

S3 Table.

Predicted gene	Amino acid sequence
1	MAEEAYAPLKSIVIVGGGSAGWMTAAALS DAVGKSCSITLIESE AIGTVGVG EATIPPIRQFNARIGIDEATFVKETAGSYKLG IQFVDWSRK GHSYFHPFGQY GAEDKVPFYHYWMREALDGR IAGPIDEF SMCWAMAKAGK FARPEPDRRK IQSTFDYAYHFDAGLYAAFLRRVSEARGVKRIEGRVTDVIQRGEDGFIESVT LDKGT SVSGELFIDCSGFRGL LIEDTLKAGYENWQH WLP CDRAVAVPCA KQ AEITPYTRSTAKEAGWQWR IPLQHRTGNGYVHCSEFISEDEATETLMGSLD GEAQADPRTLRFVTGRRKKFW DKNCVAIGLSAGFMEPLESTSLHLIQYGILR LIALLPDSEMSPLLAREYNRQT ADEYARIRDFLILHYKATTRDDAELWRYCSA MDIPESLQYKIDHFRNYGLLV ADERELFANPSWIAVYMGQDIMPRRAPAITE MRDGPVPAQRMQMISQAMREAVAQMPTHADFLARHCPSPLAS
2	MSNTNVQKLVIVGGGTAGWITAAAFSRLMGR TLSIELVESDAIGTVGVGEAT IPQIIRLNRLGLDEHDFVKRTNGTFKLGIEFVDWGDVGTRYLHTFGDAGMNL ASVPFHHYWKRAEASGSRHSLWHYSLHQLA ANHAKFGKLD RLVGNTSMTG LAYAYHFDASLYAAYLRAFSEQKGVTRTEGIVQSVARDGESGDITSITLDNG REIAGDFFIDCTGFRALLGQELGVGYQDWSK WLP CDSAQAVPSE RLETLV PFTRATAKTAGWQWR IPLQHRTGNGHVYCSDFISDEEAGETLLAGLDTKPL ADPRPIRFTTGRREQFWSNNCAAIGLSSGFLEPLESTSIHLIQSHVSRLLQLF PASNRSDVERAEYNRRCEAEFEQIRDFLILHYHQT NREDSEFWRYCRNMD VPDSLTHKQELFASSGRVGRDADDFREASWVQVM LGQGVTPQSHDAMA NGLSDAQLSEFLGNVRTLIERAVGTLPTHEQY LKQNCAAAEAA
3	MAIQHIVIVGGGTAGWMAAAALSRLKSGRTLDITLIESEQIGTVGVGEATIPP FVGFNDLLGIPESSELLSNVQGT FKLGIQFENW GKRGD SYIHPFGAYGYTMG GISFHHVWHKLAKEGDNRP IQVFNVTMAAYFGKFM RSEDYQKQRDDL PPI NYAYHLDAGKYAAFLRGYAEKRGVVRQEGRVDDVSLDGETGFVTGVTLDD GRKIDGDLFIDCSGFRGLLIEQALGTGYEDWTH WLP CNRAVALPCGRDDGS PPPPFTRATAHSAGWQWQVPLQHRNGNGHVYCS EFMEDQEALDILLGNIA GKPQADPNFLRFTTGRRKKFWNKNVVALGLSAGFMEPLESTSIHLINTGVD KLLSLLSLDGVTQTQEDTFNRLTGREYARIRDFLILHYNATSRDDSGFWNYV RTMDVPETLTEKVELFKANGQIFREEDELFTETS WAAVMMGQGIAMTGHNA MADSLDPASTRKEIDEMEQSIRFLIQHMPGHGEYLSRYCPAKAA
4	MTQP SLPRRIVVAGGGTAGWMTAAALARTLGPVAQVTLIESEQIGTIGVGES TIPPLVAYNRILGIDEADFM RATQATFKLGIQFENWRVPGESYFHSFGGTGK DHWSAGFQHFWMHGAAQGH DAPYDEYCLELKAAMAGRF AHLPPDRMNY AYHLD SGLYAKFLRAMAEGDGATRIEGRIVAVDL DGASGDIAALRLDGD RRI EGDLFIDCTGFRALLIEGALHAGYDDWTHWLP CDGAVAVQTASVRAPV PYT RAIAHDAGWQWR IPLQHRQNGIVYCSAFMEPQAAQDQLLATVEGDRLVQ PNPIRFRTGARRRQWHRNCVAVGLSGGFMEPLESTSIHLIQRAVLRILRMLP AGAISPRDIAEFNDQQMADMEQIRDFLILHYKATDRR DTPFWRHCASMSVP DSLTHKMELFRETGRVFRKNEELFAENSWVQVM MGQGITPQSYHPVA AKL RPQELKHLALTALRDQVSRTVSALPDHGAYVARYCGAQDVAAA
5	MVRPVRNIVIVGGGTAGWLTAGVIAARHRTRIGQDLSVTLVESPNTPIIGVGE GTWPTLR TTLSRMGISETDLFRQCDAAFKQGAWFARWTDGTASDGYHPL MLPQNFQVNLVPHWLARDGDESFCDAVCAQGRICDDGLAPKTMATAEY DALANYAYHLDAGKFAPFLQRHCCEKLGVRHVLADVEQVVLHDDGDIAAVR TTQAGLVEGDLFVDCTGFKALLIEGAMGV PFRDCNDVLFCDTALAMQVPYA APDSPIASHTISTAQSAGWIWDIGIQTRRGVGHVFSSSHISDEQAERELRAY VGPASDGLNVRKIKIRSGHRETFWKGNCVAVGLAAGFLEPLEASAVLIELSA KIIAEQMPACREVMDIIASRINATTHYRWGRIIDFLKLHYVLTQRTDSDFWRD NVRAETMPDRLRELLHLWRYQSPWFHDEFDRAEEVFPAASYQV VLYGMG FRTQVPTAALARDAHLAGRAMRENAATARLRAGLPRHRDLIDRIVAQGLQ PV

6	<p>MTKTNVKNVVIAGGGTAGWMAAAALAKLIGKNIHVTLVESDDIGTVGVGEA TIPPIRTFHKLLGINEQAFMKATQASFKLGISFENWGDENTRYIHSFGVTGKE CWAGEFHFWLQGGKVLGINNPFQDYCYELQAAKAGKFAFNQQNPINYAYH MDATRYAQFLREFSEPLGVKRVEGKIQKVKS AKTGHIESLLLHSGEQINGD FFIDCTGFRGLLIEQALHTGYEDWSHLLPCNSAIAVQTKSTS DTVLP LTRSIA HKSGWQWRIPLQNRVGNGLVYCSQYMDDEQAKALLN NIEGEALTEPRVIK FKTGRRLKGWNKNCLALGLASGFVEPLESTSIHLIVSGIIRFMRLFPFNGITN YAIDEYNKQLKSEIENIRDFIVLHYKVTNRDDSEFWQHCSAMEVPTTLQHKID LFKQTGRVFLDDGDIFRVD SWVQVMLGQGIVPEQHHLIASMMSDEELARFL HGIIKQIEQRVSQLPPHHEFLKHYCPA</p>
7	<p>MNKAVKTVAVIGGGTAGWLSAALIASYHQSQNGDGLKVMLVESSDIPTIGV GEGTWPTMKNTLQQIGLREVDVFKTCNATFKQGGK FVNWTHGNDFYH PFTVPLGYGRIDLAPYLDNVVDYAQQTNFQHDICEASLAPRGIAQGEYQGN CNYAYHLDAGAF AEMLKQHSKSKLGV EHVIGTVDEVKLDNDGAIDTTLTKD QTRTINADLYVDCTGFSSLLL GQALNIPFKKMDHVLFNDSALAMQVPYAEGD ESLASHIATAQNA GWIWDIGLTHRRGVGHVYSSKFLSDDEAEQNL RNYLG DAAEGLTARKISFESGYREKFWHKNCVAVGMSAGFVEPLEATAIMLVEISS RFVAEHMPADTKVMPIVAKRFNEQMDYRWQRIIDFLKLHYMLTKRPEPYWQ AHVDPDTIPQSLKDDLLLWESRGLIQDFHGALELFP AASYQYVLYGMGFK PDFTKQAYLYSQDAQAKQIIERNSQLTQQMLQTLPPH RAYIEQWLANPV</p>
8	<p>MNQQNKKIKAVVVVGGGIAGWLTAGRLAAHHSNTPDGLNVV LVE SPNVPII GVGEGTWPTMRSTLIALG ISETDFIRECEASFKQGA KFAKWVDGSEDDFY HPLVLPQGF SKTDMAGHWLNNTAESTSFSNAVCYQE AICEQGLAPKTIRTP EYAAIAN YAYHLD SAKFAVFLQKHCTQQLGVKHILADV TQVNSADNGDIASVI TKQQGEISGDLFVDCTGFSSLLLGEHYKVPF MPCDDVLFIDTALAVQVPYEN DDENIASHTISTAQEAGWIWDIGLQHRRGVGYVYSSKYSSE AQAREKLKAY VGDKIESLTIRKIPIKSGHRSHFWQNNCVAVGLSAGFLEPLEASALV L VEMSA QMISEQLPQTRDIMDITAKRFNETFTYRWEKIIDFLKLHYILSTRDDNAFWRD NRDPKTIPQSLQDLMKLWQYRAPADHDFTSNNEVFPAASYQYVLYGMGFK SDYSTTTYMLKDTVFAKSQFDKNKSMINQAVTNLPSNRELLNKIKHHGFSAI</p>
9	<p>MTKPIKKIVILGGGTAGWLSAGLLAAEHPHLSVTLIESANVPILGVGEGTWPS MRNTLQRIGIKEIDFITQCDATFKQGSKF INWCNLSKGENYYHPFMDPQGYE QTNLHANWQRIAPNQKFADVVMQSFVCQAALAPKQLQTPEYAAVTNYGY HLDAGKFAEFLKNHCVKHLNVTHNTDDVTHVINDEHGYIASLKTNKNGDITG DLFLDCSGSRARLIGEHFNSEFIAQDHILFNNSAVAAQVPNAHINQPIASATL STAQSNGWIWDIALPTRRGTYV FSSKYQSGESATDTLKS YIAKSTSEQQA EQLNYRVLKFSPGYRQKFWIKNCVAVGMSAGFLEPLEASALAMVELSISML SEQLPQN RTHMSQLANRFNDRFSTRWQRVVEFLKLHYVLSERDDTPYWQ NIRDLT TAPEHLQNL LKLWQFQPPSRDFIENEEVFSSSSYQYILYGMGFNT QTPQAHN AFTSAQAGDYFYQQNREKIAQYLKSLPSNRALLNDLLSNNRQPH ND</p>
10	<p>MKPIKNVVIAGGGTAGWIAAALLNKVLGKVINITLIESSIGTIGVGEATIPPIIQ LNNALGINEQDFINATNASIKLGIEFENWKTPSHSYMHA FGSFGKDFPFCD YNFWVVKGQISGSEDSLWDFSLNYQAAKHKHFAPLSAIPNTQLPGISYAFHFD ATLYAEYLKKLAVSRGVKHIDAKIERVTQCPNTGQINSLTLDNNSQIEGDLFI DCTGQRALLIEQTLNTGFVDW SHYLP CDSAVAVQSTGSDEL RPYTR SIAHN AGWQWQIPLQNR TGNGLVYCSRYLSDEGATALLN NLPGEPTTDPRLIKFK TGRRLKQWHKNVAVGLSSGFLEPLESTSIHLIQSAVIRLIKLFPHNGISDALV TEFNKQSVTEIEHIRDFIILHYKLTEREDSPFWRQCKQMDIPQSLAHKIDLFR QTGKVVRENDELFAEVAWQQVCIGQGLIPEDYNNIVESLSSEQLNDFSTLK TLITSTVDQLPTHKDFLAKIKKA</p>
11	<p>MTAAALARLVAPSGVQITLVESEAIGTVGVGESTLPHIRAFNERLGIDEA AFM KATRATFKLGIQFENWGQIGGSYIHPFGDYGAPGGEAPFH HYWLRGRELG DVGPIDDYSLPVVAAREGRFAPPSDDPRSLLSTYRYAYQFDATLYARFLRG MAETEGVRRIEGRIQNVAQDGESGAIKVTLDDGRQIEGDLFVDCSGFRALL IEQTLKAGFTDWSHWLPCDRAVALPCESDQPTVPYTRATALEAGWQFRIPL</p>

	QHRVGNQYVYSSAFIDDAALDRLVGRLEGKPLKAPNVLKFTAGQRTNRW AANCVSVGLSSGFIEPLESTSIYLIQIAITKLIELWPTAVIDPATEAEFNRQM DLEYIRIRDFIILHYCATARNDTPFWDYVRTMPLPDTLSEKIELFRARGVVQD YREGLFLHPSWVAVYLGQDILPRRHPLVDAVSATQLMSSLERLRRMVREA SYKLPSQDDYIARYCAHLPL
12/brvH	MDEIDDPRIIRSVVIVGGGTAGWMTAAALVQHFRAPLKITVVESSDIGTIGVG EATIPTIRRFYQQLGLRDDDVMRATQATCKLGRFLDWSGPGSDFIHPFGLY GQDVKGIGFHYYWLKQRRAGDAAPLAAYSLSGAALAAGGKFTLPSPHPPSQ LSVFDWALHLDAGLFAQHLRAYAEAGGCARIDARIRSVELRPEDGFVRALTL DDGREVEGDLFVDCSGFKGLVIGEALGVGFEDWGRWLPCDAAYAVQSEN RPGDAPAPFTRVTARSAGWQWGIPLRHRAGNGLVFSSAHLSDQALAEML PHLLGDPLTEPRRIPFRPGRRSQAWAKNCVAIGLSSGFLEPLESTSIALIETG IERLKALFPDRRFAQPILDEFNDQTAREMVRDFIILHYKLNRRDTRDFWR DCREMPVPETLERKIALWTARGQFVRYRWEMFHPASWLAIDGFGLYPDH HDPAVDAMDPAYLARSLAEMRANIADLVARTPEHAQFLAGLDPAAASAA
13	MDQPRRPLKKICIVGGGTAGWVAAALMAEHFKGRMAEIELVESDDIGTIGV GESTVPPFLEMLKRLGIDERDFIQKTQASFKLGIQFEDWTQKGESYFHPFGA VGVPVDISDFYPVWLKARMNGYDRPLMDFAAAARMASQGRFMLPFKAQRT PIGGASYAVHVDKRVARYLRDFAEARGVKRTEGIVEDVMTRPDGFVSGLK LKSGQTVADFFIDCTGFRALLIGKTLGVGYTDWSEWLMCDRAIAVQTENV GPPTYTLAQACQCGWRWRIPLQHRTGNGHVFCSTRYMSDDEATARLLAQ VEGRPVVNPMPVVPFKTGVRKIWDKNVLSLGLASGFIEPLESTAIHLIYRGM DFLFRMLPDLDCDPNLAAEYNRRMTVDYEEIRDFIILHYALTRRDDTAFWRQ CRDMVLPEGLQHKLEVFRANGSLVEALDPLFRNVSWYAVMDGMGVRPRS YPPLVDRIDSTGLTDEMRAANILNAFVADLPTHQAFIDTHCPAPSVDLPAVL AVPA
14	MGADVRQLKTILIVGGGSAGWMAAALFSKLFKGLYDITLIESEAIGTIGVGEA TIPAIKTFNELIGLDENDFMRRTQASFKLGIQFVDWDRVGSSYIHGFGVIGRD LKWLRCHQYWLKMRAEGKVSDLAAYSINTAAALQNRFRADPKRPGSPLG HIAHAFHFDAGLYAKYLRGMSEAAAGVRRREGKVVSQVLRPEDGFVDSVTLE DGAVVSADLFIDCSGFRGLIEQAMKTGYEDWSHWLPCDRAMAVPCARTEP FTPYTRSTARPAGWQWRIPLQHRTGNGHVYSSRHMDGGEAEQILLSNLDG AQMAEPNRIRFVAGKRRQIWNRCVAAGLASGFLEPLESTSLHLIQSVLIRL VRLMPDAGFDPATIAEFNRQTDFEYERIRDFIILHYKATERDDTPFWRYCRD MDVPVTLERKIDLFRANGRIFREDELFAEESWIQVLLGQGIIPVGYDPLVDV TPEPDIERYLADVETVIGKCVAMPESHADYVAKACPA
15	MAAAALSKLIGKQLDIALVESDDIPTVGVGEATIPTILTINRLLQIPEPEFLQAT QGTFKLGIEFENWRKQGHRYIHSFGDTGQGCWAAGFHHFWLKGMEQGIS SDYGEYCPELKAEEQSKFAIQSQKLNAYHLDAGLYGRFLRKIAEQHGVR RIEGKISDVQCNTDDGYIQLRLESGQVVEGDLFIDCTGFRALLIEQALES GF DDWSHWLPCDSALAVQTESVGEAVPYTRSIARCSGWQWRIPLQHRVGNQ FVYSSKYLSDDKAEQILLDNVEGAPITKPRPIKFRGTQRKQYWNKNICIALGL SSGFIEPLESTSIHLIQNGIMWLLLMPFPQGITKSVVNEYNEKLRREADCIR DFIILHYHVTERDDTDFWNYCREMSIPDSLQHRIDLFRETGRVFKPQDDVFA ENSWVQVMMGQGITPEQYHPIVDMMSDVELKSFLQTIENNAKSLVSQLPSH ADFVAHYCKAVG
16	MVNRIEKVVVGGGSAGWLTAATLAAEFKSGPGGISVTLIESAETKSIGVGE GTWPSMRTTLQKIGISETEFFRECDASFKQGSKFTSWLDGGNESYHPFSL PEGYQEINLADFWAPHRDKVSFANAVCPQLRVCESHKAPKQISAPDYAGSL NYGYHLDAIKFARLLRKHAVEKLGVTVIDHVEKIHSAPNGDIASLQGKAHG QINGDLFIDCTGFASLLIGRHYSIPLIGKDVLFNDRAIAVQVPYADESAPIAS ATLSTARSAGWIWDIGLPSRRGTGYVFSSKYIDEQQAVDELKAYVGNISAGIP FEELAPRTIDINPGYRQKFWHKNCVAIGLSAGFVEPLEASALVLIELSARMI AEQMPADRQVMDIVAEEKFNDKFATRWWQIIGFLKLHYVLSRRNDSQYWLD NRSAESIPSDLAAQLKLWRTRSPWYCDETHVDQMFPASQYVLYGMEYP

	SQPM TARKRSGDS DQQRARQIFASND SMAGKLLTNLPTNRDLTDQVKHQG FGHI
17	MLGGGSSGYFAALAIQRRFPELEVTVIASSKVPIIGVGEATTTLMPPFLHAQL GLSMEAMCRAVEPTFKLGIRFEWGRPGAYHFNFPFGDADPLLAHHFDGDL RHQSLMSMAMDQGLAPVLRGPEGEVVSLLRQVKFAYHLDNAPFVAFLAEA ARAAGIGHIDATICDASTRAGASGEPEIASLR TEDGRELAYDLYIDASGFRSV LLGGALEERFQSYASSLFC DRAVVADVAEGAGVEPYTTAETMDAGWCWRI PVRRACHRGYVYSSAFQSDDEAVAHMRAANPSMGEAKLIRFRSGRRERA WVGNVA AVGNAYGFVEPPRVHGPAGHRRARLRARGDRGPASRGRGRG RGADLPRVRQRVPGRALGLPALVSGGALQVQPAPGQRLLAGRPGRGRRL GPRAGDRALSEP GAVAGRGRPLRRGRSSLRLQRADDHAARPARREPGR CGAQNQAEPGPVARADRASAH PALRRGSAHGLGLARGPPRAPARVRGA PQLVVPGRRRRAGRGRDRGSAAGTAQERHARGASRLAASGWGLARGPRP DPRMGERLTRA
18	MRMAIEHIVIVGGGTAGWMAAAAALSRI RDGRDLKITLVESEQIGTVGVGEATI PPFVEFQNALDIDEREMMAAVQGT FKLGIQFANWGQVGESYIHPFGDYGYE LGGVHFHQVWHAMRERGD KRPLQVFNLETMAAHFGKFMRSQDYGRDDL PMNYAYHIDATAYARFLRAYAEKRGVVRREGLVKNVALHPETGFVTGITLDD GEEIEGDFFDVDCSGFRGLLIEQALETGYEEWTRFLPCDRAVALPCNRDDGS PPPPFTKATAHKAGWQWQVPLQTRNGNGHVYCSEFMEADEAH DILVQNLA GKPTADPNHLRFVTGRRKKFWNKNVVALGLASGFMEPLESTSIHLINTGVN KLIATLSLDGVTEAQASTYNRLTDKEYERIRDFLVLHYKVTRRDDSEFWNYV RTMDVPDTLSEKIEIFKANGQVFREDELFTTTSWAAVMLGQGITMDGTSP MAAGVIDGVAKEVDEMERSIKWL VQQMPGHDQYLQRYCPTGVKAA
19	MQDPHNKPIKRVVIAGGGTAGWLAASLMKKVLGKAVIDITLVESEAIGTVGVG EATIPPIRLVNQVLGIDEAQFLHDTKATIKLAIRFENWTKKGESYYHTFGAPG KSMAFCHFHHYVVKARQQGLKADLWDFDLNYHAAEAGRFAQINAKDPVVE LPFAYHFDA SLYAQYLRKLS ENMGVVRKEGKISRVRQRTD SGFIQALHLESG DVVEGDLFVDCTGFKGLLIEEALGAGYDDWSHLLPCDSAI AVPSEHEKTA PYTRSI AH DAGWQWRIPLQHRNGNGHVYSSRYISDDQACDTLLSNLDTKPL GDPKLIKFTTGRRRKQWYKNVAVGLSSGFLEPLESTSIHLIQSAIVRLIQ LFP HNGFAPSLESEYNKQSELEFEQIRDFLVLHYTVNERTDSAFFNDMRNITLPD SLAHKIALFKESGNLLREQNDLFLESSWLQVLYGQGITPKDYHGLVNSVPEV QLNQMLTRLLEIKKEPIAKLPTHDEYINGMVAKYKRAMS
20	MNNRLRKITIVGGGTAGWMTALILETELSRTSAPKDRPKICLIESPNIATVGV GEATVPRMPKTLRQAGISERAFFRETNASFKLGVKFCNWNKDANGNRIDYV NPF AHGQLLDGLEPAEYFLRFGNGDRDYTQSIAPHDDLGR LCKGARPLGQ PEFEQRF GYAYHLD AVKFAGMLTKVCTKHGVEHIQDEVTSVELDEQGNVS HLMLEQRGRHDIE MVIDCTGFRGLIINQALGEPFMDYSDYLPNDRAMALQID HPDPEKIESL TRSTALGAGWTWRVPLYNRVGTGYVFSSAHR TDDQA ADEY LEWLGD SGKGATPRVIPMRIGRVRNAWVKNCVAIGLAGGFIEPLESTAIHM IDHAVRWL TEHMPTRDIAPSLRTRYNRQMDKLYDEVLEFICLHYRLGNRTD DQYWIDARTEMKIPDRLAENLELWQHRLPMPHDIEFATLFDYRVYQTVLLG KQVYDTGYGPGIRDRLRPLKKPIWFQWWKGAKVDLANILKSMPDHKTLLRD IRGELDQPGFGMGAAMKPTVSMPCPEAVPCMIQNMP SFSEIENGQKDLQL F
21	MDNRLKKITIVGGGTAGWMTALILETEFARTSAAKDRPKICLIESPNIATVGV GEATVPRMPKTLRQAGISERAFFRETNASFKLGVKFCNWNKDAKGNRIDYV NPF AHGQLLEGLEAAEYFLRFGNGDRDFTQSIAPHDDLGR LCKGARPLGQP EFEQRFGYAYHLD AVKFAGMLTKVCTKQGV EHIRDEVTSVELDEHGNVSHL MLEKRGRHDIE MVIDCTGFRGLIINKALGEPFLDYSEYLPNDRAMALQIEHPD PEKIESL TRSTALGAGWTWRVPLYNRVGTGYVFSSAHR TDDQA ADEYLEW LGDSGKGATPRVIPMRIGRVRNAWVKNC LAIGLAGGFIEPLESTAIHMID HAVRWFAEHLPTKEIAPSLRSRYNRQMDKLYNEVLEFICLHYRLGNRTDDQ YWIDARTEMKVPDRLAENLELWQHRLPMPHDIEFATLFDYRVYQTVLLGKQ

	VYDTGYGAGIRDRLRPLKKPIWFQWWKGAKMDLAQILKAMPDHKTLRLDIR GELDQSGFGIAAAMKPTVSMPGEAMAPFAVQNMPSHTEIQTGSKDLQLF
22	MMKVVIAGGGTAGWMAACGLSSRLASLLDITLIESDEIGTVGVGEATIPPMR NFHRLMGIDEQEFMRETQATFKLGIEDFNWGNIGDSYIHSFGEIGQRSWMA EFHEFWMEAQAQGGFSSLEDYCLELKAAGKGFATAIGDTRLNFAHLDAT RYAKYLRKKSEKAGVRRVEGLIEDVQKDPQSSEIKALLKSGELIEGDLFIDC TGFRSLLLGESLGVFDDWSHWLFSRAIAVQTESIDEPVYPYTRATAHPSG WQWRIPLQSRVGNIVYSSRFMSDDEAKQTLNINISGKMITEPRHIKYRTG RRQKSWHKNCVALGLASGFIEPLESTSIHLVMTAIIRLIRLFPFGDSSTALAD RFNQESTTEIETVRDFVILHYKQTNRTDTDFWNAYRTMDIPDTLAHRLDIFKN NGYVWVDDVALFRVDSWVQVMMGQGLTPSGFHSAGKLTGSEGLQQSLAK LKTSIDEKVAKLPTHQQFIDHYCAAPKAD
23	MTKTVVIVGGGSAGWLTAGIIAARHNPLGEAGQGTKVILLESVDVANLGVGE GTWPTMRDTRLRIGISEGDFLRACDVGFKQGSQFINWQRGEGESYYHPFV PPAGYGSVNLAAHWLDKAVDSTFADAVSPQGVCDLGLAPKTARTPEYAF GLNYGYHLNAGKFVELLKRHCVDKLGVDYQLGHVDQILSDENGDISALLLTA GDKISGDLFVDCTGFSALLIGQHYQVFPVSQRDCLFNNTALAVQADHADED TPIASCTKSTAQSSGWWDIALPTRRGIGHVFSSQHISVEKADELQRYLAA DPALAKKQHSRKITFQPGHREHFWHKNCVAVGVSAGFVEPLEASALVIE KSAEFVSNLPPQDRGAMTVVAKRFNEIISKYWVDIIDFLKLHYVLTERTDSY WRDHVRPQSIPDSLQDSLELWRSQVPWVSDGNNRAELFSAASVQYILYGM GFATQINSSRYRDWDKDALADRLMRDNRGKTEALMASQPTNRDLLNLVR RTS
24	MNHKINRVVIVGGGTAGWLSAGIIAAEHCIKTSSPENPFQLTLVESPDIAI GVGEGTWPSMRSTLQKMGISETDFFRECSASFQKQTLFKGWRTGADDIYT HPFTPPQGYTEVNLAPHWQTAREQINFAQAVSPQSALFTDKLAPKQISTPE YAFNVNYGYHLDAAKFAEFLRKHCVEKLGVTTHIKANVTGINSADNGDIASAT DSHGTEGELFIDCSGRALLIGEHEFGIPVCSKSDILFNNTALAAQIPYTHEND PIESCTLSTAQSAGWIWEIGLPTRRGIGHVYSSDHNTTEERASEELLAYIASTV SDQAAAAATLRKVKFSPGHRAKFWHKNCVAIGMSAGFIEPLEASALVIV ELSAAMIAEQLPANRQIMDLVAKRFNDKFLYRWDRIIEFKLHYILTQRRDTE YWRDNCESSVPEQLVDLLALWRHQSPWHRDNNVDDMFPSASFQYVIY GMDFETMPSQTQRRELAERQRAGALFQENATRTQQLQTSLPSNRDLINKI YTFGFQKI
25	MTDKNITKVVVGGGTAGWMAAASLSKLGIPNIRVCVVESEIGTVGVGEA TIPTMMLHQLLKIDQPEFMAAVQGTFLKGINFENWNLGDSYMHAFGRTG QDCWAGGFQHFWRTRGKELGISEGYGRYSASYVAAKAGKFAVLDPHLSLSYA FHMNATLYAKFLRNMAEKHGCERVEGKITQVNTHSDSGYIDSITLESQKIE GDLFVDCSGFRGLLIDETLQTEYEDWSNWLPCDSAVAVQTESVGEPIPYTR AIARDAGWQWRIPLQSRVGNMVFCSKYLSDDAEVDSLLKNVEGTPLTKP RIIKFRTGQRKQHWKNCIALGLASGFVEPLESTSIHLIQRGIIRLLQMFP HQGICQPDVVEFNQMSDEFVVRDFIVMHYHLTERDDTPFWRHRCQSMPI PDGLRHRDLDFKQTGRVFEAGDVFAENNWWVQVMLGQGLLPEQYHPIVDS MSEAELDNFLKGLAGNIDHLVNQLPSHQSFVSNYCPADSV
26	MEHQKIKHVVIAGGGTAGWMAAAAVAKLLGKTVKVSLVESEEIGTVGVGEA TIPTLLTHELLKIKEQDFISAVGGTFLKGISFENWHDVKGDIHSFGYTGKD CWAAGFQHFWLKGGKELGISKDFGEYCNEWAAAKQNRFAVLPNQNLNYAY HFDSSRYATFLRKIAEEHGAVRIEGKIEAVQQHEQTGFITGLRLESQQVDG DFFVDCTGFRGLLIEQTLHAGYDDWQHWLPCDSALAVQTEENVQPIPYTRS IAHEAGWQWRIPLQHRGTGNLVYCSKFWSRDEAEAKLRGNLEGELVTDPR PIKFQTGTRRRHWVKNCAVGLSSGFMEPLESTSIHLIQRSIVRFMQMF PSDGVRQPDIEEFNNQMKFEIENIRDFILHYHVTNRDTDFWRHRCRTMEIPE SLQHRIDLKFKETGRVFKVPTLFGENSWTQVMLGQGLSPEQYHPIVNMMD EQELRDFLGGIHGSVERLVSQLEPHQRFDHYCREA
27	MGTTEHVIVGGGTAGWLTAAARLGAMANRQFDITLVESPSVPTVGVGEGT WPSMKATLQAIGLSERVLISECDASLKQGLTFHGWRTGAADDSYLHPFSLP

	PEYASKNIAEYWRRDGLRYPFHEVVTPQALIATTHKAPKTADTPDYAFALNY GYHVDVAVKFAALLRQHSVSRFGVRRHIEGHVAGVSSDSAGFLTSLELEGGDR LSGDFVDCSGQKALLIGDHFVKVPFESARHVLNPNRAVVAQVPYNPNDEI HSCTQSSAQDCGWIWDIGLQSRRGVGYVHNADFISEAEATQTLRNYAEQS VGAKVAQDLACRTLNFEPGYRGTPTWTHNCVAVGLSAGFIEPLEASALAM IEQAASFLVESFPVNRDLMGPASRAFNRKMESNWASIQEFLKLHYVLSDRD DTPYWQQACDETSISEGLSDKLALWQIRAPWHPDTPRIDELFPAASYQYVW LGMNGHLNGVIGSAGQGGKDHASSADLDPILFKVRERALQLSRAMPGNR QLLNALRMNNPSATVTA
28	MRVVIAGGGTAGWMAAAALAKYFGGTVAITLVESEIGTVGVGEATIPQIRL FNGLGIDEREFLRETNGTIKLGIEFVDWRRRGERYFHGFGEVGRAIGLVPF HHYWLRYAGEGGELPLEEFSPNAVAAREGRFGPGAGVAGARLPASAYHFD ATLYARFLRRYAEARGVTRREGKVLSCSTRNGGTGFIEALEMEKGDRIAGDL FIDCTGFRALLIGETLGIDYEDWSHWLPCDRAFALPSEGRGRLDPFTRSTAR GAGWQWEIPLQHRTGNHGVFASAFTDEQAALATLTGTLPGKALAEPRLLRF ATGKRRRMWHGNCVALGLSSGFLEPLESTSIHLIQAGIARLLALFPDRSCD PALVEEFNRQLDFEYEAIRDFLILHYHATDREDTEFWRYCRTMAIPESLSDK MELFRASGRIVRFNTELFDVPSWLQVMWGQGLRPRTYHPMVDAAPDADLT RYIAMNAGEVRQQVDTLDLHETYIARVARAGRDTAAPAGGG
29	MRVVILGGGTAGWMAAAALSRYFGDRLSVTLVESDAIGTVGVGEATIPQLR LFHEGLGIDEADFLRATGGTIKLGIEFIGWQREGTRYFHGFQDVGRKIALAPF HQYWLRYNAEGGELPLEAFSVNAEAARRGLYGVPRGAAAARLPASAYHFD ATRYAAFLRRFAEAHGVVRREGRVRAPELTASGDIAALVLESGARLSGDLFL DCSGFRALLIEEALGAGWEDWSHWLPCDRAL AVASAGDGRLDPFTRASARAAGWQWRIPLQHRTGNHGVYASAFTTDDAA HDALMTTLPGEAQGESRPLRFTTGRRRAFWRRCIALGLASGFLEPLESTSI YLVQSGIARLLALFPPPGGDATALRAQYNRQMAFDALTRDFLILHYHLTER PGALWEHCRTMALPDSLAEKIALFAERGEIVRFNGELFDVPSWLQVMWGQ GLRPARHHPLVDAARPADLARYIDDTARDVAARLAPLDSHAAFIARRAAAPA PAL
30	MTGPARHIVIVGGGTAGWLAALILARRDDLRTVVESRIPTIGVGEGTTAVF RQMLQHLGLDERAFLAATGATIKYGIRHRDWRRVGHSYDGPIDDTAQVAGP GLDLYAVASGRPVAEVHLFGTLMDRRRAPVAEVGGREVPAGPFHWAYHFD QARAGAWLKRQATGVTVVDDVAGLERDGEEDITALRLESGARLEGDLFI DCTGFRRALIGPMGAEWVSYGDVLPVNRAMPFWIDLQEGEEIDPFTLAHAQ GAGWMWKIPTTERTYGCYVYSDAHTTPDAAQAEIEAALGRAIEPRNDIRIDA GRLREAWIGNCVAIGLASSFLEPLEATSIHGTVQMLMWDLSLLAAPDGAARY NAAVARQVDDFRDFIRLHYVSERRDTAFWRDVAASHPPEVRRARLDLWRHR LPERRDFAPVPLDLPHVQEQLYTPVLDGLGLLDRASARAALADHPPHRRARL RKTHEQLTKDHRAAGRCRPHRAWLSSSLREEIPA
31	MGQPLSSITIVGGGTAGWLAAYLRRACAERIRITLIESPNIPTVGVGEATVP QMPFTLRQIGLDERTFFRRCDATFKTGVMFRNWNTDRKGLVSYLNPFSN APSLDGVSIGNHFHAFGAGKRDYVSCYSPYAHMAKAFKGFPSFKDPKADP MPKPAYAYHLNAVAFKLLAEVGTERTGIEHVLDDVDDVELDERGYVAALQL RERGRHPVELVIDCTGFRGRIIREALDEPFEDYSDYLGNDRAMALQIPHTNP EKLPPFTSSTALGAGWSWSVPLFNRVGTGYVFSSAHRDDEARDEFHLAHL GAAAPPGESEPRVIPMRIGRSRAWVKNCIAMGLSGGFIEPLESTAIHMIDQSI RMLLFNMPSTDYEAPVRRRFNRLVDDLYGEVRDFICLHYRMGNREDSAYW IDARTELKITDRLAENLELWQYQLPTQHDLESAQLFTHDQYQTVLFGKRCYE NGYGAERLNTPREVRAGSWKAYLRDADIRFAKIVDYKGDHHRLLMALRGEL EPGAARKTPAVVAARTGSCLKETPVLF
32	MRDMLRRFGLSERGVLAACDASFKHGIRFDDWSGPGSRCLHPFHRHALPR DIAARWLASSGEPFAAIAASAQAALIAHERAPRPAGAPEFTGPVPYAYHLDA EKFAEYLAGELTSRGVTRQSAHVTGVLREGETVTALRTEDGAPLSADLWVD CTGFAGLLLPEEGRDWVSYADRLLCDRAVTRMVPEDDPAYTPAPFTRARA LEAGWCWDIGLRHRRGRGYVYSSAHLSDDEAEALRAEEGQHSALPARV

	IHFTPGRRAAPWQGNVVALGLAAGFLEPLESTGLFLADFAARALVEMFPAA PGLPMQPLARRYNALLAEMHDDLADFLALHYAVAQRRDITTFWRDAKA ALRSERLRELLELWQLRPPSFADFSYRYSFPTSHTAWEFILLGMGWRPATAP AGTTPCAAPAEALTRQMLDALPDHGTLRLHLAQACR
33	MNNNIKKIVIVGGGTAGWMAAASLAKYVNNNSAEICLISSDIATVGVGEATIP NIVQFNRLGIDETAFIKATQATFKLGIQFENWHPQNKQFFHFPFADYGLKIDQ VDFHHYLYRAQQTECSSQLADFSFACQLAKQYKFAQPHANPSTPLADYAY AYHFDAGLYGQFLKHSINAGVNHGHTIEQVNLHPDTGFINNVALTDGQIVE GEFFIDCSGFEGLLIEKALHTGYEDWSHWLFCDSALAVQTTRVNPPEPFTR SIAQSAGWQWHIPLQHRSGNGYIYSSRFESDEQAKALLQTNINGEPLGEIRK ITFKPGRRKQIWHKNCFALGLASGFLEPLESTSISLVQTAIAKLLTFPDCSFN QADINEVNRLHNLELENIRDFLILHYKLSARCDTPFWQACQNMAQQSHCHN PHNYTRSRSRCSGVGRAPSPQSHSPSMLVRIQVLAFAFEHIERRRVYALYLP RI
34	MDIKKVAIILGGGTAGWLTANHLGKALIGQGISITVIESPDITIGVGEATVPM RETLKYFGISESQFIKECDATFKQSIKFNWLDKTAHGEENFYHHLDFDFP NNRDLTPFWLRTQHKSFAQTVSFQANVCEAKKAPKKISTPEYVGETTYAYH LNAKKFAELLQNHAVNKFSVAHQVSTVIDATVNNTDIELIVTDTHGEQVDFY VDCSGFNCYLLGKKNIPFVDMSHKLPIDKAITAQIPTEDDAEIPPYTIATAHE AGWIWDIALKNRRGTGFVYSSNYLSDEEAKQKFERYLQGSLEGIVSRVIM KIGYREQFWQGNCAIGLSQGFVEPLEATAILVTDFCARHLAERFPRSKSEL PACQSRFNRNKYAWDRVIDFIQLHYLSDRQDSAFWLDWKNVDRLSDEL KQKLAIWQNNPPLSTDFFSKFEVFDVENYLVLYGMHYLTKPSYIDAKSFEQ DQILAQQVE DHSQKLIASLPSHRELIDKLARDFDFSKL
35	MSHRVNQVVIIGGGTAGWLTAAVLSSQLQSTNKEAVQVTLVESPNIPILGVG EGTWPNLRLATLQIGVSEAEFMKGCDFATFKQGFALFCNWMKSVNEQTHQY YHPLNTVFHSSYEFSLAPYWLLGHSESRYSRYDHAVATQSLVCEAGLGPKEKT TPEYQAVQEYSYHLNANKFARFLTCHKCTEKLGVKYIQANVLKANRDGDDYV TSVTTDSEQYDAICGDLFVDCSGTTPVLFQTYHIPWVDISDVILNDTAIAMQ VPYADPERDIASHTIMTAQDNGWIWDIGLYNRRGVGHVFSKHTDIKTAEK QLRDYIGQEAEGLTARVIPLKLGyreKFWHKNCVAIGMSAGFVEPLEASA IYLYDAAAKMLADQFPRTRESMQYVEEFNRSFNMRMIRTIDFIKLHYCISDR DDSAYWRDNCSNKTIPKALQQRLLHWKEHPPTKYDFDNAWEPFNLDYLY VLYGMKYQTSLAHNQDGFYSDKAKAKFRDVSMMADKLVTHLPKHRDLLKK VYQFGFTKI
36	MTPTKISNVVIVGGGTSGWITAALLVKVLGRVINITLVESDEIGTIGVGEATIPP IVQLNNALGISEKTFLAHTKGTFLKLGIEFNDWGQLGDSYMHAFGGIGKSLPF CDFHHLWLQSKQQGGNSDFWDFSLNYQAAMAGKFGPSQKIASTNIQGLE AYHFDAGLYAGLLSEFSQGLGVKRLEGKVTEVVVNQNNQNDVSHLCLANGE HLYGDLFIDCTGLKALLIEQTLNTGFEDYSHWLPCDRAVAVPCEKVEPIVYPT RSTAHSCGWQWRIPLQHRGTGNGLVYSSKYLSDAAKAQLLNSLDGKPLGE PKIIAFKTGRRRKQWHKNVVAIGLSNGFFPELESTNIHLIQTAAATRLIKFFPHF GIKDAEVSEFNQAQVEAEQMRDFIILHYKVNQKVDSFPWQACQRMEIPHT LAQKIALFAQSGKVFREQDELFTIAWQQVMLGQNLVPADIHPIATMLSPLQ LSELMENLKTLDHNVAGIVSHSDFLAQIAH
37	MNHKSRIVIVGGGTAGWLSAAKLAKELAAANQPNGVQVTLLESDDIPTVGVG EGTWPTIRKTLASIGIDEAEFIKETDASFQATQFVNWKSDDIPSTNNTYYHLF SSVSDSAQFNLPYWLLGDKHTSYAQAVSAQDILCDKGLAPKLITNKPYE QNYAYHLDAGKFATLLKRHCIEKLGVKHLIGNVVQVNTDEEGAIASLVTD GMLAADLYVDCTGFKSLLIGQALGVKFNISADTLFVDNAIAIQMPYENDEADI ASATLSTAQQAGWIWDIGLQSRRTGHVYSSEFISHDEAEHTLRQYLGPKA TDLPAKHIMNCGYREKFWHKNCVAIGLSAAFVEPLEASAIFLIEASANMVA ELFPINKALMQASAQTFNDSFNWRKTIDFIKLHYVLSNRSAPFWQANKRP ESIPSSLSEMLNQQHRPISKYDFAHVFEPPQESYQYVLYGMGYHPDLA MSQSRYANLDTAENLFGQVSQMRSNFEKHLTTNRALLNKVKKYGFQKL

38	MSDSKAPNVVVLGGGSAGWITACLLHRQWSEKGGSVTVVESPEIGIIGVGE GSTPQLKAFFDQLGIAESEWMPACNATYKLGIRFNGWSERAGFESYYHPFP GPIDLHSEPGFIGNCMLARHQIDVAAHPDDWFLATHLSEAGKSPIAAENFPF APSYGYHFDAYALGAFLRDWAVKRGVVHRPLKVTAVERRADDGDIAALLCEG GERIEGDLFVDCSGFRAMLAEQELGATFLPFAENLFNDSAVVLPTGHGAPF KPQTEATAMRAGWRWSIPLTTRVGNNGYVYSSKYISNEDAEAEALRGALGLA GDGPEARFLKMKVGRLENSWTRNCLAVGLSQGFLEPLEATALHIVIVTAL EFAQAYEQGGYGPQHRDAFNASIAARYEGIRDYIVAHYRVNQRSDTQYWR DNAANDRLSNGLKTMMAWFRHQDIHAANDEAYGGKRYANASWHCLFA GYGTFPPQERMEAVPEGIRPADPAEARAMLEACAQNFPSYDPIAS
39	MNPTDLPPIVIAGGGTAGWMAAATLGRFAGRKVVLLVESEAIGTVGVGEATIP QIRLFNAALGLDEAEFLRETQGTFLAIEFAGWGGEGERYLHAFGTVGHGA GVLFPQHYWLRARQAGKAGPLSDYALNDVASRAGKMQMWQAEPGKPPV DMPWAYHFDAGLYAAYLRRYAEAHGVERVEGTIASVERDGESGDIAALVLD GERRIEGGVFVDCTGFRSLLLGGALGVEFMDWTQWLPCDRAVAVPCETKG EFTPYTRSTARKAGWQWRIPLQHRIGNGHVFCSDFMGEDEATKLLANLD GAPTADPRVLKFTTGMRQQWVSHNCMALGLAGGFMEPLESTSIHLIQASIA RLLQMLPGAEVAPAMRAEFNRQAEFEWTRIRDFLILHYWANGREGPEFWD RCRAMDVPDTLSTKVETFRASGFVHREHEELFTEPGWLQVLIGQGVVPEN YNPIADAMPEVELTAMLARIAETNQRLVAAMPDHAPFLRAHIDPRKQAPTQQ RIPA
40	MHSMAEPVTSITVVGGGTAGWLAATYLRSKCAPKIAITLIESPNVPTVGVGE ATVPHMPVTLREMGIDDKEFFRRCNTSFKMGVMFRGWNVDHKGRPFYDM NPFAPPPKIDGVEAGHYFQAFGAGRRDYIQSFSPLMDLLDAGKCPKLSFNAK NDPMPRAGYAYHLDAGAFKMLAEVGVARGVEHVLDDVDGVELDDTGHV AALNLRALGRRPVQLVIDCTGFKGLVIREALGEPFENYSYLANDRAMALPI PHADPEVLPAATSSTALGAGWSWSVPLYHRIGTGYVYSSAHRDDAARD FMAHLGDRAPKGAEPVPMRIGRMRRRAWVKNCVALGLSGGFIEPLESTAI HMIDMIRWLLQYFPSRDYEESTRAAYNRCADEMYNEVRDFICLHYRLGNR TDTDYWC DARGLKITDRLEGWLDLWQRQLPVEMDIGRANLFDHNTFQAVL LGKRVYENGWGAARLNRSFALSEKRWKAFLRDSAARNMAVVKAKADHRR ALRVLRGEATDGAVTRQSLGAVADEAVLF
41	MNNRLRKITIVGGGTAGWMTALILETELSRTSAPKDRPKICLIESPNIATVGV GEATVPRMPKTLRQAGISERAFFRETNASFKLGVKFCNWNKDAKGNRIDYV NPFAGHQLLDGLEPAEYFLRFGNGDRDYTQSIAPHDDLGRKCKGARPLGQ PEFEQRFQYAYHLDVAVKFAFMLTKVCTKHGVEHIQDEVTSVELDEQGNVS HLMLEQRGRHDIEMVIDCTGFRGLIINQALGEPFMDYSDYLPNDRAMALQID HPDPEKIESLTRSTALGAGWTWRVPLYNRVGTGYVFSSAHRDDQAADY LEWLGDGSGKATPRIIPMRIGRVRNAWVKNCVAIGLAGGFIEPLESTAIHMID HAVRWLTEHMPTRDIAPSLRTRYNRQMDKLYDEVLEFICLHYRLGNRTDDQ YWIDARTEMKIPDRLAENLELWQHRLPMSHDIEFATLFDYRVYQTVLLGKQV YDTGYGPGIRDRLRPLKKPIWFQWWKGAADLAQILKAMPDHKTLLRDIRG ELDQPGFGMAAAMKPTVPMPGAAPVPWAIQNMPSFSEIESGQKDLQLF
42	MNNTIKKVVIAGGGTAGWMAAASLSKLGKLEITLIESDEIPTVGVGEATIPP LILLHQLLDMDEKEFMKAVHGTFLKGLICFENWRDVNEDIHSFGYTGKDCW AANFLHFWLKGKLEKISKDYGVYCTELIAAQNKFAVLQSGALNYAYHIDAG RYAALLRKIAEKHGTTREQGRIDSVAATNEHTGYIESVTLASGQRIEGDLFIDC TGFRGLLIEQTLHTGYDDWSHWLPCDSAVAVQTRSVGPPIPYTRSIARDAG WQWRIPLQSRVGNGLVFCSTRYLSDDAEIQITLNNVEGETITDPRVIKFRGTGQ RRKHWNKNCVAMGLASGFIEPLESTSIHLIQKAVTRLIQNFPFEGIHESI KEFNTQMDADTENIRDFIILHYHVTNREDTRFWRHCKNMSIPDSLQHRIDLF KETGRVFKSPNDLFFVENSWIQVMLGQGLMPKQYHTIVDEMSDEELRKFMQ GAELSVQRTVSQPLSHQAFIDHYCKADLGTAGEHAMPLNPQSGVRAAS