

P1 (g11108)

LDSGDNGKVVYNIITGGNEEGAFKIDPDTGVIVKVRSLTTVSASTFALDVEAKDKGNPPRSNIAKVNLVFLPDGPPKFVV  
KPVVEEVTEGIKANNRVMVKAATSEALTYEVVSGNEDGLFRINPSTGEIMVRELDYEEARERRLVVRVMDTRDRSDQV  
TVILQIKNINDNAPTFPGEVNGYVERKVEDDFQIGDPVARLSAFDGDAGDKITYTLESENARASFTINEEGFLIAKKPRKE  
**FSSPVTFDLTAK**NGSPPRESKVNVLVLSYRPEQQHPVREYVREDKEVGSVVAIVPRYFPGGTLISIVYPRKANFTVDN  
**SGRVRMTT**PFDFEARQLYTLTVREQEPSPLSRNTNDVDVEINVIDINDNKPVMK**MVEFFGR**VNTNSRPGTSAYQLKAEDKD  
GGLSGRIGY**QMVSR**GVPPFAINPLTEVVETGGKLEDRGGY**NVTVFGDFGVPRQFGDSVYLDIK**TVNFKPQFSESSYNFEV  
FENDLPGK**VIGV**VNATSASGARLGFISIVQGDTDNKFSIESTGELVVNSKLDREKTSMYNLKVR**TTEQIP**RGYSNDVDVRI  
SVKNANEYYPYFPLTVYEKINEDVSGASVLSITAYDCDCTGCVCKNAELK**YSLEGTSVFK**IDEVTLGISVGDTPLDYE  
TQRIHLFK**VVVEDFGEKK**FSSRSYVRVSVQNKNDDEPKFQRGEYSIDIAEDAITNK**ALAAILARD**GDGDSSLYTITSGAS  
GIFDINRNTGVLVSLVQSVLGQK**QYTLTVRATDTAPNPKFDEVR**VVINIEDINDNRPVFTVCPKEVTVAENKPTGERVTO  
VTAKSDNGRNGEVEYMLVTGGERLFEINNSTGLITITISLDRETADRHTLIVQAEDGGHGRNEAER**LLSYCIEVKVAD**  
**VNDNYPVFFTRQYYGSV**FHKAPVGTTVLTVSATDDDTGNNQKVVSLSVGSNDKFEVDGATGSI RTIADLSNFQQTVLLKI  
RASNOATPTATKTSSSETTVEINVVNQPPKFQPSVYTAIEIQEDVEVGTAVTVKAVSQVDSKNGIAYS**LVKSYP**SAEQ  
**NFKVDPGT**GVISTASTLNEYEQSSYTLQIRARENNIDLYATCSVNIR**LKDVNDTPTFK**LEEYSARVPEETVGGFNVITV  
KADDRDTLLSGEVSYSLGASQKFRIVASNGTIFSQEKFDRENQKTHTVFVTATDKGTPLOAKVAVSVVVVDQNDPEPLF  
PNRKYTANVQEDAPIGTSIDDLTATDADIGDNARLEYFISGGEQ**SQ**LFRMETVYSPENKGILYLNGKLDYETKPTYTIKV  
TATDRKNSDTVDVVIATKSWAH\*

P2 (g11187)

MIVRNDDDDDDDDDDDDDDDDDDDDDDDGVDGDDDDDDDDDFSDNEEMLSFEVDELEEKDVDGNDVDTM**QRHSVDSFDDVDFT**  
**FTKVD**TQAKYDGLPVTNVNLSATLPSS**SSLEIMVYLF**RAGKVTFGNETFRVEKGTIKFNIRISNWDFCDGSRFDCDEGK  
IGEFLDLKLKIKSKDSPAIEISDDDRKAAAKRICEDESDDDGVDPTDSDNDDDDCPSIYDIGGDSEMLLNKG**VVTTDD**  
KYTALPEGYPKFEVEDGEKKFVFRIPKFKSVLVDPSVNVGRVNGVNSLAHANTGLAFLFLIAAFIVTNYV

P3 (g12510)

MSDATFILMKNVAVTQIMDQYGTDRIHYSVIFGSI VTTQVTFDRRFPEKNELIROVARYGKV**DGNPNLSAALEEAKRIYE**  
**LQSVRPN**ARKVLVVILDAPSASNTTAVKKAVTELDKRDVLVIGVGISSANENDLIGITKDDRHLINATLNKPYQEVARE  
IEAIFYGINTAGFSQWGDWSACSKSCRSGGVAGTQERR**ICEIPRRGCVGPTVETRE**CNIQNCEDCGEIGPLEDGSYEA  
SSSAQPPR**FAKLNTTNP**GVNKQGWCPAEDPEQYLQINL

P4 (g9861)

MVVSQSITTVQESAPMEEEFFNTQITEYEATLKSSADEKE**GLQEEILNLQTK**LAKLOGDYDRAILD**LAATK**KDCDLKVKK  
FEVQLQNSQKQRDDLKROLEKLRDDLKKSREALSSAQTEAVNNKRAADRRLDEAEGKNRQIRNLEQKNGSLEDQIEQLKQ  
ELSHSEMSAEVEAK**RAKDLENEL**RSERRVAEQEAIIESLRSTNEDLQRELAINSRV**STLESQNGKMSTRIRELE**NELV  
**RCHARI**HDLENEFESVNTKCVQLQSSYDSSVSEVDGLRSRVGGHQSKVNELESRHSVTSKERDDLKLRISPLEKTLAELR  
LTLERSENTCDGFEREIDMLKAKNSNLETQLASANKLKTQLRADLDAEKDKSNQLR**REITALQ**TQLGEAQRNLDKFKNDN  
VRKQKVIDDLRNTIRGLEAKIHAQENDVKOLEMQDMAEEEEKEAMHDELDDNNRKLAEQEE**SLRQAQDKLDN**VEKELIDS  
QKNNEKLENTLENTEKEKRD**FENRVLQ**LQ**QNLTR**VEAELRDALSCKAVLEEDAKQHSVVSKLTDEIDRLKGLLAE**AQRQ**  
IDAYRRESDSKDATITALKSQISDLDKENDDLRAELSKVKTQLAAVEEEK**RKLQIE**HNTKNEEINRLTGEIDITV**KRNEE**  
LQSECIVVADKVQSVSESSYQDFMSLAGEQDGLLEGEKEKNAQLKKEN**NALKKITS**LEKKDRS**QEV**DQLRADLDAANEEI  
PKLQDRIQQLVGENDDL**SRDILVVQSNLSQ**KENDLEAAEKDKEKAEDDVHIAQ**GKIDSLESQ**LAALRKQKVQLKDNLKDA  
NNKIIKAKEESNDLQAKVSQ**QEKIE**GLKNGNTK**KENIRE**LTDKIKKLQNELADAKREVSAAKLTA**EGLRSD**KKDLERK  
LADQIKRIEALASEIKDLKAQRNSMETDLSNKTHKLALIESQLNSIKKEREN**MKEEVKDLNDR**LKLNKEENLS**FQTE**IRR  
LEKELEYKNKDNQDKDAVIERLKATKATVDEELLNLK**KELMKTQ**NLLDVAENKTKALENS**QROT**NLSMNKLEVTIQNLNR  
EREERDRVGS**SHDSQYIE**IDTLYKASQDRENRTKRELQAVKARLEKVETDYKIQ**QESVDRRAK**VNSLEKKVRDLQAAND  
RKDK**QAIRS**DLAASNQVADLEVAYDNEAKEKDSFKKQLDDALEKLAKARKQ**NLE**LEQTIENKIQLEEA**EKEMTE**KE  
NAINNLASS**KEFL**EG**QLDAAKS**GLDKAQREIDELKSEDA**SQNEILE**LHNKINELEARI**VKL**TGERDRALDDTA**INADKI**  
ANLEQQIGELV**SERT**TL**LRIE**DLKKEISSLREERMEV**NKQ**LTDLQGNISFLTREVENRDKVITDLRN**KEELQ**EKEIDNL  
RKNLRRLESENE**SALQKISE**LRKAYESSQKTIMIESKSDSHRDKAKRLDEENVSLKRRIT**ELEITH**NVNEEK**QELQDK**  
LLRAQETIGNLESAP**MESSIV**VE**TETN**VEAAAGD**GIEIE**FLKGDLENLKD**KNAQ**LEKHLRQ**TLDS**ESNLKAQ**MAQDQ**T  
LKDNEDTILD**LERRI**QELTIRL**KKTQ**TDAPGIVSSLR**NQKDS**LERDNVR**MKKE**LEAVKASQVDTQ**KRRAD**VENQ**LQOIK**  
RKLNEADFKLN**MANTQ**ENENL**HQELL**RAEEKNRAIEAERESAL**QEQAN**LRGGL**NETNER**LNRAKVDLANLKTQ**KRDLT**GD**L**  
EAVKRDRDDKE**STIN**WHLGNER**QLKDEIAS**LKRKLDNMRDANEKLSHTVDNL**NAQ**QERE**EKIAD**LEHHM

TLLRDEGEKLRRLATANASVADFKKKYFNALKDIERLQTELNTKIQRASLENRIKSLENAKSLRNEISVHKNTISDQ  
KVKLEASRRSDRIPTTEITVTKVVGPSLQSAAPDMFQFTDDSVPSKYYKDLKETSYYKVLREKEDGKDAATLKNRLAKLQSE  
LDETNRVKNAVEGDSMWKAKRISQLESELNDLQSKDMVDSDEALGWKNKIPHLEQDLHAANNKIVRLEAEIETYEKMMKD  
YSDDLKAKERVAQLESKVEDDQEKIEGQRKELMEAYKKEADLEAATKSCHNSKSELNGVIMTLRDKIGALENELQKEAK  
QHAAVHVRTLDQMKIREDDLRKRKIAKLQKQLREVQQOYDSQVQDWSERKYTIDGLRKENADYIATVEKLRRELGMKNDLD  
NMATEKRDLQNELNELTPKMEQLETRLHKALEDTRFQIELDDTKRALDEVGRRESETVIROVSGGGLEAGVDMFPELSN  
DLESTKNERDRLASDVSSWQNKHDTLQNNYDNLADK**RLEEKLD**SMQTMNQLDHNQTLTSDKNRQTVLESAKRKIA  
DLLSELDDAKRDKDALKVEYEIIOKKITKFEAEYIEIHKHRHDYDDSGAYAKLEEAYKRSQERENEVQKELLVCYKTIGE  
LKHQLENAHETMERL**TVTYNTE**TIRSATLREEVVSQRRLESELEEKFEINRGANEDMENELTVLQORMEELSRENSIQE  
AKALVLEVTNQRNKIARLEQOLEDCESEKSLRLQLTAMHSGDAEAHEISKQISQLEQSLTFQREKQNLERQLSQKH  
AETISLQRENDALKSQEYSSSTEKQIESFFEMGGDADLGPSAESTRFEFDNDDFEGGGTTVKTRTVKVRSSKILLSK

P5 (g11674)

MOGKPNNSRVSQYKLSYSDDNRVYTPITDQVKKKNKPNPINGGWTEWTAWACDPCGGNLSR**TRTCTNPVPVFGGLDC**  
VGANTITQFCPNNCAVDGQWSNWSAWSPCKTTCGPGSTWRTRDCVNPSPNGGAFCKGQAFQLGSCNDGACPEATTTTAA  
TTTEVTTTAAATTEATTTEATTTEAATTTAATTTTEAPTAAATTTTEATTTEATTTEAPTAAATTTTEAATTEATTTEAPT  
ATTTEATTTEATTTEATTTEAPTAAATPTNATPTGIPGLSDIDITFALSATSANSNATYTFMONTLKTFFIDKYRANQIQ  
YSILVFGNRVERVTFNSSFPTANQLKAAIDAQPALPGGPVLEDALKETFK**IFNESQGRPAKKALVVIDNNSGTDKK**  
TL**SN**AVKTVEEQVVLVISVAVGGV

P6 (g11666) see g4601

MCKAGFAGDDAPRAV**FPSIVGR**PRHQGMVGMGQKDSYVGDEA**QSKRG**ILTLKYPIEHGIVTNWDDMEKIWHHTFYNELR  
**VAPEEHPVLLTEAPLNPKANREKMTQLSRLCCLSTPLVEQLVSSLTAEMVVSHTVPIYEGYALPHAILRLDLAGRDLTDY**  
**LMKILTERGYSFTTTAERE**IVRDIKEKLCYVALDFEQEMQTAASSSSLEKSYELPDGQVITIGNERFRAPEAMFQPSFLG  
MESAGIHETTYNSIMKCDVDIRKDLYANTVLSGGSTMFPGIADRMQ**KEITALAPPTMKIKII**APPERKYSVWIGGSILAS  
LSTFQOMWISQOQYDESGPSIVHRKCF

P7 (g4601) see g11166 and g13727

MCKAGFAGDDAPRAV**FPSIVGR**PRHQGMVGMGQKDSYVGDEA**QSKRG**ILTLKYPIEHGIVTNWDDMEKIMFETFNSPAM  
YVAIQAVLSLYASGRRTGIVFDSGDGVSHTVPIYEGYALPHAILRLDLAGRDLTDYLMKILTERGYSFTTTAEREIVRDI  
KEKLCYVALDFEQEMQTAASSSSLEKSYELPDGQVITIGNERFRAPEAMFQPSFLGMESAGIHETTYNSIMKCDVDIRK  
LYANTVLSGGSTMFPGIADRMQ**KEITALAPPTMKIKII**APPERKYSVWIGGSILASLSTFQOMWISQOQYDESGPSIVHR  
KCF

P8 (g9654)

MDKCSNLITDITYFLTVGKPRIKLPKKDSQEWKFHDWVKVAAWGQKIKNVDGLMKQGHHDGMPVIRWCVTSPCEMKK**CER**  
**MAMEFN**YKISPRMQWSCVMASCKESCMEEIQRGNADIMTAEGDEIYTAGKMHYKPIMAETDDHDHVPNYDTKFKKFQKP  
DGTLKHFSVALIKKSTAGIKSFKDLSKKSCHPGVDSKAGFK**SPVCSLI**KNVIVSSVGNVFESAGEFFKESCLPGVQHER  
FNPNTNPESLCLCKGQGDKDEFCQILSDKEPYGCDGALKCLREGVGDVAFFHTHDILMKYDTFSTEFDIVCEKDKF  
PLTWANLMKPECHLTEEYQVLMVNGEKSKNWIKSCTDALMDASTKFKSPTSGGDFMFDSTOYCAKDDSDDKGSEMKNGM  
FKVDTNLMKNKDLIFKDCSSSLMLIPEDKRTYEKFLGVEMLGVWKA**CEQLEPKPRAFI**CVVGGDD**QMTK**QDMITKFKQKIT  
EVKKVSWGCIEAPSKQECVEMVANGLADLVDLNATEMFVAGMDFNLAPFVAENHKDKDAMTESITIGVMLKDGSDFLGDM  
QGFKMCNAGVDKLSGFLHPMGWLLANGTVPRRTTPLESIGKYFGESCVPGIDKLDMTSHPLLSHTLNWRGMLKDKIVRWE  
DWYDAPLWRQWQDKEDGKTVDYTAMHK**IEDFQSPEFK**TMIAKMGSFNPRMRKYHTPDIRQVLEKMPWKMIKWVWHKPED  
WTEEQWALFQMWAE**RSWDQ**KEDLVSYVEKWTDLWETFKRWMNAEFQDYSTKDKSLHQDTFIRLS**SLMCS**RYWLLNEWKN  
LOYDDIDMKQCREKLCNTCAGKGDKKCSMDSNNEDYYGYKALKCLKQKQDGNVAFIDAYSFENIQEDSYKNDFVLLCP  
DGKTVDYTGADSYEKCNFGRIPSRTLVTCNMHDGIWRKVTKALLVAQEKLPQOVFQDCIFSKNMESFTSIPFVNQTYQV  
RL**GPMLFRAMESLMQPPVKE**KAVKYHTVDCLGEECDGDVEDRLACDECLGDDVCLENCWDGEPVMEEMPSHIIPKIPL  
KMPLKMGVGVKKITLWPKCRHSHQMMGKMHMGAMEFGMKGHMHHDMSMSGLIMKGSVPVMHQRSMMRQKVPFPHK  
MSAKPTKFGMKHMMKFGPMMKSGSDKLHMMSSKVMEMHFPKSMKPFMDEPIHGGKMANHFMETGPLMHSYKSLR**GEFYT**  
**NVLFARD**GTCSIVHDLSCFGERREIRMKAGRVGQTTITVPMCPKPTIFKNTTALFTCDNGASFAKPVSLPLKAYAPCK  
PGFWLPDWSLDQYWQGDNSHIGGDHWGSKAWWKNRQGNWNFLAARDENRVQKKS**SVGKQ**

P9 (g10811)

MRDISVIVYSILCYFCLLRTAIGOTFDVRVNLEEGKDAGQPVHSFPLPASNEVYTFPPAQDADSKAALTLFQISEQGVVT  
TTKPIDFEIGKKNYDLVAVRRDRGDKEGGVPLSIRISITDTNNFGPTFPNSNLYHGRVKENSPPVDTIVLGLENCFAEDRD  
TEGSITYSISGGNEKGYFKAEGRTVNNINRVFLVLTNNIKIVRDVNTPKIILTVRAFDGRRFGTTKVSITVLDVNNNDP  
KFDKDTYTATINEDTPLMTSVLRVRATDADVGTNGGIYYIISGGSPWFSVDAITGVMKVVSRLPNQAAVDLRVTARDRGR  
DGTRSHEAVVKVINLIADYPPADTASPGANTPPVFPEGSYSANVREDFPVGA AVLVIHAVDRDPPGRNSRIQYRLSGDN  
AFRINPDNGVVSLRNLNDYSLQNSYDLNVIAQDQAQNPLSAEASLKITVQQVDKNRFAPEFQAPNKYQRQASIPENRAIN  
TKVGSSIATDSDGSQRPEGQVVYSIASGGLPYFKIDANTGDLRSVAVL DKEKQPQYNLLI EARDKSLYPLKSNLYMVI  
AVTGVEDNFPDFSQPVYSAKVPGNAPRGTFVTAIRAIDQDGDVPTYSIDNAGSAFTIQADSGVIT TARPLDPANEERNFV  
LSVRATAANKDSRAQVIVNVVSKADSPPTFVNLPYKATVPENLQIDSLLCLAAKDSQGRFSATGSFDYEAF TGGVYQVQ  
ASSGPQQIATESVTIAVTDTKDPPKFSKGSYKFVIDEDTSAGTTITVTNODGSSGGLVIEDADTTITNFECTIENIKSLE  
IENHFTIRLVTSNSNKNAQNSNNVRRRRVEVSVQVYAPGTTFIQFDPASYSKDI SENAPTD TNVFKVTAKGPN SIRYSIV  
GGNINNAFKITQSGQVQVANSLDRETQATYKLVIRAFKDGTKLASEVTTTINVLDVNDVTPKITFMETQPKELAVEDYSP  
KGSFVVKVRSYPLAM

P10 (g11107)

MVLQAVDLDTGINAVIHVELQDNAGGKFKIDQDTGLITTLTLETLEREGPENEFVQVKATNRQAGAPLLSGTVTATIKVSD  
GNDQSPVFDPLVYKANVPENALPGYLVTKVAAIDKDVGNPAELEYTITAGNDPYEFYIDPRNGRILVSGLLDFDKGKTTY  
NLTVTVSDRGNPPKSAPRALVYINVL DANDNAPIFVPAEYNNKVSSESVKPGDVTLLVTAVDKDTGTNAQFQFSITEGDD  
ANMFVAVRSNAYNGSIGEIYTLQLDRETVPRYNLTVTATDSGGLQGI AVVHLTITDINDNGPWFKPRYEDTVKAGINPS  
QQQPVVTL EAYNDPDEAINGPPFTFSLVNTDLSNRFKITKATDKTANMAAFGEFNRDVKQSEWVQVKAEEGSGNPTMDNTTF  
VYIDVEDDRNRNEPFDGKLTII VNAYNRFGAGGI IGKAYYRDNDYNGDQDKYSMDVQSFLTLTPETGDI TAEANI PVGRY  
TFSVKVEETKQRPGNF PKIVTSDVTVIVQSVTNAAIQQSVAVLILEMRKTSFFVADFYTKVQGVLANILTGDDTDQILIF  
SIQKAPINRVPLSALFGVEIYLSVKSGGIMDRLRVLNQLIQNKQRLEELGLKIGSIGIDACAYEQQQVGICKNVVKASS  
AFTVVSGDYGOVPATESSLTVVAMNVNLQAEYTSIILPEINCTTGTPCFHGGTCHNAVPKGII CECEGREYRGPECQSTTR  
TFKGN SYLWLEKLAAYERSTVSLQFMGTADGLLLYQGPVSEGSNGLPDVMAVMMVGGYIKLVLSLGPHPNAPLELFMN  
RGDRLLDRQWHTVEVIRELKKVTVRIDLCSKAQVVEDDGOVLEKRAACEIEGEVWGSNVYLNFGPLQIGGVENKLNDAK  
ISYAGFOGCIRNIKNDNDVMDLLNPVSEKNTDLGXAFVNSGGNAILRTADGNI ISSGIGSGLAGYSSSDAELMGMTITVG  
RSGQVHLSSSYMKMYSSFGMRAVVGSSGRVFGRTATTSTRTI IRSYSYRSYTPIGVKSGGKVNVRV IPTNYDPSGGSIV  
ISSTKGGSVVGGSGGKGSAGGGSGASDSGGSASAGGGVVVDGGGAVAGGGGVVGGSGGVVGGGTVGHGQYVTGATVLG  
GASSADAYGQINAYGTSLGGWTF LGATPNGAKEIEVIGDFGGCTASNSYNGVDLNDNPSIEARRQNV EFGCPCSSGFCLH  
GGTCVDAVPPYCMCPPGWTGPRCETVVVTSNP

P11 (g13727) see g11666 and g4601

SLVTQTVKASELDEKGMVGMGQKDSYVGDEAQSKRGILTLYPIEHGIVTNWDDMEKIWHHTFYNELRVAP EHPVLLT  
EAPLNPKANREKMTQIMFETFNCPAMYVAIQAVLSLYASGRRTGIVLDSGDVSH TVPIYEGYALPHAILRLDLAGRDLT  
DYLKMLTERGYSFTTTAEREIVRDIKEKLCYVALDFDQELQTAASSSSLEKSYELPDGQVITIGNERFRCP EAMFQPSF  
LGMEASGIHETTYNSIMKCDVDIRKDL YANTVLSGGSTMYSGIADRMQKEITALAPSTMKIKIIAPPERKYSVWIGGSIL  
ASLSTFQQMWISKQ EYDESGPAIVHRKCF

P12 (g2385)

MFIFRHYQVLLLSQLPLLTLODETENKCSQTTITEAKDHLRLN GGGPLGTYNENYMAFTLDEVRTNFKNLLTLOPGNF  
SALAAWAPLSFPATLESGACVKDSGNCEGCPVVKDLGANYYP RFLNEVNCSSGQICGQGLGECRTSVKSQRFFRDPST  
LSTCNKDLEEY YDMEMCCQMLL\*

P13 (g6918)

MGYNAGDPSNLRFYNI PSSGTVEAHLVDERLGNTNREGVWFFRLDVNPILD LPAKKCYTWIQOODNIQVPAIRPCPCTLD  
QAVADKNFYVDYNQVAKRSNLTLCAYSVRDLTSRWAQCCYTEIPGGGRVLSVGPTEGGT PFLIGIPGLPIITDLEAHS  
YCCNASLCARYYQLRPSDTCRSYSSRREALIWGDPHFVTLDNKAYTFNGLGEYTMISIDNVGFELQARTKTSGRGLGTV  
FSAVAKEANTA AAVEGRINSQGELEVFVAGIQQNILTVAERGLISGNSITLIRETAGSISALFPSGISISFSRVSDALA  
TTFNPIEFVNHTKGLLGTWNDP SDDFTTPDGTVLPADATPQQIHYDFGLKWQIHASQSLFTYQAHENPSTFIDL SYVP  
MFIDNITWTNESFRRQAESVCGNTHCLF DAAVTVDCSFGKSTKELEENNVQVNIKL

P14 (g9951)

IIPDIDVGFVAVRDEEVESVGLFTLMRDTISTINHRYGTERVRYTVILYGNINTTVVQFSNRNIDHQELISTVTELGRVPG  
AIDLEAKL**TAAEALFR**SLPSRAGSK**KVFIVLTDV**TAGNESTITSAGASLV**REGILVFSVNR**SEDG**TNVVTVTQIDYLN**  
**PTFTTDRSVVIAETIIRKASS**

P15 (g1532)

MVVRNEKDDDDDRDGKDGKDKDDKDDSDSKGDIDDKNKDSLYDKDKFDDKDDKDDKDNKDNKDDDDDDDEDFSDNE  
NLLSFELDEIEEKDADDNEVDDKHSVDSFDDVKFTFGKVNKKSTLDGIHVTTVNLSTYLDDQKASLEIIVYLFHEAGSVR  
FISNWNFCGDGESSGECSESKI**GEFLDLSLKI**SKGSPKEVDDDRKKKVCNSKDDDDDDKNEDEDDNDDDDDECP  
IYD  
VGGDSEMLLNKGVSR AHL

P16 (g11702)

ISYLCMAKFDSQKTALMIPAKKVFGVDNWDDKVLAK**MCNLEALPVREMLK**LASDVAIKDMLSNNLNLSEGQLRVLAVK  
ALDLLGSPDKWNKDYIKELGNMVGAGLMPSEL**RQIGAQVVKDSLQFLK**GIDFDLDQLSKLDKDDVVNLS**KAIDGFLSSDV**  
**KMTQAVVIAAFPEMKVAKVAMPV**REFIKKFEEDPSSAGK**IAQLGDFAVALS**RGEVDAESVDKVI**TNLDKLGVL**PWDK  
TKTLTLIKKIRTKWGFNGT**DADDS**SDSPNWGFLNMKRLGRLALGIAKEELRDLPIR**GIEDVIDVLGKE**KDWD**RGO**

P17 (g12472)

CTNLPPIFIYKVMFKFDSTHGRFKGTVEAKDGKLVINGNPISVHAKRDPSEIQWGADGAQYVVESTGVFTTVEKAS AHL  
KGGAKRVIISAPSADAPMFV**MGVNEDKYDPSKMTI**VRNM

P18 (g810)

LMEAGVIGSHGQAALRRAEAVHRRASALATIHHHNMAASSVPEAIQIVNLAALKVAQLMEDGLIGHNGLPVTKRVVATP  
IGEGNVQTYHRTVVKHAQVTKMNIGVAILRDAQSVAVGVRGVSGQAAVRLAMDNEQGTAAHALILHHPTEPLAPGQEYN  
LKRAMWGSVQMAAGQPGVNGRPVQNRVVEEHKGGQDLAPTLHPHMAERSVWVAKRSPSSAKNKHVQWMAGGLSGIHGESA  
ALHVEVENDQEHEPVLIIHHHLVTDQDVLAAALWRLNNAKHNRVQWMANFLRGLNGNNAARRVEEELKPGPGGVIVLLLPLV  
GRPVLEILSRLEIVAPMSAQLMVYQGTGKVGSRVAGHAVAENNOEYVSVTAHGRPMVGNVVLATIQRQGS AKPRPVQLMA  
DGLNGPQGHAMLYVAMENATEQEPNAYTTLAATPTPTATAVPTPTIDPNIPKIDLVFAISATSVSSRSYELMKNTIKRF  
IDRYGVNSIHYSIIYVGDQVVRVINFNRTFPPSANELKTAIDNQLALS GGPVLINALQEA YRVFKESVGRPGAKRVLVVI  
ADENSGSSPSFSLRAVRPLEDLGVLVIVSVGVGDRI SRSELNII SPNLLDVISARLNINPSLLAVRIMERILRLNFPDQDV  
GFAISAASANSDEIFSLMK**QIINTI**IDRYGVSKVRFSEFIIYGSRV**TTRFTFDNAPITQ**EELIKAVNGTKK**VTDGPD**LEKA  
LEEAELFKTSRPNATKVFFVLTDFVVGAGDDNSLIANAVRLRKSGLVILSVGFQOVNAIGNQMTK**VVITQSDYI**RVDP  
FTTORPVVIAETIMFKALQGVHVECAAYNHA

P19 (g20041)

KTENTATIINEDGVIKLG**PEPPSHGIISLLFK**TPYPKGTILFNGD**TTKDYFHLEI**INETSIRLEYNIGNGVSTIDLSLA  
NEKELNDRKWHAVTVYRNMLQFGLKLDDQEKHKENPLFKEK**ELNVGDKLVG**TNPRDVTE**GFVGCIRRLV**SNHCSRL

P20 (g6066)

CDFEKKSFCAWLNVPNGNKSGLGLDDFDWTLGSGSTPSWQTPGSSDHTTGS AIGTYAFIETSSPRKRGEIARLRSKMFAS  
TGKCMSWWFHMYGATVANLNIYMKQVVKLESLVWNLNGSQGNVWKA**AEVITTSR**TSYQMI FEGVTGRDFQSDIAIDDILF  
NEGICYGLCSSVNSQQRVDCGYVGITKATCVGLRRCWDDSVPNVPYCFYHPSKIVATLESRQLSVSLGDAAGIILSRTF  
LGASTDRAGQHPSPPPQRLQRGHPNGTAISSKATVTGTTQKRTISTGGDSL VVHLLLEPVQLRIIQQEVKFFAFEGIR  
**GQSYQGDIALDDIR**VLDGSCPLLRNYMYIETSAPRKP GDYARLESPTHSVTDGNGKCLVFWYHMYGSGIGRLNVYIKRGN  
SLGSRVWTASGNQGNRWLRGMITVQSPNTQWKVRNSVCRT

P21 (g18277)

MMAILEHQPNHGNLMDKITLKDVSCTLNLDLGEFNATHLWMKAPLDGCLTNHSTSEDTITYMNSIIAET**RASAGSVLIS**  
**EFQAEFFPKCSYPRSAIMSVASFSPREKVI**YTRTAEFGNFTFTMDMYETDQYLTPYDSYPVEKKLNEKMHLEVKVKSND  
KLVLIPERCWATPSQDPKDSKFFAFIDKGCGEDDTLVFNYEENAVQRFTLDAFRFLQESTGSTVYLHCEVEACRKGDNES  
RCAKGCIQDNSRKRSL**ETDSTIMETVSVGPLTAEDIQ**PQKQ

P22 (g19762)

MVGAGGANVGVGGGNMGGGLGAGVGGITGGGGVGVAGGIAGGGGTMGGMVGGVGM**TSGGT**VGGGGLTGGGMVAGGGIVG  
GGVGGNMGGGGGSIGGGIGGVTGAGGNIGGGVGVGGGNVGGVGGIGGGVGSIGGNIGGVGAEGGIGGGVGGMGGMGIGT  
GVGIGGGVGVGGGIGGANMGGAGAETVGGAKGMEGIVHFCR**PCFDGHQELCDYCPSEFQDD**DEVEEGYKRHHHHHHKH

DKIHLQLGNDEPRHPERKRPFPAKVSVDYEVKQFKQAGPSKGYERHDEHGYRADTFSNRNDDVHPTTNPDTDYGEYKFDD  
SKMTVEDSGKYSEENMKTYQ

P23 (g1057)

MFGLHRCSSVASTTNYNNFNVTGLPNGTFVGNIGNQSYDIVAITPRDRDDLNDLPISMNITTKIVLDREKLSAYIIDLV  
RLNPFKVVVFFINVTDINDNIPTFLVGGYDFEFYEGNPVGARVTAVDDDLGSYAVQNYSSIIISGNTDNMFALTEYVDAVGR  
LGAKIELQPGKQLDREQRDLVSLTVSASDGGTPPQTGFGLVNIITVLDVNDNDPVFNPKYYNPVNTENTKQFPTIVEVYAT  
DKDIGTYGKVMYSVIHSDTSDPDGHFALRTNEKGIIVNLAKLDREKQDSYSLRVLAHNPGSGGYKRDLAYVTINILDVN  
DNSPEVSYTFYLDAYQVYEDASVGTKVARVWVTDKDGAKNAEIESVTIQGGNGHLSIAYDAANKVHIIISLAKELDREKQ  
PTFRVYIYAKDRGDPQQTQDGFILNVGDINDNPPKFDQDVFIADVSENATIGTSVVVAHATDKDIGSNAKLVNINISYTS  
QATLYKTFWQIDQATGEIRTSARLDREKFFARLEFLVTVTDSGVPALSANCTVIVNITDANDNDPIFTKAVYFSTVNSA  
NNTSVLQVLANDIDSGINGIVHYSLATQHRRVPFSIDPNTGLLSTSGQIDFEAQSLYVINVVASDGGGRLDKSILNISVV  
DENDNYPVINPIIYDVSUYENLTIIDVVATVMADNDSGILSQINFAFSNGNDGLFFINSSTGVITLIKPLDRETKDFH  
QLEVQATDGGGLKSKNSAVIQVTVLDVNDPEPPVFEPSSYKFAIDENSVDNTLLGSVYASSKDLGTNAQIYYSISDGNIH  
VFTINSTGTIFTQNNIDHERSPQLLTVQAKDGGSPPLYGFANVSVTVIDLNDNAPSFESGVIDVNILEDIKIGEVFYNV  
TAQDPDGLFGRVRYTFLSNPNNTFQMSNSTGALTVTHLIDFEGPROYLIIVLAEDGGSPPLNSTATFRVTVVDVNDHTP  
KFSNKSYSYTHVDEHTPAGTNILNVSATDADTGNNALISYSFQSGVDTSMFGLRSNGWLFITRQLDREQQEVYRFTVVATD  
KGIHPKSSSTADVIVYIDDINDHNPFTQQAIFSVNENQPNRTFVGVQVPASDKDAGANAKISYTFEPPSLEFAIDHNTGI  
IRTNQVLNREQRSSYILTVKANDHGTSRPTDHTSVTVTVQDINDNAPTFFKKPFYKAVPEDIPVGSVLTVEASDPDAGS  
NGMITYFFASNPGVFTIDARTGVITTTARLDREKHDRYTLISIGAKDHGNPNQSHVVFVTHVLDVNDNSPRFVNNSIFVN  
IPEKQAIQVTVTVTAKDEDTGNNGKVRYTIDQNGGKVFIEINETSQVIALRKPLDFEKKSKYQLRIVARDQGQNSQSS  
LYVTVYVLDSDNRPTFEMNPVTVQLQEGVPLNTNVTTIKAHDYDSGQNSWIRYSIDSQSPGPAKFKVDPSTGVVQTIGS  
IDREAVDEYTLNIRATDQAFTESERLSSSTLTIFIIVSDVNDNPKPIFVSPNETYVMEDEGFDYPVITITAIIDNDLGSNAK  
KYRIEHENDNRDSFRKFALNAATGLLKLVLGNLDHETTPKYVLNISVTDGGTPPQFSFQLLTVFVVDVNDNGPEFNQSLFLG  
NVSENQPVGTPVMAVSAYDLDSGENGALTYISIPRGNVNQKFALNGSSGVIYTNSTLDREKDEYTLTVYAMDNVYPRRVG  
TCTVKIKVLDVNDHRPVFIPSRNLTVLEHRPPDFHTLRAQDPDQGRIRYIIQHGNEDAKFSVGEFTGVLSTTAE  
DRERKSRYLVIEARNVVVPFYNASIYVTFIVGDKNDNSPKFVNSSYSVNIRELTKIGTPILRAQANDIDSGKNGEITFS  
LSSDALGIFRIDSKTGTIYTLQEFDYITAAYNFLCRATDKGVAPRETSVGVTVSIIIDENHAPVFDIAPYEATIVSGSS  
VPQNELVRVHAEDKSKSITHMRYRLDNSSQPFQLESNSGVMRVKQGVSSIPDKVYVLNIIADDGGNLTGRGIVEIIVG  
SVSPNRPVFNITPFSVSIIPENSPKSLEVARVLANSNDVVYSIVDGNSSNAFLVNSQGTGIVTVQNPALDQFERLRD  
RRIIVSRKSQPSRNDYLLHLVNLTDVNDNKPVFYPANISVQLLEDDGSQSSFTVRSVANLTTTDDKSGKNQEVYKIISG  
NVDDKFAINAQLGLLTTKGLFDREKHAVYDLVNVATDKGTPSRSSVSHVVVNIIVDNDNIPAFSGPYLVNLIKEDLRVGSV  
VKRVVATDKDEHPKLMYSFGNDKTIYDVFRIDQLTGDIALLESLDYERNTSYELNVTCSDGRYKSHTTVTVNVKDVNDNA  
PEFLESSYQATLSEETDQGTSILKVSIEDRDDGSNRELTYAFVTSLDLFRNLNNTSGVIYTAKKIEASDRDSFYFVLVSAV  
DRGVPQQAFAFVMVQIRINRKPMPFKEPAYRARIAEDTLPGTTVLTVSAADDSGMNVAKISYKFKFGNSEGLFRIGRRSGII  
KVNKSGLDYSEKNYLMGVEARDESANKSVVVEVNITISDVNDNPPVFPDSEYVKEYENISIGTLLRVNATDKDSGAN  
GRLVFSILSGNDKQSFRLNSRTGEIVTIKRLDHESIKEHTLSIQAIIDE

P24 (g15888)

HEVYCFSCQLPITEHEEEKAKGSFYFKVFGKELFYNYFTYDDVKELIEDGVIRVSNDLKDLLKKGKNWNI TRVLRPIEV  
KIRQPSVGLPLDFSVDGVLFLRLNNTTVKAEVQPRFFIPLPDQVTLGSKLNI

P25 (g11220)

MPQGRKTITLEVEPSDSIENVKTKIQDKEGIPPDQORLIFAGKQLEDGRTLSDYNIQKESTLHLVLRRLRGGMQIFVKTLT  
GKTITLEVEPSDSIENVKTKIQDKEGIPPDQORLIFAGKQLEDGRTLSDYNIQKESTLHLVLRRLRGGMQIFVKTLTGKTI  
TLEVEPSDSIENVKTKIQDKEGIPPDQORLIFAGKQLEDGRTLSDYNIQKESTLHLVLRRLRGGMQIFVKTLTGKTI  
EPSDSIENVKTKIQDKEGIPPDQORLIFAGKQLEDGRTLSDYNIQKESTLHLVLRRLRGGMQIFVKTLTGKTI  
SIENVKTKIQDKEGIPPDQORLIFAGKQLEDGRTLSDYNIQKESTLHLVLRRLRGGMQIFVKTLTGKTI  
VKTIKIQDKEGIPPDQORLIFAGKQLEDGRTLSDYNIQKESTLHLVLRRLRGGQ

P26 (g1441)

SNTWLMYRKPVQGSNDWSSLYRSSELDGFEIGEVEVTRPNSKGCLETVDNERYPKLFKIFMNDRRHVRLATVVYIHHDA  
SKNPVEWTRVPMNTDQVTLFQRMIEDIEPQKGYEEKWRYISDLPLSLSSDNPENDGLHPHMKIVFVTPVAGKLC  
PKRTKESVFSVGRHHTNLSELGYGKQILGFDVCLSGRYISPHTLHPPAFPCGPTRLNISVQPSRNPAAQKIQFKFGRGDR

FDEYHKTWRAGIYLOGTNPEKKIEADVVDYDVQNQRTDVTVDIHNMYPWLRKVCIIHQVISDNVVEFDLRFGENCLSDYEV  
Q

P27 (g18472)

MLTFQVDSMEEKDSNGNVVGLTSQKKHWSLSENPNQKFTFSPLNNTTFQRLPVKRINLSVSLAGPQANLEIQVLLFLK  
SGKIEFGNETFNVRSGTFKFNKIVSDWQFCGTNAEVCKNSTTGANEIGQFLDIGMSIGSVAEEPEEVDDDQIPGEDICAP  
EEPDEEHECPRIFNMGGNSEMMLNKG

P28 (g11651)

MKLAVAVLLVCVAAPQMILTIVLIIILSSTVFGFSLPSFEYGEAFEKAKEIGQEVVREVGRHAEKKNLSLLESGEQAMEKL  
ROLKEEANRKAGEIQETLEESGDQAIKLELRELKEQAGQRAEKLKGNAAEILEEQKKSLOETGEQAVEKLTQLKEQASNRA  
EEMKNTFHEKRKEAMEKLSNLKEQASQRAEEVKGNVVEEVVEETKTKTFHEKREEAMEKLRNLKGNAAEEMLEEQKKSLOETR  
EQAVEKLLKQIGEASNRTEEMKNTFHEKREEAMEKLRNLKEQASQRAEEVKGNIEMVEETKKKFHEKREEAMEKLRNLK  
EEASQRAEQVKGNVVEEMYEENRKALQDKREQAMEKLELQKALSQKEILKEKKQOLKEKMNQMWDDMKQKAGTNKEOLO  
EAFROKKQEMKEYWKELNEQAGESKEKFRKIWRENKENWRNKAAEEVSVAHSFYLSFCFYASLDKYLPAKDPVYM

P29 (g13377)

MREIVHLQAGQCGNQIGAKFWEVISEDHGIPTGTYHGDSDLQLERINVYNEATGGKYVPRAVLVDLEPGTMDSVRSRGP  
FGQIFRPDNFVFGQSGAGNNWAKGHYTEGAELVDSVLDVVRKEAESDCDCLQGFQLTHSLGGGTGSGMGTLISKIREEYP  
DRIMNTFSVVPSPKVSSTVVEPYNATLSVHQLVENTDETYCIDNEALYDICFRTLKLTTPYGLNHLVSVATMSGVTTCL  
RFPQYRALTVPELTQOMFDAKNMMAACDPRHGRYLTVAAMFRGRMSMKEVDEQMLNVQNKNSSYFVEWIPNNVKTAVCD  
IPRGLKMSATFVGNSTAIQELFKRISEQFTAMFRRKAFLHWYTGEGMDEMEFTE

P30 (g11056)

MGGIKGDVTFQSQGSSEVMVNLTVSATLKWVIRQLPMIYNGNANLSCKAGAVGDVDFDPTMAKASADYETNCQSSSS  
SKFQSCAVGDLSTMLGDLDRNQOPTTSLDPKLMIPISGPHSVMGKALVLYDGDMPKACALIGPTQPMKTFVAVFKGPVAG  
FVYFRQVDENSDFVFDLFFVNGANSKKNFSWQINQGVVSHDASDPSSYCKNVGQTFNPKNMGDVSCNKTIHGKCAIGD  
MTSKHGKIEVSLATEMOSSTKAAFIDTNLPLSGDSSVOGETLLLYPSEPTQAIACAKIVRLEPKTVKVSFNQSIQDGVGTG  
HLMFTQSSPFDATTAKIELTGLNKKAEGYHIIHAYSPPPYMQLLPNESCTGLIAGDHWNPFNVDIKTSPPAGTGTDDYEYV  
GDLGGKYGTFLNLSSFTKTVMDFNLPMFGRNSIQGRSLVHKKKIKDNNMRWVCSLDLILEVDEGITYFMKATANIRGPAV  
KGVVVV

P31 (g20420)

YVVRLLGGNDKIKELLGQDLNDGKPHRVDVVKDLVINVTLDGDSSQEKSGQITTKYKLEIDVAIYVGGAPSFQGLLGV  
KSNFYFVGLIDVKFRIVRGTPVREIQLLKQDVVESVKVDMADKRCSPALAFQPYTFSKPDSEYTFVIDKKTISIAGSFKFR  
TYQKDGILLKQNGQNGFTIKFGGSGVILSLVIKGTPTVETLPTDVNEPRVDAGNWIAIKFTLSATDIKLEGYNNELPVT  
KTPTTAVGNFFHPDVTAGGFIGCMRDLQVNGKDFKPIINGVSKVKGVFDRCNITDLCVFPCLNGATCTTDGKGLKDCD  
TGTGYKGDVCQLGKYLYTVGCIRN

P32 (g5540)

LPKEINVFDAVGLGKKVFPVGSSTTGQNNRSPAYHFTKQTKDMIASQNAFEEVDKLIHNSDFIVSAYAKLMANEIYGNP  
IVSISKDGNGLYFLLQISYTPQPYPKDAQRLGQLFEVYQEDIGEITSRFRGDLQDVKFVKGSPLSDCQRIAKASYCRC  
SISCQCTDVVGKDCVVDGLRYADGKRWTKDKCNICHCKWQVMCTYTCQVCKDNGQTYMEGETWKSSNDSCHTCKCEDG  
KVKCSPPVCAKPDSCSGKSGDLVTLKGQCCPICKEDQCKGTGKVFVKCGDVTCSNFHDNDACQSCTEGCYCPGVRVNDQ  
KCMASARCGCLYQKRYKVRK

P33 (g8985)

MTRLGDTFIRQLHEKGEDFTNLWAFSEFLESVDKSGVPDTKTIPVGLKMKELGIRNAIEMDLVYAGINYKFKVEAIN  
ELLTERLRWVHANLAKDSKVVVNFRLDPDGMIKRKRKRVKIRHLSSLPLDIRPFGIVTEESGKYFPEQLAAWISAVRRE  
MDDCGFKDGHLLVHVEKWLVDSTQLSCLANGANGI WASMI IQASMGAASTVTLMNLRVLRGNKKVLLKYNCTALREA  
AQEICRATTGQEPYPLQPIYGERALDMVFGMPKLGINEFDLAKFFGEKPLMRMTTLASAEMIITRLKNIFGEDPQFTIE  
RGTRMKEVMLEDLHKNIKEEYMSAAGLAQLFDRSGGQLTGKMAADVLAQDEPRKAHAQVLAIEVVRAMWDEWDLRDGKRDDQ  
LEFDAFYNGFLAPYFGCYRCDQALQALKAMDDEGTVDWNEFAVYLVKAMRQYPETKTAEDLLSVAFRKGLIPAMQDE

P34 (g1714)

**RYMYIETSSPRV**KGETARLVSDRFKIADGHNWCLKFWYHMYGNSVGALKVKLKMYPFNPSKPYNTLRRTQYNRGDSWYF  
DQVRINSADDFEIVFEASVGTSYDADIAIDDDVTKGYCPSPTPTPTPNACAVKCKSGKCVSSTNMCDFVNDCGVDNTD  
EQNCGDCTFETGTALGHYMYVEASQGDSWDLARFESTWLOQSASTCVVSFWYHMFSGIGTLYGYVKVGQTYTRLFEEWG  
NKGKWIQGLYVGRHSGPFKVI FEAERSYNVFGDIAIDDVSFENCTLPPIVSSCKRGQHRCARGSCIDPRRLCDYTDDC  
GDNSDEVNCYSYNYRCSFERSLCQOWNQLSDDDFDWRNQGSTASYGTGPMFDHTLGTSAAGSYLYAEASWPRKKGD**KARLA**  
**SGFLSALPQGDTSCK**LRFYFHMFGPDIGSLNVYTRPCNGCAETLVYTRSGNVGNFWDRAEVSLPSTVFPQVVI**ESVRGSS**  
YQGDISISDDLMTQYCRSYNGPIPTAPPPTAAPTVPACPGFRFKCSNGPCIDWGYVCDYRDDCGDGSDEVNCGPCNFES  
GLCNWKDNSVGRYQWSRNKGSTVATGTGPSIDHTCGNAS

P35 (g7349)

LHLVFFNK**KYETFQNAVDKPDGLAVLGLITATCPGNR**ILGNFAKKLTKVVEEGANTNATATDSIKLNYLMPYNNKQGD  
DDEEEDIASDDPEAVEEEEEVD**AKKKIKYYTYKGS**LTPPCYESTWIVFKDKIK**ISNTQLNKFRKLKAQ**FGGAP

P36 (g13890)

HYMYIETSSPRKQDKARLVSEDFSPITIRGRCVKFWYHMYGASIGTLRILEKTGPGNKSESTIWELSGNFGDQWYSGQA  
PITSSSPYQVVFEAMRGRSVSGDIAIDDVTFSTSKCSVPSLAVPPTPPPTPPPIINNCTFEGGFCSWTNLNGDDFDWT  
RSRGSTASWSTGPTVDHTLGT**SQGYVYIETSSPRSPNDKAQLQSGLIQPTTVTSGR**CLKFWFHMWRHVDTLNVYRKDS  
SSRV