**Severe acute respiratory syndrome coronavirus 2 isolate SARS-CoV-2/human/BHR/22020069673\_S64\_L001/2022, complete genome**

GenBank: OM843171.1

[FASTA](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?report=fasta) [Graphics](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?report=graph)

[Go to:](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1" \l "goto2200115229_0)

LOCUS OM843171 29765 bp RNA linear VRL 27-FEB-2022

DEFINITION Severe acute respiratory syndrome coronavirus 2 isolate

SARS-CoV-2/human/BHR/22020069673\_S64\_L001/2022, complete genome.

ACCESSION OM843171

VERSION OM843171.1

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 29765)

AUTHORS Alwasti,H., Altaif,Z., Marhoon,A., AlHujairi,Z., AlTooq,M.,

Khamees,F., AlAnsari,W., AlAbbas,Z. and Almoamen,G.

TITLE Direct Submission

JOURNAL Submitted (27-FEB-2022) Communicable Disease Laboratory, Public

Health Directorate, 1124, Manama 12, Bahrain

COMMENT ##Assembly-Data-START##

Assembly Method :: ABIOMIX v. 1.0

Sequencing Technology :: Illumina

##Assembly-Data-END##

FEATURES Location/Qualifiers

source 1..29765

/organism="Severe acute respiratory syndrome coronavirus

2"

/mol\_type="genomic RNA"

/isolate="SARS-CoV-2/human/BHR/22020069673\_S64\_L001/2022"

/isolation\_source="nasal swab"

/host="Homo sapiens"

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

/country="Bahrain"

/collection\_date="2022-02-03"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=231&to=21511) 231..21511

/gene="ORF1ab"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?location=231:13424,13424:21511) join(231..13424,13424..21511)

/gene="ORF1ab"

/ribosomal\_slippage

/codon\_start=1

/product="ORF1ab polyprotein"

/protein\_id="[ULV13485.1](https://www.ncbi.nlm.nih.gov/protein/2200115230)"

/translation="MESLVPGFNEKTHVQLSLPVLQVRDVLVRGFGDSVEEVLSEARQ

HLKDGTCGLVEVEKGVLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGE

TLGVLVPHVGEIPVAYRKVLLRKNGNKGAGGHRYGADLKSFDLGDELGTDPYEDFQEN

WNTKHSSGVTRELMRELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEQ

LDFIDTKRGVYCCREHEHEIAWYTERSEKSYELQTPFEIKLAKKFDTFNGECPNFVFP

LNSIIKTIQPRVEKKKLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTG

DFVKATCEFCGTENLTKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESG

LKTILRKGGRTIAFGGCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNL

LEILQKEKVNINIVGDFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGN

FKVTKGKAKKGAWNIGEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAA

ITILDGISQYSLRLIDAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKL

KPVLDWLEEKFKEGVEFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLV

NKFLALCADSIIIGGAKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEII

FLEGETLPTEVLTEEVVLKTGDLQPLEQPTSEAVEAPLVGTPVCINGLMLLEIKDTEK

YCALAPNMMVTNNTFTLKGGAPTKVTFGDDTVIEVQGYKSVNIIFELDERIDKVLNEK

CSAYTVELGTEVNEFACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDESGEF

KLASHMYCSFYPPDEDEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPE

EEQEEDWLDDDSQQTVGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSG

YLKLTDNVYIKNADIVEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESD

DYIATNGPLKVGGSCVLSGHNLAKHCLHVVGPNVNKGEDIQLLKSAYENFNQHEVLLA

PLLSAGIFGADPIHSLRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIA

EIPKEEVKPFITESKPSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGN

LHPDSATLVSDIDITFLKKDAPYIVGDVVQEGVLTAVVIPTKKASGTTEMLAKALRKV

PTDNYITTYPGQGLNGYTVEEAKTVLKKCKSAFYILPSIISNEKQEILGTVSWNLREM

LAHAEETRKLMPVCVETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLIN

TLNDLNETLVTMPLGYVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSS

KTPEEHFIETISLAGSYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTTFHLDGEVIT

FDNLKTLLSLREVRTIKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPH

NSHEGKTFYVLPNDDTLRVEAFEYYHTTDPSFLGRYMSALNHTKKWKYPQVNGLTSIK

WADNNCYLATALLTLQQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELG

DVRETMSYLFQHANLDSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQ

IPCTCGKQATKYLVQQESPFVMMSAPPAQYELKHGTFTCASEYTGNYQCGHYKHITSK

ETLYCIDGALLTKSSEYKGPITDVFYKENSYTTTIKPVTYKLDGVVCTEIDPKLDNYY

KKDNSYFTEQPIDLVPNQPYPNASFDNFKFVCDNIKFADDLNQLTGYKKPASRELKVT

FFPDLNGDVVAIDYKHYTPSFKKGAKLLHKPIVWHVNNATNKATYKPNTWCIRCLWST

KPVETSNSFDVLKSEDAQGMDNLACEDLKPVSEEVVENPTIQKDVLECNVKTTEVVGD

IILKPANNSLKITEEVGHTDLMAAYVDNSSLTIKKPNELSRVLGLKTLATHGLAAVNS

VPWDTIANYAKPFLNKVVSTTTNIVTRCLNRVCTNYMPYFFTLLLQLCTFTRSTNSRI

KASMPTTIAKNTVKSVGKFCLEASFNYLKSPNFSKLINIIIWFLLLSVCLGSLIYSTA

ALGVLMSNLGMPSYCTGYREGYLNSTNVTIATYCTGSIPCSVCLSGLDSLDTYPSLET

IQITISSFKWDLTAFGLVAEWFLAYILFTRFFYVLGLAAIMQLFFSYFAVHFISNSWL

MWLIINLVQMAPISAMVRMYIFFASFYYVWKSYVHVVDGCNSSTCMMCYKRNRATRVE

CTTIVNGVRRSFYVYANGGKGFCKLHNWNCVNCDTFCAGSTFISDEVARDLSLQFKRP

INPTDQSSYIVDSVTVKNGSIHLYFDKAGQKTYERHSLSHFVNLDNLRANNTKGSLPI

NVIVFDGKSKCEESSAKSASVYYSQLMCQPILLLDQALVSDVGDSAEVAVKMFDAYVN

TFSSTFNVPMEKLKTLVATAEAELAKNVSLDNVLSTFISAARQGFVDSDVETKDVVEC

LKLSHQSDIEVTGDSCNNYMLTYNKVENMTPRDLGACIDCSARHINAQVAKSHNIALI

WNVKDFMSLSEQLRKQIRSAAKKNNLPFKLTCATTRQVVNVVTTKIALKGGKIVNNWL

KQLIKVTLVFLFVAAIFYLITPVHVMSKHTDFSSEIIGYKAIDGGVTRDIASTDTCFA

NKHADFDTWFSQRGGSYTNDKACPLIAAVITREVGFVVPGLPGTILRTTNGDFLHFLP

RVFSAVGNICYTPSKLIEYTDFATSACVLAAECTIFKDASGKPVPYCYDTNVLEGSVA

YESLRPDTRYVLMDGSIIQFPNTYLEGSVRVVTTFDSEYCRHGTCERSEAGVCVSTSG

RWVLNNDYYRSLPGVFCGVDAVNLFTNMFTPLIQPIGALDISASIVAGGIVAIVVTCL

AYYFMRFRRAFGEYSHVVAFNTLLFLMSFIVLCLTPVYSFLPGVYSVIYLYLTFYLTN

DVSFLAHIQWMVMFTPLVPFWITIAYIICISTKHFYWFFSNYLKRRVVFNGVSFSTFE

EAALCTFLLNKEMYLKLRSDVLLPFTQYNRYLALYNKYKYFSGAMDTTSYREAACCHL

AKALNDFSNSGSDVLYQPPQISITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNG

LWLDDVVYCPRHVICTSEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVL

KLKVDTANPKTPKYKFVRIQPGQTFSVLACYNGSPSGVYQCAMRHNFTIKGSFLNGSC

GSVGFNIDYDCVSFCYMHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVN

VLAWLYAAVINGDRWFLNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAV

LDMCASLKELLQNGMNGRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHW

LLLTILTSLLVLVQSTQWSLFFFLYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFL

LPSLATVAYFNMVYMPASWVMRIMTWLDMVDTSLKLKDCVMYASAVVLLILMTARTVY

DDGARRVWTLMNVLTLVYKVYYGNALDQAISMWALIISVTSNYSGVVTTVMFLARGIV

FMCVEYCPIFFITGNTLQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYLVST

QEFRYMNSQGLLPPKNSIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVLLSV

LQQLRVESSSKLWAQCVQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKLCEE

MLDNRATLQAIASEFSSLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAKSEF

DRDAAMQRKLEKMADQAMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALNNII

NNARDGCVPLNIIPLTTAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDADSK

IVQLSEISMDNSPNLAWPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTACTD

DNALAYYNTTKGGRFVLALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTPKGP

KVKYLYFIKGLNNLNRGMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAKAYK

DYLASGGQPITNCVKMLCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDHPNP

KGFCDLKGKYVQIPTTCANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSADAQ

SFLNRVCGVSAARLTPCGTGTSTDVVYRAFDIYNDKVAGFAKFLKTNCCRFQEKDEDD

NLIDSYFVVKRHTFSNYQHEETIYNLLKDCPAVAKHDFFKFRIDGDMVPHISRQRLTK

YTMADLVYALRHFDEGNCDTLKEILVTYNCCDDDYFNKKDWYDFVENPDILRVYANLG

ERVRQALLKTVQFCDAMRNAGIVGVLTLDNQDLNGNWYDFGDFIQTTPGSGVPVVDSY

YSLLMPILTLTRALTAESHVDTDLTKPYIKWDLLKYDFTEERLKLFDRYFKYWDQTYH

PNCVNCLDDRCILHCANFNVLFSTVFPLTSFGPLVRKIFVDGVPFVVSTGYHFRELGV

VHNQDVNLHSSRLSFKELLVYAADPAMHAASGNLLLDKRTTCFSVAALTNNVAFQTVK

PGNFNKDFYDFAVSKGFFKEGSSVELKHFFFAQDGNAAISDYDYYRYNLPTMCDIRQL

LFVVEVVDKYFDCYDGGCINANQVIVNNLDKSAGFPFNKWGKARLYYDSMSYEDQDAL

FAYTKRNVIPTITQMNLKYAISAKNRARTVAGVSICSTMTNRQFHQKLLKSIAATRGA

TVVIGTSKFYGGWHNMLKTVYSDVENPHLMGWDYPKCDRAMPNMLRIMASLVLARKHT

TCCSLSHRFYRLANECAQVLSEMVMCGGSLYVKPGGTSSGDATTAYANSVFNICQAVT

ANVNALLSTDGNKIADKYVRNLQHRLYECLYRNRDVDTDFVNEFYAYLRKHFSMMILS

DDAVVCFNSTYASQGLVASIKNFKSVLYYQNNVFMSEAKCWTETDLTKGPHEFCSQHT

MLVKQGDDYVYLPYPDPSRILGAGCFVDDIVKTDGTLMIERFVSLAIDAYPLTKHPNQ

EYADVFHLYLQYIRKLHDELTGHMLDMYSVMLTNDNTSRYWEPEFYEAMYTPHTVLQA

VGACVLCNSQTSLRCGACIRRPFLCCKCCYDHVISTSHKLVLSVNPYVCNAPGCDVTD

VTQLYLGGMSYYCKSHKPPISFPLCANGQVFGLYKNTCVGSDNVTDFNAIATCDWTNA

GDYILANTCTERLKLFAAETLKATEETFKLSYGIATVREVLSDRELHLSWEVGKPRPP

LNRNYVFTGYRVTKNSKVQIGEYTFEKGDYGDAVVYRGTTTYKLNVGDYFVLTSHTVM

PLSAPTLVPQEHYVRITGLYPTLNISDEFSSNVANYQKVGMQKYSTLQGPPGTGKSHF

AIGLALYYPSARIVYTACSHAAVDALCEKALKYLPIDKCSRIIPARARVECFDKFKVN

STLEQYVFCTVNALPETTADIVVFDEISMATNYDLSVVNARLCAKHYVYIGDPAQLPA

PRTLLTKGTLEPEYFNSVCRLMKTIGPDMFLGTCRRCPAEIVDTVSALVYDNKLKAHK

DKSAQCFKMFYKGVITHDVSSAINRPQIGVVREFLTRNPAWRKAVFISPYNSQNAVAS

KILGLPTQTVDSSQGSEYDYVIFTQTTETAHSCNVNRFNVAITRAKVGILCIMSDRDL

YDKLQFTSLEIPRRNVATLQAENVTGLFKDCSKVITGLHPTQAPTHLSVDTKFKTEGL

CVDVPGIPKDMTYRRLISMMGFKMNYQVNGYPNMFITREEAIRHVRAWIGFDVEGCHA

TREAVGTNLPLQLGFSTGVNLVAVPTGYVDTPNNTDFSRVSAKPPPGDQFKHLIPLMY

KGLPWNVVRIKIVQMLSDTLKNLSDRVVFVLWAHGFELTSMKYFVKIGPERTCCLCDR

RATCFSTASDTYACWHHSIGFDYVYNPFMIDVQQWGFTGNLQSNHDLYCQVHGNAHVA

SCDAIMTRCLAVHECFVKRVDWTIEYPIIGDELKINAACRKVQHMVVKAALLADKFPV

LHDIGNPKAIKCVPQADVEWKFYDAQPCSDKAYKIEELFYSYATHSDKFTDGVCLFWN

CNVDRYPANSIVCRFDTRVLSNLNLPGCDGGSLYVNKHAFHTPAFDKSAFVNLKQLPF

FYYSDSPCESHGKQVVSDIDYVPLKSATCITRCNLGGAVCRHHANEYRLYLDAYNMMI

SAGFSLWVYKQFDTYNLWNTFTRLQSLENVAFNVVNKGHFDGQQGEVPVSIINNTVYT

KVDGVDVELFENKTTLPVNVAFELWAKRNIKPVPEVKILNNLGVDIAANTVIWDYKRD

APAHISTIGVCSMTDIAKKPIETICAPLTVFFDGRVDGQVDLFRNARNGVLITEGSVK

GLQPSVGPKQASLNGVTLIGEAVKTQFNYYKKVDGVVQQLPETYFTQSRNLQEFKPRS

QMEIDFLELAMDEFIERYKLEGYAFEHIVYGDFSHSQLGGLHLLIGLAKRFKESPFEL

EDFIPMDSTVKNYFITDAQTGSSKCVCSVIDLLLDDFVEIIKSQDLSVVSKVVKVTID

YTEISFMLWCKDGHVETFYPKLQSSQAWQPGVAMPNLYKMQRMLLEKCDLQNYGDSAT

LPKGIMMNVAKYTQLCQYLNTLTLAVPYNMRVIHFGAGSDKGVAPGTAVLRQWLPTGT

LLVDSDLNDFVSDADSTLIGDCATVHTANKWDLIISDMYDPKTKNVTKENDSKEGFFT

YICGFIQQKLALGGSVAIKITEHSWNADLYKLMGHFAWWTAFVTNVNASSSEAFLIGC

NYLGKPREQIDGYVMHANYIFWRNTNPIQLSSYSLFDMSKFPLKLRGTAVMSLKEGQI

NDMILSLLSKGRLIIRENNRVVISSDVLVNN"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13485.1?from=1&to=180) 231..770

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13485.1?from=181&to=818) 771..2684

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13485.1?from=819&to=2763) 2685..8519

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13485.1?from=2764&to=3263) 8520..10019

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13485.1?from=3264&to=3569) 10020..10937

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13485.1?from=3570&to=3856) 10938..11798

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13485.1?from=3857&to=3939) 11799..12047

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13485.1?from=3940&to=4137) 12048..12641

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13485.1?from=4138&to=4250) 12642..12980

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13485.1?from=4251&to=4389) 12981..13397

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13485.1?from=4390&to=5321) join(13398..13424,13424..16192)

/gene="ORF1ab"

/product="RNA-dependent RNA polymerase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13485.1?from=5322&to=5922) 16193..17995

/gene="ORF1ab"

/product="helicase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13485.1?from=5923&to=6449) 17996..19576

/gene="ORF1ab"

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

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13485.1?from=6450&to=6795) 19577..20614

/gene="ORF1ab"

/product="endoRNAse"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13485.1?from=6796&to=7093) 20615..21508

/gene="ORF1ab"

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

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=231&to=13439) 231..13439

/gene="ORF1ab"

/codon\_start=1

/product="ORF1a polyprotein"

/protein\_id="[ULV13486.1](https://www.ncbi.nlm.nih.gov/protein/2200115231)"

/translation="MESLVPGFNEKTHVQLSLPVLQVRDVLVRGFGDSVEEVLSEARQ

HLKDGTCGLVEVEKGVLPQLEQPYVFIKRSDARTAPHGHVMVELVAELEGIQYGRSGE

TLGVLVPHVGEIPVAYRKVLLRKNGNKGAGGHRYGADLKSFDLGDELGTDPYEDFQEN

WNTKHSSGVTRELMRELNGGAYTRYVDNNFCGPDGYPLECIKDLLARAGKASCTLSEQ

LDFIDTKRGVYCCREHEHEIAWYTERSEKSYELQTPFEIKLAKKFDTFNGECPNFVFP

LNSIIKTIQPRVEKKKLDGFMGRIRSVYPVASPNECNQMCLSTLMKCDHCGETSWQTG

DFVKATCEFCGTENLTKEGATTCGYLPQNAVVKIYCPACHNSEVGPEHSLAEYHNESG

LKTILRKGGRTIAFGGCVFSYVGCHNKCAYWVPRASANIGCNHTGVVGEGSEGLNDNL

LEILQKEKVNINIVGDFKLNEEIAIILASFSASTSAFVETVKGLDYKAFKQIVESCGN

FKVTKGKAKKGAWNIGEQKSILSPLYAFASEAARVVRSIFSRTLETAQNSVRVLQKAA

ITILDGISQYSLRLIDAMMFTSDLATNNLVVMAYITGGVVQLTSQWLTNIFGTVYEKL

KPVLDWLEEKFKEGVEFLRDGWEIVKFISTCACEIVGGQIVTCAKEIKESVQTFFKLV

NKFLALCADSIIIGGAKLKALNLGETFVTHSKGLYRKCVKSREETGLLMPLKAPKEII

FLEGETLPTEVLTEEVVLKTGDLQPLEQPTSEAVEAPLVGTPVCINGLMLLEIKDTEK

YCALAPNMMVTNNTFTLKGGAPTKVTFGDDTVIEVQGYKSVNIIFELDERIDKVLNEK

CSAYTVELGTEVNEFACVVADAVIKTLQPVSELLTPLGIDLDEWSMATYYLFDESGEF

KLASHMYCSFYPPDEDEEEGDCEEEEFEPSTQYEYGTEDDYQGKPLEFGATSAALQPE

EEQEEDWLDDDSQQTVGQQDGSEDNQTTTIQTIVEVQPQLEMELTPVVQTIEVNSFSG

YLKLTDNVYIKNADIVEEAKKVKPTVVVNAANVYLKHGGGVAGALNKATNNAMQVESD

DYIATNGPLKVGGSCVLSGHNLAKHCLHVVGPNVNKGEDIQLLKSAYENFNQHEVLLA

PLLSAGIFGADPIHSLRVCVDTVRTNVYLAVFDKNLYDKLVSSFLEMKSEKQVEQKIA

EIPKEEVKPFITESKPSVEQRKQDDKKIKACVEEVTTTLEETKFLTENLLLYIDINGN

LHPDSATLVSDIDITFLKKDAPYIVGDVVQEGVLTAVVIPTKKASGTTEMLAKALRKV

PTDNYITTYPGQGLNGYTVEEAKTVLKKCKSAFYILPSIISNEKQEILGTVSWNLREM

LAHAEETRKLMPVCVETKAIVSTIQRKYKGIKIQEGVVDYGARFYFYTSKTTVASLIN

TLNDLNETLVTMPLGYVTHGLNLEEAARYMRSLKVPATVSVSSPDAVTAYNGYLTSSS

KTPEEHFIETISLAGSYKDWSYSGQSTQLGIEFLKRGDKSVYYTSNPTTFHLDGEVIT

FDNLKTLLSLREVRTIKVFTTVDNINLHTQVVDMSMTYGQQFGPTYLDGADVTKIKPH

NSHEGKTFYVLPNDDTLRVEAFEYYHTTDPSFLGRYMSALNHTKKWKYPQVNGLTSIK

WADNNCYLATALLTLQQIELKFNPPALQDAYYRARAGEAANFCALILAYCNKTVGELG

DVRETMSYLFQHANLDSCKRVLNVVCKTCGQQQTTLKGVEAVMYMGTLSYEQFKKGVQ

IPCTCGKQATKYLVQQESPFVMMSAPPAQYELKHGTFTCASEYTGNYQCGHYKHITSK

ETLYCIDGALLTKSSEYKGPITDVFYKENSYTTTIKPVTYKLDGVVCTEIDPKLDNYY

KKDNSYFTEQPIDLVPNQPYPNASFDNFKFVCDNIKFADDLNQLTGYKKPASRELKVT

FFPDLNGDVVAIDYKHYTPSFKKGAKLLHKPIVWHVNNATNKATYKPNTWCIRCLWST

KPVETSNSFDVLKSEDAQGMDNLACEDLKPVSEEVVENPTIQKDVLECNVKTTEVVGD

IILKPANNSLKITEEVGHTDLMAAYVDNSSLTIKKPNELSRVLGLKTLATHGLAAVNS

VPWDTIANYAKPFLNKVVSTTTNIVTRCLNRVCTNYMPYFFTLLLQLCTFTRSTNSRI

KASMPTTIAKNTVKSVGKFCLEASFNYLKSPNFSKLINIIIWFLLLSVCLGSLIYSTA

ALGVLMSNLGMPSYCTGYREGYLNSTNVTIATYCTGSIPCSVCLSGLDSLDTYPSLET

IQITISSFKWDLTAFGLVAEWFLAYILFTRFFYVLGLAAIMQLFFSYFAVHFISNSWL

MWLIINLVQMAPISAMVRMYIFFASFYYVWKSYVHVVDGCNSSTCMMCYKRNRATRVE

CTTIVNGVRRSFYVYANGGKGFCKLHNWNCVNCDTFCAGSTFISDEVARDLSLQFKRP

INPTDQSSYIVDSVTVKNGSIHLYFDKAGQKTYERHSLSHFVNLDNLRANNTKGSLPI

NVIVFDGKSKCEESSAKSASVYYSQLMCQPILLLDQALVSDVGDSAEVAVKMFDAYVN

TFSSTFNVPMEKLKTLVATAEAELAKNVSLDNVLSTFISAARQGFVDSDVETKDVVEC

LKLSHQSDIEVTGDSCNNYMLTYNKVENMTPRDLGACIDCSARHINAQVAKSHNIALI

WNVKDFMSLSEQLRKQIRSAAKKNNLPFKLTCATTRQVVNVVTTKIALKGGKIVNNWL

KQLIKVTLVFLFVAAIFYLITPVHVMSKHTDFSSEIIGYKAIDGGVTRDIASTDTCFA

NKHADFDTWFSQRGGSYTNDKACPLIAAVITREVGFVVPGLPGTILRTTNGDFLHFLP

RVFSAVGNICYTPSKLIEYTDFATSACVLAAECTIFKDASGKPVPYCYDTNVLEGSVA

YESLRPDTRYVLMDGSIIQFPNTYLEGSVRVVTTFDSEYCRHGTCERSEAGVCVSTSG

RWVLNNDYYRSLPGVFCGVDAVNLFTNMFTPLIQPIGALDISASIVAGGIVAIVVTCL

AYYFMRFRRAFGEYSHVVAFNTLLFLMSFIVLCLTPVYSFLPGVYSVIYLYLTFYLTN

DVSFLAHIQWMVMFTPLVPFWITIAYIICISTKHFYWFFSNYLKRRVVFNGVSFSTFE

EAALCTFLLNKEMYLKLRSDVLLPFTQYNRYLALYNKYKYFSGAMDTTSYREAACCHL

AKALNDFSNSGSDVLYQPPQISITSAVLQSGFRKMAFPSGKVEGCMVQVTCGTTTLNG

LWLDDVVYCPRHVICTSEDMLNPNYEDLLIRKSNHNFLVQAGNVQLRVIGHSMQNCVL

KLKVDTANPKTPKYKFVRIQPGQTFSVLACYNGSPSGVYQCAMRHNFTIKGSFLNGSC

GSVGFNIDYDCVSFCYMHHMELPTGVHAGTDLEGNFYGPFVDRQTAQAAGTDTTITVN

VLAWLYAAVINGDRWFLNRFTTTLNDFNLVAMKYNYEPLTQDHVDILGPLSAQTGIAV

LDMCASLKELLQNGMNGRTILGSALLEDEFTPFDVVRQCSGVTFQSAVKRTIKGTHHW

LLLTILTSLLVLVQSTQWSLFFFLYENAFLPFAMGIIAMSAFAMMFVKHKHAFLCLFL

LPSLATVAYFNMVYMPASWVMRIMTWLDMVDTSLKLKDCVMYASAVVLLILMTARTVY

DDGARRVWTLMNVLTLVYKVYYGNALDQAISMWALIISVTSNYSGVVTTVMFLARGIV

FMCVEYCPIFFITGNTLQCIMLVYCFLGYFCTCYFGLFCLLNRYFRLTLGVYDYLVST

QEFRYMNSQGLLPPKNSIDAFKLNIKLLGVGGKPCIKVATVQSKMSDVKCTSVVLLSV

LQQLRVESSSKLWAQCVQLHNDILLAKDTTEAFEKMVSLLSVLLSMQGAVDINKLCEE

MLDNRATLQAIASEFSSLPSYAAFATAQEAYEQAVANGDSEVVLKKLKKSLNVAKSEF

DRDAAMQRKLEKMADQAMTQMYKQARSEDKRAKVTSAMQTMLFTMLRKLDNDALNNII

NNARDGCVPLNIIPLTTAAKLMVVIPDYNTYKNTCDGTTFTYASALWEIQQVVDADSK

IVQLSEISMDNSPNLAWPLIVTALRANSAVKLQNNELSPVALRQMSCAAGTTQTACTD

DNALAYYNTTKGGRFVLALLSDLQDLKWARFPKSDGTGTIYTELEPPCRFVTDTPKGP

KVKYLYFIKGLNNLNRGMVLGSLAATVRLQAGNATEVPANSTVLSFCAFAVDAAKAYK

DYLASGGQPITNCVKMLCTHTGTGQAITVTPEANMDQESFGGASCCLYCRCHIDHPNP

KGFCDLKGKYVQIPTTCANDPVGFTLKNTVCTVCGMWKGYGCSCDQLREPMLQSADAQ

SFLNGFAV"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13486.1?from=1&to=180) 231..770

/gene="ORF1ab"

/product="leader protein"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13486.1?from=181&to=818) 771..2684

/gene="ORF1ab"

/product="nsp2"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13486.1?from=819&to=2763) 2685..8519

/gene="ORF1ab"

/product="nsp3"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13486.1?from=2764&to=3263) 8520..10019

/gene="ORF1ab"

/product="nsp4"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13486.1?from=3264&to=3569) 10020..10937

/gene="ORF1ab"

/product="3C-like proteinase"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13486.1?from=3570&to=3856) 10938..11798

/gene="ORF1ab"

/product="nsp6"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13486.1?from=3857&to=3939) 11799..12047

/gene="ORF1ab"

/product="nsp7"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13486.1?from=3940&to=4137) 12048..12641

/gene="ORF1ab"

/product="nsp8"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13486.1?from=4138&to=4250) 12642..12980

/gene="ORF1ab"

/product="nsp9"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13486.1?from=4251&to=4389) 12981..13397

/gene="ORF1ab"

/product="nsp10"

[mat\_peptide](https://www.ncbi.nlm.nih.gov/protein/ULV13486.1?from=4390&to=4402) 13398..13436

/gene="ORF1ab"

/product="nsp11"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=13432&to=13459) 13432..13459

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 1"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=13444&to=13498) 13444..13498

/gene="ORF1ab"

/note="Coronavirus frameshifting stimulation element

stem-loop 2"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=21519&to=25331) 21519..25331

/gene="S"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=21519&to=25331) 21519..25331

/gene="S"

/codon\_start=1

/product="surface glycoprotein"

/protein\_id="[ULV13487.1](https://www.ncbi.nlm.nih.gov/protein/2200115232)"

/translation="MFVFLVLLPLVSSQCVNLITRTQSYTNSFTRGVYYPDKVFRSSV

LHSTQDLFLPFFSNVTWFHAIHVSGTNGTKRFDNPVLPFNDGVYFASTEKSNIIRGWI

FGTTLDSKTQSLLIVNNATNVVIKVCEFQFCNDPFLGVYYHKNNKSWMESEFRVYSSA

NNCTFEYVSQPFLMDLEGKQGNFKNLREFVFKNIDGYFKIYSKHTPINLGRDLPQGFS

ALEPLVDLPIGINITRFQTLLALHRSYLTPGDSSSGWTAGAAAYYVGYLQPRTFLLKY

NENGTITDAVDCALDPLSETKCTLKSFTVEKGIYQTSNFRVQPTESIVRFPNITNLCP

FDEVFNATRFASVYAWNRKRISNCVADYSVLYNFAPFFAFKCYGVSPTKLNDLCFTNV

YADSFVIRGNEVSQIAPGQTGNIADYNYKLPDDFTGCVIAWNSNKLDSKVGGNYNYLY

RLFRKSNLKPFERDISTEIYQAGNKPCNGVAGFNCYFPLRSYGFRPTYGVGHQPYRVV

VLSFELLHAPATVCGPKKSTNLVKNKCVNFNFNGLTGTGVLTESNKKFLPFQQFGRDI

ADTTDAVRDPQTLEILDITPCSFGGVSVITPGTNTSNQVAVLYQGVNCTEVPVAIHAD

QLTPTWRVYSTGSNVFQTRAGCLIGAEYVNNSYECDIPIGAGICASYQTQTKSHRRAR

SVASQSIIAYTMSLGAENSVAYSNNSIAIPTNFTISVTTEILPVSMTKTSVDCTMYIC

GDSTECSNLLLQYGSFCTQLKRALTGIAVEQDKNTQEVFAQVKQIYKTPPIKYFGGFN

FSQILPDPSKPSKRSFIEDLLFNKVTLADAGFIKQYGDCLGDIAARDLICAQKFNGLT

VLPPLLTDEMIAQYTSALLAGTITSGWTFGAGAALQIPFAMQMAYRFNGIGVTQNVLY

ENQKLIANQFNSAIGKIQDSLSSTASALGKLQDVVNHNAQALNTLVKQLSSKFGAISS

VLNDILSRLDKVEAEVQIDRLITGRLQSLQTYVTQQLIRAAEIRASANLAATKMSECV

LGQSKRVDFCGKGYHLMSFPQSAPHGVVFLHVTYVPAQEKNFTTAPAICHDGKAHFPR

EGVFVSNGTHWFVTQRNFYEPQIITTDNTFVSGNCDVVIGIVNNTVYDPLQPELDSFK

EELDKYFKNHTSPDVDLGDISGINASVVNIQKEIDRLNEVAKNLNESLIDLQELGKYE

QYIKWPWYIWLGFIAGLIAIVMVTIMLCCMTSCCSCLKGCCSCGSCCKFDEDDSEPVL

KGVKLHYT"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=25340&to=26167) 25340..26167

/gene="ORF3a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=25340&to=26167) 25340..26167

/gene="ORF3a"

/codon\_start=1

/product="ORF3a protein"

/protein\_id="[ULV13488.1](https://www.ncbi.nlm.nih.gov/protein/2200115233)"

/translation="MDLFMRIFTIGTVTLKQGEIKDATPSDFVRATATIPIQASLPFG

WLIVGVALLAVFQSASKIITLKKRWQLALSKGVHFVCNLLLLFVTVYSHLLLVAAGLE

APFLYLYALVYFLQSINFVRIIMRLWLCWKCRSKNPLLYDANYFLCWHTNCYDYCIPY

NSVTSSIVITSGDGTTSPISEHDYQIGGYTEKWESGVKDCVVLHSYFTSDYYQLYSTQ

LSTDIGVEHVTFFIYNKIVDEPEEHVQIHTIDGSSGVVNPVMEPIYDEPTTTTSVPL"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=26192&to=26419) 26192..26419

/gene="E"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=26192&to=26419) 26192..26419

/gene="E"

/codon\_start=1

/product="envelope protein"

/protein\_id="[ULV13489.1](https://www.ncbi.nlm.nih.gov/protein/2200115234)"

/translation="MYSFVSEEIGTLIVNSVLLFLAFVVFLLVTLAILTALRLCAYCC

NIVNVSLVKPSFYVYSRVKNLNSSRVPDLLV"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=26470&to=27138) 26470..27138

/gene="M"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=26470&to=27138) 26470..27138

/gene="M"

/codon\_start=1

/product="membrane glycoprotein"

/protein\_id="[ULV13490.1](https://www.ncbi.nlm.nih.gov/protein/2200115235)"

/translation="MADSNGTITVEELKKLLEEWNLVIGFLFLTWICLLQFAYANRNR

FLYIIKLIFLWLLWPVTLTCFVLAAVYRINWITGGIAIAMACLVGLMWLSYFIASFRL

FARTRSMWSFNPETNILLNVPLHGTILTRPLLESELVIGAVILRGHLRIAGHHLGRCD

IKDLPKEITVATSRTLSYYKLGASQRVAGDSGFAAYSRYRIGNYKLNTDHSSSSDNIA

LLVQ"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=27149&to=27334) 27149..27334

/gene="ORF6"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=27149&to=27334) 27149..27334

/gene="ORF6"

/codon\_start=1

/product="ORF6 protein"

/protein\_id="[ULV13491.1](https://www.ncbi.nlm.nih.gov/protein/2200115236)"

/translation="MFHLVDFQVTIAEILLIIMRTFKVSIWNLDYIINLIIKNLSKSL

TENKYSQLDEEQPMEIL"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=27341&to=27706) 27341..27706

/gene="ORF7a"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=27341&to=27706) 27341..27706

/gene="ORF7a"

/codon\_start=1

/product="ORF7a protein"

/protein\_id="[ULV13492.1](https://www.ncbi.nlm.nih.gov/protein/2200115237)"

/translation="MKIILFLALITLATCELYHYQECVRGTTVLLKEPCSSGTYEGNS

PFHPLADNKFALTCFSTQFAFACPDGVKHVYQLRARSVSPKLFIRQEEVQELYSPIFL

IVAAIVFITLCFTLKRKTE"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=27703&to=27834) 27703..27834

/gene="ORF7b"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=27703&to=27834) 27703..27834

/gene="ORF7b"

/codon\_start=1

/product="ORF7b"

/protein\_id="[ULV13493.1](https://www.ncbi.nlm.nih.gov/protein/2200115238)"

/translation="MIELSLIDFYLCFLAFLLFLVLIMLIIFWFSLELQDHNETCHA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=27841&to=28206) 27841..28206

/gene="ORF8"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=27841&to=28206) 27841..28206

/gene="ORF8"

/codon\_start=1

/product="ORF8 protein"

/protein\_id="[ULV13494.1](https://www.ncbi.nlm.nih.gov/protein/2200115239)"

/translation="MKFLVFLGIITTVAAFHQECSLQSCTQHQPYVVDDPCPIHFYSK

WYIRVGARKSAPLIELCVDEAGSKSPIQYIDIGNYTVSCLPFTINCQEPKLGSLVVRC

SFYEDFLEYHDVRVVLDFI"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=28221&to=29471) 28221..29471

/gene="N"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=28221&to=29471) 28221..29471

/gene="N"

/codon\_start=1

/product="nucleocapsid phosphoprotein"

/protein\_id="[ULV13495.1](https://www.ncbi.nlm.nih.gov/protein/2200115240)"

/translation="MSDNGPQNQRNALRITFGGPSDSTGSNQNGGARSKQRRPQGLPN

NTASWFTALTQHGKEDLKFPRGQGVPINTNSSPDDQIGYYRRATRRIRGGDGKMKDLS

PRWYFYYLGTGPEAGLPYGANKDGIIWVATEGALNTPKDHIGTRNPANNAAIVLQLPQ

GTTLPKGFYAEGSRGGSQASSRSSSRSRNSSRNSTPGSSKRTSPARMAGNGGDAALAL

LLLDRLNQLESKMSGKGQQQQGQTVTKKSAAEASKKPRQKRTATKAYNVTQAFGRRGP

EQTQGNFGDQELIRQGTDYKHWPQIAQFAPSASAFFGMSRIGMEVTPSGTWLTYTGAI

KLDDKDPNFKDQVILLNKHIDAYKTFPPTEPKKDKKKKADETQALPQRQKKQQTVTLL

PAADLDDFSKQLQQSMSRADSTQA"

[gene](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=29496&to=29612) 29496..29612

/gene="ORF10"

[CDS](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=29496&to=29612) 29496..29612

/gene="ORF10"

/codon\_start=1

/product="ORF10 protein"

/protein\_id="[ULV13496.1](https://www.ncbi.nlm.nih.gov/protein/2200115241)"

/translation="MGYINVFAFPFTIYSLLLCRMNSRNYIAQVDVVNFNLT"

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=29547&to=29582) 29547..29582

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=29567&to=29595) 29567..29595

/gene="ORF10"

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

[stem\_loop](https://www.ncbi.nlm.nih.gov/nuccore/OM843171.1?from=29666&to=29680) 29666..29680

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

ORIGIN

1 ccaactttcg atctcttgta gatctgttct ctaaacgaac tttaaaatct gtgtggctgt

61 cactcggctg catgcttagt gcactcacgc agtataatta ataactaatt actgtcgttg

121 acaggacacg agtaactcgt ctatcttctg caggctgctt acggtttcgt ccgtgttgca

181 gccgatcatc agcacatcta ggttttgtcc gggtgtgacc gaaaggtaag atggagagcc

241 ttgtccctgg tttcaacgag aaaacacacg tccaactcag tttgcctgtt ttacaggttc

301 gcgacgtgct cgtacgtggc tttggagact ccgtggagga ggtcttatca gaggcacgtc

361 aacatcttaa agatggcact tgtggcttag tagaagttga aaaaggcgtt ttgcctcaac

421 ttgaacagcc ctatgtgttc atcaaacgtt cggatgctcg aactgcacct catggtcatg

481 ttatggttga gctggtagca gaactcgaag gcattcagta cggtcgtagt ggtgagacac

541 ttggtgtcct tgtccctcat gtgggcgaaa taccagtggc ttaccgcaag gttcttcttc

601 gtaagaacgg taataaagga gctggtggcc ataggtacgg cgccgatcta aagtcatttg

661 acttaggcga cgagcttggc actgatcctt atgaagattt tcaagaaaac tggaacacta

721 aacatagcag tggtgttacc cgtgaactca tgcgtgagct taacggaggg gcatacactc

781 gctatgtcga taacaacttc tgtggccctg atggctaccc tcttgagtgc attaaagacc

841 ttctagcacg tgctggtaaa gcttcatgca ctttgtccga acaactggac tttattgaca

901 ctaagagggg tgtatactgc tgccgtgaac atgagcatga aattgcttgg tacacggaac

961 gttctgaaaa gagctatgaa ttgcagacac cttttgaaat taaattggca aagaaatttg

1021 acaccttcaa tggggaatgt ccaaattttg tatttccctt aaattccata atcaagacta

1081 ttcaaccaag ggttgaaaag aaaaagcttg atggctttat gggtagaatt cgatctgtct

1141 atccagttgc gtcaccaaat gaatgcaacc aaatgtgcct ttcaactctc atgaagtgtg

1201 atcattgtgg tgaaacttca tggcagacgg gcgattttgt taaagccact tgcgaatttt

1261 gtggcactga gaatttgact aaagaaggtg ccactacttg tggttactta ccccaaaatg

1321 ctgttgttaa aatttattgt ccagcatgtc acaattcaga agtaggacct gagcatagtc

1381 ttgccgaata ccataatgaa tctggcttga aaaccattct tcgtaagggt ggtcgcacta

1441 ttgcctttgg aggctgtgtg ttctcttatg ttggttgcca taacaagtgt gcctattggg

1501 ttccacgtgc tagcgctaac ataggttgta accatacagg tgttgttgga gaaggttccg

1561 aaggtcttaa tgacaacctt cttgaaatac tccaaaaaga gaaagtcaac atcaatattg

1621 ttggtgactt taaacttaat gaagagatcg ccattatttt ggcatctttt tctgcttcca

1681 caagtgcttt tgtggaaact gtgaaaggtt tggattataa agcattcaaa caaattgttg

1741 aatcctgtgg taattttaaa gttacaaaag gaaaagctaa aaaaggtgcc tggaatattg

1801 gtgaacagaa atcaatactg agtcctcttt atgcatttgc atcagaggct gctcgtgttg

1861 tacgatcaat tttctcccgc actcttgaaa ctgctcaaaa ttctgtgcgt gttttacaga

1921 aggccgctat aacaatacta gatggaattt cacagtattc actgagactc attgatgcta

1981 tgatgttcac atctgatttg gctactaaca atctagttgt aatggcctac attacaggtg

2041 gtgttgttca gttgacttcg cagtggctaa ctaacatctt tggcactgtt tatgaaaaac

2101 tcaaacccgt ccttgattgg cttgaagaga agtttaagga aggtgtagag tttcttagag

2161 acggttggga aattgttaaa tttatctcaa cctgtgcttg tgaaattgtc ggtggacaaa

2221 ttgtcacctg tgcaaaggaa attaaggaga gtgttcagac attctttaag cttgtaaata

2281 aatttttggc tttgtgtgct gactctatca ttattggtgg agctaaactt aaagccttga

2341 atttaggtga aacatttgtc acgcactcaa agggattgta cagaaagtgt gttaaatcca

2401 gagaagaaac tggcctactc atgcctctaa aagccccaaa agaaattatc ttcttagagg

2461 gagaaacact tcccacagaa gtgttaacag aggaagttgt cttgaaaact ggtgatttac

2521 aaccattaga acaacctact agtgaagctg ttgaagctcc attggttggt acaccagttt

2581 gtattaacgg gcttatgttg ctcgaaatca aagacacaga aaagtactgt gcccttgcac

2641 ctaatatgat ggtaacaaac aataccttca cactcaaagg cggtgcacca acaaaggtta

2701 cttttggtga tgacactgtg atagaagtgc aaggttacaa gagtgtgaat atcatttttg

2761 aacttgatga aaggattgat aaagtactta atgagaagtg ctctgcctat acagttgaac

2821 tcggtacaga agtaaatgag ttcgcctgtg ttgtggcaga tgctgtcata aaaactttgc

2881 aaccagtatc tgaattactt acaccactgg gcattgattt agatgagtgg agtatggcta

2941 catactactt atttgatgag tctggtgagt ttaaattggc ttcacatatg tattgttctt

3001 tttaccctcc agatgaggat gaagaagaag gtgattgtga agaagaagag tttgagccat

3061 caactcaata tgagtatggt actgaagatg attaccaagg taaacctttg gaatttggtg

3121 ccacttctgc tgctcttcaa cctgaagaag agcaagaaga agattggtta gatgatgata

3181 gtcaacaaac tgttggtcaa caagacggca gtgaggacaa tcagacaact actattcaaa

3241 caattgttga ggttcaacct caattagaga tggaacttac accagttgtt cagactattg

3301 aagtgaatag ttttagtggt tatttaaaac ttactgacaa tgtatacatt aaaaatgcag

3361 acattgtgga agaagctaaa aaggtaaaac caacagtggt tgttaatgca gccaatgttt

3421 accttaaaca tggaggaggt gttgcaggag ccttaaataa ggctactaac aatgccatgc

3481 aagttgaatc tgatgattac atagctacta atggaccact taaagtgggt ggtagttgtg

3541 ttttaagcgg acacaatctt gctaaacact gtcttcatgt tgtcggccca aatgttaaca

3601 aaggtgaaga cattcaactt cttaagagtg cttatgaaaa ttttaatcag cacgaagttc

3661 tacttgcacc attattatca gctggtattt ttggtgctga ccctatacat tctttaagag

3721 tttgtgtaga tactgttcgc acaaatgtct acttagctgt ctttgataaa aatctctatg

3781 acaaacttgt ttcaagcttt ttggaaatga agagtgaaaa gcaagttgaa caaaagatcg

3841 ctgagattcc taaagaggaa gttaagccat ttataactga aagtaaacct tcagttgaac

3901 agagaaaaca agatgataag aaaatcaaag cttgtgttga agaagttaca acaactctgg

3961 aagaaactaa gttcctcaca gaaaacttgt tactttatat tgacattaat ggcaatcttc

4021 atccagattc tgccactctt gttagtgaca ttgacatcac tttcttaaag aaagatgctc

4081 catatatagt gggtgatgtt gttcaagagg gtgttttaac tgctgtggtt atacctacta

4141 aaaaggctag tggcactact gaaatgctag cgaaagcttt gagaaaagtg ccaacagaca

4201 attatataac cacttacccg ggtcagggtt taaatggtta cactgtagag gaggcaaaga

4261 cagtgcttaa aaagtgtaaa agtgcttttt acattctacc atctattatc tctaatgaga

4321 agcaagaaat tcttggaact gtttcttgga atttgcgaga aatgcttgca catgcagaag

4381 aaacacgcaa attaatgcct gtctgtgtgg aaactaaagc catagtttca actatacagc

4441 gtaaatataa gggtattaaa atacaagagg gtgtggttga ttatggtgct agattttact

4501 tttacaccag taaaacaact gtagcgtcac ttatcaacac acttaacgat ctaaatgaaa

4561 ctcttgttac aatgccactt ggctatgtaa cacatggctt aaatttggaa gaagctgctc

4621 ggtatatgag atctctcaaa gtgccagcta cagtttctgt ttcttcacct gatgctgtta

4681 cagcgtataa tggttatctt acttcttctt ctaaaacacc tgaagaacat tttattgaaa

4741 ccatctcact tgctggttcc tataaagatt ggtcctattc tggacaatct acacaactag

4801 gtatagaatt tcttaagaga ggtgataaaa gtgtatatta cactagtaat cctaccacat

4861 tccacctaga tggtgaagtt atcacctttg acaatcttaa gacacttctt tctttgagag

4921 aagtgaggac tattaaggtg tttacaacag tagacaacat taacctccac acgcaagttg

4981 tggacatgtc aatgacatat ggacaacagt ttggtccaac ttatttggat ggagctgatg

5041 ttactaaaat aaaacctcat aattcacatg aaggtaaaac attttatgtt ttacctaatg

5101 atgacactct acgtgttgag gcttttgagt actaccacac aactgatcct agttttctgg

5161 gtaggtacat gtcagcatta aatcacacta aaaagtggaa atacccacaa gttaatggtt

5221 taacttctat taaatgggca gataacaact gttatcttgc cactgcattg ttaacactcc

5281 aacaaataga gttgaagttt aatccacctg ctctacaaga tgcttattac agagcaaggg

5341 ctggtgaagc tgctaacttt tgtgcactta tcttagccta ctgtaataag acagtaggtg

5401 agttaggtga tgttagagaa acaatgagtt acttgtttca acatgccaat ttagattctt

5461 gcaaaagagt cttgaacgtg gtgtgtaaaa cttgtggaca acagcagaca acccttaagg

5521 gtgtagaagc tgttatgtac atgggcacac tttcttatga acaatttaag aaaggtgttc

5581 agataccttg tacgtgtggt aaacaagcta caaaatatct agtacaacag gagtcacctt

5641 ttgttatgat gtcagcacca cctgctcagt atgaacttaa gcatggtaca tttacttgtg

5701 ctagtgagta cactggtaat taccagtgtg gtcactataa acatataact tctaaagaaa

5761 ctttgtattg catagacggt gctttactta caaagtcctc agaatacaaa ggtcctatta

5821 cggatgtttt ctacaaagaa aacagttaca caacaaccat aaaaccagtt acttataaat

5881 tggatggtgt tgtttgtaca gaaattgacc ctaagttgga caattattat aagaaagaca

5941 attcttattt cacagagcaa ccaattgatc ttgtaccaaa ccaaccatat ccaaacgcaa

6001 gcttcgataa ttttaagttt gtatgtgata atatcaaatt tgctgatgat ttaaaccagt

6061 taactggtta taagaaacct gcttcaagag agcttaaagt tacatttttc cctgacttaa

6121 atggtgatgt ggtggctatt gattataaac actacacacc ctcttttaag aaaggagcta

6181 aattgttaca taaacctatt gtttggcatg ttaacaatgc aactaataaa gccacgtata

6241 aaccaaatac ctggtgtata cgttgtcttt ggagcacaaa accagttgaa acatcaaatt

6301 cgtttgatgt actgaagtca gaggacgcgc agggaatgga taatcttgcc tgcgaagatc

6361 taaaaccagt ctctgaagaa gtagtggaaa atcctaccat acagaaagac gttcttgagt

6421 gtaatgtgaa aactaccgaa gttgtaggag acattatact taaaccagca aataatagtt

6481 taaaaattac agaagaggtt ggccacacag atctaatggc tgcttatgta gacaattcta

6541 gtcttactat taagaaacct aatgaattat ctagagtatt aggtttgaaa acccttgcta

6601 ctcatggttt agctgctgtt aatagtgtcc cttgggatac tatagctaat tatgctaagc

6661 cttttcttaa caaagttgtt agtacaacta ctaacatagt tacacggtgt ttaaaccgtg

6721 tttgtactaa ttatatgcct tatttcttta ctttattgct acaattgtgt acttttacta

6781 gaagtacaaa ttctagaatt aaagcatcta tgccgactac tatagcaaag aatactgtta

6841 agagtgtcgg taaattttgt ctagaggctt catttaatta tttgaagtca cctaattttt

6901 ctaaactgat aaatattata atttggtttt tactattaag tgtttgccta ggttctttaa

6961 tctactcaac cgctgcttta ggtgttttaa tgtctaattt aggcatgcct tcttactgta

7021 ctggttacag agaaggctat ttgaactcta ctaatgtcac tattgcaacc tactgtactg

7081 gttctatacc ttgtagtgtt tgtcttagtg gtttagattc tttagacacc tatccttctt

7141 tagaaactat acaaattacc atttcatctt ttaaatggga tttaactgct tttggcttag

7201 ttgcagagtg gtttttggca tatattcttt tcactaggtt tttctatgta cttggattgg

7261 ctgcaatcat gcaattgttt ttcagctatt ttgcagtaca ttttattagt aattcttggc

7321 ttatgtggtt aataattaat cttgtacaaa tggccccgat ttcagctatg gttagaatgt

7381 acatcttctt tgcatcattt tattatgtat ggaaaagtta tgtgcatgtt gtagacggtt

7441 gtaattcatc aacttgtatg atgtgttaca aacgtaatag agcaacaaga gtcgaatgta

7501 caactattgt taatggtgtt agaaggtcct tttatgtcta tgctaatgga ggtaaaggct

7561 tttgcaaact acacaattgg aattgtgtta attgtgatac attctgtgct ggtagtacat

7621 ttattagtga tgaagttgcg agagacttgt cactacagtt taaaagacca ataaatccta

7681 ctgaccagtc ttcttacatc gttgatagtg ttacagtgaa gaatggttcc atccatcttt

7741 actttgataa agctggtcaa aagacttatg aaagacattc tctctctcat tttgttaact

7801 tagacaacct gagagctaat aacactaaag gttcattgcc tattaatgtt atagtttttg

7861 atggtaaatc aaaatgtgaa gaatcatctg caaaatcagc gtctgtttac tacagtcagc

7921 ttatgtgtca acctatactg ttactagatc aggcattagt gtctgatgtt ggtgatagtg

7981 cggaagttgc agttaaaatg tttgatgctt acgttaatac gttttcatca acttttaacg

8041 taccaatgga aaaactcaaa acactagttg caactgcaga agctgaactt gcaaagaatg

8101 tgtccttaga caatgtctta tctactttta tttcagcagc tcggcaaggg tttgttgatt

8161 cagatgtaga aactaaagat gttgttgaat gtcttaaatt gtcacatcaa tctgacatag

8221 aagttactgg cgatagttgt aataactata tgctcaccta taacaaagtt gaaaacatga

8281 caccccgtga ccttggtgct tgtattgact gtagtgcgcg tcatattaat gcgcaggtag

8341 caaaaagtca caacattgct ttgatatgga acgttaaaga tttcatgtca ttgtctgaac

8401 aactacgaaa acaaatacgt agtgctgcta aaaagaataa cttacctttt aagttgacat

8461 gtgcaactac tagacaagtt gttaatgttg taacaacaaa gatagcactt aagggtggta

8521 aaattgttaa taattggttg aagcagttaa ttaaagttac acttgtgttc ctttttgttg

8581 ctgctatttt ctatttaata acacctgttc atgtcatgtc taaacatact gacttttcaa

8641 gtgaaatcat aggatacaag gctattgatg gtggtgtcac tcgtgacata gcatctacag

8701 atacttgttt tgctaacaaa catgctgatt ttgacacatg gtttagccag cgtggtggta

8761 gttatactaa tgacaaagct tgcccattga ttgctgcagt cataacaaga gaagtgggtt

8821 ttgtcgtgcc tggtttgcct ggcacgatat tacgcacaac taatggtgac tttttgcatt

8881 tcttacctag agtttttagt gcagttggta acatctgtta cacaccatca aaacttatag

8941 agtacactga ctttgcaaca tcagcttgtg ttttggctgc tgaatgtaca atttttaaag

9001 atgcttctgg taagccagta ccatattgtt atgataccaa tgtactagaa ggttctgttg

9061 cttatgaaag tttacgccct gacacacgtt atgtgctcat ggatggctct attattcaat

9121 ttcctaacac ctaccttgaa ggttctgtta gagtggtaac aacttttgat tctgagtact

9181 gtaggcacgg cacttgtgaa agatcagaag ctggtgtttg tgtatctact agtggtagat

9241 gggtacttaa caatgattat tacagatctt taccaggagt tttctgtggt gtagatgctg

9301 taaatttatt tactaatatg tttacaccac taattcaacc tattggtgct ttggacatat

9361 cagcatctat agtagctggt ggtattgtgg ctatcgtagt aacatgcctt gcctactatt

9421 ttatgaggtt tagaagagct tttggtgaat acagtcatgt agttgccttt aatactttac

9481 tattccttat gtcattcatt gtactctgtt taacaccagt ttactcattc ttacctggtg

9541 tttattctgt tatttacttg tacttgacat tttatcttac taatgatgtt tcttttttag

9601 cacatattca gtggatggtt atgttcacac ctttagtacc tttctggata acaattgctt

9661 atatcatttg tatttccaca aagcatttct attggttctt tagtaattac ctaaagagac

9721 gtgtagtctt taatggtgtt tcctttagta cttttgaaga agctgcgctg tgcacctttt

9781 tgttaaataa agaaatgtat ctaaagttgc gtagtgatgt gctattacct tttacgcaat

9841 ataatagata cttagctctt tataataagt acaagtattt tagtggagca atggatacaa

9901 ctagctacag agaagctgct tgttgtcatc tcgcaaaggc tctcaatgac ttcagtaact

9961 caggttctga tgttctttac caaccaccac aaatctctat cacctcagct gttttgcaga

10021 gtggttttag aaaaatggca ttcccatctg gtaaagttga gggttgtatg gtacaagtaa

10081 cttgtggtac aactacactt aacggtcttt ggcttgatga cgtagtttac tgtccaagac

10141 atgtgatctg cacctctgaa gatatgctta accctaatta tgaagattta ctcattcgta

10201 agtctaatca taatttcttg gtacaggctg gtaatgttca actcagggtt attggacatt

10261 ctatgcaaaa ttgtgtactt aagcttaagg ttgatacagc caatcctaag acacctaagt

10321 ataagtttgt tcgcattcaa ccaggacaga ctttttcagt gttagcttgt tacaatggtt

10381 caccatctgg tgtttaccaa tgtgctatga gacacaattt cactattaag ggttcattcc

10441 ttaatggttc atgtggtagt gttggtttta acatagatta tgactgtgtc tctttttgtt

10501 acatgcacca tatggaatta ccaactggag ttcatgctgg cacagactta gaaggtaact

10561 tttatggacc ttttgttgac aggcaaacag cacaagcagc tggtacggac acaactatta

10621 cagttaatgt tttagcttgg ttgtacgctg ctgttataaa tggagacagg tggtttctca

10681 atcgatttac cacaactctt aatgacttta accttgtggc tatgaagtac aattatgaac

10741 ctctaacaca agaccatgtt gacatactag gacctctttc tgctcaaact ggaattgccg

10801 ttttagatat gtgtgcttca ttaaaagaat tactgcaaaa tggtatgaat ggacgtacca

10861 tattgggtag tgctttatta gaagatgaat ttacaccttt tgatgttgtt agacaatgct

10921 caggtgttac tttccaaagt gcagtgaaaa gaacaatcaa gggtacacac cactggttgt

10981 tactcacaat tttgacttca cttttagttt tagtccagag tactcaatgg tctttgttct

11041 tttttttgta tgaaaatgcc tttttacctt ttgctatggg tattattgct atgtctgctt

11101 ttgcaatgat gtttgtcaaa cataagcatg catttctctg tttgtttttg ttaccttctc

11161 ttgccactgt agcttatttt aatatggtct atatgcctgc tagttgggtg atgcgtatta

11221 tgacatggtt ggatatggtt gatactagtt tgaagctaaa agactgtgtt atgtatgcat

11281 cagctgtagt gttactaatc cttatgacag caagaactgt gtatgatgat ggtgctagga

11341 gagtgtggac acttatgaat gtcttgacac tcgtttataa agtttattat ggtaatgctt

11401 tagatcaagc catttccatg tgggctctta taatctctgt tacttctaac tactcaggtg

11461 tagttacaac tgtcatgttt ttggccagag gtattgtttt tatgtgtgtt gagtattgcc

11521 ctattttctt cataactggt aatacacttc agtgtataat gctagtttat tgtttcttag

11581 gctatttttg tacttgttac tttggcctct tttgtttact caaccgctac tttagactga

11641 ctcttggtgt ttatgattac ttagtttcta cacaggagtt tagatatatg aattcacagg

11701 gactactccc acccaagaat agcatagatg ccttcaaact caacattaaa ttgttgggtg

11761 ttggtggcaa accttgtatc aaagtagcca ctgtacagtc taaaatgtca gatgtaaagt

11821 gcacatcagt agtcttactc tcagttttgc aacaactcag agtagaatca tcatctaaat

11881 tgtgggctca atgtgtccag ttacacaatg acattctctt agctaaagat actactgaag

11941 cctttgaaaa aatggtttca ctactttctg ttttgctttc catgcagggt gctgtagaca

12001 taaacaagct ttgtgaagaa atgctggaca acagggcaac cttacaagct atagcctcag

12061 agtttagttc ccttccatca tatgcagctt ttgctactgc tcaagaagct tatgagcagg

12121 ctgttgctaa tggtgattct gaagttgttc ttaaaaagtt gaagaagtct ttgaatgtgg

12181 ctaaatctga atttgaccgt gatgcagcca tgcaacgtaa gttggaaaag atggctgatc

12241 aagctatgac ccaaatgtat aaacaggcta gatctgagga caagagggca aaagttacta

12301 gtgctatgca gacaatgctt ttcactatgc ttagaaagtt ggataatgat gcactcaaca

12361 acattatcaa caatgcaaga gatggttgtg ttcccttgaa cataatacct cttacaacag

12421 cagccaaact aatggttgtc ataccagact ataacacata taaaaatacg tgtgatggta

12481 caacatttac ttatgcatca gcattgtggg aaatccaaca ggttgtagat gcagatagta

12541 aaattgttca acttagtgaa attagtatgg acaattcacc taatttagca tggcctctta

12601 ttgtaacagc tttaagggcc aattctgctg tcaaattaca gaataatgag cttagtcctg

12661 ttgcactacg acagatgtct tgtgctgccg gtactacaca aactgcttgc actgatgaca

12721 atgcgttagc ttactacaac acaacaaagg gaggtaggtt tgtacttgca ctgttatccg

12781 atttacagga tttgaaatgg gctagattcc ctaagagtga tggaactggt actatttata

12841 cagaactgga accaccttgt aggtttgtta cagacacacc taaaggtcct aaagtgaagt

12901 atttatactt tattaaagga ttaaacaacc taaatagagg tatggtactt ggtagtttag

12961 ctgccacagt acgtctacaa gctggtaatg caacagaagt gcctgccaat tcaactgtat

13021 tatctttctg tgcttttgct gtagatgctg ctaaagctta caaagattat ctagctagtg

13081 ggggacaacc aatcactaat tgtgttaaga tgttgtgtac acacactggt actggtcagg

13141 caataacagt tacaccggaa gccaatatgg atcaagaatc ctttggtggt gcatcgtgtt

13201 gtctgtactg ccgttgccac atagatcatc caaatcctaa aggattttgt gacttaaaag

13261 gtaagtatgt acaaatacct acaacttgtg ctaatgaccc tgtgggtttt acacttaaaa

13321 acacagtctg taccgtctgc ggtatgtgga aaggttatgg ctgtagttgt gatcaactcc

13381 gcgaacccat gcttcagtca gctgatgcac aatcgttttt aaacgggttt gcggtgtaag

13441 tgcagcccgt cttacaccgt gcggcacagg cactagtact gatgtcgtat acagggcttt

13501 tgacatctac aatgataaag tagctggttt tgctaaattc ctaaaaacta attgttgtcg

13561 cttccaagaa aaggacgaag atgacaattt aattgattct tactttgtag ttaagagaca

13621 cactttctct aactaccaac atgaagaaac aatttataat ttacttaagg attgtccagc

13681 tgttgctaaa catgacttct ttaagtttag aatagacggt gacatggtac cacatatatc

13741 acgtcaacgt cttactaaat acacaatggc agacctcgtc tatgctttaa ggcattttga

13801 tgaaggtaat tgtgacacat taaaagaaat acttgtcaca tacaattgtt gtgatgatga

13861 ttatttcaat aaaaaggact ggtatgattt tgtagaaaac ccagatatat tacgcgtata

13921 cgccaactta ggtgaacgtg tacgccaagc tttgttaaaa acagtacaat tctgtgatgc

13981 catgcgaaat gctggtattg ttggtgtact gacattagat aatcaagatc tcaatggtaa

14041 ctggtatgat ttcggtgatt tcatacaaac cacgccaggt agtggagttc ctgttgtaga

14101 ttcttattat tcattgttaa tgcctatatt aaccttgacc agggctttaa ctgcagagtc

14161 acatgttgac actgacttaa caaagcctta cattaagtgg gatttgttaa aatatgactt

14221 cacggaagag aggttaaaac tctttgaccg ttattttaaa tattgggatc agacatacca

14281 cccaaattgt gttaactgtt tggatgacag atgcattctg cattgtgcaa actttaatgt

14341 tttattctct acagtgttcc cacttacaag ttttggacca ctagtgagaa aaatatttgt

14401 tgatggtgtt ccatttgtag tttcaactgg ataccacttc agagagctag gtgttgtaca

14461 taatcaggat gtaaacttac atagctctag acttagtttt aaggaattac ttgtgtatgc

14521 tgctgaccct gctatgcacg ctgcttctgg taatctatta ctagataaac gcactacgtg

14581 cttttcagta gctgcactta ctaacaatgt tgcttttcaa actgtcaaac ccggtaattt

14641 taacaaagac ttctatgact ttgctgtgtc taagggtttc tttaaggaag gaagttctgt

14701 tgaattaaaa cacttcttct ttgctcagga tggtaatgct gctatcagcg attatgacta

14761 ctatcgttat aatctaccaa caatgtgtga tatcagacaa ctactatttg tagttgaagt

14821 tgttgataag tactttgatt gttacgatgg tggctgtatt aatgctaacc aagtcatcgt

14881 caacaaccta gacaaatcag ctggttttcc atttaataaa tggggtaagg ctagacttta

14941 ttatgattca atgagttatg aggatcaaga tgcacttttc gcatatacaa aacgtaatgt

15001 catccctact ataactcaaa tgaatcttaa gtatgccatt agtgcaaaga atagagctcg

15061 caccgtagct ggtgtctcta tctgtagtac tatgaccaat agacagtttc atcaaaaatt

15121 attgaaatca atagccgcca ctagaggagc tactgtagta attggaacaa gcaaattcta

15181 tggtggttgg cacaacatgt taaaaactgt ttatagtgat gtagaaaacc ctcaccttat

15241 gggttgggat tatcctaaat gtgatagagc catgcctaac atgcttagaa ttatggcctc

15301 acttgttctt gctcgcaaac atacaacgtg ttgtagcttg tcacaccgtt tctatagatt

15361 agctaatgag tgtgctcaag tattgagtga aatggtcatg tgtggcggtt cactatatgt

15421 taaaccaggt ggaacctcat caggagatgc cacaactgct tatgctaata gtgtttttaa

15481 catttgtcaa gctgtcacgg ccaatgttaa tgcactttta tctactgatg gtaacaaaat

15541 tgccgataag tatgtccgca atttacaaca cagactttat gagtgtctct atagaaatag

15601 agatgttgac acagactttg tgaatgagtt ttacgcatat ttgcgtaaac atttctcaat

15661 gatgatactt tctgacgatg ctgttgtgtg tttcaatagc acttatgcat ctcaaggtct

15721 agtggctagc ataaagaact ttaagtcagt tctttattat caaaacaatg tttttatgtc

15781 tgaagcaaaa tgttggactg agactgacct tactaaagga cctcatgaat tttgctctca

15841 acatacaatg ctagttaaac agggtgatga ttatgtgtac cttccttacc cagatccatc

15901 aagaatccta ggggccggct gttttgtaga tgatatcgta aaaacagatg gtacacttat

15961 gattgaacgg ttcgtgtctt tagctataga tgcttaccca cttactaaac atcctaatca

16021 ggagtatgct gatgtctttc atttgtactt acaatacata agaaagctac atgatgagtt

16081 aacaggacac atgttagaca tgtattctgt tatgcttact aatgataaca cttcaaggta

16141 ttgggaacct gagttttatg aggctatgta cacaccgcat acagtcttac aggctgttgg

16201 ggcttgtgtt ctttgcaatt cacagacttc attaagatgt ggtgcttgca tacgtagacc

16261 attcttatgt tgtaaatgct gttacgacca tgtcatatca acatcacata aattagtctt

16321 gtctgttaat ccgtatgttt gcaatgctcc aggttgtgat gtcacagatg tgactcaact

16381 ttacttagga ggtatgagct attattgtaa atcacataaa ccacccatta gttttccatt

16441 gtgtgctaat ggacaagttt ttggtttata taaaaataca tgtgttggta gcgataatgt

16501 tactgacttt aatgcaattg caacatgtga ctggacaaat gctggtgatt acattttagc

16561 taacacctgt actgaaagac tcaagctttt tgcagcagaa acgctcaaag ctactgagga

16621 gacatttaaa ctgtcttatg gtattgctac tgtacgtgaa gtgctgtctg acagagaatt

16681 acatctttca tgggaagttg gtaaacctag accaccactt aaccgaaatt atgtctttac

16741 tggttatcgt gtaactaaaa acagtaaagt acaaatagga gagtacacct ttgaaaaagg

16801 tgactatggt gatgctgttg tttaccgagg tacaacaact tacaaattaa atgttggtga

16861 ttattttgtg ctgacatcac atacagtaat gccattaagt gcacctacac tagtgccaca

16921 agagcactat gttagaatta ctggcttata cccaacactc aatatctcag atgagttttc

16981 tagcaatgtt gcaaattatc aaaaggttgg tatgcaaaag tattctacac tccagggacc

17041 acctggtact ggtaagagtc attttgctat tggcctagct ctctactacc cttctgctcg

17101 catagtgtat acagcttgct ctcatgccgc tgttgatgca ctatgtgaga aggcattaaa

17161 atatttgcct atagataaat gtagtagaat tatacctgca cgtgctcgtg tagagtgttt

17221 tgataaattc aaagtgaatt caacattaga acagtatgtc ttttgtactg taaatgcatt

17281 gcctgagacg acagcagata tagttgtctt tgatgaaatt tcaatggcca caaattatga

17341 tttgagtgtt gtcaatgcca gattatgtgc taagcactat gtgtacattg gcgaccctgc

17401 tcaattacct gcaccacgca cattgctaac taagggcaca ctagaaccag aatatttcaa

17461 ttcagtgtgt agacttatga aaactatagg tccagacatg ttcctcggaa cttgtcggcg

17521 ttgtcctgct gaaattgttg acactgtgag tgctttggtt tatgataata agcttaaagc

17581 acataaagac aaatcagctc aatgctttaa aatgttttat aagggtgtta tcacgcatga

17641 tgtttcatct gcaattaaca ggccacaaat aggcgtggta agagaattcc ttacacgtaa

17701 ccctgcttgg agaaaagctg tctttatttc accttataat tcacagaatg ctgtagcctc

17761 aaagattttg ggactaccaa ctcaaactgt tgattcatca cagggctcag aatatgacta

17821 tgtcatattc actcaaacca ctgaaacagc tcactcttgt aatgtaaaca gatttaatgt

17881 tgctattacc agagcaaaag taggcatact ttgcataatg tctgatagag acctttatga

17941 caagttgcaa tttacaagtc ttgaaattcc acgtaggaat gtggcaactt tacaagctga

18001 aaatgtaaca ggactcttta aagattgtag taaggtaatc actgggttac atcctacaca

18061 ggcacctaca cacctcagtg ttgacactaa attcaaaact gaaggtttat gtgttgacgt

18121 acctggcata cctaaggaca tgacctatag aagactcatc tctatgatgg gttttaaaat

18181 gaattatcaa gttaatggtt accctaacat gtttatcacc cgcgaagaag ctataagaca

18241 tgtacgtgca tggattggct tcgatgtcga ggggtgtcat gctactagag aagctgttgg

18301 taccaattta cctttacagc taggtttttc tacaggtgtt aacctagttg ctgtacctac

18361 aggttatgtt gatacaccta ataatacaga tttttccaga gttagtgcta aaccaccgcc

18421 tggagatcaa tttaaacacc tcataccact tatgtacaaa ggacttcctt ggaatgtagt

18481 gcgtataaag attgtacaaa tgttaagtga cacacttaaa aatctctctg acagagtcgt

18541 atttgtctta tgggcacatg gctttgagtt gacatctatg aagtattttg tgaaaatagg

18601 acctgagcgc acctgttgtc tatgtgatag acgtgccaca tgcttttcca ctgcttcaga

18661 cacttatgcc tgttggcatc attctattgg atttgattac gtctataatc cgtttatgat

18721 tgatgttcaa caatggggtt ttacaggtaa cctacaaagc aaccatgatc tgtattgtca

18781 agtccatggt aatgcacatg tagctagttg tgatgcaatc atgactaggt gtctagctgt

18841 ccacgagtgc tttgttaagc gtgttgactg gactattgaa tatcctataa ttggtgatga

18901 actgaagatt aatgcggctt gtagaaaggt tcaacacatg gttgttaaag ctgcattatt

18961 agcagacaaa ttcccagttc ttcacgacat tggtaaccct aaagctatta agtgtgtacc

19021 tcaagctgat gtagaatgga agttctatga tgcacagcct tgtagtgaca aagcttataa

19081 aatagaagaa ttattctatt cttatgccac acattctgac aaattcacag atggtgtatg

19141 cctattttgg aattgcaatg tcgatagata tcctgctaat tccattgttt gtagatttga

19201 cactagagtg ctatctaacc ttaacttgcc tggttgtgat ggtggcagtt tgtatgtaaa

19261 taaacatgca ttccacacac cagcttttga taaaagtgct tttgttaatt taaaacaatt

19321 accatttttc tattactctg acagtccatg tgagtctcat ggaaaacaag tagtgtcaga

19381 tatagattat gtaccactaa agtctgctac gtgtataaca cgttgcaatt taggtggtgc

19441 tgtctgtaga catcatgcta atgagtacag attgtatctc gatgcttata acatgatgat

19501 ctcagctggc tttagcttgt gggtttacaa acaatttgat acttataacc tctggaacac

19561 ttttacaaga cttcagagtt tagaaaatgt ggcttttaat gttgtaaata agggacactt

19621 tgatggacaa cagggtgaag taccagtttc tatcattaat aacactgttt acacaaaagt

19681 tgatggtgtt gatgtagaat tgtttgaaaa taaaacaaca ttacctgtta atgtagcatt

19741 tgagctttgg gctaagcgca acattaaacc agtaccagag gtgaaaatac tcaataattt

19801 gggtgtggac attgctgcta atactgtgat ctgggactac aaaagagatg ctccagcaca

19861 tatatctact attggtgttt gttctatgac tgacatagcc aagaaaccaa ttgaaacgat

19921 ttgtgcacca ctcactgtct tttttgatgg tagagttgat ggtcaagtag acttatttag

19981 aaatgcccgt aatggtgttc ttattacaga gggtagtgtt aaaggtttac aaccatctgt

20041 aggtcccaaa caagctagtc ttaatggagt cacattaatt ggagaagccg taaaaacaca

20101 gttcaattat tataagaaag ttgatggtgt tgtccaacaa ttacctgaaa cttactttac

20161 tcagagtaga aatttacaag aatttaaacc caggagtcaa atggaaattg atttcttaga

20221 attagctatg gatgaattca ttgaacggta taaattagaa ggctatgcct tcgaacatat

20281 cgtttatgga gattttagtc atagtcagtt aggtggttta catctactga ttggactagc

20341 taaacgtttt aaggaatcac cttttgaatt agaagatttt attcctatgg acagtacagt

20401 taaaaactat ttcataacag atgcgcaaac aggttcatct aagtgtgtgt gttctgttat

20461 tgatttatta cttgatgatt ttgttgaaat aataaaatcc caagatttat ctgtagtttc

20521 taaggttgtc aaagtgacta ttgactatac agaaatttca tttatgcttt ggtgtaaaga

20581 tggccatgta gaaacatttt acccaaaatt acaatctagt caagcgtggc aaccgggtgt

20641 tgctatgcct aatctttaca aaatgcaaag aatgctatta gaaaagtgtg accttcaaaa

20701 ttatggtgat agtgcaacat tacctaaagg cataatgatg aatgtcgcaa aatatactca

20761 actgtgtcaa tatttaaaca cattaacatt agctgtaccc tataatatga gagttataca

20821 ttttggtgct ggttctgata aaggagttgc accaggtaca gctgttttaa gacagtggtt

20881 gcctacgggt acgctgcttg tcgattcaga tcttaatgac tttgtctctg atgcagattc

20941 aactttgatt ggtgattgtg caactgtaca tacagctaat aaatgggatc tcattattag

21001 tgatatgtac gaccctaaga ctaaaaatgt tacaaaagaa aatgactcta aagagggttt

21061 tttcacttac atttgtgggt ttatacaaca aaagctagct cttggaggtt ccgtggctat

21121 aaagataaca gaacattctt ggaatgctga tctttataag ctcatgggac acttcgcatg

21181 gtggacagcc tttgttacta atgtgaatgc gtcatcatct gaagcatttt taattggatg

21241 taattatctt ggcaaaccac gcgaacaaat agatggttat gtcatgcatg caaattacat

21301 attttggagg aatacaaatc caattcagtt gtcttcctat tctttatttg acatgagtaa

21361 atttcccctt aaattaaggg gtactgctgt tatgtcttta aaagaaggtc aaatcaatga

21421 tatgatttta tctcttctta gtaaaggtag acttataatt agagaaaaca acagagttgt

21481 tatttctagt gatgttcttg ttaacaacta aacgaacaat gtttgttttt cttgttttat

21541 tgccactagt ctctagtcag tgtgttaatc ttataaccag aactcaatca tacactaatt

21601 ctttcacacg tggtgtttat taccctgaca aagttttcag atcctcagtt ttacattcaa

21661 ctcaggactt gttcttacct ttcttttcca atgttacttg gttccatgct atacatgtct

21721 ctgggaccaa tggtactaag aggtttgata accctgtcct accatttaat gatggtgttt

21781 attttgcttc cactgagaag tctaacataa taagaggctg gatttttggt actactttag

21841 attcgaagac ccagtcccta cttattgtta ataacgctac taatgttgtt attaaagtct

21901 gtgaatttca attttgtaat gatccatttt tgggtgttta ttaccacaaa aacaacaaaa

21961 gttggatgga aagtgagttc agagtttatt ctagtgcgaa taattgcact tttgaatatg

22021 tctctcagcc ttttcttatg gaccttgaag gaaaacaggg taatttcaaa aatcttaggg

22081 aatttgtgtt taagaatatt gatggttatt ttaaaatata ttctaagcac acgcctatta

22141 atttagggcg tgatctccct cagggttttt cggctttaga accattggta gatttgccaa

22201 taggtattaa catcactagg tttcaaactt tacttgcttt acatagaagt tatttgactc

22261 ctggtgattc ttcttcaggt tggacagctg gtgctgcagc ttattatgtg ggttatcttc

22321 aacctaggac ttttctatta aaatataatg aaaatggaac cattacagat gctgtagact

22381 gtgcacttga ccctctctca gaaacaaagt gtacgttgaa atccttcact gtagaaaaag

22441 gaatctatca aacttctaac tttagagtcc aaccaacaga atctattgtt agatttccta

22501 atattacaaa cttgtgccct tttgatgaag tttttaacgc caccagattt gcatctgttt

22561 atgcttggaa caggaagaga atcagcaact gtgttgctga ttattctgtc ctatataatt

22621 tcgcaccatt tttcgctttt aagtgttatg gagtgtctcc tactaaatta aatgatctct

22681 gctttactaa tgtctatgca gattcatttg taattagagg taatgaagtc agccaaatcg

22741 ctccagggca aactggaaat attgctgatt ataattataa attaccagat gattttacag

22801 gctgcgttat agcttggaat tctaacaagc ttgattctaa ggttggtggt aattataatt

22861 acctgtatag attgtttagg aagtctaatc tcaaaccttt tgagagagat atttcaactg

22921 aaatctatca ggccggtaac aaaccttgta atggtgttgc aggttttaat tgttactttc

22981 ctttacgatc atatggtttc cgacccactt atggtgttgg tcaccaacca tacagagtag

23041 tagtactttc ttttgaactt ctacatgcac cagcaactgt ttgtggacct aaaaagtcta

23101 ctaatttggt taaaaacaaa tgtgtcaatt tcaacttcaa tggtttaaca ggcacaggtg

23161 ttcttactga gtctaacaaa aagtttctgc ctttccaaca atttggcaga gacattgctg

23221 acactactga tgctgtccgt gatccacaga cacttgagat tcttgacatt acaccatgtt

23281 cttttggtgg tgtcagtgtt ataacaccag gaacaaatac ttctaaccag gttgctgttc

23341 tttatcaggg tgttaactgc acagaagtcc ctgttgctat tcatgcagat caacttactc

23401 ctacttggcg tgtttattct acaggttcta atgtttttca aacacgtgca ggctgtttaa

23461 taggggctga atatgtcaac aactcatatg agtgtgacat acccattggt gcaggtatat

23521 gcgctagtta tcagactcag actaagtctc atcggcgggc acgtagtgta gctagtcaat

23581 ccatcattgc ctacactatg tcacttggtg cagaaaattc agttgcttac tctaataact

23641 ctattgccat acccacaaat tttactatta gtgttaccac agaaattcta ccagtgtcta

23701 tgaccaagac atcagtagat tgtacaatgt acatttgtgg tgattcaact gaatgcagca

23761 atcttttgtt gcaatatggc agtttttgta cacaattaaa acgtgcttta actggaatag

23821 ctgttgaaca agacaaaaac acccaagaag tttttgcaca agtcaaacaa atttacaaaa

23881 caccaccaat taaatatttt ggtggtttta atttttcaca aatattacca gatccatcaa

23941 aaccaagcaa gaggtcattt attgaagatc tacttttcaa caaagtgaca cttgcagatg

24001 ctggcttcat caaacaatat ggtgattgcc ttggtgatat tgctgctaga gacctcattt

24061 gtgcacaaaa gtttaacggc cttactgttt tgccaccttt gctcacagat gaaatgattg

24121 ctcaatacac ttctgcactg ttagcgggta caatcacttc tggttggacc tttggtgcag

24181 gtgctgcatt acaaatacca tttgctatgc aaatggctta taggtttaat ggtattggag

24241 ttacacagaa tgttctctat gagaaccaaa aattgattgc caaccaattt aatagtgcta

24301 ttggcaaaat tcaagactca ctttcttcca cagcaagtgc acttggaaaa cttcaagatg

24361 tggtcaacca taatgcacaa gctttaaaca cgcttgttaa acaacttagc tccaaatttg

24421 gtgcaatttc aagtgtttta aatgatatcc tttcacgtct tgacaaagtt gaggctgaag

24481 tgcaaattga taggttgatc acaggcagac ttcaaagttt gcagacatat gtgactcaac

24541 aattaattag agctgcagaa atcagagctt ctgctaatct tgctgctact aaaatgtcag

24601 agtgtgtact tggacaatca aaaagagttg atttttgtgg aaagggctat catcttatgt

24661 ccttccctca gtcagcacct catggtgtag tcttcttgca tgtgacttat gtccctgcac

24721 aagaaaagaa cttcacaact gctcctgcca tttgtcatga tggaaaagca cactttcctc

24781 gtgaaggtgt ctttgtttca aatggcacac actggtttgt aacacaaagg aatttttatg

24841 aaccacaaat cattactaca gacaacacat ttgtgtctgg taactgtgat gttgtaatag

24901 gaattgtcaa caacacagtt tatgatcctt tgcaacctga attagactca ttcaaggagg

24961 agttagataa atattttaag aatcatacat caccagatgt tgatttaggt gacatctctg

25021 gcattaatgc ttcagttgta aacattcaaa aagaaattga ccgcctcaat gaggttgcca

25081 agaatttaaa tgaatctctc atcgatctcc aagaacttgg aaagtatgag cagtatataa

25141 aatggccatg gtacatttgg ctaggtttta tagctggctt gattgccata gtaatggtga

25201 caattatgct ttgctgtatg accagttgct gtagttgtct caagggctgt tgttcttgtg

25261 gatcctgctg caaatttgat gaagacgact ctgagccagt gctcaaagga gtcaaattac

25321 attacacata aacgaactta tggatttgtt tatgagaatc tttacaattg gaactgtaac

25381 tttgaagcaa ggtgaaatca aggatgctac tccttcagat tttgttcgcg ctactgcaac

25441 gataccgata caagcctcac tccctttcgg atggcttatt gttggcgttg cacttcttgc

25501 tgtttttcag agcgcttcca aaatcataac tctcaaaaag agatggcaac tagcactctc

25561 caagggtgtt cactttgttt gcaacttgct gttgttgttt gtaacagttt actcacacct

25621 tttgctcgtt gctgctggcc ttgaagcccc ttttctctat ctttatgctt tagtctactt

25681 cttgcagagt ataaactttg taagaataat aatgaggctt tggctttgct ggaaatgccg

25741 ttccaaaaac ccattacttt atgatgccaa ctattttctt tgctggcata ctaattgtta

25801 cgactattgt ataccttaca atagtgtaac ttcttcaatt gtcattactt caggtgatgg

25861 cacaacaagt cctatttctg aacatgacta ccagattggt ggttatactg aaaaatggga

25921 atctggagta aaagactgtg ttgtattaca cagttacttc acttcagact attaccagct

25981 gtactcaact caattgagta cagacattgg tgttgaacat gttaccttct tcatctacaa

26041 taaaattgtt gatgagcctg aagaacatgt ccaaattcac acaatcgacg gttcatccgg

26101 agttgttaat ccagtaatgg aaccaattta tgatgaaccg acgacgacta ctagcgtgcc

26161 tttgtaagca caagctgatg agtacgaact tatgtactca ttcgtttcgg aagagatagg

26221 tacgttaata gttaatagcg tacttctttt tcttgctttc gtggtattct tgctagttac

26281 actagccatc cttactgcgc ttcgattgtg tgcgtactgc tgcaatattg ttaacgtgag

26341 tcttgtaaaa ccttcttttt acgtttactc tcgtgttaaa aatctgaatt cttctagagt

26401 tcctgatctt ctggtctaaa cgaactaaat attatattag tttttctgtt tggaacttta

26461 attttagcca tggcagattc caacggtact attaccgttg aagagcttaa aaagctcctt

26521 gaagaatgga acctagtaat aggtttccta ttccttacat ggatttgtct tctacaattt

26581 gcctatgcca acaggaatag gtttttgtat ataattaagt taattttcct ctggctgtta

26641 tggccagtaa ctttaacttg ttttgtgctt gctgctgttt acagaataaa ttggatcacc

26701 ggtggaattg ctatcgcaat ggcttgtctt gtaggcttga tgtggctcag ctacttcatt

26761 gcttctttca gactgtttgc gcgtacgcgt tccatgtggt catttaatcc agaaactaac

26821 attcttctca acgtgccact ccatggcact attctgacca gaccgcttct agaaagtgaa

26881 ctcgtaatcg gagctgtgat ccttcgtgga catcttcgta ttgctggaca ccatctagga

26941 cgctgtgaca tcaaggacct gcctaaagaa atcactgttg ctacatcacg aacgctttct

27001 tattacaaat tgggagcttc gcagcgtgta gcaggtgact caggttttgc tgcatacagt

27061 cgctacagga ttggcaacta taaattaaac acagaccatt ccagtagcag tgacaatatt

27121 gctttgcttg tacagtaagt gacaacagat gtttcatctc gttgactttc aggttactat

27181 agcagagata ttactaatta ttatgcggac ttttaaagtt tccatttgga atcttgatta

27241 catcataaac ctcataatta aaaatttatc taagtcacta actgagaata aatattctca

27301 attagatgaa gagcaaccaa tggagattct ctaaacgaac atgaaaatta ttcttttctt

27361 ggcactgata acactcgcta cttgtgagct ttatcactac caagagtgtg ttagaggtac

27421 aacagtactt ttaaaagaac cttgctcttc tggaacatac gagggcaatt caccatttca

27481 tcctctagct gataacaaat ttgcactgac ttgctttagc actcaatttg cttttgcttg

27541 tcctgacggc gtaaaacacg tctatcagtt acgtgccaga tcagtttcac ctaaactgtt

27601 catcagacaa gaggaagttc aagaacttta ctctccaatt tttcttattg ttgcggcaat

27661 agtgtttata acactttgct tcacactcaa aagaaagaca gaatgattga actttcatta

27721 attgacttct atttgtgctt tttagccttt ctgttattcc ttgttttaat tatgcttatt

27781 atcttttggt tctcacttga actgcaagat cataatgaaa cttgtcacgc ctaaacgaac

27841 atgaaatttc ttgttttctt aggaatcatc acaactgtag ctgcatttca ccaagaatgt

27901 agtttacagt catgtactca acatcaacca tatgtagttg atgacccgtg tcctattcac

27961 ttctattcta aatggtatat tagagtagga gctagaaaat cagcaccttt aattgaattg

28021 tgcgtggatg aggctggttc taaatcaccc attcagtaca tcgatatcgg taattataca

28081 gtttcctgtt taccttttac aattaattgc caggaaccta aattgggtag tcttgtagtg

28141 cgttgttcgt tctatgaaga ctttttagag tatcatgacg ttcgtgttgt tttagatttc

28201 atctaaacga acaaacttaa atgtctgata atggacccca aaatcagcga aatgcactcc

28261 gcattacgtt tggtggaccc tcagattcaa ctggcagtaa ccagaatggt ggggcgcgat

28321 caaaacaacg tcggccccaa ggtttaccca ataatactgc gtcttggttc accgctctca

28381 ctcaacatgg caaggaagac cttaaattcc ctcgaggaca aggcgttcca attaacacca

28441 atagcagtcc agatgaccaa attggctact accgaagagc taccagacga attcgtggtg

28501 gtgacggtaa aatgaaagat ctcagtccaa gatggtattt ctactaccta ggaactgggc

28561 cagaagctgg acttccctat ggtgctaaca aagacggcat catatgggtt gcaactgagg

28621 gagccttgaa tacaccaaaa gatcacattg gcacccgcaa tcctgctaac aatgctgcaa

28681 tcgtgctaca acttcctcaa ggaacaacat tgccaaaagg cttctacgca gaagggagca

28741 gaggcggcag tcaagcctct tctcgttcct catcacgtag tcgcaacagt tcaagaaatt

28801 caactccagg cagcagtaaa cgaacttctc ctgctagaat ggctggcaat ggcggtgatg

28861 ctgctcttgc tttgctgctg cttgacagat tgaaccagct tgagagcaaa atgtctggta

28921 aaggccaaca acaacaaggc caaactgtca ctaagaaatc tgctgctgag gcttctaaga

28981 agcctcggca aaaacgtact gccactaaag catacaatgt aacacaagct ttcggcagac

29041 gtggtccaga acaaacccaa ggaaattttg gggaccagga actaatcaga caaggaactg

29101 attacaaaca ttggccgcaa attgcacaat ttgcccccag cgcttcagcg ttcttcggaa

29161 tgtcgcgcat tggcatggaa gtcacacctt cgggaacgtg gttgacctac acaggtgcca

29221 tcaaattgga tgacaaagat ccaaatttca aagatcaagt cattttgctg aataagcata

29281 ttgacgcata caaaacattc ccaccaacag agcctaaaaa ggacaaaaag aagaaggctg

29341 atgaaactca agccttaccg cagagacaga agaaacagca aactgtgact cttcttcctg

29401 ctgcagattt ggatgatttc tccaaacaat tgcaacaatc catgagccgt gctgactcaa

29461 ctcaggccta aactcatgca gaccacacaa ggcagatggg ctatataaac gttttcgctt

29521 ttccgtttac gatatatagt ctactcttgt gcagaatgaa ttctcgtaac tacatagcac

29581 aagtagatgt agttaacttt aatctcacat agcaatcttt aatcagtgtg taacattagg

29641 gaggacttga aagagccacc acattttcac ctacagtgaa caatgctagg gagagctgcc

29701 tatatggaag agccctaatg tgtaaaatta attttagtag tgctatcccc atgtgatttt

29761 aatag

//