagtgg gtgatgttgt tcaagagggt gttttaactg ctgtggttat acctactaaa

4141 aaggctggtg gcactactga aatgctagcg aaagctttga gaaaagtgcc aacagacaat

4201 tatataacca cttacccggg tcagggttta aatggttaca ctgtagagga ggcaaagaca

4261 gtgcttaaaa agtgtaaaag tgccttttac attctaccat ctattatctc taatgagaag

4321 caagaaattc ttggaactgt ttcttggaat ttgcgagaaa tgcttgcaca tgcagaagaa

4381 acacgcaaat taatgcctgt ctgtgtggaa actaaagcca tagtttcaac tatacagcgt

4441 aaatataagg gtattaaaat acaagagggt gtggttgatt atggtgctag attttacttt

4501 tacaccagta aaacaactgt agcgtcactt atcaacacac ttaacgatct aaatgaaact

4561 cttgttacaa tgccacttgg ctatgtaaca catggcttaa atttggaaga agctgctcgg

4621 tatatgagat ctctcaaagt gccagctaca gtttctgttt cttcacctga tgctgttaca

4681 gcgtataatg gttatcttac ttcttcttct aaaacacctg aagaacattt tattgaaacc

4741 atctcacttg ctggttccta taaagattgg tcctattctg gacaatctac acaactaggt

4801 atagaatttc ttaagagagg tgataaaagt gtatattaca ctagtaatcc taccacattc

4861 cacctagatg gtgaagttat cacctttgac aatcttaaga cacttctttc tttgagagaa

4921 gtgaggacta ttaaggtgtt tacaacagta gacaacatta acctccacac gcaagttgtg

4981 gacatgtcaa tgacatatgg acaacagttt ggtccaactt atttggatgg agctgatgtt

5041 actaaaataa aacctcataa ttcacatgaa ggtaaaacat tttatgtttt acctaatgat

5101 gacactctac gtgttgaggc ttttgagtac taccacacaa ctgatcctag ttttctgggt

5161 aggtacatgt cagcattaaa tcacactaaa aagtggaaat acccacaagt taatggttta

5221 acttctatta aatgggcaga taacaactgt tatcttgcca ctgcattgtt aacactccaa

5281 caaatagagt tgaagtttaa tccacctgct ctacaagatg cttattacag agcaagggct

5341 ggtgaagcgg ctaacttttg tgcacttatc ttagcctact gtaataagac agtaggtgag

5401 ttaggtgatg ttagagaaac aatgagttac ttgtttcaac atgccaattt agattcttgc

5461 aaaagagtct tgaacgtkgt gtgtaaaact tgtggacaac agcagacaac ccttaagggt

5521 gtagaagctg ttatgtacat gggcacactt tcttatgaac aatttaagaa aggtgttcag

5581 ataccttgta cgtgtggtaa acaagctaca aaatatctag tacaacagga gtcacctttt

5641 gttatgatgt cagcaccacc tgctcagtat gaacttaagc atggtacatt tacttgtgct

5701 agtgagtaca ctggtaatta ccagtgtggt cactataaac atataacttc taaagaaact

5761 ttgtattgca tagacggtgc tttacttaca aagtcctcag aatacaaagg tcctattacg

5821 gatgttttct acaaagaaaa cagttacaca acaaccataa aaccagttac ttataaattg

5881 gatggtgttg tttgtacaga aattgaccct aagttggaca attattataa gaaagacaat

5941 tcttatttca cagagcaacc aattgatctt gtaccaaacc aaccatatcc aaacgcaagc

6001 ttcgataatt ttaagtttgt atgtgataat atcaaatttg ctgatgattt aaaccagtta

6061 actggttata agaaacctgc ttcaagagag cttaaagtta catttttccc tgacttaaat

6121 ggtgatgtgg tggctattga ttataaacac tacacaccct cttttaagaa aggagctaaa

6181 ttgttacata aacctattgt ttggcatgtt aacaatgcaa ctaataaagc cacgtataaa

6241 ccaaatacct ggtgtatacg ttgtctttgg agcacaaaac cagttgaaac atcaaattcg

6301 tttgatgtac tgaagtcaga ggacgcgcag ggaatggata atcttgcctg cgaagatcta

6361 aaaccagtct ctgaagaagt agtggaaaat cctaccatac agaaagacgt tcttgagtgt

6421 aatgtgaaaa ctaccgaagt tgtaggagac attatactta aaccagcaaa taatataaaa

6481 attacagaag aggttggcca cacagatcta atggctgctt atgtagacaa ttctagtctt

6541 actattaaga aacctaatga attatctaga gtattaggtt tgaaaaccct tgctactcat

6601 ggtttagctg ctgttaatag tgtcccttgg gatactatag ctaattatgc taagcctttt

6661 cttaacaaag ttgttagtac aactactaac atagttacac ggtgtttaaa ccgtgtttgt

6721 actaattata tgccttattt ctttacttta ttgctacaat tgtgtacttt tactagaagt

6781 acaaattcta gaattaaagc atctatgccg actactatag caaagaatac tgttaagagt

6841 gtcggtaaat tttgtctaga ggcttcattt aattatttga agtcacctaa tttttctaaa

6901 ctgataaata ttataatttg gtttttacta ttaagtgttt gcctaggttc tttaatctac

6961 tcaaccgctg ctttaggtgt tttaatgtct aatttaggca tgccttctta ctgtactggt

7021 tacagagaag gctatttgaa ctctactaat gtcactattg caacctactg tactggttct

7081 ataccttgta gtgtttgtct tagtggttta gattctttag acacctatcc ttctttagaa

7141 actatacaaa ttaccatttc atcttttaaa tgggatttaa ctgcttttgg cttagttgca

7201 gagtggtttt tggcatatat tcttttcact aggtttttct atgtacttgg attggctgca

7261 atcatgcaat tgtttttcag ctattttgca gtacatttta ttagtaattc ttggcttatg

7321 tggttaataa ttaatcttgt acaaatggcc ccgatttcag ctatggttag aatgtacatc

7381 ttctttgcat cattttatta tgtatggaaa agttatgtgc atgttgtaga cggttgtaat

7441 tcatcaactt gtatgatgtg ttacaaacgt aatagagcaa caagagtcga atgtacaact

7501 attgttaatg gtgttagaag gtccttttat gtctatgcta atggaggtaa aggcttttgc

7561 aaactacaca attggaattg tgttaattgt gatacattct gtgctggtag tacatttatt

7621 agtgatgaag ttgcgagaga cttgtcacta cagtttaaaa gaccaataaa tcctactgac

7681 cagtcttctt acatcgttga tagtgttaca gtgaagaatg gttccatcca tctttacttt

7741 gataaagctg gtcaaaagac ttatgaaaga cattctctct ctcattttgt taacttagac

7801 aacctgagag ctaataacac taaaggttca ttgcctatta atgttatagt ttttgatggt

7861 aaatcaaaat gtgaagaatc atctgcaaaa tcagcgtctg tttactacag tcagcttatg

7921 tgtcaaccta tactgttact agatcaggca ttagtgtctg atgttggtga tagtgcggaa

7981 gttgcagtta aaatgtttga tgcttacgtt aatacgtttt catcaacttt taacgtacca

8041 atggaaaaac tcaaaacact agttgcaact gcagaagctg aacttgcaaa gaatgtgtcc

8101 ttagacaatg tcttatctac ttttatttca gcagctcggc aagggtttgt tgattcagat

8161 gtagaaacta aagatgttgt tgaatgtctt aaattgtcac atcaatctga catagaagtt

8221 actggcgata gttgtaataa ctatatgctc acctataaca aagttgaaaa catgacaccc

8281 cgtgaccttg gtgcttgtat tgactgtagt gcgcgtcata ttaatgcgca ggtagcaaaa

8341 agtcacaaca ttactttgat atggaacgtt aaagatttca tgtcattgtc tgaacaacta

8401 cgaaaacaaa tacgtagtgc tgctaaaaag aataacttac cttttaagtt gacatgtgca

8461 actactagac aagttgttaa tgttgtaaca acaaagatag cacttaaggg tggtaaaatt

8521 gttaataatt ggttgaagca gttaattaaa gttacacttg tgttcctttt tgttgctgct

8581 attttctatt taataacacc tgttcatgtc atgtctaaac atactgactt ttcaagtgaa

8641 atcataggat acaaggctat tgatggtggt gtcactcgtg acatagcatc tacagatact

8701 tgttttgcta acaaacatgc tgattttgac acatggttta gccagcgtgg tggtagttat

8761 actaatgaca aagcttgccc attgattgct gcagtcataa caagagaagt gggttttgtc

8821 gtgcctggtt tgcctggcac gatattacgc acaactaatg gtgacttttt gcatttctta

8881 cctagagttt ttagtgcagt tggtaacatc tgttacacac catcaaaact tatagagtac

8941 actgactttg caacatcagc ttgtgttttg gctgctgaat gtacaatttt taaagatgct

9001 tctggtaagc cagtaccata ttgttatgat accaatgtac tagaaggttc tgttgcttat

9061 gaaagtttac gccctgacac acgttatgtg ctcatggatg gctctattat tcaatttcct

9121 aacacctacc ttgaaggttc tgttagagtg gtaacaactt ttgattctga gtactgtagg

9181 cacggcactt gtgaaagatc agaagctggt gtttgtgtat ctactagtgg tagatgggta

9241 cttaacaatg attattacag atctttacca ggagttttct gtggtgtaga tgctgtaaat

9301 ttacttacta atatgtttac accactaatt caacctattg gtgctttgga catatcagca

9361 tctatagtag ctggtggtat tgtagctatc gtagtaacat gccttgccta ctattttatg

9421 aggtttagaa gagcttttgg tgaatacagt catgtagttg cctttaatac tttactattc

9481 cttatgtcat tcactgtact ctgtttaaca ccagtttact cattcttacc tggtgtttat

9541 tctgttattt acttgtactt gacattttat cttactaatg atgtttcttt tttagcacat

9601 attcagtgga tggttatgtt cacaccttta gtacctttct ggataacaat tgcttatatc

9661 atttgtattt ccacaaagca tttctattgg ttctttagta attacctaaa gagacgtgta

9721 gtctttaatg gtgtttcctt tagtactttt gaagaagctg cgctgtgcac ctttttgtta

9781 aataaagaaa tgtatctaaa gttgcgtagt gatgtgctat tacctyttac gcaatataat

9841 agatacttag ctctttataa taagtacaag tattttagtg gagcaatgga tacaactagc

9901 tacagagaag ctgcttgttg tcatctcgca aaggctctca atgacttcag taactcaggt

9961 tctgatgttc tttaccaacc accacaaatc tctatcacct cagctgtttt gcagagtggt

10021 tttagaaaaa tggcattccc atctggtaaa gttgagggtt gtatggtaca agtaacttgt

10081 ggtacaacta cacttaacgg tctttggctt gatgacgtag tttactgtcc aagacatgtg

10141 atctgcacct ctgaagacat gcttaaccct aattatgaag atttactcat tcgtaagtct

10201 aatcataatt tcttggtaca ggctggtaat gttcaactca gggttattgg acattctatg

10261 caaaattgtg tacttaagct taaggttgat acagccaatc ctaagacacc taagtataag

10321 tttgttcgca ttcaaccagg acagactttt tcagtgttag cttgttacaa tggttcacca

10381 tctggtgttt accaatgtgc tatgaggcac aatttcacta ttaagggttc attccttaat

10441 ggttcatgtg gtagtgttgg ttttaacata gattatgact gtgtctcttt ttgttacatg

10501 caccatatgg aattaccaac tggagttcat gctggcacag acttagaagg taacttttat

10561 ggaccttttg ttgacaggca aacagcacaa gcagctggta cggacacaac tattacagtt

10621 aatgttttag cttggttgta cgctgctgtt ataaatggag acaggtggtt tctcaatcga

10681 tttaccacaa ctcttaatga ctttaacctt gtggctatga agtacaatta tgaacctcta

10741 acacaagacc atgttgacat actaggacct ctttctgctc aaactggaat tgccgtttta

10801 gatatgtgtg cttcattaaa agaattactg caaaatggta tgaatggacg taccatattg

10861 ggtagtgctt tattagaaga tgaatttaca ccttttgatg ttgttagaca atgctcaggt

10921 gttactttcc aaagtgcagt gaaaagaaca atcaagggta cacaccactg gttgttactc

10981 acaattttga cttcactttt agttttagtc cagagtactc aatggtcttt gttctttttt

11041 ttgtatgaaa atgccttttt accttttgct atgggtatta ttgctatgtc tgcttttgca

11101 atgatgtttg tcaaacataa gcatgcattt ctctgtttgt ttttgttacc ttctcttgcc

11161 actgtagctt attttaatat ggtctatatg cctgctagtt gggtgatgcg tattatgaca

11221 tggttggata tggttgatac tagttttaag ctaaaagact gtgttatgta tgcatcagct

11281 gtagtgttac taatccttat gacagcaaga actnnntatg atgatggtgc taggagagtg

11341 tggacactta tgaatgtctt gacactcgtt tataaagttt attatggtaa tgctttagat

11401 caagccattt ccatgtgggc tcttataatc tctgttactt ctaactactc aggtgtagtt

11461 acaactgtca tgtttttggc cagaggtgtt gtttttatgt gtgttgagta ttgccctatt

11521 ttcttcataa ctggtaatac acttcagtgt ataatgctag tttattgttt cttaggctat

11581 ttttgtactt gttactttgg cctcttttgt ttactcaacc gctactttag actgactctt

11641 ggtgtttatg attacttagt ttctacacag gagtttagat atatgaattc acagggacta

11701 ctcccaccca agaatagcat agatgccttc aaactcaaca ttaaattgtt gggtgttggt

11761 ggcaaacctt gtatcaaagt agccactgta cagtctaaaa tgtcagatgt aaagtgcaca

11821 tcagtagtct tactctcagt tttgcaacaa ctcagagtag aatcatcatc taaattgtgg

11881 gctcaatgtg tccagttaca caatgacatt ctcttagcta aagatactac tgaagccttt

11941 gaaaaaatgg tttcactact ttctgttttg ctttccatgc agggtgctgt agacataaac

12001 aagctttgtg aagaaatgct ggacaacagg gcaaccttac aagctatagc ctcagagttt

12061 agttcccttc catcatatgc agcttttgct actgctcaag aagcttatga gcaggctgtt

12121 gctaatggtg attctgaagt tgttcttaaa aagttgaaga agtctttgaa tgtggctaaa

12181 tctgaatttg accgtgatgc agccatgcaa cgtaagttgg aaaagatggc tgatcaagct

12241 atgacccaaa tgtataaaca ggctagatct gaggacaaga gggcaaaagt tactagtgct

12301 atgcagacaa tgcttttcac tatgcttaga aagttggata atgatgcact caacaacatt

12361 atcaacaatg caagagatgg ttgtgttccc ttgaacataa tacctcttac aacagcagcc

12421 aaactaatgg ttgtcatacc agactataac acatataaaa atacgtgtga tggtacaaca

12481 tttacttatg catcagcatt gtgggaaatc caacaggttg tagatgcaga tagtaaaatt

12541 gttcaactta gtgaaattag tatggacaat tcacctaatt tagcatggcc tcttattgta

12601 acagctttaa gggccaattc tgctgtcaaa ttacagaata atgagcttag tcctgttgca

12661 ctacgacaga tgtcttgtgc tgccggtact acacaaactg cttgcactga tgacaatgcg

12721 ttagcttact acaacacaac aaagggaggt aggtttgtac ttgcactgtt atccgattta

12781 caggatttga aatgggctag attccctaag agtgatggaa ctggtactat ctatacagaa

12841 ctggaaccac cttgtaggtt tgttacagac acacctaaag gtcctaaagt gaagtattta

12901 tactttatta aaggattaaa caacctaaat agaggtatgg tacttggtag tttagctgcc

12961 acagtacgtc tacaagctgg taatgcaaca gaagtgcctg ccaattcaac tgtattatct

13021 ttctgtgctt ttgctgtaga tgctgctaaa gcttacaaag attatctagc tagtggggga

13081 caaccaatca ctaattgtgt taagatgttg tgtacacaca ctggtactgg tcaggcaata

13141 acagtyacac cggaagccaa tatggatcaa gaatcctttg gtggtgcatc gtgttgtctg

13201 tactgccgtt gccacataga tcatccaaat cctaaaggat tttgtgactt aaaaggtaag

13261 tatgtacaaa tacctacaac ttgtgctaat gaccctgtgg gttttacact taaaaacaca

13321 gtctgtaccg tctgcggtat gtggaaaggt tatggctgta gttgtgatca actccgcgaa

13381 cccatgcttc agtcagctga tgcacaatcg tttttaaacg ggtttgcggt gtaagtgcag

13441 cccgtcttac accgtgcggc acaggcacta gtactgatgt cgtatacagg gcttttgaca

13501 tctacaatga taaagtagct ggttttgcta aattcctaaa aactaattgt tgtcgcttcc

13561 aagaaaagga cgaagatgac aatttaattg attcttactt tgtagttaag agacacactt

13621 tctctaacta ccaacatgaa gaaacaattt ataatttact taaggattgt ccagctgttg

13681 ctaaacatga cttctttaag tttagaatag acggtgacat ggtaccacat atatcacgtc

13741 aacgtcttac taaatacaca atggcagacc tcgtctatgc tttaaggcat tttgatgaag

13801 gtaattgtga cacattaaaa gaaatacttg tcacatacaa ttgttgtgat gatgattatt

13861 tcaataaaaa ggactggtat gattttgtag aaaacccaga tatattacgc gtatacgcca

13921 acttaggtga acgtgtacgc caagctttgt taaaaacagt acaattctgt gatgccatgc

13981 gaaatgctgg tattgttggt gtactgacat tagataatca agatctcaat ggtaactggt

14041 atgatttcgg tgatttcata caaaccacgc caggtagtgg agttcctgtt gtagattctt

14101 attattcatt gttaatgcct atattaacct tgaccagggc tttaactgca gagtcacatg

14161 ttgacactga cttaacaaag ccttacatta agtgggattt gttaaaatat gacttcacgg

14221 aagagaggtt aaaactcttt gaccgttatt ttaaatattg ggatcagaca taccacccaa

14281 attgtgttaa ctgtttggat gacagatgca ttctgcattg tgcaaacttt aatgttttat

14341 tctctacagt gttcccactt acaagttttg gaccactagt gagaaaaata tttgttgatg

14401 gtgttccatt tgtagtttca actggatacc acttcagaga gctaggtgtt gtacataatc

14461 aggatgtaaa cttacatagc tctagactta gttttaagga attacttgtg tatgctgctg

14521 accctgctat gcacgctgct tctggtaatc tattactaga taaacgcact acgtgctttt

14581 cagtagctgc acttactaac aatgttgctt ttcaaactgt caaacccggt aattttaaca

14641 aagacttcta tgactttgct gtgtctaagg gtttctttaa ggaaggaagt tctgttgaat

14701 taaaacactt cttctttgct caggatggta atgctgctat cagcgattat gactactatc

14761 gttataatct accaacaatg tgtgatatca gacaactact atttgtagtt gaagttgttg

14821 ataagtactt tgattgttac gatggtggct gtattaatgc taaccaagtc atcgtcaaca

14881 acctagacaa atcagctggt tttccattta ataaatgggg taaggctaga ctttattatg

14941 attcaatgag ttatgaggat caagatgcac ttttcgcata tacaaaacgt aatgtcatcc

15001 ctactataac tcaaatgaat cttaagtatg ccattagtgc aaagaataga gctcgcaccg

15061 tagctggtgt ctctatctgt agtactatga ccaatagaca gtttcatcaa aaattattga

15121 aatcaatagc cgccactaga ggagctactg tagtaattgg aacaagcaaa ttctatggtg

15181 gttggcacaa tatgttaaaa actgtttata gtgatgtaga aaaccctcac cttatgggtt

15241 gggattatcc taaatgtgat agagccatgc ctaacatgct tagaattatg gcctcacttg

15301 ttcttgctcg caaacataca acgtgttgta gcttgtcaca ccgtttctat agattagcta

15361 atgagtgtgc tcaagtattg agtgaaatgg tcatgtgtgg cggttcacta tatgttaaac

15421 caggtggaac ctcatcagga gatgccacaa ctgcttatgc taatagtgtt tttaacattt

15481 gtcaagctgt cacggccaat gttaatgcac ttttatctac tgatggtaac aaaattgccg

15541 ataagtatgt ccgcaattta caacacagac tttatgagtg tctctataga aatagagatg

15601 ttgacacaga ctttgtgaat gagttttacg catatttgcg taaacatttc tcaatgatga

15661 tactctctga cgatgctgtt gtgtgtttca atagcactta tgcatctcaa ggtctagtgg

15721 ctagcataaa gaactttaag tcagttcttt attatcaaaa caatgttttt atgtctgaag

15781 caaaatgttg gactgagact gaccttacta aaggacctca tgaattttgc tctcaacata

15841 caatgctagt taaacagggt gatgattatg tgtaccttcc ttacccagat ccatcaagaa

15901 tcctaggggc cggctgtttt gtagatgata tcgtaaaaac agatggtaca cttatgattg

15961 aacggttcgt gtctttagct atagatgctt acccacttac taaacatcct aatcaggagt

16021 atgctgatgt ctttcatttg tacttacaat acataagaaa gctacatgat gagttaacag

16081 gacacatgtt agacatgtat tctgttatgc ttactaatga taacacttca aggtattggg

16141 aacctgagtt ttatgaggct atgtacacac cgcatacagt cttacaggct gttggggctt

16201 gtgttctttg caattcacag acttcattaa gatgtggtgc ttgcatacgt agaccattct

16261 tatgttgtaa atgctgttac gaccatgtca tatcaacatc acataaatta gtcttgtctg

16321 ttaatccgta tgtttgcaat gctccaggtt gtgatgtcac agatgtgact caactttact

16381 taggaggtat gagctattat tgtaaatcac ataaaccacc cattagtttt ccattgtgtg

16441 ctaatggaca agtttttggt ttatataaaa atacatgtgt tggtagcgat aatgttactg

16501 actttaatgc aattgcaaca tgtgactgga caaatgctgg tgattacatt ttagctaaca

16561 cctgtactga aagactcaag ctttttgcag cagaaacgct caaagctact gaggagacat

16621 ttaaactgtc ttatggtatt gctactgtac gtgaagtgct gtctgacaga gaattacatc

16681 tttcatggga agttggtaaa cctagaccac cacttaaccg aaattatgtc tttactggtt

16741 atcgtgtaac taaaaacagt aaagtacaaa taggagagta cacctttgaa aaaggtgact

16801 atggtgatgc tgttgtttac cgaggtacaa caacttacaa attaaatgtt ggtgattatt

16861 ttgtgctgac atcacataca gtaatgccat taagtgcacc tacactagtg ccacaagagc

16921 actatgttag aattactggc ttatacccaa cactcaatat ctcagatgag ttttctagca

16981 atgttgcaaa ttatcaaaag gttggtatgc aaaagtattc tacactccag ggaccacctg

17041 gtactggtaa gagtcatttt gctattggcc tagctctcta ctacccttct gctcgcatag

17101 tgtatacagc ttgctctcat gccgctgttg atgcactatg tgagaaggca ttaaaatatt

17161 tgcctataga taaatgtagt agaattatac ctgcacgtgc tcgtgtagag tgttttgata

17221 aattcaaagt gaattcaaca ttagaacagt atgtcttttg tactgtaaat gcattgcctg

17281 agacgacagc agatatagtt gtctttgatg aaatttcaat ggccacaaat tatgatttga

17341 gtgttgtcaa tgccagatta cgtgctaagc actatgtgta cattggcgac cctgctcaat

17401 tacctgcacc acgcacattg ctaactaagg gcacactaga accagaatat ttcaattcag

17461 tgtgtagact tatgaaaact ataggtccag acatgttcct cggaacttgt cggcgttgtc

17521 ctgctgaaat tgttgacact gtgagtgctt tggtttatga taataagctt aaagcacata

17581 aagacaaatc agctcaatgc tttaaaatgt tttataaggg tgttatcacg catgatgttt

17641 catctgcaat taacaggcca caaataggcg tggtaagaga attccttaca cgtaaccctg

17701 cttggagaaa agctgtcttt atttcacctt ataattcaca gaatgctgta gcctcaaaga

17761 ttttgggact accaactcaa actgttgatt catcacaggg ctcagaatat gactatgtca

17821 tattcactca aaccactgaa acagctcact cttgtaatgt aaacagattt aatgttgcta

17881 ttaccagagc aaaagtaggc atactttgca taatgtctga tagagacctt tatgacaagt

17941 tgcaatttac aagtcttgaa attccacgta ggaatgtggc aactttacaa gctgaaaatg

18001 taacaggact ctttaaagat tgtagtaagg taatcactgg gttacatcct acacaggcac

18061 ctacacacct cagtgttgac actaaattca aaactgaagg tttatgtgtt gacgtacctg

18121 gcatacctaa ggacatgacc tatagaagac tcatctctat gatgggtttt aaaatgaatt

18181 atcaagttaa tggttaccct aacatgttta tcacccgcga agaagctata agacatgtac

18241 gtgcatggat tggcttcgat gtcgaggggt gtcatgctac tagagaagct gttggtacca

18301 atttaccttt acagctaggt ttttctacag gtgttaacct agttgctgta cctacaggtt

18361 atgttgatac acctaataat acagattttt ccagagttag tgctaaacca ccgcctggag

18421 atcaatttaa acacctcata ccacttatgt acaaaggact tccttggaat gtagtgcgta

18481 taaagattgt acaaatgtta agtgacacac ttaaaaatct ctctgacaga gtcgtatttg

18541 tcttatgggc acatggcttt gagttgacat ctatgaagta ttttgtgaaa ataggacctg

18601 agcgcacctg ttgtctatgt gatagacgtg ccacatgctt ttccactgct tcagacactt

18661 atgcctgttg gcatcattct attggatttg attacgtcta taatccgttt atgattgatg

18721 ttcaacaatg gggttttaca ggtaacctac aaagcaacca tgatctgtat tgtcaagtcc

18781 atggtaatgc acatgtagct agttgtgatg caatcatgac taggtgtcta gctgtccacg

18841 agtgctttgt taagcgtgtt gactggacta ttgaatatcc tataattggt gatgaactga

18901 agattaatgc ggcttgtaga aaggttcaac acatggttgt taaagctgca ttattagcag

18961 acaaattccc agttcttcac gacattggta accctaaagc tattaagtgt gtacctcaag

19021 ctgatgtaga atggaagttc tatgatgcac agccttgtag tgacaaagct tataaaatag

19081 aagaattatt ctattcttat gccacacatt ctgacaaatt cacagatggt gtatgcctat

19141 tttggaattg caatgtcgat agatatcctg ctaattccat tgtttgtaga tttgacacta

19201 gagtgctatc taaccttaac ttgcctggtt gtgatggtgg cagtttgtat gtaaataaac

19261 atgcattcca cacaccagct tttgataaaa gtgcttttgt taatttaaaa caattaccat

19321 ttttctatta ctctgacagt ccatgtgagt ctcatggaaa acaagtagtg tcagatatag

19381 attatgtacc actaaagtct gctacgtgta taacacgttg caatttaggt ggtgctgtct

19441 gtagacatca tgctaatgag tacagattgt atctcgatgc ttataacatg atgatctcag

19501 ctggctttag cttgtgggtt tacaaacaat ttgatactta taacctctgg aacactttta

19561 caagacttca gagtttagaa aatgtggctt ttaatgttgt aaataaggga cactttgatg

19621 gacaacaggg tgaagtacca gtttctatca ttaataacac tgtttacaca aaagttgatg

19681 gtgttgatgt agaattgttt gaaaataaaa caacattacc tgttaatgta gcatttgagc

19741 tttgggctaa gcgcaacatt aaaccagtac cagaggtgaa aatactcaat aatttgggtg

19801 tggacattgc tgctaatact gtgatctggg actacaaaag agatgctcca gcacatatat

19861 ctactattgg tgtttgttct atgactgaca tagccaagaa accaactgaa acgatttgtg

19921 caccactcac tgtctttttt gatggtagag ttgatggtca agtagactta tttagaaatg

19981 cccgtaatgg tgttcttatt acagaaggta gtgttaaagg tttacaacca tctgtaggtc

20041 ccaaacaagc tagtcttaat ggagtcacat taattggaga agccgtaaaa acacagttca

20101 attattataa gaaagttgat ggtgttgtcc aacaattacc tgaaacttac tttactcaga

20161 gtagaaattt acaagaattt aaacccagga gtcaaatgga aattgatttc ttagaattag

20221 ctatggatga attcattgaa cggtataaat tagaaggcta tgccttcgaa catatcgttt

20281 atggagattt tagtcatagt cagttaggtg gtttacatct actgattgga ctagctaaac

20341 gttttaagga atcacctttt gaattagaag attttattcc tatggacagt acagttaaaa

20401 actatttcat aacagatgcg caaacaggtt catctaagtg tgtgtgttct gttattgatt

20461 tattacttga tgattttgtt gaaataataa aatcccaaga tttatctgta gtttctaagg

20521 ttgtcaaagt gactattgac tatacagaaa tttcatttat gctttggtgt aaagatggcc

20581 atgtagaaac attttaccca aaattacaat ctagtcaagc gtggcaaccg ggtgttgcta

20641 tgcctaatct ttacaaaatg caaagaatgc tattagaaaa gtgtgacctt caaaattatg

20701 gtgatagtgc aacattacct aaaggcataa tgatgaatgt cgcaaaatat actcaactgt

20761 gtcaatattt aaacacatta acattagctg taccctataa tatgagagtt atacattttg

20821 gtgctggttc tgataaagga gttgcaccag gtacagctgt tttaagacag tggttgccta

20881 cgggtacgct gcttgtcgat tcagatctta atgactttgt ctctgatgca gattcaactt

20941 tgattggtga ttgtgcaact gtacatacag ctaataaatg ggatctcatt attagtgata

21001 tgtacgaccc taagactaaa aatgttacaa aagaaaatga ctctaaagag ggttttttca

21061 cttacatttg tgggtttata caacaaaagc tagctcttgg aggttccgtg gctataaaga

21121 taacagaaca ttcttggaat gctgatcttt ataagctcat gggacacttc gcatggtgga

21181 cagcctttgt tactaatgtg aatgcgtcat catctgaagc atttttaatt ggatgtaatt

21241 atcttggcaa accacgcgaa caaatagatg gttatgtcat gcatgcaaat tacatatttt

21301 ggaggaatac aaatccaatt cagttgtctt cctattcttt atttgacatg agtaaatttc

21361 cccttaaatt aaggggtact gctgttatgt ctttaaaaga aggtcaaatc aatgatatga

21421 ttttatctct tcttagtaaa ggtagactta taattagaga aaacaacaga gttgttattt

21481 ctagtgatgt tcttgttaac aactaaacga acaatgtttg tttttcttgt tttattgcca

21541 ctagtctcta gtcagtgtgt taatcttaca accagaactc aattaccccc tgcatacact

21601 aattctttca cacgtggtgt ttattaccct gacaaagttt tcagatcctc agttttacat

21661 tcaactcagg acttgttctt acctttcttt tccaatgtta cttggttcca tgttatctct

21721 gggaccaatg gtactaagag gtttgataac cctgtcctac catttaatga tggtgtttat

21781 tttgcttcca ttgagaagtc taacataata agaggctgga tttttggtac tactttagat

21841 tcgaagaccc agtccctact tattgttaat aacgctacta atgttgttat taaagtctgt

21901 gaatttcaat tttgtaatga tccatttttg gaccacaaaa acaacaaaag ttggatggaa

21961 agtgagttca gagtttattc tagtgcgaat aattgcactt ttgaatatgt ctctcagcct

22021 tttcttatgg accttgaagg aaaacagggt aatttcaaaa atcttaggga atttgtgttt

22081 aagaatattg atggttattt taaaatatat tctaagcaca cgcctattat agtgcgtgag

22141 ccagaagatc tccctcaggg tttttcggct ttagaaccat tggtagattt gccaataggt

22201 attaacatca ctaggtttca aactttactt gctttacata gaagttattt gactcctggt

22261 gattcttctt caggttggac agctggtgct gcagcttatt atgtgggtta tcttcaacct

22321 aggacttttc tattaaaata taatgaaaat ggaaccatta cagatgctgt agactgtgca

22381 cttgaccctc tctcagaaac aaagtgtacg ttgaaatcct tcactgtaga aaaaggaatc

22441 tatcaaactt ctaactttag agtccaacca acagaatcta ttgttagatt tcctaatatt

22501 acaaacttgt gcccttttga tgaagttttt aacgccacca gatttgcatc tgtttatgct

22561 tggaacagga agagaatcag caactgtgtt gctgattatt ctgtcctata taatttcgca

22621 ccatttttcg cttttaagtg ttatggagtg tctcctacta aattaaatga tctctgcttt

22681 actaatgtct atgcagattc atttgtaatt agaggtaatg aagtcagcca aattgctcca

22741 gggcaaactg gaaatattgc tgattataat tataaattac cagatgattt tacaggctgc

22801 gttatagctt ggaattctaa caagcttgat tctaaggtta gtggtaatta taattacctg

22861 tatagattgt ttaggaagtc taatctcaaa ccttttgaga gagatatttc aactgaaatc

22921 tatcaggccg gtaacaaacc ttgtaatggt gttgcaggtt ttaattgtta ctttccttta

22981 cgatcatata gtttccgacc cacttatggt gttggtcacc aaccatacag agtagtagta

23041 ctttcttttg aacttctaca tgcaccagca actgtttgtg gacctaaaaa gtctactaat

23101 ttggttaaaa acaaatgtgt caatttcaac ttcaatggtt taaaaggcac aggtgttctt

23161 actgagtcta acaaaaagtt tctgcctttc caacaatttg gcagagacat tgctgacact

23221 actgatgctg tccgtgatcc acagacactt gagattcttg acattacacc atgttctttt

23281 ggtggtgtca gtgttataac accaggaaca aatacttcta accaggttgc tgttctttat

23341 cagggtgtta actgcacaga agtccctgtt gctattcatg cagatcaact tactcctact

23401 tggcgtgttt attctacagg ttctaatgtt tttcaaacac gtgcaggctg tttaataggg

23461 gctgaatatg tcaacaactc atatgagtgt gacataccca ttggtgcagg tatatgcgct

23521 agttatcaga ctcagactaa gtctcatcgg cgggcacgta gtgtagctag tcaatccatc

23581 attgcctaca ctatgtcact tggtgcagaa aattcagttg cttactctaa taactctatt

23641 gccataccca caaattttac tattagtgtt accacagaaa ttctaccagt gtctatgacc

23701 aagacatcag tagattgtac aatgtacatt tgtggtgatt caactgaatg cagcaatctt

23761 ttgttgcaat atggcagttt ttgtacacaa ttaaaacgtg ctttaactgg aatagctgtt

23821 gaacaagaca aaaacaccca agaagttttt gcacaagtca aacaaattta caaaacacca

23881 ccaattaaat attttggtgg ttttaatttt tcacaaatat taccagatcc atcaaaacca

23941 agcaagaggt catttattga agatctactt ttcaacaaag tgacacttgc agatgctggc

24001 ttcatcaaac aatatggtga ttgccttggt gatattgctg ctagagacct catttgtgca

24061 caaaagttta aaggccttac tgttttgcca cctttgctca cagatgaaat gattgctcaa

24121 tacacttctg cactgttagc gggtacaatc acttctggtt ggacctttgg tgcaggtgct

24181 gcattacaaa taccatttgc tatgcaaatg gcttataggt ttaatggtat tggagttaca

24241 cagaatgttc tctatgagaa ccaaaaattg attgccaacc aatttaatag tgctattggc

24301 aaaattcaag actcactttc ttccacagca agtgcacttg gaaaacttca agatgtggtc

24361 aaccataatg cacaagcttt aaacacgctt gttaaacaac ttagctccaa atttggtgca

24421 atttcaagtg ttttaaatga tatcttttca cgtcttgaca aagttgaggc tgaagtgcaa

24481 attgataggt tgatcacagg cagacttcaa agtttgcaga catatgtgac tcaacaatta

24541 attagagctg cagaaatcag agcttctgct aatcttgctg ctactaaaat gtcagagtgt

24601 gtacttggac aatcaaaaag agttgatttt tgtggaaagg gctatcatct tatgtccttc

24661 cctcagtcag cacctcatgg tgtagtcttc ttgcatgtga cttatgtccc tgcacaagaa

24721 aagaacttca caactgctcc tgccatttgt catgatggaa aagcacactt tcctcgtgaa

24781 ggtgtctttg tttcaaatgg cacacactgg tttgtaacac aaaggaattt ttatgaacca

24841 caaatcatta ctacagacaa cacatttgtg tctggtaact gtgatgttgt aataggaatt

24901 gtcaacaaca cagtttatga tcctttgcaa cctgaattag attcattcaa ggaggagtta

24961 gataaatatt ttaagaatca tacatcacca gatgttgatt taggtgacat ctctggcatt

25021 aatgcttcag ttgtaaacat tcaaaaagaa attgaccgcc tcaatgaggt tgccaagaat

25081 ttaaatgaat ctctcatcga tctccaagaa cttggaaagt atgagcagta tataaaatgg

25141 ccatggtaca tttggctagg ttttatagct ggcttgattg ccatagtaat ggtgacaatt

25201 atgctttgct gtatgaccag ttgctgtagt tgtctcaagg gctgttgttc ttgtggatcc

25261 tgctgcaaat ttgatgaaga cgactctgag ccagtgctca aaggagtcaa attacattac

25321 acataaacga acttatggat ttgtttatga gaatcttcac aattggaact gtaactttga

25381 agcaaggtga aatcaaggat gctactcctt cagattttgt tcgcgctact gcaacgatac

25441 cgatacaagc ctcactccct ttcggatggc ttattgttgg cgttgcactt cttgctgttt

25501 ttcagagcgc ttccaaaatc ataactctca aaaagagatg gcaactagca ctctccaagg

25561 gtgttcactt tgtttgcaac ttgctgttgt tgtttgtaac agtttactca caccttttgc

25621 tcgttgctgc tggccttgaa gccccttttc tctatcttta tgctttagtc tacttcttgc

25681 agagtataaa ctttgtaaga ataataatga ggctttggct ttgctggaaa tgccgttcca

25741 aaaacccatt actttatgat gccaactatt ttctttgctg gcatactaat tgttacgact

25801 attgtatacc ttacaatagt gtaacttctt caattgtcat tacttcaggt gatggcacaa

25861 caagtcctat ttctgaacat gactaccaga ttggtggtta tactgaaaaa tgggaatctg

25921 gagtaaaaga ctgtgttgta ttacacagtt acttcacttc agactattac cagctgtact

25981 caactcaatt gagtacagac actggtgttg aacatgttac cttcttcatc tacaataaaa

26041 ttgttgatga gcctgaagaa catgtccaaa ttcacacaat cgacggttca tccggagttg

26101 ttaatccagt aatggaacca atttatgatg aaccgacgac gactactagc gtgcctttgt

26161 aagcacaagc tgatgagtac gaacttatgt actcattcgt ttcggaagag ataggtacgt

26221 taatagttaa tagcgtactt ctttttcttg ctttcgtggt attcttgcta gttacactag

26281 ccatccttac tgcgcttcga ttgtgtgcgt actgctgcaa tattgttaac gtgagtcttg

26341 taaaaccttc tttttacgtt tactctcgtg ttaaaaatct gaattcttct agagttcctg

26401 atcttctggt ctaaacgaac taaatattat attagttttt ctgtttggaa ctttaatttt

26461 agccatggca ggttccaacg gtactattac cgttgaagag cttaaaaagc tccttgaaga

26521 atggaaccta gtaataggtt tcctattcct tacatggatt tgtcttctac aatttgccta

26581 tgccaacagg aataggtttt tgtatataat taagttaatt ttcctctggc tgttatggcc

26641 agtaacttta acttgttttg tgcttgctgc tgtttacaga ataaattgga tcaccggtgg

26701 aattgctatc gcaatggctt gtcttgtagg cttgatgtgg ctcagctact tcattgcttc

26761 tttcagactg tttgcgcgta cgcgttccat gtggtcatty aatccagaaa ctaacattct

26821 tctcaacgtg ccactccatg gcactattct gaccagaccg cttctagaaa gtgaactcgt

26881 aatcggagct gtgatccttc gtggacatct tcgtattgct ggacaccatc taggacgctg

26941 tgacatcaag gacctgccta aagaaatcac tgttgctaca tcacgaacgc tttcttatta

27001 caaattggga gcttcgcagc gtgtagcagg tgactcaggt tttgctgcat acagtcgcta

27061 caggattggc aactataaat taaacacaga ccattccagt agcagtgaca atattgcttt

27121 gcttgtacag taagtgacaa cagatgtttc atctcgttga ctttcaggtt actatagcag

27181 agatattact aattattatg cggactttta aagtttccat ttggaatctt gattacatca

27241 taaacctcat aattaaaaat ttatctaagt cactaactga gaataaatat tctcaattag

27301 atgaagagca accaatggag attgattaaa cgaacatgaa aattattctt ttcttggcac

27361 tgataacact cgctacttgt gagctttatc actaccaaga gtgtgttaga ggtacaacag

27421 tacttttaaa agaaccttgc tcttctggaa catacgaggg caattcacca ttttatcctc

27481 tagctgataa caaatttgca ctgacttgct ttagcactca atttgctttt gcttgtcctg

27541 acggcgtaaa acacgtctat cagttacgtg ccagatcagt ttcacctaaa ctgttcatca

27601 gacaagagga agttcaagaa ctttactctc caatttttct tattgttgcg gcaatagtgt

27661 ttataacact ttgcttcaca ctcaaaagaa agacagaatg attgaacttt cattaattga

27721 cttctatttg tgctttttag cctttctgtt attccttgtt ttaattatgc ttattatctt

27781 ttggttctca cttgaactgc aagatcataa tgaaacttgt cacgcctaaa cgaacatgaa

27841 atttcttgtt ttcttaggaa tcatcacaac tgtagctgca tttcaccaag aatgtagttt

27901 acagtcatgt actcaacatc aaccatatgt agttgatgac ccgtgtccta ttcacttcta

27961 ttctaaatgg tatattagag taggagctag aaaatcagca cctttaattg aattgtgcgt

28021 ggatgaggct ggttctaaat cacccattca gtacatcgat atcggtaatt atacagtttc

28081 ctgtttacct tttacaatta attgccagga acctaaattg ggtagtcttg tagtgcgttg

28141 ttcgttctat gaagactttt tagagtatca tgacgttcgt gttgttttag atttcatcta

28201 aacgaacaaa cttaaatgtc tgataatgga ccccaaaatc agcgaaatgc actccgcatt

28261 acgtttggtg gaccctcaga ttcaactggc agtaaccaga atggtggggc gcgatcaaaa

28321 caacgtcggc cccaaggttt acccaataat actgcgtctt ggttcaccgc tctcactcaa

28381 catggcaagg aagaccttaa attccctcga ggacaaggcg ttccaattaa caccaatagc

28441 agtccagatg accaaattgg ctactaccga agagctacca gacgaattcg tggtggtgac

28501 ggtaaaatga aagatctcag tccaagatgg tatttctact acctaggaac tgggccagaa

28561 gctggacttc cctatggtgc taacaaagac ggcatcatat gggttgcaac tgagggagcc

28621 ttgaatacac caaaagatca cattggcacc cgcaatcctg ctaacaatgc tgcaatcgtg

28681 ctacaacttc ctcaaggaac aacattgcca aaaggcttct acgcagaagg gagcagaggc

28741 ggcagtcaag cctcttctcg ttcctcatca cgtagtcgca acagttcaag aaattcaact

28801 ccaggcagca gtaaacgaac ttctcctgct agaatggctg gcaatggcgg tgatgctgct

28861 cttgctttgc tgctgcttga cagattgaac cagcttgaga gcaaaatgtc tggtaaaggc

28921 caacaacaac aaggccaaac tgtcactaag aaatctgctg ctgaggcttc taagaagcct

28981 cggcaaaaac gtactgccac taaagcatac aatgtaacac aagctttcgg cagacgtggt

29041 ccagaacaaa cccaaggaaa ttttggggac caggaactaa tcagacaagg aactgattac

29101 aaacattggc cgcaaattgc acaatttgcc cccagcgctt cagcgttctt cggaatgtcg

29161 cgcattggca tggaagtcac accttcggga acgtggttga cctacacagg tgccatcaaa

29221 ttggatgaca aagatccaaa tttcaaagat caagtcattt tgctgaataa gcatattgac

29281 gcatacaaaa cattcccacc aacagagcct aaaaaggaca aaaagaagaa ggctgatgaa

29341 actcaagcct taccgcagag acagaagaaa cagcaaactg tgactcttct tcctgctgca

29401 gatttggatg atttctccaa acaattgcaa caatccatga gcagtgctga ctcaactcag

29461 gcctaaactc atgcagacca cacaaggcag atgggctata taaacgtttt cgcttttccg

29521 tttacgatat atagtctact cttgtgcaga atgaattctc gtaactacat agcacaagta

29581 gatgtagtta actttaatct cacatagcaa tctttaatca gtgtgtaaca ttagggagga

29641 cttgaaagag ccaccacatt ttcaccgagg ccacgcggag tacgatcgag tgtacagtga

29701 acaatgctag ggagagctgc ctatatggaa gagccctaat gtgtaaaatt aattttagta

29761 gtgctatccc catgtgattt taa

//