**Severe acute respiratory syndrome coronavirus 2 isolate SARS-CoV-2/human/PRI/PR-UPRRP-480/2020 ORF1ab polyprotein (ORF1ab), ORF1a polyprotein (ORF1ab), surface glycoprotein (S), ORF3a protein (ORF3a), envelope protein (E), membrane glycoprotein (M), ORF6 prote...**

GenBank: ON928924.1

[FASTA](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?report=fasta) [Graphics](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?report=graph)

[Go to:](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?expand-gaps=on" \l "goto2264336000_0)

LOCUS ON928924 29782 bp RNA linear VRL 06-JUL-2022

DEFINITION Severe acute respiratory syndrome coronavirus 2 isolate

SARS-CoV-2/human/PRI/PR-UPRRP-480/2020 ORF1ab polyprotein (ORF1ab),

ORF1a polyprotein (ORF1ab), surface glycoprotein (S), ORF3a protein

(ORF3a), envelope protein (E), membrane glycoprotein (M), ORF6

protein (ORF6), ORF7a protein (ORF7a), ORF7b (ORF7b), ORF8 protein

(ORF8), nucleocapsid phosphoprotein (N), and ORF10 protein (ORF10)

genes, complete cds.

ACCESSION ON928924

VERSION ON928924.1

KEYWORDS .

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 29782)

AUTHORS Van Belleghem,S., Papa,R., Planas,S., Ortiz,Y., Zenon,C., Cora

Huertas,L., Candelaria Velez,I., Cruz,M., Rodriguez Orengo,J.,

Godoy,F., Carlos Velez,J. and Sariol,C.

TITLE Genomic surveillance of SARS-CoV-2 in Puerto Rico

JOURNAL Unpublished

REFERENCE 2 (bases 1 to 29782)

AUTHORS Van Belleghem,S., Papa,R., Planas,S., Ortiz,Y., Zenon,C., Cora

Huertas,L., Candelaria Velez,I., Cruz,M., Rodriguez Orengo,J.,

Godoy,F., Carlos Velez,J. and Sariol,C.

TITLE Direct Submission

JOURNAL Submitted (05-JUL-2022) Biology, University of Puerto RIco, Ave

Universidad, San Juan 00931, Puerto Rico

COMMENT ##Assembly-Data-START##

Assembly Method :: DRAGEN Genome Pipeline - Illumina v.

December-2022

Sequencing Technology :: Illumina

##Assembly-Data-END##

FEATURES Location/Qualifiers

source 1..29782

/organism="Severe acute respiratory syndrome coronavirus

2"

/mol\_type="genomic RNA"

/isolate="SARS-CoV-2/human/PRI/PR-UPRRP-480/2020"

/isolation\_source="oral swab"

/host="Homo sapiens"

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

/country="Puerto Rico"

/collection\_date="2020-12-08"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=212&to=21501) 212..21501

/gene="ORF1ab"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?location=212:13414,13414:21501) join(212..13414,13414..21501)

/gene="ORF1ab"

/ribosomal\_slippage

/codon\_start=1

/product="ORF1ab polyprotein"

/protein\_id="[UTB53153.1](https://www.ncbi.nlm.nih.gov/protein/2264336001)"

/translation="MESLVPGFNEKTHVQLSLPVLQVRDVLVRGFGDSVEEVLSEARQ

HLKDGTCGLVEVEKGVLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGE

TLGVLVPHVGEVPVAYRKVLLRKNGNKGAGGHSYGADLKSFDLGDELGTDPYEDFQEN

WNTKHSSGVTRELMRELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEQ

LDFIDTKRGVYCCREHEHEIAWYTERSEKSYELQTPFEIKLAKKFDIFNGECPNFVFP

LNSIIKTIQPRVEKKKLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTG

DFVKATCEFCGTENLTKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESG

LKTILRKGGRTIAFGGCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNL

LEILQKEKVNINIVGDFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGN

FKVTKGKAKKGAWNIGEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAA

ITILDGISQYSLRLIDAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKL

KPVLDWLEEKFKEGVEFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLV

NKFLALCADSIIIGGAKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEII

FLEGETLPTEVLTEEVVLKTGDLQPLEQPTSEAVEAPLVGTPVCINGLMLLEIKDTEK

YCALAPNMMVTNNTFTLKGGAPTKVTFGDDTVIEVQGYKSVNITFELDERIDKVLNEK

CSAYTVELGTEVNEFACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDESGEF

KLASHMYCSFYPPDEDEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPE

EEQEEDWLDDDSQQTVGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSG

YLKLTDNVYIKNADIVEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESD

DYIATNGPLKVGGSCVLSGHNLAKHCLHVVGPNVNKGEDIQLLKSAYENFNQHEVLLA

PLLSAGIFGADPIHSLRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIA

EIPKEEVKPFITESKPSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGN

LHPDSATLVSDIDITFLKKDAPYIVGDVVQEGVLTAVVIPTKKAGGTTEMLAKALRKV

PTDNYITTYPGQGLNGYTVEEAKTVLKKCKSAFYILPSIISNEKQEILGTVSWNLREM

LAHAEETRKLMPVCVETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLIN

TLNDLNETLVTMPLGYVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSS

KTPEEHFIETISLAGSYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTTFHLDGEVIT

FDNLKTLLSLREVRTIKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPH

NSHEGKTFYVLPNDDTLRVEAFEYYHTTDPSFLGRYMSALNHTKKWKYPQVNGLTSIK

WADNNCYLATALLTLQQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELG

DVRETMSYLFQHANLDSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQ

IPCTCGKQATKYLVQQESPFVMMSAPPAQYELKHGTFTCASEYTGNYQCGHYKHITSK

ETLYCIDGALLTKSSEYKGPITDVFYKENSYTTTIKPVTYKLDGVVCTEIDPKLDNYY

KKDNSYFTEQPIDLVPNQPYPNASFDNFKFVCDNIKFADDLNQLTGYKKPASRELKVT

FFPDLNGDVVAIDYKHYTPSFKKGAKLLHKPIVWHVNNATNKATYKPNTWCIRCLWST

KPVETSNSFDVLKSEDAQGMDNLACEDLKPVSEEVVENPTIQKDVLECNVKTTEVVGD

IILKPANNSLKITEEVGHIDLMAAYVDNSSLTIKKPNELSRVLGLKTLATHGLAAVNS

VPWDTIANYAKPFLNKVVSTTTNIVTRCLNRVCTNYMPYFFTLLLQLCTFTRSTNSRI

KASMPTTIAKNTVKSVGKFCLEASFNYLKSPNFSKLINIIIWFLLLSVCLGSLIYSTA

ALGVLMSNLGMPSYCTGYREGYLNSTNVTIATYCTGSIPCSVCLSGLDSLDTYPSLET

IQITISSFKWDLTAFGLVAEWFLAYILFTRFFYVLGLAAIMQLFFSYFAVHFISNSWL

MWLIINLVQMAPISAMVRMYIFFASFYYVWKSYVHVVDGCNSSTCMMCYKRNRATRVE

CTTIVNGVRRSFYVYANGGKGFCKLHNWNCVNCDTFCAGSTFISDEVARDLSLQFKRP

INPTDQSSYIVDSVTVKNGSIHLYFDKAGQKTYERHSLSHFVNLDNLRANNTKGSLPI

NVIVFDGKSKCEESSAKSASVYYSQLMCQPILLLDQALVSDVGDSAEVAVKMFDAYVN

TFSSTFNVPMEKLKTLVATAEAELAKNVSLDNVLSTFISAARQGFVDSDVETKDVVEC

LKLSHQSDIEVTGDSCNNYMLTYNKVENMTPRDLGACIDCSARHINAQVAKSHNIALI

WNVKDFMSLSEQLRKQIRSAAKKNNLPFKLTCATTRQVVNVVTTKIALKGGKIVNNWL

KQLIKVTLVFLFVAAIFYLITPVHVMSKHTDFSSEIIGYKAIDGGVTRDIASTDTCFA

NKHADFDTWFSQRGGSYTNDKACPLIAAVITREVGFVVPGLPGTILRTTNGDFLHFLP

RVFSAVGNICYTPSKLIEYTDFATSACVLAAECTIFKDASGKPVPYCYDTNVLEGSVA

YESLRPDTRYVLMDGSIIQFPNTYLEGSVRVVTTFDSEYCRHGTCERSEAGVCVSTSG

RWVLNNDYYRSLPGVFCGVDAVNLLTNMFTPLIQPIGALDISASIVAGGIVAIVVTCL

AYYFMRFRRAFGEYSHVVAFNTLLFLMSFTVLCLTPVYSFLPGVYSVIYLYLTFYLTN

DVSFLAHIQWMVMFTPLVPFWITIAYIICISTKHFYWFFSNYLKRRVVFNGVSFSTFE

EAALCTFLLNKEMYLKLRSDVLLPLTQYNRYLALYNKYKYFSGAMDTTSYREAACCHL

AKALNDFSNSGSDVLYQPPQTSITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNG

LWLDDVVYCPRHVICTSEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVL

KFKVDTANPKTPKYKFVRIQPGQTFSVLACYNGSPSGVYQCAMRPNFTIKGSFLNGSC

GSVGFNIDYDCVSFCYMHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVN

VLAWLYAAVINGDRWFLNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAV

LDMCASLKELLQNGMNGRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHW

LLLTILTSLLVLVQSTQWSLFFFFYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFL

LPSLATVAYFNMVYMPASWVMRIMTWLDMVDTSLSGFKLKDCVMYASAVVLLILMTAR

TVYDDGARRVWTLMNVLTLVYKVYYGNALDQAISMWALIISVTSNYSGVVTTVMFLAR

GIVFMCVEYCPIFFITGNTLQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYL

VSTQEFRYMNSQGLLPPKNSIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVL

LSVLQQLRVESSSKLWAQCVQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKL

CEEMLDNRATLQAIASEFSSLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAK

SEFDRDAAMQRKLEKMADQAMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALN

NIINNARDGCVPLNIIPLTTAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDA

DSKIVQLSEISMDNSPNLAWPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTA

CTDDNALAYYNTTKGGRFVLALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTP

KGPKVKYLYFIKGLNNLNRGMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAK

AYKDYLASGGQPITNCVKMLCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDH

PNPKGFCDLKGKYVQIPTTCANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSA

DAQSFLNRVCGVSAARLTPCGTGTSTDVVYRAFDIYNDKVAGFAKFLKTNCCRFQEKD

EDDNLIDSYFVVKRHTFSNYQHEETIYNLLKDCPAVAKHDFFKFRIDGDMVPHISRQR

LTKYTMADLVYALRHFDEGNCDTLKEILVTYNCCDDDYFNKKDWYDFVENPDILRVYA

NLGERVRQALLKTVQFCDAMRNAGIVGVLTLDNQDLNGNWYDFGDFIQTTPGSGVPVV

DSYYSLLMPILTLTRALTAESHVDTDLTKPYIKWDLLKYDFTEERLKLFDRYFKYWDQ

TYHPNCVNCLDDRCILHCANFNVLFSTVFPLTSFGPLVRKIFVDGVPFVVSTGYHFRE

LGVVHNQDVNLHSSRLSFKELLVYAADPAMHAASGNLLLDKRTTCFSVAALTNNVAFQ

TVKPGNFNKDFYDFAVSKGFFKEGSSVELKHFFFAQDGNAAISDYDYYRYNLPTMCDI

RQLLFVVEVVDKYFDCYDGGCINANQVIVNNLDKSAGFPFNKWGKARLYYDSMSYEDQ

DALFAYTKRNVIPTITQMNLKYAISAKNRARTVAGVSICSTMTNRQFHQKLLKSIAAT

RGATVVIGTSKFYGGWHNMLKTVYSDVENPHLMGWDYPKCDRAMPNMLRIMASLVLAR

KHTTCCSLSHRFYRLANECAQVLSEMVMCGGSLYVKPGGTSSGDATTAYANSVFNICQ

AVTANVNALLSTDGNKIADKYVRNLQHRLYECLYRNRDVDTDFVNEFYAYLRKHFSMM

ILSDDAVVCFNSTYASQGLVASIKNFKSVLYYQNNVFMSEAKCWTETDLTKGPHEFCS

QHTMLVKQGDDYVYLPYPDPSRILGAGCFVDDIVKTDGTLMIERFVSLAIDAYPLTKH

PNQEYADVFHLYLQYIRKLHDELTGHMLDMYSVMLTNDNTSRYWEPEFYEAMYTPHTV

LQAVGACVLCNSQTSLRCGACIRRPFLCCKCCYDHVISTSHKLVLSVNPYVCNAPGCD

VTDVTQLYLGGMSYYCKSHKPPISFPLCANGQVFGLYKNTCVGSDNVTDFNAIATCDW

TNAGDYILANTCTERLKLFAAETLKATEETFKLSYGIATVREVLSDRELHLSWEVGKP

RPPLNRNYVFTGYRVTKNSKVQIGEYTFEKGDYGDAVVYRGTTTYKLNVGDYFVLTSH

TVMPLSAPTLVPQEHYVRITGLYPTLNISDEFSSNVANYQKVGMQKYSTLQGPPGTGK

SHFAIGLALYYPSARIVYTACSHAAVDALCEKALKYLPIDKCSRIIPARARVECFDKF

KVNSTLEQYVFCTVNALPETTADIVVFDEISMATNYDLSVVNARLRAKHYVYIGDPAQ

LPAPRTLLTKGTLEPEYFNSVCRLMKTIGPDMFLGTCRRCPAEIVDTVSALVYDNKLK

AHKDKSAQCFKMFYKGVITHDVSSAINRPQIGVVREFLTRNPAWRKAVFISPYNSQNA

VASKILGLPTQTVDSSQGSEYDYVIFTQTTETAHSCNVNRFNVAITRAKVGILCIMSD

RDLYDKLQFTSLEIPRRNVATLQAENVTGLFKDCSKVITGLHPTQAPTHLSVDTKFKT

EGLCVDIPGIPKDMTYRRLISMMGFKMNYQVNGYPNMFITREEAIRHVRAWIGFDVEG

CHATREAVGTNLPLQLGFSTGVNLVAVPTGYVDTPDNTDFSRVSAKPPPGDQFKHLIP

LMYKGLPWNVVRIKIVQMLSDTLKNLSDRVVFVLWAHGFELTSMKYFVKIGPERTCCL

CDRRATCFSTASDTYACWHHSIGFDYVYNPFMIDVQQWGFTGNLQSNHDLYCQVHGNA

HVASCDAIMTRCLAVHECFVKRVDWTIEYPIIGDELKINAACRKVQHMVVKAALLADK

FPVLHDIGNPKAIKCVPQADVEWKFYDAQPCSDKAYKIEELFYSYATHSDKFTDGVCL

FWNCNVDRYPANSIVCRFDTRVLSNLNLPGCDGGXXXXXXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XXXXXXXXLWVYKQFDTYNLWNTFTRLQSLENVAFNVVNKGHFDGQQGEVPVSIINNT

VYTKVDGVDVELFENKTTLPVNVAFELWAKRNIKPVPEVKILNNLGVDIAANTVIWDY

KRDAPAHISTIGVCSMTDIAKKPTETICAPLTVFFDGRVDGQVDLFRNARNGVLITEG

SVKGLQPSVGPKQASLNGVTLIGEAVKTQFNYYKKVDGVVQQLPETYFTQSRNLQEFK

PRSQMEIDFLELAMDEFIERYKLEGYAFEHIVYGDFSHSQLGGLHLLIGLAKRFKESP

FELEDFIPMDSTVKNYFITDAQTGSSKCVCSVIDLLLDDFVEIIKSQDLSVVSKVVKV

TIDYTEISFMLWCKDGHVETFYPKLQSSQAWQPGVAMPNLYKMQRMLLEKCDLQNYGD

SATLPKGIMMNVAKYTQLCQYLNTLTLAVPYNMRVIHFGAGSDKGVAPGTAVLRQWLP

TGTLLVDSDLNDFVSDADSTLIGDCATVHTANKWDLIISDMYDPKTKNVTKENDSKEG

FFTYICGFIQQKLALGGSVAIKITEHSWNADLYKLMGHFAWWTAFVTNVNASSSEAXX

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXIQLSSYSLFDMSKFPLKLRGTAVMSLKE

GQINDMILSLLSKGRLIIRENNRVVISSDVLVNN"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53153.1?from=1&to=180) 212..751

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53153.1?from=181&to=818) 752..2665

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53153.1?from=819&to=2763) 2666..8500

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53153.1?from=2764&to=3263) 8501..10000

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53153.1?from=3264&to=3569) 10001..10918

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53153.1?from=3570&to=3859) 10919..11788

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53153.1?from=3860&to=3942) 11789..12037

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53153.1?from=3943&to=4140) 12038..12631

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53153.1?from=4141&to=4253) 12632..12970

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53153.1?from=4254&to=4392) 12971..13387

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53153.1?from=4393&to=5324) join(13388..13414,13414..16182)

/gene="ORF1ab"

/product="RNA-dependent RNA polymerase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53153.1?from=5325&to=5925) 16183..17985

/gene="ORF1ab"

/product="helicase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53153.1?from=5926&to=6452) 17986..19566

/gene="ORF1ab"

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

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53153.1?from=6453&to=6798) 19567..20604

/gene="ORF1ab"

/product="endoRNAse"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53153.1?from=6799&to=7096) 20605..21498

/gene="ORF1ab"

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

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=212&to=13429) 212..13429

/gene="ORF1ab"

/codon\_start=1

/product="ORF1a polyprotein"

/protein\_id="[UTB53154.1](https://www.ncbi.nlm.nih.gov/protein/2264336002)"

/translation="MESLVPGFNEKTHVQLSLPVLQVRDVLVRGFGDSVEEVLSEARQ

HLKDGTCGLVEVEKGVLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGE

TLGVLVPHVGEVPVAYRKVLLRKNGNKGAGGHSYGADLKSFDLGDELGTDPYEDFQEN

WNTKHSSGVTRELMRELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEQ

LDFIDTKRGVYCCREHEHEIAWYTERSEKSYELQTPFEIKLAKKFDIFNGECPNFVFP

LNSIIKTIQPRVEKKKLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTG

DFVKATCEFCGTENLTKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESG

LKTILRKGGRTIAFGGCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNL

LEILQKEKVNINIVGDFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGN

FKVTKGKAKKGAWNIGEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAA

ITILDGISQYSLRLIDAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKL

KPVLDWLEEKFKEGVEFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLV

NKFLALCADSIIIGGAKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEII

FLEGETLPTEVLTEEVVLKTGDLQPLEQPTSEAVEAPLVGTPVCINGLMLLEIKDTEK

YCALAPNMMVTNNTFTLKGGAPTKVTFGDDTVIEVQGYKSVNITFELDERIDKVLNEK

CSAYTVELGTEVNEFACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDESGEF

KLASHMYCSFYPPDEDEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPE

EEQEEDWLDDDSQQTVGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSG

YLKLTDNVYIKNADIVEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESD

DYIATNGPLKVGGSCVLSGHNLAKHCLHVVGPNVNKGEDIQLLKSAYENFNQHEVLLA

PLLSAGIFGADPIHSLRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIA

EIPKEEVKPFITESKPSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGN

LHPDSATLVSDIDITFLKKDAPYIVGDVVQEGVLTAVVIPTKKAGGTTEMLAKALRKV

PTDNYITTYPGQGLNGYTVEEAKTVLKKCKSAFYILPSIISNEKQEILGTVSWNLREM

LAHAEETRKLMPVCVETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLIN

TLNDLNETLVTMPLGYVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSS

KTPEEHFIETISLAGSYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTTFHLDGEVIT

FDNLKTLLSLREVRTIKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPH

NSHEGKTFYVLPNDDTLRVEAFEYYHTTDPSFLGRYMSALNHTKKWKYPQVNGLTSIK

WADNNCYLATALLTLQQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELG

DVRETMSYLFQHANLDSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQ

IPCTCGKQATKYLVQQESPFVMMSAPPAQYELKHGTFTCASEYTGNYQCGHYKHITSK

ETLYCIDGALLTKSSEYKGPITDVFYKENSYTTTIKPVTYKLDGVVCTEIDPKLDNYY

KKDNSYFTEQPIDLVPNQPYPNASFDNFKFVCDNIKFADDLNQLTGYKKPASRELKVT

FFPDLNGDVVAIDYKHYTPSFKKGAKLLHKPIVWHVNNATNKATYKPNTWCIRCLWST

KPVETSNSFDVLKSEDAQGMDNLACEDLKPVSEEVVENPTIQKDVLECNVKTTEVVGD

IILKPANNSLKITEEVGHIDLMAAYVDNSSLTIKKPNELSRVLGLKTLATHGLAAVNS

VPWDTIANYAKPFLNKVVSTTTNIVTRCLNRVCTNYMPYFFTLLLQLCTFTRSTNSRI

KASMPTTIAKNTVKSVGKFCLEASFNYLKSPNFSKLINIIIWFLLLSVCLGSLIYSTA

ALGVLMSNLGMPSYCTGYREGYLNSTNVTIATYCTGSIPCSVCLSGLDSLDTYPSLET

IQITISSFKWDLTAFGLVAEWFLAYILFTRFFYVLGLAAIMQLFFSYFAVHFISNSWL

MWLIINLVQMAPISAMVRMYIFFASFYYVWKSYVHVVDGCNSSTCMMCYKRNRATRVE

CTTIVNGVRRSFYVYANGGKGFCKLHNWNCVNCDTFCAGSTFISDEVARDLSLQFKRP

INPTDQSSYIVDSVTVKNGSIHLYFDKAGQKTYERHSLSHFVNLDNLRANNTKGSLPI

NVIVFDGKSKCEESSAKSASVYYSQLMCQPILLLDQALVSDVGDSAEVAVKMFDAYVN

TFSSTFNVPMEKLKTLVATAEAELAKNVSLDNVLSTFISAARQGFVDSDVETKDVVEC

LKLSHQSDIEVTGDSCNNYMLTYNKVENMTPRDLGACIDCSARHINAQVAKSHNIALI

WNVKDFMSLSEQLRKQIRSAAKKNNLPFKLTCATTRQVVNVVTTKIALKGGKIVNNWL

KQLIKVTLVFLFVAAIFYLITPVHVMSKHTDFSSEIIGYKAIDGGVTRDIASTDTCFA

NKHADFDTWFSQRGGSYTNDKACPLIAAVITREVGFVVPGLPGTILRTTNGDFLHFLP

RVFSAVGNICYTPSKLIEYTDFATSACVLAAECTIFKDASGKPVPYCYDTNVLEGSVA

YESLRPDTRYVLMDGSIIQFPNTYLEGSVRVVTTFDSEYCRHGTCERSEAGVCVSTSG

RWVLNNDYYRSLPGVFCGVDAVNLLTNMFTPLIQPIGALDISASIVAGGIVAIVVTCL

AYYFMRFRRAFGEYSHVVAFNTLLFLMSFTVLCLTPVYSFLPGVYSVIYLYLTFYLTN

DVSFLAHIQWMVMFTPLVPFWITIAYIICISTKHFYWFFSNYLKRRVVFNGVSFSTFE

EAALCTFLLNKEMYLKLRSDVLLPLTQYNRYLALYNKYKYFSGAMDTTSYREAACCHL

AKALNDFSNSGSDVLYQPPQTSITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNG

LWLDDVVYCPRHVICTSEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVL

KFKVDTANPKTPKYKFVRIQPGQTFSVLACYNGSPSGVYQCAMRPNFTIKGSFLNGSC

GSVGFNIDYDCVSFCYMHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVN

VLAWLYAAVINGDRWFLNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAV

LDMCASLKELLQNGMNGRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHW

LLLTILTSLLVLVQSTQWSLFFFFYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFL

LPSLATVAYFNMVYMPASWVMRIMTWLDMVDTSLSGFKLKDCVMYASAVVLLILMTAR

TVYDDGARRVWTLMNVLTLVYKVYYGNALDQAISMWALIISVTSNYSGVVTTVMFLAR

GIVFMCVEYCPIFFITGNTLQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYL

VSTQEFRYMNSQGLLPPKNSIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVL

LSVLQQLRVESSSKLWAQCVQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKL

CEEMLDNRATLQAIASEFSSLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAK

SEFDRDAAMQRKLEKMADQAMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALN

NIINNARDGCVPLNIIPLTTAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDA

DSKIVQLSEISMDNSPNLAWPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTA

CTDDNALAYYNTTKGGRFVLALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTP

KGPKVKYLYFIKGLNNLNRGMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAK

AYKDYLASGGQPITNCVKMLCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDH

PNPKGFCDLKGKYVQIPTTCANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSA

DAQSFLNGFAV"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53154.1?from=1&to=180) 212..751

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53154.1?from=181&to=818) 752..2665

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53154.1?from=819&to=2763) 2666..8500

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53154.1?from=2764&to=3263) 8501..10000

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53154.1?from=3264&to=3569) 10001..10918

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53154.1?from=3570&to=3859) 10919..11788

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53154.1?from=3860&to=3942) 11789..12037

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53154.1?from=3943&to=4140) 12038..12631

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53154.1?from=4141&to=4253) 12632..12970

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53154.1?from=4254&to=4392) 12971..13387

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UTB53154.1?from=4393&to=4405) 13388..13426

/gene="ORF1ab"

/product="nsp11"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=13422&to=13449) 13422..13449

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 1"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=13434&to=13488) 13434..13488

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 2"

gap 19237..19505

/estimated\_length=269

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=21509&to=25330) 21509..25330

/gene="S"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=21509&to=25330) 21509..25330

/gene="S"

/codon\_start=1

/product="surface glycoprotein"

/protein\_id="[UTB53155.1](https://www.ncbi.nlm.nih.gov/protein/2264336003)"

/translation="MFVFLVLLPLVSSQCVNLTTRTQLPPAYTNSFTRGVYYPDKVFR

SSVLHSTQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNIIR

GWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNKSWMESEFRVY

SSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGYFKIYSKHTPINLVRDLPQ

GFSALEPLVDLPIGINITRFQTLLALHRSYLTPGDSSSGWTAGAAAYYVGYLQPRTFL

LKYNENGTITDAVDCALDPLSETKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITN

LCPFGEVFNATRFASVYAWNRKRISNCVADYSVLYNSASFSTFKCYGVSPTKLNDLCF

TNVYADSFVIRGDEVRQIAPGQTGKIADYNYKLPDDFTGCVIAWNSNNLDSKVGGNYN

YLYRLFRKSNLKPFERDISTEIYQAGSTPCNGVEGFNCYFPLQSYGFQPTNGVGYQPY

RVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTGVLTESNKKFLPFQQFG

RDIADTTDAVRDPQTLEILDITPCSFGGVSVITPGTNTSNQVAVLYQGVNCTEVPVAI

HADQLTPTWRVYSTGSNVFQTRAGCLIGAEHVNNSYECDIPIGAGICASYQTQTNSPR

RARSVASQSIIAYTMSLGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTM

YICGDSTECSNLLLQYGSFCTQLNRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKDFG

GFNFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLICAQKFN

GLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAMQMAYRFNGIGVTQN

VLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQDVVNQNAQALNTLVKQLSSNFGA

ISSVLNDILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMS

ECVLGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAH

FPREGVFVSNGTHWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELD

SFKEELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELG

KYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSCGSCCKFDEDDSE

PVLKGVKLHYT"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=25339&to=26166) 25339..26166

/gene="ORF3a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=25339&to=26166) 25339..26166

/gene="ORF3a"

/codon\_start=1

/product="ORF3a protein"

/protein\_id="[UTB53156.1](https://www.ncbi.nlm.nih.gov/protein/2264336004)"

/translation="MDLFMRIFTIGTVTLKQGEIKDATPSDFVRATATIPIQASLPFG

WLIVGVALLAVFHSASKIITLKKRWQLALSKGVHFVCNLLLLFVTVYSHLLLVAAGLE

APFLYLYALVYFLQSINFVRIIMRLWLCWKCRSKNPLLYDANYFLCWHTNCYDYCIPY

NSVTSSIVITSVDGTTSPISEHDYQIGGYTEKWESGVKDCVVLHSYFTSDYYQLYSTQ

LSTDTGVEHVTFFIYNKIVDEPEEHVQIHTIDGSSGVVNPVMEPIYDEPTTTTSVPL"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=26191&to=26418) 26191..26418

/gene="E"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=26191&to=26418) 26191..26418

/gene="E"

/codon\_start=1

/product="envelope protein"

/protein\_id="[UTB53157.1](https://www.ncbi.nlm.nih.gov/protein/2264336005)"

/translation="MYSFVSEETGTLIVNSVLLFLAFVVFLLVTLAILTALRLCAYCC

NIVNVSLVKPSFYVYSRVKNLNSSRVPDLLV"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=26469&to=27137) 26469..27137

/gene="M"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=26469&to=27137) 26469..27137

/gene="M"

/codon\_start=1

/product="membrane glycoprotein"

/protein\_id="[UTB53158.1](https://www.ncbi.nlm.nih.gov/protein/2264336006)"

/translation="MADSNGTITVEELKKLLEQWNLVIGFLFLTWICLLQFAYANRNR

FLYIIKLIFLWLLWPVTLACFVLAAVYRINWITGGIAIAMACLVGLMWLSYFIASFRL

FARTRSMWSFNPETNILLNVPLHGTILTRPLLESELVIGAVILRGHLRIAGHHLGRCD

IKDLPKEITVATSRTLSYYKLGASQRVAGDSGFAAYSRYRIGNYKLNTDHSSSSDNIA

LLVQ"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=27148&to=27333) 27148..27333

/gene="ORF6"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=27148&to=27333) 27148..27333

/gene="ORF6"

/codon\_start=1

/product="ORF6 protein"

/protein\_id="[UTB53159.1](https://www.ncbi.nlm.nih.gov/protein/2264336007)"

/translation="MFHLVDFQVTIAEILLIIMRTFKVSIWNLDYIINLIIKNLSKSL

TENKYSQLDEEQPMEID"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=27340&to=27705) 27340..27705

/gene="ORF7a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=27340&to=27705) 27340..27705

/gene="ORF7a"

/codon\_start=1

/product="ORF7a protein"

/protein\_id="[UTB53160.1](https://www.ncbi.nlm.nih.gov/protein/2264336008)"

/translation="MKIILFLALITLATCELYHYQECVRGTTVLLKEPCSSGTYEGNS

PFHPLADNKFALTCFSTQFAFACPDGVKHVYQLRARSVSPKLFIRQEEVQELYSPIFL

IVAAIVFITLCFTLKRKTE"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=27702&to=27833) 27702..27833

/gene="ORF7b"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=27702&to=27833) 27702..27833

/gene="ORF7b"

/codon\_start=1

/product="ORF7b"

/protein\_id="[UTB53161.1](https://www.ncbi.nlm.nih.gov/protein/2264336009)"

/translation="MIELSLIDFYLCFLAFLLFLVLIMLIIFWFSLELQDHNETCHA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=27840&to=28205) 27840..28205

/gene="ORF8"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=27840&to=28205) 27840..28205

/gene="ORF8"

/codon\_start=1

/product="ORF8 protein"

/protein\_id="[UTB53162.1](https://www.ncbi.nlm.nih.gov/protein/2264336010)"

/translation="MKFLVFLGIITTVAAFHQECSLQLCTQHQPYVVDDPCPIHFYSK

WYIRVGARKSAPLIELCVDEAGSKSPIQYIDIGNYTVSCLPFTINCQEPKLGSLVVRC

SFYEDFLEYHDVRVVLDFI"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=28220&to=29479) 28220..29479

/gene="N"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=28220&to=29479) 28220..29479

/gene="N"

/codon\_start=1

/product="nucleocapsid phosphoprotein"

/protein\_id="[UTB53163.1](https://www.ncbi.nlm.nih.gov/protein/2264336011)"

/translation="MSDNGPQNQRNAPRITFGGPSDSTGSNQNGERSGARSKQRRPQG

LPNNTASWFTALTQHGKEDLKFSRGQGVPINTNSSPDDQIGYYRRATRRIRGGDGKMK

DLSPRWYFYYLGTGPEAGLPYGANKDGIIWVATEGALNTPKDHIGTRNPANNAAIVLQ

LPQGTTLPKGFYAEGSRGGSQASSRSSSRSRNSSRNSTLGSSRGTSPARMAGNGGDAA

LALLLLDRLNQLESKMSGKGQQQQGQTVTKKSAAEASKKPRQKRTATKAYNVTQAFGR

RGPEQTQGNFGDQELIRQGTDYKHWPQIAQFAPSASAFFGMSRIGMEVTPSGTWLTYT

GAIKLDDKDPNFKDQVILLNKHIDAYKTFPPTEPKKDKKKKADETQALPQRQKKQQTV

TLLPAADLDDFSKQLQQSMSSADSTQA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=29504&to=29620) 29504..29620

/gene="ORF10"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=29504&to=29620) 29504..29620

/gene="ORF10"

/codon\_start=1

/product="ORF10 protein"

/protein\_id="[UTB53164.1](https://www.ncbi.nlm.nih.gov/protein/2264336012)"

/translation="MGYINVFAFPFTIYSLLLCRMNSRNYIAQVDVVNFNLT"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=29555&to=29590) 29555..29590

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=29575&to=29603) 29575..29603

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/ON928924.1?from=29674&to=29714) 29674..29714

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

ORIGIN

1 agatctgttc tctaaacgaa ctttaaaatc tgtgtggctg tcactcggct gcatgcttag

61 tgcactcacg cagtataatt aataactaat tactgtcgtt gacaggacac gagtaactcg

121 tctatcttct gcaggctgct tacggtttcg tccgtgttgc agccgatcat cagcacatct

181 aggttttgtc cgggtgtgac cgaaaggtaa gatggagagc cttgtccctg gtttcaacga

241 gaaaacacac gtccaactca gtttgcctgt tttacaggtt cgcgacgtgc tcgtacgtgg

301 ctttggagac tccgtggagg aggtcttatc agaggcacgt caacatctta aagatggcac

361 ttgtggctta gtagaagttg aaaaaggcgt tttgcctcaa cttgaacagc cctatgtgtt

421 catcaaacgt tcggatgctc gaactgcacc tcatggtcat gttatggttg agctggtagc

481 agaactcgaa ggcattcagt acggtcgtag tggtgagaca cttggtgtcc ttgtccctca

541 tgtgggcgaa gtaccagtgg cttaccgcaa ggttcttctt cgtaagaacg gtaataaagg

601 agctggtggc catagttacg gcgccgatct aaagtcattt gacttaggcg acgagcttgg

661 cactgatcct tatgaagatt ttcaagaaaa ctggaacact aaacatagca gtggtgttac

721 ccgtgaactc atgcgtgagc ttaacggagg ggcatacact cgctatgtcg ataacaactt

781 ctgtggccct gatggctacc ctcttgagtg cattaaagac cttctagcac gtgctggtaa

841 agcttcatgc actttgtccg aacaactgga ctttattgac actaagaggg gtgtatactg

901 ctgccgtgaa catgagcatg aaattgcttg gtacacggaa cgttctgaaa agagctatga

961 attgcagaca ccttttgaaa ttaaattggc aaagaaattt gacatcttca atggggaatg

1021 tccaaatttt gtatttccct taaattccat aatcaagact attcaaccaa gggttgaaaa

1081 gaaaaagctt gatggcttta tgggtagaat tcgatctgtc tatccagttg cgtcaccaaa

1141 tgaatgcaac caaatgtgcc tttcaactct catgaagtgt gatcattgtg gtgaaacttc

1201 atggcagacg ggcgattttg ttaaagccac ttgcgaattt tgtggcactg agaatttgac

1261 taaagaaggt gccactactt gtggttactt accccaaaat gctgttgtta aaatttattg

1321 tccagcatgt cacaattcag aagtaggacc tgagcatagt cttgccgaat accataatga

1381 atctggcttg aaaaccattc ttcgtaaggg tggtcgcact attgcctttg gaggctgtgt

1441 gttctcttat gttggttgcc ataacaagtg tgcctattgg gttccacgtg ctagcgctaa

1501 cataggttgt aaccatacag gtgttgttgg agaaggttcc gaaggtctta atgacaacct

1561 tcttgaaata ctccaaaaag agaaagtcaa catcaatatt gttggtgact ttaaacttaa

1621 tgaagagatc gccattattt tggcatcttt ttctgcttcc acaagtgctt ttgtggaaac

1681 tgtgaaaggt ttggattata aagcattcaa acaaattgtt gaatcctgtg gtaattttaa

1741 agttacaaaa ggaaaagcta aaaaaggtgc ctggaatatt ggtgaacaga aatcaatact

1801 gagtcctctt tatgcatttg catcagaggc tgctcgtgtt gtacgatcaa ttttctcccg

1861 cactcttgaa actgctcaaa attctgtgcg tgttttacag aaggccgcta taacaatact

1921 agatggaatt tcacagtatt cactgagact cattgatgct atgatgttca catctgattt

1981 ggctactaac aatctagttg taatggccta cattacaggt ggtgttgttc agttgacttc

2041 gcagtggcta actaacatct ttggcactgt ttatgaaaaa ctcaaacccg tccttgattg

2101 gcttgaagag aagtttaagg aaggtgtaga gtttcttaga gacggttggg aaattgttaa

2161 atttatctca acctgtgctt gtgaaattgt cggtggacaa attgtcacct gtgcaaagga

2221 aattaaggag agtgttcaga cattctttaa gcttgtaaat aaatttttgg ctttgtgtgc

2281 tgactctatc attattggtg gagctaaact taaagccttg aatttaggtg aaacatttgt

2341 cacgcactca aagggattgt acagaaagtg tgttaaatcc agagaagaaa ctggcctact

2401 catgcctcta aaagccccaa aagaaattat cttcttagag ggagaaacac ttcccacaga

2461 agtgttaaca gaggaagttg tcttgaaaac tggtgattta caaccattag aacaacctac

2521 tagtgaagct gttgaagctc cattggttgg tacaccagtt tgtattaacg ggcttatgtt

2581 gctcgaaatc aaagacacag aaaagtactg tgcccttgca cctaatatga tggtaacaaa

2641 caataccttc acactcaaag gcggtgcacc aacaaaggtt acttttggtg atgacactgt

2701 gatagaagtg caaggttaca agagtgtgaa tatcactttt gaacttgatg aaaggattga

2761 taaagtactt aatgagaagt gctctgccta tacagttgaa ctcggtacag aagtaaatga

2821 gttcgcctgt gttgtggcag atgctgtcat aaaaactttg caaccagtat ctgaattact

2881 tacaccactg ggcattgatt tagatgagtg gagtatggct acatactact tatttgatga

2941 gtctggtgag tttaaattgg cttcacatat gtattgttct ttttaccctc cagatgagga

3001 tgaagaagaa ggtgattgtg aagaagaaga gtttgagcca tcaactcaat atgagtatgg

3061 tactgaagat gattaccaag gtaaaccttt ggaatttggt gccacttctg ctgctcttca

3121 acctgaagaa gagcaagaag aagattggtt agatgatgat agtcaacaaa ctgttggtca

3181 acaagacggc agtgaggaca atcagacaac tactattcaa acaattgttg aggttcaacc

3241 tcaattagag atggaactta caccagttgt tcagactatt gaagtgaata gttttagtgg

3301 ttatttaaaa cttactgaca atgtatacat taaaaatgca gacattgtgg aagaagctaa

3361 aaaggtaaaa ccaacagtgg ttgttaatgc agccaatgtt taccttaaac atggaggagg

3421 tgttgcagga gccttaaata aggctactaa caatgccatg caagttgaat ctgatgatta

3481 catagctact aatggaccac ttaaagtggg tggtagttgt gttttaagcg gacacaatct

3541 tgctaaacac tgtcttcatg ttgtcggccc aaatgttaac aaaggtgaag acattcaact

3601 tcttaagagt gcttatgaaa attttaatca gcacgaagtt ctacttgcac cattattatc

3661 agctggtatt tttggtgctg accctataca ttctttaaga gtttgtgtag atactgttcg

3721 cacaaatgtc tacttagctg tctttgataa aaatctctat gacaaacttg tttcaagctt

3781 tttggaaatg aagagtgaaa agcaagttga acaaaagatc gctgagattc ctaaagagga

3841 agttaagcca tttataactg aaagtaaacc ttcagttgaa cagagaaaac aagatgataa

3901 gaaaatcaaa gcttgtgttg aagaagttac aacaactctg gaagaaacta agttcctcac

3961 agaaaacttg ttactttata ttgacattaa tggcaatctt catccagatt ctgccactct

4021 tgttagtgac attgacatca ctttcttaaa gaaagatgct ccatatatag tgggtgatgt

4081 tgttcaagag ggtgttttaa ctgctgtggt tatacctact aaaaaggctg gtggcactac

4141 tgaaatgcta gcgaaagctt tgagaaaagt gccaacagac aattatataa ccacttaccc

4201 gggtcagggt ttaaatggtt acactgtaga ggaggcaaag acagtgctta aaaagtgtaa

4261 aagtgccttt tacattctac catctattat ctctaatgag aagcaagaaa ttcttggaac

4321 tgtttcttgg aatttgcgag aaatgcttgc acatgcagaa gaaacacgca aattaatgcc

4381 tgtctgtgtg gaaactaaag ccatagtttc aactatacag cgtaaatata agggtattaa

4441 aatacaagag ggtgtggttg attatggtgc tagattttac ttttacacca gtaaaacaac

4501 tgtagcgtca cttatcaaca cacttaacga tctaaatgaa actcttgtta caatgccact

4561 tggctatgta acacatggct taaatttgga agaagctgct cggtatatga gatctctcaa

4621 agtgccagct acagtttctg tttcttcacc tgatgctgtt acagcgtata atggttatct

4681 tacttcttct tctaaaacac ctgaagaaca ttttattgaa accatctcac ttgctggttc

4741 ctataaagat tggtcctatt ctggacaatc tacacaacta ggtatagaat ttcttaagag

4801 aggtgataaa agtgtatatt acactagtaa tcctaccaca ttccacctag atggtgaagt

4861 tatcaccttt gacaatctta agacacttct ttctttgaga gaagtgagga ctattaaggt

4921 gtttacaaca gtagacaaca ttaacctcca cacgcaagtt gtggacatgt caatgacata

4981 tggacaacag tttggtccaa cttatttgga tggagctgat gttactaaaa taaaacctca

5041 taattcacat gaaggtaaaa cattttatgt tttacctaat gatgacactc tacgtgttga

5101 ggcttttgag tactaccaca caactgatcc tagttttctg ggtaggtaca tgtcagcatt

5161 aaatcacact aaaaagtgga aatacccaca agttaatggt ttaacttcta ttaaatgggc

5221 agataacaac tgttatcttg ccactgcatt gttaacactc caacaaatag agttgaagtt

5281 taatccacct gctctacaag atgcttatta cagagcaagg gctggtgaag ctgctaactt

5341 ttgtgcactt atcttagcct actgtaataa gacagtaggt gagttaggtg atgttagaga

5401 aacaatgagt tacttgtttc aacatgccaa tttagattct tgcaaaagag tcttgaacgt

5461 ggtgtgtaaa acttgtggac aacagcagac aacccttaag ggtgtagaag ctgttatgta

5521 catgggcaca ctttcttatg aacaatttaa gaaaggtgtt cagatacctt gtacgtgtgg

5581 taaacaagct acaaaatatc tagtacaaca ggagtcacct tttgttatga tgtcagcacc

5641 acctgctcag tatgaactta agcatggtac atttacttgt gctagtgagt acactggtaa

5701 ttaccagtgt ggtcactata aacatataac ttctaaagaa actttgtatt gcatagacgg

5761 tgctttactt acaaagtcct cagaatacaa aggtcctatt acggatgttt tctacaaaga

5821 aaacagttac acaacaacca taaaaccagt tacttataaa ttggatggtg ttgtttgtac

5881 agaaattgac cctaagttgg acaattatta taagaaagac aattcttatt tcacagagca

5941 accaattgat cttgtaccaa accaaccata tccaaacgca agcttcgata attttaagtt

6001 tgtatgtgat aatatcaaat ttgctgatga tttaaaccag ttaactggtt ataagaaacc

6061 tgcttcaaga gagcttaaag ttacattttt ccctgactta aatggtgatg tggtggctat

6121 tgattataaa cactacacac cctcttttaa gaaaggagct aaattgttac ataaacctat

6181 tgtttggcat gttaacaatg caactaataa agccacgtat aaaccaaata cctggtgtat

6241 acgttgtctt tggagcacaa aaccagttga aacatcaaat tcgtttgatg tactgaagtc

6301 agaggacgcg cagggaatgg ataatcttgc ctgcgaagat ctaaaaccag tctctgaaga

6361 agtagtggaa aatcctacca tacagaaaga cgttcttgag tgtaatgtga aaactaccga

6421 agttgtagga gacattatac ttaaaccagc aaataatagt ttaaaaatta cagaagaggt

6481 tggccacata gatctaatgg ctgcttatgt agacaattct agtcttacta ttaagaaacc

6541 taatgaatta tctagagtat taggtttgaa aacccttgct actcatggtt tagctgctgt

6601 taatagtgtc ccttgggata ctatagctaa ttatgctaag ccttttctta acaaagttgt

6661 tagtacaact actaacatag ttacacggtg tttaaaccgt gtttgtacta attatatgcc

6721 ttatttcttt actttattgc tacaattgtg tacttttact agaagtacaa attctagaat

6781 taaagcatct atgccgacta ctatagcaaa gaatactgtt aagagtgtcg gtaaattttg

6841 tctagaggct tcatttaatt atttgaagtc acctaatttt tctaaactga taaatattat

6901 aatttggttt ttactattaa gtgtttgcct aggttcttta atctactcaa ccgctgcttt

6961 aggtgtttta atgtctaatt taggcatgcc ttcttactgt actggttaca gagaaggcta

7021 tttgaactct actaatgtca ctattgcaac ctactgtact ggttctatac cttgtagtgt

7081 ttgtcttagt ggtttagatt ctttagacac ctatccttct ttagaaacta tacaaattac

7141 catttcatct tttaaatggg atttaactgc ttttggctta gttgcagagt ggtttttggc

7201 atatattctt ttcactaggt ttttctatgt acttggattg gctgcaatca tgcaattgtt

7261 tttcagctat tttgcagtac attttattag taattcttgg cttatgtggt taataattaa

7321 tcttgtacaa atggccccga tttcagctat ggttagaatg tacatcttct ttgcatcatt

7381 ttattatgta tggaaaagtt atgtgcatgt tgtagacggt tgtaattcat caacttgtat

7441 gatgtgttac aaacgtaata gagcaacaag agtcgaatgt acaactattg ttaatggtgt

7501 tagaaggtcc ttttatgtct atgctaatgg aggtaaaggc ttttgcaaac tacacaattg

7561 gaattgtgtt aattgtgata cattctgtgc tggtagtaca tttattagtg atgaagttgc

7621 gagagacttg tcactacagt ttaaaagacc aataaatcct actgaccagt cttcttacat

7681 cgttgatagt gttacagtga agaatggttc catccatctt tactttgata aagctggtca

7741 aaagacttat gaaagacatt ctctctctca ttttgttaac ttagacaacc tgagagctaa

7801 taacactaaa ggttcattgc ctattaatgt tatagttttt gatggtaaat caaaatgtga

7861 agaatcatct gcaaaatcag cgtctgttta ctacagtcag cttatgtgtc aacctatact

7921 gttactagat caggcattag tgtctgatgt tggtgatagt gcggaagttg cagttaaaat

7981 gtttgatgct tacgttaata cgttttcatc aacttttaac gtaccaatgg aaaaactcaa

8041 aacactagtt gcaactgcag aagctgaact tgcaaagaat gtgtccttag acaatgtctt

8101 atctactttt atttcagcag ctcggcaagg gtttgttgat tcagatgtag aaactaaaga

8161 tgttgttgaa tgtcttaaat tgtcacatca atctgacata gaagttactg gcgatagttg

8221 taataactat atgctcacct ataacaaagt tgaaaacatg acaccccgtg accttggtgc

8281 ttgtattgac tgtagtgcgc gtcatattaa tgcgcaggta gcaaaaagtc acaacattgc

8341 tttgatatgg aacgttaaag atttcatgtc attgtctgaa caactacgaa aacaaatacg

8401 tagtgctgct aaaaagaata acttaccttt taagttgaca tgtgcaacta ctagacaagt

8461 tgttaatgtt gtaacaacaa agatagcact taagggtggt aaaattgtta ataattggtt

8521 gaagcagtta attaaagtta cacttgtgtt cctttttgtt gctgctattt tctatttaat

8581 aacacctgtt catgtcatgt ctaaacatac tgacttttca agtgaaatca taggatacaa

8641 ggctattgat ggtggtgtca ctcgtgacat agcatctaca gatacttgtt ttgctaacaa

8701 acatgctgat tttgacacat ggtttagcca gcgtggtggt agttatacta atgacaaagc

8761 ttgcccattg attgctgcag tcataacaag agaagtgggt tttgtcgtgc ctggtttgcc

8821 tggcacgata ttacgcacaa ctaatggtga ctttttgcat ttcttaccta gagtttttag

8881 tgcagttggt aacatctgtt acacaccatc aaaacttata gagtacactg actttgcaac

8941 atcagcttgt gttttggctg ctgaatgtac aatttttaaa gatgcttctg gtaagccagt

9001 accatattgt tatgatacca atgtactaga aggttctgtt gcttatgaaa gtttacgccc

9061 tgacacacgt tatgtgctca tggatggctc tattattcaa tttcctaaca cctaccttga

9121 aggttctgtt agagtggtaa caacttttga ttctgagtac tgtaggcacg gcacttgtga

9181 aagatcagaa gctggtgttt gtgtatctac tagtggtaga tgggtactta acaatgatta

9241 ttacagatct ttaccaggag ttttctgtgg tgtagatgct gtaaatttac ttactaatat

9301 gtttacacca ctaattcaac ctattggtgc tttggacata tcagcatcta tagtagctgg

9361 tggtattgta gctatcgtag taacatgcct tgcctactat tttatgaggt ttagaagagc

9421 ttttggtgaa tacagtcatg tagttgcctt taatacttta ctattcctta tgtcattcac

9481 tgtactctgt ttaacaccag tttactcatt cttacctggt gtttattctg ttatttactt

9541 gtacttgaca ttttatctta ctaatgatgt ttctttttta gcacatattc agtggatggt

9601 tatgttcaca cctttagtac ctttctggat aacaattgct tatatcattt gtatttccac

9661 aaagcatttc tattggttct ttagtaatta cctaaagaga cgtgtagtct ttaatggtgt

9721 ttcctttagt acttttgaag aagctgcgct gtgcaccttt ttgttaaata aagaaatgta

9781 tctaaagttg cgtagtgatg tgctattacc tcttacgcaa tataatagat acttagctct

9841 ttataataag tacaagtatt ttagtggagc aatggataca actagctaca gagaagctgc

9901 ttgttgtcat ctcgcaaagg ctctcaatga cttcagtaac tcaggttctg atgttcttta

9961 ccaaccacca caaacctcta tcacctcagc tgttttgcag agtggtttta gaaaaatggc

10021 attcccatct ggtaaagttg agggttgtat ggtacaagta acttgtggta caactacact

10081 taacggtctt tggcttgatg acgtagttta ctgtccaaga catgtgatct gcacctctga

10141 agacatgctt aaccctaatt atgaagattt actcattcgt aagtctaatc ataatttctt

10201 ggtacaggct ggtaatgttc aactcagggt tattggacat tctatgcaaa attgtgtact

10261 taagtttaag gttgatacag ccaatcctaa gacacctaag tataagtttg ttcgcattca

10321 accaggacag actttttcag tgttagcttg ttacaatggt tcaccatctg gtgtttacca

10381 atgtgctatg aggcccaatt tcactattaa gggttcattc cttaatggtt catgtggtag

10441 tgttggtttt aacatagatt atgactgtgt ctctttttgt tacatgcacc atatggaatt

10501 accaactgga gttcatgctg gcacagactt agaaggtaac ttttatggac cttttgttga

10561 caggcaaaca gcacaagcag ctggtacgga cacaactatt acagttaatg ttttagcttg

10621 gttgtacgct gctgttataa atggagacag gtggtttctc aatcgattta ccacaactct

10681 taatgacttt aaccttgtgg ctatgaagta caattatgaa cctctaacac aagaccatgt

10741 tgacatacta ggacctcttt ctgctcaaac tggaattgcc gttttagata tgtgtgcttc

10801 attaaaagaa ttactgcaaa atggtatgaa tggacgtacc atattgggta gtgctttatt

10861 agaagatgaa tttacacctt ttgatgttgt tagacaatgc tcaggtgtta ctttccaaag

10921 tgcagtgaaa agaacaatca agggtacaca ccactggttg ttactcacaa ttttgacttc

10981 acttttagtt ttagtccaga gtactcaatg gtctttgttc tttttttttt atgaaaatgc

11041 ctttttacct tttgctatgg gtattattgc tatgtctgct tttgcaatga tgtttgtcaa

11101 acataagcat gcatttctct gtttgttttt gttaccttct cttgccactg tagcttattt

11161 taatatggtc tatatgcctg ctagttgggt gatgcgtatt atgacatggt tggatatggt

11221 tgatactagt ttgtctggtt ttaagctaaa agactgtgtt atgtatgcat cagctgtagt

11281 gttactaatc cttatgacag caagaactgt gtatgatgat ggtgctagga gagtgtggac

11341 acttatgaat gtcttgacac tcgtttataa agtttattat ggtaatgctt tagatcaagc

11401 catttccatg tgggctctta taatctctgt tacttctaac tactcaggtg tagttacaac

11461 tgtcatgttt ttggccagag gtattgtttt tatgtgtgtt gagtattgcc ctattttctt

11521 cataactggt aatacacttc agtgtataat gctagtttat tgtttcttag gctatttttg

11581 tacttgttac tttggcctct tttgtttact caaccgctac tttagactga ctcttggtgt

11641 ttatgattac ttagtttcta cacaggagtt tagatatatg aattcacagg gactactccc

11701 acccaagaat agcatagatg ccttcaaact caacattaaa ttgttgggtg ttggtggcaa

11761 accttgtatc aaagtagcca ctgtacagtc taaaatgtca gatgtaaagt gcacatcagt

11821 agtcttactc tcagttttgc aacaactcag agtagaatca tcatctaaat tgtgggctca

11881 atgtgtccag ttacacaatg acattctctt agctaaagat actactgaag cctttgaaaa

11941 aatggtttca ctactttctg ttttgctttc catgcagggt gctgtagaca taaacaagct

12001 ttgtgaagaa atgctggaca acagggcaac cttacaagct atagcctcag agtttagttc

12061 ccttccatca tatgcagctt ttgctactgc tcaagaagct tatgagcagg ctgttgctaa

12121 tggtgattct gaagttgttc ttaaaaagtt gaagaagtct ttgaatgtgg ctaaatctga

12181 atttgaccgt gatgcagcca tgcaacgtaa gttggaaaag atggctgatc aagctatgac

12241 ccaaatgtat aaacaggcta gatctgagga caagagggca aaagttacta gtgctatgca

12301 gacaatgctt ttcactatgc ttagaaagtt ggataatgat gcactcaaca acattatcaa

12361 caatgcaaga gatggttgtg ttcccttgaa cataatacct cttacaacag cagccaaact

12421 aatggttgtc ataccagact ataacacata taaaaatacg tgtgatggta caacatttac

12481 ttatgcatca gcattgtggg aaatccaaca ggttgtagat gcagatagta aaattgttca

12541 acttagtgaa attagtatgg acaattcacc taatttagca tggcctctta ttgtaacagc

12601 tttaagggcc aattctgctg tcaaattaca gaataatgag cttagtcctg ttgcactacg

12661 acagatgtct tgtgctgccg gtactacaca aactgcttgc actgatgaca atgcgttagc

12721 ttactacaac acaacaaagg gaggtaggtt tgtacttgca ctgttatccg atttacagga

12781 tttgaaatgg gctagattcc ctaagagtga tggaactggt actatctata cagaactgga

12841 accaccttgt aggtttgtta cagacacacc taaaggtcct aaagtgaagt atttatactt

12901 tattaaagga ttaaacaacc taaatagagg tatggtactt ggtagtttag ctgccacagt

12961 acgtctacaa gctggtaatg caacagaagt gcctgccaat tcaactgtat tatctttctg

13021 tgcttttgct gtagatgctg ctaaagctta caaagattat ctagctagtg ggggacaacc

13081 aatcactaat tgtgttaaga tgttgtgtac acacactggt actggtcagg caataacagt

13141 tacaccggaa gccaatatgg atcaagaatc ctttggtggt gcatcgtgtt gtctgtactg

13201 ccgttgccac atagatcatc caaatcctaa aggattttgt gacttaaaag gtaagtatgt

13261 acaaatacct acaacttgtg ctaatgaccc tgtgggtttt acacttaaaa acacagtctg

13321 taccgtctgc ggtatgtgga aaggttatgg ctgtagttgt gatcaactcc gcgaacccat

13381 gcttcagtca gctgatgcac aatcgttttt aaacgggttt gcggtgtaag tgcagcccgt

13441 cttacaccgt gcggcacagg cactagtact gatgtcgtat acagggcttt tgacatctac

13501 aatgataaag tagctggttt tgctaaattc ctaaaaacta attgttgtcg cttccaagaa

13561 aaggacgaag atgacaattt aattgattct tactttgtag ttaagagaca cactttctct

13621 aactaccaac atgaagaaac aatttataat ttacttaagg attgtccagc tgttgctaaa

13681 catgacttct ttaagtttag aatagacggt gacatggtac cacatatatc acgtcaacgt

13741 cttactaaat acacaatggc agacctcgtc tatgctttaa ggcattttga tgaaggtaat

13801 tgtgacacat taaaagaaat acttgtcaca tacaattgtt gtgatgatga ttatttcaat

13861 aaaaaggact ggtatgattt tgtagaaaac ccagatatat tacgcgtata cgccaactta

13921 ggtgaacgtg tacgccaagc tttgttaaaa acagtacaat tctgtgatgc catgcgaaat

13981 gctggtattg ttggtgtact gacattagat aatcaagatc tcaatggtaa ctggtatgat

14041 ttcggtgatt tcatacaaac cacgccaggt agtggagttc ctgttgtaga ttcttattat

14101 tcattgttaa tgcctatatt aaccttgacc agggctttaa ctgcagagtc acatgttgac

14161 actgacttaa caaagcctta cattaagtgg gatttgttaa aatatgactt cacggaagag

14221 aggttaaaac tctttgaccg ttattttaaa tattgggatc agacatacca cccaaattgt

14281 gttaactgtt tggatgacag atgcattctg cattgtgcaa actttaatgt tttattctct

14341 acagtgttcc cacttacaag ttttggacca ctagtgagaa aaatatttgt tgatggtgtt

14401 ccatttgtag tttcaactgg ataccacttc agagagctag gtgttgtaca taatcaggat

14461 gtaaacttac atagctctag acttagtttt aaggaattac ttgtgtatgc tgctgaccct

14521 gctatgcacg ctgcttctgg taatctatta ctagataaac gcactacgtg cttttcagta

14581 gctgcactta ctaacaatgt tgcttttcaa actgtcaaac ccggtaattt taacaaagac

14641 ttctatgact ttgctgtgtc taagggtttc tttaaggaag gaagttctgt tgaattaaaa

14701 cacttcttct ttgctcagga tggtaatgct gctatcagcg attatgacta ctatcgttat

14761 aatctaccaa caatgtgtga tatcagacaa ctactatttg tagttgaagt tgttgataag

14821 tactttgatt gttacgatgg tggctgtatt aatgctaacc aagtcatcgt caacaaccta

14881 gacaaatcag ctggttttcc atttaataaa tggggtaagg ctagacttta ttatgattca

14941 atgagttatg aggatcaaga tgcacttttc gcatatacaa aacgtaatgt catccctact

15001 ataactcaaa tgaatcttaa gtatgccatt agtgcaaaga atagagctcg caccgtagct

15061 ggtgtctcta tctgtagtac tatgaccaat agacagtttc atcaaaaatt attgaaatca

15121 atagccgcca ctagaggagc tactgtagta attggaacaa gcaaattcta tggtggttgg

15181 cacaacatgt taaaaactgt ttatagtgat gtagaaaacc ctcaccttat gggttgggat

15241 tatcctaaat gtgatagagc catgcctaac atgcttagaa ttatggcctc acttgttctt

15301 gctcgcaaac atacaacgtg ttgtagcttg tcacaccgtt tctatagatt agctaatgag

15361 tgtgctcaag tattgagtga aatggtcatg tgtggcggtt cactatatgt taaaccaggt

15421 ggaacctcat caggagatgc cacaactgct tatgctaata gtgtttttaa catttgtcaa

15481 gctgtcacgg ccaatgttaa tgcactttta tctactgatg gtaacaaaat tgccgataag

15541 tatgtccgca atttacaaca cagactttat gagtgtctct atagaaatag agatgttgac

15601 acagactttg tgaatgagtt ttacgcatat ttgcgtaaac atttctcaat gatgatactc

15661 tctgacgatg ctgttgtgtg tttcaatagc acttatgcat ctcaaggtct agtggctagc

15721 ataaagaact ttaagtcagt tctttattat caaaacaatg tttttatgtc tgaagcaaaa

15781 tgttggactg agactgacct tactaaagga cctcatgaat tttgctctca acatacaatg

15841 ctagttaaac agggtgatga ttatgtgtac cttccttacc cagatccatc aagaatccta

15901 ggggccggct gttttgtaga tgatatcgta aaaacagatg gtacacttat gattgaacgg

15961 ttcgtgtctt tagctataga tgcttaccca cttactaaac atcctaatca ggagtatgct

16021 gatgtctttc atttgtactt acaatacata agaaagctac atgatgagtt aacaggacac

16081 atgttagaca tgtattctgt tatgcttact aatgataaca cttcaaggta ttgggaacct

16141 gagttttatg aggctatgta cacaccgcat acagtcttac aggctgttgg ggcttgtgtt

16201 ctttgcaatt cacagacttc attaagatgt ggtgcttgca tacgtagacc attcttatgt

16261 tgtaaatgct gttacgacca tgtcatatca acatcacata aattagtctt gtctgttaat

16321 ccgtatgttt gcaatgctcc aggttgtgat gtcacagatg tgactcaact ttacttagga

16381 ggtatgagct attattgtaa atcacataaa ccacccatta gttttccatt gtgtgctaat

16441 ggacaagttt ttggtttata taaaaataca tgtgttggta gcgataatgt tactgacttt

16501 aatgcaattg caacatgtga ctggacaaat gctggtgatt acattttagc taacacctgt

16561 actgaaagac tcaagctttt tgcagcagaa acgctcaaag ctactgagga gacatttaaa

16621 ctgtcttatg gtattgctac tgtacgtgaa gtgctgtctg acagagaatt acatctttca

16681 tgggaagttg gtaaacctag accaccactt aaccgaaatt atgtctttac tggttatcgt

16741 gtaactaaaa acagtaaagt acaaatagga gagtacacct ttgaaaaagg tgactatggt

16801 gatgctgttg tttaccgagg tacaacaact tacaaattaa atgttggtga ttattttgtg

16861 ctgacatcac atacagtaat gccattaagt gcacctacac tagtgccaca agagcactat

16921 gttagaatta ctggcttata cccaacactc aatatctcag atgagttttc tagcaatgtt

16981 gcaaattatc aaaaggttgg tatgcaaaag tattctacac tccagggacc acctggtact

17041 ggtaagagtc attttgctat tggcctagct ctctactacc cttctgctcg catagtgtat

17101 acagcttgct ctcatgccgc tgttgatgca ctatgtgaga aggcattaaa atatttgcct

17161 atagataaat gtagtagaat tatacctgca cgtgctcgtg tagagtgttt tgataaattc

17221 aaagtgaatt caacattaga acagtatgtc ttttgtactg taaatgcatt gcctgagacg

17281 acagcagata tagttgtctt tgatgaaatt tcaatggcca caaattatga tttgagtgtt

17341 gtcaatgcca gattacgtgc taagcactat gtgtacattg gcgaccctgc tcaattacct

17401 gcaccacgca cattgctaac taagggcaca ctagaaccag aatatttcaa ttcagtgtgt

17461 agacttatga aaactatagg tccagacatg ttcctcggaa cttgtcggcg ttgtcctgct

17521 gaaattgttg acactgtgag tgctttggtt tatgataata agcttaaagc acataaagac

17581 aaatcagctc aatgctttaa aatgttttat aagggtgtta tcacgcatga tgtttcatct

17641 gcaattaaca ggccacaaat aggcgtggta agagaattcc ttacacgtaa ccctgcttgg

17701 agaaaagctg tctttatttc accttataat tcacagaatg ctgtagcctc aaagattttg

17761 ggactaccaa ctcaaactgt tgattcatca cagggctcag aatatgacta tgtcatattc

17821 actcaaacca ctgaaacagc tcactcttgt aatgtaaaca gatttaatgt tgctattacc

17881 agagcaaaag taggcatact ttgcataatg tctgatagag acctttatga caagttgcaa

17941 tttacaagtc ttgaaattcc acgtaggaat gtggcaactt tacaagctga aaatgtaaca

18001 ggactcttta aagattgtag taaggtaatc actgggttac atcctacaca ggcacctaca

18061 cacctcagtg ttgacactaa attcaaaact gaaggtttat gtgttgacat acctggcata

18121 cctaaggaca tgacctatag aagactcatc tctatgatgg gttttaaaat gaattatcaa

18181 gttaatggtt accctaacat gtttatcacc cgcgaagaag ctataagaca tgtacgtgca

18241 tggattggct tcgatgtcga ggggtgtcat gctactagag aagctgttgg taccaattta

18301 cctttacagc taggtttttc tacaggtgtt aacctagttg ctgtacctac aggttatgtt

18361 gatacacctg ataatacaga tttttccaga gttagtgcta aaccaccgcc tggagatcaa

18421 tttaaacacc tcataccact tatgtacaaa ggacttcctt ggaatgtagt gcgtataaag

18481 attgtacaaa tgttaagtga cacacttaaa aatctctctg acagagtcgt atttgtctta

18541 tgggcacatg gctttgagtt gacatctatg aagtattttg tgaaaatagg acctgagcgc

18601 acctgttgtc tatgtgatag acgtgccaca tgcttttcca ctgcttcaga cacttatgcc

18661 tgttggcatc attctattgg atttgattac gtctataatc cgtttatgat tgatgttcaa

18721 caatggggtt ttacaggtaa cctacaaagc aaccatgatc tgtattgtca agtccatggt

18781 aatgcacatg tagctagttg tgatgcaatc atgactaggt gtctagctgt ccacgagtgc

18841 tttgttaagc gtgttgactg gactattgaa tatcctataa ttggtgatga actgaagatt

18901 aatgcggctt gtagaaaggt tcaacacatg gttgttaaag ctgcattatt agcagacaaa

18961 ttcccagttc ttcacgacat tggtaaccct aaagctatta agtgtgtacc tcaagctgat

19021 gtagaatgga agttctatga tgcacagcct tgtagtgaca aagcttataa aatagaagaa

19081 ttattctatt cttatgccac acattctgac aaattcacag atggtgtatg cctattttgg

19141 aattgcaatg tcgatagata tcctgctaat tccattgttt gtagatttga cactagagtg

19201 ctatctaacc ttaacttgcc tggttgtgat ggtggcnnnn nnnnnnnnnn nnnnnnnnnn

19261 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

19321 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

19381 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

19441 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

19501 nnnnncttgt gggtttacaa acaatttgat acttataacc tctggaacac ttttacaaga

19561 cttcagagtt tagaaaatgt ggcttttaat gttgtaaata agggacactt tgatggacaa

19621 cagggtgaag taccagtttc tatcattaat aacactgttt acacaaaagt tgatggtgtt

19681 gatgtagaat tgtttgaaaa taaaacaaca ttacctgtta atgtagcatt tgagctttgg

19741 gctaagcgca acattaaacc agtaccagag gtgaaaatac tcaataattt gggtgtggac

19801 attgctgcta atactgtgat ctgggactac aaaagagatg ctccagcaca tatatctact

19861 attggtgttt gttctatgac tgacatagcc aagaaaccaa ctgaaacgat ttgtgcacca

19921 ctcactgtct tttttgatgg tagagttgat ggtcaagtag acttatttag aaatgcccgt

19981 aatggtgttc ttattacaga aggtagtgtt aaaggtttac aaccatctgt aggtcccaaa

20041 caagctagtc ttaatggagt cacattaatt ggagaagccg taaaaacaca gttcaattat

20101 tataagaaag ttgatggtgt tgtccaacaa ttacctgaaa cttactttac tcagagtaga

20161 aatttacaag aatttaaacc caggagtcaa atggaaattg atttcttaga attagctatg

20221 gatgaattca ttgaacggta taaattagaa ggctatgcct tcgaacatat cgtttatgga

20281 gattttagtc atagtcagtt aggtggttta catctactga ttggactagc taaacgtttt

20341 aaggaatcac cttttgaatt agaagatttt attcctatgg acagtacagt taaaaactat

20401 ttcataacag atgcgcaaac aggttcatct aagtgtgtgt gttctgttat tgatttatta

20461 cttgatgatt ttgttgaaat aataaaatcc caagatttat ctgtagtttc taaggttgtc

20521 aaagtgacta ttgactatac agaaatttca tttatgcttt ggtgtaaaga tggccatgta

20581 gaaacatttt acccaaaatt acaatctagt caagcgtggc aaccgggtgt tgctatgcct

20641 aatctttaca aaatgcaaag aatgctatta gaaaagtgtg accttcaaaa ttatggtgat

20701 agtgcaacat tacctaaagg cataatgatg aatgtcgcaa aatatactca actgtgtcaa

20761 tatttaaaca cattaacatt agctgtaccc tataatatga gagttataca ttttggtgct

20821 ggttctgata aaggagttgc accaggtaca gctgttttaa gacagtggtt gcctacgggt

20881 acgctgcttg tcgattcaga tcttaatgac tttgtctctg atgcagattc aactttgatt

20941 ggtgattgtg caactgtaca tacagctaat aaatgggatc tcattattag tgatatgtac

21001 gaccctaaga ctaaaaatgt tacaaaagaa aatgactcta aagagggttt tttcacttac

21061 atttgtgggt ttatacaaca aaagctagct cttggaggtt ccgtggctat aaagataaca

21121 gaacattctt ggaatgctga tctttataag ctcatgggac acttcgcatg gtggacagcc

21181 tttgttacta atgtgaatgc gtcatcatct gaagcannnn nnnnnnnnnn nnnnnnnnnn

21241 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

21301 nnnnnnnnnn caattcagtt gtcttcctat tctttatttg acatgagtaa atttcccctt

21361 aaattaaggg gtactgctgt tatgtcttta aaagaaggtc aaatcaatga tatgatttta

21421 tctcttctta gtaaaggtag acttataatt agagaaaaca acagagttgt tatttctagt

21481 gatgttcttg ttaacaacta aacgaacaat gtttgttttt cttgttttat tgccactagt

21541 ctctagtcag tgtgttaatc ttacaaccag aactcaatta ccccctgcat acactaattc

21601 tttcacacgt ggtgtttatt accctgacaa agttttcaga tcctcagttt tacattcaac

21661 tcaggacttg ttcttacctt tcttttccaa tgttacttgg ttccatgcta tacatgtctc

21721 tgggaccaat ggtactaaga ggtttgataa ccctgtccta ccatttaatg atggtgttta

21781 ttttgcttcc actgagaagt ctaacataat aagaggctgg atttttggta ctactttaga

21841 ttcgaagacc cagtccctac ttattgttaa taacgctact aatgttgtta ttaaagtctg

21901 tgaatttcaa ttttgtaatg atccattttt gggtgtttat taccacaaaa acaacaaaag

21961 ttggatggaa agtgagttca gagtttattc tagtgcgaat aattgcactt ttgaatatgt

22021 ctctcagcct tttcttatgg accttgaagg aaaacagggt aatttcaaaa atcttaggga

22081 atttgtgttt aagaatattg atggttattt taaaatatat tctaagcaca cgcctattaa

22141 tttagtgcgt gatctccctc agggtttttc ggctttagaa ccattggtag atttgccaat

22201 aggtattaac atcactaggt ttcaaacttt acttgcttta catagaagtt atttgactcc

22261 tggtgattct tcttcaggtt ggacagctgg tgctgcagct tattatgtgg gttatcttca

22321 acctaggact tttctattaa aatataatga aaatggaacc attacagatg ctgtagactg

22381 tgcacttgac cctctctcag aaacaaagtg tacgttgaaa tccttcactg tagaaaaagg

22441 aatctatcaa acttctaact ttagagtcca accaacagaa tctattgtta gatttcctaa

22501 tattacaaac ttgtgccctt ttggtgaagt ttttaacgcc accagatttg catctgttta

22561 tgcttggaac aggaagagaa tcagcaactg tgttgctgat tattctgtcc tatataattc

22621 cgcatcattt tccactttta agtgttatgg agtgtctcct actaaattaa atgatctctg

22681 ctttactaat gtctatgcag attcatttgt aattagaggt gatgaagtca gacaaatcgc

22741 tccagggcaa actggaaaga ttgctgatta taattataaa ttaccagatg attttacagg

22801 ctgcgttata gcttggaatt ctaacaatct tgattctaag gttggtggta attataatta

22861 cctgtataga ttgtttagga agtctaatct caaacctttt gagagagata tttcaactga

22921 aatctatcag gccggtagca caccttgtaa tggtgttgaa ggttttaatt gttactttcc

22981 tttacaatca tatggtttcc aacccactaa tggtgttggt taccaaccat acagagtagt

23041 agtactttct tttgaacttc tacatgcacc agcaactgtt tgtggaccta aaaagtctac

23101 taatttggtt aaaaacaaat gtgtcaattt caacttcaat ggtttaacag gcacaggtgt

23161 tcttactgag tctaacaaaa agtttctgcc tttccaacaa tttggcagag acattgctga

23221 cactactgat gctgtccgtg atccacagac acttgagatt cttgacatta caccatgttc

23281 ttttggtggt gtcagtgtta taacaccagg aacaaatact tctaaccagg ttgctgttct

23341 ttatcagggt gttaactgca cagaagtccc tgttgctatt catgcagatc aacttactcc

23401 tacttggcgt gtttattcta caggttctaa tgtttttcaa acacgtgcag gctgtttaat

23461 aggggctgaa catgtcaaca actcatatga gtgtgacata cccattggtg caggtatatg

23521 cgctagttat cagactcaga ctaattctcc tcggcgggca cgtagtgtag ctagtcaatc

23581 catcattgcc tacactatgt cacttggtgc agaaaattca gttgcttact ctaataactc

23641 tattgccata cccacaaatt ttactattag tgttaccaca gaaattctac cagtgtctat

23701 gaccaagaca tcagtagatt gtacaatgta catttgtggt gattcaactg aatgcagcaa

23761 tcttttgttg caatatggca gtttttgtac acaattaaac cgtgctttaa ctggaatagc

23821 tgttgaacaa gacaaaaaca cccaagaagt ttttgcacaa gtcaaacaaa tttacaaaac

23881 accaccaatt aaagattttg gtggttttaa tttttcacaa atattaccag atccatcaaa

23941 accaagcaag aggtcattta ttgaagatct acttttcaac aaagtgacac ttgcagatgc

24001 tggcttcatc aaacaatatg gtgattgcct tggtgatatt gctgctagag acctcatttg

24061 tgcacaaaag tttaacggcc ttactgtttt gccacctttg ctcacagatg aaatgattgc

24121 tcaatacact tctgcactgt tagcgggtac aatcacttct ggttggacct ttggtgcagg

24181 tgctgcatta caaataccat ttgctatgca aatggcttat aggtttaatg gtattggagt

24241 tacacagaat gttctctatg agaaccaaaa attgattgcc aaccaattta atagtgctat

24301 tggcaaaatt caagactcac tttcttccac agcaagtgca cttggaaaac ttcaagatgt

24361 ggtcaaccaa aatgcacaag ctttaaacac gcttgttaaa caacttagct ccaattttgg

24421 tgcaatttca agtgttttaa atgatatcct ttcacgtctt gacaaagttg aggctgaagt

24481 gcaaattgat aggttgatca caggcagact tcaaagtttg cagacatatg tgactcaaca

24541 attaattaga gctgcagaaa tcagagcttc tgctaatctt gctgctacta aaatgtcaga

24601 gtgtgtactt ggacaatcaa aaagagttga tttttgtgga aagggctatc atcttatgtc

24661 cttccctcag tcagcacctc atggtgtagt cttcttgcat gtgacttatg tccctgcaca

24721 agaaaagaac ttcacaactg cccctgccat ttgtcatgat ggaaaagcac actttcctcg

24781 tgaaggtgtc tttgtttcaa atggcacaca ctggtttgta acacaaagga atttttatga

24841 accacaaatc attactacag acaacacatt tgtgtctggt aactgtgatg ttgtaatagg

24901 aattgtcaac aacacagttt atgatccttt gcaacctgaa ttagactcat tcaaggagga

24961 gttagataaa tattttaaga atcatacatc accagatgtt gatttaggtg acatctctgg

25021 cattaatgct tcagttgtaa acattcaaaa agaaattgac cgcctcaatg aggttgccaa

25081 gaatttaaat gaatctctca tcgatctcca agaacttgga aagtatgagc agtatataaa

25141 atggccatgg tacatttggc taggttttat agctggcttg attgccatag taatggtgac

25201 aattatgctt tgctgtatga ccagttgctg tagttgtctc aagggctgtt gttcttgtgg

25261 atcctgctgc aaatttgatg aagacgactc tgagccagtg ctcaaaggag tcaaattaca

25321 ttacacataa acgaacttat ggatttgttt atgagaatct tcacaattgg aactgtaact

25381 ttgaagcaag gtgaaatcaa ggatgctact ccttcagatt ttgttcgcgc tactgcaacg

25441 ataccgatac aagcctcact ccctttcgga tggcttattg ttggcgttgc acttcttgct

25501 gtttttcata gcgcttccaa aatcataacc ctcaaaaaga gatggcaact agcactctcc

25561 aagggtgttc actttgtttg caacttgctg ttgttgtttg taacagttta ctcacacctt

25621 ttgctcgttg ctgctggcct tgaagcccct tttctctatc tttatgcttt agtctacttc

25681 ttgcagagta taaactttgt aagaataata atgaggcttt ggctttgctg gaaatgccgt

25741 tccaaaaacc cattacttta tgatgccaac tattttcttt gctggcatac taattgttac

25801 gactattgta taccttacaa tagtgtaact tcttcaattg tcattacttc agttgatggc

25861 acaacaagtc ctatttctga acatgactac cagattggtg gttatactga aaaatgggaa

25921 tctggagtaa aagactgtgt tgtattacac agttacttca cttcagacta ttaccagctg

25981 tactcaactc aattgagtac agacactggt gttgaacatg ttaccttctt catctacaat

26041 aaaattgttg atgagcctga agaacatgtc caaattcaca caatcgacgg ttcatccgga

26101 gttgttaatc cagtaatgga accaatttat gatgaaccga cgacgactac tagcgtgcct

26161 ttgtaagcac aagctgatga gtacgaactt atgtactcat tcgtttcgga agagacaggt

26221 acgttaatag ttaatagcgt acttcttttt cttgctttcg tggtattctt gctagttaca

26281 ctagccatcc ttactgcgct tcgattgtgt gcgtactgct gcaatattgt taacgtgagt

26341 cttgtaaaac cttcttttta cgtttactct cgtgttaaaa atctgaattc ttctagagtt

26401 cctgatcttc tggtctaaac gaactaaata ttatattagt ttttctgttt ggaactttaa

26461 ttttagccat ggcagattcc aacggtacta ttaccgttga agagcttaaa aagctccttg

26521 aacaatggaa cctagtaata ggtttcctat tccttacatg gatttgtctt ctacaatttg

26581 cctatgccaa caggaatagg tttttgtata taattaagtt aattttcctc tggctgttat

26641 ggccagtaac tttagcttgt tttgtgcttg ctgctgttta cagaataaat tggatcaccg

26701 gtggaattgc tatcgcaatg gcttgtcttg taggcttgat gtggctcagc tacttcattg

26761 cttctttcag actgtttgcg cgtacgcgtt ccatgtggtc attcaatcca gaaactaaca

26821 ttcttctcaa cgtgccactc catggcacta ttctgaccag accgcttcta gaaagtgaac

26881 tcgtaatcgg agctgtgatc cttcgtggac atcttcgtat tgctggacac catctaggac

26941 gctgtgacat caaggacctg cctaaagaaa tcactgttgc tacatcacga acgctttctt

27001 attacaaatt gggagcttcg cagcgtgtag caggtgactc aggttttgct gcatacagtc

27061 gctacaggat tggcaactat aaattaaaca cagaccattc cagtagcagt gacaatattg

27121 ctttgcttgt acagtaagtg acaacagatg tttcatctcg ttgactttca ggttactata

27181 gcagagatat tactaattat tatgaggact tttaaagttt ccatttggaa tcttgattac

27241 atcataaacc tcataattaa aaatttatct aagtcactaa ctgagaataa atattctcaa

27301 ttagatgaag agcaaccaat ggagattgat taaacgaaca tgaaaattat tcttttcttg

27361 gcactgataa cactcgctac ttgtgagctt tatcactacc aagagtgtgt tagaggtaca

27421 acagtacttt taaaagaacc ttgctcttct ggaacatacg agggcaattc accatttcat

27481 cctctagctg ataacaaatt tgcactgact tgctttagca ctcaatttgc ttttgcttgt

27541 cctgacggcg taaaacacgt ctatcagtta cgtgccagat cagtttcacc taaactgttc

27601 atcagacaag aggaagttca agaactttac tctccaattt ttcttattgt tgcggcaata

27661 gtgtttataa cactttgctt cacactcaaa agaaagacag aatgattgaa ctttcattaa

27721 ttgacttcta tttgtgcttt ttagcctttc tgctattcct tgttttaatt atgcttatta

27781 tcttttggtt ctcacttgaa ctgcaagatc ataatgaaac ttgtcacgcc taaacgaaca

27841 tgaaatttct tgttttctta ggaatcatca caactgtagc tgcatttcac caagaatgta

27901 gtttacagtt atgtactcaa catcaaccat atgtagttga tgacccgtgt cctattcact

27961 tctattctaa atggtatatt agagtaggag ctagaaaatc agcaccttta attgaattgt

28021 gcgtggatga ggctggttct aaatcaccca ttcagtacat cgatatcggt aattatacag

28081 tttcctgttt accttttaca attaattgcc aggaacctaa attgggtagt cttgtagtgc

28141 gttgttcgtt ctatgaagac tttttagagt atcatgacgt tcgtgttgtt ttagatttca

28201 tctaaacgaa caaactaaaa tgtctgataa tggaccccaa aatcagcgaa atgcaccccg

28261 cattacgttt ggtggaccct cagattcaac tggcagtaac cagaatggag aacgcagtgg

28321 ggcgcgatca aaacaacgtc ggccccaagg tttacccaat aatactgcgt cttggttcac

28381 cgctctcact caacatggca aggaagacct taaattctct cgaggacaag gcgttccaat

28441 taacaccaat agcagtccag atgaccaaat tggctactac cgaagagcta ccagacgaat

28501 tcgtggtggt gacggtaaaa tgaaagatct cagtccaaga tggtatttct actacctagg

28561 aactgggcca gaagctggac ttccctatgg tgctaacaaa gacggcatca tatgggttgc

28621 aactgaggga gccttgaata caccaaaaga tcacattggc acccgcaatc ctgctaacaa

28681 tgctgcaatc gtgctacaac ttcctcaagg aacaacattg ccaaaaggct tctacgcaga

28741 agggagcaga ggcggcagtc aagcctcttc tcgttcctca tcacgtagtc gcaacagttc

28801 aagaaattca actctaggca gcagtagggg aacttctcct gctagaatgg ctggcaatgg

28861 cggtgatgct gctcttgctt tgctgctgct tgacagattg aaccagcttg agagcaaaat

28921 gtctggtaaa ggccaacaac aacaaggcca aactgtcact aagaaatctg ctgctgaggc

28981 ttctaagaag cctcggcaaa aacgtactgc cactaaagca tacaatgtaa cacaagcttt

29041 cggcagacgt ggtccagaac aaacccaagg aaattttggg gaccaggaac taatcagaca

29101 aggaactgat tacaaacatt ggccgcaaat tgcacaattt gcccccagcg cttcagcgtt

29161 cttcggaatg tcgcgcattg gcatggaagt cacaccttcg ggaacgtggt tgacctacac

29221 aggtgccatc aaattggatg acaaagatcc aaatttcaaa gatcaagtca ttttgctgaa

29281 taagcatatt gacgcataca aaacattccc accaacagag cctaaaaagg acaaaaagaa

29341 gaaggctgat gaaactcaag ccttaccgca gagacagaag aaacagcaaa ctgtgactct

29401 tcttcctgct gcagatttgg atgatttctc caaacaattg caacaatcca tgagcagtgc

29461 tgactcaact caggcctaaa ctcatgcaga ccacacaagg cagatgggct atataaacgt

29521 tttcgctttt ccgtttacga tatatagtct actcttgtgc agaatgaatt ctcgtaacta

29581 catagcacaa gtagatgtag ttaactttaa tctcacatag caatctttaa tcagtgtgta

29641 atattaggga ggacttgaaa gagccaccac attttcaccg aggccacgcg gagtacgatc

29701 gagtgtacag tgaacaatgc tagggagagc tgcctatatg gaagagccct aatgtgtaaa

29761 attaatttta gtagtgctat cc

//