

## **Supplementary Data S1. Predicted amino acid sequence of VrYUCCAs, AtYUCCAs, GmYUCCAs, OsYUCCAs and MtYUCCAs.**

### **1. VrYUCCAs**

(1) VrYUCCA2a(LOC106767860)

MDYLKELEGKSVHDCYHQIKMNKMASPIFVPGPVIVGAGPSGLAAAACLKQKGIPSLILE  
RAECLASMWQFRTYDRLRLHLPKQFCQLPLMPFPKTLPSYPTKQQFLAYLKLYADHFDI  
KPAFSQDVVSAEFDHVCKLWRVKTQARHKRDETAEYLCQWLIVATGECAEVVRPQIEG  
MSEFEGTIQHTSSYKSGSRFCGKNVLVVGCGNSGMEVCLDLCNHNARPSLVVRDAVHI  
LPQQMLGKSTFGLSMFLLKWFPMPFVDQFLLLLSHMLGDTAQFGLRRPKLGPLELKS  
YGKTPVLDVGTLAQIKNGKIKVCRGIKRLARNAVEFVDGKVENFDAILATGYKSNVPSWL  
KGSDMFSEKDGLPRKPFNGWKGENGLYAVGFTKRGLLGASIDAKRIAEDIEHSWKAEA  
THVLEFPCPLA\*

(2) VrYUCCA2b(LOC106767822)

MVLMEYLKEVEGKRVHDYVEVKMGKMRRVVGVVAVIVGAGPSGLAAAACLKQKGIPS  
LILERADCIASMWEFKTYDRLCLHLPKQFCQLPLMPFPQHLPYPTKQQFLAYLKAYANH  
FHIKPTFSRTVVSANYDHRCGCWRVKTQDFKKEETEYVCDWLIVATGENAEFVFPQIQG  
MGEFEGPILHTSSYKSGSIFCGKKVLVVGCGNSGMEVCLDLCNHNALPSLVVRDVTIHLP  
QQMFGKSTFGLSMCLLKWFPVRLVDKFLLLMSHLILGDTAQFGLHRPKIGPLELKNLYGK  
TPVLDVGTLAHIKSGKIKVCRGIKQLAQHKVEFVDGKTENFDIIMATGYKSNVPTWLKG  
SEMFCEKDGLPRKAFPNGWKGENGLYAVGFSNRGLLGASIDAKRIAEDIEHCWKAAKTT  
\*

(3) VrYUCCA3(LOC106770152)

MHDICLNMPPMVQNFDPEDLFSRRCIWVNGPVIVGAGPSGLAVAAGLKDQGVPFIILER  
ANCIASLWQNRTYDRLKLHLPKQFCQLPNFPFPEDFPEYPTKFQFISYLESYANHFNIAP  
QFNETVQSAKYDETFLWVRVKTISRKGPSSAAQCEVEYICRWLVVATGENSEKVVPEF  
EGLGEFGGRVMHACEYKSGEGFSGQKVLVVGCGNSGMEVSLDLCNHNAPSMVVR  
SVHVLPREVFGKSTFEVAVMLMKRLPLWMVDKILLILARLILGNVEKYGLKRPCVGPFEK  
HTAGKTPVLDIGALEKIRSGKIKVVPGITRFLPGKVELVDGQVLQIDSVVLATGYHSNVPS  
WLKENEFFSNDGTPRNPFNGWKGKGGLYAVGFTRRGLSGASLDAINVAHDIKSWKE  
ETKQKRKTVAARHRCISHF\*

(4) VrYUCCA4a(LOC106761746)

MESCKGPEGEEVKCVVWHGPIIVGAGPSGLAVAACLSSHGLPYVILERSHCINSLWQHR  
TYDRLKLHLPKHFCQLPFMPFPHHFPKYPKSNQFISYLHSYAQRFNIRPRFNQSVHTAHF  
DPVSQFWLVRTNDFQYISPWLVVATGENADPVIPSILGMDSFHGPVHTSAYKSGSHYKN  
KRVLVIGCGNSGMEVSLDLCRHNATPYMVARNTVHVLPREMFGFSTFGMAMGLLKWL  
IKLVDKVVLALAGLMLGDTARYGVRRPKTGPIELKLVTKTPVLDVGQVAQIRSGNIKVME  
GVKEITRNGAKFMDGQEKEFSAILATGYKSNVPTWLKSRESFTKDGMPKTPFPMGWK  
GENGLYTVGFTRRGLLGASDAVKIAEDIADQWMSVKDKSYRNSHMILLKST\*

(5) VrYUCCA4b(LOC106764471)

MGSCKPQQEHVHGPIIIGAGPSGLAVAACLSEHKVPFVILERSNCIASLWQHKT YDRLKL  
HLPKQFCELPLKGFPHNFPKYPTKYQFISYME SYASHFNIHPRFNQTVETAHFDKASQL  
WLVRTQHCQQLSPWL VVATGENAEPVLPRIHGMDHFSGSIAHTSVYKSGSEYTNQKVLV  
IGCGNSGMEVSLDLCRHNASPYMVARNTVHVLPREMFGFSTFGIAMALYKWFPIKVVDK  
ILLVLTNFM LGNTNHYGIKRPKTGPIELKLATGKTPVLDVGQVAQIKCGNIKVM EGVKEITR  
KGAKFMDGQEKEFDAILATGYKSNVPAWLKGCDFFTEDGMPKTPFP HGWKGEQGLYT  
VGFTRRGIQGTSCDAIKIAEDIASQWRTVENKNQCNSHIILLTS\*

(6) VrYUCCA6a(LOC106761281)

MDYCIREIEGKQAHDPLFNKASSSSTVWVEGPVIVGAGPSGLAAAACLREKNIESVILER  
SNCIASLWQLKTYDRLRLHLPKQFCELPFMPFPSHFPTYP SKQQFVEYLETYAQTFKIKP  
TFNETVKHAEFDAKLALWRVKTVDKSENTTEYL CRWLIVATGENAEAVVPDIEGV EEFGA  
PIRHTSLYKSGEEFREKRVLVGCGNSGMEVCLDLCNHNATPSLVVRD TVHVLPREMLG  
KSTFGLSMWLLKWLPMRLVDRFLLMVSWLMLGDTSELGLDRPCLGP LELKNMSGKTPV  
LDVGT LAKIKGGDIKVRPGIKRLKRHTVEFVDGR TENYDAILATGYKSNVPYWLKEEDMF  
SKEDGYPVTPFPNGWKGKNGLYAVGFTKKGLLGASMDAKRIAQDI ERCFEAEANHRTAF  
ARSHLPQPNS\*

(7) VrYUCCA6b(LOC106764337)

MHSWMDYCLRELEGKQAHDPLFIEKMKNYSSQSSSCSRERC VVWVPGPVIVGAGPSGL  
ATAAYLKEKGVPSLILERYNCIASLWQLKTYDRLHLHLPKQFC ELPLMGFPCDFPTYPTK  
QQFIEYLESYAERFAIRPRFNETVRHAEFDATLGFWKVKSFNKEVATEFVCRWLIVATGE  
NAEAVVPQIEGMGDFGGTVKHTSLYKSGEEFRGKRVLVVGCGNSGMEVCLDLCNHNAT  
PSLVVRD TVHILPREMLGKSTFGLSMWLLKWLPIRFVDRFLLIVSWFMLGDTARFGLDRP  
KLGPLQLKNLSGKTPVLDVGT LAKIKSGHIKVRPGIKRLKRYTVEFLDRRTENFDAILATG  
YKSNVPYWLKEGDMF SKKDGFPTKPPFNGWKGENGLYAVGFTKRGLLGTSMDAKRIAE  
DIQRCWKAKHSTTFSLSFNVPQSNS\*

(8) VrYUCCA8a(LOC106757377)

MENFFRLVDHEDFFSRRCI WVNGPIIVGAGPSGLATAACLREQGV PFMVLERADCIASL  
WQKRTYDRLKLHLPKQFCQLPKLPFPEDFPEYPTKKQFIEYLESYATHFQINPQFNECVQ  
SARYDETSGLWRVKSVSSTGATRNEVEYICRWLVVATGENAE CVMPDIEGLSDFKGEVI  
HACDYKSGESFRGKKVLVVGCGNSGMELSLDLCNHHASPSM VVRSSVHVLPREVFGK  
STFEFAVMMLQWLPLWLVDKIILMLAWFVFGNVEKLGLKRPSTGP LELKNTKGKTPVLDL  
GALAKIRSGDIKV VPGVKRFNNGEAE LVNGEKLDVDAVVLATGYRSNVPYWLQEGE FFS  
KNGFPKMPFP HGWKGNAGLYAVGFTKRGLSGASSDAVKIAQDIGK VWKDETKQKKQRT  
TACHRRCISQF\*

(9) VrYUCCA8b(LOC106771549)

MENFFRLVDCEETFSKRCV WVNGPVIVGAGPSGLATAACLKQQGIPFM LLERAECIASL  
WQKRTYDRLKLHLPKQFCQLPNLPFP PHFPQYPSKKQFIDYLESYAQHFDLNPRFNQCV  
QSARYDET XGFWRVKT VATCGSVKNEFEYICRWLVVATGENAE CVMPEIEGLKEFKGDV  
IHACEYKCGERFKGKKVLVVGCGNSGMELSLDLFNHSASPSIVVRSSVHVLPREVFGKS

TFELATLMLQWLPLWVVDKILLVLAWLVLGNMEKFGLKRPLEGPLSWKNRKGKTPVLDIG  
TLEKIKSGDIKVPAIKRFDNGCVELVNGEKQDQDVAVLATGYRSNVPSWLEEGEFFSEN  
GFPKCPFPNGWKGNVGLYAVGFTRRGLSGASFDAIKIAQDIAQLWKQDTKPNKHRTTAS  
HRRCSQF\*

(10) VrYUCCA8c(LOC106771284)

MENLFRLVNCEEEMFSKRCIWVNGPVIVGAGPSGLATAACLKQQGVPMFLLEAECIAS  
LWQKRTYDRLKLHLPKQFCQLPNLPFPPHFPQYPSKKQFIDYLESYAQHFDLNPRFNQC  
VQSARYDETSGFWRVKTATCGSVKNEFEYICRWLVVATGENAECVMPEIEGLKEFKGD  
VIHACEYKCGERFKGKKVLVVGCGNSGMELSLDLFNHSASPSIVVRSSVHVLPREVFGK  
STFELATLMLQWLPLWVVDKILLVLAWLVLGNMEKFGLKRPLEGPLSWKNRKGKTPVLDI  
GTLEKIKSGDIKVPAIKRFDNGCVELVNGEKQDQDVAVLATGYRSNVPSWLEEGEFFSE  
NGFPKCPFPNGWKGNVGLYAVGFTRRGLSGASFDAIKIAQDIAQLWKQDTKPHKHRTTA  
SHRRCSQF\*

(11) VrYUCCA10(LOC106757305)

MQEEDKAEGVIVGAGPSGLSAAACLKQSIPIIIEREDCFASLWKKYSYDRLHLHLRK  
QFCQLPHKPFPTFPSYVPKNQFLEYLDDYVSHFAIAPLYRRTVELAQYDDARRCWRVE  
ARNGESGEVEKYCGRFLVATGETSDPFVPAVEGLSSFPGKVIHSTKFKSGKEFKDEHV  
LVVGSGNSGMEIALDLVNHGAKTSILVRSPVHFLSRGMVSLGLFLLKYLSSLSSVDLLMVL  
STMVYGDVTKYGVRRPTEGPFMSKNNHGKYPIIDVGTYDKIKSHELKVLGAEIESVRGK  
DVLFKNGELHPFDSIVFCTGFKRSTNKWLKGDDYLLNDDGLPKPKYPSHWKGNNGLYC  
VGLSRRGFYGAADAENIANDISFFMQQP\*

(12) VrYUCCA11(LOC106778822)

MEIEVPVIVGAGPAGLATAACLNLKSIPNLVLERDDCHASLWRKRTYDRLKLHLGKDFC  
SLPHMPFPSPDFPTFVPRIDFLRYLDSYVSRFKISIRYNKNVESAYVDHNTGKWRLVVKDT  
ASDAHVYVSEFLVVASGENSEGYPVPRVEGLQRFEGEYMHCSNYLNGRDMYGKNVLV  
VGCGNSGMEIAYDLNHWGANTSIVVRGPVHFFTKEMVFGMTLLKYLNIERVDKLMML  
MSKLKYGDMSKYGLVRPKDGPFAKLRKGGTPTIDVGCVGRIKKGEIKVFPALSSIKEGK  
TVEFEDGRDAEFDIIIFATGYNSTVLKWLKDYRELFNSNGMPKPGFPNHWKGNGLYCA  
GFSRRGLDGIADFADAQRIANDINMTTSARGPDGDDANLASLKLQK\*

## 2. AtYUCCAs

(1) AtYUCCA1(At4g32540)

MESHPhNKTDQTQHIIIVHGPIIIGAGPSGLATSACLSSRGVPSLILERSDSIASLWWSKTY  
DRLRLHLPHKHFCLPLLDPEYYPKYPSKNEFLAYLESYASHFRIAPRFNKNVQNAAYDS  
SSGFWRVKTHDNTEYLSKWLVATGENADPYFPEIPGRKKFSGGKIVHASEYKSGEEFR  
RQKVLVVGCGNSGMEISLDLVRHNASPHLVVRNTVHVLPREILGVSTFGVGMTLLKCLPL  
RLVDKFLLLMANLSFGNTDRLGLRRPKTGPLELKNVTGKSPVLDVGAMSLIRSGMIQIME  
GVKEITKKGAKFMDGQEKDFDSIIFATGYKSNVPTWLQGGDFFTDGMPKTPFPNGWR  
GGKGLYTVGFTRRGLLGTASDAVKIAGEIGDQWRDEIKGSTRNMCSSRFVFTSKS\*

(2) AtYUCCA2(At4g13260)

MEFVTETLGKRIHDPYVEETRCLMIPGPIIVGSGPSGLATAACLKSRDIPSLILERSTCIASL  
WQHKT YDRLRLHLPKDFCELPLMPFPSSYPTYPTKQQFVQYLESYAEHFDLKPVFNQTV  
EEAKFDRRCGLWRVRTTGKKDETMEYVSRWL VVATGENAEVMP EIDGIPDFGGPILH  
TSSYKSGEIFSEKKILVVGCGNSGMEVCLDL CNFNALPSLVVRDSVHVLPQEMLGISTFG  
ISTSLLKWFVPVHVDRFLLRMSRLVLGDTDR LGLVRPKLGPLERKIKCGKTPVLDVGTLA  
KIRSGHIKVPELKRVMHYSAEFVDGRVDNFD AII LATGYKSNVPMWLKGVNMFSEKDG  
FPHKFPNGWKGESGLYAVGFTKLGLLGAAIDAKKIAEDIEVQRHFLPLARPQHC\*

(3) AtYUCCA3(At1g04610)

MYGNNNKKSINITSMFQNLPEGSDIFSRRCIWVNGPVIVGAGPSGLAVAAGLKREGVPFI  
ILERANCIASLWQNRTYDRLKLHLPKQFCQLPNYPFPDEFPEYPTKFQFIQYLESYAANF  
DINPKFNETVQSAKYDET FGLWRVKTISNMGQLGSCEFEYICRWIVVATGENAEKVVPDF  
EGLEDFGGDVLHAGDYKSGGRYQGGKVLVVGCGNSGMEVSLDLYNHGANPSMVVRS  
AVHVLPREIFGKSTFELGVTMMKYMPVWLADKTILFLARIILGNTDKYGLKRPKIGPLELK  
NKEGKTPVLDIGALPKIRSGKIKIVPGIIFGKGKVELIDGRVLEIDSVILATGYRSNVPSWL  
KDNDFFSDDGIPKNPFPNGWKGEAGLYAVGFTRKGLFGASLDAMSVAHDIANRWKEES  
KQQKKTAAARHRRRCISHF\*

(4) AtYUCCA4(At5g11320)

MGTCRESEPTQIFVPGPIIVGAGPSGLAVAACL SNRGVPSVILERTDCLASLWQKRTYDR  
LKLHLPKHFCELPLMPFPKNFPKYP SKQLFISYVESYAARFNIKPVFNQTVEKA EFDDAS  
GLWNVKTQDGVYTSTWL VVATGENAEPVFPNIPGLKKFTGPVVHTSAYKSGSAFANRKV  
LVVGCGNSGMEVSLDL CRYNALPHMVVRNSVHVLP R DFFGLSTFGIAMTLLKWFLPLKV  
DKFLLLLANSTLGNTDLLGLRRPKTGPIELKNVTGKTPVLDVGAISLIRSGQIKVTQAVKEI  
TRNGAKFLNGKEIEFDSIILATGYKSNVPDWLKENSFFTKEGMPKTPFPNGWKGEKGLY  
TVGFTRRGLSGTAYDAVKIAEDITDQWMKFNGPLSCRNICSSHHIHLHNKS\*

(5) AtYUCCA5(At5g43890)

MENMFRLMGSEDSSDRRCIWVNGPVIVGAGPSGLATAACL REEGVPFVVLERADCIA  
SLWQKRTYDRIKLHLPKKVCQLPKMPFPEDYPEYPTKRQFIEYLESYANKFEITPQFNEC  
VQSARYDETSGLWRIKTTSSSSSGSEMEYICRWLVVATGENAEKVVP EIDGLTTEFEGEV  
IHSCEYKSGEKYRGKSVLVVGCGNSGMEVSLDL ANHNANASMVVRSSVHVLPREILGK  
SSFEISMMLMKWFPLWLVDKILLILAWLILGNLTKYGLKRPTMGPMELKIVSGKTPVLDIG  
AMEKIKSGEVEIVPGIKRFSRSHVELVDGQRDLDAVVLATGYRSNVPSWLQENDLFSK  
NGFPKSPFPNAWKGKSGLYAAGFTRKGLAGASADAVNIAQDIGNVWREETKRQKMRTR  
VGHRRRCISVA\*

(6) AtYUCCA6(At5g25620)

MDFCWKREMEGKLAHDHRGMTSPRRICVVTGPVIVGAGPSGLATAACLKERGITSVLE  
RSNCIASLWQLKTYDRLHLHLPKQFCELPIIPFGDFPTYPTKQQFIEYLEDYARRFDIKP  
EFNQTVESAAFDENLGMWRVTSVGEEGTTEYVCRWLVAATGENAEPVVP RFEGMDKF  
AAAGVVKHTCHYKTGGDFAGKRVLVVGCGNSGMEVCLDL CNFGAQPSLVVRDAVHVLP  
REMLGTSTFGLSMFLWKWLP IRLVDRFLLVVS RFILGDTTLLGLNRPRLGPLELKNISGKT  
PVLDVGT LAKIKTGDIKVCSGIRRLKRHEVEFDNGKTERFDAILATGYKSNVPSWLKENK

MFSKKDGFPIQEFPEGWRGECGLYAVGFTKRGISGASMDAKRIAEDIHKCWKQDEQVK  
KI\*

(7) AtYUCCA7(At2g33230)

MCNNNTSCVNISSMLQPEDIFSRRCI WVNGPVIVGAGPSGLAVAADLKRQEV PPFVILER  
ANCIASLWQNRTYDRLKLHLPKQFCQLPNLPFPEDIPEYPTKYQFIEYLESYATHFDLRPK  
FNETVQSAKYDKRFGLWRVQTVLRSELLGYCEFEYICRWLVVATGENAEKVVPEFEGLE  
DFGGDVLHAGDYKSGERYRGKRVLVVGCNGSGMEVSLDLCNHDA SPMSVVRSSVHVL  
PREVLGKSTFELSVTMMKWMPVWLVDKTLVLTRLLLGN TDKYGLKRPEIGPLELKNTA  
GKTPVLDIGAISMIKSGKIKIVAGIAKFGPGKVELVDGRVLQIDSVILATGYRSNVPSWLKE  
NDLGEIGIEKNPFPKGWKGKAGLYAVGFTGRGLSGASFDAMSVAHDIANSWKEETKQKI  
KTVATRHRRRCISHF\*

(8) AtYUCCA8(At4g28720)

MENMFRLMDQDQDLTNNRCI WVNGPVIVGAGPSGLATAACLHEQNV PPFVLERAD CIA  
SLWQKRTYDRLKLHLPKQFCQLPKMPFPEDFPEYPTKRQFIDYLESYATRFEINPKFNEC  
VQTARFDETSGLWRVKT VSKSESTQTEVEYICRWLVVATGENAERVMPEIDGLSEFSGE  
VIHACDYKSGEKFAGKKVLVVGCGNSGMEVSLDLANHF AKPSMVVRSSLHVM PREVMG  
KSTFELAMKMLRW FPLWLVDKILLVLSWMVLGNIEKYGLKRPEMGPMELKSVKGKTPVL  
DIGAIEKIRLGKINVVPGIKRFNGNKVELVNGEQLD VDSVVLATGYRSNVPYWLQENEFF  
AKNGFPKTVADNNGWKGRTGLYAVGFTRKGLSGASMDAVKIAQDIGSVWQLETKQPTK  
RSRGSRLRRCISQQF\*

(9) AtYUCCA9(At1g04180)

MENMFRLMASEEYFSERRCV WVNGPVIVGAGPSGLATAACLHDQGV PPFVVVERSDCIA  
SLWQKRTYDRLKLHLPKKFCQLPKMPFPDHYEYPTKRQFIDYLESYANRFDIKPEFNKS  
VESARFDETSGLWRVRTTSDGEEMEYICRWLVVATGENAERVVPEINGLMTEFDGEVIH  
ACEYKSGEKFRGKRVLVVGCNGSGMEVSLDLANHN AITSMVVRSSVHVLPREIMGKST  
FGISVMMM KWLPWLVDKLLLILSWLVLGSLSNYGLKRPDIGPMELKSMTGKTPVLDIGA  
LEKIKSGDVEIVPAIKQFSRHVELVDGQKLDIDAVVLATGYRSNVPSWLQESEFFSKNG  
FPKSPFPNAWKGKSGLYAAGFTRKGLAGASVDAVNIAQDIGNVWREETKRQKMRRNVG  
HRRCISVA\*

(10) AtYUCCA10(At1g48910)

METVVVIVGAGPAGLATSVCLNQHSIPNVILEKEDIYASLWKKRAYDRLKLHLAKEFCQLP  
FMPHGREVPTFMSKELFVNYLDAYVARFDINPRYNRTVKSSTFDESNNKWRVVAENTVT  
GETEVYWSEFLV VATGENGDGNIPMVEGIDTFGGEIMHSSEYKSGRDFKDKNVLVVGG  
GNSGMEISFDLCNFGANTTILIRTPRHVVTKEVIHLGMTLLKYAPVAMVDTLVT TMAKILYG  
DLSKYGLFRPKQGP FATKLFTGKAPVIDVGTVEKIRDGEIQVINGGIGSINGKTLTFENGH  
KQDFDAIVFATGYKSSVCNWLEDYEYVMKKDGF KAPMPKHWKGEKNLYCAGFSRKG I  
AGGAEDAMSVADDIRSILATLKNN\*

(11) AtYUCCA11(At1g21430)

MEKEIKILVLIIGAGPAGLATSA CLNRLNIPNIVVERDVCSASLWKRRSYDRLKLHLAKQFC

QLPHMPFPSNTPTFVSKLGFINYLDYATRFNVNPRYNRNVKSAFYKDGQWIVKVVNKT  
TALIEVYSAKFMVAATGENGEGVIPEIPGLVESFQGKYLHSSEYKNGEKFAGKDVLLVGC  
GNSGMEIAYDLSCNANVSIVVRSQVHVLTRCIVRIGMSLLRFFPVKLVDRLCLLLAELRF  
RNTSRYGLVRPNNGPFLNKLITGRSATIDVGCVGEIKSGKIQVVTSIKRIEGKTVEFIDGNT  
KNVDSIVFATGYKSSVSKWLEVDDGDLFNENGMPKREFPDHWKGKNGLYSAGFGKQG  
LAGISRDARNIARDIDSLVCGRSSKNKLSK\*

### 3. GmYUCCAs

(1) GmYUCCA1(GLYMA\_03G169600)

MENLFRLLVDNEDLFSRRCIWVNGPIIVGAGPSGLATAACLREQGVPFMVLERADCIASLW  
QKRTYDRLKLHLPKQFCQLPKLPFPEDFPEYPTKKQFIEYLESYAKHFEINPQFNECVQS  
ARYDETSGLWRVKTVSSSSGAARGEVEYICRWLVVATGENAECVMPEIEGLSEFKGDVI  
HACDYKSGERFRGKKVLVVGCGNSGMELSLDLNHHSSPSMVVRSSVHVLPREVFGIS  
TFELAVMLLQWLPLWLVDKILLILAWFVLGNIEKLGLKRPSKGPLEMKNRKGKTPVLDIGA  
LERIRSGDIEVVPGIKRFNNGEVEFINGEKLDIDAIVLATGYRSNVPSWLQEGEFFSKNGY  
PKMPFPHGWKGNAGLYAVGFTKRGLSGASSDAVKIAQDIGQVWKNETKQKKQRTTACH  
RRCISQF\*

(2) GmYUCCA2(GLYMA\_03G208900)

MEEKQRVIIVGAGPSGISAAACFTKQSIPIYIILEREDCSASLWKKYSYERLHLHLRKQYCC  
LPHKPPASFPYPVPKKQFLQYLLDDYVSHFGITPLYRRTVELAEYDQGCHNWRVMALNG  
DSGQLEEYRGRFLVVATGETTDPFVPELQGLSGFPGKLIHSTGFRSGKDFKDQHVLVVG  
SGNSGMEIALDLNVHGAKTSILVRSPVHFLSREMVSLGLFLLKYLSLSTVDSLMLVMLSTMI  
YGDVTKYGVARPNEGPFYMKVKYGYKYPVIDVGTYKKIKSGELKVLPSIEISLRGKDVLFK  
NGESHFPDSIVFCTGFKRSTNKWLKGDDYLLNDEGLPKPSYPIHWKGNNGLYCVGLSR  
RGFYGAAADAENIANDVSSFTQHPCP\*

(3) GmYUCCA3(GLYMA\_04G213600)

MEEVSVIIVGAGPSGLAISACLSQNFISHIILEKEDCSASLWRKNAYDRLKLHLASEFCVLP  
LMPHPPSAPTYLSKDEFVQYIDSYIACFNINPLYCRMVEFAAYDEVENKWRVEAKKTLEG  
TSETYVAKFLVIATGENSEGYIPDVPGLSEFGEIVHISKYKSGSKYETKEVLVVGCGNS  
GMEIAYDLNDWGANTSILIRNPVHVFTKELINEGMRMLKHLPVHVVDNIITSLANMEYGDL  
SKYGIYQPKKGPFFHLKFITGRAPVIDVGTEIKIEGAIKVIPSHIVRIENKKVIFENDAEKEFD  
VIVFATGYRSVANKWLKDYKYVLNDEGMPNNDFFPNHWKGDRLYAGLSNRGLFGVK  
MDVEAIADDINQTLKLH\*

(4) GmYUCCA4(GLYMA\_04G242500)

MNSQAYKSSTQQREENHQSHCITNLKPKHQNQTMIEIEVPVIVGAGPAGLATAACLNKY  
SIPNVVLERHDCHASLWRKRTYDRLKLHLGKDFCNLPHMPFPLDFPTFVPRVDFLRYLD  
NYVTRFKISIRYTRNVESASVDEENNGKWRVVKDTTTNADEVYVADYLVVATGENDEG  
YVPQIEGLEGFEGEHMHCSQYLNHRHLYGKNVLVVGSGNSGMEIAYDLSTWGANTSIVI  
RGPVHYFTKEMVFVGMSLLKYFKMEKVDKMLLMSKLKYGDMSEYGLVRPKDGPFFLKI  
KGGTTPTIDVGCVSRIKKGEVKVFPAISSIKKDKMVEFEDGQNGQFDVIFATGYNSTVLK  
WLKDYRGLFNENGMPKPSFPNHWKGNNGIYCACGFSRRGLDGIADFDAQRIADDIKKTLN

ARNLPGDEEDNFASLKLLGK\*

(5) GmYUCCA5(GLYMA\_04G070100)

MESLKGEVVKCVWVQGPIIVGAGPSGLAVAAACLSHHGVVPYVILERSHCITSLWQHRITYD  
RLKLHLPKHFCCELPLMPFPLHFPKYPSKNQFISYLSYASRFNIRPRFNQSVQTAEFDP  
SQLWLVRTNGFQYISPWLVVATGENAEPVVPSSISGMDMFHGPIVHTSVYKSGSDYNNQR  
VLVIGCGNSGMEVSLDLCRHNANPYMVARNTVHVLPREMFGFSTFGIAMALLKWLPIKV  
VDKLVLAARLMLGDTARYGVERRPKTGPIELKLVTKTPVLDVGQVAQIRSGNIKVM  
KEITRNGAKFMDGQEKEFSAILATGYKSNVPTWLKSCESFTKDGMPKTPFPMGWKGE  
NGLYTVGFTRRGLLGASDAVKIAKDIADQWMTVKDKSYRNSHIILLKST\*

(6) GmYUCCA6(GLYMA\_04G079700)

MEYFLREIEGKQAHDPFLFMNNKSSSSSSSSSTVWVHGPVIVGAGPSGLAAAACL  
REKSVPSVILERSNCIASLWQLKTYDRLRLHLPKQFCELPFMGFSPHFPTYP  
SKQQFVQYLENYAERFGIRPRFNETVQHAEFDAKLGLWRVKSVDKAEKTTEYVCRWLIVATGENAE  
AVVPDIEGVVEEFGAPIKHTSLYKSGEEFRGKRVLVVCGNSGMEVCLDLNHNATPSLV  
VRDTHVHLPREMLGKSTFGLSMWLLKWLPIRLVDRFLLMVSWLLLGDTSKLGLDRPRLG  
PLELKNLSGKTPVLDVGTAKIKGGDIKVRPGIKRLKRQTVFVDGRTEFNDAILATGYK  
SNVPYWLKEEDMFSKKDGYPRRPFNGWKGRNGLYAVGFTKKGLLGASMDAKRIAEDI  
EQSWKAGANHRTTFARSHLPQPN\*

(7) GmYUCCA7(GLYMA\_05G231100)

MLYMEYLKEVEGKTVHDYLEVKMGKMTKPIGVEGPVIVGAGPSGLAAAACLKQKGIPSLI  
LERDDCLASMWQLKTYDRLCLHLPKQFCQLPLMPFPQNFPSYPTKQQFLAYLKAYADH  
FDIKPALSKTVISANFDHRCGYWRVKTQGVKKEETEYVCQWLIVATGENAEVVPQIEG  
MSEFEGPILHTSSYKSGSMFCGKNLVVCGNSGMEVCLDLNHHARPSLVVRDTHVIL  
PQQMFGLKSTFGLSLLNWFPMLVLDKFLLLMSHLILGDTAQFGLNRPKIGPLELKNLCG  
KTPVLDVGTALHIKSGIKVCRGIKQLAQHKAEFVDGKIEDFDVILATGYKSNVPTWLKG  
SDMFCEKDGLPRKPFNGWRGENGLYAVGFTKRGLLGASFDAKRIAGDIEHCWKAAN\*

(8) GmYUCCA8(GLYMA\_06G072100)

MESLKAQEGGEEQVKCVWVHGPIIVGAGPSGLAVAAACLSHHGVVPYVILERTNCITSLWQ  
HRTYDRLKLHLPKHFCCELPLIPFPLHFPKYPSNSYASRFNIRPRFNQSVQTAQFDPCSQL  
WVVKTNNGFQYISPWLVVATGENAEPVVPSSISGMDKFRGPIVHTSVYKSGSDYKNQRVLV  
IGCGNSGMEVSLDLCRHNANPYMVARNTVHVLPMEMFGFSTFGIAMALLKWLPIKLVDK  
LVLAARLMLGDTARYGVERRPKTGPIELKLVTKTPVLDVGQVAQIRSGNIKVM  
MEGVKEITRNGAKFMDGQEKEFSAILATGYKSNVPTWLKSCESFTKDGMPKTPFPMGWKGENGLY  
TVGFTRRGLLGASDAVKIAKDIADQWMTVKDRSYCNSHIIFLKST\*

(9) GmYUCCA9(GLYMA\_06G081300)

MEYFLREIEGKQAHDPFLFMNNYNKSSSSSSSSSTVWVHGPVIVGAGPSGLAAA  
ACLRDKSVPSVILERSNCIASPWQLKTYDRLRLHLPKQFCELPFMGFSPHFNPYPSKQQ  
FVQYLENYAESFGIRPRFNETVQHAEDGKLGLWRVKSVDKVGKTTEYMCRWLIVATGE  
NAEAVVPDIEGVVEEFGAPIKHTSLYKSGEEFRGKRVLVVCGNSGMEVCLDLNHNATP

SLVVRDTVHVLPREMLGKSTFGLSMWLLKWLPMLVDRFLLMVSWLLLGDTSHLGLDR  
PRLGPLELKNLSGKTPVLVDVGTALAKIKGGDIKVRPAIKRLKRHTVEFVDGRTENYDAILAT  
GYKSNVPYWLKEEDMFSKKDGYPRRPFNGRKGRNGLYAVGFTKKGLLGASMDAKRIA  
EDIEQCWETGANHRTTLAPSHLPQPNS\*

(10) GmYUCCA10(GLYMA\_06G120700)

MEIEVPVVIVGAGPAGLATAACLNKYSIPNVVLERDDCHASLWRKRAYDRLKLHLGKDFC  
NLPHMPFPDFPTFVPRVDFLRYLDNYVTRFKISIRYNRNVESASMDEQNNGKWRVVK  
DTTNADEVYVANYLVVATGENSEGYPQIEGLEGFEGKMHMCSEYLNGRDLYGKHVLV  
VGCGNSGMEIAYDLNWDGANTSIVVRGPVHYFTKEMVYVGMSLLKYFKIEKVDKMLLM  
SKLKYGDMSNYGLIRPKDGPFFLKKKGGTTPTIDVGCVSRIKKGEVKVFPAISSIKEDKLIE  
FEDGQNGQFDVFIATGYNSTVLKWLKDYRGLFNENGMPKPDFPNHWKGENGICYCAGF  
SRRGLDGIADFADAKRIAADIKKTVNIKNLPSEEDNFASFLLKLEK\*

(11) GmYUCCA11(GLYMA\_06G152700)

MEEVSVIIAGAGPSGLAISACLSQNSISHIILEKDDCSASLWRKNAYDRLKLHLASEFCALP  
LMPHSPSSPTFLSKDEFVQYIDSYIARFNINPLYCRFIEFAAYDEVENKWRVEAKNTLEGT  
REIYVAKFLVIATGENSEGYPDVHGLESFEGEIMHSKYKSGSKYESKEVLVVGCGNSG  
MEIAYDLNDWGANTSILIRNPVHVFTKELINEGMRMMKHLPIHVVDTIITSLANMEYGDLS  
KYGIYQPKKGPFLKFITGRAPVIDVGTIRRIKEGAIKVIPSHIVRIENKKVIFGNDVEKKFD  
VIVFATGYISVANKWLKDYKYILNDEGMPKNDFPNHWKGDRLGLYCAGLSNRGLFGVKM  
DAEAIADDINQTLKLH\*

(12) GmYUCCA12(GLYMA\_07G086200)

MDYLKELEGKSVHDCYHQHQIKMSKMASPIFVPGPVIVGAGPSGLAAAACLKQKGIPSL  
VLERAQCLASMWQFKTYDRLRLHLPKQFCQLPLMPFPKNLPSYPTKQQFLAYLKAYADH  
FDIKPVFSQTVVSAEFDHVCHHWVRKTQGVLLKEDTAEYVCQWLIVATGECAEEVVPQI  
EGMGFEFEGQIVHTCKYKSGNKFCEGKNVLVVGCGNSGMEVCLDLNHNARPSLVVRDT  
VHILPQQMLGKSTFGLSMFLLKWFPPIRFVDQFLLMSHLMLGDTDQFGLRRPKLGPLEL  
KNLYGKTPVLVDVGTLTQIKNGKIKVCRGIKRLARNAVEFVDGKVENFDAILATGYKSNVP  
SWLKGSDMFSEKDGFPRKFPNGWKGENGLYAVGFTKRGLLGASIDAKRIAEDIEHSW  
KAEATHVLEFPCPLA\*

(13) GmYUCCA13(GLYMA\_08G038600)

MLNMEYLKEVEGKSVHDYVEVKMGKMTKPISVAGPVIVGAGPSGLAAAACLKQKGIPSLI  
LERADCLASMWQLKTYDRLCLHLPKQFCQLPLMPFPQNFPQSYPTKQQFLAYLKAYADHF  
DIKPAKSKTVISANFDHGCYWRVKTQGLKKEETEYVCQWLIVATGENAEEVVPQIEGM  
SEFEGPILHTSSYKSGSMFGGKNVLVVGCGNSGMEVCLDLNHDARPSLVVRDTVHILP  
QQMFGKSTFGLSMSLLKWFPMLVVDKFLLLMSHLILGDTAQFGLNRPKIGPLELKNLCG  
KTPVLVDVGTALAHKSGKIKVCRGIKQLAKHKVEFVDGKTENFDVIIMATGYKSNVPTWLKG  
SNMFCEKDGLPRKDFPNGWKGENGLYAVGFSKRGLLGASISKRTAEDIEHCWKAANT  
TRV\*

(14) GmYUCCA14(GLYMA\_09G190700)



MDYLKELEGKSVHDCYHHHQQQIKMSKMASPIFVPGPVIVGAGPSGLAAAACLKQKGI  
IPSLILERAQCLASMWQFKTYDRLRLHLPKQFCQLPLMPFPKNLPSYPTKQQFLAYLKAY  
ADHFDIKPVFSQTVVSAEFDHVCQLWRVKTRGVIKKEDTAEYVCQWLIVATGECAEEVV  
PQIEGMGEFEGQIVHTSKYKSGSMFCGKNVLVVGCGNSGMEVCLDLNHNARPSLVVR  
DTVHILPQQMLGKSTFGLSMFLLKWFPIRFVDQFLLMSHMLMGDTAQFGLRRPKLGPL  
ELKNLYGKTPVLDVGTLTQIKNGKIKVCRGIKRLARNAVEFVDGKVENFDAMVLATGYKS  
NVPSWLKGSDMFSEKDGFPKPFNGWKGENGLYAVGFTKRGLLGASIDAKRIAEDIEH  
SWKAEAKHVLEFPRPLA\*

(15) GmYUCCA15(GLYMA\_10G128700)

MHDICLNMPPMVQTFDPEDLFKRRCIWVNGPVIVGAGPSGLAACLKEQGVPFILIER  
ANCIASLWQNRTYDRLKLHLPKQFCQLPNFPFPEDFPEYPTKFQFISYLESYAKHFNISP  
QFNETVQSAKYDETFLWRVKTIKIKKLGEASSGCCGAVECEVEYICRWLVVATGENS  
EKVVPEFEGLGEFGGHVMHACDYKSGEGYGGQKVLVVGCGNSGMEVSLDLNHNAN  
PSMVVRSSVHVLPREAFGKSTFELAVMLMKRFPLWMVDKILLVLARLILGNVEKYGLKRP  
SVGPLELKHTAGKTPVLDIGALEKIRSGKIKVPGIRFFPGKVELVDGQVLQIDSVVLAT  
GYHSNVPSWLKENDFFTSDDGTPRNPFPNGWRGKGGLYAVGFTKRGLSGASLDAINVAH  
DIAKNWKEENKQKRKTVAARHRCISHF\*

(16) GmYUCCA16(GLYMA\_14G128200)

MGRSCNKSQQQHVEGPPIIGAGPSGLAACLSEDKVPFVILERHNCIASLWQNKTYDRL  
KLHLPKQFCCELPLKGFPHTFPKYPTKYQFISYMESYASHFNIHPIFNQTVKSAEFDKGSN  
VWVVRTEEFYSSRWLVVATGENAEPVVPRIHGMELFGGAVAHTSVYKSGSEYRNKKV  
LVIGCGNSGMEVCLDLCRHNAKPVMVARNTVHVLPREMLGFSTFGIAMALYKWFPIKLV  
DKIILLATNLILGNTNHYGIKRPKTGPIELKLATGKTPVLDVMEGVKEITRNGAKFMDGKEK  
EFDAILLATGYKSNVPTWLKGCDDFTKDGMPKTPFPHGWKGEQGMVTVGFTRRGLHGT  
SCDAIKIAEDIAEQWRTVEDKSHCDSHIILLNNS\*

(17) GmYUCCA17(GLYMA\_14G141200)

MDYCLRELEGKQAHDSLFLKMKNSLSQRTTTSERCWVPGPVIVGAGPSGLATAAYLK  
EKGVPSSLILERSNCIASLWQLKTYDRLHLHLPKNFCELPLMGFPCDFPTYPTKQQFIEYLE  
SYAERFHIRPRFNETVQHAEFDATLGFWRVKS LN KREVATEFVCRWLIVATGENAEAVVP  
GIEGMGEFGGTIKHTSLYKSGEEFRGKRVLVVGCGNSGMEVCLDLNHNATPSLVVRDT  
VHILPREMLGKSTFGLSMWLLKWLPPIRFVDRFLLIVSWLMLGDTARFGLDRPKLGPLQLK  
NLSGKTPVLDVGTAKIKSGHIKVRPGIKRLKRYTVEFVDGRTENFDALILATGYKSNVPY  
WLKEEDMFSKEDGFPTKPFNGWKGENGLYAVGFTKRGLLGASMDAKRIAEDIERCWK  
AKHSTSFSLSLNPQSNNS\*

(18) GmYUCCA18(GLYMA\_17G189700)

MDYCLRELEGKQAHDPFLQKMKNSSSQSTTTSSERCWVPGPVIVGAGPSGLATAAY  
LKEKGLPSLILERSNCIASLWQLKTYDRLHLHLPKNFCQLPLMGFPCDFPTYPTKQQFIEY  
LESYAESFDIRPRFNETVRRAEFDATLGFWRVKS FN KKEVATEFVCRWLIVATGENAEAE  
VPEIEGMGEFGGAIKHTSFYKSGEEFRGKRVLVVGCGNSGMEVCLDLNHNATPSLVV  
RDTVHILPREMLGKSTFGLSMWLLKWLPPIRFVDWFLIVSWLMLGDTARFGLDRPKLGP

LQLKNLSGKTPVLDVGTAKIKSGHIKVRPGIKRLKRYTVEFVGGRTENFDAILATGYKS  
NVPYWLKEDDMFSKEDGFPTKFPDGWKGENGLYAVGFTKRGLLGASMDAERIGEDIE  
RCWKEKHSSTSFSLSLNPQSNS\*

(19) GmYUCCA19(GLYMA\_17G205800)

MGSCNKPQQQQQHVQGPIIIGAGPSGLAVAACLSEHKVPFVILERHNCIASLWQNKTY  
DRLKLHLPKQFCCELPLKGFPHTFPKYPTKYQFISYMESYASHFNIHPFNQTVESADFDK  
GSKVWVVKTQEVDYSSRWLVVATGENAEPVVPRIHGMELFNGDVAHTSVYKSGSEYRN  
KKVLVIGCGNSGMEVCLDLCRHNAKPVMVARNTVHVLPREMFGFSTFGVAMALYKWFPI  
KLVDKIILLATNFILGNTNHYGIKRPKTGPIELKLATGKTPVLDVGQVAQIKCGNIKVMGKVK  
EITRNGAKFMDGQEKEFDAILATGYKSNVPTWLKGCDFFTEDGMPKTPFPHGWKGEQ  
GLYTVGFTRRGLQGTSCDAIKIAEDIAEQWRTVEDKSHCDSHIILLNNS\*

(20) GmYUCCA20(GLYMA\_19G170800)

MENLLRLVDHEDFFSRRCIWVNGPIIIGAGPSGLATAACLREQGVPMVLERADCIASLW  
QKRTYDRLKLHLPKQFCQLPKLPFPEDFPEYPTKKQFIEYLESYAKHFEINPQFNECVQS  
ARYDETSGLWRVKTVSSSGAAARGEIEYICRWLVVATGENAECVMPDIEGLSEFKGDVIH  
ACDYKSGESFRGKKVLVVGCGNSGMELSLDLNHHASPSMVVRSSVHVLPREVFGIST  
FELAVMLLQWLPLWLVDKILLILAWFVLGNIEKLGLKRPSMGPLELKNTKGKTPVLDIGAL  
EKIRSGDIEVVPGIKRFNNGEVEFVNGEKLDIDAIVLATGYRSNVPSWLQEGEFFSKNGY  
PKMPFPHSWKGNAGLYAVGFTKRGLSGASSDAVKIAQDIGQVWKNETKQKKQRTTACH  
RRCISQF\*

(21) GmYUCCA21(GLYMA\_19G206200)

MQEATKVIIGAGTSGIATAGCLTKQSIPYIMLEREDCFASLWQKYTYDRLHLHLRKQVCEL  
PHLPFKSYPHYVPRKQFIDYLGNYVNHFEIKPLYQRAVELVEYDGWKGIVRKAQNR  
SGELEEYAGKYLVASGETAEPRLPQIQGLESFNGKVIHSTAYKNGNEFKNKHVLVVGSG  
NSGMEIALDLNFGAKPSIIVRSPVHFLSRDMMYYASLMLNYLSLSTVEKVLVMVSKVY  
GDLSEYGIPYPSEGPFTMKMKYAKFPIIDVGTVKKIKSREIQVLPAEIKSIRGNEVLFDQDK  
SYTFDSIVFCTGFKRSTQKWLKGGDLLNEDGFPKNSFPNHWKGRNGLYCVGLSRRGF  
FGANMDAQLVANDIASLIPQEEREGICVM\*

(22) GmYUCCA22(GLYMA\_20G080000)

MHDICLNMPPMVQTFDPEDLFTTRRCIWVNGPVIVGAGPSGLAVAACLKDQGVPIILERA  
NCIASLWQNRTYDRLKLHLPKQFCQLPNVPFPEDFPEYPTKFQFISYLESYAKHFSIAPQ  
FNETVQSAKYDETFGLWRIKTIRKIKKLGLSSGGCAECEVEYICRSLVATGENSEKVV  
PEFEGLGEFGGHVMHACDYKSGEGYGGQKVLVVGCGNSGMEVSLDLNHNANPSLVV  
RSSVHVLPREVFGKSTFELAVTLMKRFLWIVDKILLILARLILGNVEKYGLKRPSVGPLEL  
KHTAGKTPVLDIGALEKIRSGKIKVVPGIRRFPLPGKVELVDGQVLQIDSVVLATGYHSNP  
SWLKEDDFTNDGTPRNPFPNGWRGKGGLYAVGFTTRRGLSGASLDAINVAHDIVKSWK  
EETKQKRKTVAARHRCISHF\*

(23) GmYUCCA23(GLYMA\_10G041800)

MENLFRLLVDYEDMFSKRCIWVNGPVIVGAGPSGLATAACLKQQGVPMVLERAECIASL

WQKRAYDRLKLHLPKQFCQLPNLPFPKDFPEYPTKKHFIDYLESYAQKFEINPRFNECV  
QCARYDETSGLWRVKT VATCGAAKSEFEYICRWLVVATGENAECVPIEIEGLGEFKGDVI  
HACEYKSGESFKGKKVVVVGCGNSGMELSLDLCNHNASPSMVVRSSVHVLPREVFGK  
STFELAVLMLQWVPLWLVDKILLVLAWLVLGNMERFGLKRPSEGPLLLKNTKGKTPVLDI  
GTLEKIRSGDIKVVPEIKRFTNGCVEFVNGEKQHVDVAVLATGYRSNVPSWLQEGEFFS  
KNGFPKSPFPNGWKGNGLYAVGFTRRGLSGASSDAMKIAQDIGQVWKQETRQKKQR  
TNACHRRRCISQF\*

(24) GmYUCCA24(GLYMA\_13G128800)

MENLFRVDYEDMFSKRCI WVNGPVIVGAGPSGLATAACLKQQGVPFMVLERAECIASL  
WQKRTYDRLKLHLPKQFCQLPNLPFPKDFPEYPTKKHFIDYLESYAQKFEINPRFNECV  
QCARYDETSGLWRVKT VATCGSAKSEFEYICRWLVVATGENAECVIPDIEGLGEFKGDVI  
HACEYKSGESFKGKKVVVVGCGNSGMELSLDLCNHNASPSMVVRSSVHVLPREVFGK  
STFELAVLMLQWLPLWLVDKILLVLTWLVLGNMERFGLKRPSEGPLLLKNTKGKTPVLDIG  
TLEKIRSGDIKVVPEIKRFSNGYVEFVNGEKQGVDAVAVLATGYRSNVPSWLQEGEFFSK  
NGFPKSPFPNGWKGNAGLYAVGFTRRGLSGASSDAMNIAQDIDQVWKQETRQKKQRT  
TACHRRRCISQF\*

#### 4. OsYUCCAs

(1) OsYUCCA1(Os01g0645400)

MDNKPAQERRET WPGAVIVGAGPSGLAAAACLAARGVPATV LERSDSLASTWRHRMY  
DRLALHLPKRFCELPLL PFPEEYPTYPSKDQFVAYMEAYAAAAGVAPRFGATVEEAAFDA  
AVGAWRVRLDGGEVLMARWL VVATGENAEPRVPDFPGMQKFAGCAMHTSEYKSGEQF  
AGKKVLVVGCGNSGMEVSLDL CRHGAKPSMVVRNTVHVLPREMFGLSTFGIAMALLRW  
LPVQLVDRFLLTAAHLILGNTGQFGLRRPKTGPIELKNLTGRTPVLDVGTLDHIKSGKIKVV  
GAVKEMTRQGV RFTDGKEEQFDTIILATGYRSNVPSWLKDAGDLFTREGISKVPFPNSW  
RGRNGLYTVGFTQRGLLGTSSDALNVAKDIHCQWRERDRSAINVLEISNSSF\*

(2) OsYUCCA2(Os05g0528600)

MLVWVQGPIVVGAGPSGLAAAACLKEKGIDSLV LERSSSCLAPLWQLKMYDRLSLHLPRQ  
FCELPLFPFPASYPDYPTKQQFVAYLESYAAKFGINPMYNHTVVCAEFDERLMLWRVRT  
TQATGMMEDDVEYVSQWL VVATGENSEAVLPVIDGLEEFGRGSIHTSAYKSGSKFAGKT  
VLVVGCGNSGMEVCLDLCNHN GYPRIVVHILPREMLGQPTFRLAMWLLKWLPPIHIVDRIL  
LLVARAILGDTSQFGLKRPSLGPLELKSLSGKTPILDIGTLAKIKSGDIKVRPAIRRIAGQQV  
KFVDGRSEQFDAIVLATGYKSNVPCWLKVYGN TADV PFAVEEFQYFFS\*

(3) OsYUCCA3(Os01g0732700)

MDPWSEIEGKRAHDPIFQNYFSQNCRQSVDGFCCKRSADA AVARAERCIRVLGP IIVGA  
GPSGLAVAACLKEKGVDSLVLERSNCIASLWQLKTYDRLSLHLPRQFCELPLMPFPAYYP  
IYPSKQQFVAYLESYAARFGICPTYNRTVVCAEYDEQLQLWRVRTRATGIMGEEVEYVSR  
WL VVATGENAEVVLPEIDGLDDFKGTVMHTSSYKSGGAFAGKRVLVVSGNSGMEVCL  
DLCNHNANPHIVVRDAVHILPREMLGQSTFGLSMWLLKWLPVHVVDRIILLIAQTMLGDT  
AQLGLKRPTIGPLELKSLSGKTPVLDVGTFAKIKSGDIKVRPAIKQISGRQVEFMDTRLEE  
FDVIVLATGYKSNVPFWLKDREL FSEKDGLPRKAFPNGWKGENGLYSVGFTRRGLMGT

SVDARRIAHDIEQQWKARGKHPGVLL\*

(4) OsYUCCA4(Os01g0224700)

MDCFAETEGKRAHDPLYQRRAAAAATPATGVPVDDVDKVVDPGAVIVGAGPAGVAVG  
ALLGLRGVAYVVLERCGLASLWRHRTYDRLCLHLPKRFCLEPLRPFPAFPEYPTRDQF  
LGYLDAYAREFGVEPVFRRRAVISA EYDGESWWVYTREVAAAAAGGEQAVLGCTMTVYR  
SRWL VVATGENAEPVVPMDGAGRFGKQMMHSSEYRNGDGYAGKKVLVVGCGNSGM  
EVSLDL CNHNARASMVVRD TVHVLPREILGFSTFGLSMWLLRWLSVQTVDWLVLLSFL  
VFGDTARLGIPRPSLGPFEKLSVSGKTPVLDVGTAKIKSGDIKVTPAIQCFQEHGVEFVD  
GSTEEFDVILATGYKSNVPYWLKEKEFFSEKDGFPKGNWKGQNGLYAVGFSRRGL  
SGVSMDANNIVQDIVQRLHDMGYERSENN\*

(5) OsYUCCA5(Os12g0512000)

MPTSQQDGGGGGERLFHGGGAGDGDGGGGGGAAAAAARQVWVPGPVIVGAGPSG  
LATAACKARGVPSLVLDKDATVAASWRERTYERLRLHLPRGFCEPLAPPFPPTPPYP  
TRDQFVAYLDAYARAFAVEPRLGSRVRAASYDAAIGFWRVA AVDEAGGGGAGGETEFLS  
RWLVVATGENAVAAWPAEGVGAYRGAVMHTSSYKRGDEFAGKKVLVVGCGNSGMEVS  
LDLCNNGAATSMVVRDKIHVLPREILGISTFGLSVFLLKWFPIKWVDALLLIFSRLILGNIEK  
YGLRRPKIGPLQIKCSTGKTPVLDIGALKKIKNGEIKVVP AIHCFTEDGVEFVNGCREDFD  
AVIFATGYKSNVPSWLKEEEFFSESDGFPRKAFPHSWRGKNGLYATGFTKRGLQGTSYD  
AAMIAADIARRWTKSLAGPTAAADADHHETYIAN\*

(6) OsYUCCA6(Os07g0437000)

MAARVWVNGPIVVGAGPAGLSVAACLRERGVPSVLLERADCIASLWQRRTYDRLRLHL  
PKHFCELPGMFPDGYPEYPPRRQFVDYLQAYAARAGVEPRFNQSVTSARYDDAAGL  
WRVRAEDVSVD AAGDVTEYIGRWLVVATGENAERVVPEIDGADD FEGPVSHVAEYKSG  
AAYRGKRVLVVGCGNSGMEVCLDLCHHNALPAMVVRDSKVHVLPREMLGVATFSVAVF  
LLRFLPLWVDRILVVLAWLFLGDLAKIGITRPSRGPLELKNTGRTPVLDIGALARIRSGD  
IEVVPGIRRLLRGGAELVDGRRVPADAVILATGYQSNVPQWLKGSDFFTQEGYPRVPFP  
DGWKGESGLYSVGFTRRGLSGVSSDAVKVAQDIAMAWNHTATTR\*

(7) OsYUCCA7(Os04g0128900)

MVLQHSDRMDSLFSPQTSWVSGPIIVGAGPSGLAVAASLREQGVPFTMLERADCIASLW  
QKRTYDRLKLHLPKQFCELPMAFPAHYPEYPTRRQFIDYLEDYAAAFDINPLFGHTVLS  
ARYDETSGLWRVRASSSAGAEMEYIGSWLVVATGENAESVVPDIPGIDGFGGEVVHVAD  
YKSGEAYRGKRVLVVGCGNSGMEVSLDLCDHGARPAMVVRDAVHVLPREVLGKSTFEL  
AVLLMAWLPLWLVDKILVLLAWLVLGNLAKLGIRRPATGPLELKNTTGRTPVLDYGALARI  
RSGEITVPGVARFGRGFAELADGRVIALDAVVLATGYRSNVPQWLQGNDFFNKDGYPK  
TAFPNGWKGESGLYAVGFTRRGLSGASADAMRAAKDLARVWKEATKPTKKSTACHRRRC  
ISVIF\*

(8) OsYUCCA8(Os03g0162000)

MQGQQKQNAGGGGGDNASPCIVLDGPIIVGAGPSGLAVAATLRQH GAPFTVVERSGGV  
ADLWTNRTYDRLRLHLPKVFCELPHVAFPPDFPTYPTKHDFLRYLHSYAARFAIAPLLRR

TVTRAWYDHPASLWRVTTTTTSSSATSVITEYASPWLVASGENAEVVVPKVKGRERFA  
GEALHSSEYRSGERFRGMRVLVVCGNSGMEMCLDLCEHGAMPFMSVRSGVHVLPR  
EMFGASTFGIAMKLLRWLPIKMVDRFLLLVARMVLDTEKYGLKRPKLGPLEIKNITGKSP  
VLDVGAWSLIKSGNIKIVPEVESFSGNGARFVDGNEMAFDAVIFATGYRSNVPSWLQED  
GELFTEEGKLRSSGSSSEWRWRGPNGLYCVGFSGRGLLGAGADALRAAADIAGRWQE  
TQQAANISSV\*

(9) OsYUCCA9(Os01g0273800)

MAAVEQDQEEEEVIIVGAGPSGLAAAACLSVRGVTGCLVLERDDCVASLWRHRTYDRVRL  
HLAKRYCALPHAPHGEASPTYLPRDDFLRYLDAYASRFGVRARLRREVRSAARYDAARA  
RWLVDAVDLATGRAERYAARHLVAAAGENDERVVPEVPGMETFPGKVVHAADYRSAEG  
FKGKSVLVVGGGNSGMEIAYDLAVGGAATSIVIRSELHLVSKEIWNLAMTLYRYLPVWVID  
KVLLMCAAVFGDTARYGLRRPAVGPFTMKATTTMYPVVDVGTFAKIRSGEIRVLPAAIK  
GVRGRDVEFADGQRHAFDAVVFATGYRSTTKHWLKSDDGLIGDDGMAGRSYPDHWKG  
ENGLYCAGMVRRGIYGSYEDAEHIADDISKQLRSSSKPTHNNGSA\*

(10) OsYUCCA10(Os01g0274100)

MAVAAEGEEMTPEHEEEVIIVGAGQSGLAAAACLSVRGVASCLVLERDDCVASLWRHRA  
YDRLRLHLPKRHCALPRAPHAAAAPDYLPRDDFAAYLDAYASRFGVRTRLRREVRSAARH  
DAARARWLVEAVDLATGKAERYAARHLVAAAGENDERVVPEVPGMDTFPGKVVHSADY  
RSAGAFKGRSVLVVCGNSGFEIAYDLAAGGAAAVSIAVRGEVHLVSREWSVGMALQ  
RYLPTWAVDKVLLMCAVVFGGDTARYGLRRPAVGPFSMKMTTPAYPVFDVGTFAKIRS  
GEIRVVPAGIKSVRGGDVEFADGRRHAFDAIVFATGYRSTTKQWLKSDDGLIGDDGMAG  
RSYPDHWKGENGLYCAGMVRRGIYGSGEDAEIADDISKQMKRWSSEP VYNHISNGS  
P\*

(11) OsYUCCA11(Os12g0189500)

MCSPRIYTSHQEKQHIQNSVPTLVSLPSLSFYFLMEKALVLIVGAGPSGLATAACLGQLS  
IPYVIIEREDCTASLWRKHTYDRLKLHLAKEFCEMPHMPYPEDTPTYIPKIQFLRYMDDYV  
EHFNICPKFNSSVESCLYDDVQKYWVVTTHDQVNGMVSKYAARFLVVASGENSAGNIPS  
IPGLED FSGHVIHSSSFRSADS YAAQ RVLV VCGNSGMEIAYDLSSHGANTSIVIRSPLHV  
MTKELIHMGMKLASWSLPVKFVDFILVVLAYLWFGNLSKYGIVRPNKGPLLLKANTGRSA  
VIDVGTVELIKKGDIVFGTISCIGNVVEFDDGKESYFDAIVFATGYTSTANNWLKNGED  
MMNKEGMPKKDFPNHWKGSNGLYCVGFARRGLSGIAHDAKNVANDVKAFLDLMAFP\*

(12) OsYUCCA12(Os02g0272200)

MEKALVLIVGAGPSGLATAACLGQLSIPYVIIEREDCTASLWRKHTYDRLKLHLAKEFCEM  
PHMPYPEDTPTYIPKIQFLRYMDDYVEHFNICPKFNSSVESCLYDDVQKYWVVTTHDQV  
NGMVSKYAARFLVVASGENSAGNIPSIPGLED FSGHVIHSSSFRSADS YAAQ RVLV VGC  
GNSGMEIAYDLSSHGANTSIVIRSPLHVMTKELIHMGMKLASWSLPVKFVDFILVVLAYLW  
FGNLSKYGIVRPNKGPLLLKANTGRSAVIDVGTVELIKKGDIVFGTISCIGNVVEFDDG  
KESYFDAIVFATGYTSTANNWLKNGEDMMNKEGMPKKDFPNHWKGSNGLYCVGFARR  
GLSGIAHDAKNVANDVKAFLDLMAFP\*

(13) OsYUCCA13(Os11g0207700)

MEAVEEVVVLIVGAGPAGLATAACLAQRHVPYVIVERESCTASLWRHRAYDRLKLHLAKE  
FCELPHMAYPVGTPTYIPRDMFVEYLDSTYDQFGIRPRYHTAIESAIYDGGKNRWAVLAR  
DSDTSVVTRLTAQFLVVATGENSAASIPVPGLTRFEGEAIHSSAYKSGRAYTGKNVLVVG  
AGNSGMEIAYDLATHGAHTSIVVRSPIHIMTKELIRFGMTVVQNLGLTVTTADSLVMAAN  
FYFGDLSKHGITRPGKIGPLLLKSQTGRSAVIDVGRTARLIKGGVIKVFQGISIKTNSIEFHGG  
KQIPFDAIVFATGYKSTVNTWLKNGESMFKDDGFPKFFPNHWKGENGLYCAGFARRG  
LAGIAMDAKNIADHIVATMDQVSC\*

(14) OsYUCCA14(Os11g0207900)

MNAMEDVVVLIVGAGPAGLATAACLAQRHVPYIIVERESSTASLWRHRAYDRLKLHLAKE  
FCELPHMAYPAGTPTYVPRDMFVEYLDSTYANQFGIRPRYHTAVESAIHDKGKNQWVVLV  
RDMDSVVARLATQFLVVAAGENSAANIPPIPLSRFEGEAIHSSAYKSGRAYTGKSVLV  
VGAGNSGMEIAYDLATHGAHTSIVVRSPIHIMTKELIWMYGMTMVQNLGLNVTAVDSLVM  
AANFYFGDLSKHGIMRPGKMGPLLLKSQTGRSAVIDVGRTARLIKGGVIKVFQGISIKTNSV  
EFHGGRRQNSFDAIVFATGYKSTVNAWLKNGESMFKDDGFPKNYFPNHWKGENGLYCA  
GFARRGLAGIAMDAKNIANDIVAAMDKMSC\*

## 5. MtYUCCAs

(1) MtYUCCA1(Medtr1g008380)

MDCYLRELEGKQAHDLPLFIEKMINNNKNSTSSSDRCLWIPGLIVGAGPSGLAVAAYLKQ  
KGVPSLILERSNCIASLWKLKTYDRLRLHLPKQVCELPLMEFPSGFPTYPTKQQFIEYLES  
YSKNFDIRPWFNETVMHAEFDATLGFWRVRSEGKAGMVTEFVCRWLIVATGENAEAVV  
PEIEGVDEFVGSIRHTSLYKSGEEFRGKKVLVVGCGNSGMEVCLDLCHDAAPSIVVRD  
SVHILPRDMLGKSTFGLSMWLLKWLPVQLVDHILLTVSWMLGNTERFGLVRPRLGPLE  
LKKLSGKTPVLDVGALAKIKRGDIKVRPGIKRLKRYTVEFADGSTENFDAIILATGYKSNVP  
YWLKDKGMFSKEDGYPRKFPNGWKGNGLYAVGFTKRGLLGASMDAKNIAEDIERC  
WKAEAKHIFPQSNS\*

(2) MtYUCCA2(Medtr1g011630)

MDPFKEKVKCVWIHGPIIVGAGPSGIAVAACLSEQGVPSLILERSDCIASLWQNRTYDRLK  
LHLPKHFCELPMMSFPQTFPKYPTKHQFISYMESYADHFHHPRFNQTVLSAEFDSTSQI  
WMVRTKEGDFQYFSPWLIVATGENAEPVFPTIHGMEHFHGPVVHTSDYKSGSEYKNKK  
VLVIGCGNSGMEVSLDLCRHNAMPHLVARNVHILPRDMFGFSTYGIAMGLYKWLPKL  
VDKFLLLVSSFFLGNTNHYGIKRPKTGPIELKLATGKTPVLDVGQIAQIKSGNIKVMGK  
EITRNGAKFLDGQEKEFDAILATGYKSNVPSWLKGNDFFTKDGMPKTPFPHGWKGEQ  
GLYTVGFTRRGLHGTYFDAIKIAEDITNQWKTLSKSCCDSHILLNNS\*

(3) MtYUCCA3(Medtr1g046230)

MPPMSQTFDPEDILKNRCILVNGPVIVGAGPSGLAVAACLKDQNVFPVVLERANCIASLW  
QNRTYDRLKLHLPKQLCQLPNFPDPHFPEYPSKFQFISYLESYAKNFNITPNFNETVLS  
AKYDETFGLWRIKSNRIKSDKVVEVEYICRWLVVATGENSEKVVPEFEGLSDFGGNVMH  
ACDYKSGVNYSKGNVLVVGCGNSGMEVSLDLCHNANPSMVVRSSVHVLPREIFGKST  
YEVAVMLMKRLPIWMVDKILLGLTRVILGNVEKYGLKRPCMGPLELKNTSGKTPVLDIGAL

EKVRSGEIKVVSGIKRFSQGKVELVDGKVLDDSVVLATGYRSNVPSWLKENEFFSKDG  
MPKDPFPNGWKGNAAGLYAVGFTRRGLSGASLDAISVSQDIAKSWKEENKQRKKTVAAR  
HRRCISHF\*

(4) MtYUCCA4(Medtr1g069275)

MENLIRLVDNEEDAVSHRCIWVNGPIIVGAGPSGLATAACLKQQGVPFMVLEERSNCIASL  
WQKRTYDRLKLHLPKQFCQLPNFPFPQEFPEYPTKKQFINYLESYAKHFEINPRFNECV  
QSAKYDETNGLWRVETVSNNGEVEYICRSLVATGENAECVVPYIEGLGGEFKGEIHHAC  
DYKSGESFRGKKVLVVGCGNSGMELSLDLCNHNASPSIVLRSSVHVLPREVFGKSTFGL  
AVMMMKWLPVWVVDKILLILAWLVFGNIEKYGLKRPLEGPLELKNTKGKTPVLDIGTLEKI  
RSGHIKVVPGIKRFTNGYVELVNGEKNQVDAVVLATGYRSNVPSWLKEGEFFSKNGFPK  
SPFPNGWKGTVGLYAVGFTKRGLSGSSYDAKQIAQDIAQVWKQEIQQKHCTNACNKR  
CISQF\*

(5) MtYUCCA5(Medtr3g088925)

MEVEIPVVIVGAGPGGLATSACLNKHSISNIILEKDDCHASLWRKRAYDRLKLHLGKDFCN  
LPHMPFPSPDFPTFVPRVDFLRYLDDYVTHMKICIRYNRYVNDASFDATNGKWRVCVHDT  
TLNLDEIYVADYLVVATGENCDPYIPMINGLESFEGEYLHCSKYLNRPWYDKNVLVVG  
NSGMEIAYDVSTWGANTSMVIRSPVHYLTKEMVYIGMSLLKYISIEKIDKLMVFM  
YGDMSKYGLVRPKDGPFAMKKKGGRTPTIDVGCVKQIKKGKVKVYPAISSIKKGIIEFAD  
GKSGQFDVIVFATGYRSSVQKWLKDYKELFNENGMPPKARFPDHWKGENGIYCAGFSQ  
NGLQGIHFDALKIANDISFTVNAMKHHDAAEANAIEKLLDE\*

(6) MtYUCCA6(Medtr3g088945)

MEVEIPVVIVGAGPGGLATSACLNKHSISNIILEKDDCHASLWRKRAYDRLKLHLGKDFCN  
LPHMPFPSPDFPTFVPRVDFLRYLDDYVTHMKICIRYNRYVNDASFDATNGKWRVCVHDT  
TLNLDEIYVADYLVVATGENCDPYIPMINGLESFEGEYLHCSKYLNRPWYDKNVLVVG  
GNFGMEIAYDVSTWGANTSMVIRSPVHYLTKEMVYIGMSLLKYISIEKIDKLMVFM  
YGDMSKYGLVRPKDGPFAMKKKGGRTPTIDVGCVKQIKKGKVKVYPAISSIKKGIIEFAD  
GKSGQFDVIVFATGYRSSVQKWLKDYKELFNENGMPPKARFPDHWKGENGIYCVGFSR  
NGLQGIHFDALKITNDISFTVNAMKHHDADANA\*

(7) MtYUCCA7(Medtr3g088955)

MEVEIPVVIVGAGPGGLATSACLNKHSISNIILEKDDCHASLWRKRAYDRLKLHLGKDFCN  
LPHMPFPSPDFPTFVPRVDFLRYLDDYVTQMKICIQYNRYVNDASFDVTDGKWRVCVHD  
TTLNVNEIYVADYLIVATGENCDPYIPMINGLESFEGEYLHCSKYLNRLWYDKNVLVVG  
NSGMEIAYDVSTWGANTSMVIRSPVHYLTKEMVYIGMSLLKYISIEKIDKLMVFM  
NGDMSKYGLVRPKDGPFAMKKKGGRTPTIDVGCVKQIKKGKVKVYPAISSIKKGIIEFAD  
GKRGQFDVIVFATGYRSSVQKWLKDYKELFNENGMPPKARFPDHWKGENGIYCAGFSQ  
NGLQGIHFDALKIANDISFTVNAMKHHDAAEANAIEKLLDE\*

(8) MtYUCCA8(Medtr3g109520)

MDYCIRELEGKQANDPLFIKTMKNKSSSTEGRVFVQGPVIVGAGPSGLAAAACLQQKN  
IPCIVILERSNCVASLWQLKTYDRLRLHLPKQFCPLPFMEFPSNFPTYPSKQQFIKYLEDYA

GSFGIRPRFNETVQNAEFDGKIGCWRLKSFNSKADVTTEYVCRWLIVATGENAEAVVPNI  
EGVDEFGGVIRHTSLYKSGEEFRGKKVLVVGCGNSGMEVCLDLCHDATPSLVVRDSV  
HVLPREMLGKSTFGLSMWLLKWFLPLGLVDRFLLIVSWMLMGDTAQLGLDRPRLGPLQLK  
NLSGKTPVLDVGTAKIKGGHIKVRPSIKRLKRQTVEFVDGRSENF DGII LATGYKSNVPY  
WLKEEDMFSKEDGFPMKPFPSGWKGKNGLYAVGFTKRGLQGASLDAKRIADDIELCLE  
SEAKYGS\*

(9) MtYUCCA9(Medtr4g051642)

MEIEMPVVIVGAGPGGLATSACLNKHSISNIILEKDDCHASLWRKRTYDRLKLHIGKKFCN  
LPHLPIPSDLPNFVPRVDFLRYLDNYVNHFKICIRYNRYVDDASFDVKSGKWVRCVRDN  
RLNIDEIYVADYLVVATGENCDEYIPMINGLESFEGEYLHSSKYLNGRSWYDKNVLIVGSG  
NSGMEIAYDVSNWGANTSIVIRSHMHPLTKEMVFVGMCLMKYLSVEKVDKLLVFMSKM  
MYGDMSKYGLIRPKEGPF SIRVRTGRPPSIDVGCIMIKKGKVKVYPTISRIKKGKIVEFV  
DGKSGQFDVIVFATGYRSNVLEWLKDYKELFNENGMPKGCYPNHWKGENGLYCAFSR  
RALQGIVYSSQKIANDISLTIDAKLLAEAVEVNARIKLLDE\*

(10) MtYUCCA10(Medtr5g033260)

MQEFTVVIVGAGPSGLAISACLTQNSISHIILEKDDCCASLWRKNAYDRLNLHLASEFCSL  
PLMPHPPSGPTYLSKYQFLQYIDKYVAHFNIKSHYCRTVESAKYDEIRSEWRVETKNTIE  
GILEVYEAKFLVIATGENSEGYIPNVPGLNNFEGEVVHSKNYKSGSKYKTKEVLVVGCGN  
SGMEIAYDLHNSGANPSIVVRSPFHVFNREIIHQGMRMVKYFSVGVDITITLWAKLYG  
DLSKYGIYRPKLGPFLNKNVTGKSAVIDVGTVEKIKEGSIKVVSSYITRIEKKKVVFENNME  
KEFDAIVFATGYKSIANGWLKDYKALNEKGMPKNAYPSHWKGDHGLYCAGLARRGLS  
GVKIDAESIAEDINQTFNFHN\*

(11) MtYUCCA11(Medtr6g086870)

MAHDHQKKDSMGKSRLVHGPIIVGAGPSGLAAAACLKQKGIPSQILERANCLASMWQLK  
TYDRLRLHLPKQFCQLPLMPFPKGLPSYPTKQQLSYLKAYADHFDINPIFGKQVNAEF  
DVVCGFWKIQTQEIMKNGDEIIIEYLCKWLIVASGENAEVVPQIEGMEQFQGPILHTSLY  
KSGSMFCGKNVLVVGCGNSGMEVCLDLCHNAHPSLVVRDTHILPQQIFGKSTFGLS  
MWLLKWFSVQFVDKFLLLMSDLILGDTSQFGIERPKIGPLELKNLYGKTPVLDVGTVAQIK  
TGKIKVCKGIKRLAHNAVEFVDGKVENFDAILATGYRSNVPSWLKGSDMFSEKDGFPK  
FPNGWKGEKGLYAVGFTKRGLLGSSIDAKRIAEDIETSWKSIKAKPLA\*

(12) MtYUCCA12(Medtr7g099160)

MDMDLDEETILLYENVLKTARAKAVENPNDDVDNLLDCAGALLTLHNVKDFTTSKEMLE  
EAVTKFKKVTENLNDLHRPFWALGKTLTAQAILFSTRAEAKDHYELAYDYFLKAVEKNPK  
NKLYRISLQEAACKAPGRGPFTSAGFKQSAGTADPSSAGTENVPGTCPFSSAGTKRSIG  
TAGLSSSAGTEDPSNLPDVPDPLDGDGVKCESIDPPASRFISYLENYANKFEINPQFNECV  
QSAKYDETSGLWRVKTNEVEYICRWLVVATGENAECVTPEIEGLSEFKGEVVYACDYKS  
GKNFEGKKVLVVGCGNSGMELSLDLSNHHALPSMVVRSSVHVLPREIFGISTFELAVMM  
LKWLPWIVDKLLLILTWFILGDMEKYGIKRPSMGPLQLKNTVGKTPVLDIGALEKIRSGDI  
NVVPGIKRINKNGEVELVNGEKLDIDAVLATGYRSNVPSWLQEGEFFSKNGYPKMPFP  
HGWKGNGLYAVGFTKRGLSGASSDAVKIAQDIGKVVWKQETKQKKQRTTACHRRRCISQ



F\*

(13) MtYUCCA13(Medtr7g099330)

MENLFRLADHQDFLSRRCIWVNGPVIIGAGPSGLATAACLREQGVFPVFLERADCIASLW  
QKRTYDRLKLHLPKQFCQLPNLMPEDFPEYPSKKQFISYLENYANKFEINPQFNECVQ  
SAKYDETSGLWRVKTNEVEYICRWLVVATGENAECVTPEIEGLSEFKGEVVYACDYKSG  
KNFEGKKVLVVGCGNSGMELSLDLSNHHALPSMVVRSSVHVLPREIFGISTFELAVMML  
KWLPLWIVDKLLLILTWFILGDMEKYGIKRPSMGPLQLKNTVGKTPVLDIGALEKIRSGDIN  
VVPGIKRINKNGEVELVNGEKLDIDAVVLATGYRSNVPSWLQEGEFFSKNGYPKMPFPH  
GWKGNSGLYAVGFTKRGLSGASSDAVKIAQDIGKVWKQETKQKKQRTTACHRRCISQF\*

(14) MtYUCCA14(Medtr8g432640)

MQEFTVVIVGAGPSGLAISACLTQNSISHIILEKEDCCASLWRKNAYDRLNLHLASEFCSL  
PLMPHPPSGPTYLSKDQFLQYIDKYVEHFNIKPCYCRMVESAEYDEVGNKWRVQTKNT  
QDDTLEVYVSNYLVIATGENSEGYIPNVPGLGNFEGEVMHKKYKSGSKYESKNVLVVG  
CGNSGMEIAYDLHNWGASASIVIRNPLHVFTREMIHQGMRMVKYLPHIVDTYITLLAKL  
KYGDLSKYGIYRPKEGPLHLKNITGKSAVIDVGTIGKIKEGAIKVPSNITRIEKKKIVFENN  
VEREFDAIVFATGYKSIANGWLKDYKYALNDKGMPKNAFPKHWKGDRGLYCGGLARRG  
LWGVKVDAESIAQDINQNLNLHD\*