

P1 (g11108)

LDSGDNGKVVYNIITGGNEEGAFKIDPDTGVIVKVRSLTTVSASTFALDVEAKDKGNPPRSNIAKVNLVFLPDGPPKFVV  
KPVVEEVTEGIKANNRVMVVKAAATSEALTYEVVSGNEDGLFRINPSTGEIMVRELDYEEARERRLVVRVMDTRDRSDQV  
TVILQIKNINDNAPTFPGEVNGYVERKVEDDFQIGDPVARLSAFDGDAGDKITYTLESENARASFTINEEGFLIAKKPRKE  
**FSSPVTFDLTAK**NGSPPRESKVNVLVLSYRPEQQHPVREYVREDKEVGSVVAIVPRYFPGGTLISIVYPRKANFTVDN  
**SGRVRMTT**PFDFEARQLYTTLTVREQEPSPLSRNTDNDVDEINVIDINDNKPVMK**MVEFFGR**VNTNSRPGTSAYQLKAEDKD  
GGLSGRIGY**QMVSR**GVPPFAINPLTEVVETGGKLEDRGGY**NVTVFGDFGVPRQFGDSVYLDIK**TVNFKPQFSESSYNFEV  
FENDLPGK**VIGV**VNATSASGARLGFISIVQGDTDNKFSIESTGELVVNSKLDREKTSMYNLKVR**TTEQIP**RGYSNDVDVRI  
SVKNANEYYPYFPLTVYEKINEDVSGASVLSITAYDCDCTGCVCKNAELK**YSLEGTSVFK**IDEVTLGISVGDTPLDYE  
TQRIHLFK**VVVEDFGEKK**FSSRSYVVRVSVQNKNDDEPKFQRGEYSIDIAEDAITNK**ALAAILARD**GDGDSSLYTITSGAS  
GIFDINRNTGVLVSLVQSVLGQK**QYTLTVRATDTAPNPKFDEVR**VVINIEDINDNRPVFTVCPKEVTVAENKPTGERVTO  
VTAKSDNGRNGEVEYMLVTGGERLFEINNSTGLITITISLDRETADRHTLIVQAEDGGHGRNEAER**LLSYCIEVKVAD**  
**VNDNYPVFFTRQYYGSV**FHKAPVGTTVLTVSATDDDTGNNQKVVSLSVGSNDKFEVDGATGSI RTIADLSNFQQTVLLKI  
RASNOATPTATKTSSSETTVEINVVNQOPPKFQPSVYTAIEIQEDVEVGTAVTVKAVSQVDSKNGIAYS**LVKSYP**SAEQ  
**NFKVDPGT**GVISTASTLNYEQOSSYTLQIRARENNIDLYATCSVNIR**LKDVND**DTPT**FKLEE**YSARVPEETVGGFNVITV  
KADDRDTLLSGEVSYSLGASQKFRIVASNGTIFSQEKFDRENQKTHTVFVTATDKGTPLOAKVAVSVVVVDQNDPEPLF  
PNRKYTANVQEDAPIGTSIDDLTATDADIGDNARLEYFISGGEQ**SQ**LFRMETVYSPENKGILYLNGKLDYETKPTYTIKV  
TATDRKNSDTVDVVIATKSWAH\*

P2 (g11187)

MIVRNDDDDDDDDDDDDDDDDDDDDDDDDDGVDVDDDDDDDDDFSDNEEMLSFEVDELEEKDVDGNDVDTM**QRHSVDSFDDVDFT**  
**FTKVD**TQAKYDGLPVTNVNLSATLPSS**SSLEIMVYLF**RRAKGVTFGNETFRVEKGTIKFNIRISNWDFCDGSRFDCDEGK  
IGEFLDLKLKIKSKDSPAIEISDDDRKAAAKRICEDESDDDGVDPTDSDNDDDDCPSIYDIGGDSEMLLNKG**VVTTDD**  
KYTALPEGYPKFEVEDGEKKFVFRIPKFKSVLVDPSVNVGRVNGVNSLAHANTGLAFLFLIAAFIVTNYV

P3 (g12510)

MSDATFILMKNVAVTQIMDQYGTDRIHYSVIFGSI VTTQVTFDRRFPEKNEIRQVARYGK**VDGNPNLSAALEEAKRIYE**  
**LQSVRPN**ARKVLVVILDAPSASNTTAVKKAVTELDKRDVLVIGVGISSANENDLIGITKDDRHLINATLNKPYQEVARE  
IEAIFYGINTAGFSQWGDWSACSKSCRSGGVAGTQERR**ICEIPRRGCVGPTVETRE**CNIQNCEDCGEIGPLEDGSYEA  
SSSAQPPR**FAKLNTTNP**GVNKQGWCPAEDPEQYLQINL

P4 (g9861)

MVVSQSITTVQESAPMEEEFFNTQITEYEATLKSSADEKE**GLQEEILNLQTK**LAKLOGDYDRAILD**LAATK**KDCDLKVKK  
FEVQLQNSQKQRDDLKROLEKLRDDLKKSREALSSAQTEAVNNKRAADRRLDEAEGKNRQIRNLEQKNGSLEDQIEQLKQ  
ELSHSEMSAEVEAK**RKDL**ENELRSSERRVAEQEAIIESLRSTNEDLQRELAINSRV**STLESQNGKMSTRIRELE**NELV  
**RCHARI**HDLENEFESVNTKCVQLQSSYDSSVSEVDGLRSRVGGHQSKVNELESRHSVTSKERDDLKLRISPLEKTLAELR  
LTLERSENTCDGFEREIDMLKAKNSNLETQLASANKLKTQLRADLDAEKDKSNQLR**REITALQ**TQLGEAQRNLDKFKNDN  
VRKQKVIDDLRNTIRGLEAKIHAQENDVKQLEMQKDMAEEEEKEAMHDELDDNNRKLAEQEE**SLRQAQDKLDN**VEKELIDS  
QKNNEKLENTLENTEKEKRD**FENRVLQ**LQ**QNLTR**VEAELRDALSCKAVLEEDAKQHSVVSKLTDEIDRLKGLLAE**AQRQ**  
IDAYRRESDSKDATITALKSQISDLDKENDDLRAELSKVKTQLAAVEEEK**RKLQIE**HNTKNEEINRLTGEIDITV**KRNEE**  
LQSECIVVADK**VQSV**ESSYQDFMSLAGEQDGLLEGEKEKNAQLKKEN**NALKKITS**LEKKDRS**QEV**DQLRADLDAANEEI  
PKLQDRIQQLVGENDDL**SRDILVVQSNLSQ**KENDLEAAEKDKEKAEDDVHIAQ**GKIDSLESQ**LAALRKQK**VQLKDN**LKDA  
NNKIIKAKEESNDLQAKVSQ**QEKIE**GLKNGNTK**KENIRE**LTDKIKKLQNELADAKREVSAAKLTA**EGLRSD**KKDLERK  
LADQIKRIEALASEIKDLKAQRNSMETDLSNKTHKLALIESQLNSIKKEREN**MKEEVKDLNDR**LKLNKEENLS**FQTE**IRR  
LEKELEYKNKDNQDKDAVIERLKATKATVDEELNLK**KELMKTQ**NLLDVAENKTKALENSORQ**TNLSMN**KLEV**TIQNLNR**  
EREERDRVGS**SHDSQYIE**IDTLYKASQDRENRTKRELQAVKARLEKVETDYKIQ**QESVDRRAK**VNSLEKKVRDLQ**QAAND**  
RKDK**EQAIRS**DLAASNQVADLEVAYDNEAKEKDSFKKQLDDALEKLAKARKQ**NLELEQ**TIVENKIQLEEA**EKEMTE**KE  
NAINNLASS**KEFL**EG**QLDAAKS**GLDKAQREIDELKSEDA**SQNEILE**LHNKINELEARI**VKL**TGERDRALDDTA**INADKI**  
ANLEQ**QIGELV**SERTTL**LRIED**LKKEISSLREERMEVN**QLTDLQ**GNISFLTREVENRDKVITDLRN**KEELQ**EKEIDNL  
RKNLRRLESENE**SALQKISE**LRKAYESSQKTIMIESKSDSHRDKAKRLDEENVSLKRRIT**ELEITH**NVNEEK**QELQDK**  
LLRAQ**ETIGN**LESAPMESSIVVETETNVEAAAGDGIEIEFLKGDLENLKD**KNAQLEKHLRQ**TLDS**SNLKAQ**MAKQD**Q**T  
LKDNEDTILD**LERRIQEL**TIRLKKTDQTDAPGIVSSLR**NQKDS**LERDNVRM**KKELEAVKASQ**VDTQKR**RADVENQ**LQ**QIK**  
RKLNEADFKLN**MANTQ**ENENL**HQELLRAE**EKNRAIEAERESAL**QEQANLR**GG**LN**ETNERLN**RAKVDLAN**LKTQKRDLTGD**L**  
EAVKRDRDDKESTIN**WHLGNERQ**LKDEIASLKRKLDNMRDANEKLSHTVDNL**NAQKQERE**EKIADLE**HHM**

TLLRDEGEKLRRLATANASVADFKKKYFNALKDIERLQTELNTKIQRASLENRIKSLENAKSLRNEISVHKNTISDQ  
KVKLEASRRSDRIPTTEITVTKVVGPSLQSAQDMFQFTDSDVPSKYYKDLKETSYYKVLREKEDGKDAATLKNRLAKLQSE  
LDETNRVKNAVEGDSMWKAKRISQLESELNDLQSKDMVDSDEALGWKKNIPHLEQDLHAANNKIVRLEAEIETYEKMMKD  
YSDDLKAKERVAQLESKVEDDQEKIEGQRKELMEAYKKEADLEAATKSCHNSKSELNGVIMTLRDKIGALENELQKEAK  
QHAAVHVRTLDQMKIREDDLRKRKIAKLQKQLREVQQOYDSQVQDWSERKYTIDGLRKENADYIATVEKLRRELGMKNDLD  
NMATEKRDLQNELNELTPKMEQLETRLHKALEDTRFQIELDDTKRALDEVGRRESETVIROVSGGGLEAGVDMFPELSN  
DLESTKNERDRLASDVSSWQNKHDTLQNNYDNLADK**RLEEKLD**SMQTMNQLDHNNQTLTSDKNRQTVLESAKRKIA  
DLLSELDDAKRDKDALKVEYEIIOKKITKFEAEYIEIHKHRHDYDDSGAYAKLEEAYKRSQERENEVQKELLVCYKTIGE  
LKHQLENAHETMERL**TVTYNTE**TIRSATLREEVVSQRRLESELEEKFEINRGANEDMENELTVLQORMEELSRENSSIQE  
AKALVLEVTNQRNKIARLEQOLEDCESEKSLRLQLTAMHSGDAEAHEISKQISQLEQSLTFQREKQNLERQLSQKH  
AETISLQRENDALKSQEYSSSTEKQIESFFEMGGDADLGPSAESTRFEFDNDDFEGGGTTVKTRTVKVRSSKILLSK

P5 (g11674)

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

P6 (g11666) see g4601

MCKAGFAGDDAPRAV**FPSIVGR**PRHQGMVGMGQKDSYVGDEA**QSKRG**ILTLKYPIEHGIVTNWDDMEKIWHHTFYNELR  
**VAPEEHPVLLTEAPLNPKANREKMTQ**LSRLCCLSTPLVEQLVSSSLTAEMVVSHTVPIYEGYALPHAILRDL**LAGRDLTDY**  
**LMKILTERGYSFTTTAERE**IVRDIKEKLCYVALDFEQEMQTAASSSSLEKSYELPDGQVITIGNERFRAPEAMFQPSFLG  
MESAGIHETTYNSIMKCDVDIRKDLYANTVLSGGSTMFPGIADRM**QKEITALAPPTMKIKI**IAPPERKYSVWIGGSILAS  
LSTFQOMWISQOYEYDESGPSIVHRKCF

P7 (g4601) see g11166 and g13727

MCKAGFAGDDAPRAV**FPSIVGR**PRHQGMVGMGQKDSYVGDEA**QSKRG**ILTLKYPIEHGIVTNWDDMEKIMFETFNSPAM  
YVAIQAVLSLYASGRRTGIVFDSGDGVSHTVPIYEGYALPHAILRDL**LAGRDLTDY**LMKILTERGYSFTTTAEREIVRDI  
KEKLCYVALDFEQEMQTAASSSSLEKSYELPDGQVITIGNERFRAPEAMFQPSFLGMESAGIHETTYNSIMKCDVDIRK  
LYANTVLSGGSTMFPGIADRM**QKEITALAPPTMKIKI**IAPPERKYSVWIGGSILASLSTFQOMWIS**QOYEYDESGPSIVHR**  
KCF

P8 (g9654)

MDKCSNLITDITYFLTVGKPRIKLPKKDSQEWKFHDWVKVAAWGQKIKNVDGLMKQGHHDGMPVIRWCVTSPCEMKK**CER**  
**MAMEFN**YKISPRMQWSCVMASCKESCMEEIQRGNADIMTAEGDEIYTAGMHYKPIMAETDDHDHVPNYDTKFKKFQKP  
DGTLKHFSVALIKKSTAGIKSFKDLSKSKSCHPGVDSKAGFK**SPVCSLI**KNVIVSSVGNVFESAGEFFKESCLPGVQHER  
FNPNTNPESLCLCKGQGDKDEFCQILSDKEPYGCDGALKCLREGVGDVAFFHHTDILMKYDTFSTEFDIVCEKDKF  
PLTWANLMKPECHLTEEYQVLMVNGEKSKNWIKSCD**ALMDASTKFKSPTSGG**DFMFDSTOYCAKDDSDDKGSEMKNGM  
FKVDTNLMKNKDLIFKDCSSSLMLIPEDKRTYEKFLGVEMLGVWKA**CEQLEPKPRAFI**CVVGGDD**QMTK**QDMITKFKQKIT  
EVKKVSWGCIEAPSKQECVEMVANGLADLVDLNATEMFVAGMDFNLAPFVAENHKDKDAMTESITIGVMLKDGSDFLGDM  
QGFKMCNAGVDKLSGFLHPMGWLLANGTVPRRTTPLESIGKYFGESCVPGIDKLDMTSHPLLSHTLNWRGMLKDKIVRWE  
DWYDAPLWRQWQDKEDGKTVDYTAMHK**IEDFQSPEFK**TMIAKMGSFNPRMRKYHTPDIRQVLEKMPWKMIGWVWHKPED  
WTEEQWALFQMWAE**RSWDQ**KEDLVSYVEKWTDLWETFKRWMNAEFQDYSTKDKSLHQDTFIRLS**SLMCS**RYWLLNEWKN  
LOYDDIDMKQCREKLCNTCAGKGDKKCSMSDNEDYYGYKALKCLKQKQDGNVAFIDAYSFENIQEDSYKNDFVLLCP  
DGKTVDYTGADSYEKCNFGRIPSRTLVTCNMHDGIWRKVTKALLVAQEKLPQOVFQDCIFSKNMESFTSIPFVNQTYQV  
R**LGPMLRAMESLMQPPVKEK**AVKYHTVDCLGEECDGDVEDRLACDECLGDDVCLENCWDGEPVMEEMPSHIIPKIPL  
KMPLKMGVGVKKITLWPKCRHSHQMMGKMHMGAMEFGMKGHMHHDMSMSGLIMKGSVPVMHQ**RWSMMR**GVKVPHPK  
MSAKPTKFGMKHMMKFGPMMKSGSDKLHMMSSKVMEMHFPKSMKPFMD**DEPIHGGKMANHF**METGPLMHSYKSLR**GEFYT**  
**NVLFARD**GTCSIVHDLSCFGERREIRMKAGRVQTTITVMPCKPTIFKNTTALFTCDNGASFAKPVSLPLKAYAPCK  
PGFWLPDWSLDQYWQGDNSHIGGDHWGSKAWWKNRQGNWNFLAARDENRVQKKSSVGKQ

P9 (g10811)

MRDISVIVYSILCYFCLLRTAIGOTFDVRVNLEEGKDAGQPVHSFPLPASNEVYTFPPAQDADSKAALTLFQISEQGVVT  
TTKPIDFEIGKKNYDLVAVRRDRGDKEGGVPLSIRISITDTNNFGPTFPNSNLYHGRVKENSPPVDTIVLGLENCFAEDRD  
TEGSITYSISGGNEKGYFKAEGRTVNNINRVFLVLTNNIKIVRDVNTPKIILTVRAFDGRRFGTTKVSITVLDVNNNDP  
KFDKDYTTATINEDTPLMTSVLRVRATDADVGTNGGIYYIISGGSPWFSVDAITGVMKVVSRLPNQAAVDLRVTARDRGR  
DGTRSHEAVVKVINLIADYPPADTASPGANTPPVFPEGSYSANVREDFPVGA AVLVIHAVDRDPPGRNSRIQYRLSGDN  
AFRINPDNGVVSLRNLNDYSLQNSYDLNVAIQDQAQNPLSAEASLKITVQQVDKNRFAPEFQAPNKYQRQASIPENRAIN  
TKVGSSIATDSDGSQRPEGQVVYSIASGGLPYFKIDANTGDLRSVAVL DKEKQPQYNLLI EARDKSLYPLKSNLYMVI  
AVTGVEDNFPDFSQPVYSAKVPGNAPRGTFVTAIRAIQDGDVPTYSIDNAGSAFTIQADSGVITTARPLDPANEERNFV  
LSVRATAANKDSRAQVIVNVVSKADSPPTFVNLPYKATVPENLQIDSLLCLAAKDSQGRFSATGSFDYEAF TGGVYQVQ  
ASSGPQQIATESVTIAVTDTKDPPKFSKGSYKFVIDEDTSAGTTITVTNODGSSGGLVIEDADTTITNFECTIENIKSLE  
IENHFTIRLVTSNSNKNAQNSNNVRRRRVEVSVQVYAPGTTFIQFDPASYSKDI SENAPTD TNVFKVTAKGPN SIRYSIV  
GGNINNAFKITQSGQVQVANSLDRETQATYKLVIRAFKDGTKLASEVTTTINVLDVNDVTPKITFMETQPKELAVEDYSP  
KGSFVVKVRSYPLAM

P10 (g11107)

MVLQAVDLDTGINAVIHVELQDNAGGKFKIDQDTGLITTLTLETLEREGPENEFVQVKATNRQAGAPLLSGT VTATIKVSD  
GNDQSPVFDPLVYKANVPENALPGYLVTKVAAIDKDVGNPAELEYTITAGNDPYEFYIDPRNGRILVSGLLDFDKGKTY  
NLTVTVSDRGNPPKSAPRALVYINVL DANDNAPIFVPAEYNNKVSSESVKPGD TVLLVTAVDKDTGTNAQFQFSITEGDD  
ANMFVAVRSNAYNGSIGEIYTLQLDRETVPRYNLTVTATDSGGLQGI AVVHLTITDINDNGPWFKPRYEDTVKAGINPS  
QQQPVVTL EAYNDPDEAINGPPFTFSLVNTDLSNRFKITKATDKTANMAAFGEFNRDVKQSEWVQVKAEEGSGNPTMDNTTF  
VYIDVEDDRNRNEPFDGKLTII VNAVYNGRFAGGI IGKAYYRDNDYNGDQDKYSMDVQSFLTLTPETGDI TAEANI PVGRY  
TFSVKVEETKQRPGNF PKIVTSDVTVIVQSVTNAAIQQSVAVLILEMRKTSFFVADFYTKVQGVLANILTGDDTDQILIF  
SIQKAPINRVPLSALFGVEIYLSVKSGGIMDRLRVLNQLIQNKQRLEELGLKIGSIGIDACAYEQQQVGICKNVKASS  
AFTVVSGDYGOVPATESSLTVVAMNVNLQAEYTSIILPEINCTTGTPCFHGGTCHNAVPKGII CECEGREYRGPECQSTTR  
TFKGN SYLWLEKLAAYERSTVSLQFMGTADGLLLYQGPVSEGSNGLPDVMAVMMVGGYIKLVLSL GPHNAPLELFMN  
RGDRLLDRQWHTVEVIRELKKVTVRIDLCSKAQVVEDDGOVLEKRAACEIEGEVWGSNVYLNFGPLQIGGVENKLNDAK  
ISYAGFOGCIRNIKNDNDVMDLLNPVSEKNTDLGXAFVNSGGNAILRTADGNI ISSGIGSGLAGYSSSDAELMGTMITVG  
RSGQVHLSSSYMKMYSSFGMRAVVGSSGRV FVGR TATTSTRTI IRSYSYRSYTPIGVKSGGKVNVRVIP TNYDPSGGSIV  
ISSTKGGSVVGGSSGKGSAGGGSGASDSGGSASAGGGVVVDGGGAVAGGGGVVGGSGGVVGGGT VGHGQYVTGATVLG  
GASSADAYGQINAYGTSLGGWTF LGATPNGAKEIEVIGDFGGCTASNSYNGVDLNDNPSIEARRQNV EFGCPCSSGFCLH  
GGTCVDAVPPYCMCPPGWTGPRCETVVVTSNP

P11 (g13727) see g11666 and g4601

SLVTQTVKASELDEKGMVGMGQKDSYVGDEAQSKRGILTLYPIEHGIVTNWDDMEKIWHHTFYNELRVAP EHPVLLT  
EAPLNPKANREKMTQIMFETFNCPAMYVAIQAVLSLYASGRRTGIVLDSGDGVSHTVPIYEGYALPHAILRLDLAGRDLT  
DYLKMLTERGYSFTTTAEREIVRDIKEKLCYVALDFDQELQTAASSSSLEKSYELPDGQVITIGNERFRCPEAMFQPSF  
LGMEASGIHETTYNSIMKCDVDIRKDYANTVLSGGSTMYSGIADRMQKEITALAPSTMKIKIIAPPERKYSVWIGGSIL  
ASLSTFQQMWISKQEYDESGPAIVHRKCF

P12 (g2385)

MFIFRHYQVLLLSQLPLLTLODETENKCSQTTITEAKDHLRLN GGGPLGTYNENYMAFTLDEVRTNFKNLLTLOPGNF  
SALAAWAPLSFPATLESGACVKDSGNCEGCPVVKDLGANYYP RFLNEVNCSSGQICGQGLGECRTSVKSQRFFRDPSTD  
LSTCNKDLEEY YDMEMCCQMLL\*

P13 (g6918)

MGYNAGDPSNLFYNI PSSGTVEAHLVDERLGNTNREGVWFFRLDVNPILD LPAKKCYTWIQOQDNIQVPAIRPCPCTLD  
QAVADKNFYVDYNQVAKRSNLTLCAYSVRDLTSRWAQCCYTEIPGGGRVLSVGPTEGGTPFLIGIPGLPIITDLEAHS  
YCCNASL CARYYQLRPSDTCRSYSSRREALIWGDPHFVTLDNKAYTFNGLGEYTMISIDNVGFELQARTKTSGRGLGTV  
FSAVAKEANTA AAVEGRINSQGELEVFVAGIQQNILTVAERGLISGNSITLIRETAGSISALFPSGISISFSRVSDALA  
TTFNGPIEFVNHTKGLLGTWDDPSDDFTTPDGTVLPADATPQQIHYDFGLKWQIHASQSLFTYQAHENPSTFIDL SYVP  
MFIDNITWTNESFRRQAESVCGNNTHCLFDAAVTVDCSFGKSTKELEENNVQVNIKL

P14 (g9951)

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

P15 (g1532)

MVVRNEKDDDDDRDGKDGKDKDDKDDSDSKGDIDDKNDKDSLYDKDKFDDKDDKDDKDNKDNKDDDDDDDEDFSDNE  
NLLSFELDEIEEKDADDNEVDDKHSVDSFDDVKFTFGKVNKKSTLDGIHVTTVNLSTYLDQKASLEIIVYLFHEAGSVR  
FISNWNFCGDDESSGECSESKI**GEFLDLSLKI**SKGSPKEVDDDRKKKVCNSKDDDDDDKNEDEDDNDDDDDECP  
IYD  
VGGDSEMLLNKGVSR AHL

P16 (g11702)

ISYLCMAKFDSQKTALMIPAKKVFGVDNWDDKVLAK**MCNLEALPVREMLK**LASDVAIKDMLSNLNLSEGQLRVLAVK  
ALDLLGSPDKWNKDYIKELGNMVGAGLMPSEL**RQIGAQVVKDSLQFLK**GIDFDLDQLSKLDKDDVVNLS**KAIDGFLSSDV**  
**KMTQAVVIAAFPEMKVAKVAMPV**REFIKKFEEDPSSAGK**IAQLGDF**AVALS**RGEVDAESVDKVI**TNLDKLGVL**PWDK**  
TKTLTLIKKIRTKWGFNGT**DADDS**SDSPNWGF**FLNMKRLGRLAL**GI**AKEELRDLPIRGIEDVIDVLGKEK**DWDRGO

P17 (g12472)

CTNLPPIFIYKVMFKFDSTHGRFKGTVEAKDGKLVINGNPI**SVHAKRDPSEIQWGADGAQYVVESTGVFTTVEKAS**AHL  
KGGAKRVIISAPSADAPMFV**MGVNEDKYDPSKMTIVRNM**

P18 (g810)

LMEAGVIGSHGQAALRRAEAVHRRASALATIHHHNMAASSVPEAIQIVNLAALKVAQLMEDGLIGHNGLPVTKRVVATP  
IGEGNVQTYHRTVVKHAQVTKMNIGVAILRDAQSVAVGVRGVSGQAAVRLAMDNEQGT**AHALILHHP**TMEPLAPGQ**EYN**  
LKRAMWGSVQMAAGQPGVNGRPVQNRVVEEHKGGQDLAPTL**LHPMAERSVWVAKRSPSSAKNKHVQWMAGGLSGIH**GESA  
ALHVEVENDQ**EHEPVL**IIHHHLVTDQDVLAALWRLNNAKHNRVQW**MANFLRGLNGNNAARRVEEELKPGPGGVI**VLLLPLV  
GRPVLEILSRLEIVAPMSAQLMVY**QGTGKVG**RSVAGHAVAEN**QEVSVTAHGRPMVGNVVLATIQRQGS**AKPRPVQ**LMA**  
DGLNGPQGHAMLYVAMENATEQEPNAYTT**LAATPTPTATAVPTPTIDPNIPKIDLVFAISATS**VSSRSYELMKNTIK**RF**  
IDRYGVNSIHYSIIYVGDQVVRVINFN**RTFPPSANELKTAIDNQLALS**GGPV**LINALQ**EAYRVFKESVGRPGAKRVL**VVI**  
ADENSGSSPSF**LSRAVRPLEDLGVLV**ISVGVGDRI**SRSELNII**SPNLLD**VISARLNINPSLLAVRIMERILRLN**FPD**VDV**  
GFAISAASANSDEIFSLMK**QIINTI**IDRYGVSKV**RF**SFIIYGS**RVTRFTFDNAPITQ**EELIKAVNGT**KKVTGDP**DLEKA  
LEEA**EKLFTKSSRP**NATKV**FVVL**TDFVGAGDDNSLIANAVRLR**KSGVLILSVGFGQ**VNAIGN**QMTKVVITQSDYIR**VPD  
FTTORPVVIAETIMFKALQ**GKVHVYECAAY**NHA

P19 (g20041)

KTENTATI**IN**EDGVIK**LGPWEPPSHGIISLLFK**TPY**PKGTILFNGD**TTKDYF**HLEI**INETSIRLEYNIGNGVSTIDLSLA  
NEKELNDRKWHAVTVYRN**MLQFGLKLDDQEKH**KENPL**FKEKELNVGDKLNVGTNPR**DVTE**GFVGCIRRLV**SNHCS**SRL**

P20 (g6066)

CDFEKKSFCAWLNPNGN**SLGLDDFDWTLGSGSTPSWQ**TGPSSDHTT**GSAIGTYAFI**ETSSPRKRGEIAR**LRSKM**FAST  
TGK**CMSW**WFHMYGATVANLNIYMKQ**VGKLESLVWNL**NGSQGNV**WKA**EV**TITSR**TSYQ**MIFEGVTGRDFQSDIA**IDDILF  
NEG**YCI**GLCSSVNSQ**Q**RVDCGYV**GITKATCVGLR**CCWDDSV**PV**NYCFY**HPSKIVATLES**RQ**LSVSLGDAAGI**ILSR**TF**  
LGASTDRAGQHPSPP**Q**RL**Q**RGHHPNGTAISSKATV**TGTTQ**KRTISTGGDSL**VHLLLEPVQLRIIQQE**VKK**FAFEGIR**  
**GQSYQGDIALDDIR**VLDG**SCPLLR**NYMYI**ETSAPR**KPGDYAR**LESPTH**SVTDGNGK**CLVFWYHMYGSGIGRLN**VYIKR**GN**  
SLGSRVWTASGN**Q**NRWLRGMITV**QSPNTQW**KVRNSVC**RT**

P21 (g18277)

MMAILEHQPNHGNLMDKITLKD**V**SC**T**LN**D**LGEFNATHLW**M**KAPLDG**CL**TNHSTSEDTITYMNSII**AE**TRAS**AGSVLIS**  
**EFQAEFFPKCSYPR**S**AIMSVASFS**PREKVIY**TR**TA**E**FGN**FT**TMDMY**ETDQYL**TPYDSYPVE**KKLNEKMHLEVKVKS**ND**S**  
KLVLIPERCWATPSQ**DPKDSKFFAFIDKGC**GEDDTLVFN**YEENAVQR**FTL**DAFR**LQ**ESTG**STVYL**HCEVEACR**KGD**NES**  
RCAKGCIQD**NSRKR**SLET**D**STIM**ETV**SVG**PL**TA**EDIQ**PQ**KQ**

P22 (g19762)

MVGAGGANVGVGGGNMGGGLGAGVGGITGGGGVGVAGGIAGGGGT**MGGGMVGGVGM**TSGGT**VGGGLTGGGMVAGGGIV**  
GGVGGNMGGGGGSIGGGIGGVTGAGGNIGGGVGVGGGNVGVGGIGGGVGSIGGNIGGVGA**E**GGIGGGV**GMGGMGGIGT**  
GVGIGGGVGVGGGIGGANMGGAGA**ETVGGAKGMEG**ISV**HFCR**PC**FDGHQELCDYCPSE**FQDDDEVEEGYKRHHHHHHK**H**

DKIHLQLGNDEPRHPERKRPFPAKVSVDYEVKQFKQAGPSKGYERHDEHGYRADTFSNRNDDVHPTTNPDTDYGEYKFDD  
SKMTVEDSGKYSEENMKTYQ

P23 (g1057)

MFGLHRCSSVASTTNYNNFNVTGLPNGTFVGNIGNQSYDIVAITPRDRDDLNLDPISMNITTKIVLDREKLSAYIIDLV  
RLNPFKVVVFFINVTDINDNIPTFLVGGYDFEFYEGNPVGARVAVDDDLGSYAVQNYSSIIISGNTDNMFALTEYVDAVGR  
LGAKIELQPGKQLDREQRDLVSLTVSASDGGTPPQTGFGLVNIITVLDVNDNDPVFNPKYYNPVNTENTKQFPTIVEVYAT  
DKDIGTYGKVMYSVIHDSSTDPDGHFALRTNEKGIIVNLAKLDREKQDSYSLRVLAHNPGSGGYKRDLAYVTINILDVN  
DNSPEVSYTFYLDAYQVYEDASVGTKVARVWVTDKDGKNAEIESVTIQGGNGHLSIAYDAANKVHIIISLAKELDREKQ  
PTFRVYIYAKDRGDPQQTQDGFILNVGDINDNPPKFDQDVFIADVSENATIGTSVVVAHATDKDIGSNAKLVNINISYTS  
QATLYKTFWQIDQATGEIRTSARLDREKFFARLEFLVTVTDSGVPALSANCTVIVNITDANDNDPIFTKAVYFSTVNSA  
NNTSVLQVLANDIDSGINGIVHYSLATQHRRVPFSIDPNTGLLSTSGQIDFEAQSLYVINVVASDGGGRLDKSILNISVV  
DENDNYPVINPIIYDVSUYENLTIDDVVATVMAKDNDSGILSQINFAFSNGNDGLFFINSSTGVITLIKPLDRETKDFH  
QLEVQATDGGGLKSKNSAVIQVTVLDVNDPEPPVFEPSSYKFAIDENSVDNTLLGSVYASSKDLGTNAQIYYSISDGNIH  
VFTINSTGTIFTQNNIDHERSPQLLTVQAKDGGSPPLYGFANVSVTVIDLNDNAPSFESGVIDVNILEDIKIGEVFYNV  
TAQDPDGLFGRVRYTFLSNPNNTFQMNSSGTALTVTHLIDFEGPROYLIIVLAEDGGSPPLNSTATFRVTVVDVNDHTP  
KFSNKSYSYTHVDEHTPAGTNILNVSATDADTGNNALISYSFQSGVDTSMFGLRSNGWLFITRQLDREQQEVYRFTVVATD  
KGIHPKSSSTADVIVYIDDINDHNPFTQQAIFSVNENQPNRTFVGVQVPASDKDAGANAKISYTFEPPSLEFAIDHNTGI  
IRTNQVLNREQRSSYILTVKANDHGTSRPTDHTSVTVTVQDINDNAPTFFKPFYKAVPEDIPVGSVLTVEASDPDAGS  
NGMITYFFASNPGVFTIDARTGVITTTARLDREKHDRYTLISIGAKDHGNPNQSHVVFVTHVLDVNDNSPRFVNNSIFVN  
IPEKQAIQVTVTVTAKDEDTGNNGKVRYTIDQNGGKVFIEINETSQVIALRKPLDFEKKSKYQLRIVARDQGQNSQSS  
LYVTVYVLDSDNRPTFEMNPVTVQLQEGVPLNTNVTTIKAHDYDSGQNSWIRYSIDSQSPGPAKFKVDPSTGVVQTIGS  
IDREAVDEYTLNIRATDQAFTESERLSSTLTIFIIVSDVNDNPKPIFVSPNETYVMEDEGFDPVITITAIIDNDLGSNAK  
KYRIEHENDNRDSFRKFALNAATGLLKLVLGNLDHETTPKYVLNISVTDGGTPPQFSFQLLTVFVVDVNDNGPEFNQSLFLG  
NVSENQPVGTPVMAVSAYDLDSGENGALTYISIPRGNVNQKFALNGSSGVIYTNSTLDREKDEYTLTVYAMDNVYPRRVG  
TCTVKIKVLDVNDHRPVFIPSRNLTVLEHRPPDFHTLRAQDPDQGRIRYIIQHGNEDAKFSVGEFTGVLSTTAE  
DRERKSRYLVIEARNVVVPFYNASIYVTFIVGDKNDNSPKFVNSSYSVNIRELTKIGTPILRAQANDIDSGKNGEITFS  
LSSDALGIFRIDSKTGTIYTLQEFDYITAAYNFLCRATDKGVAPRETSVGVTVSIIIDENHAPVFDIAPYEATIVSGSS  
VPQNELVRVHAEDKSKSITHMRYRLDNSSQPFQLESNSGVMRVKQGVSSIPDKVYVLNIIADDGGNLTGRGIVEIIVG  
SVSPNRPVFNITPFSVSIIPENSPKSLEVARVLANSNDVVYSIVDGNSSNAFLVNSQTVGIVTVQNPALDQFERLRDFRL  
RIIVSRKSQPSRNDYLLHLVNLTDVNDNKPVFYPANISVQLLEDDGSQSSFTVRSVANLTTTDDKSGKNQEVYKIISG  
NVDDKFAINAQLGLLTTKGLFDREKHAVYDLVNVATDKGTPSRSSVSHVVVNIIVDNDNIPAFSGPYLVNIKEDLRVGSV  
VKRVVATDKDEHPKLMYSFGNDKTIYDVFRIDQLTGDIALLESLDYERNTSYELNVTCSDGRYKSHTTVTVNVKDVNDNA  
PEFLESSYQATLSEETDQGTSILKVSIEDRDDGSNRELTYAFVTSLDLFRNLNTSGVIYTAKKIEASDRDSFYFVLVSAV  
DRGVPQQAFAFVMVQIRINRKPMPFKEPAYRARIAEDTLPGTTVLTVSAADDSGMNVAKISYKFKFGNSEGLFRIGRRSGII  
KVNKSGLDYSEKNYLMGVEARDESANKSVVVEVNITISDVNDNPPVFPDSEYVKEYENISIGTLLRVNATDKDSGAN  
GRLVFSILSGNDKQSFRLNSRTGEIVTIKRLDHESIKEHTLSIQAIIDE

P24 (g15888)

HEVYCFSCQLPITEHEEEKAKGSFYFKVFGKELFYNYFTYDDVKELIEDGVIRVSNDLKDLLKKGKNWNI TRVLRPIEV  
KIRQPSVGLPLDFSVDGVLFLRLNNTTVKAEVQPRFFIPLPDQVTLGSKLNI

P25 (g11220)

MPQGRKTITLEVEPSDSIENVKTKIQDKEGIPPDQORLIFAGKQLEDGRTLSDYNIQKESTLHLVLRRLRGGMQIFVKTLT  
GKTITLEVEPSDSIENVKTKIQDKEGIPPDQORLIFAGKQLEDGRTLSDYNIQKESTLHLVLRRLRGGMQIFVKTLTGKTI  
TLEVEPSDSIENVKTKIQDKEGIPPDQORLIFAGKQLEDGRTLSDYNIQKESTLHLVLRRLRGGMQIFVKTLTGKTI  
EPSDSIENVKTKIQDKEGIPPDQORLIFAGKQLEDGRTLSDYNIQKESTLHLVLRRLRGGMQIFVKTLTGKTI  
SIENVKTKIQDKEGIPPDQORLIFAGKQLEDGRTLSDYNIQKESTLHLVLRRLRGGMQIFVKTLTGKTI  
VKTKIQDKEGIPPDQORLIFAGKQLEDGRTLSDYNIQKESTLHLVLRRLRGGQ

P26 (g1441)

SNTWLMYRKPVQGSNDWSSLYRSSELDGFEIGEVEVTRPNSKGCLETVDNERYPKLFKIFMNDRRHVRLATVVYIHHDA  
SKNPVEWTRVPMNTDQVTLFQRMIEDIEPQKGYEEKWRYISDLPLSLSSDNPENDGLHPHMKIVFVTPVAGKLCR  
PKRTKESVFSVGRHHTNLSELGYGKQILGFDVCLSGRYISPHTLHPPAFPFCGPTLNLISVQPSRNPAQKIQFKFGRGDR

FDEYHKTWRAGIYLOGTNPEKKIEADVVDYDVQNQRTDVTVDIHNMYPWLRKVCIIHQVISDNVVEFDLRFGENCLSDYEV  
Q

P27 (g18472)

MLTFQVDSMEEKDSNGNVVGLTSQKKHWSLSENPNQKFTFSPLNNTTFQRLPVKRINLSVSLAGPQANLEIQVLLFLK  
SGKIEFGNETFNVRSGTFKFNKIVSDWQFCGTNAEVCKNSTTGANEIGQFLDIGMSIGSVAEEPEEVDDDQIPGEDICAP  
EEPDEEHECPRIFNMGGNSEMMLNKG

P28 (g11651)

MKLAVAVLLVCVAAPQMILTIVLIILSSTVFGFSLPSFEYGEAFEKAKEIGQEVVREVGRHAEKKNLSLLESGEQAMEKL  
ROLKEEANRKAGEIQETLEESGDQAIKLELRELKEQAGQRAEKLKGNAAEILEEQKKSLOETGEQAVEKLTQLKEQASNRA  
EEMKNTFHEKRKEAMEKLSNLKEQASQRAEEVKGNVVEEVVEETKKTTFHEKREEAMEKLRNLKGNAAEEMLEEQKKSLOETR  
EQAVEK**KLKQ**LG**EQASNR**TEEMKNTFHEKREEAMEKLRNLKEQASQRAEEVKGNI EEMVEETKKKFHEKREEAMEKLRNLK  
EEASQRAEQVKGNVVEEYENRKAQDKREQAMEKLELQKALSQKEILKEKKQOLKEKMNQMWDDMKQKAGTNKEOLO  
EAFROKKQEMKEYWKELNEQAGESKEKFRKIWRENKENWRNKAAEEVSVAHSFYLSFCFYASLDKYLPAKDPVYM

P29 (g13377)

MREIVHLQAGQCGNQIGAKFWEVISEDHGIPTGTYHGDSDLQLERINVYNEATGGKYVPRAVLVDLEPGTMDSVRSGP  
FGQIFRPDNFVFGQSGAGNNWAKGHYTEGAELVDSVLDVVRKEAESDCDCLQGFQLTHSLGGGTGSGMGTLISKIREEYP  
DRIMNTFSVVPSPKVS DTVVEPYNATLSVHQLVENTDETYCIDNEALYD ICFRTLKLTTPTYGDLNHLV SATMSGVTTCL  
RFPGQYRALTVPELTQOMFDAKNMMAACDPRHGRYLTVAAAMFRGRMSMKEVDEQMLNVQNKNSSYFVEWIPNNVKTAVCD  
IPRGLKMSATFVGNSTAIQELFKRISEQFTAMFRRKAFLHWYTGEGMDEMEFTE

P30 (g11056)

MGGIKGDVTFQSQGSSEVMVNLTVSATLKW SIRQLPMIYNGNANLSCKAGAVGDVDFPTMAKASADYETNCQSSSS  
SKFQSCAVGDLSTMLGDLDRNQOPTTSLDPKLMIPISGPHSVMGK**ALVLYDGDMPK**ACALIGPTQPMK**TFVAVFKGPVAG**  
**FVYFRQ**VNDENS DTFVVDLFFVNGANSKKNFSWQINQGVVSHDASDPSSYCKNVGQTFNPKNMGDVSCNKTIHGKCAIGD  
MTSKHGKIEVSLATEMQSSTKAAFIDTNLPLSGDSSVOGETLLLYPSEPTQAIACAKIVRLEPKTVKVSFNQSIQDGVGTG  
HLMFTQSSPFDATTAKIELTGLNKKAEGYHIHAYSPPPYMQLLPNESCTGLIAGDHWNPFNVDIKTSPPAGTGTDDYEYEV  
GDLGGKYGTFLNLSSFTKTVMDFNLPMFGRNSIQGRSLV IHKQKIKDNNMRWVCSLDLILEVDEGITYFMKATANIRGPAV  
KGVVVV

P31 (g20420)

YVVRLGGNDKIKELLGQDLNDGKPHRVDVVKDLVINVTLDGDSSQEKSGQITTKYKLEIDVAIYVGGAPSFQGLLGV  
KSNFYFVGLIDVKFRIVRGTPVREIQLLKQDVVESVKVDMADRCSPALAFQPYTF SKPDSEYTFVIDKKT SIAGSFKFR  
**TYQKDGILLK**QNGQNGFTIKFGGSGVILSLVIKGTPTTEVTLPTDVNEPRVDAGNWI AIKFTLSATDIKLEGYNNELPVT  
KTPTTAVGNFFHPDVT**AGGF**IG**CMRDL**QVNGKDFKPI NGVSKVKGVFEFDRCNITDLCVFPCLNGATCTTDGKGLKDCD  
TGTGYKGDVCQLGKYLYTVGCIRN

P32 (g5540)

LPKEINVFDAVGLGKKVFPVGSSTTGQNNRSPAYHFTKQTKDMIASQNAFEEVDKLIHNS**DFIVSAYAK**LMANEIYGNP  
IVSISSKDGNQLYFLLQISYTPQPYPKDAQRLGQLFEVYQEDIGEITSRFRGDLQDVKFVKGSPLSDCQRIAKASYCRC  
SISCQCTDVVGK**DCVVDGL**RYADGKRWTKDKCNICHCKWQVMCTYTCQVCKDNGQTYMEGETWKSSNDSCHTCKCEDG  
KVKCSPPVCAKPDSCSGK**SGDLVTLK**GQCCPICKEDQCKGTGKVFVKCGCDVTC SNFHDNDACQSCTEGCYCP EGRVLNDQG  
KCMASARCGCLYQKRYKVRK

P33 (g8985)

MTRLGDTFIRQLHEKGEDFTNLWAFSEFLESVDKSGVPDTKTIPVGLKMKELGIRNAI IEMDLVYAGINYKFKVEAIN  
ELLTERLRWVHANLAKDSKVVVNFRDLPDGMIKRKRKRVKIRHLSSLPLDIRPFGIVTEESGKYFPEQLAAWISAVRRE  
MDDCGFKDGHLLVHVHEKWGLVDSTQLSCLANGANGI WASMI IQGASMGAA SSTVTLMNVLRLGNKKVLKYNCTALREA  
AQEICRATTGQEPYPLQPIYGERALDMVFGMP**TKLGINEFDLAK**FFGEKPLMRMTTLASAEMIITRLKNIFGEDPQFTIE  
RGTRMKEVMLEDLHKNIKEEYMSAAGLAQLFDRSGGQLTGKMAADVLAQDEPRKAHAQVLAIEV RAMWDEWDLRDGKRDDQ  
LEFDAFYNGFLAPYFGCYRCDETKQALKAMDMEDEGTVDWNEFAVYLVKAMRQYPETK**TAEDLLSVAFR**KGLIPAMQDE

P34 (g1714)

**RYMYIETSSPRV**KGETARLVSDRFKIADGHNWCLKFWYHMYGNSVGALKVKLKMYPFNPSKPYNTLRRTQYNRGDSWYF  
DQVRINSADDFEIVFEASVGTSYDADIAIDDDVTKGYCPSPTPTPTPNACAVKCKSGKCVSSTNMCDFVNDCGVDNTD  
EQNCGDCTFETGTALGHYMYVEASQGDSWDLARFESTWLOQSASTCVVSFWYHMFSGIGTLYGYVKVGQTYTRLFEEWG  
NKGKWIQGLYVGRHSGPFKVI FEAERSYNVFGDIAIDDVSFENCTLPPIVSSCKRGQHRCARGSCIDPRRLCDYTDDC  
GDNSDEVNCYSYNYRCSFERSLCQOWNQLSDDDFDWRNQGSTASYGTGPMFDHTLGTSAAGSYLYAEASWPRKKGD**KARLA**  
**SGFLSALPQGDTSCKL**RFYFHMFGPDIGSLNVYTRPCNGCAETLVYTRSGNVGNFWDRAEVSLPSTVFPQVVI**ESVRGSS**  
YQGDISISDDLMTQYCRSYNGPIPTAPPPTAAPTVPACPGFRFKCSNGPCIDWGYVCDYRDDCGDGSDEVNCGPCNFES  
GLCNWKDNSVGRYQWSRNKGSTVATGTGPSIDHTCGNAS

P35 (g7349)

LHLVFFNK**YETFQNAVDKPDGLAVLGLITATCPGNR**ILGNFAKKLTKVVEEGANTNATATDSIKLNYLMPYNNKQGD**E**  
DDEEEDIASDDPEAVEEEEEVD**AKKKIKYYTYKGS**LTPPCY**ESVTWIVFKDKIKISNTQLNKFRKLKAQ**FGGAP

P36 (g13890)

HYMYIETSSPRKQDKARLVSEDFSPITIRGRCVKFWYHMYGASIGTLRILEKTGPGNKSESTIWELSGNFGDQWYSGQA  
PITSSSPYQVVFEAMRGRSVSGDIAIDDVTFSTSKCSVPSLAVPPTPPPTPPPIINNCTFEGGFCSWTNLNGDDFDWT  
RSRGSTASWSTGPTVDHTLGT**SQGYVYIETSSPRSPNDKAQLQSGLIQPTTVTSGR**CLKFWFHMWRHVDTLNVYRKDS  
SSRV