**Severe acute respiratory syndrome coronavirus 2 isolate SARS-CoV-2/human/IND/LNHD133/2022 ORF1ab polyprotein (ORF1ab), ORF1a polyprotein (ORF1ab), surface glycoprotein (S), ORF3a protein (ORF3a), envelope protein (E), membrane glycoprotein (M), ORF6 protein (O...**

GenBank: ON060007.1

[FASTA](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?report=fasta) [Graphics](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?report=graph)

[Go to:](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?expand-gaps=on" \l "goto2211481676_0)

LOCUS ON060007 29823 bp RNA linear VRL 24-MAR-2022

DEFINITION Severe acute respiratory syndrome coronavirus 2 isolate

SARS-CoV-2/human/IND/LNHD133/2022 ORF1ab polyprotein (ORF1ab),

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

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

protein (ORF6), ORF7a protein (ORF7a), and ORF7b (ORF7b) genes,

complete cds; ORF8 gene, partial sequence; and nucleocapsid

phosphoprotein (N) and ORF10 protein (ORF10) genes, complete cds.

ACCESSION ON060007

VERSION ON060007.1

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 29823)

AUTHORS Kumar,S., Lomash,A., Kumar,S., Mohammed,F., Kapoor,S., Garg,S.,

Saxena,S., Manchanda,V., Siddiqui,O., Bothra,M., Varughese,B.,

Jindal,A., Dhakad,M.S., Sharma,A., Aasif,M.K., Suravajhala,P.N. and

Polipalli,S.K.

TITLE Direct Submission

JOURNAL Submitted (24-MAR-2022) Genome Sequencing Lab, MAMC & Lok Nayak

Hospital, JLN Marg, New Delhi, Delhi 110002, India

COMMENT ##Assembly-Data-START##

Assembly Method :: Commander v. sep-2021

Sequencing Technology :: ONT

##Assembly-Data-END##

FEATURES Location/Qualifiers

source 1..29823

/organism="Severe acute respiratory syndrome coronavirus

2"

/mol\_type="genomic RNA"

/isolate="SARS-CoV-2/human/IND/LNHD133/2022"

/isolation\_source="Oronasopharyngeal Swab"

/host="Homo sapiens"

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

/country="India: Delhi"

/collection\_date="2022-01-18"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=224&to=21513) 224..21513

/gene="ORF1ab"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?location=224:13426,13426:21513) join(224..13426,13426..21513)

/gene="ORF1ab"

/ribosomal\_slippage

/codon\_start=1

/product="ORF1ab polyprotein"

/protein\_id="[UNQ70412.1](https://www.ncbi.nlm.nih.gov/protein/2211481677)"

/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

LPSLATVAYFNMVYMPASWVMRIMTWLDMVDTSLSSLKLKDCVMYASAVVLLILMTAR

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

KVNSTLEQYVFCTVNALPETTADIVVFDEISMATNYDLSVVNARLCAKHYVYIGDPAQ

LPAPRTLLTKGTLEPEYFNSVCRLMKTIGPDMFLGTCRRCPAEIVDTVSALVYDNKLK

AHKDKSAQCFKMFYKGVITHDVSSAINRPQIGVVREFLTRNPAWRKAVFISPYNSQNA

VASKILGLPTQTVDSSQGSEYDYVIFTQTTETAHSCNVNRFNVAITRAKVGILCIMSD

RDLYDKLQFTSLEIPRRNVATLQAENVTGLFKDCSKVITGLHPTQAPTHLSVDTKFKT

EGLCVDVPGIPKDMTYRRLISMMGFKMNYQVNGYPNMFITREEAIRHVRAWIGFDVEG

CHATREAVGTNLPLQLGFSTGVNLVAVPTGYVDTPNNTDFSRVSAKPPPGDQFKHLIP

LMYKGLPWNVVRIKIVQMLSDTLKNLSDRVVFVLWAHGFELTSMKYFVKIGPERTCCL

CDRRATCFSTASDTYACWHHSIGFDYVYNPFMIDVQQWGFTGNLQSNHDLYCQVHGNA

HVASCDAIMTRCLAVHECFVKRVDWTIEYPIIGDELKINAACRKVQHMVVKAALLADK

FPVLHDIGNPKAIKCVPQADVEWKFYDAQPCSDKAYKIEELFYSYATHSDKFTDGVCL

FWNCNVDRYPANSIVCRFDTRVLSNLNLPGCDGGSLYVNKHAFHTPAFDKSAFVNLKQ

LPFFYYSDSPCESHGKQVVSDIDYVPLKSATCITRCNLGGAVCRHHANEYRLYLDAYN

MMISAGFSLWVYKQFDTYNLWNTFTRLQSLENVAFNVVNKGHFDGQQGEVPVSIINNT

VYTKVDGVDVELFENKTTLPVNVAFELWAKRNIKPVPEVKILNNLGVDIAANTVIWDY

KRDAPAHISTIGVCSMTDIAKKPIETICAPLTVFFDGRVDGQVDLFRNARNGVLITEG

SVKGLQPSVGPKQASLNGVTLIGEAVKTQFNYYKKVDGVVQQLPETYFTQSRNLQEFK

PRSQMEIDFLELAMDEFIERYKLEGYAFEHIVYGDFSHSQLGGLHLLIGLAKRFKESP

FELEDFIPMDSTVKNYFITDAQTGSSKCVCSVIDLLLDDFVEIIKSQDLSVVSKVVKV

TIDYTEISFMLWCKDGHVETFYPKLQSSQAWQPGVAMPNLYKMQRMLLEKCDLQNYGD

SATLPKGIMMNVAKYTQLCQYLNTLTLAVPYNMRVIHFGAGSDKGVAPGTAVLRQWLP

TGTLLVDSDLNDFVSDADSTLIGDCATVHTANKWDLIISDMYDPKTKNVTKENDSKEG

FFTYICGFIQQKLALGGSVAIKITEHSWNADLYKLMGHFAWWTAFVTNVNASSSEAFL

IGCNYLGKPREQIDGYVMHANYIFWRNTNPIQLSSYSLFDMSKFPLKLRGTAVMSLKE

GQINDMILSLLSKGRLIIRENNRVVISSDVLVNN"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70412.1?from=1&to=180) 224..763

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70412.1?from=181&to=818) 764..2677

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70412.1?from=819&to=2763) 2678..8512

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70412.1?from=2764&to=3263) 8513..10012

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70412.1?from=3264&to=3569) 10013..10930

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70412.1?from=3570&to=3859) 10931..11800

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70412.1?from=3860&to=3942) 11801..12049

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70412.1?from=3943&to=4140) 12050..12643

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70412.1?from=4141&to=4253) 12644..12982

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70412.1?from=4254&to=4392) 12983..13399

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70412.1?from=4393&to=5324) join(13400..13426,13426..16194)

/gene="ORF1ab"

/product="RNA-dependent RNA polymerase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70412.1?from=5325&to=5925) 16195..17997

/gene="ORF1ab"

/product="helicase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70412.1?from=5926&to=6452) 17998..19578

/gene="ORF1ab"

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

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70412.1?from=6453&to=6798) 19579..20616

/gene="ORF1ab"

/product="endoRNAse"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70412.1?from=6799&to=7096) 20617..21510

/gene="ORF1ab"

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

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=224&to=13441) 224..13441

/gene="ORF1ab"

/codon\_start=1

/product="ORF1a polyprotein"

/protein\_id="[UNQ70413.1](https://www.ncbi.nlm.nih.gov/protein/2211481678)"

/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

LPSLATVAYFNMVYMPASWVMRIMTWLDMVDTSLSSLKLKDCVMYASAVVLLILMTAR

TVYDDGARRVWTLMNVLTLVYKVYYGNALDQAISMWALIISVTSNYSGVVTTVMFLAR

GIVFMCVEYCPIFFITGNTLQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYL

VSTQEFRYMNSQGLLPPKNSIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVL

LSVLQQLRVESSSKLWAQCVQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKL

CEEMLDNRATLQAIASEFSSLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAK

SEFDRDAAMQRKLEKMADQAMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALN

NIINNARDGCVPLNIIPLTTAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDA

DSKIVQLSEISMDNSPNLAWPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTA

CTDDNALAYYNTTKGGRFVLALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTP

KGPKVKYLYFIKGLNNLNRGMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAK

AYKDYLASGGQPITNCVKMLCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDH

PNPKGFCDLKGKYVQIPTTCANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSA

DAQSFLNGFAV"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70413.1?from=1&to=180) 224..763

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70413.1?from=181&to=818) 764..2677

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70413.1?from=819&to=2763) 2678..8512

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70413.1?from=2764&to=3263) 8513..10012

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70413.1?from=3264&to=3569) 10013..10930

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70413.1?from=3570&to=3859) 10931..11800

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70413.1?from=3860&to=3942) 11801..12049

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70413.1?from=3943&to=4140) 12050..12643

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70413.1?from=4141&to=4253) 12644..12982

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70413.1?from=4254&to=4392) 12983..13399

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/UNQ70413.1?from=4393&to=4405) 13400..13438

/gene="ORF1ab"

/product="nsp11"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=13434&to=13461) 13434..13461

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 1"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=13446&to=13500) 13446..13500

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 2"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=21521&to=25342) 21521..25342

/gene="S"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=21521&to=25342) 21521..25342

/gene="S"

/codon\_start=1

/product="surface glycoprotein"

/protein\_id="[UNQ70414.1](https://www.ncbi.nlm.nih.gov/protein/2211481679)"

/translation="MFVFLVLLPLVSSQCVNLITRTQLPPAYTNSFTRGVYYPDKVFR

SSVLHSTQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNIIR

GWIFGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLDVYYHKNNKSWMESEFRVY

SSANNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGYFKIYSKHTPINLGRDLPQ

GFSALEPLVDLPIGINITRFQTLLALHRSYLTPGDSSSGWTAGAAAYYVGYLQPRTFL

LKYNENGTITDAVDCALDPLSETKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITN

LCPFDEVFNATRFASVYAWNRKRISNCVADYSVLYNFAPFFAFKCYGVSPTKLNDLCF

TNVYADSFVIRGNEVSQIAPGQTGNIADYNYKLPDDFTGCVIAWNSNKLDSKVGGNYN

YLYRLFRKSNLKPFERDISTEIYQAGNKPCNGVAGFNCYFPLRSYGFRPTYGVGHQPY

RVVVLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTGVLTESNKKFLPFQQFG

RDIADTTDAVRDPQTLEILDITPCSFGGVSVITPGTNTSNQVAVLYQGVNCTEVPVAI

HADQLTPTWRVYSTGSNVFQTRAGCLIGAEYVNNSYECDIPIGAGICASYQTQTKSHR

RARSVASQSIIAYTMSLGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTM

YICGDSTECSNLLLQYGSFCTQLKRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKYFG

GFNFSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLICAQKFN

GLTVLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAMQMAYRFNGIGVTQN

VLYENQKLIANQFNSAIGKIQDSLSSTASALGKLQDVVNHNAQALNTLVKQLSSKFGA

ISSVLNDILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMS

ECVLGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAH

FPREGVFVSNGTHWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELD

SFKEELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELG

KYEQYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSCGSCCKFDEDDSE

PVLKGVKLHYT"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=25351&to=26178) 25351..26178

/gene="ORF3a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=25351&to=26178) 25351..26178

/gene="ORF3a"

/codon\_start=1

/product="ORF3a protein"

/protein\_id="[UNQ70415.1](https://www.ncbi.nlm.nih.gov/protein/2211481680)"

/translation="MDLFMRIFTIGTVTLKQGEIKDATPSDFVRATATIPIQASLPFG

WLIVGVALLAVFQSASKIITLKKRWQLALSKGVHFVCNLLLLFVTVYSHLLLVAAGLE

APFLYLYALVYFLQSINFVRIIMRLWLCWKCRSKNPLLYDANYFLCWHTNCYDYCIPY

NSVTSSIVITSGDGTTSPISEHDYQIGGYTEKWESGVKDCVVLHSYFTSDYYQLYSTQ

LSTDIGVEHVTFFIYNKIVDEPEEHVQIHTIDGSSGVVNPVMEPIYDEPTTTTSVPL"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=26203&to=26430) 26203..26430

/gene="E"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=26203&to=26430) 26203..26430

/gene="E"

/codon\_start=1

/product="envelope protein"

/protein\_id="[UNQ70416.1](https://www.ncbi.nlm.nih.gov/protein/2211481681)"

/translation="MYSFVSEEIGTLIVNSVLLFLAFVVFLLVTLAILTALRLCAYCC

NIVNVSLVKPSFYVYSRVKNLNSSRVPDLLV"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=26481&to=27149) 26481..27149

/gene="M"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=26481&to=27149) 26481..27149

/gene="M"

/codon\_start=1

/product="membrane glycoprotein"

/protein\_id="[UNQ70417.1](https://www.ncbi.nlm.nih.gov/protein/2211481682)"

/translation="MADSNGTITVEELKKLLEEWNLVIGFLFLTWICLLQFAYANRNR

FLYIIKLIFLWLLWPVTLTCFVLAAVYRINWITGGIAIAMACLVGLMWLSYFIASFRL

FARTRSMWSFNPETNILLNVPLHGTILTRPLLESELVIGAVILRGHLRIAGHHLGRCD

IKDLPKEITVATSRTLSYYKLGASQRVAGDSGFAAYSRYRIGNYKLNTDHSSSSDNIA

LLVQ"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=27160&to=27345) 27160..27345

/gene="ORF6"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=27160&to=27345) 27160..27345

/gene="ORF6"

/codon\_start=1

/product="ORF6 protein"

/protein\_id="[UNQ70418.1](https://www.ncbi.nlm.nih.gov/protein/2211481683)"

/translation="MFHLVDFQVTIAEILLIIMRTFKVSIWNLDYIINLIIKNLSKSL

TENKYSQLDEEQPMEIL"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=27352&to=27717) 27352..27717

/gene="ORF7a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=27352&to=27717) 27352..27717

/gene="ORF7a"

/codon\_start=1

/product="ORF7a protein"

/protein\_id="[UNQ70419.1](https://www.ncbi.nlm.nih.gov/protein/2211481684)"

/translation="MKIILFLALITLATCELYHYQECVRGTTVLLKEPCSSGTYEGNS

PFHPLADNKFALTCFSTQFAFACPDGVKHVYQLRARSVSPKLFIRQEEVQELYSPIFL

IVAAIVFITLCFTLKRKTE"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=27714&to=27845) 27714..27845

/gene="ORF7b"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=27714&to=27845) 27714..27845

/gene="ORF7b"

/codon\_start=1

/product="ORF7b"

/protein\_id="[UNQ70420.1](https://www.ncbi.nlm.nih.gov/protein/2211481685)"

/translation="MIELSLIDFYLCFLAFLLFLVLIMLIIFWFSLELQDHNETCHA"

gap 27853..28212

/estimated\_length=360

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=28213&to=28217) <28213..28217

/gene="ORF8"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=28232&to=29491) 28232..29491

/gene="N"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=28232&to=29491) 28232..29491

/gene="N"

/codon\_start=1

/product="nucleocapsid phosphoprotein"

/protein\_id="[UNQ70421.1](https://www.ncbi.nlm.nih.gov/protein/2211481686)"

/translation="MSDNGPQNQRNAXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

XXXXXXXXXXXLTQHGKEDLKFPRGQGVPINTNSSPDDQIGYYRRATRRIRGGDGKMK

DLSPRWYFYYLGTGPEAGLPYGANKDGIIWVATEGALNTPKDHIGTRNPANNAAIVLQ

LPQGTTLPKGFYAEGSRGGSQASSRSSSRSRNSSRNSTPGSSKRTSPARMAGNGGDAA

LALLLLDRLNQLESKMSGKGQQQQGQTVTKKSAAEASKKPRQKRTATKAYNVTQAFGR

RGPEQTQGNFGDQELIRQGTDYKHWPQIAQFAPSASAFFGMSRIGMEVTPSGTWLTYT

GAIKLDDKDPNFKDQVILLNKHIDAYKTFPPTEPKKDKKKKADETQALPQRQKKQQTV

TLLPAADLDDFSKQLQQSMSRADSTQA"

gap 28269..28396

/estimated\_length=128

[gene](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=29516&to=29632) 29516..29632

/gene="ORF10"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=29516&to=29632) 29516..29632

/gene="ORF10"

/codon\_start=1

/product="ORF10 protein"

/protein\_id="[UNQ70422.1](https://www.ncbi.nlm.nih.gov/protein/2211481687)"

/translation="MGYINVFAFPFTIYSLLLCRMNSRNYIAQVDVVNFNLT"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=29567&to=29602) 29567..29602

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=29587&to=29615) 29587..29615

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/ON060007.1?from=29686&to=29726) 29686..29726

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

ORIGIN

1 tcgatctctt gtagatctgt tctctaaacg aactttaaaa tctgtgtggc tgtcactcgg

61 ctgcatgctt agtgcactca cgcagtataa ttaataacta attactgtcg ttgacaggac

121 acgagtaact cgtctatctt ctgcaggctg cttacggttt cgtccgtgtt gcagccgatc

181 atcagcacat ctaggttttg tccgggtgtg accgaaaggt aagatggaga gccttgtccc

241 tggtttcaac gagaaaacac acgtccaact cagtttgcct gttttacagg ttcgcgacgt

301 gctcgtacgt ggctttggag actccgtgga ggaggtctta tcagaggcac gtcaacatct

361 taaagatggc acttgtggct tagtagaagt tgaaaaaggc gttttgcctc aacttgaaca

421 gccctatgtg ttcatcaaac gttcggatgc tcgaactgca cctcatggtc atgttatggt

481 tgagctggta gcagaactcg aaggcattca gtacggtcgt agtggtgaga cacttggtgt

541 ccttgtccct catgtgggcg aaataccagt ggcttaccgc aaggttcttc ttcgtaagaa

601 cggtaataaa ggagctggtg gccataggta cggcgccgat ctaaagtcat ttgacttagg

661 cgacgagctt ggcactgatc cttatgaaga ttttcaagaa aactggaaca ctaaacatag

721 cagtggtgtt acccgtgaac tcatgcgtga gcttaacgga ggggcataca ctcgctatgt

781 cgataacaac ttctgtggcc ctgatggcta ccctcttgag tgcattaaag accttctagc

841 acgtgctggt aaagcttcat gcactttgtc cgaacaactg gactttattg acactaagag

901 gggtgtatac tgctgccgtg aacatgagca tgaaattgct tggtacacgg aacgttctga

961 aaagagctat gaattgcaga caccttttga aattaaattg gcaaagaaat ttgacacctt

1021 caatggggaa tgtccaaatt ttgtatttcc cttaaattcc ataatcaaga ctattcaacc

1081 aagggttgaa aagaaaaagc ttgatggctt tatgggtaga attcgatctg tctatccagt

1141 tgcgtcacca aatgaatgca accaaatgtg cctttcaact ctcatgaagt gtgatcattg

1201 tggtgaaact tcatggcaga cgggcgattt tgttaaagcc acttgcgaat tttgtggcac

1261 tgagaatttg actaaagaag gtgccactac ttgtggttac ttaccccaaa atgctgttgt

1321 taaaatttat tgtccagcat gtcacaattc agaagtagga cctgagcata gtcttgccga

1381 ataccataat gaatctggct tgaaaaccat tcttcgtaag ggtggtcgca ctattgcctt

1441 tggaggctgt gtgttctctt atgttggttg ccataacaag tgtgcctatt gggttccacg

1501 tgctagcgct aacataggtt gtaaccatac aggtgttgtt ggagaaggtt ccgaaggtct

1561 taatgacaac cttcttgaaa tactccaaaa agagaaagtc aacatcaata ttgttggtga

1621 ctttaaactt aatgaagaga tcgccattat tttggcatct ttttctgctt ccacaagtgc

1681 ttttgtggaa actgtgaaag gtttggatta taaagcattc aaacaaattg ttgaatcctg

1741 tggtaatttt aaagttacaa aaggaaaagc taaaaaaggt gcctggaata ttggtgaaca

1801 gaaatcaata ctgagtcctc tttatgcatt tgcatcagag gctgctcgtg ttgtacgatc

1861 aattttctcc cgcactcttg aaactgctca aaattctgtg cgtgttttac agaaggccgc

1921 tataacaata ctagatggaa tttcacagta ttcactgaga ctcattgatg ctatgatgtt

1981 cacatctgat ttggctacta acaatctagt tgtaatggcc tacattacag gtggtgttgt

2041 tcagttgact tcgcagtggc taactaacat ctttggcact gtttatgaaa aactcaaacc

2101 cgtccttgat tggcttgaag agaagtttaa ggaaggtgta gagtttctta gagacggttg

2161 ggaaattgtt aaatttatct caacctgtgc ttgtgaaatt gtcggtggac aaattgtcac

2221 ctgtgcaaag gaaattaagg agagtgttca gacattcttt aagcttgtaa ataaattttt

2281 ggctttgtgt gctgactcta tcattattgg tggagctaaa cttaaagcct tgaatttagg

2341 tgaaacattt gtcacgcact caaagggatt gtacagaaag tgtgttaaat ccagagaaga

2401 aactggccta ctcatgcctc taaaagcccc aaaagaaatt atcttcttag agggagaaac

2461 acttcccaca gaagtgttaa cagaggaagt tgtcttgaaa actggtgatt tacaaccatt

2521 agaacaacct actagtgaag ctgttgaagc tccattggtt ggtacaccag tttgtattaa

2581 cgggcttatg ttgctcgaaa tcaaagacac agaaaagtac tgtgcccttg cacctaatat

2641 gatggtaaca aacaatacct tcacactcaa aggcggtgca ccaacaaagg ttacttttgg

2701 tgatgacact gtgatagaag tgcaaggtta caagagtgtg aatatcattt ttgaacttga

2761 tgaaaggatt gataaagtac ttaatgagaa gtgctctgcc tatacagttg aactcggtac

2821 agaagtaaat gagttcgcct gtgttgtggc agatgctgtc ataaaaactt tgcaaccagt

2881 atctgaatta cttacaccac tgggcattga tttagatgag tggagtatgg ctacatacta

2941 cttatttgat gagtctggtg agtttaaatt ggcttcacat atgtattgtt ctttttaccc

3001 tccagatgag gatgaagaag aaggtgattg tgaagaagaa gagtttgagc catcaactca

3061 atatgagtat ggtactgaag atgattacca aggtaaacct ttggaatttg gtgccacttc

3121 tgctgctctt caacctgaag aagagcaaga agaagattgg ttagatgatg atagtcaaca

3181 aactgttggt caacaagacg gcagtgagga caatcagaca actactattc aaacaattgt

3241 tgaggttcaa cctcaattag agatggaact tacaccagtt gttcagacta ttgaagtgaa

3301 tagttttagt ggttatttaa aacttactga caatgtatac attaaaaatg cagacattgt

3361 ggaagaagct aaaaaggtaa aaccaacagt ggttgttaat gcagccaatg tttaccttaa

3421 acatggagga ggtgttgcag gagccttaaa taaggctact aacaatgcca tgcaagttga

3481 atctgatgat tacatagcta ctaatggacc acttaaagtg ggtggtagtt gtgttttaag

3541 cggacacaat cttgctaaac actgtcttca tgttgtcggc ccaaatgtta acaaaggtga

3601 agacattcaa cttcttaaga gtgcttatga aaattttaat cagcacgaag ttctacttgc

3661 accattatta tcagctggta tttttggtgc tgaccctata cattctttaa gagtttgtgt

3721 agatactgtt cgcacaaatg tctacttagc tgtctttgat aaaaatctct atgacaaact

3781 tgtttcaagc tttttggaaa tgaagagtga aaagcaagtt gaacaaaaga tcgctgagat

3841 tcctaaagag gaagttaagc catttataac tgaaagtaaa ccttcagttg aacagagaaa

3901 acaagatgat aagaaaatca aagcttgtgt tgaagaagtt acaacaactc tggaagaaac

3961 taagttcctc acagaaaact tgttacttta tattgacatt aatggcaatc ttcatccaga

4021 ttctgccact cttgttagtg acattgacat cactttctta aagaaagatg ctccatatat

4081 agtgggtgat gttgttcaag agggtgtttt aactgctgtg gttataccta ctaaaaaggc

4141 tagtggcact actgaaatgc tagcgaaagc tttgagaaaa gtgccaacag acaattatat

4201 aaccacttac ccgggtcagg gtttaaatgg ttacactgta gaggaggcaa agacagtgct

4261 taaaaagtgt aaaagtgctt tttacattct accatctatt atctctaatg agaagcaaga

4321 aattcttgga actgtttctt ggaatttgcg agaaatgctt gcacatgcag aagaaacacg

4381 caaattaatg cctgtctgtg tggaaactaa agccatagtt tcaactatac agcgtaaata

4441 taagggtatt aaaatacaag agggtgtggt tgattatggt gctagatttt acttttacac

4501 cagtaaaaca actgtagcgt cacttatcaa cacacttaac gatctaaatg aaactcttgt

4561 tacaatgcca cttggctatg taacacatgg cttaaatttg gaagaagctg ctcggtatat

4621 gagatctctc aaagtgccag ctacagtttc tgtttcttca cctgatgctg ttacagcgta

4681 taatggttat cttacttctt cttctaaaac acctgaagaa cattttattg aaaccatctc

4741 acttgctggt tcctataaag attggtccta ttctggacaa tctacacaac taggtataga

4801 atttcttaag agaggtgata aaagtgtata ttacactagt aatcctacca cattccacct

4861 agatggtgaa gttatcacct ttgacaatct taagacactt ctttctttga gagaagtgag

4921 gactattaag gtgtttacaa cagtagacaa cattaacctc cacacgcaag ttgtggacat

4981 gtcaatgaca tatggacaac agtttggtcc aacttatttg gatggagctg atgttactaa

5041 aataaaacct cataattcac atgaaggtaa aacattttat gttttaccta atgatgacac

5101 tctacgtgtt gaggcttttg agtactacca cacaactgat cctagttttc tgggtaggta

5161 catgtcagca ttaaatcaca ctaaaaagtg gaaataccca caagttaatg gtttaacttc

5221 tattaaatgg gcagataaca actgttatct tgccactgca ttgttaacac tccaacaaat

5281 agagttgaag tttaatccac ctgctctaca agatgcttat tacagagcaa gggctggtga

5341 agctgctaac ttttgtgcac ttatcttagc ctactgtaat aagacagtag gtgagttagg

5401 tgatgttaga gaaacaatga gttacttgtt tcaacatgcc aatttagatt cttgcaaaag

5461 agtcttgaac gtggtgtgta aaacttgtgg acaacagcag acaaccctta agggtgtaga

5521 agctgttatg tacatgggca cactttctta tgaacaattt aagaaaggtg ttcagatacc

5581 ttgtacgtgt ggtaaacaag ctacaaaata tctagtacaa caggagtcac cttttgttat

5641 gatgtcagca ccacctgctc agtatgaact taagcatggt acatttactt gtgctagtga

5701 gtacactggt aattaccagt gtggtcacta taaacatata acttctaaag aaactttgta

5761 ttgcatagac ggtgctttac ttacaaagtc ctcagaatac aaaggtccta ttacggatgt

5821 tttctacaaa gaaaacagtt acacaacaac cataaaacca gttacttata aattggatgg

5881 tgttgtttgt acagaaattg accctaagtt ggacaattat tataagaaag acaattctta

5941 tttcacagag caaccaattg atcttgtacc aaaccaacca tatccaaacg caagcttcga

6001 taattttaag tttgtatgtg ataatatcaa atttgctgat gatttaaacc agttaactgg

6061 ttataagaaa cctgcttcaa gagagcttaa agttacattt ttccctgact taaatggtga

6121 tgtggtggct attgattata aacactacac accctctttt aagaaaggag ctaaattgtt

6181 acataaacct attgtttggc atgttaacaa tgcaactaat aaagccacgt ataaaccaaa

6241 tacctggtgt atacgttgtc tttggagcac aaaaccagtt gaaacatcaa attcgtttga

6301 tgtactgaag tcagaggacg cgcagggaat ggataatctt gcctgcgaag atctaaaacc

6361 agtctctgaa gaagtagtgg aaaatcctac catacagaaa gacgttcttg agtgtaatgt

6421 gaaaactacc gaagttgtag gagacattat acttaaacca gcaaataata gtttaaaaat

6481 tacagaagag gttggccaca cagatctaat ggctgcttat gtagacaatt ctagtcttac

6541 tattaagaaa cctaatgaat tatctagagt attaggtttg aaaacccttg ctactcatgg

6601 tttagctgct gttaatagtg tcccttggga tactatagct aattatgcta agccttttct

6661 taacaaagtt gttagtacaa ctactaacat agttacacgg tgtttaaacc gtgtttgtac

6721 taattatatg ccttatttct ttactttatt gctacaattg tgtactttta ctagaagtac

6781 aaattctaga attaaagcat ctatgccgac tactatagca aagaatactg ttaagagtgt

6841 cggtaaattt tgtctagagg cttcatttaa ttatttgaag tcacctaatt tttctaaact

6901 gataaatatt ataatttggt ttttactatt aagtgtttgc ctaggttctt taatctactc

6961 aaccgctgct ttaggtgttt taatgtctaa tttaggcatg ccttcttact gtactggtta

7021 cagagaaggc tatttgaact ctactaatgt cactattgca acctactgta ctggttctat

7081 accttgtagt gtttgtctta gtggtttaga ttctttagac acctatcctt ctttagaaac

7141 tatacaaatt accatttcat cttttaaatg ggatttaact gcttttggct tagttgcaga

7201 gtggtttttg gcatatattc ttttcactag gtttttctat gtacttggat tggctgcaat

7261 catgcaattg tttttcagct attttgcagt acattttatt agtaattctt ggcttatgtg

7321 gttaataatt aatcttgtac aaatggcccc gatttcagct atggttagaa tgtacatctt

7381 ctttgcatca ttttattatg tatggaaaag ttatgtgcat gttgtagacg gttgtaattc

7441 atcaacttgt atgatgtgtt acaaacgtaa tagagcaaca agagtcgaat gtacaactat

7501 tgttaatggt gttagaaggt ccttttatgt ctatgctaat ggaggtaaag gcttttgcaa

7561 actacacaat tggaattgtg ttaattgtga tacattctgt gctggtagta catttattag

7621 tgatgaagtt gcgagagact tgtcactaca gtttaaaaga ccaataaatc ctactgacca

7681 gtcttcttac atcgttgata gtgttacagt gaagaatggt tccatccatc tttactttga

7741 taaagctggt caaaagactt atgaaagaca ttctctctct cattttgtta acttagacaa

7801 cctgagagct aataacacta aaggttcatt gcctattaat gttatagttt ttgatggtaa

7861 atcaaaatgt gaagaatcat ctgcaaaatc agcgtctgtt tactacagtc agcttatgtg

7921 tcaacctata ctgttactag atcaggcatt agtgtctgat gttggtgata gtgcggaagt

7981 tgcagttaaa atgtttgatg cttacgttaa tacgttttca tcaactttta acgtaccaat

8041 ggaaaaactc aaaacactag ttgcaactgc agaagctgaa cttgcaaaga atgtgtcctt

8101 agacaatgtc ttatctactt ttatttcagc agctcggcaa gggtttgttg attcagatgt

8161 agaaactaaa gatgttgttg aatgtcttaa attgtcacat caatctgaca tagaagttac

8221 tggcgatagt tgtaataact atatgctcac ctataacaaa gttgaaaaca tgacaccccg

8281 tgaccttggt gcttgtattg actgtagtgc gcgtcatatt aatgcgcagg tagcaaaaag

8341 tcacaacatt gctttgatat ggaacgttaa agatttcatg tcattgtctg aacaactacg

8401 aaaacaaata cgtagtgctg ctaaaaagaa taacttacct tttaagttga catgtgcaac

8461 tactagacaa gttgttaatg ttgtaacaac aaagatagca cttaagggtg gtaaaattgt

8521 taataattgg ttgaagcagt taattaaagt tacacttgtg ttcctttttg ttgctgctat

8581 tttctattta ataacacctg ttcatgtcat gtctaaacat actgactttt caagtgaaat

8641 cataggatac aaggctattg atggtggtgt cactcgtgac atagcatcta cagatacttg

8701 ttttgctaac aaacatgctg attttgacac atggtttagc cagcgtggtg gtagttatac

8761 taatgacaaa gcttgcccat tgattgctgc agtcataaca agagaagtgg gttttgtcgt

8821 gcctggtttg cctggcacga tattacgcac aactaatggt gactttttgc atttcttacc

8881 tagagttttt agtgcagttg gtaacatctg ttacacacca tcaaaactta tagagtacac

8941 tgactttgca acatcagctt gtgttttggc tgctgaatgt acaattttta aagatgcttc

9001 tggtaagcca gtaccatatt gttatgatac caatgtacta gaaggttctg ttgcttatga

9061 aagtttacgc cctgacacac gttatgtgct catggatggc tctattattc aatttcctaa

9121 cacctacctt gaaggttctg ttagagtggt aacaactttt gattctgagt actgtaggca

9181 cggcacttgt gaaagatcag aagctggtgt ttgtgtatct actagtggta gatgggtact

9241 taacaatgat tattacagat ctttaccagg agttttctgt ggtgtagatg ctgtaaattt

9301 atttactaat atgtttacac cactaattca acctattggt gctttggaca tatcagcatc

9361 tatagtagct ggtggtattg tggctatcgt agtaacatgc cttgcctact attttatgag

9421 gtttagaaga gcttttggtg aatacagtca tgtagttgcc tttaatactt tactattcct

9481 tatgtcattc attgtactct gtttaacacc agtttactca ttcttacctg gtgtttattc

9541 tgttatttac ttgtacttga cattttatct tactaatgat gtttcttttt tagcacatat

9601 tcagtggatg gttatgttca cacctttagt acctttctgg ataacaattg cttatatcat

9661 ttgtatttcc acaaagcatt tctattggtt ctttagtaat tacctaaaga gacgtgtagt

9721 ctttaatggt gtttccttta gtacttttga agaagctgcg ctgtgcacct ttttgttaaa

9781 taaagaaatg tatctaaagt tgcgtagtga tgtgctatta ccttttacgc aatataatag

9841 atacttagct ctttataata agtacaagta ttttagtgga gcaatggata caactagcta

9901 cagagaagct gcttgttgtc atctcgcaaa ggctctcaat gacttcagta actcaggttc

9961 tgatgttctt taccaaccac cacaaatctc tatcacctca gctgttttgc agagtggttt

10021 tagaaaaatg gcattcccat ctggtaaagt tgagggttgt atggtacaag taacttgtgg

10081 tacaactaca cttaacggtc tttggcttga tgacgtagtt tactgtccaa gacatgtgat

10141 ctgcacctct gaagatatgc ttaaccctaa ttatgaagat ttactcattc gtaagtctaa

10201 tcataatttc ttggtacagg ctggtaatgt tcaactcagg gttattggac attctatgca

10261 aaattgtgta cttaagctta aggttgatac agccaatcct aagacaccta agtataagtt

10321 tgttcgcatt caaccaggac agactttttc agtgttagct tgttacaatg gttcaccatc

10381 tggtgtttac caatgtgcta tgagacacaa tttcactatt aagggttcat tccttaatgg

10441 ttcatgtggt agtgttggtt ttaacataga ttatgactgt gtctcttttt gttacatgca

10501 ccatatggaa ttaccaactg gagttcatgc tggcacagac ttagaaggta acttttatgg

10561 accttttgtt gacaggcaaa cagcacaagc agctggtacg gacacaacta ttacagttaa

10621 tgttttagct tggttgtacg ctgctgttat aaatggagac aggtggtttc tcaatcgatt

10681 taccacaact cttaatgact ttaaccttgt ggctatgaag tacaattatg aacctctaac

10741 acaagaccat gttgacatac taggacctct ttctgctcaa actggaattg ccgttttaga

10801 tatgtgtgct tcattaaaag aattactgca aaatggtatg aatggacgta ccatattggg

10861 tagtgcttta ttagaagatg aatttacacc ttttgatgtt gttagacaat gctcaggtgt

10921 tactttccaa agtgcagtga aaagaacaat caagggtaca caccactggt tgttactcac

10981 aattttgact tcacttttag ttttagtcca gagtactcaa tggtctttgt tctttttttt

11041 gtatgaaaat gcctttttac cttttgctat gggtattatt gctatgtctg cttttgcaat

11101 gatgtttgtc aaacataagc atgcatttct ctgtttgttt ttgttacctt ctcttgccac

11161 tgtagcttat tttaatatgg tctatatgcc tgctagttgg gtgatgcgta ttatgacatg

11221 gttggatatg gttgatacta gtttgtctag tttgaagcta aaagactgtg ttatgtatgc

11281 atcagctgta gtgttactaa tccttatgac agcaagaact gtgtatgatg atggtgctag

11341 gagagtgtgg acacttatga atgtcttgac actcgtttat aaagtttatt atggtaatgc

11401 tttagatcaa gccatttcca tgtgggctct tataatctct gttacttcta actactcagg

11461 tgtagttaca actgtcatgt ttttggccag aggtattgtt tttatgtgtg ttgagtattg

11521 ccctattttc ttcataactg gtaatacact tcagtgtata atgctagttt attgtttctt

11581 aggctatttt tgtacttgtt actttggcct cttttgttta ctcaaccgct actttagact

11641 gactcttggt gtttatgatt acttagtttc tacacaggag tttagatata tgaattcaca

11701 gggactactc ccacccaaga atagcataga tgccttcaaa ctcaacatta aattgttggg

11761 tgttggtggc aaaccttgta tcaaagtagc cactgtacag tctaaaatgt cagatgtaaa

11821 gtgcacatca gtagtcttac tctcagtttt gcaacaactc agagtagaat catcatctaa

11881 attgtgggct caatgtgtcc agttacacaa tgacattctc ttagctaaag atactactga

11941 agcctttgaa aaaatggttt cactactttc tgttttgctt tccatgcagg gtgctgtaga

12001 cataaacaag ctttgtgaag aaatgctgga caacagggca accttacaag ctatagcctc

12061 agagtttagt tcccttccat catatgcagc ttttgctact gctcaagaag cttatgagca

12121 ggctgttgct aatggtgatt ctgaagttgt tcttaaaaag ttgaagaagt ctttgaatgt

12181 ggctaaatct gaatttgacc gtgatgcagc catgcaacgt aagttggaaa agatggctga

12241 tcaagctatg acccaaatgt ataaacaggc tagatctgag gacaagaggg caaaagttac

12301 tagtgctatg cagacaatgc ttttcactat gcttagaaag ttggataatg atgcactcaa

12361 caacattatc aacaatgcaa gagatggttg tgttcccttg aacataatac ctcttacaac

12421 agcagccaaa ctaatggttg tcataccaga ctataacaca tataaaaata cgtgtgatgg

12481 tacaacattt acttatgcat cagcattgtg ggaaatccaa caggttgtag atgcagatag

12541 taaaattgtt caacttagtg aaattagtat ggacaattca cctaatttag catggcctct

12601 tattgtaaca gctttaaggg ccaattctgc tgtcaaatta cagaataatg agcttagtcc

12661 tgttgcacta cgacagatgt cttgtgctgc cggtactaca caaactgctt gcactgatga

12721 caatgcgtta gcttactaca acacaacaaa gggaggtagg tttgtacttg cactgttatc

12781 cgatttacag gatttgaaat gggctagatt ccctaagagt gatggaactg gtactattta

12841 tacagaactg gaaccacctt gtaggtttgt tacagacaca cctaaaggtc ctaaagtgaa

12901 gtatttatac tttattaaag gattaaacaa cctaaataga ggtatggtac ttggtagttt

12961 agctgccaca gtacgtctac aagctggtaa tgcaacagaa gtgcctgcca attcaactgt

13021 attatctttc tgtgcttttg ctgtagatgc tgctaaagct tacaaagatt atctagctag

13081 tgggggacaa ccaatcacta attgtgttaa gatgttgtgt acacacactg gtactggtca

13141 ggcaataaca gttacaccgg aagccaatat ggatcaagaa tcctttggtg gtgcatcgtg

13201 ttgtctgtac tgccgttgcc acatagatca tccaaatcct aaaggatttt gtgacttaaa

13261 aggtaagtat gtacaaatac ctacaacttg tgctaatgac cctgtgggtt ttacacttaa

13321 aaacacagtc tgtaccgtct gcggtatgtg gaaaggttat ggctgtagtt gtgatcaact

13381 ccgcgaaccc atgcttcagt cagctgatgc acaatcgttt ttaaacgggt ttgcggtgta

13441 agtgcagccc gtcttacacc gtgcggcaca ggcactagta ctgatgtcgt atacagggct

13501 tttgacatct acaatgataa agtagctggt tttgctaaat tcctaaaaac taattgttgt

13561 cgcttccaag aaaaggacga agatgacaat ttaattgatt cttactttgt agttaagaga

13621 cacactttct ctaactacca acatgaagaa acaatttata atttacttaa ggattgtcca

13681 gctgttgcta aacatgactt ctttaagttt agaatagacg gtgacatggt accacatata

13741 tcacgtcaac gtcttactaa atacacaatg gcagacctcg tctatgcttt aaggcatttt

13801 gatgaaggta attgtgacac attaaaagaa atacttgtca catacaattg ttgtgatgat

13861 gattatttca ataaaaagga ctggtatgat tttgtagaaa acccagatat attacgcgta

13921 tacgccaact taggtgaacg tgtacgccaa gctttgttaa aaacagtaca attctgtgat

13981 gccatgcgaa atgctggtat tgttggtgta ctgacattag ataatcaaga tctcaatggt

14041 aactggtatg atttcggtga tttcatacaa accacgccag gtagtggagt tcctgttgta

14101 gattcttatt attcattgtt aatgcctata ttaaccttga ccagggcttt aactgcagag

14161 tcacatgttg acactgactt aacaaagcct tacattaagt gggatttgtt aaaatatgac

14221 ttcacggaag agaggttaaa actctttgac cgttatttta aatattggga tcagacatac

14281 cacccaaatt gtgttaactg tttggatgac agatgcattc tgcattgtgc aaactttaat

14341 gttttattct ctacagtgtt cccacttaca agttttggac cactagtgag aaaaatattt

14401 gttgatggtg ttccatttgt agtttcaact ggataccact tcagagagct aggtgttgta

14461 cataatcagg atgtaaactt acatagctct agacttagtt ttaaggaatt acttgtgtat

14521 gctgctgacc ctgctatgca cgctgcttct ggtaatctat tactagataa acgcactacg

14581 tgcttttcag tagctgcact tactaacaat gttgcttttc aaactgtcaa acccggtaat

14641 tttaacaaag acttctatga ctttgctgtg tctaagggtt tctttaagga aggaagttct

14701 gttgaattaa aacacttctt ctttgctcag gatggtaatg ctgctatcag cgattatgac

14761 tactatcgtt ataatctacc aacaatgtgt gatatcagac aactactatt tgtagttgaa

14821 gttgttgata agtactttga ttgttacgat ggtggctgta ttaatgctaa ccaagtcatc

14881 gtcaacaacc tagacaaatc agctggtttt ccatttaata aatggggtaa ggctagactt

14941 tattatgatt caatgagtta tgaggatcaa gatgcacttt tcgcatatac aaaacgtaat

15001 gtcatcccta ctataactca aatgaatctt aagtatgcca ttagtgcaaa gaatagagct

15061 cgcaccgtag ctggtgtctc tatctgtagt actatgacca atagacagtt tcatcaaaaa

15121 ttattgaaat caatagccgc cactagagga gctactgtag taattggaac aagcaaattc

15181 tatggtggtt ggcacaacat gttaaaaact gtttatagtg atgtagaaaa ccctcacctt

15241 atgggttggg attatcctaa atgtgataga gccatgccta acatgcttag aattatggcc

15301 tcacttgttc ttgctcgcaa acatacaacg tgttgtagct tgtcacaccg tttctataga

15361 ttagctaatg agtgtgctca agtattgagt gaaatggtca tgtgtggcgg ttcactatat

15421 gttaaaccag gtggaacctc atcaggagat gccacaactg cttatgctaa tagtgttttt

15481 aacatttgtc aagctgtcac ggccaatgtt aatgcacttt tatctactga tggtaacaaa

15541 attgccgata agtatgtccg caatttacaa cacagacttt atgagtgtct ctatagaaat

15601 agagatgttg acacagactt tgtgaatgag ttttacgcat atttgcgtaa acatttctca

15661 atgatgatac tttctgacga tgctgttgtg tgtttcaata gcacttatgc atctcaaggt

15721 ctagtggcta gcataaagaa ctttaagtca gttctttatt atcaaaacaa tgtttttatg

15781 tctgaagcaa aatgttggac tgagactgac cttactaaag gacctcatga attttgctct

15841 caacatacaa tgctagttaa acagggtgat gattatgtgt accttcctta cccagatcca

15901 tcaagaatcc taggggccgg ctgttttgta gatgatatcg taaaaacaga tggtacactt

15961 atgattgaac ggttcgtgtc tttagctata gatgcttacc cacttactaa acatcctaat

16021 caggagtatg ctgatgtctt tcatttgtac ttacaataca taagaaagct acatgatgag

16081 ttaacaggac acatgttaga catgtattct gttatgctta ctaatgataa cacttcaagg

16141 tattgggaac ctgagtttta tgaggctatg tacacaccgc atacagtctt acaggctgtt

16201 ggggcttgtg ttctttgcaa ttcacagact tcattaagat gtggtgcttg catacgtaga

16261 ccattcttat gttgtaaatg ctgttacgac catgtcatat caacatcaca taaattagtc

16321 ttgtctgtta atccgtatgt ttgcaatgct ccaggttgtg atgtcacaga tgtgactcaa

16381 ctttacttag gaggtatgag ctattattgt aaatcacata aaccacccat tagttttcca

16441 ttgtgtgcta atggacaagt ttttggttta tataaaaata catgtgttgg tagcgataat

16501 gttactgact ttaatgcaat tgcaacatgt gactggacaa atgctggtga ttacatttta

16561 gctaacacct gtactgaaag actcaagctt tttgcagcag aaacgctcaa agctactgag

16621 gagacattta aactgtctta tggtattgct actgtacgtg aagtgctgtc tgacagagaa

16681 ttacatcttt catgggaagt tggtaaacct agaccaccac ttaaccgaaa ttatgtcttt

16741 actggttatc gtgtaactaa aaacagtaaa gtacaaatag gagagtacac ctttgaaaaa

16801 ggtgactatg gtgatgctgt tgtttaccga ggtacaacaa cttacaaatt aaatgttggt

16861 gattattttg tgctgacatc acatacagta atgccattaa gtgcacctac actagtgcca

16921 caagagcact atgttagaat tactggctta tacccaacac tcaatatctc agatgagttt

16981 tctagcaatg ttgcaaatta tcaaaaggtt ggtatgcaaa agtattctac actccaggga

17041 ccacctggta ctggtaagag tcattttgct attggcctag ctctctacta cccttctgct

17101 cgcatagtgt atacagcttg ctctcatgcc gctgttgatg cactatgtga gaaggcatta

17161 aaatatttgc ctatagataa atgtagtaga attatacctg cacgtgctcg tgtagagtgt

17221 tttgataaat tcaaagtgaa ttcaacatta gaacagtatg tcttttgtac tgtaaatgca

17281 ttgcctgaga cgacagcaga tatagttgtc tttgatgaaa tttcaatggc cacaaattat

17341 gatttgagtg ttgtcaatgc cagattatgt gctaagcact atgtgtacat tggcgaccct

17401 gctcaattac ctgcaccacg cacattgcta actaagggca cactagaacc agaatatttc

17461 aattcagtgt gtagacttat gaaaactata ggtccagaca tgttcctcgg aacttgtcgg

17521 cgttgtcctg ctgaaattgt tgacactgtg agtgctttgg tttatgataa taagcttaaa

17581 gcacataaag acaaatcagc tcaatgcttt aaaatgtttt ataagggtgt tatcacgcat

17641 gatgtttcat ctgcaattaa caggccacaa ataggcgtgg taagagaatt ccttacacgt

17701 aaccctgctt ggagaaaagc tgtctttatt tcaccttata attcacagaa tgctgtagcc

17761 tcaaagattt tgggactacc aactcaaact gttgattcat cacagggctc agaatatgac

17821 tatgtcatat tcactcaaac cactgaaaca gctcactctt gtaatgtaaa cagatttaat

17881 gttgctatta ccagagcaaa agtaggcata ctttgcataa tgtctgatag agacctttat

17941 gacaagttgc aatttacaag tcttgaaatt ccacgtagga atgtggcaac tttacaagct

18001 gaaaatgtaa caggactctt taaagattgt agtaaggtaa tcactgggtt acatcctaca

18061 caggcaccta cacacctcag tgttgacact aaattcaaaa ctgaaggttt atgtgttgac

18121 gtacctggca tacctaagga catgacctat agaagactca tctctatgat gggttttaaa

18181 atgaattatc aagttaatgg ttaccctaac atgtttatca cccgcgaaga agctataaga

18241 catgtacgtg catggattgg cttcgatgtc gaggggtgtc atgctactag agaagctgtt

18301 ggtaccaatt tacctttaca gctaggtttt tctacaggtg ttaacctagt tgctgtacct

18361 acaggttatg ttgatacacc taataataca gatttttcca gagttagtgc taaaccaccg

18421 cctggagatc aatttaaaca cctcatacca cttatgtaca aaggacttcc ttggaatgta

18481 gtgcgtataa agattgtaca aatgttaagt gacacactta aaaatctctc tgacagagtc

18541 gtatttgtct tatgggcaca tggctttgag ttgacatcta tgaagtattt tgtgaaaata

18601 ggacctgagc gcacctgttg tctatgtgat agacgtgcca catgcttttc cactgcttca

18661 gacacttatg cctgttggca tcattctatt ggatttgatt acgtctataa tccgtttatg

18721 attgatgttc aacaatgggg ttttacaggt aacctacaaa gcaaccatga tctgtattgt

18781 caagtccatg gtaatgcaca tgtagctagt tgtgatgcaa tcatgactag gtgtctagct

18841 gtccacgagt gctttgttaa gcgtgttgac tggactattg aatatcctat aattggtgat

18901 gaactgaaga ttaatgcggc ttgtagaaag gttcaacaca tggttgttaa agctgcatta

18961 ttagcagaca aattcccagt tcttcacgac attggtaacc ctaaagctat taagtgtgta

19021 cctcaagctg atgtagaatg gaagttctat gatgcacagc cttgtagtga caaagcttat

19081 aaaatagaag aattattcta ttcttatgcc acacattctg acaaattcac agatggtgta

19141 tgcctatttt ggaattgcaa tgtcgataga tatcctgcta attccattgt ttgtagattt

19201 gacactagag tgctatctaa ccttaacttg cctggttgtg atggtggcag tttgtatgta

19261 aataaacatg cattccacac accagctttt gataaaagtg cttttgttaa tttaaaacaa

19321 ttaccatttt tctattactc tgacagtcca tgtgagtctc atggaaaaca agtagtgtca

19381 gatatagatt atgtaccact aaagtctgct acgtgtataa cacgttgcaa tttaggtggt

19441 gctgtctgta gacatcatgc taatgagtac agattgtatc tcgatgctta taacatgatg

19501 atctcagctg gctttagctt gtgggtttac aaacaatttg atacttataa cctctggaac

19561 acttttacaa gacttcagag tttagaaaat gtggctttta atgttgtaaa taagggacac

19621 tttgatggac aacagggtga agtaccagtt tctatcatta ataacactgt ttacacaaaa

19681 gttgatggtg ttgatgtaga attgtttgaa aataaaacaa cattacctgt taatgtagca

19741 tttgagcttt gggctaagcg caacattaaa ccagtaccag aggtgaaaat actcaataat

19801 ttgggtgtgg acattgctgc taatactgtg atctgggact acaaaagaga tgctccagca

19861 catatatcta ctattggtgt ttgttctatg actgacatag ccaagaaacc aattgaaacg

19921 atttgtgcac cactcactgt cttttttgat ggtagagttg atggtcaagt agacttattt

19981 agaaatgccc gtaatggtgt tcttattaca gagggtagtg ttaaaggttt acaaccatct

20041 gtaggtccca aacaagctag tcttaatgga gtcacattaa ttggagaagc cgtaaaaaca

20101 cagttcaatt attataagaa agttgatggt gttgtccaac aattacctga aacttacttt

20161 actcagagta gaaatttaca agaatttaaa cccaggagtc aaatggaaat tgatttctta

20221 gaattagcta tggatgaatt cattgaacgg tataaattag aaggctatgc cttcgaacat

20281 atcgtttatg gagattttag tcatagtcag ttaggtggtt tacatctact gattggacta

20341 gctaaacgtt ttaaggaatc accttttgaa ttagaagatt ttattcctat ggacagtaca

20401 gttaaaaact atttcataac agatgcgcaa acaggttcat ctaagtgtgt gtgttctgtt

20461 attgatttat tacttgatga ttttgttgaa ataataaaat cccaagattt atctgtagtt

20521 tctaaggttg tcaaagtgac tattgactat acagaaattt catttatgct ttggtgtaaa

20581 gatggccatg tagaaacatt ttacccaaaa ttacaatcta gtcaagcgtg gcaaccgggt

20641 gttgctatgc ctaatcttta caaaatgcaa agaatgctat tagaaaagtg tgaccttcaa

20701 aattatggtg atagtgcaac attacctaaa ggcataatga tgaatgtcgc aaaatatact

20761 caactgtgtc aatatttaaa cacattaaca ttagctgtac cctataatat gagagttata

20821 cattttggtg ctggttctga taaaggagtt gcaccaggta cagctgtttt aagacagtgg

20881 ttgcctacgg gtacgctgct tgtcgattca gatcttaatg actttgtctc tgatgcagat

20941 tcaactttga ttggtgattg tgcaactgta catacagcta ataaatggga tctcattatt

21001 agtgatatgt acgaccctaa gactaaaaat gttacaaaag aaaatgactc taaagagggt

21061 tttttcactt acatttgtgg gtttatacaa caaaagctag ctcttggagg ttccgtggct

21121 ataaagataa cagaacattc ttggaatgct gatctttata agctcatggg acacttcgca

21181 tggtggacag cctttgttac taatgtgaat gcgtcatcat ctgaagcatt tttaattgga

21241 tgtaattatc ttggcaaacc acgcgaacaa atagatggtt atgtcatgca tgcaaattac

21301 atattttgga ggaatacaaa tccaattcag ttgtcttcct attctttatt tgacatgagt

21361 aaatttcccc ttaaattaag gggtactgct gttatgtctt taaaagaagg tcaaatcaat

21421 gatatgattt tatctcttct tagtaaaggt agacttataa ttagagaaaa caacagagtt

21481 gttatttcta gtgatgttct tgttaacaac taaacgaaca atgtttgttt ttcttgtttt

21541 attgccacta gtctctagtc agtgtgttaa tcttataacc agaactcaat taccccctgc

21601 atacactaat tctttcacac gtggtgttta ttaccctgac aaagttttca gatcctcagt

21661 tttacattca actcaggact tgttcttacc tttcttttcc aatgttactt ggttccatgc

21721 tatacatgtc tctgggacca atggtactaa gaggtttgat aaccctgtcc taccatttaa

21781 tgatggtgtt tattttgctt ccactgagaa gtctaacata ataagaggct ggatttttgg

21841 tactacttta gattcgaaga cccagtccct acttattgtt aataacgcta ctaatgttgt

21901 tattaaagtc tgtgaatttc aattttgtaa tgatccattt ttggatgttt attaccacaa

21961 aaacaacaaa agttggatgg aaagtgagtt cagagtttat tctagtgcga ataattgcac

22021 ttttgaatat gtctctcagc cttttcttat ggaccttgaa ggaaaacagg gtaatttcaa

22081 aaatcttagg gaatttgtgt ttaagaatat tgatggttat tttaaaatat attctaagca

22141 cacgcctatt aatttagggc gtgatctccc tcagggtttt tcggctttag aaccattggt

22201 agatttgcca ataggtatta acatcactag gtttcaaact ttacttgctt tacatagaag

22261 ttatttgact cctggtgatt cttcttcagg ttggacagct ggtgctgcag cttattatgt

22321 gggttatctt caacctagga cttttctatt aaaatataat gaaaatggaa ccattacaga

22381 tgctgtagac tgtgcacttg accctctctc agaaacaaag tgtacgttga aatccttcac

22441 tgtagaaaaa ggaatctatc aaacttctaa ctttagagtc caaccaacag aatctattgt

22501 tagatttcct aatattacaa acttgtgccc ttttgatgaa gtttttaacg ccaccagatt

22561 tgcatctgtt tatgcttgga acaggaagag aatcagcaac tgtgttgctg attattctgt

22621 cctatataat ttcgcaccat ttttcgcttt taagtgttat ggagtgtctc ctactaaatt

22681 aaatgatctc tgctttacta atgtctatgc agattcattt gtaattagag gtaatgaagt

22741 cagccaaatc gctccagggc aaactggaaa tattgctgat tataattata aattaccaga

22801 tgattttaca ggctgcgtta tagcttggaa ttctaacaag cttgattcta aggttggtgg

22861 taattataat tacctgtata gattgtttag gaagtctaat ctcaaacctt ttgagagaga

22921 tatttcaact gaaatctatc aggccggtaa caaaccttgt aatggtgttg caggttttaa

22981 ttgttacttt cctttacgat catatggttt ccgacccact tatggtgttg gtcaccaacc

23041 atacagagta gtagtacttt cttttgaact tctacatgca ccagcaactg tttgtggacc

23101 taaaaagtct actaatttgg ttaaaaacaa atgtgtcaat ttcaacttca atggtttaac

23161 aggcacaggt gttcttactg agtctaacaa aaagtttctg cctttccaac aatttggcag

23221 agacattgct gacactactg atgctgtccg tgatccacag acacttgaga ttcttgacat

23281 tacaccatgt tcttttggtg gtgtcagtgt tataacacca ggaacaaata cttctaacca

23341 ggttgctgtt ctttatcagg gtgttaactg cacagaagtc cctgttgcta ttcatgcaga

23401 tcaacttact cctacttggc gtgtttattc tacaggttct aatgtttttc aaacacgtgc

23461 aggctgttta ataggggctg aatatgtcaa caactcatat gagtgtgaca tacccattgg

23521 tgcaggtata tgcgctagtt atcagactca gactaagtct catcggcggg cacgtagtgt

23581 agctagtcaa tccatcattg cctacactat gtcacttggt gcagaaaatt cagttgctta

23641 ctctaataac tctattgcca tacccacaaa ttttactatt agtgttacca cagaaattct

23701 accagtgtct atgaccaaga catcagtaga ttgtacaatg tacatttgtg gtgattcaac

23761 tgaatgcagc aatcttttgt tgcaatatgg cagtttttgt acacaattaa aacgtgcttt

23821 aactggaata gctgttgaac aagacaaaaa cacccaagaa gtttttgcac aagtcaaaca

23881 aatttacaaa acaccaccaa ttaaatattt tggtggtttt aatttttcac aaatattacc

23941 agatccatca aaaccaagca agaggtcatt tattgaagat ctacttttca acaaagtgac

24001 acttgcagat gctggcttca tcaaacaata tggtgattgc cttggtgata ttgctgctag

24061 agacctcatt tgtgcacaaa agtttaacgg ccttactgtt ttgccacctt tgctcacaga

24121 tgaaatgatt gctcaataca cttctgcact gttagcgggt acaatcactt ctggttggac

24181 ctttggtgca ggtgctgcat tacaaatacc atttgctatg caaatggctt ataggtttaa

24241 tggtattgga gttacacaga atgttctcta tgagaaccaa aaattgattg ccaaccaatt

24301 taatagtgct attggcaaaa ttcaagactc actttcttcc acagcaagtg cacttggaaa

24361 acttcaagat gtggtcaacc ataatgcaca agctttaaac acgcttgtta aacaacttag

24421 ctccaaattt ggtgcaattt caagtgtttt aaatgatatc ctttcacgtc ttgacaaagt

24481 tgaggctgaa gtgcaaattg ataggttgat cacaggcaga cttcaaagtt tgcagacata

24541 tgtgactcaa caattaatta gagctgcaga aatcagagct tctgctaatc ttgctgctac

24601 taaaatgtca gagtgtgtac ttggacaatc aaaaagagtt gatttttgtg gaaagggcta

24661 tcatcttatg tccttccctc agtcagcacc tcatggtgta gtcttcttgc atgtgactta

24721 tgtccctgca caagaaaaga acttcacaac tgctcctgcc atttgtcatg atggaaaagc

24781 acactttcct cgtgaaggtg tctttgtttc aaatggcaca cactggtttg taacacaaag

24841 gaatttttat gaaccacaaa tcattactac agacaacaca tttgtgtctg gtaactgtga

24901 tgttgtaata ggaattgtca acaacacagt ttatgatcct ttgcaacctg aattagattc

24961 attcaaggag gagttagata aatattttaa gaatcataca tcaccagatg ttgatttagg

25021 tgacatctct ggcattaatg cttcagttgt aaacattcaa aaagaaattg accgcctcaa

25081 tgaggttgcc aagaatttaa atgaatctct catcgatctc caagaacttg gaaagtatga

25141 gcagtatata aaatggccat ggtacatttg gctaggtttt atagctggct tgattgccat

25201 agtaatggtg acaattatgc tttgctgtat gaccagttgc tgtagttgtc tcaagggctg

25261 ttgttcttgt ggatcctgct gcaaatttga tgaagacgac tctgagccag tgctcaaagg

25321 agtcaaatta cattacacat aaacgaactt atggatttgt ttatgagaat ctttacaatt

25381 ggaactgtaa ctttgaagca aggtgaaatc aaggatgcta ctccttcaga ttttgttcgc

25441 gctactgcaa cgataccgat acaagcctca ctccctttcg gatggcttat tgttggcgtt

25501 gcacttcttg ctgtttttca gagcgcttcc aaaatcataa ctctcaaaaa gagatggcaa

25561 ctagcactct ccaagggtgt tcactttgtt tgcaacttgc tgttgttgtt tgtaacagtt

25621 tactcacacc ttttgctcgt tgctgctggc cttgaagccc cttttctcta tctttatgct

25681 ttagtctact tcttgcagag tataaacttt gtaagaataa taatgaggct ttggctttgc

25741 tggaaatgcc gttccaaaaa cccattactt tatgatgcca actattttct ttgctggcat

25801 actaattgtt acgactattg tataccttac aatagtgtaa cttcttcaat tgtcattact

25861 tcaggtgatg gcacaacaag tcctatttct gaacatgact accagattgg tggttatact

25921 gaaaaatggg aatctggagt aaaagactgt gttgtattac acagttactt cacttcagac

25981 tattaccagc tgtactcaac tcaattgagt acagacattg gtgttgaaca tgttaccttc

26041 ttcatctaca ataaaattgt tgatgagcct gaagaacatg tccaaattca cacaatcgac

26101 ggttcatccg gagttgttaa tccagtaatg gaaccaattt atgatgaacc gacgacgact

26161 actagcgtgc ctttgtaagc acaagctgat gagtacgaac ttatgtactc attcgtttcg

26221 gaagagatag gtacgttaat agttaatagc gtacttcttt ttcttgcttt cgtggtattc

26281 ttgctagtta cactagccat ccttactgcg cttcgattgt gtgcgtactg ctgcaatatt

26341 gttaacgtga gtcttgtaaa accttctttt tacgtttact ctcgtgttaa aaatctgaat

26401 tcttctagag ttcctgatct tctggtctaa acgaactaaa tattatatta gtttttctgt

26461 ttggaacttt aattttagcc atggcagatt ccaacggtac tattaccgtt gaagagctta

26521 aaaagctcct tgaagaatgg aacctagtaa taggtttcct attccttaca tggatttgtc

26581 ttctacaatt tgcctatgcc aacaggaata ggtttttgta tataattaag ttaatttttc

26641 tctggctgtt atggccagta actttaactt gttttgtgct tgctgctgtt tacagaataa

26701 attggatcac cggtggaatt gctatcgcaa tggcttgtct tgtaggcttg atgtggctca

26761 gctacttcat tgcttctttc agactgtttg cgcgtacgcg ttccatgtgg tcatttaatc

26821 cagaaactaa cattcttctc aacgtgccac tccatggcac tattctgacc agaccgcttc

26881 tagaaagtga actcgtaatc ggagctgtga tccttcgtgg acatcttcgt attgctggac

26941 accatctagg acgctgtgac atcaaggacc tgcctaaaga aatcactgtt gctacatcac

27001 gaacgctttc ttattacaaa ttgggagctt cgcagcgtgt agcaggtgac tcaggttttg

27061 ctgcatacag tcgctacagg attggcaact ataaattaaa cacagaccat tccagtagca

27121 gtgacaatat tgctttgctt gtacagtaag tgacaacaga tgtttcatct cgttgacttt

27181 caggttacta tagcagagat attactaatt attatgcgga cttttaaagt ttccatttgg

27241 aatcttgatt acatcataaa cctcataatt aaaaatttat ctaagtcact aactgagaat

27301 aaatattctc aattagatga agagcaacca atggagattc tctaaacgaa catgaaaatt

27361 attcttttct tggcactgat aacactcgct acttgtgagc tttatcacta ccaagagtgt

27421 gttagaggta caacagtact tttaaaagaa ccttgctctt ctggaacata cgagggcaat

27481 tcaccatttc atcctctagc tgataacaaa tttgcactga cttgctttag cactcaattt

27541 gcttttgctt gtcctgacgg cgtaaaacac gtctatcagt tacgtgccag atcagtttca

27601 cctaaactgt tcatcagaca agaggaagtt caagaacttt actctccaat ttttcttatt

27661 gttgcggcaa tagtgtttat aacactttgc ttcacactca aaagaaagac agaatgattg

27721 aactttcatt aattgacttc tatttgtgct ttttagcctt tctgttattc cttgttttaa

27781 ttatgcttat tatcttttgg ttctcacttg aactgcaaga tcataatgaa acttgtcacg

27841 cctaaacgaa cannnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

27901 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

27961 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

28021 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

28081 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

28141 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

28201 nnnnnnnnnn nntctaaacg aacaaactaa aatgtctgat aatggacccc aaaatcagcg

28261 aaatgcacnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

28321 nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn nnnnnnnnnn

28381 nnnnnnnnnn nnnnnnctca ctcaacatgg caaggaagac cttaaattcc ctcgaggaca

28441 aggcgttcca attaacacca atagcagtcc agatgaccaa attggctact accgaagagc

28501 taccagacga attcgtggtg gtgacggtaa aatgaaagat ctcagtccaa gatggtattt

28561 ctactaccta ggaactgggc cagaagctgg acttccctat ggtgctaaca aagacggcat

28621 catatgggtt gcaactgagg gagccttgaa tacaccaaaa gatcacattg gcacccgcaa

28681 tcctgctaac aatgctgcaa tcgtgctaca acttcctcaa ggaacaacat tgccaaaagg

28741 cttctacgca gaagggagca gaggcggcag tcaagcctct tctcgttcct catcacgtag

28801 tcgcaacagt tcaagaaatt caactccagg cagcagtaaa cgaacttctc ctgctagaat

28861 ggctggcaat ggcggtgatg ctgctcttgc tttgctgctg cttgacagat tgaaccagct

28921 tgagagcaaa atgtctggta aaggccaaca acaacaaggc caaactgtca ctaagaaatc

28981 tgctgctgag gcttctaaga agcctcggca aaaacgtact gccactaaag catacaatgt

29041 aacacaagct ttcggcagac gtggtccaga acaaacccaa ggaaattttg gggaccagga

29101 actaatcaga caaggaactg attacaaaca ttggccgcaa attgcacaat ttgcccccag

29161 cgcttcagcg ttcttcggaa tgtcgcgcat tggcatggaa gtcacacctt cgggaacgtg

29221 gttgacctac acaggtgcca tcaaattgga tgacaaagat ccaaatttca aagatcaagt

29281 cattttgctg aataagcata ttgacgcata caaaacattc ccaccaacag agcctaaaaa

29341 ggacaaaaaa aagaaggctg atgaaactca agccttaccg cagagacaga agaaacagca

29401 aactgtgact cttcttcctg ctgcagattt ggatgatttc tccaaacaat tgcaacaatc

29461 catgagccgt gctgactcaa ctcaggccta aactcatgca gaccacacaa ggcagatggg

29521 ctatataaac gttttcgctt ttccgtttac gatatatagt ctactcttgt gcagaatgaa

29581 ttctcgtaac tacatagcac aagtagatgt agttaacttt aatctcacat agcaatcttt

29641 aatcagtgtg taacattagg gaggacttga aagagccacc acattttcac cgaggccacg

29701 cggagtacga tcgagtgtac agtgaacaat gctagggaga gctgcctata tggaagagcc

29761 ctaatgtgta aaattaattt tagtagtgct atccccatgt gattttaata gcttcttagg

29821 aga

//