

List of the amino acid sequences of *Eu*UGTs

>GWHPAAAL000151

MVPISTPIRKCHVAVPYPRGHVNPMMNICKLIASKFDPDRLVITFVVTEEWLGLIGSEIKPANVRFA
AIPNVVPSERVRAADMVGFVTAVMTKMEQPFEEVLDRMQSPASV IADTFLRWAVEVGNRRSIPVASLWT
MPAMVFSVFYNFELVVENGQFPIELCERGEERVDYLPGIPSIRLSDLPTI IHRDQNLRLCLTAFANVS
RARYLLFTTCSDELPQVIAALKTQFPFPLYCLGPTIPYFNLQQPPPITPNHHDYLNKWLDSKPPNSVLVVS
LGSFLSVSTSQMDEIEAGLGGSGVNYLWVNRGHAGGVGGGRMVVRWCDQLRVLCHPSVGGFWTHCGWNS
TMEGIYAGKPMLTLPILMDQVPNSKCVVEDWKIGWEVKREEGNLVSREKIVEVRRFMDEGSEEREEMMR
RAEELRRLCRTALVRGGSSHENLQAFVDGIAKF

>GWHPAAAL000153

MAERGEERVDYLPGIPSIRLADLPTI IHQSDQNLRLCLTAFANVSRAQYLLFTTCSDELPQVIATLKTQ
FPFPLYCLGPTIPYFNLQQPQTTPNHHDYLNKWLDSKPPNSVLVYSLGSFLSVSTSQMDEIEAGLGGSSV
NYLWVNRGDAGGVGGGGMVVRWCDQLRVLCHPSVGGFWTHCGWNSTMEGIYAGKPMLTLPVMDQVPNS
KCVVEDWKIGWEVKREEGNLVRREKIVEVRRFMDEGSEEREELVRAEELRRLCRTALGRGGSSHENLQ
AFVDGIAKF

>GWHPAAAL000493

MEQREYRAHVLAIPFPAPGHVNPLLQFCKRLEFKGLKATLAITKFLSKSMQSRLGSIKIDTISDGYDEIG
RHNAESLGWISTFKEVGSKSVADLIHKFRSLGHPIDCIVYDSFLPWVLDVAKENGVAGASFMQKCAVN
HINYHVYHKKIPYPFSSPTYSIPGLPSLDLEYMPGFMLVHPDYELVLSQFSTVDRADYVFVNTFYKLEA
EVLDEMSKVLVPKPIGPTVPSFYLDNRVEDDKNYGLNLHQLDSSVCLNLWSSKPARSVVYVSFGSVAISS
PAANEMEEIAWGLKNSNCSFLWVVKANEEPNLPQNFKEEMSEKGLI VAWSPQIEVLSHHSVGCFLTHCGW
NSTIEAICLGVPMAVPKCTDQTTNSKSIQDVWVKGVKVKASEDGIARREEIERCIKVVMEGESGEELKK
NAAKWESELAKEAVSEGGTSDENINEFVSQLTNNSSTQS

>GWHPAAAL000531

MERDLDEMGSKKPHVLVIPFPAQGHFSPALQLSKRLASKGLRVTFVTSMSSAKSSSSIRMEQIGDGYEEG
EEPESKEAFTEHIQTVFSQSLGDIIEKQKQIGYPIKLVYDSVMPWALEIAHKLGIYGAPFFTQPCAVCA
IYYHMQGTLEVSLEGTKVSLPSLPPLEKNDLPSFISNMF SHEFLT KTILGQFSNFHEADWILNFTFDKL
EDEVVKWMASQWPIKTMGPTIPSLYLDKRLKEDKEYGLSLFTPNTASMRWLDTKEQGSVVYVSFGSLAI
LDETQMEELSWGLLQTNNYFLWVVRASEESKL PNNFMAKTSEKGLVVDWCPQLEVLAHQAVGCFVTHCGW
NSTLEALCLGVPMAVPQWVDQTTNAKFVADVWKTGVRVEVNDKGIVTREEIKKRIGEVMVGETREELRN
NASRWKNLTREAVDEGGSSDKNIEEFISKLVC

>GWHPAAAL000532

MERDLDEMGSKNPHVLVVPFPAQGHFSPALQLSKRLASKGLRVTFVTISNAKSRGSIRMERITDDYEEG
EEPESIEAFIERMKVVISQSLGDIIEKQKHAGYPVKLVVYDSIMPWALEIAHKLGVYGAPFTNPCTVCA
IFYHMQGTVEVPLEGTKVSLPSLPPLEENDLPSFISNLVAPEFIKKMSLGQFSNFHKADWILLNFTFDKL
EDEVVKWMASQWPIRTIGPTIPSMYLDKRLKEDKEYGLSLFTPNTKASKMWLDTKEQDSVVYVSFGSLAT
LDETQIEELSWGLVNSNNYFLWVVRASEESKLPSDFMAKTLEKGLVNVWCPQLEVLAHQAVGCFVTHCGW
NSTLEALCLGVPVAMPQWGDQTTNAKFVADVWKGVRVEANDKGIVTREEIEKQIGVVMAGETREELKK
NASSWKNLAREAADEGGSSDKNIEEFVYELVCS

>GWHPAAAL000534

MARDLDEMGSKKPHVLVVPFPAQGHFSPTLRLSKRLASKGHRVTFVTTISSAKSSGSIRMEQITNDYEEE
IAHKSQVYRALFFTQPYDVCAIFYHMQGTLEVPLEEIKVSLPSLPLEENDMPSPFISNLSHEI I KKT

LGQFSNFHKADWILLNTFDKLEDEVVKWMANQWPIKTIGLTIPSMYLDKQLKEDKEYGLSLFTPNIETSM
KWLDTKEQGSVSNNYFLWVVRASEDSKFPNNFMAKTSEKRLVVNWGPQLEVLAHQAVGCFVTHCGWNSTL
EVLCLGVPMVAMPQWTDQTTNAKFVADVWKAGVRVEVNDEGIITREEINKRIGQVMAGETREELRKNASS
WRNLAREAVDEGGSSDKNIEEFVSKLVQMPMYNL

>GWHPAAAL000847

MASKPHFILVPLLAQGHMIPMIDTAKLLAHQGVLITITTPVNADSIKPTVNRAVNTGLEIRVARLRFPC
AEAGLPEGCENLDMLPSPEAGIKFFNALGMLKAPMENLLGEIEPSATCIISDICPPWTMHVAKKFASREL
FSPAPIELTKVQVPCTTNPTSAGLKDLSQIVEAEQAAYGMVNSFEEMEPEYVQYYKQVTGKKVWCIGP
VSLCNKLDSDKAERGKRASIEDTDCLKWLDShNPDSVIFACLGLHSLSTSQLIELGLAESSNRPFIWV
IGFVSDDELGKWLSEQRFEERNKGKGLIIHGWAQVVLILSHPSIGGFLLTHCGWNSMLEGLSAGVPMITWPL
HSEHFYNEKLILQVLRVGVVGVVEFPVLIGEALNVGFIVKKEEIEAAVERLVGGKEAGEIRKRVGELQKG
AKMAMKDGGSSHMRLMFIQDMVEQSSSLQKI

>GWHPAAAL001759

MENKELVFIPIPAMGHLISMLETAKLLVNRDQRLSATVLLFKLPQDAGFATYMQSLSSSAFAARLRLVIL
PVPEKPPSESSKPDIIESHMPNVRNAVREIGESRVAGFVDMVCYKIDVADEFGFPTYTYFTSSAGYLG
LLFHFQSLKDPYNLASNYKDWDSDKKELLVPSFVNVPPEKILPLEMLDHQVPLVLELARLLEPKGVLVN
TFSELESHALHSLSGGNPPVYPIGPIILLASEPRYNCLQGNEESIMKWLKGKQLPSSVVFLCFGSAGSFPE
AQIKEIAYALENSGHRFLWSLRRPQAEGQRYPTDYDDPSEVLPEGFLERTINTGRVIGWAPQVAVLSHPS
IGGFISHCGWNSLLESLWFGVPVAAWPIYAEQHVNAFQMVRELGLAMEIKMDYRKTNSVLVTAEEIESGI
RRLMAEECGGGGGIREKLDMKENGRMAVAEGGSSYISLSRFIENVLGPHQT

>GWHPAAAL001760

MENKELVFIPIPAMGHLVSMLETAKLLIKRDQRLSVTVLIFKLPFDTGIDTYIQSLSSSSSATRLKLVNL
PDPQKPPSEEEEEIPKSFLSDLIDSHKPHVRNAVRIGESRVAAFVDMVCYNMIDVAGEFGLPTYTFFP
SSAGFLGLLFLHLQILMDHHRDVS DYRDWDLKELSVPSYINPVPKVLPLAMLDKQEGGVSPVVTLARR
LRETKGILINTFPELESHALHYLLSGGNPPVYPIGPVLLVPERSFNGVHGYNIGIMIWLENQRPSSVFL
CFGSAGSFNEAQIKEIAHALENSGHRFLWSLRRPPPEKKIELPTDYTDPLEVLPEGFLERTVNTGRLIG
WAPQVAVLSHPSVGGFISHCGWNSVLESLWFGVPMAAWPNYAEQQINAFQMVRDLGLAVDIKMEYRKENP
VLKAEIEIESGIRRLMTEESGGGIREKLREMKKGRMAVAEGGSSYITALAQFIENVLRPSQMIDRKW

>GWHPAAAL001761

MENNELVFIPIPMVMGHLISMLETAKLLINRDQRLSVTVLIFKLPFDTGVDNYIQSLSSSASTSRLRFINL
PDTEKPSSEEIPKTFMIDLKSLKPHVRNAVREIGESRVAGFVDMFCHDMIEVAEEFGLPTYAFTSSA
GFLGLVFHVQILKDHNRQDISDYKCDKELSVPSFVNVPKVLPTTMLEKEEGGLSIVLSLARRLRETK
GILVNTFAELESFAFNSLSCGNPPHYPIGPILLEPERSDESQGYEESIMNWLDQPPSSVFLCFGSM
GSFKEAQIKEIAHALENSGHRFLWSLRRPPPEGKKIGFPTDYDDPSEVLPEGFIERADNGRVIGWAPQV
AVLSHPSIGGFVSHCGWNSLLESLWFGVPVIAAWPIYAEQQINAFQMVRDLGLAVDIKMEYRKENPVLVTA
EEIESGIRRLMAEESGGGIREKVREMKKGRMAVAEGGSSYTALSRFIENVLQPHT

>GWHPAAAL002229

MKSDAIVLYPAPSIGHLVSMVELGKILNRYSHKLGFSIIIVFLTGTGNSDNETTSYIHHVSNTNPSITFR
RFPFVSVDTSPTRSPAAIHFD FIRLNADNVLHAIREIPNVIRALVIDFFCASAIP IARELRHPVYFFFTS
GAYALAFYLYFPTVHKQVDQSFKHLNKTFLQFPGFPIRASHVPEPVLDRDDPAYADMVCFDHLPKSDG
II VNTFDAL EPMACEAIASGACVPDATTPPIYICIGPLIANTSEGGGENGNASLRSSEREAKHEWLSWLD
AQPKGSVVFLCFGSRGSFTRRQLKEMAHGLERSGQRFMWVLKSPPCDAAAPATEFCLEDVLEPGFLERTK
KTGMVVRSWVPQVAVLNHGSVGGFVTHCGWNSVLEAVVAGVPMVAWPLYAEQHVNGAALVENMKMAIPLG
QEKEEDDDG FVSAAELEKALRELMESEGGREERSLKMREMAA WENNGSSTSLAKFVEWLEGS

>GWHPAAAL003558

MALIPASDKPHAVCIPLPAQGHINPMLKLAKILHSRGFHTFVNTHFNRRNLLRSRGPSALDGLPDFRFD
SIPDGLPPSDADATQDIPSLCESTPKHCLEPFCDLITRTNEDAGVPPVSCIVSDAVMSFTLKAERFGLP
EVLFWPTSACGLLGYTYHKLVERGYTPLKDISYVTNGYMETTIDWIAGMKDIRLRDLPSFIRTTDPKDT
MLNFLISECAAIPTASALILNTFDALERESIDALSAVHPRIYTVGPLNLMRNQINDDRIESIGSNLWKED
PGCIEWLDSKEPGSVVYVNFSGITVVTGQLTEFAWGLANSRPFLLWILRPDIVAGDKAMIPPEFLAETK
GRGMLSSWCLQEQLVRHQAVGGFLTHSGWNSTVESLCCGVPVICWPFFAEQQTNCRYSCREWGVGMEIDN
NVKRDEVEATVRELMEGEKGKEMKRRAAEWKKAEEATGAGGSSQVNLEKLFSEVLLVNSDE

>GWHPAAAL004075

MSDSGNKRPHVLVPYPAPGHIIPLLDLTQLLLSSGLTVTVIVTPEFVSLLDPLLSSHPSSSIQPLVLSL
PKAPASLVPSLRATGELYDPIQWFKSHSPPPVAIVSDFFLGWTEKLGKELGVPRLVFWASCALSSLISS
SIWRDRPKVDDPADENFLLSFPEIPNSPKYPLWQMSTLFRMFKEGDPDWEFIREGMVANTVSWGCVFNSF
TELEGVYIDHTKKEMGHDRVWAVGPLLPLDGAPTSRGSSAVAPHKVTWLDKDDPDDSVVYICFGSRMEL
TTAQRDALAAALESSGVHFIWIVKAGIDGDPINPGFEDRVAGKGLIRGWAPQVPILMHRATGAFVTHC
GWNSVLEGISAGVMMLTWPMGADQFYNANLLVDELHVAARACEGGDEKVPDSSELARLLAESVSGKRLER
SRVVQLRDAAVEAVRGGSSSKDIDDLVKELGELGCGKA

>GWHPAAAL004076

MAISGSGKHVLIFFPYPSQGHILPLLHLAHLAARGLTITILVSPQTLPLHPLLSDHPSMETLVLFPSTH
PSIPAGIYDCRGHLPDSVRSTLFAISDLYEPVLDWFRNHPSPPVAILSDKFMGWTIKISHANSEFIDWRSP
LSAPWPSHWFIPIGEYRRETSAAVKMTHWFHFMRSYVEGDPISSEFIKEGMQANMASWGLVINTFNELEG
VYLDHLKEKMGHDRVWAQMEATAIGLEKSEAYFLWSIRGSTEGVIDGEFGEVPAGFEDRTSARGLVVKGW
APQLSILRHRAVGSFLTHNGWNSTLEALVAGVPMPLAWPMGAEQFMNATLLVDQAKVAVRVAEGARDVNP
FELARAVTRVMDGRSVERVQAVRLREEALNAVKEGSSYQNFDDLAMHLFNNE

>GWHPAAAL005635

MATFQSESSPHILLFPFMSKGHTIPIILHLARLLIHRNAAVTIFTTPANRPFVCHSLSDTTATVVDLPFPE
NIPGVLPGVESTDKLPRLPWLDRGIGGRIHPAARYYGMNNFSGAICHVDMTHRDLEPGSGDELFPVPG
FPWIKVAGNDFEPALSASPPAGDGYGLQWEFTIEVVEATSKSYGVVNSFYELEPAYLNYWNSNIRPKAW
CVGPLCLAERPRVKPENHRKPSWIQWLDEKLEEGKPVLYVAFGSQAEISPEQFREIKTGLEKSESNFLWV
VRGGLSELIDDDGFEERVRRERGLVVREWVDQREILGHGSVKGFLSHCGWNSALESICAAVPIAWPMAE
QPLNARMVDEIKVGLRVEACDGSVRGFVKWESLEKMOVRELMEGEMGKEVRKKVKEVGAAVAAVRGGGS
SWKTLNELINELS

>GWHPAAAL005636

MATFQSESSPHILLFPFMSKGHTIPIILHLARLLIHRNAAVTIFTTPANRPFVCHSLSDTTATVVDLPFPE
NIPGVLPGVESTDKLPRLPWLDRGIGGRIHPAARYYGMNNFSGAICHVDMTHRDLEPGSGDELFPVPG
FPWIKVAGNDFEPALSASPPAGDGYGLQWEFTIEVVEATSKSYGVVNSFYELEPAYLNYWNSNIRPKAW
CVGPLCLAERPRVKPENHRKPSWIQWLDEKLEEGKPVLYVAFGSQAEISPEQFREIKTGLEKSESNFLWV
VRGGLSELIDDDGFEERVRRERGLVVREWVDQREILGHGSVKGFLSHCGWNSALESICAAVPIAWPMAE
QPLNARMVDEIKVGLRVEACDGSVRGFVKWESLEKMOVRELMEGEMGKEVRKKVKEVGAAVAAVRGGGS
SWKTLNELINELS

>GWHPAAAL005637

MAYPPPSPALHIALFPFMSKGHTIPIIHLTRLLNRGHKTTVFTTPANRPFISDSLGTGDASVIVLPFPE
NIPGIPSGTESTDKLPMSLFFVQFANATKLIQPHFEQAISLPNLNCMISDGFLSWTLQSASKFGIPRLV
FYGMNYSMALNYDVTNRLLSIPKSDNEPFVVPNFPWIKLTKNDFEFPFNEVEPKGPYVEFTIEQSLAT
FNSYGLIVNSFFELEKPFVEYWNRAKPKAWCIGPLCFAEPEMIERKRKPKPKWIDWLDQKRDQGKSVL

YVAFGSQAEISQKQLHEIAMGLEKSEVNFLWVMRKDDTAIEGVPERGMVVRDWDQREVLAHEGVRGFLT
HCGWNSVLESIWARVPI LAWPMIAEQHLNARMVVEEIKIGLRVETIDGSVRGFVKRESLEKMVRELMEGD
MGKEVRKKVEEVGEAAGKAMTEGGSSWDALNQLIDEIKST

>GWHPAAAL005638

MASPPRSPTPHIALFPLMSKGHTIPIIHLTRLFLNHGFKTTVFTTPTNRPFISDSLSTASVILPFPE
NIPRIPSGTQSTNKLSSIGSHQVSPQSR LHDI GR LPHKND FDEPFNEIEPKGPYAKFIMEQGVADSNSYG
MIVNSFYELERPFEVYWNREGKLKAWCVGPLCFAEPEMI IKRQSNPKPKWIDWLDKKRDQGKSVLYVAFG
SQAEISPEQLHKIVMGLEKLEVNFLWVKRMKDTYIVGMTERGMVVRVWVDRREALAHEGVRGFLT HCGWN
SVLESIWARVILVWPMMAEQQLNTRMVAQEIKIGLRVEMIDGSLRGFVKRESLEKMVRELMEGDMGKEV
RKKVEEVGRVLLGCSESVY

>GWHPAAAL006268

MTRKEVHVLVVTLPFQGHINPMLRLAKRLVSKGLYVTFATTETARQRLGSSAATSITRFQFEFFKDGL
GPEVDRDKNLDILLLEALPTKGVENFSNL IADLSKRGRKFSCVINQFPVPWSAAVAAEHGIPTATLFIQP
FSLFSIYYRYHKGLNLFPSLENPNNTLKLPLG LPMKVS DLP TFVRPESPYHFRKLLAESVKSLEKVKWL
GNSFQDLEKGVLEAMEEDSINNWLPGPFLASALLGEKEEGNAVGGADMWKAEDSCLEWLDGKPVSSVY
YVAFGSITVLDGKQMESMAAALKNSGKPFLWVVRSPAKDSDEKKSNGLPEGFIEEMKGRGLVVPWCHQEK
VLMHPAVACFVSHCGWNSSLEAVVAGVPVIAFPEWTDQPTNAQIGVRLGENDRDFSSEEVERCIRAVTDG
PGAAEIKRRAELKEAARKAVADGGSSERNLNR FISEISA

>GWHPAAAL006282

RHQRRRVFLPLPLQGHIPMVQLANILYSKGFQISIVHTHFNCP SRLKYPHFTFHQISDGLSETEASTED
IIALVSLLNKKCVGPF RDCLIQLLSDDSDPIACLITDAIWHFSQAVAEG LKLRRLVLR TSSVCSFLAFA
ALNLMRDKGYPKQDSRLEEIVPKLPLLKMKDLSFIKTKNPEDLYH SVGGMITNTRESSGII LNSFKELE
ESSLSILKHDFPIPNFPIGSFHKYFSATSSSLLEQDRRSISWLD TQKPN SVIYVSFRSIATIEETEFLEI
AHGLVNSNQPF LWV VQLKLVRRSDWVELLPDGLIECINRREHIVK WAPQQEVLAHPTTRGFWTHCGWNST
LESICEGVPMICSPCFGDQFVNSRYISDVWKIGVELKNLEKEDIKRAIRRMVEKEWEDMRFRIMELKEK
VDCSIKRGSSTESLQSLINYILSL

>GWHPAAAL006284

MDQETTLPPHVLIFPLPLQGPVNSMLKLAELLSISSRFHITFLVTDHIHRRLQHTDIKSRFEKYPGFRL
ETISDGLSEEHPRSGDRLMELFDSLNTETKKLFRELLNSGRLISGNCRPITCIIADGIMGFTCDVANEFR
IPIIYARTVSACCLWVFFCLPKLIEVGEIPFQGNLDVPIRSVPGMEGYLRRRDLP SFCRSGNVAGPNVQ
VYLSSEQENPRAHGLILNTFEDLEGPILSQIRTLCPNLYTIGPLHAHLKTKLAALRSLAPASSNSLWEED
RSCLAWLDVQPPKSVVYVSFGSLAVMSKDQLEFRHGLVNSGQRFLWVIRPD SGAGEGLIPADTNNGYI
VGWAPQEEVL SHASVGAF LTHSGWNSTLEATIEYEGKPMICWPYFLDQQVNSRFVEKVGWLGVD MKD ICDRV
VIEKMVRDLMDERGGGYKQADQIAKLANECFKAGGSSYSLENLVKDIELMMKSYCAEFGHCVKVRTRK
NQPHKREREREERVV LKPCALFRSNADWRTI HRLIKLKFGQQVRNSVLYNLNGGNRILGSATTVSAGLF
WVVFKPAPW

>GWHPAAAL007266

MASKTDRLQFLLIPLMSQSHLIPLTDFAKLVARRGISVTIITTPLVNHRFKSIIGRTPNADLKIHLLSIP
FPCKEAGLPEGVENVDSLDSPE SAGKFFLASSLLKYPLEKLVSEMDAKPNCIVSSNALPWTVKLGEKFGI
PTYFFNPISCFTVVCSTNIIAGKPHEAVSSDSEPFVDPMPHRIEFTRAQLPENMRKGDSTDDVKAVMQQ
IRDAVSSARGVLNSFEELEAPYIQSYKKT VKNLWCVPVSLSNDESPPSSTTDERIDCLKWLDSMNPS
VIYACFGSISRIPASQLIEIGLGLASRTPFLWIIKEKDISEPVQKWLDDEKFEERIRGRGLIKTWAPQ
VQILAHPAVGGLTHCGWNSTLEGVCAGLPMITWPMIAEQFYNEKFIVNVLGVGVRIGAEGGMESGAFVG
REEIKKAVVELMGGEEERE GGGDRRRKARELGEMAKRAVADGGSSHLNISFLIQDVMQQS

>GWHPAAAL007326

MGSQKPHVLVVPFPAQGHFSPALQLSKRLASKGVRVTFVTTMSWAKSIGSIRMEQISDGYEERENPESIE
AFAKRIKTVISQSLRDLIEKQKQVGYPVKLVVYDSAMPWALEIAHKWGVYGAPYFTQHCTVCAIYYHMQQ
GNLKVPLEGTKVSLPSLPPLEKNDLPSFICNLFPEFLMKEMLNQFSNFHNADWILFNTFDKLEDKVVKW
MASQWPIRTVGPTIPSMYLDKRLEGDKEYGLSLFTPNTASMKWLDTKEQGSVVVVSFGSLATLDETQME
ELSWGVLQSNNYFLWVVRTSEESKLPSNFMDKTFEGLVNVNCPQLEVLAHQAVGCFVTHCGWNSTLEAL
CLGVPMVAMPQWVDQTTNAKFVADVVRVGVVVEANDKGIVTKEEIEKRIREVMAGETREELRKNASGWKN
LAREAVDEGGSSDKNIEEFVSQVCS

>GWHPAAAL007393

MADDSKHLFVMFPWLAFGHIIPFLELSKFLAQKGHKISFISPRNIDRLPKIPTNLPIKLVKIPLPIEE
LPENAEATMDVRTDDIHYLKKAYDGLSEGLTRFLESESPDWIVMDFAPHWLPPIAAKLGISRFFSIINA
WFLVFLGASSEAMINGSDELTAPEDFTVPPKWVPFPTKAAYKLYEANWAFQSTKLNASGFTDMYRCGSI
QGIDAILVRHCNEFEPEWLTLENLHGRRVIPVGLMPRRQNNQDDTNETWVSIRDWLDQNRCSVVVVA
LGSEVALSQEQLSELALGLELSGLPFFWALRIPRNPVDLPDGFEEPMKSKRQGMVWKAQVQVQKILSHD
SVGGFLTHCGWSSIEGLMFGKPLIMLPFLVDQGLNARLLAAKEAGVEVDRDEESGAFTKETVAEALRLV
MVESERGGKVLNRGKAKEMGVVFGDKDLHDLYLENLVVYFENHRLCKES

>GWHPAAAL007798

MASQKNDNGAHVLAIPWPAPGHMNPLLQFCKRLVFRGGIKATFAITKFQSKSMHSRLDSIQIDTISDGYD
DGGFFITAGIQESVEQFKAAGSKSLAELIKKHESMGQPFDCI IYDAFVPWVLEVAKEHGIAGAAFFTQTS
AVNCVNYHVYHKLIPYPFDSPPYSLPGLPPLGLQDMPGFMTVDPYVYELVLSQFSTPQQADYLFVNTFYH
LEAEAVEAMLKVHPLLKTIGPTVPSYYLDNRIENDKSYGLHATHLMFQEKNSQTDPSLVLDWLNTKPHA
SVVYVSFGSIALASPSTDEMKEIAWGLKNTGCYFLWVVKANEEPNLPKNYREATREKGLIVSWSPQLEVL
EHEALGCFVTHCGWNSTIEALCLGVPMVAMPKWADQPTNGKYVDVWKIGERVKVDENGAVAGKEEVERCI
RAVMEGESGKEFKKNAKWKELAKEAVNEGQTQDNIDEFASKL ISSSHRS

>GWHPAAAL007799

MATQTKEYGAHVLAIPWPAPGHMNPLLQLCKRLVLKGGIKATFAITKFQSKSMYSTLDYIQVDTISDGYD
EGGFFIVDGITASVEKFKAAGSESLAELIRKHEGLGQPFDCI IYDAFLPWVLDVAGEFGISTAAFFTQKC
SVNCINHHVLKKLIPYPFTSEPI SIPGLPLLNIEDMPGF IHVDPELYELVQSQFSTPELADYRLVNTFYE
LESEAVEAMSKIHLRTIGPTIPSYLDKRIENDSSYGLHATHLMFQEKNASRVEPSVVLNWLDAKPTGS
VVYVSFGSVS IASPGPDEMKEIAFGLKNTNFHFLWVVKPNEEPNLPENFKEEMADKGLIVSWSPQLEVL
HKALGCFVTHCGWNSTIESLCMGVPMVAVPKWADQPTNAKYVEDVWVGIRVKVDENRFAGRDEVERCIR
AVMEGERAEDLKRSALKWKELCIKAVAEGSSDKNMEEFASELITRKSASK

>GWHPAAAL007800

MEEKQGTSDRVHVLVVPFVQGHINPMLQFAKRLASSGLKITVIGTTKTTVSR SIPNIEIERIPDAPGEA
ADQQNTETIEHCERLTTVLSNFSVKLIEKQSGLGCPYRVLVYDSVMPWALELAHRRGLKAAPFFTQSCS
VSALYYHMNRGSLKVPPVGSSEFVEVPALPPLKVGDLPSFIYDMGSYPFILKMVVNQFLNFEKADCLLFN
TFDKLETMTWMANQCPTIRTIGPTLPSVYLDKRLNEDTDYGLSLFNPRESSIQWLHKSPTASVVYVS
FGSLANLSETQMHELAFGLERTDSHFLWVRSELTKLPPGFPTAPEKCAVVNCPQLEVL SHPAVGC
FVTHCGWNSMLEALSLGVPVAMPQWTDQTTNAMLAVEVWGVGVRTAADKKGIVRREEVEMRVREVMENGR
EGLKSNAGRWKELAREAMDGGSSD

>GWHPAAAL007936

MAENTHVVMLPWSAFGHIIPFFHLSIALSKAGIHVSFVSTPKNIRRLPQIPDSVPFIDIVELPLPEIDR
SLLPEDAEATVDIPTENIQYLK IAYDLLKKPFSRFVADRSPDWIVIDLMPYWAADVAKFEDIPVIYFSMF
CAAASAFFSRPEFIAGEGQKMKRSTPESLTSTPEGVDFPSTVAHRHHEPLSFHGENASGISDASRFARTL

HSCRALAIRSCPEFEHDDLNLLEKIHQKSVIPVGLLLPEQKSEARNSGDEFKIFKWLDQQKPKSVIFVGF
GSECKLTENQIHEIAYGLELSELPFLWSLRKPSYSTDEVDPDPPDFHRRIAEKGLVHVGWAPQTEILAH
SVGGSLFHSGWGSVIETLQFGHRLVVLPLIIDQPLNARLLVEKGLATEVERGGDGSFGRDAIAKALREAM
VMEGGERVREAMEIFGDRKLQENYVERFAEYLKNGVAKKNQ

>GWHPAAAL007941

MAKNTHVVMLPWSAFGHIIPFFQLSIALTKAGIHVSFVSTPKNIRRLPQIPSDSVPFIDLVELPLPEIDR
SLLPADAETVDIPTENIQYLKIAVDLLKKPFSRFVADRLPDWIVIDMMPHWAVDVAKEFDVPVIYFSVF
GAAAAVFWGPPEYIAGEGQKMKRSTPESLTSTPEWVDFPSTVAYGHNEAVSFHAGAYGENASGISDAGRT
ARILHSCRALAIRSCPEFEHDYLNLEKILQKPVIPVGLLPPEQKSEPRNSGYEFKIFKWLDQQKPKSVI
FVFGGSECKLTENQIHEIAYGLELSELPFLWSLRKPSYSTDPLPPDFHRRIAEKGLVHIGWAPQTEILAH
PSVGGSLFHSGWGSVIETLQFGHRLIVSPLIIDQPLNARLLVEKGLAREVERGGDGSFGRDAIARALREA
MVMGGERVREAMAIFGDRKLQENYVERFAEYLKIGVAKEN

>GWHPAAAL008406

MSVHVLIFPYPAQGHLLPLDLTHQLALHGLTITILVTPKNRPTLDPLLSTHPSIGTLVLPFPHHPAIPS
GVENVKDLGNSGNVLVINALSCLRDP IIQWFKAHNPVPVAIVSDFFLGWTNDLAGQLGIPRAFYSSGAF
LTSILFHFIYRELRSAAAPVL TAVKFTDLPRSPSFTEAHLPTIVRHYRESNPEWELLKEGVIANSSWSGSIL
NTFDDLEGEFLEYLKKKMGHNRVYGVGPLNLGRVNTDPDADPSNTVLGWLDGCPDGSVIYVCFGSQKFLK
KAQIEALALGLERSKARFIWVVKPITAQQEADGYGSILDGFEERVSGRGMVIGWAPQVKILSHRVVYGF
LSHCGWNSVLEAIAAGVMILGWPMEADQFVNARLLVDYMGAAIRVCEGADSVPSDELARTIAESVDGNK
QEKGRARELRDKAWEAVGPCGSSTKDLVG FVKDLAQLDENG V

>GWHPAAAL008407

MGNPHVLVVPYPAQGHV IPLMELAHSLAQHEFRVTFVNSDFTQDRV TGSSPEKNGFGEDSIRLVSI SDGL
EPSEDRNELGNLTESI FRVMPAKLEELIMEINGSDGEVACVIADISMAWMEVAAKMGIRRAAFCPMSA
AMLGLVYNVPKLMEDGI INDDGTPTKNEVIKLTDPMPAMNTANFPWACIGDLATQKKIFDVTLTGRPALD
LADRIICNSSSGLEPAVFDQYPQFLPVGPLLRSSGGNFWQEDSTCLDWLDQQPPKSVIYVAFGSFTVFD
TQFRELAKGLELTDRPFLWVVRDSAVKYPEGFEKI IGTGRRGKIVEWAPQKKVLSHPSVGCFLSHCGWN
STVEAVSNGVPLLCWPYFADQSFNQSYICDVWVKVGLGFGKDENGLI IFEEIKKKVDEIFGDENYRERALD
LKQKVM DGVKEGGCSNRNFSKIMGWITQINNGLSS

>GWHPAAAL008878

MASPSPHFVLLPFLAQGHLIPMIDISRLAKRGVVVTIITTPLNAKRFERIITREIDSGLQIRVVQLHFP
CVEAGLPQGCENFDHLTTMASAGQFLEATRMLQKPVEDLFEGLSPPTCLLSDMCYPWTTLVAEKFSVPK
LVFHGMCCFSLFCNHVLYTSRVFDTVASETEPFAVPGMPDHIELTKTQVPTLVNMNTSSGVKDVRKEIKE
GELSAYGVVVNTFEEMEEKYVKEYAKAMGKKVWCIGPVSLCNKNNLDKADRGNKASIDEHHCLKWLDSWE
QGSVVYVCLGSLTRLATSQMIELGLGLEASNRPVWVIRYEIVEFEKWILEEGYGERIKGRGLLIHGWA
PQVLILSHRAIGGFLTHCGWNSTMEGICAGVPMLTWP IFAEQFVNEKLVVHVLKTAVSVGVKIQIYPGNEE
EVGILLRREDVKMGIDKVMEEKEEGEERRRRARKFGEMAKWAIIEGGSSHNL TMLIQDVMESNQLRKD
G

>GWHPAAAL008879

MASPSPHFVLLPFLAQGHLIPMIDISRLAKRGVVVTIITTPLNAKRFEGIIARAIDSGLQIRVVQLHFP
CVEAGLPQGCENFDHLISMASAGQFFEATRMLQKPVEDLFEGLNPPPACLLSDMCYPWTTLVAEKFSVPK
LVFHGMCCFSLFCTHVLQTSRVFDTVSSEIEPFAVPGMPDFVELTKNQVPAFVNMINIPSGQKDVRKEIKE
GELSAYGVVVNTFEAMEEKYVKEYARAMGKKVWCIGPVSLCNNNNLDKADRGNKASIDEHHCLKWLDHWE
QGSVIYVCLGSLTRLATSQMIELGLGLEASNRPVWVIRYEIVEFEKWILVEGFGERIKERGLLIRGWAP
QVLILSHRAIGGFLTHCGWNSTMEGICAGVPMLAWPMFAEQFVNEKLVVHVLKTAVSIGAKIQISIGKEE

EIGILVRREDVKMGVDKVMEEENEERGEERKRRARKFGEMAKWAIEEGGSSHNSLTMLIQDVVEKSNQLRKH
G

>GWHPAAAL009069

MAYPPSPALHIALFPFMSKGHTIPIIHLTRLLNRGHKTTVFTTPANRPFISDSLGTGDASVIVLPFPE
NIPGIPSGTESTDKLPSMSLFVQFANATKLIQPHFEQAIKSLPNLNCMISDGFLSWTLQSASKFGIPRLV
FYGMNYSMALNYDVTNRLLSIPKSDNEPFVVPNFPWIKLTKNDFEEPFNEVEPKGPYVEFTIEQSLAT
FNSYGLIVNSFFELEKPFVEYWNRAKPKAWCIGPLCFAEPEMIIERKRKPKPKWIDWLDQKRDQGKSVL
YVAFGSQAEISQKQLHEIAMGLEKSEVNFLWVMRKDTAIEGVPERGMVVRDWDQREVLAEHGVRGFLT
HCGWNSVLESIWAVPILAWPMIAEQHLNARMVVEEIKIGLRVETIDGSVRGFVKRESLEKMVRELMEGD
MGKEVRKKVEEVGVAAGKAMAEGGSSWDALNQFIDEIKAQGSNPIN

>GWHPAAAL009324

MDRSASSKLHIAMFPWFVAVGHLTPFLHLSNEIAQRGHKISYLLPRKAHIQLSQNQHPDLITFYPLAVPP
VAGLPSTGTETASDIPISQTGLLATAMDHMRGEVEEIFRSLRPDFVFYDLAHWITELGSSIGFKTVCYNVV
SAASLAIALVPARVVPKDRKVTVDLAVPPKGYPSSSVLRPHEARSLLFISSEFGAGGVTFYERVIAAM
KNCDAIGIRTCRETEGSLCDYMGTYNKPVLLTGPILPEPSKAQLDDRWSWLNKFPPKSVILCTFGSQI
VLEKQGFHELVLGLESTALPFLAAVRTSAGEALPEGFENRVGERGVVYGGWVQQPLILNHPVSGCFVSH
CGFGSMWESLMSDCQIVVPHLGDQILNARLLAEEMKVAVEVERDEKGFWSRERLGGAIKTMERESEAG
EVVRKNHAKWKEIMVKPGFMSNYVENFIEKLHEL

>GWHPAAAL009436

MGSIPASDKPHAVCIPYPAQGHINPMLKLAKILHSRGFHTFVNTHFNRRLLHSRGPSALDGLPDFRFD
SIPDGLPPSDADATQDIPSLCESTPKHCLEPFCDLIARTNEDAGVPPVSCIVSDGVMSFTLKAAERFGLP
EVLFWTTSACGLLGYTQYHKLVERGYTPLKDVSYVTNGYMETTMDWIAGMKDIRLRDLPSFIRTTDPKDT
MLNFLISECAIPTASALILNTFDALERESVDALSIAHPRIYTVGPLNMLNQNINDRIKISIGSNLWKED
PGCIEWLDSKEPGSVVYVNFSGSITVVTAGQLTEFAWGLANSRPFVWIVRPDIVAGDKAMIPPEFLAETE
GRGRLSSWCPQEQLRHPAVGGFLTHSGWNSTVESLCSGVPVICWPFFAEQQTNCRYSREWGVGMEIDN
N

>GWHPAAAL010110

MGEKQPELQKQQRQLRLVLFPLPFKGHINPMLQLAAILHANGFPISILHTTFNSPTPSDHPHFDHPIS
VDGLSETDSPTPDLVDLLELLNQCAAPFRDCLEKLTSEEPVACLISDAILHCTATVADSLRIPRIVLRT
GGVASFLAFASFPLLLDKGYLPIQESRLEEAVPELPPLRIKDLPVINTGKPEALYHLLAEMIKTAKNSSG
LIWNTFDELEQPELSKLRRFPPIFPIGPFQKHLTSTHEDRSSISWLQNQPSSVIYVSFGTIASMS
EESQFTEIAHGLADSLHPFLWVVRPGLIRGSEWLKNLPDGFLEGRGKIVKAPQAEVLAHPAVGAFW
THSGWNSTVESISEGVPMICMPCFTDQLVNARYVSHVWVGLTLEGGIERGKIERVMRRVMGEEGKEMRK
RIILCMKERVNVCLRKGGSSHQSLHNLVSYISSL

>GWHPAAAL010292

MEDVPAGKPHAILVAYPLQGHVIPAVHLALNLASRGFTITFVNTQSIHHQITHRPSGKAAAAVDDIFAA
IRESGLDIRYTTVPDGLPAGFDRSLNHDQFMAALLHVFSAHVEEAVDEIVRAGPPVSCLADTFFVWPGK
LAKKLGVVYASFWTEPALVFTLYYHLDLLRIHGFGCIELRDDIIDYIPGVKSIEPKDLTSYLQQSDSST
VCHQIICNAFNDVKTAADFVLCNTVQELEPQTITALQSKTPFFAIGPIFPGSGFTTNVSTSLWSESDCTH
WLDKAPDGSILYVSFGSYAHVEKNDLVEIANGLLLSKIEFLWVLRPDIVNSDDSDPLPEVLKEEIGNRGM
IIPWCNQRLVLAHRAIGGFLTHCGWNSVLESVWCQIPLLCPLLTQFTNRKLVDDWKIGTNLCKRPI
TRGEVCEKIKEVMSEKSGNEFREKIKEVKNKLENALGANGSSTKNMDQFIKDLKATIQQKRGGTS

>GWHPAAAL011043

MENNIEKPPHAIMFPYPLQGHVIPFVHLAIKLASNGFVVTFVNTQSIHHQISQSRTPDAGADIFAGARNS

GLDIRYKTVSDGLPVGFDRSLHHDQFMESLLHIFSAHVDELVGEMVASGDPPVSCLVADTFYVWPSTVAK
KYNLVNGSFWTEPALVLTLYHLDLLRQNGHFGTTDSCKDNIDYIPGVPSMKPTDLMSYLQIDTSTVVHR
I IYKAFNDVKSADFILCNTIQELEPETISALHKKQPTYAIGPIFPVAFNTSSVATSLWAESDCSQWLNTK
PHGSVLYISFGSYAHTTKHDIMEIAYGLLLSGVGFVWVLRPDIVSSDDVDFLPVGFDENIKGQGLIVPWC
RQIEVISHPAIGGFLTHCGWNSILES VWYEIPLICFPLLTQFTNRKLVDDWKIGINLRDEKSITREEV
SKKINYLINETSQNRKEIRKVRVLLLEDALANDGSSQNNFNQFIRNFKDKLVNKKK

>GWHPAAAL011200

MTIGGAGDHILVFPYPAQGHMIPLLDLTHQLAIRGLTITVLVTPKNLPLLDPLLSEHESVATLVLPFPVH
PSIPAGVENVKDLPVGGFRAMMVALGELHDP LLRWFNQPSPPKAIWSDMFLGWTHHLARRLGIRRFVFS
PSGAMALSVIYSLWREFRRRDSNDYNEKFSFPKIPNSPIYPWWQLSPIFRSYVAGDPDEFIKDGFLAN
IASWGLVINSVSELERVYLEYKLGELGHRVWTVGPLLPPDGDLSRTVERGGSSSVLTNQISSWLDKCN
RTVVVYCFGSQAVLSNDQMEHLASGLEKSGSKFVSVKGATTGQEKGSCGQVPLGFEEVSGARGLVIRGW
APQLLILNHRVGAFLTHCGWNSLLEGLIAGVPMALWPMGADQFANASLLVDELRVAIRLCEGAQVVPSS
NELARLVTEATGGDWPERGRAEELRKVALGAIKDGGSSFNNLNDLVRHISEIV

>GWHPAAAL012110

MEESKKEEHIVMLPFMAQGHILPFLELATQIHQSTAFTVTIATTP LNTQYLKSTAAKQNPSPESPAPAI
HFVSLPFNSSDHGLPPNTENTESLPTQIISLFHASSSLKPHFQDLIAGIADKEGKPPICVISDVFMGWA
NEVALSFGTVNVSFTTGAYGTAAYVSIWQNLPHRSRDSNDEFSLPGFPESRRFHISQLHQFLRAADGTD
EWSLFFQPQISLSMGSFGWLCNTVEDIEPLGLEILRRYTKLPVWCIGPLLPRKMLQRSSSSNSGVIGPRS
GKLPGV SPEKCI EWLEFHPPASVLYISFGSQNTISATQMMELAHGLESSGKPFIVVVRPPVSGDPNSQFK
SSEYLPEGFERRAAENNRGLLVHKWAPQLEILSHKSTGAFLSHCGWNSTMESLSQGVPIIGWPLAAEQSY
NAKMLEEEMGVCVELTRGVQSTIERDKVKKVIELVMGEKGKGEEMRKAAAIGEVIRASVMEEGEGRKKG
SSVQAMDDFISTLISNREQSFPHPL

>GWHPAAAL012139

MEERRENIVMFPFMAQGHMIPFLALALQLEKKGYGITFVNTPLNVKLKRLQCLPPDSSIRILEIPFNSSDH
GLPPNSENTDVLPTYLIVNLLHASLSLESSFRKLLSDLIHEQGGVRPLCVIADIFFGWSAGVARELGVFH
AIFSGAGGFLACYSAWLSLPHRTTDSIEFTLPDFPEASKFHVTQLPASMLAADGTDLWSIFQRKTLPA
WTNSDGVLFNTVEGFDKGLAYFSRKIGKPIWAIPTLLSVHHRARVGGREAAITPEQCAEWLDSKPPNS
VIYVSFGSQNTISASQMMQLAKALDKSEKNFIWVVRPPLGFDINSEFKPEEWLPEGFTDRIKDQNRGLIV
IKWAPQVEILSHKSIGAFISHCGWNSVLEALSNGVPLIGWGMAADQFFNVKMLEEAVGVCVEVARGTIFE
VRHEDIMEKIEVVMGESEKGKRIKRAGELKEI IKDATRDEEGFKGSSVKAMDEFLSAAAMSMKEKKTLL
VETQ

>GWHPAAAL013261

MASEFHHAHFVLIPLMSPGHIIPMVDMAKLLARRGVTVTLIMTQHSATRFASVVDRAIKSGLPIRLLEFR
FPSKEAGLPEGCDSDVDIPSYDLLNFFNAIDMSQNPLEQLIEHLEPNPSCIVCDKHIAWTAETAKKFNI
PRIIFDGMSCFSQLCVHNLHVSKVHERFQGSEPFVLPGLPDEIVITRAQLPGTFNPGSMKNLDEIRKVR
ETEKEAYGVVNSFEELEQRYVNEYKKVREDRVWCIGPLSLCSNETSDMANRGNTASIDANHCFKWLD
SRQPRSVIYACLSLRLTPPQFIELALGLESTNQPFILVIKAGDKVKEIETWISENGFEERTRE RGLLIRG
WAPQVLILSHAAVGAF LTHCGWNSTLEAVCAGVPLITWPLFSEQFLNEKFAVQVLKIGESVGARVAVGLG
EEKSGVKVEREEVEAAARLMEEGEEGGRRRRARELAEMAKRAVEEGSSHLNMTVMIQDIVSIKREE
T

>GWHPAAAL013365

MSTPTDNGEKLHIVMFPWLDFDHMIPFLELAKLIAKKGHKLTYVSTPQNIRWLPNPPLNWWLLPLPIVES
VPD NAKATVDVPSGKVSCLVDAFDRLETELTRFLEASMPDWIIYDFAPPWLP TVVGNLGISRAFFNVRNA

SFVYSMIKGCPLNDIIIGPLGVHRLWSRCDVFATRDCTEFEPHCLNTRLKVTQKPVIPVGLMPSLVHDSE
DDKTYTWLAINDWLQKQNKESVAYVALGIEVFKNQESLSEMAIGLELSSLPFLWALRRPHGSTELGSVKL
SLGFEERTKARGIVCRTWVPQAKVLAHGLVGCMTGCGWSSVIEGLQFGRSLLMMPFTEEQRNLNTRVCVK
KNMGIEIAQVGSLTRNSVADTLKLMSNDNNEGKLIREKVKMMNWIFGDKARHDLYMDNFVDYLQNYRSL
NKVP

>GWHPAAAL013653

MTSPSSSPSLPHVFMVSFPGQGHVNPLRLGKYLASKGLLITLCTPEIFGKQIRKSNPIIAGENPIKIG
EGFIRFEFIQDDLEEDDPIFKDFDLYFPDLEMKGKAALQRMIEENKVMGRPVSCLINNPFIWVSDVAEA
MAIPNAMLWVQSCACFAAYYHYGKGSVPFPSELELDVQLPAMPLLKHDEIPSFLHPTTPYTVFRRAIM
GQYRNLSYPFCILMDTFMELEELIENMSEICPVKPVGPLFRNAGGYGSEIRGDMMRADDEECLKWLD SMP
ECSVVYVSFGSIVSLKQTLDEFAAGILNSGV SFLWVVKPVPEKPVKLPEVFLEKAGDRGKIVEWSPQE Q
VLAHPAVACFVTHCGWNSSIEAVANGVPVVAFPQWGDQVTNAKYLVEVFGVGLRLSRGEAENRTVTAKEV
ERCLLEATSGGKAAELKEKALKWKKKAAEEAVAEGGSSNRNMKDFVEEVKRRSI

>GWHPAAAL013654

MVSPFPSSSLPHVFMVSFPGQGHVNPLRLGKYLASKGLLITLCTPEIFGKQIRKANPIIAGENPIKIGEG
FIRFEFIQDGLEEGDPIFKDPDLYFPDLEMKGKAALHRMIEENKEMGRPVSCLINNSFIPWVSDVAEAMA
IPNAVLWVQSCACFAAYYHYGKGSVPFPSELELDVQLPAMPLLKHDEIPSFLHPTTPYTVFRRAIMGQ
YRNLSYPFCILMDTFMELEELIENMSEICPVKPVGPLFRNAGGYGSEIRGDMMRADDEECLKWLDLMPEC
SVVYVSFGSIVSLKQTLDEFAAGILNSGV SFLWVVKPVPEKPVKLPEVFLEKAGDRGKIVEWSPQE QVL
AHPAVACFVTHCGWNSSIEAVTNGVPVVAFPHWGDQVTNAKYLVEVFGVGLRLSRGEAENRTVTAEEVER
CLREATSGGKAAELKEKALKWKKKAAEEAVAEGGSSDRNMKDFVEEIKRRSI

>GWHPAAAL013655

MVSPFPSSSLPHVFMVSFPGQGHVNPLRLGKYLASKGLLITLCTPEIFGKQIRKANPIIAGENPIKIGEG
FIRFEFIQDGLEEGDPIFKDPDLYFPDLEMKGKAALHRMIEENKEMGRPVSCLINNSFIPWVSDVAEAMA
IPNAVLWVQSCACFAAYYHYGKGSVPFPSELELDVQLPAMPLLKHDEIPSFLHPTTPYTVFRRAIMGQ
YRNLSYPFCILMDTFMELEELIENMSEICPVKPVGPLFRNAGGYGSEIRGDMMRADDEECLKWLDLMPEC
SVVYVSFGSIVSLKQTLDEFAAGILNSGV SFLWVVKPVPEKPVKLPEVFLEKAGDRGKIVEWSPQE QVL
AHPAVACFVTHCGWNSSIEAVTNGVPVVAFPHWGDQVTNAKYLVEVFGVGLRLSRGEAENRTVTAEEVER
CLREATSGGKAAELKEKALKWKKKAAEEAVAEGGSSDRNMKDFVEEIKRRSI

>GWHPAAAL013658

MVSPFPSSSLPHVFMVSFPGQGHVNPLRLGKYLASKGLLITLCTPEIFGKQIRKANPIIAGENPIKIGEG
FIRFEFIQDGLEEGDPIFKDPDLYFPDLEMKGKAALHRMIEENKEMGRPVSCLINNSFIPWVSDVAEAMA
IPNAVLWVQSCACFAAYYHYGKGSVPFPSELELDVQLPAMPLLKHDEIPSFLHPTTPYTVFRRAIMGQ
YRNLSYPFCILMDTFMELEELIENMSEICPVKPVGPLFRNAGGYGSEIRGDMMRADDEECLKWLD SMPEC
SVVYVSFGSIVSLKQTLDEFAAGILNSGV SFLWVVKPVPEKPVKLPEVFLEKAGDRGKIVEWSPQE QVL
AHPAVACFVTHCGWNSSIEAVTNGVPVVAFPHWGDQVTNAKYLVEVFGVGLRLSRGEAENRTVTAEEVER
CLREATSGGKAAELKEKALKWKKKAAEEAVAEGGSSDRNMKDFVEEIKRRSI

>GWHPAAAL014206

MAKNTHVVMLPWSAFGHIIPFFQLSIALTKAGIHVSFVSTPKNIRRLPQIPSDSVPFIDLVELPLPEIDR
SLLPADAEATVDIPTENIQYLKIAYDLLKKPFSRFVADRLPDWIVIDMMPHWAVDVAKEFDVPVIYFSVF
GAAAVFWGPPEYIAGEGQKMKRSTPESLTSTPEWVDFPSAVAYGQNEAVSFHAGAYGENASGISDAGR
ARILHSCRALAIRSCPEFEHDYLNLEKIHQKPVIPVGLLPPEQKSEARNSGDKFKIFKWLDQQKPKSVI
FVGFGSECKLTENQIHEIDYGLELSELPLWLSLRKPSYSTDELPLPPDFHRRIAEKGLVHVGWAPQTEI
LAHPSVGGSLFHSGWGSVIETLQFGHRLVVLPLIIDQPLNARLLVEKGLAIEVERGGDGSFGGDAIAKAL

REAMVMEGGERVREAMAIFGDRKLQENYVERFAEYLKNGVAKNR

>GWHPAAAL014233

MEERRENIVMFPFMAQGHMIPFLALALQLEKKGYGITFVNTPLNVLKLRQCLPPDSSIRILEIPFNSSDH
GLPPNSENTDVLPTYTLIVNLLHASLSLESSFRKLLSDLIHEQGGVRPLCVIADIFFGWSAGVARELGVFH
AIFSGAGGFLACYSSAWLSLPHRTTDSIEFTLPDFPEASKFHVTQLPASMLAADGTDLWSIFQRKTLPA
WTNSDGVLFNTVEGFDKLGLAYFSRKIGKPIWAIGPTLLSVHHRARVGGREAAITPEQCAEWLDSKPPNS
VIYVSFGSQNTISASQMMQLAKALDKSEKNFIWVVRPPLGFDINSEFKPEEWLPEGFTDRIKDQNRGLIV
IKWAPQVEILSHKSIGAFISHCGWNSVLEALSNGVPLIGWGMAADQFFNVKMLEEAVGVCVEVARGTIFE
VRHEDIMEKIEVVMGESEKGKRIKRAGELKEIIKDATRDEEGFKGSSVKAMDEFLSAAAMSMKEKKTLL
VETQ

>GWHPAAAL014996

MEITDGETGSSQNRVLVIPFPSQGHINPMLQFSKRLAAKDRRRSLGITLVTSTTKFSALSQPPTSVSVE
YLPDDSDDDQDDVGAFRRFEKTVTEGLPGLVERLKNSGSPARVVYDSIIPWVLDAHPLGLKGACFF
TQTCAVCAIYYHVHRGTLTPSEEEEEEDHRSSVTLPGMPLMEIKDLPSFVYDIDQYPYALRLLLAQFSNT
GEAEWIFFNTFDKLEHEVIDNWAAREWPRMKSIGPTIPLAYLEEDNTLQNDIDYGLNLLDSNFEACMNW
LDAKETASVAYVSFGSVANLNNEQMEELAWGLISSGTHFLWVVRASEESKLPPNFTDQALENGLIVNWCP
QLQVLAHRAVGCFVTHCGWNSTLEALSLGVPLVAMPHWSDQTTNAKYVSDVWKVGVRARGVEKGAGVVGR
AEIERCVKEVMEGESGDEVRRNAVWKEAREAVAAGGSSDNNIQEFVSQVLVKL

>GWHPAAAL015368

MTNTNRVELVFIPSPGMGHLVSAVEMAKLLVDRDQRLSITLLIMKAPFKTKANYSPAQSLSTAAASRIRF
VDLPGELESDAKFSPHTFLSGFISGQKTLVRDAVAQISSSPEAPLAGFFIDMCTSMIDVADEFVRVPT
YVFFTSGAAFLGLVFHLQTMRDDHNHDVTELKDSADLLVPCFVKSVPTKVLPSVVLKKEGGSEMFDLV
RRIRETKGILINTFSELESHAIHSINTPPVYPVGPILNVAGDNDNESTASAAILKWLDQPPSSVFLCF
GSMGCFGVDQVNEIAHALERSGHRFLWSLRRPPPEGKLEFPDYNLEEVLPERFLERTAEIGRVIGWAP
QAAVLAHRAVGGFVSHCGWNSTLESVWYGVPMAAWPQYAEQQLNAFLMVEELEMAVEIKMDYRNGFYSKS
GVALRSEEIEKIGIRLMECGENGMRKKVEEMREKSRVAVREGGSSYLSIGRLIEDVMKIVEQ

>GWHPAAAL015516

MAYHHPRQTQPQVAVVVVPFPAQGHLNQLLQLSRLISFYHIPVHYVGSATHNRQAKLRNHGWDPLSATNI
HFHEFSTPHFLSPPPDPHAAVKFPSHLQPSFEASSHLRRPVAALMRELSQKFRRIIIVNDSLMSGSVVQDF
VSLQNADAYTFHVSFAFAMALFFRESTGKHFSVHAELLNGVPSLDGCFTADFLNFLKTQHYYTQFSSGRI
YNACRLIEAPFLDILSQDHDTAINKNKKHWALGPFNPISITHNKRPNRHKCLEWLDKHDQNSVILVSFG
TTISLSEEQIKELATGLEQSGQKFIWVLRDADKGDVFNEEDEVRRAELPKGFEEDRVEGRGLVVREWAPQL
EILGHPSTGAFMSHCGWNSCMESITMGVPMAAWPVHSDQPRNAVLTKFLKIGLPVKDWARREDEVVIALT
VENAVKKLMAAEEGREMRKRAEELGGAVRRSAAEGGASCKEMDAFIAHITRI

>GWHPAAAL015754

MSGDRKLHIVMFPWLAFGHMIPYLELAKLIAEKGHKISFLSTSRNIDRLPKLPPHLTPVIDFVKLQLPHV
EGLPENAEATSDVPYNKVYKLVAYDLLQEPIARFLRISSPDWVLFDFVSYWLGPIASELRIPSAFFSIF
IPAFLGIFGPVPVLKGTDEARTKPEDFTVSPKWVPFKSTVAFRLFEIQRIFDSVTGDEMNPDTYRAGCT
IESCDIIAIRSCHEFVPEWIKVLEEIHQKPVIPVGQLPTTAYDGGEDDKDGWEKMKEWLDTKEKKSVVY
VAFGSEAKPSQAELEIALGLELSRLPFFWVLNRNRGNADTEPIQLPEGFEERTRGRGWVCTKWAPQLKI
LSHDSVGGFLTHSGWSSVEAVQFERALILLTFLADQGLNARVLEEQKMGYSIPRDDRDSFTRDSVANS
VRLVMVEEGGKIYREKMKEMLGVFGDRDRQDGYVENFLRYLQNYKIPTSDEPNKKE

>GWHPAAAL015755

MELIIPSNGRKLHIAMFPWLAFGHLIPFLELAKLIAQKGHQISFISTPQNVHRLPKLPPNLTPLINFVQI

PLPAVENLPDGAETIDVPYDKVKYLKIAYDGLQEPITKFLHYSSPDWII FDFASYWVGPVASELEVSSA
FFSIFTAAFMGFCGPAEILKGTVEGRTPEDFIVKPNWVPFESRVAFRLFEILRVFDGVTGDEDNVSDGL
RMGCTIEGCDLIIIRSCYEFESDWLRVIEEIHRRKPLIPVGQLPTTVYDGGVDKDGAWREIKDWFDQKEK
GSVVYVAFGSEAKPSQTELTEIALGLEVSGLPFFWVLRLKQRGSADIELTQLPEGFEGRTRGRGIVCTTWA
PQLKILNHVSVGGFLTHSGWSSVVEAISLEKALILLTFLADQGPNNARLLEKKMGYSVPRDERDGSFSRD
SVADALRLVMASEEGKIYRDVKVEMKWAFGDRDLQDRYVHNLLGYLQTHNRKKGR

>GWHPAAAL016884

MAASTFHIAIMPWFALGHLTAFLHLSNKLAKKGHKISFLIPTKTQPKLNPFNLYPNLITFIPITIPHVDG
LPPGAETTSIPYLSGTHLMTAMDQTQAHIELLLRDLKVDIVIFDFAYWIPAVAKWLGKSIHYCTISPA
TVAYTMVPARNLKGKVTETDLMQPPEGYPVSSIKLHAHEAPAFVARRSMRFGGDKQFYERQFLSFSQCD
ALGFRACREIEGQFCDYIESQFRKSVLLSGPVIPEPPTSPLEEKWVKWLGKFEAGTVVYCTFGSECTLKK
DQFQELVLGLELAGKPFLAALKPPAGVESTAALPENFKERVQGRGIVHGGWVQQQLILEHPSVGCFTITH
CGSGSVSEALVNKCQMVLLPHVGDQIINARMMSRDLKVGVEVEKGEEDGVFTRESVCRAVRAAMEEGSEV
GKEIRANHAKLREFLLHKDLESSYIENFLMKLQELLQ

>GWHPAAAL016885

MAASSFHIAIMPWFALGHLTPFLHLSNKLAKKGHRISFLIPTKTQHKLNPFNLHPDLITFIPITVPHVDG
LPPGAETTSITPPQSLTHLMTAMDQTQHHEHLRLDKPDVVFDFTYWIPVAKRLGKSIHYCIISPA
TIGYTMVPTNLRKNEVMEIDMRPPEGYPASSIELHAH
EARAFVARRRRVAKSRANFVTTLKANSEXTSPLEEKWVKWLGKFEAGTVVYCAFGSECTLKKDQFQELVL
GLELAGKPFLAALKPPAGVESTAALPENFKERVQGRGVVHGGWVQQQLILEHPSVGCFTITHCGSGSLSE
ALVNKCQLVLLPHVGDQIINARLMSRDLKVGVEVEKGEED

GVFTKESVCRAVRAAMEEGSEVGKEIRANHAKLREFLLHKDLESSYIDNFLMKLQELPQ

>GWHPAAAL017403

MEREIDEMGSQKPHVLVVPFPAQGHFSPALQLSKRLASKGIRVTFVTTISSAESSGSIRMEHISDGYEEG
EKPESIEAFTDRIKTVFSQNLGDLIEKQKRVGYPVKLLIYDSVIPWALEIAHSLGVYGAPFFTQTCAVCA
IYYHAQKGNLEVPLEGTKFSLSPLPLERNDLPSFLSDMNSYQFFLKMVLAQFSNFQNAWILFNTFDKL
EDEIVKWMASQWPRTVGTIPSMYLDKRLKEDKEYGLSLFTPNIESSMKWLDKEPGSVVYISFGSLAN
LDEGQMKELSWGVLKSNYYYLVVVRDSEESKLPNNFMAETSEKGLVSWCPQLEVLAHQVAGCFVTHCGW
NSMLEALCLGVPVAMPQWTDQTTNAKFVADVWRAGVRVEANDEGVVTREEIEKRIREVMEGETREELRK
NASNWNLAAREAVDEEAVIFPANPSQKNNPMTQFSKCLATTGHR LAVTLVNTTATKFSYLSQPPSSISIE
RMYLMMIN

>GWHPAAAL017405

MEITDRETGSSQNRVLVIPLPVQGHINPMLQFSKRLAAKDRHCRLGITLVTTTATKFFALSQPPNTISIE
SLPDDSDDDQLVDTVALIRRFVKTVTEGLPRLVERLKNSGSPVRVVYDSFIPWVLDIAHQGLKGACFF
TQTCAVSAVYYHVHGTLTPVSEEEQDHRSSVTLPGMPLMEINDLPSFVYVVYDQYPAALRFLLAQFSNA
GKADWILFNTFDKLEHEVIENWAAREWPRMKSIGPTIPSAYLEEDKTLQNDKDYGLNLLDPNIEACMNW
LDAKETASVAYVSFSSVADLKKEQMEELAWGLIGSGTHFLWVVRASEESKLPNFTDQALENGLIVNWCP
QLRVLAHRAVGCFVTHCGWNSTLEALSLGVPLVAMPQWSDQTTNAKYVSDVWVKVGRARRVEKGEVVG
EEIERCVKEVMEGESGDEVRRNAVRWKELAREAVAAGGSSDNNIQEFVSQVLKL

>GWHPAAAL017961

METRGPKEVVLVPYPAQGHMSPMLQLGTLHSLGFSITVAYASLNSPDSTHPEFDLPISEDLSDRDT
SSGAVFSLITSLNADCAEPLRECLVRVTEDRGAVACVVYDSLIFYPEEVAHRMKIPSMVLQTCSAAYVLA
CRLFPKLKEEGLPAESEDPSMEDLVPKLHPLRFKDLPI TKFDTTALQILMDLNDVGTSSAVIWNTTDYL
EHPSLCRLRQHYQVPFPLGPLQAMAPTSSTSFLKEENGCLNWLENQAPKSVIYVSFGSNATMEPKELSE

VACGLANSDQPFLWVVRPGSVKGSKWVEHLPEGFIEAVGERGCIVKWAPQKKVLAHGAVGGFWSHCGWNS
SLEGLSEGLPMICRPCFGDQRANARYLAHVVRVGLELELELERGAIERAVRRLMTGKEGEELKRRAMD
MKQNIIEESVQKDGSSYNLSIELADFISDFHKTRQCV

>GWHPAAAL018171

MGKQLHVVFPPFMAHGHIPTLDMAKLFSSRGVKTIIITPLNAPVFSKSIQRSNQLGLDISLKIFDFPA
VAAGLPEGCESADQITSEDMLPKFFVATALLREPLERLLSDHRPDCLIAGMFFPWTTESAAKFGIPRLVF
HGTSFFALCAGESLRTHKPFQVTSDEPFVLPPELHEIKLTRTEVSPFELHDTETAISGVLKQVSESEK
TCYGI IANTFYALEPDYADHYRNAMGRTAWHVGPLSLCNRGIEDKAERGKSSIDEHECLQWLDSKKPKS
VLYVCFGSMKAFADSQLYEIAAGLESSGQQFIWVVRKSKDEEEQKEETWLPHGFEERTQGKGLIVRGWAP
QMLILDHEAIGGFVTHCGWNSTLEGACAGLPMVTPAFAEQFYNEKLVTDVLKIGVSVGAKWKTPREG
VKREAIEKAVRSVMEGEKAEEMRRRAALKEAAMEAVEEGSSYSDLTSLIEELTSSQKINGT

>GWHPAAAL018716

MEMEMEKREYRAHVLAIPFPAPGHVNPLLQFCKRLEFKGLKASLAITKFQSKSMQSRLGSIQIHTISDGY
DEIGHNAESVGWISTFKEVGSKSVANLIQKFRSLGHPIDCIVYDSFLPWVLDVAKENGVAGASFMTHK
CAVNHINYHVYHKKIPYFSSPTYSIPGLPSLDLEYMPGFMHVHPDYDLVLSQFSTVDRADYVFNFTFY
KLEAEVLDEMSTLPVKPIGPTVPSFYLDNRVEDDKNYGLNLQQLDSSVCLNWLSSKPARSVVVSFGSV
ATASPAANEMEEIAWGLKNSNCYFLWVWNANEENLPQNFKEEMSEKGLIVAWSPQLEVLSSHVSGCFLT
HCGWNSTIEAICLGVPMAVPKWADQTTNSKFIQDVWKVGKVMPSENGIARREEIERCINV

>GWHPAAAL019177

MDHHRRRHHFLLISLPAQGHFNPTLQLAKVLARAGVTVTFATTVYGLNQLKVNSFTVDGIAYASFSDGHD
EDRSKASSDFAGYLEDQRRVGSQNLIKLLENLANDGRPVTFIVYTVLLPWVAQVAREMHVPSAFFAIQCA
ATLAVYHRFFNSSDGLLGGENEINESLSVELPGLPPLSSGEIPSFLMPADQYHSSVSPSFREHILTLEED
PNPTVLINTFDAL EEDSIRAVRNMKIIAVGPLVPSAFSDGIDGSDKSFGCDLFRNSDDHHLRWLDSKSES
SVIYVSFGSLAILGKPQKEEILNGLIDTERPFLWVIRDTAGEEEEEMAVPENGLVVPWCTQVEVLAHSSIG
CFVTHCGWNSTIESLVAGVPVAMPQFSDQLTNAKLVEEVWNGVVRARKSEEKGVVEREEIRRCVEVVVG
GGERGEEIRGSARKWRGLAMAAVREGGSSSKNLRFDLDSL

>GWHPAAAL019178

MDHHRRRRLHHFLLISLPAQGHINPTLQFAKVLARAGVTVTFATTVYGLSQLKANSSTVDGIAYTSFSDG
YDEGGAKANIIFPDYMEDLKRLGSQNLIKLLKNLAGEGRPVTFLVYTVLCPWVAHVAREMHVPSAFFAIQ
CAATLAVYHRFFNSSDGLLGGENEINESLSVDLPGLPPLSSGEIPSFLMPANQYHSSISPSIREHILTLE
EDPNPTVLINTFDAL EEDSIRAVRNMKIIAIGPLVPSAFSDGIDSSDKSFGCDLFRNSGDHYLRWLDSKS
ESSVIYVSFGSLAVLGKPQKQEILNGLIDTGRPFLWVIRDTAGEEEEEEEETAVPENGLVVPWCTQVEVLA
HSSIGCFVTHCGWNSTMESLVAGVPVAMPQFSDQLTNAKLVEEVWNGVVRARKSEEKGVVEREEIRRCV
EVVVGGERGEEIRGSARKWRGLAMAAVREGGSSSKNLREFLDSL

>GWHPAAAL020336

MFTSNRVELVIPSPGMGHLVSAVEMAKLLVDRDQRLSITILIMKVPSKTKANYSPSLSLSTAAASRIRF
VDLPESESTPQFSPQSFISGFIPSQKTRVRDAVAKIAAAPGAHRLAGFFIDMFACTSMTDVADEFGVPTYV
FFTSGAGLLGLMFHLQTMRDDYNHDITELMDSDTDLIVPSWIKPVPLKFLPSVFVNKEEGSHMFLDLTRR
IMKTGKIVINTFFELESQAINSLNTLPVYPVGPILNVAGDNNSASAGAIMKWLDSPSSVFLCFGSMG
CFDQVQKEIACALEHSGHRFLWSLRPPSNSETSELPEEYTNLEEVLPGEFLERTTKIGKIVGWAPQTAI
LSHRAVGGFVSHCGWNSTLESVWYGVPPLATWPLFAEQQVNAFMMVEELEMAVEIKMDYHKS FYLKNGIVL
KSEEIEKGIRRLMESGDIEIRQKVEQMRDKSRVAVKEDGSSFRSIERLIEDVINGAKMK

>GWHPAAAL020411

MVIPDFLIVEDNNSSEALSWVDSCTGDGYGGQMHHESSESNEWWSQSLPSKTLKGIHGEEDGVDKHESK

QSNNTILIKSFKEIEGKYDYHSLAKKKFVPVGPVQEPVCEEGFSKINELNKKDYGSTVLVSFGSEY
FLKKEDNIEIAHGLELSNVNFIWVLRFPKGEKLVAQETFPLGFFYRVGDRGMVVEGWAPQVRILGHPSTG
GFASHCGWGSVIESMSFGIPIIAMPMLDQITINARVVEEVGIGAEATMYISGKLKRENCGGDQGGGGGDR
RGRREEKGKRDEG

>GWHPAAAL021381

MTIPHVLAIPYPAQGHVMPFMELSQCLVQHGVVRTFVNTDFNHKRVTKSMSEKESLTGMMHLVSI
PDGLE PWEDRNDVGKLFESIFQVMPSKLEQLIEKINASEGKKISCVISDQCLGWALEVAEKMGIKRVTFWPASTA
TMALTMNIPKLIDDGVINENGTSFSSWNRYEITHLYHFFFILKFHTARTPISKQIIQLLPTMPAMNTA
NFYWACFGDLSTEKSIQMMVKNNKFLKLADRVICNSIHELEPAAFTLCPEVFPIGPLPLINKVGRSGAN
FWPEDPTCLKWLDQPPQSVIYLAFGSFTIFDQTQFRELALGLELTNRPFLLWVVRPDITDQTKDPYPEGF
IQRVSDRAQIVGWAPQQSILGHPSVACFMSHCGWNSTIEGVSNVGPFLCWPFYFADQFVNQYICDVWKVG
LGFARDESGIIVQDEIRNKVEHLLGDESFRARATVLKEKAMETVKEGGSSHRNFSDLIGWMKEIKHD

>GWHPAAAL021402

MSDVAGRPPHIALFPGAGMGHLPFLRLAAMLASHNCKVTLIAVHPTVSAEASSQISAFFAANHHINRLD
FHILPHNPPDSEVNDPFFVQFEAISRSVHLLGPLLSAASPPISAVFSDFPVAASMAQITDDLTIPNYIVS
TTSARFFSLIAYFPLLNLQNHNSQIEIPGISPLPFSTLPPPLFSPNNLFTTGLATNSKYLPAKAGILVN
SFHGFEPETIEAFNNGKIENLPPLLPIGPLLPHEHIPQCHEISWLDKQAEESVYVVSFGSRTAMAKEQ
VRELGDGLERSGCPFLWVLKTKILDKDESEEEFSLSNSFLERTRRGVVLKEWVNQERILSHPAIGGFV
SHCGWNSVMEAAKEGVPILAWPIGEKIREVMEDEKLRAKARKVGEEARKAVGMVGGSSEMVLQGILQSI
A ETCH

>GWHPAAAL021780

MASKPLVHVFLVSFPGQGHVNPLRLSNLLASGGFFVTFSTTVSFGKMQSVNPVAVTGEPTVGDGFIRF
EFFDEELALDDPRRRDNLFFYHLELAGKENLRLVENQSSSEDGRTPVSCLINNPLFPWADVADSLGIP
CAILWVESCASLSAYYHYHGLVPFPDGEQPELDVEIPFLPLLKHHEIPSYLHPNDPCTFLKKLVLGQIK
RLPKIFCVLIDTFEELEPQIIIRHVSDLIPIRSVGPLLRYRKSSSWITGDRLKTDDCIEWLDSKPPSSVLV
MSFGSVAQVKQEIDEIAHGLLSSCVSFLWVMTPPMAGSPDKPRILPDGFSEKMGDRGKVVEWSPQERVL
AHPVSACLVTCHGWNTTVEVLSNGKPVLAFPQWGDQVNNAKFLVDVFGVGIRVYRGEDRGSIVSRDEFEK
CVREAMSGPKAVDIKENAMRWKVAEEAFAEGGSSRRNMLDFMEEIKRRSVD

>GWHPAAAL021819

MVPISTEPIRKCHVAVPYPRGHVNPMNICKLIASKFDPDRLVITFVVTEEWLGLIGSEIKPANVRFA
AIPNVVPSERVRAADMVGFVTAVMTKMEQPFEEVLDRLMQSPASV I IADTFLRWAVEVGNRRSIPVASLWT
MPAMVFSVFYNFELVVENGQFPIELCERGEERVDYLPGIPSIRLSDLPTIIHRRDQNLRLCLTAFANVS
RARYLLFTTCSLEPQVIAALKTQFPPLYCLGPTIPYFNLQQPPPITPNHHDYLVKWDLSKPPNSVLVVS
LGSFLSVSSSQMDEIEAGLGGSGVNYLWVNRGHAGVGGGGRMVVRWCDQLRVLCHPSVGGFWTHCGWNS
TMEGIYAGKPMLTLPILMDQVPNSKCVVEDWKIGWEVKREEGNLSREKIVEVRRFMDEGSEEREEMMR
RAEELRRLCRTALVRGGSSHENLQAFVDGIAKF

>GWHPAAAL022080

MTFLCSSFLVAYVWSPETPGSQKPHVLVVPFLAQGHFSPALQLSKRLASKGLRVTFVTTISCPKSNGSI
RMEQISDGYEQREKPESIEAFAEGIKTAISQGLHDLMEKQKQVGYPVKLVVYDSGMPWALEMVHKS
GVYGVLFFTQPCVVCALYYHMQQGTLEVPFEGTKVTLPSLPPLEKNDLSSSFISNLPHEFLVKGLLDQFSNIHR
ANWILFNTFDKLEKEVVKWMASQWPVRTVGPTIPPMYLDKQLKRDKEYGLSLFTPNTASMKWLD
TKEQG LVVYVSFGSMAILDETQMEELSWGLVQSNNYFLWVIRASKESKLSKFMAKTLEKGLMVNWC
PQLEVLAH QAVGCFVAHCGWNSTPEALCLGVPMVAMPQWVDQTTNAKFVADVWGGGRSGRGGQ

>GWHPAAAL022859

MEMEMEKREYRAHVLAIPFPAPGHVNPLLQFCKRLEFKGLKASLAITKFQSKSMQSRLGSIQIHTISDGY
DEIGRHNAESVGVWISTFKEVGSKSVANLIQKFRSLGHPIDCIVYDSFLPWVLDVAKENG VAGASFMTHK
CAVNHINHYHVYHKKIPYPFSSPTYSIPGLPSLDLEYMPGFMHVHPDYDLVLSQFSTVDRADYVFNFTY
KLEAEVLDEMSKTLVPVKPIGPTVPSFYLDNRVEDDKNYGLNLQQLDSSVCLNLWSSKPARSVVYVSFGSV
ATASPAANEMEEIAWGLKNSNCYFLWVVNANEENLPQNFKEEMSEKGLIVAWSPQLEVLSHHSVGCFLT
HCGWNSTIEAICLGVPMAVPKWADQTTNSKFIQDVWKVGVKMVMPSENGIARREEIERCINV

>GWHPAAAL023009

MIPTLDMAKLFSSRGVKTITIITPLNAPVFSKSIQRSNQLGLEISLKIFDFPAVAAGLPEGCESADQITS
EDMIPKFFVATALLREPLEQLLSDHRPDCLVADMFFPWTTESAAKFGIPRLLFHGISFFALCAGESLRTH
KPFRQVTSDEPFFVLPELPHEIKLTRTEVAPFDLYDTQTAISGVLKQVRESEKTCYGIANTFYALEPDY
ADHYRNAMGRATAWHVGPLSLCNRGIEDKAERGKKASIDGHECLQWLDSKKPKSVLYVCFGSMKAFADSQ
L YEIAAGLESSGQQFIWVVRKSKDEEEQKEETWLPHGFEERTQGGKGLIVRGWAPQMLILDHEAIGGFVTHC
GWNSTLEGVCAGLPMVTWPAFAEQFYNEKLVTDVLKIGVSVGAKENRGPREGVKREAI EKAVRSVMEGE
EVEEMRRRAAALKEAAMEAVEEGSSYSALTS LIEELSSRQKINGK

>GWHPAAAL023788

MERKTSILMFPWIA YGHISPFLELAKKLSQRDFFIYLCSTPANLASVKPKIDEKYSLLIKLVEFHLPTLP
DLPPCFHTSNGLPPHLMHTLMTAVDMSNPSFSDILETLKPDLLIYDFVPHWAPATAAAHNIPAVEFITSS
ATVYFRHYEKAHQDEMIESDRYQYNKNLSVKSPQQSNNIILIKSFKEIEGKYDYLSLLAKKKIVPVG
PV VQKPFCEEGFSEIIEWLNQKDYGSTVFVSFGSECYLKKEDIEIAHGLELSNVNFIWVLRFPKGEKLGAQ
ETLPLGFLDRVRERGMVVEGWAPQARIL AHPSTGGFASHCGWGSVIESMSFGVPIIAMPQYDQPINATV
VEEVGLGVEATRDITGKLQREKIAAVLRKVMVEREGE GVRKKAREMRDDIRIKGDEEIDNVVLELQQLCK
IK

>GWHPAAAL023789

MERKTSILMFPWIA YGHISPFLELAKKLSQRDFFIYLCSTPANLASVKPKIDEKYSLLIKLVEFHLPTLP
DLPPCFHTSNGLPPHLMHTLMTAVDMSNPSFSDILETLKPDLLIYDFVPHWAPATAAAHNIPAVEFITSS
ATDYFRHYENAHQDEMIESDRYQYNKNVSVKSPQQSNNIILIKSFKEIEGKYDYLSLLAKKKIVPVG
PV VQKPFCEEGFSEIIEWLNQKDYGSTVFVSFGSECYLKKEDIEIAHGLELSNVNFIWVLRFPKGEKLGAQ
ETLPLGFLDRVRERGMVVEGWAPQARIL AHPSTGGFASHCGWGSVIESMSFGVPIIAMPQYDQPINATV
VEEVGLGVEATRDITGKLQREKIAAVLRKVMVEREGE GVRKKAREMRDDIRIKGDEEIDNVVLELQQLCK
IK

>GWHPAAAL023791

MESKTSILMFPWIAHGHISPFLELAKKLSKRNFLIYLCSTPANLVSVKPKIDEKFSLSIKLVELHLPALP
DLPPCFHTTNGLPPHLMFTLKDAFDMSNQNFSDILETLKPDLLIYDFLQWPAPATAAAHNIPAVEFITSS
ATMTSLMLHVFNDPDKDFPFSDTVYFRDNERAHLDRMIESARNQHKKKNPAIECLKQSNNIVLIKSFKEI
EGKYCDYLSLLAKKKLVPGPVVQEPVCEEQFSDIEWLNKKDHGSTVFVSFGSEYFLKKEDITEIAHGL
ELSNVNFIWVLRFPKGEKLAAQETLPLGFLDRVGERGMVVEGWAPQARILGHPSTGGFASHCGWGSVIES
MSFGIPIIAMPMHLDQPINARVVEEVGIGVEATRDITGKLKREKIAAVIREVVVETEGE GVRKKARKMRD
DIRIKGEEEIDNVVLELLQLCKKK

>GWHPAAAL023813

MDTTRERSSERMILMFPWIAHGHISPYLELAKRLNQRNIKTYLCSTPINLSVKNKIDNNSDLLQLVE
LHLPSTPELPPQYHTANGLPRHLMIPKATIEASGPPKFSAMLETLPDLVLYDFNLPWGATVAASHNIP
AVQFIIVGAVMISFALHTLEKPATEKYPPAITLSSESQSHMRKLLDESVLGISDKDRFREGVDRSQDII
LIKSTIEIESNYLNYLSELAGNKKIVPGQLVQQADDRRRDFNEDQIIKWLDKKEKANSVVFVSFGSEC
FLSKEEIQEMGRGLELSRVDFIWVVRYPVGDKTRVLEDELPEGFRERVLGGERGMVVEGWAPQSKILGHP

NLGGFLSHCGWSSVMESMKMGVPIIGMPMGVDQPLNCKVVEDAGVGVEVKRSDGKIKGEVIGEAIIRRV
AEMGGESVRKKAKELGEKLRETGEREVEAAVQEILKFSSNKQ

>GWHPAAAL023819

MGMAAKNDDESGDNQTVAEYGEKRRWGGCSLPVRRRRWRRGIGDERESGNSGEFSEWLDGKEELSTV
SFGSEYFLSKEEIVEIAHGLELSEVNFIVVIRFPMGEEKKTRVGEALPLGFKERVRRERGMVVEGWAPQAK
ILGHKSVAGFVSHYGWNSVLEGMKFGVPLVAMPMLDQPVNARLAVEVGVAVEALRDEDDGGVQRKEVARV
IREVVVGENC GGVRERARELSENMRRLRGDVEVHGLVEVLAQLHQKNAQSC

>GWHPAAAL024115

MAEDRNEGNIVMFPFMAQGHILPFLALARQIEQRHGGYTITIVNTPLNICKLKCWLPPETTIRLVEIPFS
AADHGLPPDSENTDMLSREQALYLFEASESLEKPFENLISEIATGDGRQPICIVSDMFLGWTNVNAKKG
IFHSVFIAGDGYMGLYFSLSLNENLWTVAADEFLPVDPGAARIHWSRIPIDLKYEEAAESWFRFRKR
QFSYCLCSDSILLNSIKELGQKGVEYFRRTGGKPVWTIGPVSNLTVKNKIFTKISTNPISDWLDLHPPG
SVLYISFGSQCSLLASQMKELAMGLEESRCPIVWVRPPVEFDLTGDFRSEWLPVGFEERMRLNQGLI
HGWGPQLEILSHRSTGGFLSHCGWNSVVEGLCGGVVILGWPMAGEQFFNSEMLAEVGVCEVREKNNGC
GIVGHQRIAEVIEAMGKSEKGEEMRRKAREMSEKMEAAVKVEEGFRGSSVKVMDEFISTAISSKKR

>GWHPAAAL024577

MAANHQNNGSLTFTGPVSIVAVPFAHGHNLQLLHLSCTFFSSAGLPVHFASTATHNRQARLRATSLNFEK
IHFHDLPHPHFQSPPNPTAAIKFPAHLQPSFEAALHLRQPLAALLREISTVSRRVIVIHDPMLSSVAQE
AASILNPETYVFSCLSVLFQLAHLCENKFQAEIPANLPTMDGCLTPEFMESASQFQLLGTEEGKFRAGY
LYNSCKLIEGRYIDLSSYDQYQDKKIWAIGPILPKSVTKTSNWSHKSIEWLDKQEPSVIVVSFGTMT
SISDEQIRELAVGLEQSKQRFIWWLREADRADIFSCEEQRKVEVEGFEERVKGIGMVVRDWPQPEILG
HRSTGGFMTHCGWNSLESVTMGVPVAAWPMHSDQPRNAVLLTEVLKVGVPVREWTGKGEIVGSSEIEEA
VRLMASEEGEIRKRAEELGGEIRRSTAEGGVCVELDSFVAHITRN

>GWHPAAAL024578

MEAFGFSGRDHSSRHDVVMVFPFAQGHNLQLLNSRLTSHGIPVYFAGTAIHNQARLRAHGWDP
TPNMHFHDFTPSFQSPPNPNDASTSFPTHLLPSFNASLDLRQPFADLLRDFSPEARRVVV
VVDVVGSTPNAESYTFHSVSAFTIFWYLWEAKGRFPFVEGEILKDIPPTDGCFASEFPEFIQNHAYMKF
NSGDLYNTSKVIEETYIDYLCKEPIKGNKKQWPIGPFNPVEPVETKKPNRHFCLNWLKQAINSVIFVS
FGTSTSLKDDQIEELANGLDQSEHRFVWVRDADRGDVFDMPPRRVELPVGFEERVREKGIIVRDWAPQP
EILRHPSTGGFMTHCGWNSCMESITMGVPIAAWPMHSDQPRNAVLIKLLKIGIIVKDWGRRGERVVAET
VEKAVKSEEGDKIRHGGGLSDAVRESVAEGGSTRELDVSFVAHITRS

>GWHPAAAL025080

MEDIAVLVPSPGIGHLISMVELGKLILNHRSFSINILITTPPYNTGRTAPYIDRVSAANPSIHFHHLPS
VPLSVSTTSLNHETLAFQLLLLNPNPHVHQALTSISQTSTPCAFIIDFFCASALSAKDLNIPYFFYTSG
AGALASFLYLPTIHRSTAGNLKDLKTSLHIPGLPPFRASDMMKPVLDKAYEFFLDVSLNFPKASGII
INTFEYLEPRSIKAISSGLCVSNSDGPPPIYICIGPLIAAGDRSDGKTLNRHECLRWLDSQPSKSVVFLC
FGSLGLFPMQDLREIAIGLERSGCRFLWVVRSPPPPENQTERFLAPADPDGALLPDGFMDRTEGRGFV
VKSAPQVEVLSHDSVGGFVTHCGWNSVLEAVCAGVPMVAWPLYAEQKFNRVVLVEEMKLALPMEESDG
FVCAGEVEKRVTELMDSVDGRLVRKHVLAARDAAKAAIGDGGSSRLDLGQLIELWTQN

>GWHPAAAL025081

MEDIAVLVPSPAIGHLISMVELGKLILNHQPTFSIIILITPPYNAGNTAPYINQVSATTPSIHFHHLPS
VPLSLSTASRNHETLAFQLLLLNPNPHVHQALTSISQTSTPRAFIIMDFFCTPALSVARDLNIPYFFYTSG
AGGLASFLYFPTIHRSTAGNLKDLKTFHIPGLPPFRATDMPKPVLDKAYEFFLDVSLNFPKASGII
VNTFEYLEPRSIKAISSGLCVSDSDGPTPIYICIGPLIASGDRSDGEIVNKECLRWLDLQPSKSVVFLC

FGSLGLFSLEQLREIAVGLERSGCRFLWVVRSPPLPLENQTERFLAPADPDLGALLPDGFMDRTEGRGLV
VKSWAPQMEVLNHDSVGGFVTHCGWNSVLEAMCAGVPMVAWPLYAEQRFNRVVLVEELKLALPMEESD
FVCASEVEKRVTELMDSVEGRSVRTHVLAARDAAKAAIGDGGSSRLNLGRLVDSWTRN

>GWHPAAAL025228

MSVHVLIFPYPAQGHLLPLLDLTHQLALHGLTITILVTPKNRPTLDPLLSTHPSIGTLVLPFPHHPAIPS
GVENVKDLGNSGNVLVINALSKLRDPIIQWFKAHPNPPVAIVSDFFLGWTNDLAGQLGIPRVAFYSSGAF
LTSILFHFYRELRSAAVLTAVKFTDLPRSPSFTEAHLPTIVRHYRESNPEWELLKEGVIANSSWSGSIL
NTFDDLEGEFLEYLKKKMGHNRVYGVGPLNLGRVNTDPDADPSNTVLGWLDCPDGSGVIYVCFGSQKFLK
KAQIEALALGLERSKARFIWVVKPITAQQEADGYGSILDGFEERVSGRGMVIKGWAPQVKILSHRVVYGF
LSHCGWNSVLEAIAAGVMILGWPMADQFVNARLLVDYMGAAIRVCEGADSVPSDELARTIAESVDGNK
QEKGRARELRDKAWEAVGPCGSSTKDLVGFVKDLAQLDENG

>GWHPAAAL025545

MIPTLDMAKLFSSRGVKTIIITPLNAPVFSKSIQRSNQLGLEISLKIFDFPAVAAGLPEGCEADQITS
EDMIPKFFVATALLREPLEQLLSDHRPDCLVADMFPPWTTESAAKFGIPRLLFHGISFFALCAGESLRTH
KPFRQVTSDEPFVLPPELHEIKLTRTEVAPFDLYDTQTAISGVLKQVRESEKTCYGI IANTFYALEPDY
ADHYRNAMGRATAWHVGPLSLCNRGIEDKAERGKKASIDGHECLQWLDSKKPKSVLYVCFGSMAKFADSQ
YEIAAGLESSGQFIIWVRKSKDEEEQKEETWLPHGFEERTQGKGLIVRGWAPQMLILDHEAIGGFVTHC
GWNSTLEGVCAGLPMVTWPAFAEQFYNEKLVTDLKIGVSVGVKEWKAGPREGVKREAIKAVRSVMEGE
EAEEMRRRAALKEAAMEAVEEGSSYSDLTSLIEELSSRQKINGK

>GWHPAAAL025754

MENQKKGNGGAHILAIPFPAPGHMNPLIQFCKRLVFKGGVKATVAITRYQAKSIQTRLDTIQIDTISDGY
DEGGFYVIDSIEDSIEKFKVAGSQTALAEIEKYEKLGNPIDCIIYDAFLPWVLDVAKKFGKIVAAFFTQP
CAVNCINYHVYHKLLPYPFSSPPI SVSGLPPLNLEDMPGFIYVDPGHYVLVQSQFSKADEADYRFVNTFY
DLEAEAVDAMKKIHSLRTIGPTVPSFYLDKRVPNDSNYGLHSSNLIMQQKKSTSTPDADPLACLDWLSTK
PPRSVVYVSFGSVAVASPVSEEMKEIAWGLRNSNCFLLWVVKGNEEPNLPENFKEETADKGMIPWSPQL
EVLAEATGCFITHCGWNSTIESLCLGVPMVAMPKWADQTTNAKYIEDVWKAGVRAKVGENGVASREEIE
RCIRAVLEGESGKYKSNAMKWDLATHAVSEGGTSDKNIAEFLSELKAR

>GWHPAAAL025999

MEKTHVAIILPTPGMGLIPLVEFAKRLIDGYNFSFTLILPTDGPLSKAHKEFVDSLPAIDHVLPPVS
HDDMTVENRIALTISRSLPAFRDAFKTLVDEKKVAALVIDLFGTDGFDVAIEFGVSPFIFFPSTAMALSL
FLHLSKLDAAETVGEYRDQPEPIRIPGCIPIQGKMDLPVQDRKNDAWKLLHHAGRYKLAEGIMVNSFRE
VEPGPITALLKKEPGKPIIYPVGPLIKMSSNADDAESECLKWLNQPSGSLFVSFGSGGTLSVQLNEL
AMGLEMSEQRFIWVVRSPNDGTSAAATYFNVNSQTDYPYSFLPEGFVGRTRGRGLLVPSWAPQAAILSHGST
GGFLTHCGWNSTLESYNGVPLIAWPLYAEQRMNAVMLTEDLKVALRPKTGENGIVGRLEIANVVKGLME
GEEGKGIRSRMRDLKDAAKAIGEDGASTKALSEVACIWKNKINYCFN

>GWHPAAAL026143

MDHHHFLILSLPGQSHLNPTIQLGKVLARAGVTVTFATTVYGLNQLKTKSTTVDGIAYTSFSDGHDE
KARSNFAGYMDLKRVSQNLIKLLENLAGGRPVTFIVYTVLLPWVAQVAREMHLPSAFFAIQCAAALA
VYHRRFFNSSDGLHGGENEINDSISVELPGLPQLSSGEIPSFLPADPQHSSINQPCREHILTLEEDPNPT
VLINTFDALIEDSIRAVRNMKIIAVGPLVPSAFSDGIDASDKSFGCDLFRNSGDQYLPWLDKSDSSVIY
VSFGSLVVLEKPKKEEILNGLIDTGRPFLLWVIRDTAGEEEETAVPENGLVVPWCTQVEVLAHSSIGCFVT
HCGWNSTMESLVAGVPVAMPQFSDQLTNAKLVEEVWGNVGRAGKSEEKGVVEREEIRRCVEVVVGGGER
GEEIRGSARKWRGLAMAAVREGGSSSKNLREFLDSL

>GWHPAAAL026144

MDRRRRHRHFL LISLPAQSHLNPTIQLGKVLARAGVTVTFATTVYGLNQLKTKSTTVDGIAYTSFSDGHDE
DGHKARSNFAGYMDDLKRVGSQNL IKLLENLAGEGRPVTFIVYTVLLPWVAQVAREMHLP SAFFAIQCAT
ALAVYHRFFNSSDGLLGGENEINESLSVELPGLPPLSSGEIPSFLMPANQYHSSVSPSFREHILTLEEDP
NPTVLINTFDAL EEDSIRAVRNMKIIAVGPLVPSAFSDGIDASDKSFGCDLFRNSDDHHLRWLDSKSESS
VIYVSFGSLAILGKPQKEEILNGLIDTGRPFLLWVIRDTAGEEEETAVPENGLVVPWCTQVEVLAHSSTGC
FVTHCGWNSTMESLVAGVPVAMPQFADQLTSAKLVEEVWNGVVRARKSEEKGVVEREEIRRCVEVVVGE
GVRGEDIRRNALKWRGLAMAAVREGGPSCKNLRDFLDSL G

>GWHPAAAL026243

MEKLTETRRYPKEVVLVPYQAQGHMSPMLQLGTLLHSLGFSITVAHARINSPDPLTHPDFDFRPISEDLS
DRDTSFHGLLSLITTLNTGCKELLRECLVRLKEERGPVACVVYDSVMYFADEVNQMKIPSMVLQTCNA
YVLPQQLLPQLKAEGYLPSESDPAGDHLVPKLYPLRFKDLPI LKFNTPTLQLLTTLSDIRTSSAVIWN
TIDHLEHPSLCRLRQHYKVPIFPLGPLQKMAPSSSASFLKEDYDCLTWLEKQAPKSVIYVSFGSIAMVEPN
ELSEVAWGLANSQGPFLWVVRPGLVEGSERIEHLPEGFKETVGERGCIVKWAPQKEVLAHEAVGGFWSHC
GWNSSLESISEGVPMICRPCFGDQRVNARYLTHVVRVGLELENKLERGAIESAVRRLMIGKEGKEIRRKV
LDMKQNIIEIVQKGGSSYNTLIELADFISDFHKTGQY

>GWHPAAAL026244

MENQKETRYPKEVVLVPFPVQGHMSPMLQLGTLLHSLGFSITVAHARINSPHPSTHPEFDFQPISEDLAD
RDTSFNGLFSVIMTLNTDCGEPLRECLVRLTEDRGPVACVVYDSL MYFADEVANQMKIPSMVLQTCNAAY
ILPCQLLPQLKAEGYLPSESDPSWEDLVPKLHPLRFKDLFPFKFDTPTLQVMTLCDVRTSSAIWNTT
DHLEHPFLCRLRQHYKVPIFPLGPLQKMAPSSSSTSLKEEYDCLTWLEKQAPKSVIYVSFGSIATVEPNE
LSEVAWGLVNSGLPFLWVVRPGLVNGSEWIEHLPESFKEFVGERGCIVKWAPQKEVLAHEAVGGFWSHCG
WNSSLESISEGVPMICRPCFGDQRVNARYLTHVVRVGLELEDKLERGAIERVLRRLMTGKEGEEIRRRAM
DMKQNIIEEVQKGGSSYNSLIELAGFISDFHTTKQCV