**Severe acute respiratory syndrome coronavirus 2 isolate SARS-CoV-2/human/USA/NY-CDC-ASC210862593/2022, complete genome**

GenBank: OM888844.1

[FASTA](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?report=fasta) [Graphics](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?report=graph)

[Go to:](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1" \l "goto2202408211_0)

LOCUS OM888844 29752 bp RNA linear VRL 02-MAR-2022

DEFINITION Severe acute respiratory syndrome coronavirus 2 isolate

SARS-CoV-2/human/USA/NY-CDC-ASC210862593/2022, complete genome.

ACCESSION OM888844

VERSION OM888844.1

DBLINK BioProject: [PRJNA731148](https://www.ncbi.nlm.nih.gov/bioproject/PRJNA731148)

BioSample: [SAMN26352178](https://www.ncbi.nlm.nih.gov/biosample/SAMN26352178)

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 29752)

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., Clark,C.,

Campbell,P., Case,R., Ghorpade,V., Houdeshell,H., Kvalvaag,O.,

Nall,D., Sanders,E., Vest,A., Westlund,S., Hardison,M., Paden,C.R.

and MacCannell,D.

TITLE CDC Sars CoV2 Sequencing Baseline Constellation

JOURNAL Unpublished

REFERENCE 2 (bases 1 to 29752)

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., Clark,C.,

Campbell,P., Case,R., Ghorpade,V., Houdeshell,H., Kvalvaag,O.,

Nall,D., Sanders,E., Vest,A., Westlund,S., Hardison,M., Paden,C.R.

and MacCannell,D.

TITLE Direct Submission

JOURNAL Submitted (02-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 v3.5.6

Sequencing Technology :: Illumina NovaSeq 6000

##Assembly-Data-END##

FEATURES Location/Qualifiers

source 1..29752

/organism="Severe acute respiratory syndrome coronavirus

2"

/mol\_type="genomic RNA"

/isolate="SARS-CoV-2/human/USA/NY-CDC-ASC210862593/2022"

/isolation\_source="Nasal - Anterior Nares"

/host="Homo sapiens"

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

/country="USA: New York"

/collection\_date="2022-02-13"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=235&to=21515) 235..21515

/gene="ORF1ab"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?location=235:13428,13428:21515) join(235..13428,13428..21515)

/gene="ORF1ab"

/ribosomal\_slippage

/codon\_start=1

/product="ORF1ab polyprotein"

/protein\_id="[UMJ44473.1](https://www.ncbi.nlm.nih.gov/protein/2202408212)"

/translation="MESLVPGFNEKTHVQLSLPVLQVRDVLVRGFGDSVEEVLSEARQ

HLKDGTCGLVEVEKGVLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGE

TLGVLVPHVGEIPVAYRKVLLRKNGNKGAGGHRYGADLKSFDLGDELGTDPYEDFQEN

WNTKHSSGVTRELMRELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEQ

LDFIDTKRGVYCCREHEHEIAWYTERSEKSYELQTPFEIKLAKKFDTFNGECPNFVFP

LNSIIKTIQPRVEKKKLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTG

DFVKATCEFCGTENLTKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESG

LKTILRKGGRTIAFGGCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNL

LEILQKEKVNINIVGDFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGN

FKVTKGKAKKGAWNIGEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAA

ITILDGISQYSLRLIDAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKL

KPVLDWLEEKFKEGVEFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLV

NKFLALCADSIIIGGAKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEII

FLEGETLPTEVLTEEVVLKTGDLQPLEQPTSEAVEAPLVGTPVCINGLMLLEIKDTEK

YCALAPNMMVTNNTFTLKGGAPTKVTFGDDTVIEVQGYKSVNIIFELDERIDKVLNEK

CSAYTVELGTEVNEFACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDESGEF

KLASHMYCSFYPPDEDEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPE

EEQEEDWLDDDSQQTVGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSG

YLKLTDNVYIKNADIVEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESD

DYIATNGPLKVGGSCVLSGHNLAKHCLHVVGPNVNKGEDIQLLKSAYENFNQHEVLLA

PLLSAGIFGADPIHSLRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIA

EIPKEEVKPFITESKPSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGN

LHPDSATLVSDIDITFLKKDAPYIVGDVVQEGVLTAVVIPTKKASGTTEMLAKALRKV

PTDNYITTYPGQGLNGYTVEEAKTVLKKCKSAFYILPSIISNEKQEILGTVSWNLREM

LAHAEETRKLMPVCVETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLIN

TLNDLNETLVTMPLGYVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSS

KTPEEHFIETISLAGSYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTTFHLDGEVIT

FDNLKTLLSLREVRTIKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPH

NSHEGKTFYVLPNDDTLRVEAFEYYHTTDPSFLGRYMSALNHTKKWKYPQVNGLTSIK

WADNNCYLATALLTLQQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELG

DVRETMSYLFQHANLDSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQ

IPCTCGKQATKYLVQQESPFVMMSAPPAQYELKHGTFTCASEYTGNYQCGHYKHITSK

ETLYCIDGALLTKSSEYKGPITDVFYKENSYTTTIKPVTYKLDGVVCTEIDPKLDNYY

KKDNSYFTEQPIDLVPNQPYPNASFDNFKFVCDNIKFADDLNQLTGYKKPASRELKVT

FFPDLNGDVVAIDYKHYTPSFKKGAKLLHKPIVWHVNNATNKATYKPNTWCIRCLWST

KPVETSNSFDVLKSEDAQGMDNLACEDLKPVSEEVVENPTIQKDVLECNVKTTEVVGD

IILKPANNSLKITEEVGHTDLMAAYVDNSSLTIKKPNELSRVLGLKTLATHGLAAVNS

VPWDTIANYAKPFLNKVVSTTTNIVTRCLNRVCTNYMPYFFTLLLQLCTFTRSTNSRI

KASMPTTIAKNTVKSVGKFCLEASFNYLKSPNFSKLINIIIWFLLLSVCLGSLIYSTA

ALGVLMSNLGMPSYCTGYREGYLNSTNVTIATYCTGSIPCSVCLSGLDSLDTYPSLET

IQITISSFKWDLTAFGLVAEWFLAYILFTRFFYVLGLAAIMQLFFSYFAVHFISNSWL

MWLIINLVQMAPISAMVRMYIFFASFYYVWKSYVHVVDGCNSSTCMMCYKRNRATRVE

CTTIVNGVRRSFYVYANGGKGFCKLHNWNCVNCDTFCAGSTFISDEVARDLSLQFKRP

INPTDQSSYIVDSVTVKNGSIHLYFDKAGQKTYERHSLSHFVNLDNLRANNTKGSLPI

NVIVFDGKSKCEESSAKSASVYYSQLMCQPILLLDQALVSDVGDSAEVAVKMFDAYVN

TFSSTFNVPMEKLKTLVATAEAELAKNVSLDNVLSTFISAARQGFVDSDVETKDVVEC

LKLSHQSDIEVTGDSCNNYMLTYNKVENMTPRDLGACIDCSARHINAQVAKSHNIALI

WNVKDFMSLSEQLRKQIRSAAKKNNLPFKLTCATTRQVVNVVTTKIALKGGKIVNNWL

KQLIKVTLVFLFVAAIFYLITPVHVMSKHTDFSSEIIGYKAIDGGVTRDIASTDTCFA

NKHADFDTWFSQRGGSYTNDKACPLIAAVITREVGFVVPGLPGTILRTTNGDFLHFLP

RVFSAVGNICYTPSKLIEYTDFATSACVLAAECTIFKDASGKPVPYCYDTNVLEGSVA

YESLRPDTRYVLMDGSIIQFPNTYLEGSVRVVTTFDSEYCRHGTCERSEAGVCVSTSG

RWVLNNDYYRSLPGVFCGVDAVNLFTNMFTPLIQPIGALDISASIVAGGIVAIVVTCL

AYYFMRFRRAFGEYSHVVAFNTLLFLMSFIVLCLTPVYSFLPGVYSVIYLYLTFYLTN

DVSFLAHIQWMVMFTPLVPFWITIAYIICISTKHFYWFFSNYLKRRVVFNGVSFSTFE

EAALCTFLLNKEMYLKLRSDVLLPFTQYNRYLALYNKYKYFSGAMDTTSYREAACCHL

AKALNDFSNSGSDVLYQPPQISITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNG

LWLDDVVYCPRHVICTSEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVL

KLKVDTANPKTPKYKFVRIQPGQTFSVLACYNGSPSGVYQCAMRHNFTIKGSFLNGSC

GSVGFNIDYDCVSFCYMHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVN

VLAWLYAAVINGDRWFLNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAV

LDMCASLKELLQNGMNGRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHW

LLLTILTSLLVLVQSTQWSLFFFLYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFL

LPSLATVAYFNMVYMPASWVMRIMTWLDMVDTSLKLKDCVMYASAVVLLILMTARTVY

DDGARRVWTLMNVLTLVYKVYYGNALDQAISMWALIISVTSNYSGVVTTVMFLARGIV

FMCVEYCPIFFITGNTLQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYLVST

QEFRYMNSQGLLPPKNSIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVLLSV

LQQLRVESSSKLWAQCVQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKLCEE

MLDNRATLQAIASEFSSLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAKSEF

DRDAAMQRKLEKMADQAMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALNNII

NNARDGCVPLNIIPLTTAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDADSK

IVQLSEISMDNSPNLAWPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTACTD

DNALAYYNTTKGGRFVLALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTPKGP

KVKYLYFIKGLNNLNRGMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAKAYK

DYLASGGQPITNCVKMLCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDHPNP

KGFCDLKGKYVQIPTTCANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSADAQ

SFLNRVCGVSAARLTPCGTGTSTDVVYRAFDIYNDKVAGFAKFLKTNCCRFQEKDEDD

NLIDSYFVVKRHTFSNYQHEETIYNLLKDCPAVAKHDFFKFRIDGDMVPHISRQRLTK

YTMADLVYALRHFDEGNCDTLKEILVTYNCCDDDYFNKKDWYDFVENPDILRVYANLG

ERVRQALLKTVQFCDAMRNAGIVGVLTLDNQDLNGNWYDFGDFIQTTPGSGVPVVDSY

YSLLMPILTLTRALTAESHVDTDLTKPYIKWDLLKYDFTEERLKLFDRYFKYWDQTYH

PNCVNCLDDRCILHCANFNVLFSTVFPLTSFGPLVRKIFVDGVPFVVSTGYHFRELGV

VHNQDVNLHSSRLSFKELLVYAADPAMHAASGNLLLDKRTTCFSVAALTNNVAFQTVK

PGNFNKDFYDFAVSKGFFKEGSSVELKHFFFAQDGNAAISDYDYYRYNLPTMCDIRQL

LFVVEVVDKYFDCYDGGCINANQVIVNNLDKSAGFPFNKWGKARLYYDSMSYEDQDAL

FAYTKRNVIPTITQMNLKYAISAKNRARTVAGVSICSTMTNRQFHQKLLKSIAATRGA

TVVIGTSKFYGGWHNMLKTVYSDVENPHLMGWDYPKCDRAMPNMLRIMASLVLARKHT

TCCSLSHRFYRLANECAQVLSEMVMCGGSLYVKPGGTSSGDATTAYANSVFNICQAVT

ANVNALLSTDGNKIADKYVRNLQHRLYECLYRNRDVDTDFVNEFYAYLRKHFSMMILS

DDAVVCFNSTYASQGLVASIKNFKSVLYYQNNVFMSEAKCWTETDLTKGPHEFCSQHT

MLVKQGDDYVYLPYPDPSRILGAGCFVDDIVKTDGTLMIERFVSLAIDAYPLTKHPNQ

EYADVFHLYLQYIRKLHDELTGHMLDMYSVMLTNDNTSRYWEPEFYEAMYTPHTVLQA

VGACVLCNSQTSLRCGACIRRPFLCCKCCYDHVISTSHKLVLSVNPYVCNAPGCDVTD

VTQLYLGGMSYYCKSHKPPISFPLCANGQVFGLYKNTCVGSDNVTDFNAIATCDWTNA

GDYILANTCTERLKLFAAETLKATEETFKLSYGIATVREVLSDRELHLSWEVGKPRPP

LNRNYVFTGYRVTKNSKVQIGEYTFEKGDYGDAVVYRGTTTYKLNVGDYFVLTSHTVM

PLSAPTLVPQEHYVRITGLYPTLNISDEFSSNVANYQKVGMQKYSTLQGPPGTGKSHF

AIGLALYYPSARIVYTACSHAAVDALCEKALKYLPIDKCSRIIPARARVECFDKFKVN

STLEQYVFCTVNALPETTADIVVFDEISMATNYDLSVVNARLCAKHYVYIGDPAQLPA

PRTLLTKGTLEPEYFNSVCRLMKTIGPDMFLGTCRRCPAEIVDTVSALVYDNKLKAHK

DKSAQCFKMFYKGVITHDVSSAINRPQIGVVREFLTRNPAWRKAVFISPYNSQNAVAS

KILGLPTQTVDSSQGSEYDYVIFTQTTETAHSCNVNRFNVAITRAKVGILCIMSDRDL

YDKLQFTSLEIPRRNVATLQAENVTGLFKDCSKVITGLHPTQAPTHLSVDTKFKTEGL

CVDVPGIPKDMTYRRLISMMGFKMNYQVNGYPNMFITREEAIRHVRAWIGFDVEGCHA

TREAVGTNLPLQLGFSTGVNLVAVPTGYVDTPNNTDFSRVSAKPPPGDQFKHLIPLMY

KGLPWNVVRIKIVQMLSDTLKNLSDRVVFVLWAHGFELTSMKYFVKIGPERTCCLCDR

RATCFSTASDTYACWHHSIGFDYVYNPFMIDVQQWGFTGNLQSNHDLYCQVHGNAHVA

SCDAIMTRCLAVHECFVKRVDWTIEYPIIGDELKINAACRKVQHMVVKAALLADKFPV

LHDIGNPKAIKCVPQADVEWKFYDAQPCSDKAYKIEELFYSYATHSDKFTDGVCLFWN

CNVDRYPANSIVCRFDTRVLSNLNLPGCDGGSLYVNKHAFHTPAFDKSAFVNLKQLPF

FYYSDSPCESHGKQVVSDIDYVPLKSATCITRCNLGGAVCRHHANEYRLYLDAYNMMI

SAGFSLWVYKQFDTYNLWNTFTRLQSLENVAFNVVNKGHFDGQQGEVPVSIINNTVYT

KVDGVDVELFENKTTLPVNVAFELWAKRNIKPVPEVKILNNLGVDIAANTVIWDYKRD

APAHISTIGVCSMTDIAKKPIETICAPLTVFFDGRVDGQVDLFRNARNGVLITEGSVK

GLQPSVGPKQASLNGVTLIGEAVKTQFNYYKKVDGVVQQLPETYFTQSRNLQEFKPRS

QMEIDFLELAMDEFIERYKLEGYAFEHIVYGDFSHSQLGGLHLLIGLAKRFKESPFEL

EDFIPMDSTVKNYFITDAQTGSSKCVCSVIDLLLDDFVEIIKSQDLSVVSKVVKVTID

YTEISFMLWCKDGHVETFYPKLQSSQAWQPGVAMPNLYKMQRMLLEKCDLQNYGDSAT

LPKGIMMNVAKYTQLCQYLNTLTLAVPYNMRVIHFGAGSDKGVAPGTAVLRQWLPTGT

LLVDSDLNDFVSDADSTLIGDCATVHTANKWDLIISDMYDPKTKNVTKENDSKEGFFT

YICGFIQQKLALGGSVAIKITEHSWNADLYKLMGHFAWWTAFVTNVNASSSEAFLIGC

NYLGKPREQIDGYVMHANYIFWRNTNPIQLSSYSLFDMSKFPLKLRGTAVMSLKEGQI

NDMILSLLSKGRLIIRENNRVVISSDVLVNN"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44473.1?from=1&to=180) 235..774

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44473.1?from=181&to=818) 775..2688

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44473.1?from=819&to=2763) 2689..8523

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44473.1?from=2764&to=3263) 8524..10023

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44473.1?from=3264&to=3569) 10024..10941

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44473.1?from=3570&to=3856) 10942..11802

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44473.1?from=3857&to=3939) 11803..12051

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44473.1?from=3940&to=4137) 12052..12645

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44473.1?from=4138&to=4250) 12646..12984

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44473.1?from=4251&to=4389) 12985..13401

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44473.1?from=4390&to=5321) join(13402..13428,13428..16196)

/gene="ORF1ab"

/product="RNA-dependent RNA polymerase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44473.1?from=5322&to=5922) 16197..17999

/gene="ORF1ab"

/product="helicase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44473.1?from=5923&to=6449) 18000..19580

/gene="ORF1ab"

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

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44473.1?from=6450&to=6795) 19581..20618

/gene="ORF1ab"

/product="endoRNAse"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44473.1?from=6796&to=7093) 20619..21512

/gene="ORF1ab"

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

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=235&to=13443) 235..13443

/gene="ORF1ab"

/codon\_start=1

/product="ORF1a polyprotein"

/protein\_id="[UMJ44474.1](https://www.ncbi.nlm.nih.gov/protein/2202408213)"

/translation="MESLVPGFNEKTHVQLSLPVLQVRDVLVRGFGDSVEEVLSEARQ

HLKDGTCGLVEVEKGVLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGE

TLGVLVPHVGEIPVAYRKVLLRKNGNKGAGGHRYGADLKSFDLGDELGTDPYEDFQEN

WNTKHSSGVTRELMRELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEQ

LDFIDTKRGVYCCREHEHEIAWYTERSEKSYELQTPFEIKLAKKFDTFNGECPNFVFP

LNSIIKTIQPRVEKKKLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTG

DFVKATCEFCGTENLTKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESG

LKTILRKGGRTIAFGGCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNL

LEILQKEKVNINIVGDFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGN

FKVTKGKAKKGAWNIGEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAA

ITILDGISQYSLRLIDAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKL

KPVLDWLEEKFKEGVEFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLV

NKFLALCADSIIIGGAKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEII

FLEGETLPTEVLTEEVVLKTGDLQPLEQPTSEAVEAPLVGTPVCINGLMLLEIKDTEK

YCALAPNMMVTNNTFTLKGGAPTKVTFGDDTVIEVQGYKSVNIIFELDERIDKVLNEK

CSAYTVELGTEVNEFACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDESGEF

KLASHMYCSFYPPDEDEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPE

EEQEEDWLDDDSQQTVGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSG

YLKLTDNVYIKNADIVEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESD

DYIATNGPLKVGGSCVLSGHNLAKHCLHVVGPNVNKGEDIQLLKSAYENFNQHEVLLA

PLLSAGIFGADPIHSLRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIA

EIPKEEVKPFITESKPSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGN

LHPDSATLVSDIDITFLKKDAPYIVGDVVQEGVLTAVVIPTKKASGTTEMLAKALRKV

PTDNYITTYPGQGLNGYTVEEAKTVLKKCKSAFYILPSIISNEKQEILGTVSWNLREM

LAHAEETRKLMPVCVETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLIN

TLNDLNETLVTMPLGYVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSS

KTPEEHFIETISLAGSYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTTFHLDGEVIT

FDNLKTLLSLREVRTIKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPH

NSHEGKTFYVLPNDDTLRVEAFEYYHTTDPSFLGRYMSALNHTKKWKYPQVNGLTSIK

WADNNCYLATALLTLQQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELG

DVRETMSYLFQHANLDSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQ

IPCTCGKQATKYLVQQESPFVMMSAPPAQYELKHGTFTCASEYTGNYQCGHYKHITSK

ETLYCIDGALLTKSSEYKGPITDVFYKENSYTTTIKPVTYKLDGVVCTEIDPKLDNYY

KKDNSYFTEQPIDLVPNQPYPNASFDNFKFVCDNIKFADDLNQLTGYKKPASRELKVT

FFPDLNGDVVAIDYKHYTPSFKKGAKLLHKPIVWHVNNATNKATYKPNTWCIRCLWST

KPVETSNSFDVLKSEDAQGMDNLACEDLKPVSEEVVENPTIQKDVLECNVKTTEVVGD

IILKPANNSLKITEEVGHTDLMAAYVDNSSLTIKKPNELSRVLGLKTLATHGLAAVNS

VPWDTIANYAKPFLNKVVSTTTNIVTRCLNRVCTNYMPYFFTLLLQLCTFTRSTNSRI

KASMPTTIAKNTVKSVGKFCLEASFNYLKSPNFSKLINIIIWFLLLSVCLGSLIYSTA

ALGVLMSNLGMPSYCTGYREGYLNSTNVTIATYCTGSIPCSVCLSGLDSLDTYPSLET

IQITISSFKWDLTAFGLVAEWFLAYILFTRFFYVLGLAAIMQLFFSYFAVHFISNSWL

MWLIINLVQMAPISAMVRMYIFFASFYYVWKSYVHVVDGCNSSTCMMCYKRNRATRVE

CTTIVNGVRRSFYVYANGGKGFCKLHNWNCVNCDTFCAGSTFISDEVARDLSLQFKRP

INPTDQSSYIVDSVTVKNGSIHLYFDKAGQKTYERHSLSHFVNLDNLRANNTKGSLPI

NVIVFDGKSKCEESSAKSASVYYSQLMCQPILLLDQALVSDVGDSAEVAVKMFDAYVN

TFSSTFNVPMEKLKTLVATAEAELAKNVSLDNVLSTFISAARQGFVDSDVETKDVVEC

LKLSHQSDIEVTGDSCNNYMLTYNKVENMTPRDLGACIDCSARHINAQVAKSHNIALI

WNVKDFMSLSEQLRKQIRSAAKKNNLPFKLTCATTRQVVNVVTTKIALKGGKIVNNWL

KQLIKVTLVFLFVAAIFYLITPVHVMSKHTDFSSEIIGYKAIDGGVTRDIASTDTCFA

NKHADFDTWFSQRGGSYTNDKACPLIAAVITREVGFVVPGLPGTILRTTNGDFLHFLP

RVFSAVGNICYTPSKLIEYTDFATSACVLAAECTIFKDASGKPVPYCYDTNVLEGSVA

YESLRPDTRYVLMDGSIIQFPNTYLEGSVRVVTTFDSEYCRHGTCERSEAGVCVSTSG

RWVLNNDYYRSLPGVFCGVDAVNLFTNMFTPLIQPIGALDISASIVAGGIVAIVVTCL

AYYFMRFRRAFGEYSHVVAFNTLLFLMSFIVLCLTPVYSFLPGVYSVIYLYLTFYLTN

DVSFLAHIQWMVMFTPLVPFWITIAYIICISTKHFYWFFSNYLKRRVVFNGVSFSTFE

EAALCTFLLNKEMYLKLRSDVLLPFTQYNRYLALYNKYKYFSGAMDTTSYREAACCHL

AKALNDFSNSGSDVLYQPPQISITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNG

LWLDDVVYCPRHVICTSEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVL

KLKVDTANPKTPKYKFVRIQPGQTFSVLACYNGSPSGVYQCAMRHNFTIKGSFLNGSC

GSVGFNIDYDCVSFCYMHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVN

VLAWLYAAVINGDRWFLNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAV

LDMCASLKELLQNGMNGRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHW

LLLTILTSLLVLVQSTQWSLFFFLYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFL

LPSLATVAYFNMVYMPASWVMRIMTWLDMVDTSLKLKDCVMYASAVVLLILMTARTVY

DDGARRVWTLMNVLTLVYKVYYGNALDQAISMWALIISVTSNYSGVVTTVMFLARGIV

FMCVEYCPIFFITGNTLQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYLVST

QEFRYMNSQGLLPPKNSIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVLLSV

LQQLRVESSSKLWAQCVQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKLCEE

MLDNRATLQAIASEFSSLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAKSEF

DRDAAMQRKLEKMADQAMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALNNII

NNARDGCVPLNIIPLTTAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDADSK

IVQLSEISMDNSPNLAWPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTACTD

DNALAYYNTTKGGRFVLALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTPKGP

KVKYLYFIKGLNNLNRGMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAKAYK

DYLASGGQPITNCVKMLCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDHPNP

KGFCDLKGKYVQIPTTCANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSADAQ

SFLNGFAV"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44474.1?from=1&to=180) 235..774

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44474.1?from=181&to=818) 775..2688

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44474.1?from=819&to=2763) 2689..8523

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44474.1?from=2764&to=3263) 8524..10023

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44474.1?from=3264&to=3569) 10024..10941

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44474.1?from=3570&to=3856) 10942..11802

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44474.1?from=3857&to=3939) 11803..12051

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44474.1?from=3940&to=4137) 12052..12645

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44474.1?from=4138&to=4250) 12646..12984

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44474.1?from=4251&to=4389) 12985..13401

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UMJ44474.1?from=4390&to=4402) 13402..13440

/gene="ORF1ab"

/product="nsp11"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=13436&to=13463) 13436..13463

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 1"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=13448&to=13502) 13448..13502

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 2"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=21523&to=25335) 21523..25335

/gene="S"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=21523&to=25335) 21523..25335

/gene="S"

/codon\_start=1

/product="surface glycoprotein"

/protein\_id="[UMJ44475.1](https://www.ncbi.nlm.nih.gov/protein/2202408214)"

/translation="MFVFLVLLPLVSSQCVNLITRTQSYTNSFTRGVYYPDKVFRSSV

LHSTQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNIIRGWI

FGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLDVYYHKNNKSWMESEFRVYSSA

NNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGYFKIYSKHTPINLGRDLPQGFS

ALEPLVDLPIGINITRFQTLLALHRSYLTPGDSSSGWTAGAAAYYVGYLQPRTFLLKY

NENGTITDAVDCALDPLSETKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCP

FDEVFNATRFASVYAWNRKRISNCVADYSVLYNSAPFFAFKCYGVSPTKLNDLCFTNV

YADSFVIRGNEVSQIAPGQTGNIADYNYKLPDDFTGCVIAWNSNKLDSKVGGNYNYLY

RLFRKSNLKPFERDISTEIYQAGNKPCNGVAGFNCYFPLRSYGFRPTYGVGHQPYRVV

VLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTGVLTESNKKFLPFQQFGRDI

ADTTDAVRDPQTLEILDITPCSFGGVSVITPGTNTSNQVAVLYQGVNCTEVPVAIHAD

QLTPTWRVYSTGSNVFQTRAGCLIGAEYVNNSYECDIPIGAGICASYQTQTKSHRRAR

SVASQSIIAYTMSLGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYIC

GDSTECSNLLLQYGSFCTQLKRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKYFGGFN

FSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLICAQKFNGLT

VLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLY

ENQKLIANQFNSAIGKIQDSLSSTASALGKLQDVVNHNAQALNTLVKQLSSKFGAISS

VLNDILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECV

LGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPR

EGVFVSNGTHWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFK

EELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYE

QYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSCGSCCKFDEDDSEPVL

KGVKLHYT"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=25344&to=26171) 25344..26171

/gene="ORF3a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=25344&to=26171) 25344..26171

/gene="ORF3a"

/codon\_start=1

/product="ORF3a protein"

/protein\_id="[UMJ44476.1](https://www.ncbi.nlm.nih.gov/protein/2202408215)"

/translation="MDLFMRIFTIGTVTLKQGEIKDATPSDFVRATATIPIQASLPFG

WLIVGVALLAVFQSASKIITLKKRWQLALSKGVHFVCNLLLLFVTVYSHLLLVAAGLE

APFLYLYALVYFLQSINFVRIIMRLWLCWKCRSKNPLLYDANYFLCWHTNCYDYCIPY

NSVTSSIVITSGDGTTSPISEHDYQIGGYTEKWESGVKDCVVLHSYFTSDYYQLYSTQ

LSTDIGVEHVTFFIYNKIVDEPEEHVQIHTIDGSSGVVNPVMEPIYDEPTTTTSVPL"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=26196&to=26423) 26196..26423

/gene="E"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=26196&to=26423) 26196..26423

/gene="E"

/codon\_start=1

/product="envelope protein"

/protein\_id="[UMJ44477.1](https://www.ncbi.nlm.nih.gov/protein/2202408216)"

/translation="MYSFVSEETGTLIVNSVLLFLAFVVFLLVTLAILTALRLCAYCC

NIVNVSLVKPSFYVYSRVKNLNSSRVPDLLV"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=26474&to=27142) 26474..27142

/gene="M"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=26474&to=27142) 26474..27142

/gene="M"

/codon\_start=1

/product="membrane glycoprotein"

/protein\_id="[UMJ44478.1](https://www.ncbi.nlm.nih.gov/protein/2202408217)"

/translation="MADSNGTITVEELKKLLEEWNLVIGFLFLTWICLLQFAYANRNR

FLYIIKLIFLWLLWPVTLTCFVLAAVYRINWITGGIAIAMACLVGLMWLSYFIASFRL

FARTRSMWSFNPETNILLNVPLHGTILTRPLLESELVIGAVILRGHLRXXXXXXXXXX

XXXXPKEITXXTSXXXSYYXXGASQRVXGDSGFAAYSRYRIGNYKLXXDHSSSSDNIA

LLVQ"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=27153&to=27338) 27153..27338

/gene="ORF6"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=27153&to=27338) 27153..27338

/gene="ORF6"

/codon\_start=1

/product="ORF6 protein"

/protein\_id="[UMJ44479.1](https://www.ncbi.nlm.nih.gov/protein/2202408218)"

/translation="MFHLVDFQVTIAEILLIIMRTFKVSIWNLDYIINLIIKNLSKSL

TENKYSQLDEEQPMEIL"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=27345&to=27710) 27345..27710

/gene="ORF7a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=27345&to=27710) 27345..27710

/gene="ORF7a"

/codon\_start=1

/product="ORF7a protein"

/protein\_id="[UMJ44480.1](https://www.ncbi.nlm.nih.gov/protein/2202408219)"

/translation="MKIILFLALITLATCELYHYQECVRGTTVLLKEPCSSGTYEGNS

PFHPLADNKFALTCFSTQFAFACPDGVKHVYQLRARSVSPKLFIRQEEVQELYSPIFL

IVAAIVFITLCFTLKRKTE"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=27707&to=27838) 27707..27838

/gene="ORF7b"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=27707&to=27838) 27707..27838

/gene="ORF7b"

/codon\_start=1

/product="ORF7b"

/protein\_id="[UMJ44481.1](https://www.ncbi.nlm.nih.gov/protein/2202408220)"

/translation="MIELSLIDFYLCFLAFLLFLVLIMLIIFWFSLELQDHNETCHA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=27845&to=28210) 27845..28210

/gene="ORF8"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=27845&to=28210) 27845..28210

/gene="ORF8"

/codon\_start=1

/product="ORF8 protein"

/protein\_id="[UMJ44482.1](https://www.ncbi.nlm.nih.gov/protein/2202408221)"

/translation="MKFLVFLGIITTVAAFHQECSLQSCTQHQPYVVDDPCPIHFYSK

WYIRVGARKSAPLIELCVDEAGSKSPIQYIDIGNYTVSCLPFTINCQEPKLGSLVVRC

SFYEDFLEYHDVRVVLDFI"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=28225&to=29475) 28225..29475

/gene="N"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=28225&to=29475) 28225..29475

/gene="N"

/codon\_start=1

/product="nucleocapsid phosphoprotein"

/protein\_id="[UMJ44483.1](https://www.ncbi.nlm.nih.gov/protein/2202408222)"

/translation="MSDNGPQNQRNALRITFGGPSDSTGSNQNGGARSKQRRPQGLPN

NTASWFTALTQHGKEDLKFPRGQGVPINTNSSPDDQIGYYRRATRRIRGGDGKMKDLS

PRWYFYYLGTGPEAGLPYGANKDGIIWVATEGALNTPKDHIGTRNPANNAAIVLQLPQ

GTTLPKGFYAEGSRGGSQASSRSSSRSRNSSRNSTPGSSKRTSPARMAGNGGDAALAL

LLLDRLNQLESKMSGKGQQQQGQTVTKKSAAEASKKPRQKRTATKAYNVTQAFGRRGP

EQTQGNFGDQELIRQGTDYKHWPQIAQFAPSASAFFGMSRIGMEVTPSGTWLTYTGAI

KLDDKDPNFKDQVILLNKHIDAYKTFPPTEPKKDKKKKADETQALPQRQKKQQTVTLL

PAADLDDFSKQLQQSMSRADSTQA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=29500&to=29616) 29500..29616

/gene="ORF10"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=29500&to=29616) 29500..29616

/gene="ORF10"

/codon\_start=1

/product="ORF10 protein"

/protein\_id="[UMJ44484.1](https://www.ncbi.nlm.nih.gov/protein/2202408223)"

/translation="MGYINVFAFPFTIYSLLLCRMNSRNYIAQVDVVNFNLT"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=29551&to=29586) 29551..29586

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=29571&to=29599) 29571..29599

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM888844.1?from=29670&to=29684) 29670..29684

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

ORIGIN

1 ccaaccaact tttgatctct 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 ggccataggt 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 ctaaaagccc 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 gaatatcatt

2761 tttgaacttg atgaaaggat tgataaagta cttaatgaga agtgctctgc 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 ctagtggcac tactgaaatg ctagcgaaag ctttgagaaa agtgccaaca

4201 gacaattata taaccactta cccgggtcag ggtttaaatg gttacactgt agaggaggca

4261 aagacagtgc ttaaaaagtg taaaagtgct 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 aagctgctaa cttttgtgca cttatcttag cctactgtaa taagacagta

5401 ggtgagttag gtgatgttag agaaacaatg agttacttgt ttcaacatgc caatttagat

5461 tcttgcaaaa gagtcttgaa cgtggtgtgt 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 agtttaaaaa ttacagaaga ggttggccac acagatctaa tggctgctta tgtagacaat

6541 tctagtctta ctattaagaa acctaatgaa ttatctagag tattaggttt gaaaaccctt

6601 gctactcatg gtttagctgc tgttaatagt gtcccttggg atactatagc taattatgct

6661 aagccttttc ttaacaaagt tgttagtaca actactaaca tagttacacg gtgtttaaac

6721 cgtgtttgta ctaattatat gccttatttc tttactttat tgctacaatt gtgtactttt

6781 actagaagta caaattctag aattaaagca tctatgccga ctactatagc aaagaatact

6841 gttaagagtg tcggtaaatt ttgtctagag gcttcattta attatttgaa gtcacctaat

6901 ttttctaaac tgataaatat tataatttgg tttttactat taagtgtttg cctaggttct

6961 ttaatctact caaccgctgc tttaggtgtt ttaatgtcta atttaggcat gccttcttac

7021 tgtactggtt acagagaagg ctatttgaac tctactaatg tcactattgc aacctactgt

7081 actggttcta taccttgtag tgtttgtctt agtggtttag attctttaga cacctatcct

7141 tctttagaaa ctatacaaat taccatttca tcttttaaat gggatttaac tgcttttggc

7201 ttagttgcag agtggttttt ggcatatatt cttttcacta ggtttttcta tgtacttgga

7261 ttggctgcaa tcatgcaatt gtttttcagc tattttgcag tacattttat tagtaattct

7321 tggcttatgt ggttaataat taatcttgta caaatggccc cgatttcagc tatggttaga

7381 atgtacatct tctttgcatc attttattat gtatggaaaa gttatgtgca tgttgtagac

7441 ggttgtaatt catcaacttg tatgatgtgt tacaaacgta atagagcaac aagagtcgaa

7501 tgtacaacta ttgttaatgg tgttagaagg tccttttatg tctatgctaa tggaggtaaa

7561 ggcttttgca aactacacaa ttggaattgt gttaattgtg atacattctg tgctggtagt

7621 acatttatta gtgatgaagt tgcgagagac ttgtcactac agtttaaaag accaataaat

7681 cctactgacc agtcttctta catcgttgat agtgttacag tgaagaatgg ttccatccat

7741 ctttactttg ataaagctgg tcaaaagact tatgaaagac attctctctc tcattttgtt

7801 aacttagaca acctgagagc taataacact aaaggttcat tgcctattaa tgttatagtt

7861 tttgatggta aatcaaaatg tgaagaatca tctgcaaaat cagcgtctgt ttactacagt

7921 cagcttatgt gtcaacctat actgttacta gatcaggcat tagtgtctga tgttggtgat

7981 agtgcggaag ttgcagttaa aatgtttgat gcttacgtta atacgttttc atcaactttt

8041 aacgtaccaa tggaaaaact caaaacacta gttgcaactg cagaagctga acttgcaaag

8101 aatgtgtcct tagacaatgt cttatctact tttatttcag cagctcggca agggtttgtt

8161 gattcagatg tagaaactaa agatgttgtt gaatgtctta aattgtcaca tcaatctgac

8221 atagaagtta ctggcgatag ttgtaataac tatatgctca cctataacaa agttgaaaac

8281 atgacacccc gtgaccttgg tgcttgtatt gactgtagtg cgcgtcatat taatgcgcag

8341 gtagcaaaaa gtcacaacat tgctttgata tggaacgtta aagatttcat gtcattgtct

8401 gaacaactac gaaaacaaat acgtagtgct gctaaaaaga ataacttacc ttttaagttg

8461 acatgtgcaa ctactagaca agttgttaat gttgtaacaa caaagatagc acttaagggt

8521 ggtaaaattg ttaataattg gttgaagcag ttaattaaag ttacacttgt gttccttttt

8581 gttgctgcta ttttctattt aataacacct gttcatgtca tgtctaaaca tactgacttt

8641 tcaagtgaaa tcataggata caaggctatt gatggtggtg tcactcgtga catagcatct

8701 acagatactt gttttgctaa caaacatgct gattttgaca catggtttag ccagcgtggt

8761 ggtagttata ctaatgacaa agcttgccca ttgattgctg cagtcataac aagagaagtg

8821 ggttttgtcg tgcctggttt gcctggcacg atattacgca caactaatgg tgactttttg

8881 catttcttac ctagagtttt tagtgcagtt ggtaacatct gttacacacc atcaaaactt

8941 atagagtaca ctgactttgc aacatcagct tgtgttttgg ctgctgaatg tacaattttt

9001 aaagatgctt ctggtaagcc agtaccatat tgttatgata ccaatgtact agaaggttct

9061 gttgcttatg aaagtttacg ccctgacaca cgttatgtgc tcatggatgg ctctattatt

9121 caatttccta acacctacct tgaaggttct gttagagtgg taacaacttt tgattctgag

9181 tactgtaggc acggcacttg tgaaagatca gaagctggtg tttgtgtatc tactagtggt

9241 agatgggtac ttaacaatga ttattacaga tctttaccag gagttttctg tggtgtagat

9301 gctgtaaatt tatttactaa tatgtttaca ccactaattc aacctattgg tgctttggac

9361 atatcagcat ctatagtagc tggtggtatt gtggctatcg tagtaacatg ccttgcctac

9421 tattttatga ggtttagaag agcttttggt gaatacagtc atgtagttgc ctttaatact

9481 ttactattcc ttatgtcatt cattgtactc tgtttaacac cagtttactc attcttacct

9541 ggtgtttatt ctgttattta cttgtacttg acattttatc ttactaatga tgtttctttt

9601 ttagcacata ttcagtggat ggttatgttc acacctttag tacctttctg gataacaatt

9661 gcttatatca tttgtatttc cacaaagcat ttctattggt tctttagtaa ttacctaaag

9721 agacgtgtag tctttaatgg tgtttccttt agtacttttg aagaagctgc gctgtgcacc

9781 tttttgttaa ataaagaaat gtatctaaag ttgcgtagtg atgtgctatt accttttacg

9841 caatataata gatacttagc tctttataat aagtacaagt attttagtgg agcaatggat

9901 acaactagct acagagaagc tgcttgttgt catctcgcaa aggctctcaa tgacttcagt

9961 aactcaggtt ctgatgttct ttaccaacca ccacaaatct ctatcacctc agctgttttg

10021 cagagtggtt ttagaaaaat ggcattccca tctggtaaag ttgagggttg tatggtacaa

10081 gtaacttgtg gtacaactac acttaacggt ctttggcttg atgacgtagt ttactgtcca

10141 agacatgtga tctgcacctc tgaagatatg cttaacccta attatgaaga tttactcatt

10201 cgtaagtcta atcataattt cttggtacag gctggtaatg ttcaactcag ggttattgga

10261 cattctatgc aaaattgtgt acttaagctt aaggttgata cagccaatcc taagacacct

10321 aagtataagt ttgttcgcat tcaaccagga cagacttttt cagtgttagc ttgttacaat

10381 ggttcaccat ctggtgttta ccaatgtgct atgagacaca atttcactat taagggttca

10441 ttccttaatg gttcatgtgg tagtgttggt tttaacatag attatgactg tgtctctttt

10501 tgttacatgc accatatgga attaccaact ggagttcatg ctggcacaga cttagaaggt

10561 aacttttatg gaccttttgt tgacaggcaa acagcacaag cagctggtac ggacacaact

10621 attacagtta atgttttagc ttggttgtac gctgctgtta taaatggaga caggtggttt

10681 ctcaatcgat ttaccacaac tcttaatgac tttaaccttg tggctatgaa gtacaattat

10741 gaacctctaa cacaagacca tgttgacata ctaggacctc tttctgctca aactggaatt

10801 gccgttttag atatgtgtgc ttcattaaaa gaattactgc aaaatggtat gaatggacgt

10861 accatattgg gtagtgcttt attagaagat gaatttacac cttttgatgt tgttagacaa

10921 tgctcaggtg ttactttcca aagtgcagtg aaaagaacaa tcaagggtac acaccactgg

10981 ttgttactca caattttgac ttcactttta gttttagtcc agagtactca atggtctttg

11041 ttcttttttt tgtatgaaaa tgccttttta ccttttgcta tgggtattat tgctatgtct

11101 gcttttgcaa tgatgtttgt caaacataag catgcatttc tctgtttgtt tttgttacct

11161 tctcttgcca ctgtagctta ttttaatatg gtctatatgc ctgctagttg ggtgatgcgt

11221 attatgacat ggttggatat ggttgatact agtttgaagc taaaagactg tgttatgtat

11281 gcatcagctg tagtgttact aatccttatg acagcaagaa ctgtgtatga tgatggtgct

11341 aggagagtgt ggacacttat gaatgtcttg acactcgttt ataaagttta ttatggtaat

11401 gctttagatc aagccatttc catgtgggct cttataatct ctgttacttc taactactca

11461 ggtgtagtta caactgtcat gtttttggcc agaggtattg tttttatgtg tgttgagtat

11521 tgccctattt tcttcataac tggtaataca cttcagtgta taatgctagt ttattgtttc

11581 ttaggctatt tttgtacttg ttactttggc ctcttttgtt tactcaaccg ctactttaga

11641 ctgactcttg gtgtttatga ttacttagtt tctacacagg agtttagata tatgaattca

11701 cagggactac tcccacccaa gaatagcata gatgccttca aactcaacat taaattgttg

11761 ggtgttggtg gcaaaccttg tatcaaagta gccactgtac agtctaaaat gtcagatgta

11821 aagtgcacat cagtagtctt actctcagtt ttgcaacaac tcagagtaga atcatcatct

11881 aaattgtggg ctcaatgtgt ccagttacac aatgacattc tcttagctaa agatactact

11941 gaagcctttg aaaaaatggt ttcactactt tctgttttgc tttccatgca gggtgctgta

12001 gacataaaca agctttgtga agaaatgctg gacaacaggg caaccttaca agctatagcc

12061 tcagagttta gttcccttcc atcatatgca gcttttgcta ctgctcaaga agcttatgag

12121 caggctgttg ctaatggtga ttctgaagtt gttcttaaaa agttgaagaa gtctttgaat

12181 gtggctaaat ctgaatttga ccgtgatgca gccatgcaac gtaagttgga aaagatggct

12241 gatcaagcta tgacccaaat gtataaacag gctagatctg aggacaagag ggcaaaagtt

12301 actagtgcta tgcagacaat gcttttcact atgcttagaa agttggataa tgatgcactc

12361 aacaacatta tcaacaatgc aagagatggt tgtgttccct tgaacataat acctcttaca

12421 acagcagcca aactaatggt tgtcatacca gactataaca catataaaaa tacgtgtgat

12481 ggtacaacat ttacttatgc atcagcattg tgggaaatcc aacaggttgt agatgcagat

12541 agtaaaattg ttcaacttag tgaaattagt atggacaatt cacctaattt agcatggcct

12601 cttattgtaa cagctttaag ggccaattct gctgtcaaat tacagaataa tgagcttagt

12661 cctgttgcac tacgacagat gtcttgtgct gccggtacta cacaaactgc ttgcactgat

12721 gacaatgcgt tagcttacta caacacaaca aagggaggta ggtttgtact tgcactgtta

12781 tccgatttac aggatttgaa atgggctaga ttccctaaga gtgatggaac tggtactatt

12841 tatacagaac tggaaccacc ttgtaggttt gttacagaca cacctaaagg tcctaaagtg

12901 aagtatttat actttattaa aggattaaac aacctaaata gaggtatggt acttggtagt

12961 ttagctgcca cagtacgtct acaagctggt aatgcaacag aagtgcctgc caattcaact

13021 gtattatctt tctgtgcttt tgctgtagat gctgctaaag cttacaaaga ttatctagct

13081 agtgggggac aaccaatcac taattgtgtt aagatgttgt gtacacacac tggtactggt

13141 caggcaataa cagttacacc ggaagccaat atggatcaag aatcctttgg tggtgcatcg

13201 tgttgtctgt actgccgttg ccacatagat catccaaatc ctaaaggatt ttgtgactta

13261 aaaggtaagt atgtacaaat acctacaact tgtgctaatg accctgtggg ttttacactt

13321 aaaaacacag tctgtaccgt ctgcggtatg tggaaaggtt atggctgtag ttgtgatcaa

13381 ctccgcgaac ccatgcttca gtcagctgat gcacaatcgt ttttaaacgg gtttgcggtg

13441 taagtgcagc ccgtcttaca ccgtgcggca caggcactag tactgatgtc gtatacaggg

13501 cttttgacat ctacaatgat aaagtagctg gttttgctaa attcctaaaa actaattgtt

13561 gtcgcttcca agaaaaggac gaagatgaca atttaattga ttcttacttt gtagttaaga

13621 gacacacttt ctctaactac caacatgaag aaacaattta taatttactt aaggattgtc

13681 cagctgttgc taaacatgac ttctttaagt ttagaataga cggtgacatg gtaccacata

13741 tatcacgtca acgtcttact aaatacacaa tggcagacct cgtctatgct ttaaggcatt

13801 ttgatgaagg taattgtgac acattaaaag aaatacttgt cacatacaat tgttgtgatg

13861 atgattattt caataaaaag gactggtatg attttgtaga aaacccagat atattacgcg

13921 tatacgccaa cttaggtgaa cgtgtacgcc aagctttgtt aaaaacagta caattctgtg

13981 atgccatgcg aaatgctggt attgttggtg tactgacatt agataatcaa gatctcaatg

14041 gtaactggta tgatttcggt gatttcatac aaaccacgcc aggtagtgga gttcctgttg

14101 tagattctta ttattcattg ttaatgccta tattaacctt gaccagggct ttaactgcag

14161 agtcacatgt tgacactgac ttaacaaagc cttacattaa gtgggatttg ttaaaatatg

14221 acttcacgga agagaggtta aaactctttg accgttattt taaatattgg gatcagacat

14281 accacccaaa ttgtgttaac tgtttggatg acagatgcat tctgcattgt gcaaacttta

14341 atgttttatt ctctacagtg ttcccactta caagttttgg accactagtg agaaaaatat

14401 ttgttgatgg tgttccattt gtagtttcaa ctggatacca cttcagagag ctaggtgttg

14461 tacataatca ggatgtaaac ttacatagct ctagacttag ttttaaggaa ttacttgtgt

14521 atgctgctga ccctgctatg cacgctgctt ctggtaatct attactagat aaacgcacta

14581 cgtgcttttc agtagctgca cttactaaca atgttgcttt tcaaactgtc aaacccggta

14641 attttaacaa agacttctat gactttgctg tgtctaaggg tttctttaag gaaggaagtt

14701 ctgttgaatt aaaacacttc ttctttgctc aggatggtaa tgctgctatc agcgattatg

14761 actactatcg ttataatcta ccaacaatgt gtgatatcag acaactacta tttgtagttg

14821 aagttgttga taagtacttt gattgttacg atggtggctg tattaatgct aaccaagtca

14881 tcgtcaacaa cctagacaaa tcagctggtt ttccatttaa taaatggggt aaggctagac

14941 tttattatga ttcaatgagt tatgaggatc aagatgcact tttcgcatat acaaaacgta

15001 atgtcatccc tactataact caaatgaatc ttaagtatgc cattagtgca aagaatagag

15061 ctcgcaccgt agctggtgtc tctatctgta gtactatgac caatagacag tttcatcaaa

15121 aattattgaa atcaatagcc gccactagag gagctactgt agtaattgga acaagcaaat

15181 tctatggtgg ttggcacaac atgttaaaaa ctgtttatag tgatgtagaa aaccctcacc

15241 ttatgggttg ggattatcct aaatgtgata gagccatgcc taacatgctt agaattatgg

15301 cctcacttgt tcttgctcgc aaacatacaa cgtgttgtag cttgtcacac cgtttctata

15361 gattagctaa tgagtgtgct caagtattga gtgaaatggt catgtgtggc ggttcactat

15421 atgttaaacc aggtggaacc tcatcaggag atgccacaac tgcttatgct aatagtgttt

15481 ttaacatttg tcaagctgtc acggccaatg ttaatgcact tttatctact gatggtaaca

15541 aaattgccga taagtatgtc cgcaatttac aacacagact ttatgagtgt ctctatagaa

15601 atagagatgt tgacacagac tttgtgaatg agttttacgc atatttgcgt aaacatttct

15661 caatgatgat actttctgac gatgctgttg tgtgtttcaa tagcacttat gcatctcaag

15721 gtctagtggc tagcataaag aactttaagt cagttcttta ttatcaaaac aatgttttta

15781 tgtctgaagc aaaatgttgg actgagactg accttactaa aggacctcat gaattttgct

15841 ctcaacatac aatgctagtt aaacagggtg atgattatgt gtaccttcct tacccagatc

15901 catcaagaat cctaggggcc ggctgttttg tagatgatat cgtaaaaaca gatggtacac

15961 ttatgattga acggttcgtg tctttagcta tagatgctta cccacttact aaacatccta

16021 atcaggagta tgctgatgtc tttcatttgt acttacaata cataagaaag ctacatgatg

16081 agttaacagg acacatgtta gacatgtatt ctgttatgct tactaatgat aacacttcaa

16141 ggtattggga acctgagttt tatgaggcta tgtacacacc gcatacagtc ttacaggctg

16201 ttggggcttg tgttctttgc aattcacaga cttcattaag atgtggtgct tgcatacgta

16261 gaccattctt atgttgtaaa tgctgttacg accatgtcat atcaacatca cataaattag

16321 tcttgtctgt taatccgtat gtttgcaatg ctccaggttg tgatgtcaca gatgtgactc

16381 aactttactt aggaggtatg agctattatt gtaaatcaca taaaccaccc attagttttc

16441 cattgtgtgc taatggacaa gtttttggtt tatataaaaa tacatgtgtt ggtagcgata

16501 atgttactga ctttaatgca attgcaacat gtgactggac aaatgctggt gattacattt

16561 tagctaacac ctgtactgaa agactcaagc tttttgcagc agaaacgctc aaagctactg

16621 aggagacatt taaactgtct tatggtattg ctactgtacg tgaagtgctg tctgacagag

16681 aattacatct ttcatgggaa gttggtaaac ctagaccacc acttaaccga aattatgtct

16741 ttactggtta tcgtgtaact aaaaacagta aagtacaaat aggagagtac acctttgaaa

16801 aaggtgacta tggtgatgct gttgtttacc gaggtacaac aacttacaaa ttaaatgttg

16861 gtgattattt tgtgctgaca tcacatacag taatgccatt aagtgcacct acactagtgc

16921 cacaagagca ctatgttaga attactggct tatacccaac actcaatatc tcagatgagt

16981 tttctagcaa tgttgcaaat tatcaaaagg ttggtatgca aaagtattct acactccagg

17041 gaccacctgg tactggtaag agtcattttg ctattggcct agctctctac tacccttctg

17101 ctcgcatagt gtatacagct tgctctcatg ccgctgttga tgcactatgt gagaaggcat

17161 taaaatattt gcctatagat aaatgtagta gaattatacc tgcacgtgct cgtgtagagt

17221 gttttgataa attcaaagtg aattcaacat tagaacagta tgtcttttgt actgtaaatg

17281 cattgcctga gacgacagca gatatagttg tctttgatga aatttcaatg gccacaaatt

17341 atgatttgag tgttgtcaat gccagattat gtgctaagca ctatgtgtac attggcgacc

17401 ctgctcaatt acctgcacca cgcacattgc taactaaggg cacactagaa ccagaatatt

17461 tcaattcagt gtgtagactt atgaaaacta taggtccaga catgttcctc ggaacttgtc

17521 ggcgttgtcc tgctgaaatt gttgacactg tgagtgcttt ggtttatgat aataagctta

17581 aagcacataa agacaaatca gctcaatgct ttaaaatgtt ttataagggt gttatcacgc

17641 atgatgtttc atctgcaatt aacaggccac aaataggcgt ggtaagagaa ttccttacac

17701 gtaaccctgc ttggagaaaa gctgtcttta tttcacctta taattcacag aatgctgtag

17761 cctcaaagat tttgggacta ccaactcaaa ctgttgattc atcacagggc tcagaatatg

17821 actatgtcat attcactcaa accactgaaa cagctcactc ttgtaatgta aacagattta

17881 atgttgctat taccagagca aaagtaggca tactttgcat aatgtctgat agagaccttt

17941 atgacaagtt gcaatttaca agtcttgaaa ttccacgtag gaatgtggca actttacaag

18001 ctgaaaatgt aacaggactc tttaaagatt gtagtaaggt aatcactggg ttacatccta

18061 cacaggcacc tacacacctc agtgttgaca ctaaattcaa aactgaaggt ttatgtgttg

18121 acgtacctgg catacctaag gacatgacct atagaagact catctctatg atgggtttta

18181 aaatgaatta tcaagttaat ggttacccta acatgtttat cacccgcgaa gaagctataa

18241 gacatgtacg tgcatggatt ggcttcgatg tcgaggggtg tcatgctact agagaagctg

18301 ttggtaccaa tttaccttta cagctaggtt tttctacagg tgttaaccta gttgctgtac

18361 ctacaggtta tgttgataca cctaataata cagatttttc cagagttagt gctaaaccac

18421 cgcctggaga tcaatttaaa cacctcatac cacttatgta caaaggactt ccttggaatg

18481 tagtgcgtat aaagattgta caaatgttaa gtgacacact taaaaatctc tctgacagag

18541 tcgtatttgt cttatgggca catggctttg agttgacatc tatgaagtat tttgtgaaaa

18601 taggacctga gcgcacctgt tgtctatgtg atagacgtgc cacatgcttt tccactgctt

18661 cagacactta tgcctgttgg catcattcta ttggatttga ttacgtctat aatccgttta

18721 tgattgatgt tcaacaatgg ggttttacag gtaacctaca aagcaaccat gatctgtatt

18781 gtcaagtcca tggtaatgca catgtagcta gttgtgatgc aatcatgact aggtgtctag

18841 ctgtccacga gtgctttgtt aagcgtgttg actggactat tgaatatcct ataattggtg

18901 atgaactgaa gattaatgcg gcttgtagaa aggttcaaca catggttgtt aaagctgcat

18961 tattagcaga caaattccca gttcttcacg acattggtaa ccctaaagct attaagtgtg

19021 tacctcaagc tgatgtagaa tggaagttct atgatgcaca gccttgtagt gacaaagctt

19081 ataaaataga agaattattc tattcttatg ccacacattc tgacaaattc acagatggtg

19141 tatgcctatt ttggaattgc aatgtcgata gatatcctgc taattccatt gtttgtagat

19201 ttgacactag agtgctatct aaccttaact tgcctggttg tgatggtggc agtttgtatg

19261 taaataaaca tgcattccac acaccagctt ttgataaaag tgcttttgtt aatttaaaac

19321 aattaccatt tttctattac tctgacagtc catgtgagtc tcatggaaaa caagtagtgt

19381 cagatataga ttatgtacca ctaaagtctg ctacgtgtat aacacgttgc aatttaggtg

19441 gtgctgtctg tagacatcat gctaatgagt acagattgta tctcgatgct tataacatga

19501 tgatctcagc tggctttagc ttgtgggttt acaaacaatt tgatacttat aacctctgga

19561 acacttttac aagacttcag agtttagaaa atgtggcttt taatgttgta aataagggac

19621 actttgatgg acaacagggt gaagtaccag tttctatcat taataacact gtttacacaa

19681 aagttgatgg tgttgatgta gaattgtttg aaaataaaac aacattacct gttaatgtag

19741 catttgagct ttgggctaag cgcaacatta aaccagtacc agaggtgaaa atactcaata

19801 atttgggtgt ggacattgct gctaatactg tgatctggga ctacaaaaga gatgctccag

19861 cacatatatc tactattggt gtttgttcta tgactgacat agccaagaaa ccaattgaaa

19921 cgatttgtgc accactcact gtcttttttg atggtagagt tgatggtcaa gtagacttat

19981 ttagaaatgc ccgtaatggt gttcttatta cagagggtag tgttaaaggt ttacaaccat

20041 ctgtaggtcc caaacaagct agtcttaatg gagtcacatt aattggagaa gccgtaaaaa

20101 cacagttcaa ttattataag aaagttgatg gtgttgtcca acaattacct gaaacttact

20161 ttactcagag tagaaattta caagaattta aacccaggag tcaaatggaa attgatttct

20221 tagaattagc tatggatgaa ttcattgaac ggtataaatt agaaggctat gccttcgaac

20281 atatcgttta tggagatttt agtcatagtc agttaggtgg tttacatcta ctgattggac

20341 tagctaaacg ttttaaggaa tcaccttttg aattagaaga ttttattcct atggacagta

20401 cagttaaaaa ctatttcata acagatgcgc aaacaggttc atctaagtgt gtgtgttctg

20461 ttattgattt attacttgat gattttgttg aaataataaa atcccaagat ttatctgtag

20521 tttctaaggt tgtcaaagtg actattgact atacagaaat ttcatttatg ctttggtgta

20581 aagatggcca tgtagaaaca ttttacccaa aattacaatc tagtcaagcg tggcaaccgg

20641 gtgttgctat gcctaatctt tacaaaatgc aaagaatgct attagaaaag tgtgaccttc

20701 aaaattatgg tgatagtgca acattaccta aaggcataat gatgaatgtc gcaaaatata

20761 ctcaactgtg tcaatattta aacacattaa cattagctgt accctataat atgagagtta

20821 tacattttgg tgctggttct gataaaggag ttgcaccagg tacagctgtt ttaagacagt

20881 ggttgcctac gggtacgctg cttgtcgatt cagatcttaa tgactttgtc tctgatgcag

20941 attcaacttt gattggtgat tgtgcaactg tacatacagc taataaatgg gatctcatta

21001 ttagtgatat gtacgaccct aagactaaaa atgttacaaa agaaaatgac tctaaagagg

21061 gttttttcac ttacatttgt gggtttatac aacaaaagct agctcttgga ggttccgtgg

21121 ctataaagat aacagaacat tcttggaatg ctgatcttta taagctcatg ggacacttcg

21181 catggtggac agcctttgtt actaatgtga atgcgtcatc atctgaagca tttttaattg

21241 gatgtaatta tcttggcaaa ccacgcgaac aaatagatgg ttatgtcatg catgcaaatt

21301 acatattttg gaggaataca aatccaattc agttgtcttc ctattcttta tttgacatga

21361 gtaaatttcc ccttaaatta aggggtactg ctgttatgtc tttaaaagaa ggtcaaatca

21421 atgatatgat tttatctctt cttagtaaag gtagacttat aattagagaa aacaacagag

21481 ttgttatttc tagtgatgtt cttgttaaca actaaacgaa caatgtttgt ttttcttgtt

21541 ttattgccac tagtctctag tcagtgtgtt aatcttataa ccagaactca atcatacact

21601 aattctttca cacgtggtgt ttattaccct gacaaagttt tcagatcctc agttttacat

21661 tcaactcagg acttgttctt acctttcttt tccaatgtta cttggttcca tgctatacat

21721 gtctctggga ccaatggtac taagaggttt gataaccctg tcctaccatt taatgatggt

21781 gtttattttg cttccactga gaagtctaac ataataagag gctggatttt tggtactact

21841 ttagattcga agacccagtc cctacttatt gttaataacg ctactaatgt tgttattaaa

21901 gtctgtgaat ttcaattttg taatgatcca tttttggatg tttattacca caaaaacaac

21961 aaaagttgga tggaaagtga gttcagagtt tattctagtg cgaataattg cacttttgaa

22021 tatgtctctc agccttttct tatggacctt gaaggaaaac agggtaattt caaaaatctt

22081 agggaatttg tgtttaagaa tattgatggt tattttaaaa tatattctaa gcacacgcct

22141 attaatttag ggcgtgatct ccctcagggt ttttcggctt tagaaccatt ggtagatttg

22201 ccaataggta ttaacatcac taggtttcaa actttacttg ctttacatag aagttatttg

22261 actcctggtg attcttcttc aggttggaca gctggtgctg cagcttatta tgtgggttat

22321 cttcaaccta ggacttttct attaaaatat aatgaaaatg gaaccattac agatgctgta

22381 gactgtgcac ttgaccctct ctcagaaaca aagtgtacgt tgaaatcctt cactgtagaa

22441 aaaggaatct atcaaacttc taactttaga gtccaaccaa cagaatctat tgttagattt

22501 cctaatatta caaacttgtg cccttttgat gaagttttta acgccaccag atttgcatct

22561 gtttatgctt ggaacaggaa gagaatcagc aactgtgttg ctgattattc tgtcctatat

22621 aattccgcac catttttcgc ttttaagtgt tatggagtgt ctcctactaa attaaatgat

22681 ctctgcttta ctaatgtcta tgcagattca tttgtaatta gaggtaatga agtcagccaa

22741 atcgctccag ggcaaactgg aaatattgct gattataatt ataaattacc agatgatttt

22801 acaggctgcg ttatagcttg gaattctaac aagcttgatt ctaaggttgg tggtaattat

22861 aattacctgt atagattgtt taggaagtct aatctcaaac cttttgagag agatatttca

22921 actgaaatct atcaggccgg taacaaacct tgtaatggtg ttgcaggttt taattgttac

22981 tttcctttac gatcatatgg tttccgaccc acttatggtg ttggtcacca accatacaga

23041 gtagtagtac tttcttttga acttctacat gcaccagcaa ctgtttgtgg acctaaaaag

23101 tctactaatt tggttaaaaa caaatgtgtc aatttcaact tcaatggttt aacaggcaca

23161 ggtgttctta ctgagtctaa caaaaagttt ctgcctttcc aacaatttgg cagagacatt

23221 gctgacacta ctgatgctgt ccgtgatcca cagacacttg agattcttga cattacacca

23281 tgttcttttg gtggtgtcag tgttataaca ccaggaacaa atacttctaa ccaggttgct

23341 gttctttatc agggtgttaa ctgcacagaa gtccctgttg ctattcatgc agatcaactt

23401 actcctactt ggcgtgttta ttctacaggt tctaatgttt ttcaaacacg tgcaggctgt

23461 ttaatagggg ctgaatatgt caacaactca tatgagtgtg acatacccat tggtgcaggt

23521 atatgcgcta gttatcagac tcagactaag tctcatcggc gggcacgtag tgtagctagt

23581 caatccatca ttgcctacac tatgtcactt ggtgcagaaa attcagttgc ttactctaat

23641 aactctattg ccatacccac aaattttact attagtgtta ccacagaaat tctaccagtg

23701 tctatgacca agacatcagt agattgtaca atgtacattt gtggtgattc aactgaatgc

23761 agcaatcttt tgttgcaata tggcagtttt tgtacacaat taaaacgtgc tttaactgga

23821 atagctgttg aacaagacaa aaacacccaa gaagtttttg cacaagtcaa acaaatttac

23881 aaaacaccac caattaaata ttttggtggt tttaattttt cacaaatatt accagatcca

23941 tcaaaaccaa gcaagaggtc atttattgaa gatctacttt tcaacaaagt gacacttgca

24001 gatgctggct tcatcaaaca atatggtgat tgccttggtg atattgctgc tagagacctc

24061 atttgtgcac aaaagtttaa cggccttact gttttgccac ctttgctcac agatgaaatg

24121 attgctcaat acacttctgc actgttagcg ggtacaatca cttctggttg gacctttggt

24181 gcaggtgctg cattacaaat accatttgct atgcaaatgg cttataggtt taatggtatt

24241 ggagttacac agaatgttct ctatgagaac caaaaattga ttgccaacca atttaatagt

24301 gctattggca aaattcaaga ctcactttct tccacagcaa gtgcacttgg aaaacttcaa

24361 gatgtggtca accataatgc acaagcttta aacacgcttg ttaaacaact tagctccaaa

24421 tttggtgcaa tttcaagtgt tttaaatgat atcctttcac gtcttgacaa agttgaggct

24481 gaagtgcaaa ttgataggtt gatcacaggc agacttcaaa gtttgcagac atatgtgact

24541 caacaattaa ttagagctgc agaaatcaga gcttctgcta atcttgctgc tactaaaatg

24601 tcagagtgtg tacttggaca atcaaaaaga gttgattttt gtggaaaggg ctatcatctt

24661 atgtccttcc ctcagtcagc acctcatggt gtagtcttct tgcatgtgac ttatgtccct

24721 gcacaagaaa agaacttcac aactgctcct gccatttgtc atgatggaaa agcacacttt

24781 cctcgtgaag gtgtctttgt ttcaaatggc acacactggt ttgtaacaca aaggaatttt

24841 tatgaaccac aaatcattac tacagacaac acatttgtgt ctggtaactg tgatgttgta

24901 ataggaattg tcaacaacac agtttatgat cctttgcaac ctgaattaga ttcattcaag

24961 gaggagttag ataaatattt taagaatcat acatcaccag atgttgattt aggtgacatc

25021 tctggcatta atgcttcagt tgtaaacatt caaaaagaaa ttgaccgcct caatgaggtt

25081 gccaagaatt taaatgaatc tctcatcgat ctccaagaac ttggaaagta tgagcagtat

25141 ataaaatggc catggtacat ttggctaggt tttatagctg gcttgattgc catagtaatg

25201 gtgacaatta tgctttgctg tatgaccagt tgctgtagtt gtctcaaggg ctgttgttct

25261 tgtggatcct gctgcaaatt tgatgaagac gactctgagc cagtgctcaa aggagtcaaa

25321 ttacattaca cataaacgaa cttatggatt tgtttatgag aatcttcaca attggaactg

25381 taactttgaa gcaaggtgaa atcaaggatg ctactccttc agattttgtt cgcgctactg

25441 caacgatacc gatacaagcc tcactccctt tcggatggct tattgttggc gttgcacttc

25501 ttgctgtttt tcagagcgct tccaaaatca taactctcaa aaagagatgg caactagcac

25561 tctccaaggg tgttcacttt gtttgcaact tgctgttgtt gtttgtaaca gtttactcac

25621 accttttgct cgttgctgct ggccttgaag ccccttttct ctatctttat gctttagtct

25681 acttcttgca gagtataaac tttgtaagaa taataatgag gctttggctt tgctggaaat

25741 gccgttccaa aaacccatta ctttatgatg ccaactattt tctttgctgg catactaatt

25801 gttacgacta ttgtatacct tacaatagtg taacttcttc aattgtcatt acttcaggtg

25861 atggcacaac aagtcctatt tctgaacatg actaccagat tggtggttat actgaaaaat

25921 gggaatctgg agtaaaagac tgtgttgtat tacacagtta cttcacttca gactattacc

25981 agctgtactc aactcaattg agtacagaca ttggtgttga acatgttacc ttcttcatct

26041 acaataaaat tgttgatgag cctgaagaac atgtccaaat tcacacaatc gacggttcat

26101 ccggagttgt taatccagta atggaaccaa tttatgatga accgacgacg actactagcg

26161 tgcctttgta agcacaagct gatgagtacg aacttatgta ctcattcgtt tcggaagaga

26221 caggtacgtt aatagttaat agcgtacttc tttttcttgc tttcgtggta ttcttgctag

26281 ttacactagc catccttact gcgcttcgat tgtgtgcgta ctgctgcaat attgttaacg

26341 tgagtcttgt aaaaccttct ttttacgttt actctcgtgt taaaaatctg aattcttcta

26401 gagttcctga tcttctggtc taaacgaact aaatattata ttagtttttc tgtttggaac

26461 tttaatttta gccatggcag attccaacgg tactattacc gttgaagagc ttaaaaagct

26521 ccttgaagaa tggaacctag taataggttt cctattcctt acatggattt gtcttctaca

26581 atttgcctat gccaacagga ataggttttt gtatataatt aagttaattt tcctctggct

26641 gttatggcca gtaactttaa cttgttttgt gcttgctgct gtttacagaa taaattggat

26701 caccggtgga attgctatcg caatggcttg tcttgtaggc ttgatgtggc tcagctactt

26761 cattgcttct ttcagactgt ttgcgcgtac gcgttccatg tggtcattta atccagaaac

26821 taacattctt ctcaacgtgc cactccatgg cactattctg accagaccgc ttctagaaag

26881 tgaactcgta atcggagctg tgatccttcg tggacatctt cgtatnnnnn nnnnnnnnnn

26941 nnnnnnnnnn nnnnnnnnnn nnnngcctaa agaaatcact nnnnnnacat cannnnngcn

27001 ntcntattac nnantgggag cttcgcagcg tgtancaggt gactcaggtt ttgctgcata

27061 cagtcgctac aggattggca actataaatt annnncagac cattccagta gcagtgacaa

27121 tattgctttg cttgtacagt aagtgacaac agatgtttca tctcgttgac tttcaggtta

27181 ctatagcaga gatattacta attattatgc ggacttttaa agtttccatt tggaatcttg

27241 attacatcat aaacctcata attaaaaatt tatctaagtc actaactgag aataaatatt

27301 ctcaattaga tgaagagcaa ccaatggaga ttctctaaac gaacatgaaa attattcttt

27361 tcttggcact gataacactc gctacttgtg agctttatca ctaccaagag tgtgttagag

27421 gtacaacagt acttttaaaa gaaccttgct cttctggaac atacgagggc aattcaccat

27481 ttcatcctct agctgataac aaatttgcac tgacttgctt tagcactcaa tttgcttttg

27541 cttgtcctga cggcgtaaaa cacgtctatc agttacgtgc cagatcagtt tcacctaaac

27601 tgttcatcag acaagaggaa gttcaagaac tttactctcc aatttttctt attgttgcgg

27661 caatagtgtt tataacactt tgcttcacac tcaaaagaaa gacagaatga ttgaactttc

27721 attaattgac ttctatttgt gctttttagc ctttctgtta ttccttgttt taattatgct

27781 tattatcttt tggttctcac ttgaactgca agatcataat gaaacttgtc acgcctaaac

27841 gaacatgaaa tttcttgttt tcttaggaat catcacaact gtagctgcat ttcaccaaga

27901 atgtagttta cagtcatgta ctcaacatca accatatgta gttgatgacc cgtgtcctat

27961 tcacttctat tctaaatggt atattagagt aggagctaga aaatcagcac ctttaattga

28021 attgtgcgtg gatgaggctg gttctaaatc acccattcag tacatcgata tcggtaatta

28081 tacagtttcc tgtttacctt ttacaattaa ttgccaggaa cctaaattgg gtagtcttgt

28141 agtgcgttgt tcgttctatg aagacttttt agagtatcat gacgttcgtg ttgttttaga

28201 tttcatctaa acgaacaaac ttaaatgtct gataatggac cccaaaatca gcgaaatgca

28261 ctccgcatta cgtttggtgg accctcagat tcaactggca gtaaccagaa tggtggggcg

28321 cgatcaaaac aacgtcggcc ccaaggttta cccaataata ctgcgtcttg gttcaccgct

28381 ctcactcaac atggcaagga agaccttaaa ttccctcgag gacaaggcgt tccaattaac

28441 accaatagca gtccagatga ccaaattggc tactaccgaa gagctaccag acgaattcgt

28501 ggtggtgacg gtaaaatgaa agatctcagt ccaagatggt atttctacta cctaggaact

28561 gggccagaag ctggacttcc ctatggtgct aacaaagacg gcatcatatg ggttgcaact

28621 gagggagcct tgaatacacc aaaagatcac attggcaccc gcaatcctgc taacaatgct

28681 gcaatcgtgc tacaacttcc tcaaggaaca acattgccaa aaggcttcta cgcagaaggg

28741 agcagaggcg gcagtcaagc ctcttctcgt tcctcatcac gtagtcgcaa cagttcaaga

28801 aattcaactc caggcagcag taaacgaact tctcctgcta gaatggctgg caatggcggt

28861 gatgctgctc ttgctttgct gctgcttgac agattgaacc agcttgagag caaaatgtct

28921 ggtaaaggcc aacaacaaca aggccaaact gtcactaaga aatctgctgc tgaggcttct

28981 aagaagcctc ggcaaaaacg tactgccact aaagcataca atgtaacaca agctttcggc

29041 agacgtggtc cagaacaaac ccaaggaaat tttggggacc aggaactaat cagacaagga

29101 actgattaca aacattggcc gcaaattgca caatttgccc ccagcgcttc agcgttcttc

29161 ggaatgtcgc gcattggcat ggaagtcaca ccttcgggaa cgtggttgac ctacacaggt

29221 gccatcaaat tggatgacaa agatccaaat ttcaaagatc aagtcatttt gctgaataag

29281 catattgacg catacaaaac attcccacca acagagccta aaaaggacaa aaagaagaag

29341 gctgatgaaa ctcaagcctt accgcagaga cagaagaaac agcaaactgt gactcttctt

29401 cctgctgcag atttggatga tttctccaaa caattgcaac aatccatgag ccgtgctgac

29461 tcaactcagg cctaaactca tgcagaccac acaaggcaga tgggctatat aaacgttttc

29521 gcttttccgt ttacgatata tagtctactc ttgtgcagaa tgaattctcg taactacata

29581 gcacaagtag atgtagttaa ctttaatctc acatagcaat ctttaatcag tgtgtaacat

29641 tagggaggac ttgaaagagc caccacattt tcacctacag tgaacaatgc tagggagagc

29701 tgcctatatg gaagagccct aatgtgtaaa attaatttta gtagtgctat cc

//