**Supplementary dataset S1.** Accession data and sequences used for the phylogenetic analyses.

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| AcNMCP1 | Allium cepa | NCBI BAM10996.1 | MLTPQRSAWSLKSKVSSEKPRSKGKGITKNLDSAATPFPPLGLLNGGDL DRGGEDMEAWKRFKDEGLLDESICYKKDRESLASRIIELEKDLHEYQYN MGLLLIEKKEWSSHFEEMKMRLAEAEEILKREQAAHIIALTESEKREDNL RKALGVEKQCVTDLEKALREMRSEIAEVKYTAEKKMTEAFALEASIEEK RLDTERKLHSADAKLAEASRKSSEINRKLEDVEDRERKVQRELNSINSER KALEKDISEQKEHLREWEKKLQDGQNRLLDGQRHINEREERINEAEGG LKKKEEELEEAKRSIEGTRNTLKRKEEDLDVRLRSLVSKEKEIELKMKNLQ KKEKDLHEIAEKLDHREREEIQKLLDEHRATLDTKKREFELELESKRKSVD EELKSKFAAVNKAEKEVNRKQGLISEGEKELESKMDKIKIKEKDLETKSK ALKKWEESLKSDEKKLVAEKDQIMKDTHELKVSINELESLRDALNAEQH QIAEEREKLEISKEEREQYIQKQSELKQEIEKYRNMQEELSKGIESLREER EKFEKEWESLDEKKITLQRETKKIHEEKEKLEKWHHKDQERLRNEEANA KADIERQLEDIKLQKEAFENTMKHERLMAQEEVARRLADVTRELELRK HDLEMNMQKKQEEIERKLQGKEREFETRKEAELSRITSLINLNNSKLQK LRIEQDRLDREKEEVELQKKKLQEDQSEIQRDVDTLRQLSKNLKNQRAE FIKEKECFLAAAERCKTCQNCGVSISELEMVGIIQSSAEIENADIVLPSLT DDHIEQHMKNKGSHVTSPQTGSRVFGSGFLQKCTKIFKFSPGKNAETS ATTTPLVFGEELDIAASEDAAANDNNPAADVERVTVNPSLVFGEQLDT AASEDAAANDNNPAADVERVTVNPPPLAPVATEQNETEESSLPPEND SPPKQRGGRQSTRRGRGGKTVRRTRTMEAVVDDAKAILGDTLIVEEAK ESSQQNDEQSQGASVHTGGTSNTRQKRRRAPASEMTNSEHDVEESE SQSQSISIGRGRRKKRQTSAASEVQAPVVERRYNLRHSTVAKNSVAATL AVSDQAKVQTKASHQASHDNNQISMGDDPALEGSHKVTHTVQKTTT ASVMEVSSKPAMEETHEENIVVRSVEISEMSASEEAEGEVQGVPPIAEE PATPSSGSSTSGDIGNDDDMDDDDEEERHNASIGKKLWNFFTT |
| AcNMCP2 | Allium cepa | NCBI BAV92747.1 | MASPEAATVTALTVRCKVPFASPPSKEETIWKRLVDAGFDEEMVERRD KAALISYISQLESELYEYQHNLGLLILEKKEWMSKCEQAQASADVARNV YKRDQAAHSSALAEARKEEGNLKRALAIEKECLANIEKALHDMRAEAA ETKLAYERKVVEAHEMMKDAXRKLEEAEAKRQSAESLHAEAIRFRSSAL INSQDIEAREDDLRRRQTSFQAECDAKEKELGLQRQSLYDSRKILHQEQ ERLLEGKNLFTQRENYIYEKTKKLSCFEKELNEAKIKHEEECRRLAERRSSL DLDTAALTNREESLVERELELDRRERELLLLKEKILSKEFEGLQKLDSEHQ YTLKKKKQEFEAELEAKLKLFEDDIGARTSLFVEKELEFSERENTLKEKEAY IEALSKKLSEQQADIPEKLKLLDEKEEYLQSIKKESESSALNLKNETEEMK RMELELEKIRSSLEHKKEEILLEQKKLEISDRERNDLLILETKLKEEIDSFRC KKSKLDLEADKLKAEKEKFEAEWDIIDEKKEEIRKEAERVADERKLITTYL KNEHDSTKLERENLRNHFKSEAYFLSREREEFMNRMEQEHSEWILKIQ RERDDFVRDILVQRKELENCIEKRREEVENYLKEKEEAFEQEKAKELEHI NSQKQSIAEQLKHVESELKRLDKERVEIALDRELRREREWAEVKSSIEML DIMREKLQKQRESLHADRKEIYDKIQHLNNLENLDIELGNKAAYELNPQ HMVSGNSSLKKCANNEIKNGQSSYNKEMKLSTNSSPSISATSFVKKYAK AIFRSWSDMSDGEEAKTIQILGKGAKKASEVEYEISADRKNVRKRFNES AQVDETGVVFDGEKQKKAKHSQSDAVEEMSAFC |
| Aco1I | Aquilegia coerulea | Phytozome 12 Aquca_006_ 00294.1 | MLTPRRAGWPSNWSSTPKTTNSRNNNNNNNVVDNRSISKGKAVALF ETTPPPPLSSLGGRGGEVDIDGGEEDQEVWKKFREEGLLDEATLLKRD REALAEKVSRVENELLEYQYNMGLLLIEKRDWTSKLDELRQALAEANEL LKRETTAGRNAISEAEKREDNLRKALGVEKQCVVDLEKALREMRTESAE IKYTADSKMAEANALIAKTEEKSLEVESKLHAADAKLAEASRKSSDLERK LKEIEARESSLRSERQSFNAERGMHESALSKQREELADWERTLQEREER LSEGRRIINQREEKANESDLLLKQKEKDLEEVQKQIENKNEILRMEEDDI NRRLAILSAKEGEAEAMVKKLELKEKELNALEERLNVRERVEIQKLVDEH |

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| | | | NAVLESEKHEFELELDNKRKSVDEELKAKVVAVEHREIEINHREEKIAKR<br>EQAVEKKMEKSKEKEKVLESKSKSLKDWEKSIKDEEKNIEIEKKQMAAD<br>KESLQILIAKLEKDRADIKEEQERLLGLEEKLKVTEEERTEHLRLKSELKQEI<br>EKWKRQEELLMKEHQDLRQDRENFEKEWDVLDEKRAEIIKELERVSLE<br>KESYEKMKHLEEERLKNEKMATEEYVQRELEDLRLQKESFKEMRDHER<br>SVAVEKAQSEREDLIREFQLRERELEADMQNKLEERERDLRERKREFEE<br>QRDRQLNEIKNLREVAGREMEDMELDRKKIVKEKEKIAADKQHLEGQ<br>QLDMRKDIDKLDNLIKKLRYQREQFKLFIEKYKSCKHCGETISDFVLSDL<br>HSLEEMEDFEALPSPRRAEQYLESMRGYPSSSRLVTEVTPLKTGSGMSF<br>IRKCKSLIVNLSPLAKSRDPVDESPQPIIHTNIETLNGLEGAENTVEPSYDI<br>PSDSIDDQRIQSGDSGMHLLAEPNLSVDEQINMDIVSRVPEDLQHSEK<br>NNGRTKYGKKRNPGVRRTRSVKAVVEESKAFLGESQELREDRQQNGN<br>AGDSVHVNEESRDESSLADKTATGRQKRNRTHTSRSTASDQDVEEND<br>ARSESVTAGRKKRRQTVASGFQTPVEKRYNLRRPKTVRTEVSSDAVKG<br>KKKEADVAKVTREESTHLDQVTTVKIVEEVREFTSDGVVRFDTVAEND<br>GSNVYATKVMENNELGEEVNETKEPSGDYVDEDGFESETGVEVGFGD<br>ENDDDDDELEHPGEASIGKKLWTFFTT |
| Aco1II | Aquilegia coerulea | Phytozome 12 Aqcoe3G337 000.1 | MFTTPKKRTVTTDWSHTPHRSGGGGGGGVLISNPRIIDTSMEKGKTIV<br>IANERFTPQRHSGSLMRKFDGEIDSEAMDWQKFKEEGLLDQSFLENQ<br>DRQALVQKISNLEKELSAYQYNMGLLLMKKKESDSTYDELEQALSESKE<br>ILNREQIAHLMAMSEVEERNENLKKALEDEKQRMANYENALHDICAEL<br>ENVKSTSNEKIAEAHALVSSVEEESLTMKAKLHASDAKLAEGSRKNSEM<br>ERKLKEMETNECLLRTEREALNAEKEMNEVTWSKQREELKDWESSLLE<br>REERQLEGQRTLNQREEESYSRINQKEKDLEEAQRRTEIIASKLKNKEDD<br>MNTTFAKFAEKEEEANAMEKNLKQKEEELLALEEKLVAREKIAIQKLYD<br>EHNAILNLKRHEFELEMDQKREVIDEELKSREALVELKEVQVFQKEDTS<br>TKREQILEQKLHTYEEKERDLESKWKDLTERAKSLEAEEKKFKMEKEDFL<br>SDKEKSQLVTDELDKKKLDLDEIQLQLCSEKEKLKVIEEERKEVQRLQSEL<br>RQEKDKCVLQEEMLSKEQEALKQERKNVEKELKLLDEKKAEVTGLLDQ<br>VNEEKEKLEKLKVSSEERLKNENLIAQDFIQKELEVLRLKKASFEAHMER<br>ERLALCEKTQIERHQMQIDFDLQKRELELDIQSKLEKKENDLLEKERAM<br>KEEREQELNSINHLREEASKAMKEMSQERLTIEKEIQEVASSKQYLEGL<br>QIELQKDIDKLNSLIKMVNVQSKGFIEFLEKHEKCKKCSENINYFAPDDL<br>KLLQEMGNSEFAMFPSLSEGYTNGNIKVNRVGSVRLAETTSDRPISWL<br>LQCTSKVLNISPLKKTENSVFQGEAAPQSDVAVPSSKIPLADNIGKVEGL<br>PNPSVIEHSSNMDQIVAPALEVPEVSVQSESNCGLSKPGRKTRRGVGR<br>TTSVKTVLEDSKLVLGKAEEAIKGKKPSGVIGVSIGVDEGHAVVGSMDP<br>IVAPALEDAEVSVQSESNCGPSKPGRKTRRGVGGTNFVKTVVEDSKVE<br>ALPDPSVNDHSSNMDQIAAPASEVPEVSMQSESNCGPIKPGRKPRRV<br>GGRTNSVKTVAEDSKVEGLPKPPESEVPEVSMQSDSNCGPSKPGRKPR<br>RVGGRTNSVKTVVEDSKGEGLPDPYVNEHSSNMDQIAALASEVPEVS<br>VQSESNCGPIKPGRKPRRGGGRASSVNTVVEDSKLVLGKAEMTIKGNK<br>ASGMTDVSAGMSMGSRGDSIGVDERPAAVGRKQLLSHASNTTANEQ<br>DVYSSEATSVSVTASGSKKRKQTVSSGTQVPVENRYNLRRRKM |
| Aco1III | Aquilegia coerulea | Phytozome 12 Aquca_050_ 00038.1 | MLTPRRAGWPSNWSSTPKTTNSRNNNNNNKFVDNRSISKRKAVALF<br>ETTPPPPPLSSLGGRGGEVDIDGGEEDQEVWKKFREEGLLDEATLLKRD<br>REALAEKVSRVENELLEYQYNMGLLLIEKRDWTSKLDELRQALAEANEL<br>LKRETTARRNAIFEAEWRKDNLRKALGVEKQCVVDLEKALREMRTESA<br>EIKYTADSKMAEANALIAKTEEKSLEVESKLHAADAKLAEASRKSSDLER<br>KLKEIEARESSLRSERQSFNAERGMHESALSKQREELADWERTLQEREE<br>RLSEGRRIINQREEKANESDLLLKQKEKDLEEVQKQIENKNEILRMEEDD |

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| | | | INRRLAILSAKEGEAEAMVKKLELKEKELNALEERLNVRERVEIQKLVDE<br>HNAVLESEKHEFELELDNKRKSVDEELKAKVVALEHREIEINHREEKIAK<br>REQAVEKKMEKSKEKEKVLESKSKSLKDWEKSIKDEEKNIEIEKKQMAA<br>DKESLQILIAKLEKDRADIKEEQERLLGLEEKFKVTEEERTEHLRLKSELKQ<br>EIEKWKRQEELLMKEHQDLRQDRENFEKEWDVLDEKRAEIIKELERVSL<br>EKESYEKMKHLEEERLKNEKMATEEYVIGSQPSEAIKVVHRRSSRNKNK<br>LNANSRSSGLVSVIVDKGRAEDNLEQKRKDLMIAEAEVHSRRLQLISEI<br>GRLMLKASRR |
| Aco1IV | Aquilegia coerulea | Phytozome 12 Aquca_050_00030.1 | MLTPRRAGWPSNWSSTPKTTNSRNNNNNNKFVDNRSISKRKAVALF<br>ETTPPPPPLSSLGGRGGEVDIDGGEEDQEVWKKFREEGLLDEATLLKRD<br>REALAEKVSRVENELLEYQYNMGLLLIEKRDWTSKLDELRQALAEANEL<br>LKRETTAGRNAISEAEEREDNLRKALGVEKQCVVDLEKALREMRTESAE<br>IKYTADSKMAEANALIAKTEEKSLEVESKLHAADAKLAEASRKSSDLERK<br>LKEIEARESSLRSERQSFNAERGMHESALSKQIEELADWERTLQEREERL<br>SEGRRIINQREEKANESDLLLKQKEKDLEEVQKQIENKNEVHTCFPSHH<br>LLYH |
| Aco2 | Aquilegia coerulea | Phytozome 12 Aquca_017_00100.1 | MTSSYQKERLSITPFSKVGGGGGGSSSDVRVLDLVSTPISGNGTSSVDE<br>GLSSRLRETGFDEDSIKRKDRTALIAYITKLESEVFDYQHHMGLLLMEKK<br>DWSSKYEQVKASADSDIMKYKLEQAALLSALAEANKREESLKKSLAIEK<br>ECLTNIEKSLHEMRAENAGNKIAVESKMAEACSMLENAQKKFAEAEAK<br>RHAAELLQREASQYHRLAERKLHEVEEREDSLRRHTLSFKSECDAKEKQI<br>SLERQSLCERQRIFQQEQERLLDGQALLSQREKYISEKHQELGTLEKASE<br>DMKSKIENELKALNKEKTDLNMKLAALSTREEAVREREAMLDKKEAELL<br>CAQEKFASKEHDEIQKLVAKHETALEIRKVELEKEMEQKRMSMEDELE<br>TKRRASELKEVDLRQLEEMILEKEQELDKQSSFLLEKEKDVTERLKSLQT<br>KEENLCADQQARELEKIYIQEEKEQIKSMKVDLEKSLDILENKRKEVEEA<br>QVKLDADKHEMNEVQVLEMRLKDELDSIRAQKLDLLTEAENLKAEKSK<br>FEIEWELIDEKRDELRNEAERISEERKVVSKFLKDERDRLKAEKDALEEKF<br>KNDLESLSHEREDFTSKMERERSEWFSKIQLEQANFVQDVELQKIDLEN<br>RIRKRRDEIESYLREKEEAFEQEKAKELRYISSQKEMLAKEWENVKVEIK<br>RLDSERKETTLDREQREKELAELKNSVEELEIQRKKLKEQRELLQADREKI<br>NVQIQHLTQLENLKVTSENLGLSEIEETDCNLTRRDLPARISLGLQTISAD<br>GEVELLTSNEPPTGCLSPSLLPKQSQGSVPPPTSSPFSWISEKIFRRSPEK<br>SSIKHKEKSHGNEGAKLLEDKYLQKNMKVVLAQLKNVQDKSDMLEQN<br>MSKVGEERMDSIFGRVQPANYDSEEPKVILEVPSADEIVKGGNNLECEI<br>GTEVNEDILYPDDGLLAGRKRGSPFPDHFDPSLEETRDKKKRRKGKHSP<br>EFLLEETTSNCDASILEEKDVTSPDQVRSPIEIDDCVDGSQAPTGGLTEG<br>KDDETSTEPEKLVCSQNMLLASPQADLEGLGTDGNPCTQSRE |
| AgNMCP1 | Apium graveolens | NCBI BAI67715.1 | MLTPPKKIFSGWSPRTDPTRKTGSGGGDVSKGKDVVFDEDGLMGRVE<br>NTGENMGLNARLMKLETELFDYQYNMGLLLIEKKEWTLKYEELQRVY<br>DETQDALKQEQAAHLNAISDVEKREENLTKALGVEKQCVFDLEKALRD<br>MRSEYAEIKFTSDSKLAEANALIXSVEEKSLEVESKLHSADAKLAELSRKS<br>SDIERKSHELEARESALRRERLSLNAERESLTDNISRQREDLREWERKLQ<br>EDEERLAEVRRLLNQREERANENDRLYQQKQTELEGEQKKIEIIIASLKN<br>KEDDISSRIEKLNIKEKEADAMKHSLEIKERDLNELEEKLNAREQTEIQKL<br>LDEHKAILEVKKHSFELEMEKRSNDFENDLQSRAVVVEKKEVEVKHME<br>VKFAKREQALAQKHEKLKEKEQSLVSKLQDLKEREKSMRLEANRIEGER<br>NQLLSDKQELLSLKAEIEKDRASTEEQCLKLSKEIEQLKITEEERLEHVRLQ<br>SELKEEIENWRHRRELLLKEEDELKQEKMRFEKEWEDLDEKRTEVMKE<br>LEDITVQKENFEKLKHSEEDRLNNKKLDTESYVQKELDALRLARDSFAAT<br>MEHEKSVIAERIASEKNQMLNDFELWKRELESKLFNEMEDKENALSLRI |

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| | | | KQFDEEREKELNNINYKKEVVSKEMEDMELERSRIAKEKQEILTHQKHL<br>DEQHLVMRKDIGQLVGLSEKLKDQREQFFKERERFIRFVESHKSCKNC<br>GEMTSEFVVSDLQSLADIENMKALSVPHLAENYLKKDLQRTPDKYVSN<br>AIPGADVGSPASGGTKSWLQKCTSKIFIFSASRKNEVASLDQNISRKLN<br>VEASPKKLLNTGVMSEMPSGVEADAFDMQKMQLTNGNIEVGSGIDL<br>SGGEQSNIDSKALEVEDSQQSDVRAGYRKPGKRAKSKVNRKRSKKEVT<br>EEAKTVHADSVELNENEQSNGLASAYTNESRGDSSLVGKRTRNLRKRN<br>NSSQPSQSAAGDVGADYSEEHSDSVTAGGRQKRRRKVVPAAPAPTG<br>RYNLRRHKTAAPLVANGASSDPNKGKEKEIDDGGSMREDIPDEVDGS<br>THLIQVKTLKRIDVVNEFSSAGFHGTNAACESQDGDADTENQLVSDML<br>LSEEVNGTPEQSREYQNQGDRSGADGEDEDGDDDEVEHPGEVSISKK<br>VWKFLTT |
| AgNMCP2 | Apium graveolens | NCBI BAI67716 | MSTPRLTVIQSDKTTVTSSPRVLRNSDDDIWKRLEEAGFDEDSIKRRDK<br>ASLIAYITKLESEIYDHQYQMGLLIMERKEWVSKFEQTEAALNSAELMR<br>KHDKASHVAALAEAKKREDNLKKAIEIERECLANIEKTLHELRAEYAETK<br>VSADSKLAEARSMMEDALKKLSEADAKMLAAESLEAEAGRFHRAAER<br>KLHEVEAREDDLRRRAASFKTECDTKDEEFLHERQSLCERQKSLQQSQ<br>QRLVDGQELLNKRESHIFDRTQELNRKEKELEASKLKLGEELQVLAEEQ<br>ANLKIKASSLSLREEVVTKRECEVKKREEGVLVLQDKLEKKESERIQQLLA<br>NYEASLSNKKSDFEAELEMRRKLVHDDIENKRRDWELREVDLHHREELI<br>SEKEHELDMQSRAVVDKESYLTERFSLLVEKENSLDAMKKEIQSKESLL<br>QKEKEEINSSKLDLQKSLDALKNEKQQIHHAEEKMKAMKSETDELFVLE<br>SKLKEEIETIRAQKQELEVEADEMKELKLKFEVEWQSIDEKRKELQKEAE<br>CINGEREALYRTLKDERNSLKLEKDAIWDEYTRNNESLSRDREEFLSKM<br>EHERSELFSNIQKERSDFSLAFEVQTKDLEDRLAKRREEIESNLAERERAF<br>EEEKRKELMRIDSLRETLARETEQVNLELNRLDTERREINLDREKRDRE<br>WAELNSSIEELKAQRQKLEKQRELMRADKEDILVQIEHLKQLEDRKVVP<br>DRLALTDIQQSDVQPSKRVSARRFLKQQSGIDSGCRSENNGNTSPGKS<br>SVIISPPVSTPFSWLKRCASSLLEQKASNKKMRHSEEIVNPSTISARLDAP<br>EDEHAVKSVNQAPVHAKETTVYIDKIITIREVTSFNDGRVNGNSQDPEK<br>GLSLSADEKLEGNDDIKSVKPNKNGEVKQKMMQASLTEK |
| Amhy1I | Amaranthus hypochondriacus | Phytozome 12 AHYPO_020207.RA | MIVEAMFTPQKKVFSPWSLTPRRENQNTPLPNSNSNARVSGNGGNA<br>SENADDLEDLDERVAKLENELFEYQYNMGLLLIEKKEWSSKIDDLQQAL<br>TEQKDALKREQAAHLVAMSDLEKREENIRKALGVEKQCVIDLEKALRE<br>MRSEYAEIKYTADSKLADASSLAASIEEKSLEVEAKLRSADAKFAEASRKS<br>SEIERKLQDLESRESALRRERLSFNSEKDAQDAVLSKQREDLIEWERKLQ<br>EGEERLCEARRILNQREERANEFNKSFQQKEHELAEVQKKIDKANMDL<br>KKKEEEISQRLASLTLKEKEFDAIKNRIEIKEKELVAREEQLNDREKNEIQN<br>LLDEHNAQLDAKKQEFELEMEQKRRSVDEELKSKVVELEKKEIQINHSE<br>EKIAKRELALDKKLEKLKEKESALESKTKELKEKEKGIKLESKQLEKEKKQI<br>QEESENLLKLKEDLENVKAANEKQLLRIQQEKEELQVTEEEKSEHLRLQS<br>ELKREIENYRSQSEALSKEAADLKQERKKFEQDWDSLDEKRVEVEQELK<br>RLTEEKEKWERWKHLEEERLRNEIIASEKKIESERKALELEKDSFAAHVE<br>HQKLLLSEREQSERSKMVDELERNKRELEIEMRNMLEEKERDLSERERL<br>FEDESAKEQSNLNYLKETAERGMEEVKEEQRRIAKQIEEVDASKKDLEG<br>RRLEIQKDVDELLVLSGKLKDQREQLVRERERFIEFVQRFKSCEQCGEIT<br>REFMVSDLQYLHDLEKREIPPLPKLADAYFRNSIKENLQNDKRVPDSGH<br>IESSTPAKSVSWLRKCTEKILKLSPIKRGELMQNDAREASPVDRGADAD<br>PDPDSHDIVEEVQELSLKVVSDSLDHEAVGNESARVEGDQEPSVGAW<br>CNTNNSKGPASSQNSDFHSQHGKKQRNRVIRTRSVKAVIKDAKNIVG<br>DSIDLSVSEQPNGDAENSTHMDNESREVSSLASKENTKKGRKRGRTHT |

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| | | | SQTTACEQDDGVSEGRSDSVVAGGPRTRRRKVAANVQVPAEKRYNLR<br>GSKNVAKGAAAKTSSGAQQDLDEDSRKEIVGGNNDPEPSHSAGAASD<br>YIASINLMQVQAEEATTYSTPVPKRKMESIAQSEEVNGTPNGHDDHD<br>DVNYSIAEGDDDGDTDEDEEVEHPGEASIGKKLWKFLTT |
| Amhy1II | Amaranthus hypochondriacus | Phytozome 12 AHYPO_002968.RA | MFTPQKKVFSPWSLTPRRENQKTPVGNSNSNGTVSENGGNVSGDVG<br>DLEDLDKKVAKLENELFEYQYNMGLLLIEKKEWSSKIDDLQQALTEQKD<br>FLKREQAAHLIVISDLEKREENLRKALGVEKQCVIDLEKALRELRAEYAEI<br>KFTADSKLTEANSLAANIEEKSLEIEAKLRAADAMYAEFSRKSSEIERKM<br>QDLESRESALRRERLSFNSEKDAHDATLSKQREDLLEWERKLNEGEERL<br>CEARRILNQREERVNEFDKGFKQKESELAELQKKIDKTNMDLKKKEDEI<br>SQRLSNLTLKEKEVDAMKKGIEVKEKELLVREQELDEREKNEVQKLLDE<br>HKSQLDAKKQEFEFEMDQKRRSVDEELKSKVVLLEKREIEISHAEEKIAK<br>REQALEKKLDKFKEKENALESKLKEHKEKEKSINQEKKQLEKEKNQIEKE<br>TENLLKLKEDLENVKAANEEKLLRIQQEKEELRVTEEEKSEHLRLQSELRR<br>ELDDCRSQKEALLKDAAELKQERIKFEQDWDSLDEKKAEVEQELKKLTE<br>EKEKWERWRHLEEERLRNESIASEKKIESERKALELEKASFAAHVEHQKL<br>LLLEREQSERSKIVDDLERQKRELEMEMRKILEEKERDLSEREKLFEEERE<br>KEQSNLNYLRETAERGMTEMKEEQRRIAKQTEEVSASKKDLEGRRLEI<br>QKDVDELLVLSGKLKDQREQLVRERERFIAFVQRFKDCEQCGEITREFM<br>LSDLQFLHDMEKREILPLPKLAEDYIRNSLKENFSSEFQNDERSPIPGHIE<br>SSTPAKTVSWLRKCTEKILKFSPIKRGEPAAMEKNVGDASPVDENADA<br>GPASDSHNVVEEEHDVSLKMANELFDNQTAVNESVGLEGDQDPSVG<br>TWGDTTNAKEHETSQKSDFNGQHGKKPRRKVNRTRSVKAVIKDAKDI<br>VGDSIDLTVSEQPNGDVEDSTHMDDRSREVSGLEGKENLKKGRKRGR<br>TRASQTTASELDDGLSEVRSDSVGAGGPRTRRRKVAAVVQAPAEKRY<br>NLRNLRYAGTGAAVKTSSGRRQKKDEKDGRKEIVDGNNNPGPSHSAE<br>VASDNSASINLMQVQDEEATPVPKRKIDTIVQSEEVNGTPDGHDEHG<br>DVDFSIAGDDGDEDEDEDNDEEVEHPGEASIGKKLWKFLTT |
| Amhy2 | Amaranthus hypochondriacus | Phytozome 12 AHYPO_010118.RA | FLFSPCICSIIIIFKKGKTHIKVTVELKESFLLLGFRVFFSSLSKSMASPRIPAT<br>PTTLRPINITPGSRILDVSSTPSTNGRTLFSDDGIWKRLRDAGFDEDSIRR<br>RDKAALIAYIAKLEAEIYELQHNMGLLILERKDYASKYEESRFSVESIEVKH<br>MRDQSALTSALVEARKREDNLKKVLGVEKECVVNLEKALHEMRTECAE<br>VKVTAECKINEARTMIEDAQGKFIEAEAKLRSAESLRDEARRSERAAER<br>KLQEVEAREDDLRRRMASFKSDCDAKEKEIMLERQSLTERQKVLSEAQ<br>NKVLDGQALLNQREADFLIKSRTLRRNEKELEDQKENLASEWKILKEQK<br>SNLELNAVSLDEREKAVIEKEILLNKREKDLLVSQEKVASKEHSEVQKYIA<br>EQENALRRRKEEFEAELMVKQKLVEDEIESKKRIWELSELDLKHREEYIL<br>EKEQDLEVQARVIADKGKDLAENLKAVKEKESLLHKSENEVEQMKITLQ<br>KEREEIDKVKIDLEKSLLCFEEEKKQIAEGKKRLELMTSESNELLILETKLKE<br>EIDTIRAQKSHLEAEAEKLKVEQAKFETEWEVIDEKREELRREEERIAGE<br>RLAISKFLKDERDSLNLEKEALREQYKHDLEALALDREAFRSESQHEHSE<br>WFSKFQQERADFLLEIECRKRELEDCINKRRDDIESYLKEKEKSFEEEKKR<br>ELQYISSLKEGLMKEQEHVAMALKKLEAEKLEIKSDREERDKAWAELQ<br>NLIEELQMQRFKLKEQRELLHADREKINCQIEQLKRLEDVKIDSDKIIVPL<br>TKQMCAETTPEVCVHIPSLEPTQKVTVIEDGQDTGSDSPSSSVSWLKK<br>CASLLFKPLPESVSLKRLEPSLQPGGEGQLELLENECLSLDGVIGSELEILN<br>KQNAGTAVEEPKVIHEVPSVDEDFIDLEATTDVHTSSATPSEVSAGQKR<br>RVDQSSGPDTDDALLNDEKVKRRKLQKVTDASDGFQNVTPHCVELKQ<br>ASDVDDQYIISVSTQSVEQSEFGKSEEETFRCAIQKQTCIEEVLIVEDVG<br>DVKRNDEEEGASELKEPQDEDISSVLEKPEIIQERVTTRSKSKQAS |
| Amhy3 | Amaranthus | Phytozome | MFTPQWKTATSSVPRTKSRFTQITSAKSKELAIFDAPPMPPPTTSLAAS |

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| | hypochondriacus | 12 AHYPO_005590.RA | ESSGFDNGNLEDWKRFKEAGLLDESAIERKDRQALLDKMSRLEKELFD YQYNMGLLLIEKKDLVSKAENLEQEYSEAQEIVKRERVAHMIAVSEAEK REESYKNALIAERKSIVDLERAMRDIHEEHAKAKTASETTVTDLNGHMD ELRKRKLDVEEKACSVDAKLAELDRQNFELDRKLQDLEDRENILYREKLS LTQDRESHESNFRRRKEDVLEWERRLQEGEQRLCESRRILNEREEKLHA IDVSSKEKESKMEKLQKEIDLANATLKKVETDVKNELTDLNLKEKTIEAM RCELEARQKKMQEEENKLDARERVELEKLLNEHKTVLNAKMHEFESDI KQKGTALEEELKSRKEALDQKEAEINHFEAKLSKREQAVEKKSERVKEKE KNFEANHKSMKEQEKSLKAEEKRLKVEKEQVNAEKENLETLSREIDML RNDVRKQELHIEEELKSLEDAEKARTEYICLQSNLKQEIDSVRRQTELIEK EAAELKLERAKFEKDWEALDEKRAVVDIELKTLAENKANFEKLRNSEEE RLKRERADDEERLRLESESITSLKESFEATMKNEKLTLADKAEKEYTLMC EDFEKQKLDLYNDMHKRREEWGKLIEEKERALEERQLRERRDLKQLKD DAEKRRGEMELERHRLEKEKEEMELNKKQLEETGIDIFKDIEVLESLSKK LKKQREQLVSERDNFGALIQKIKCCNKCGDSAKAFLCSDFQLPAEEVPL HFPSLYRDTQNNVKDERDPSRDLNKGKSTLHEADRNSPQLSGQMSVL RKCASVIFNLSPQSAAYTQADRNVREQTSALENVNVRAQSSAVDELGP THEIGKDAILFVESNDKVNNVDNSLPVEPNFDESSQKSDVKNGKHQPG KKRGAGVRRTHSVKAVVEDAEAFLRNEKPEVQPNNSTSENVNYQEKN LSDDIAPNTNARKRRRSQASKLTESEQDVDNSEGNADSVTTGKRKKRG QGVASALPTPGQKRYNLRHHAVPLTEPKITRKQQTKKAAQNLDETPV QSLDVDVDSDRISHLVEVSTAISIEFSSKKVHAAADAERSVENRLVNAD VKTAEDTMPRPSEINEISENVEEDTGSMVNENEDEDDYSDVDMVEED EDHPGQASIGKKLWRFLTT |
| Anco1 | Ananas comosus | Phytozome 12 Aco012716.1 | MFTPQQKKGWSSGWSLSPANPRGSAAAALGKGKGVAEAAPPPPPPP LPAPPHASLGENGVDGEAEVWRRFRDAGLLDESSLQRKDREALAHRIS ELDKELHEYQYNMGLLLIEKKEWTAKYEEMRQGLVEAEEILKREQTAH AIAITELEKREENIRKALGIEKQCVVDLEKALREMRSEMAEVKFTSEKKL AEAHALEASLEEKRLEIEAKLHSADARLAEASRKSSQAARKLEDLEARER KLEKEKLSFDTERKTREKHLTEQAEHLRDWELKLQESQNRLVEGQRSLN DRDERANEKDRALKKKQDELEETRKTIEAMKSSLKRMEDDISTRLHALT AKEKDMETRFANLEVKEKELAAKEEMLNERERVGLQKLLDDHNAILES KRKEFDLELQKEKISFDEEMKEKINAVEKKNNEISRKEDQIAKREHTLDS KMQKLKDKEKDLEAKSKAMKKWEESVKGEDRKVVEEKERLEREKQQL ENSKSELERLKALVEAEKQQIIKERENLKLTEEEREQHFLLTSRLKQEIEEY KMHNDSISRESEDLREQREKFEKEWEVLDEKRVALEAEIKKIDEEREKFD KWRHNEEERLNNMELEIEAKCWRELEELRLRKEAFEREMQHEKSEIEE LLKRERANNDRNLQLHKHELDMEMERKLIEKEKEMQELESELKKKIDFE ENKIRYAIDLNESKIQKIKMEKEQLRREAEALLEDKQKLEVDRTEIKKDID SLSVLSRNLKDRREEYVKERTRFLALAEQCRVCKNCGVKVIDDLDILGLQ DTGNVQMPNLAFEEQLKSPIAEASPAGTSLNTNSGGRMSWLQKCSRL FNFSPTGKGAEKSTEIEAEPTSFVERLDGEVSEGEADYEPTPSYGIAIDSL DKDGNEPEPEPSYGVADNSTDILRIQSENGGNVPSLDQDNEREESSLP VDNNQPESSKRKGGRPPKRRTTSKGVRRTRSVKAVVEDAKAILGETSE GNNDYGDSKGFSNIQEESQEESVHTELGATSTGKKRRFDNLSGMKAA EGDAEDSEVHSESVSVGGGRRKRRQTSRPAVAQVPGEKRYNFRRSTIA GAATAAHAVPNQTKGQNKGGHKQLQENEVDNSRGEGEATSERNVN MAQSVVEVHEFAQNVVQV |
| Anco2l | Ananas comosus | Phytozome 12 Aco002253.1 | MSSPRPMATPAISSGGGGGGGAASSPAASGGAVLGDEAIWRRLREA GLDEETVKRRDKAALIAYISKLESEMHEYQHHLGLLIMEKKEWTSKYDQ LKASAESSELMHKRERAAQSTALAEAKKREESLKNALGIEKECVLNIEKA |

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| | | | LHDMRAELAETKVTYESKLAEANQMMEDAQRKSEEAETKLIAARSLET<br>DSIRTRDSALRSLQDVEAREDELRRRLVSFQFEREAKENEISLQRKSLND<br>SQKILHEEEERLIEKQSLLNQREQYILERLENLSQFEKKLEEEKSIFEGERK<br>ALTDERSKLDLNIAALAIREEAIIQKESLLDKRERELLILQETIASKGQVEV<br>QRLIDEQHSIMEKRMREFESEMEKKRSMWEDEMGAKKLSLDERENVL<br>TERANSIQEREKAVEIQLTELAAKQQEVANKLNQIKEEEENLLSSKRAAE<br>VELKNMQKEREDIVKFKADSEKTKNSLEGEKQEVLHAKEKLELTLAERN<br>ELLVLKTKLKEEIDSFRAQKIELLAEADKLQAEKERFEIEWELIDEKKEELQ<br>KEAERIAEEKTAISQFLKNEHDSIKQEKENLRNQFKNDLESLSREREEFM<br>TNMQHEQANWLSKIQQEREEFKRDIEIQRKELQNSINQREAEIETSLRD<br>KEEEFEQKKAKELQYVTSQKDMIKMQLEHIASQLEMLASERKQIALDR<br>EQRERELSEIKSSIELLNIQREKLQEQRELLHKDREEITKQIQILKELEDSNI<br>ESENRALSVVPTNELRVPIKMHTSNTNNNEEEIIEERNMAIKVKASEAS<br>PSASTPVFWVRRCAEVVFRRSSDKKAYFVADKDAQNRNLENIGKVREE<br>KKEIQSSLAENVRSIQTVVTSLGRKRLKNSIPCNDADAELEPSRKLQKIGR<br>QKRRIDGQGKNNCAPEGQQPWSSDENPKITNRTGPENVLKMSDDVL<br>LLDSVFNGSLKTQKQLIDKGAFDSEGPSEEITTPAAKPIASNNHFKKQD<br>VGDQDTDDEIDGEDEDEASVKDKLWNFLIT |
| Anco2II | Ananas comosus | Phytozome 12 Aco004979.1 | MASPRLRVSPVAATSLGGGGGGGDEALWKRLVEAGFDEESVRRRDK<br>AALIAYIAKLESEIYDYQHHMGLLIMEKKEWTSKCEQVKASTESSAVAY<br>NRERVAQLSALAEAKKREENLRKALDIEKECVVNVEKALHEVRAELAEIK<br>VAYERKLAETHLITEVAQRKFEEAEKKLLAAKSLEADAKLTRDAALRSLH<br>DVEAREDDLRRRLISFESECEAKENEISFQRKFLNDSQRVLHEEEERLLEK<br>QALLNQREECIFDREKELIYLEKRLEDDKSTIVGEFKALKEEKATLDLKIAA<br>LAAREDAIVRRESLLDKRERELLILQETIACKEHAEIQKLIDEQEAVLGRR<br>KEEFETEMEKRRKLVEDEMEAKRIFLDHGEADLNERANSIQEKEQAIEL<br>QLFELAEKQEDIAMRSKQLEEEKENLEKSIKASELELKNIQREREDIAKLK<br>MELEKAKTSLEEEKIVLTRAQENLEITREERNEVLDLEKNLKEEIDSLRAQ<br>KMELLADADRLQAEKERFEIEWDLIDEKKEELKKEVEMIAEERKAVAQY<br>LKNEKDSIKQEKDNLRSQYMSSVESLSREREEFMSHMQREHSNWLSKI<br>QQEREDFTRDINIQRKDLQNSFYQRRAELETWLRENDEAFTRKLAEELK<br>FINSQKKTIEMQLEHVASELQKLDNERKEIALEREQRERELLEIKSSVEVL<br>NAQREKLQKQRELLHADREAISQQIEQLKELQSLDIETETRVLSMAPSN<br>KESAPMNIKMNVGDVLEEIIEEQNTDTNHESMGKYLPEKTSDASVPES<br>TPLSWIRKYTKVIFQRSPENNVNSGSSEHSQSKNLREFVKVTEDSRTDLL<br>ELDMISNMSPFTQNVESISKMEGQTDMKISQLGEGVGETTRTVDKIVP<br>SLGRKRLNGRFSRDHTDMQLEPSRKNQKMSAQKGDDNGLVVAQTK<br>DLSAFIAKQVAGVALAPREQEQNQDDDNEADDEDEKEVPVKEKLWN<br>FLIT |
| Atr1 | Amborella trichopoda | Phytozome 12 evm_27.model.AmTr_v1.0_scaffold00024.349 | MFTPQQQQPTRKAGGIWPFSPNSNKGGPVTRLASPDPPNITGILLHG<br>GDKGRAKGKGVSSSFPLQEEEQATPPPPPRASLLSDENGRPRPYSSSAS<br>EVWRHFREAGSLDLDSLQKKEKDALLSHLAKLEDELFDYQYNMGLLLIE<br>KKEWTSKYDDLKQALVEAQESLKREQASHLIALSEVEKREENLRKALGV<br>EKQCVADLENALHEMRTEFAEIKFTADKKLAEARSLVASIEEKSLEAEAK<br>LRSADAQLAEASRKSSNLERQLQEIETRESVLRRERQSLKAEREAHETTF<br>NRERENLRNWERKLKEGQERLVESQGLLNQREELANEKEMFLTKKEK<br>DLEVAWAKFEKGNLNLKDKEVEMNMRLRSLTAQEEEAAVRKRNLDE<br>AQQELHLLQEKLNAREKEGIQKLLDEHNAVLELRKREFDIEMDQKRKSL<br>EEEFEKKQVVVEQKLVEVDLKEEKINKKEQLLEKRTEKTKEKEKDLELKTK<br>SLKEKEKFLKIEQKDLDTDKKKMVIEKADLHSLKLELERIKAAVEEEKEKIV<br>KEQENLKVTEDDKRELLRLQSELKQEIDEFRLQKLAVEKEREDLKLDKEK |

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| | | | FEREWEVLDVKRDEVNKEVELHNVEKDEFLKRKCEEELKLKREEQKTSE<br>KFQREYEALELQKNSFTENMNHERSVILQNARRERDDMIREFELQKNA<br>LESSIQNRREDMEKQFLEKERDFQEVRERMWKEIEAQRELAQKEMEE<br>MKLERTKLGRERQEVALSKKHVEGERLEIQKDVEQLHILTTKLKEQREEL<br>RRERDRILSRIEHLKRGQGDSIDVTDGLALSELQSFKEFENNGGNLLPRL<br>LDGYMKESMQGRSNVGPSNLMEETPPLGAVLNSTSPARFSWLQKCK<br>SIFKLSPGKRLDEQVTNQEKSPSDVEADADQILENDSGGLVSGGANYD<br>EPEISVGIQISQAVDFHRRAASPESIGRGDEEETVVTPSAADGTQSDML<br>EMQEGPSASAEISHPSAAAGGRARKKPRRGAPKLTRRTRSVKDVVKES<br>KAILGESSEELKTEEEEESAQANVDSKGQPIVKKGGRKRQHPTTSRTMS<br>EQQQDADSQSESVTRGRSKRRQIEPSHIQPPGGRRYNLRHSTLEKHVE<br>NPVGSQALASKVTTDADENHSQHVTKSPGEVVEGQTSNHIHPDEPSIE<br>SLENAHGGGEAKTDVRMLQHTKFESIVEIHREFSTQKVIMIETGGALEE<br>TDVNDPGPNSSEQEPQANQGANDLLEYDEDGGGSGSRGGEDDDGN<br>DDDDDGYVNDENQEASIGKKLWTFFTT |
| Atr2 | Amborella trichopoda | Phytozome 12 evm_27.model.AmTr_v1.0_scaffold00044.217 | MLSPRKKENSGTLKSPGSRVSLQGSPSIVNGDEALWTRLREVGLDEETL<br>KQRDKAALISYITKLESEMFDYQYHMGLLILEKKEWTSKYEQIKASADSA<br>EDKYKRDQAALLSALAEAEQREENLQRALGVEKECVASIEKALHEMRA<br>ECAETKVAAETKLAEVRCLVEDAQKKLLAVETKQHTVEALQTETSWQH<br>AVAERKLKEVEAREDELRRQQVSLKSEMEAKEKDLLNEKESLRELEKVI<br>QQGQEKLFEGQTLLNQREQCIKERSDRLSRLEKEVQAATVKLQEDLEIL<br>KEEKANLCLTSVALTTREEAIVQREVSIDKKEQELLLLQEKLTSREQDEIR<br>RLTIEHQTAIELRESQFEEELHEKHKSFEADLGLQRHALDLRDAELKHQE<br>DLMHKDKHELDLQLSELEEKRKELETGLKSLVEKEQSLDAREKKIEMER<br>NCLEKENQELDVIKKELDVYRNSLENERKQILEEQRKLEVMNNDRKDLL<br>ALETKLKEEVDNLRAEKVKILAEADNLATEKEKFEKEWEQIDEKREQLQ<br>KEAEWVAEERMELSKFLKTEHEILNLEKDSLREQAKRDADSLCREREAF<br>LSEMEHGHSEWFTRIQRERADFVHDIEMQKREFQKGVDKRNEEIQRY<br>LRERDDTFQLERLREFQYIDAQKELVRKELEGISLEMKKLENERKNIALD<br>REQRDKEWSELKKDIEELQVQREKLKEQRELLHQDREDILKRIEDLKKLE<br>DLKVPSETLMLPEMQSTGLNLNEVKTPANYLVGPCATKAAVEVHADE<br>CNENANIGAKSELLEQKESDSDVPTPKSWLKRCAEKLFNTSLEKIVVAS<br>NNNYETHFSRHKETGQGPLSFSLRQKSHRTDARRVKTFSLSRSTRPVPD<br>EKNAVLEGPLVREEKDHLQEFDAETNVSAKNGSCNIKSSVFDSERAQTS<br>ANNGGECEFLYGRKRSRGYTSIEDADAQFSRKQSKRQQQAPTAEHPR<br>MGTSAELLVHSPVVHPEGANGLKPCSHIPDVREVVDGGPSNGPAKVR<br>GEEGEASGIVLEGLNNSSKKDALESQTSDIEGEKAYEVATQPHDNGVLA<br>AKFDEQIGANSSSPEVTGWTFVMPALFIFAIEAIKVLLTNISLWHRFACA<br>DGNLIDVPSGAVALPF |
| Bdi1 | Brachypodium distachyon | Phytozome 12 Bradi3g53047.1 | MFTPQGKGWTGWSTPAPANQRGGGGAPPASAPLGKAKGTSQRAAE<br>LEEELHEYQYNMGLLLIEKKEWAAKLDEVSHVLAQKEEILKREQAAHLN<br>AISEYERREESTRKALGVEKQCVADLEKALREIRSEIAEVKFMSQKKITDA<br>QSLEANLEEKSLEIEGKLHAADARLAEANRKKSQADRDLEEVEARQRRL<br>EKEKIYFETERKAREKQLREQEESLQDWEKKLKESQNRLVDLQRSVNER<br>EERANENDKLCKMKQEELDAAKKTVESAKLTLKTKDDDITKRLIELGSKE<br>KDAESKRKLLEERERMLSEREERVSAREKVGLQKLLEDQKVKLESKRRD<br>FELELESERTSFAEKMKQREVDLVKREKDLRSWEDKISKSEQALNESKK<br>TLEELQNDLSTKSKALKNWEESLKKEEKKLLEQKLQMDNERKQAEMYK<br>SDIEKMKATIEAEKEKILEEQNNLKVTEDERQEHNLLSAQLKKEIDEYRM<br>RSNSLSEETEDLRKQRQKFEEEWEQLDEKRARLEEEAKMLNNERVNLE<br>RWRDNEDKRLKDIQDEMDAKYKEQHDKLALKEKALVDDIKHQRDEID |

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| | | | EFLKRERADLQRNLQLHRHELDMEMENRLADRERELEEKGNELRNKM<br>DFVENKINHAVTLNESKIQKIVLEKQQLQREREILAEEKQKLETDKADIR<br>RDIDSLNVLSKSLKDRREAYNRDRNNLIDMFEKYKVCKSCGNSLSEGFD<br>DLSFKDNANFDYPSLAAEEDDCSPNTDTLAQDAGTLVNSAGRFSLLQK<br>CSRLFKFSPRKKAEQSSEQEVEKNIPFGARLEEASPSDEDFEPTPVYQVA<br>NNSFGAENLHSDSGARGDEESERLDLADGAADDVQMESSVGVADNC<br>IDNHGTQSFDVTNDMGVDTTIASVDQNGKDSIAPPEVDLLPETSKQG<br>RRQPNRKGRAKGVRRTNSVRAVVEDAKVILGENFDEKNDGQEDSATV<br>GGTRKRRFAGAAISEQDEEGSEAQSESVSLGGHRRKRRAGPSTQAPVE<br>KRYNLRRATVATVAPTIPTDKKKAPKTRRKQTVEATADDTEGTSKAEEP<br>TTVSKGASESADGASQLQEFSQAEAGDAHTPAEEGTGEEYGDVVDGK<br>DALPVAMPMTPSGSELGPEDDDEDEDDSERGNRSIGKSLWSFFTT |
| Bdi2 | Brachypodium distachyon | Phytozome 12 Bradi2g50990.1 | MASPRSPVGGAAAGDETIWKKLSEAGFDEESVRRRDKAALIAYISRLES<br>EIYDYQHNLGLVLLERKELTLKHEQLRASSESAEIMYKRERASQQSALAE<br>ARKREENLKKSLGIQKEFVANLEKALHDMRGETAETKNSYETKLAEALK<br>MMDSAQKKLDEAEEKLFAAKSLEIESTRVHNTALRSLQDLEDREDQLR<br>RYRISNELVYEAKEKDISLQRKSLNDTKKILHDKEQVLLTEQTLLNQRDE<br>NILERLTFVTQSEKRLEEDRLILESERMVLMEERNNLVLKMEGIASREEA<br>IIQKETLLDKRESELLIFQETIANKERAEIDRLNQEHEMALERRKLECETEI<br>ENKRLAYEAEMEEKITLLDQRERALSEQELAFAQREQNVDLRLAELAS<br>MEEALSGRSGQLKVEEGKLLSHRETVHIELQKEREEIQKMKLDLEKEKV<br>FFEEEKQDAIQAQQNLAITQADRDDLLTLQMKLKEEIDNLRAQKKELM<br>ADADRLQGEKERFEIEWELIDEKKEELQKEAARISEERRLITEHLKSESDV<br>IKQEKEKLRAQFRNNSETLSREHEEFMSKMQREHASWLSTIQLEREDLT<br>RDIDNQRMELLNSAKAKQMEIDSYLREREEEFEQKKSKELEYINSQKDT<br>INSKLEHAALELQKLEDERKDAALEREKREQELSEIKTTIEALNNQREKLQ<br>EQRKLLHSDREAITEQIQQLNVLEELKTDSENKQLCLTECGKSKMNDN<br>GLPPGEDHHATPKNCSSPKLLERKLEVSPSVSTPISWVRKYAQVIFKRSP<br>EKSADHDSDNILHNGLPKNLQKAVDINGSHADQLANGAGEVPQDFD<br>GAKVGKKRHYLVSCDQSDVLEPRRKHQRSTIQKVIRGEITSNCPSVLEE<br>KCSKNEHDAIQLGLSEYGNKGAQNLRLPVDPASSDDLAFANGKADHS<br>GFVDDDETSEEITVCATEQTSGYAIERRDEQDKDVDDEDTDDEEEELEE<br>EKTSSAKKLWRFLIT |
| Bra1I | Brassica rapa | Phytozome 12 Brara.B01707.1 | MSSTPLKVWQRWSTTPAKGPDMVTAVTGRVSEIQYEDDPRRLLSELQ<br>KELFEYQHSMGLLLLEKKEWSSKFEELQLEFEDANECLRRERNAHLVA<br>MADVEKREEGLKKALGVEKQCALDLEKALRELRSENAEIKFTADSKLTE<br>ADALVRSVEEKSLEVEAKLRAVDARLAEVSRKSSEVERKSKEVEARESSL<br>QRERFAYIAEREADEATLSKQREDLREWERKLQEGEERVAKSQMIVKQ<br>REDRATESDKIVKQKGKELEEAQKKIDADNLALKKKEDDITSRIKALTLKE<br>QETDVLKKSLETKERELLSMQEKLDAREKVEVQQLIHEQQAKLEATQRE<br>FELEMEQKRKSIDDSLRSKVAEVEKRAAEWKHMEEKVAKREQALDRKL<br>EKHKEKEKDFEARLKGIKGREKALKSEEKALETEKRKLAEDKENILNLIAE<br>VEKIKAENEVQLSEIRKEKEELRVTEEERSGYLRLQTELKEQIEKCRSQQE<br>LLSKEVEDLKAQRECFEKEWEELDERKAEIESELKNITDEKAKLERNNHL<br>EEERLKKEHQAADDNMKRELETLEVAKASFAATMEHERSVIYKKAESE<br>RSQLLHDIEMLKRKLEADMQSKLEERERELQAKEKLFEEEREKELSNINY<br>LRDLARREMTDVQIDRQRIEIEKLETDASKRHLEEQQTEIRKDVDDLVA<br>LTKKLKEQREQFISERNSFLSSMESNRNCNHCGELLSELTLPDIDNLEMP<br>NLSKLVENEAPQQEMRDISPTATSLGLPDPNGTVSWLRKCTSKILKLSPI<br>KMGETSATLNFSDQEPQSTEQANVNSGPSTMLQVQSESLTREVEVAN<br>ANSDGDQSNINSKAQEVDADSLSNPNGDGQSRTRGGKARVRRTRSV |

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| | | | KAVVEDAKAIYGKSIELSEPVDSTENVEDNAKGNDESTDEPGRSDKGAS<br>KNGRKRGRMGSLQTCTTEQDGNESDGKSDSVTGGERQRGKRRHKVA<br>SEKQEEVVGQRYNLRRSTRVAGKTALGKKNEETTGGVQQEEGIYCAQT<br>TATASVGVAISDDNGVSTNVVEREAMADCEDTDAGSAKRIGESQEMS<br>EEDVNKTPQRADSGNEYDGEEDESESEHPGKVSISKKLWTFLTT |
| Bra1II | Brassica rapa | Phytozome 12 Brara.G02692.1 | MSTPLKVWQRWSTPTKATNPDSNGKVSGMVSEIQYEDDPRRLPDRV<br>SELEKELFEYQHNMGLLLLEKKEWSSKFEELQDEFDEANQCLKRERNA<br>HMVAMADVEKREEGLRKALGIEKQCALDLEKALRELRSENAEIKFTADS<br>KLMEANALVRSVEEKSLEVEAKLRAVDARLAEVSRKSSEVERRSKDVEA<br>RESSLQRERFSHITEREAEEASLTKQREDLREWERKLQEGEERVAKSQM<br>MVKQREDRANESDKIIKQKGKELEEAQKKIDAANFALKKKEDDISSRIK<br>ALALREQETDLLKKSIETKERELLALQEKLDAREKVAVQQLVDEHKAKLE<br>AAEREFEMEMEQKRKSIDDSLRSKVAEVEKREAEWKHMEEKVAKREQ<br>ALDKKLEKHKEKEKDFESRLKGVTGREKALKSEEKALETDKRKLAEDKEN<br>ILSLIAEVEKIKAENEVHLSEIRKEKEELKVTEEERSEYLRLQTELKEQIEKC<br>RSQQELLSKEVEDLKAQRECFEKEWEELDEKKAEIETELKNLADQKEKLE<br>RNTHLEEERLRKEKQEAIDNMKREVETLEVAKAAFADTMEHERSVISKK<br>AESERSQLLHEIEMLKRKLESDMQSKLEERERELQAKEKLFEEEREKELS<br>NINYLRDVARREMTEVQSDRQRIQKEKVEIDASKKILEEQQTEIRKDVD<br>DLVALTKKLKEQREQFISERNRFLSSMESNRNCSNPCGELLAALPEIDNL<br>ELPNLSKLENILQDEAPRQELKDISPTATDLGLPVQGGTVSWLRKCTSKI<br>LKLSPIKMADTSAFPDQEPQSTEQGNVNSGPSTMLPAQSENDTREVE<br>VSDGDQSNIDSKAQEVAADSLSNLNADGQSRLRGKARIRRTRSVKAVV<br>EDAKAIYGKSIEFNEADDGSMGEPGRSDKGGVSKNGRKRGRVGSLRT<br>CTSEQDGNESDGKSDSVTGGEHQRGKRRQKVASEEQEVVGQRYNLR<br>RSRRVAGKTAIGKKNEEADGVQQQEEGVHCAQTTATASVGVAVSDN<br>GVTANVVEIEGMADSEETDAGSPKRTGENAAASEEDVNRTPEREYDG<br>EEEDESDTEHPGNVSIGKKLWTFLTT |
| Bra2 | Brassica rapa | Phytozome 12 Brara.I00831.1 | MATSSSSERVPRTPATTRLAITPGSRVLKSPISEEVMWKRLKEAGFDEQ<br>SIKKRDKAALIAYIAKLESEVYDYQHNMGLLIMEKDDLLSKYEEVKSSVD<br>EADLAHRRDLSAYVSALAEAKKREESLKKDVGVAKECISSLEKTVHEIRA<br>ECAETKVSAESKLSEGHSMIEDALKKFADAEAKMRAAEALQAEANRYH<br>RIAERKLKEVESREDDLARRLASFKSESETRESEIVIERQTLSERRKSLQQE<br>HERLLDAQASLNQREDHIFGKSQELAELQKGLESAKSTFEEERRAFEDR<br>KSNLEIELASLAKREEAVSERESSLRKKEQELLVAEEKIATKESELIQKVLA<br>NQEVILRKRKSDVEAELESKYKAVEDEIESKRRAWELREVDIRQREDLV<br>GEKEHDLEVQSRALAEKEKDITERSYNLNEKEKHLNALEEDINRKTALLE<br>DEKDRLRKLDLDLQQSLISLEDKRKRVDSATEKLEALKSETSELSILELNLK<br>EELDDLRGQKHELLVEADRLKVEKAKFEAEWEHIDVKREELRKEAEYITR<br>QREAFSMYLKDERDNIREERDALRNQHKNDVEALNRREREEFMNKMV<br>EEHSEWLSKIQRERADFLLGIESQKRELEYCIENKREELENASREREKAFE<br>QEKKLEEERIQSLKESAKKELEQVQVELKRLDVERLEIKLDRERREREWA<br>ELKDSVEELKVQREKLEKQRHMLRSEREEIRHEIEELKKLENLKVALDDM<br>SMAKMQLSNLERSWEKVSALKQKVELQNGVSTVSNSEDGYDNSSME<br>RQNNGSSPSSAAPLSWIKRYTNRIFKTSPESPEKSPPMHHHEEERGLPS<br>EKMKLDSSKAYTEGMSIAVERLEAGRKRRGNASGNDSTGPSSNKKRK<br>HDVTQKSPDADPESVISSPRNVPEDKHELPPSQAETPSGMVVISETVKI<br>TKVTCETEVINKVTNIDCSENPSEAGTKMVEERKQDSDCNQTTEINVPE<br>TVTQKEVESDNREEKDSEDGGIVT |
| Bra3I | Brassica rapa | Phytozome 12 | MFTPQRNQFPATDRKGKAVAFADEITTPSPPMSRFGSLSAVDDWRRF<br>KDVGLLDEASLERKDLEALIEKNLKLEKELFDYQHNMGLLLIEKKKWTSR |

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| | | Brara.B01814.1 | NEELQQAFDEVNEILKRERTSSLIALSESEKREENLRRALISEKQFVAELERDFKYLQQEHTEVKSTSEAKLAEANALVMGIKEKALEVDKERAVAEEKLSVISRKSSELERKLKDVETREKVLQRERLSLATEREAHEAVFYKQREDLQEWEKKLTVEEDRLSEVKRSINHTEERSIESERAIKKKEKSLEEMQRKIDTAKSELKEREESVNKMLNDLSMKEKDFEAMKTKVDMKEKELHELEEKLVVREQMEIGKLLEDQKGVLDSRMQEFETELEQRRISLDEELEKKRGEIEKLQVEIGLKEEQLGKREAALEKMEERMKEKEKDLEARLEAVKEKEKALRTEEKKLHVENERLLEDKESLRKLKEEIEEIGAETTKQESRIREECESLRITKEERLEFIRQQSELKQQIDRVKQEGELLLKEREELKQDQGRFEKEWEALDEKKADIAREQKEVAEEKEKLRSLQISRVLDDVKMKKESLEGKVTINENISCTKKLALKEMEELESEKLALQRERDEISVEKKQLKKLHDELYKDVADVDALRISLKEQRDDLYRSKDRFAVLLKKVDLCSTCRIPFHKFINSERVPDLEDGNDRKSTSFIGKLASAMAPESSLPDDSLDTAAGNDHEPSASFSESKGAEVSLQSEIKSDKPRRGRGRGKSVRGRSQATSDSKPSDVKLPRKRQREQGSRITESEQADGDSDEGVDSVTTGGRKKKRQTAVPVSLAPAQSRYHLRRHRNVGTEEDKAQESTGAVEKQENVNGDIRTVPSPKDSFKENGKAETLAETLTHEEIVKVETETEFKDKSTGKRPVQEDPQLEAGGSGEGKEHGGEEDDGTFSIIQEENEQEDAETEHPGEASIGKKIWVFFTT |
| Bra3II | Brassica rapa | Phytozome 12 Brara.F00805.1 | MFTPQRKQWMSPAMTPRSETRVTNPRNADRKGKAIAFSEDPVNSTLPPPPIRTLTGEGFSRGEADDMDMGDWRRFREVGLLDEASMERKDREALLEKISTLEKELYGYQHNMGLLLMENKEWASKHEQLDQALLEAQEILKREQSSHLYALTTVEQREENLRKALGLEKQCVEELEKALREMQEENNKTRLASEAKLAEANALVASVTGRSSDVESKIYSAESKLAEATRKSSELEMRLKEVETRERVLQQERLSFAKERESYEETFHKQRDYLHEWEKKLQEKEESMPEQKRSLNHREEKVNEKEKNLKLKAKELEERERKIALSMSKCKETEEDLNKRLQELTAKEKESCTLQSMLMAKERELRALEEKLIAREGTEIQKLIDDQKAELADKMLAFEQECEERRKSLDKELQRKTEEVERQRVEIDHGEEKLQKRNQALNKKFERVTEKEMDLEAKSKAIREKEKDIQAEEKRLSLEKQQLLSDKESLMDLQQEIENIRSEMMKKEDAIREELKNLEIKKGEREEYQRLQSELKSQIEKSRLHEEFLSKEVENLKQEKERFEKEWEILDEKQAEYNKERMRISEEKAKLERFEMLERERLKKEESAFRVQIKQELDDIRLQRESFEANMEHERSALHEKAKLEHSKALDDLETMRRNLEIEQQKRKEEDEKALQDRLSQFEDKRMKELSDINRRKQALNREMEEMVSKRGALQKESEEIAKHKEKLKEQQAEMHNDISELSTLSINLKKRREEFARERGRFLAFVQKLKDCESCGQLANEFVLSDLQLPYNEEEAIPPPNGVVSDLPESSDESDSCNINKSLDRDASGSGRRPNMSILQKCTSILFSPSKRAEHDMDTGKPEQRPSSSLAVNKETKGEKPLPVSTIPDEDEEYTDSRVQETSECSQFSELQSARRGRGRGRPRKPKPSTNPTSSANHASPGESSKGEVSGHVSGTSEKTTGRGGRKRQHTEDTAAGGRRKRQQTVAVLPQTPGQKRYNLRRNKTVDQVPANVENDAAGGEDDADIAASAPSKDNVEGTSESVVEPLRARRLESSEVRVERVVTVETTTATANTNVGVSVANTEVAANIAMSPSVEDDQTQRTVNEDKNEEYEDGNDEEDYEEQEDDDDDDGDDDDDDGDDDDDDGGSPRPGEGSIRKKLWTFLTT |
| Brst1 | Brachypodium sylvaticum | Phytozome 12 Brast04G088000.1 | MFTPQGKGWTGWSTPAPANQRGGGGAPPASAPLGKAKGTSQRAAELEEELHEYQYNMGLLLIEKKEWAAKLDEVSQVLTQKEEILKREQAAHLNAISEYERREESTRKALGVEKQCVADLEKALREIRSEIAEVKFTSQKKIADAQSLEANLEEKSLEIEGKLHAADAKLAEANRKKSQADRDLEEVEARQRRLEKEKIYFETERKAREKQLREQEESLQDWEKKLKESQNRLVDLQRSVNEREERANENDKLCKMKQEELEEAKKTVERTKIMLKTKEDDITKRLIELGSKEKDAESKCKILEDRERMLSEREEKVGAREKVGLQKLLEDQKVKLESKRRDFELELESERTSFAEKMKQREVDLVKREKDLRSWEDKISKSEQALNESKK |

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| | | | TLEELQNDLSTKSKALKNWEESLKKEEKKLLEEKLQMDNERKQAEMYK<br>SDIEKMKTTIQAEKEKILEEQNNLKVTEEERQEHNLLSAQLKKEIDEYRM<br>RSNSLSEETEDLRKQRQKFEEEWEQLDEKRARLEEEAKMLNNERVNLE<br>RLRDNEDKRLKDLQDEMNAKYKEQDEKLVLKEKALMDDIKHQREEIDE<br>FLKRERADLQRNLQLHRHELDMEMENRVAGRERQLEEKENELNNKM<br>DFVENKIEHAVRLNESKIQKIVLEKQKLQMEKEILVEEKQKLETDKADIR<br>RDIDSLNALSKSLKVRREAYNRDRNNLIDMFEKYKVCKSCGISLSEGFDD<br>LSFKDNADFDYPSLAAEEDDCSPNTNTLAQDTGTLVHSAGRFSLLQKCS<br>RLFKFSPRKKAEQSSEQEVEKNIPFGARLEEASPSDEDFEPTPVYQVAN<br>NSFGAEDLPSDSGARGNEESERLDLADGAADDVQMESSVGVADNCID<br>IHGTQSFDVTNDMAVDTTVASVDQNGKDSIAPLEVDLLPETSKQGWR<br>QPNRKGRAKGVRRTNSVRAVVEDAKAILGENFDEKNDGQEDSATVG<br>GTRKRRFTGAAISEQDEEGSEAQSESVSLGGQRRKRRAGPSTQAPVEK<br>RYNLRRATVATAAPSVPTDKKKAPKTRRKQTIEATADDTEGTSKVEKPT<br>TVSKGASESADVASQLQEFSQVEAGDAHAPAEEGTVEEYGDVVDGQ<br>DALPDAMPMTPSGSELGAEDDDEDEDDSERQNRSIGKSLWSFFTT |
| Brst2 | Brachypodium sylvaticum | Phytozome 12 Brast01G134300.1 | MASPRSPVGGAAAGDEAIWSKLREAGFDEESVRRRDKAALIAYISRLES<br>EIYDYQHNLGLVLLERKELTLKNEHLRASSESAEIMYKRERASQQSALAE<br>ARKREENLKKSVGIQKEFVANLEKALHDMRGETAEIKISYETKLAEALQ<br>MMDSAQKKLDEAEEKLIAAKSLEVESTRVHSTALRSLQDLEDREDQLR<br>RYRISTELEYEAKEKDVSLQRKSLNDTKKILHEKELVLLKEQALLNQRDEN<br>ILERLTFVTQSEKRLEEDRLILESERMVLMEERNNLVLKMEGIASREEAII<br>QKETLLDKRESELLIFQETIANKERAEIDRLNQEHEMALERRKLECETEIE<br>NKRLAYEAEMEAKVTLLDQRERALSEQELAFAQREQNVDLQLAELASK<br>EEALSGRSDLLKVEEEKLLSHREAVHIELQKERDEIQKMKLDLEKEKVLFE<br>EEKQEAIHAQQNLAITQADRDDLLSLQMKLKEEIDNLRAQKKELMADA<br>DRLQAEKERFEIEWELIDEKKEELQKEAARISEERRLITEHLKSESDVIKQE<br>KEKLRAQFKNNSETLSREHEEFMSKMQQEHASWLSKIQLEREDLTRDI<br>DNQRMELLNSAKAKQMEIDSYLKEREEEFEQKKSKELDYINSQKDMIN<br>SKLEHAVLELQKLEDERKDAALEREKREQELSEIKTTIEALNNQREKLQE<br>QRKLLHSDREAITEQIQQLNVLEELKIDSENKQLCLTECGKSKMNDNGL<br>PPGEDHHATPKNCSSPKLLERKLEVSPSVSTPISWVRKCAQVIFKRSPEK<br>SADHDRDSILHNGVPKNLQKAVDINGSHADQLANGAGEVPQVFGGA<br>KVGKKRQYLVSCDQSDVVEPTRKHQRSTITSNCPSVLEEKCSKNEHDAI<br>PLGLSEYGNKGAQNLRLPADPASSDDLSFANGKADHSGFVDDDETSEE<br>ISVSATEQTSGCAIERRDEQDKDVDDEDTDDEEKELEEEKTSSAKKLWR<br>FLIT |
| Bst1 | Boechera stricta | Phytozome 12 Bostr.26959s0186.1 | MTTPLKVWQRWSTPTKATNPDSNGSSHGKGLDMVTPVSGRVSEIRF<br>DDPRILPEKISELEKELFEYQHNMGLLLIEKKEWSSKYEELQQAFEEANE<br>CLKRERNSHLIAIADVEKREEGLRKALGIEKQCALDLEKALRELRSENAEI<br>KFTADSKLTEANALVRSVEEKSLEVEAKLRAVDARLAEVSRKSSEVERKA<br>KEVEARESSIQRERFSYIAEREADEAILSKQREDLREWERKLQEGEERVA<br>KSQMIVKQREDRANENDKIIKQKGKELEEAQKKIDVANLAVKKLEDNV<br>SLRIKDLALREQETDVLKKSIETKARELQALQEKLEAREKMAVQQLIDEH<br>QAKLDATQREFELEMEQKRKSIDDSLKSKVVEVEKREAEWKHMEEKV<br>VKREQALDRKLEKHKEKEKDFDLRLKGVNGREKVLKSEEKALETERRKLL<br>EDKEIILNLKAEVEKIRAENEVQLSEIHKEKERLRVTEEERSEYLRLQTELK<br>EQIEKCRSQQELLLKEAEDLKAQRESFEKEWEELDERKAKIENELKNIAD<br>QKEKLERHSHLEEERLKKEKQAANENMQRELEALEVAKASFAETMEHE<br>RSMLSTKAESERSQLLHEIEMRKRKLESDMQTKLEERERELQAKEKLFE<br>EEREKELSNINYLRDVARREMADAQNERHRIEKEKLEVDASKNHLEEQ |

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| | | | QTEIRKDVDDLVALTKKLKEQREQFISERNRFLSSMESNRNCNPCGELL<br>SELVLPEIDNVEMPNMSKLANILDKEAPRQEIRDISPTATGLGLPVAGG<br>TVSWLRKCTSKILKLSPIKMTEPSVTWNLADQETQATYQANVNSGPST<br>TPQAATNYSFDVQKAESETGTKEVEVTNVNSDGDQSNINSKAQEVAA<br>DSLSNQNADGQSPMRGKGKARTRRTRSVKDVVDDAKAIYGESIDLCE<br>PNDSTENVDDSAKANDGSTGEPGRSDKATSKNGRKRGRVGSLRTCTT<br>EQDGNESDGKSDSVTGGVHQRKRRQKVASEQQGEVVGQRYNLRRPR<br>RVTGETTLSKKKEETGGVQQDEVVYCAQTTATASVGVAVSDNGVSTN<br>VVQHEATADSQDTDAGSPKRTGESEAMSEDVNKTPQRVDSDGEDDE<br>SDAEHPGKVSIGKKLWTFLTT |
| Bst2 | Boechera stricta | Phytozome 12 Bostr.0568s0208.1 | MATSSSERFPITPSTAATNRLTITPNSRVLKSPLTEEVMWKRLKEAGFD<br>EQSIKKRDKAALIAYIAKLESEVYDYQHNMGLLLLEKNELLSKYEEVKASV<br>DDADLAHRRDQSAYVSALAEAKKREENLKKDVGVARECISSLEKTLHE<br>MRAECAETKVSAGSKMSEAHIMIEDALKKYADAESKMRAAEALQAEA<br>NRYHRIAERKLKEVESREDDLTRRLASFKSESETKENEMIIERQTLNERRT<br>SLQQEHERLLDAQVSLNQREEHIFTRSQELAEFEKGLESAKTTFEEERKA<br>FEDKKSNLEIALALLAKREEAVSERESSLLKKEHELLVAEEKIASKESELIQ<br>NVLANQEVILRKRKSDVEAELECKSKLVEDEIESKRRAWELMEVDIKQR<br>EDLVGEKEHELEVQSRALAEKEKDITEKSYNLEEKEKNLIATEEDNNLKT<br>TLLENEKERLRKLDLDLQQSLISLEDKRKRVDSATEKLEALKSETSELSTLE<br>MKLKEELDDLRAQKLEMLAEADRLKVEKAKFEAEWEHIDVKREELRKE<br>AEYITRQREAFSMYLKDERDNIKEERDALRNQHKNDVDSLNQEREEF<br>MNKMVEEHSEWLSKIQRERADFLLGIEMQKRELEYCIENKREELENSS<br>REREKAFEQEKKLEEERIQSLKETAEKELEHVQVELKRLDAERLEIKLDRE<br>RREREWADLKDSVEELKVQREKLETQRHMLRAEREDIRHEIEELKKLEN<br>LKVALDDMSMAKMQLSNLERSWEKVSALKQKVVSRDDELDLQNGVS<br>TVSNSEVGYNSSMERQNGSTPSSATPFSWIKRCTNLIFKTSPEKSPLMH<br>QHEEEGELPSEKLKLDSSKRVEKAYTEGLSIAVERLEAGRKRRGNASGN<br>DTSEPSNNKKRKHDVTQKSSDEADTQSVISIPQNVPEDKHELPSSQTQ<br>TPSGMVVISETVKITTVTCETEVTNKVTTLDCSENPTEAGRNMGEEKPD<br>SDCNQIGINTSGTVNRKEAESEKDLDDGGIVT |
| Bst3I | Boechera stricta | Phytozome 12 Bostr.26959s0008.1 | MEMFTRQKYRWPETDQKGKAIAFADETTTPSTPRGPLREDDDWRKF<br>KEVGLLDEASLERKDRDALIEKILKLEKELFDYQHNMGLLLIEKKKWTST<br>NEELQQAFDEAMEILKRERTSNLIALNEADKREENLRKALIAEKQFVAEL<br>EKDLKYWQQEHSEVKSTSEAKLAEADALVMGMKEKALEVDRERAIAE<br>EKLSVINRKSSELERKLKEVETREKMHQREHLSLVTEREAHEAVFYKQRE<br>DLQDWEKKLTLEEDRLSEAKRSISHRDERIMESERTIKKKEKVLEEMQQ<br>KIDIAKSELREREESINIMLNDISKKEKDFEAMKAKVDIKEKELHEFEEKLI<br>VREQMEIGKLLDDQKAVQDSRRQEFEMELEQMRKSLDEELEGKKAEIE<br>HLQVEISHKEGKLAKREAALEKMEERVKEKDKDLEARLKAVKEKEKSLK<br>AEEKKLHLENERLLEDKECLRKLKDEIEEIGAETTKQESRILEEHESLRITKE<br>ERLEFLRLQSELKQQIDRVKQEEELLLKELEELKQDKERFEKEWEALDEK<br>KADIARKQKEVTEEKEKLRRLQISEKHRLKREEMTSRDDLKRDLDGVKM<br>QKESLEADMESKKIALHENAKNKTSQLIEDLEKQKRNLDMELQRQEEE<br>GERDFNERARTYEKRSQEELENINYTKKLAQREMEEVQYEKLALERERE<br>QISIQKKLLKEQDVEIHKDIIELDVLRSSLKEQREEFIRAREGFLVFLEKLKS<br>CSSCGEITEKFVLSDLRLPDVEDGDKLFGIRKLKAEEAFNISPSAENSRKT<br>SLLGKIASKLMSISPIGKTDKVTDLGITVKLPESLQPDDTLDIVPGNDHEP<br>SATEQSFTNSIIQEGPEVSLQSEIKSDKPRRGRGRGKSVRGRSQATKAA<br>SKDSKPSDVEIPRKRQREQASKVTESEHTAADSDEGVDSITTGGRRKKR<br>QTAVPVSQTPGQSRYHLRRHRNVGTEEDKAQASTGATEKQESVNGDI |

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| | | | RTVPNPKDTLTPPQGENRENGKAEVLVEAVTHEEIVRIEAETEFKDNN<br>MGKRPVEDPQLETGGSGEIREHGEDDDENFSMIEEENEGEEEEETERQ<br>GDASIGKKIWVFFTT |
| Bst3II | Boechera stricta | Phytozome 12 Bostr.13671s0124.1 | MRLQSELKSQIEKSRLHEEFLSKEVENLKQEKERFEKEWEILDEKQAEYN<br>KERLRMSEEKAKFERFQLLEGERLKKEESALRVQIMQELDDIKLQRESFE<br>ANMEHERSALHEKAKLEQSKVIDDLEMMRRNLEIEHQKRKEQDEKDL<br>QERLAQFEDKRMKEISDINHQKQALNREMEEMVSKRSALQKEKEEIAK<br>HKEKLKEQQVEMHNDISELSTLSINLKKRREVFARERARFLAFVQKLKD<br>CGSCGQLVNEFVLSDLQLPYNEEEAILPPNGVLSNLPGSSDASDSCNIKK<br>SLDGDASGSGGSRRPNVSILQKCTSILFSPSKRAEHGIDTGKSEQRPSSS<br>VAVSMETKGGKPLPIDIRPRPSSSSIPEEDEDYTDSRVQETSEGSQLSEL<br>QSASRGRGRPRKAKPALNPKSLVKYANPEESSKDELSGRVFVTSEKTTG<br>GGGRKRQHIEDTATAGHRKRQQTVGVLPQTPGQRRYNLRRNRTVDQ<br>VPADVEDNAAGGEDDADIAPSAPSKDNVEETSESVVESLRARRLETSE<br>VRVESVVMVEKIADVVTPDNNGDVSVANAEPTANIAMSPSVEDDQK<br>QGTVNEDMNEDGDEEEAQDDDNDEIQDDYDDDDDGDDDDGSPRP<br>GEGSIRKKLWTFLTT |
| Bvi | Botrypus_virginianus | onekp: BEGM_scaffold_2014500<br><br>BEGM_scaffold_2014501 | MFTPQRRGWPGWTFPPSGDKKDKGKVLSPEFRAPGSNDVSPVKSLIE<br>APPVASLEDNGGILVRSEHEIWRRFRDAGALDENSLEKKDRAALLVHVS<br>NMEAELYDYQYNMGLLLMERKEWDSKHEKLKAAVLEAEENLKRELAA<br>HLIAISEAEKREESLKKALAVEKQCVTDLEKALKEMRAEVAELKVTAENK<br>LAQARDMIASTEERSLLAESKLHAAEALEAEAARKKADAERKLQEVEAR<br>EDAMRRERHSAKAERDAHESELNRERQNLRDWERKLQEGQERLLEG<br>QRLLNQREEHANQRDEALKQLEKDLQDARKHLEKERTVLEQSEADLN<br>ARLATLAVREENAVKQEIYIDKKEQELLLLQEKLASRERSLEMHEQHVKE<br>TETFVSKERDRLEALERTMKLKEESLPELEKKKAECEEMLAELEKQRVAL<br>LEETEELENRKASIEAREADMERKDEKITKREQQLEKKSEKLKEKEKELD<br>TKTKAAKEKDRSLKSEEKQLEAQRRMVAEEREAVKASKEEIENLRKELD<br>VEKKLVLEEREKLRVTEQEREDLLKMQTCLKEEIDDCRAQTKTVSIQAEE<br>LKKEREKFEREWDILDEKREQVRTELEQAEQEKKRVAKWLQDEEARLK<br>QEKRSLREQISRETEALRLEKEAFVNSVEHERAEWFAKVDKEREDLVRD<br>IDVRKRDLERTMEKRKEEFEKQIKERESRHKRDTERERQNSSALRALAE<br>KELQDVRQERQKLEKERQEISKNREDSEKDWVEIRKDIEELHIQREKLKE<br>QREALRRERDDILQEAEKLKKLREELKVADDSLKSEQLSQRNDVEVVSP<br>NMGLVSQPLENGAIFERGQASQLPNTGKSPAESTPGKSSGTPGRLSW<br>LQRCASALFHTPDKKLGTLNMKVCTESEHEKDLEARTGAEPSNFVYEV<br>DDNKLHRSSVVEEEGMPAHQSRSSGSFTPDQLTDGENSQPAVQRWK<br>GKGFTRTRSIRAVVEDAKAILGSYPDAGGDDELPTGNGDEEKVLLAQD<br>VEDEGKQGDSTAPVTIEHDKDNKLNKQGRKRRRQQQSKEALSEQEVE<br>EAETESEVATGGKRKRRQRDTGSSMKGEPGKETPGTKRYNFR |
| Cag1 | Cathaya_agryrophylla | onekp:NPRL_scaffold_2016133 | MLTPKRRGWPGWSPKTPSPPPPPPAEEMAGSSHVVTPAATAGGSSG<br>GRALVEAPPRNLLDNNGEIVATRGQPEIWRRFREAGSLDEESLEKKDR<br>AALVVHVTKLEAELYDYQYNMGLLLIERKEWTSKYEQMQVAITEAEEN<br>LKREQSAHLIAISEAEKREESLKKALGVEKQCVIDLENALHEMRAEMAE<br>LKFTSENKLAQAREFAASTEEKALAAESKLHAAEALQAEVSRKHAEMER<br>KGQDIEALERTIQRERQSFMSEHDAVEVELSLERQNLLEWEKKLQEGQ<br>ERLIEGQRLLNQREEYINKRDEAMKQIEKELEDAKMQIEKDQATLKEKE<br>ADISSRMAALATREEDVVKGETVINKKEEELHALQEKLVSMENEEIQKLI<br>DDHKATLEARKLEFEAEIEQKKILVEEELQKKRSEIDLMEADISRKEEKISK<br>REQQLEKKAEKVKEKEKEVDARSKALKEREKTCKNEEKQIETEKKKLEAE<br>REDINNEKQELQNLRIILKEEKQQILNAQENLKVSEKERNELLKLQTELKE |

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| | | | EIEDYRARKQQVENEAEELKLEREKFEKEWEILDEKREQARKESAQVDE<br>DRKRISKWVLDEEERLKQEKRALREHIQSDSDALHLEKEAFKSSMEHER<br>AEWFENVRRERADLLRDIELQRSELENSIEKREEEIERLLHEKEVEFQKEK<br>EREMQHICEQREVARKEMEEMKVERRKLEKERHENTESREHAEKQW<br>TEIKKDIEELQVQREKLKEQRQSLCKEREEVLRLFEQLKKLKAELNVTED<br>HLKQIADKDGSHSPRPADAFGSSQQALGQNIFGTPGDTSVKVNPEPSS<br>GRTDASTSKTSRLSWLQRCASKIFNQSPSPGKVGDNTVWKEEIERSHS<br>PTLEVVLGAEIERMTHENTVGEKVEHVSSADVQNEGCIVEAAEDKRQG<br>HGKPKPRSVVNFDNNLPSPSVGNGRKSKDKAKIRVFRRTRSMKAVVEE<br>AKGILESLSDMEKNESEDRQEQEQSNAGVTANSEDLGKESDKDKTDTA<br>KEMDESKGESLASDKKSSQSGKKRRRKYSSRATSAQDADDADIQSELT<br>SGQRRKKRQRDIANGDNSGVGTPGGKRYNFRRSTIASTIAT |
| Cag2 | Cathaya_agryrophylla | onekp:NPRL_scaffold_2014702 | SPVNEKEMWRRLREAGLDEETLKKKDKAFLLSYITKLESELYDYQCNMG<br>LLLIERKEWTSKCEQMNLSANEAEEKFKRERAALSTAIAEAEKQEESLKK<br>ALGVEKQCVADLEKALHEMRAECAELKFISDNKLAQAHEMVATTEEKF<br>LVAESKLHAGEALQAEANRKRADAERKLQEVEAREDALRRERRAFKSE<br>CEAREKELVLERQNLRGWDKKLQEGQERLLEGQKFLNQREAHIMERD<br>EALKQIEKELQDVKMNVEKEHSTLKEKEADLRTSLAALMTREEAVVKQ<br>EIIVDRKEQELLVLQEKLASREREEIQRLTDEHKATLEAIRIEFEAELEQKR<br>RLVEDELENKENATDLRGLEINRREEKLSKRELHLEKKAEKLKEKENELDS<br>RSRTLKERDKTYKTEEKEMENEKKKLEMERKEVNNAKQELQKFKASLE<br>DERCQILKEQQRLELTKNERDELLDLQTKLKEEIDDLRAQKQELLKEADD<br>LNVEKEKFEREWEILDEKREQLRKELEWVDDERKKVPKWVKDEEERLK<br>QEKIVLREEIKRDAEGLRLEKEAFESSMQHQRAVWFAEVQRERADLVR<br>DIELRTNELENSIERRREELERHYQEKELSFQKEKEKGMQYISAQRELLR<br>KETEEMKAERQRLERERKEIATNQEHTDKEWSEMKKDIEELQIQREKL<br>KEQRESLHKEREELQAQLEELKKLKDELKMTEESLKVSEQQLSQVNLND<br>CEVISPGHGISQAALRQSIFAVPENANIEFNSGISPVRTPASASTPSPLA<br>WLQKCASRIFKPSPEK |
| Cde1 | Calocedrus_decurrens | onekp:FRPM_scaffold_2004713 | MMTPNRRGRWPGWSPTSRSSPAVDDKAVAVLEKSAGKAAVEAPPR<br>NSLDGNGRFTPAAAAAAEPEVWRRFKESGSLDQDSLEKKDRTALLLHI<br>SKLDAELYDYQYNMGLLLIERKEWTSNYEQIKLALVEAEESLKREQSAHL<br>VAITEAEKREESLKKSLGVEKQCVSDLEKALHEMRSEVAELKFISESKLA<br>QARDLVTSTEEKTLEAESRLHAAEALQAEASRKHAETERKLQEIESIENA<br>LRRDRQSFKSERDAHEVELSLQRRNLLDWEKKLQDGQDRLLEGQRLLN<br>QREEYTNQRDEALKQIEKELEDTKKQIENDHSTLKEQEADISVRLTALST<br>REENAVKREFLIDKKEQELLVLQEKLASKENEEIQKLLDEHRAMLEARKI<br>DFEAELEQKKISVEEELEKRRSALELFEADIKSKEEKISKREQQIEKKTDKL<br>KEKEKEVDSRSKTLKEREKMLKNEEKEIMIEKKKLDGEREEINNEKQELQ<br>NLKVSLEEEKQQIISEKDKLKVTEKERNELQNLQTELKEEIENYRARKQEI<br>EKEAEELRLEKEKFEKEWEFLDEKREQANKELALVEEEKKRISKWLRDEE<br>ERLKQEKSALKERIQNETEALHLEKEAFAASMQHERAEWLESIRREQA<br>DLIRDSELHRSDLENNIEKRQEEIEKFLREKETGFQKEKERETQHITAQRE<br>LVSKEMEEMRLERKKLEKEREEINKSRQHAEMQWIEIKKDIVELQLQR<br>DKLKEQREYLCKEREEVSRLSEQLENWKRELNISEDTLDLIANKGGNYR<br>AEDVYGFSQEAVPQKFFGTPASASAKGDPEPSSGRTVPSASGTPSRLS<br>WLQRCATKFFNQSPSPEKIIDGTGRKGETDRSPTVLPETTGAESERITGE<br>IVVGLEIQPTFSADDQNHDAGAETEVVAQAKGTSKSSPAVKFDHSVPS<br>RSKGNGSKSNDKSKVKVFKRTRSIKAVVEDARGIIDAPSDQEKNESESR<br>EEHAVADDRQDKEARAGGDQTNSAQEVDDSNRESLATDKKSSKSGR<br>KRRRGHSSRVTSEQDVDDSEIQSESAAGGRRKRRQKGTTNGGTSVLAT |

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| | | | PGGRRYNLRHSTIASHVGNQTPSTVVKDRIVAQPEEEEPKNMEGTSSV<br>KDTKDSREDSLYNTTMVPSAQDSDNDVPQGETHDFPRHPDGGLEDD<br>TEEVLSHELTKSETGDHYDETENGEGNEEDAPVDEIEDEQIDELDEDGD<br>DEEEDNNASLKKKIWKFLTS |
| Cde2 | Calocedrus_decurrens | onekp:FRPM_scaffold_2010579 | SPVNENEMWRRLKKVGLDEETLQKKDKAALIAHITKLETEVYDYQYNM<br>GLILLEHKELISKYEQLKLTAGEAEGNFKRDRAAHSAAMAEAEKREESLR<br>KALGIEKQCVSDLEKALHEMRAESAEIKFVSETKLAKARELVASTEEKSIT<br>AESKLHAGEALQAEAKHKYADAERLLQDVEAREDELRRQRQSFKSECE<br>AHEKELFFERQNLREWEKNLQEGQGRLLDGQSLLNQREEYVIERNEAT<br>KQIEKELQDLKKNIEKEQSSLKEKEADLRGKLADLTTREEALVKQEVIINK<br>KEQDLLLLQAKLATREREEIQRLTDEYQAALEKRKSVFEEEMKLQHKAV<br>DGELANKRNAADVREFEIQCREEKISKREQQVEKKVEKLKEKDKELDTR<br>LRHVKEREKSCKIKEKEIETQLKQLDIERDEMNISKQVLEESKATLEEERQ<br>QIHKEQERLELTEKERDDLRIIQIKLKEEIDNFRQQEQELLKKDEVLNVEK<br>EKFEREWEILDEKTEQLRKELEKIDNEKKGVSKWLKAEEERLKQERRML<br>REQIKNEEEALRLEKESFANSKKQEEAELLANFEKERADLYRDIELQKSE<br>MEKIIEQRQEELERNYKVRERVFRKEKQKEMQYINAQKELSEKESQEM<br>KLQRQRLDREKQEIVTTREHIDREWSEMKKDIEEMEIRREKLKELRESL<br>HREREEFEAQLDQLKILKDELKMTEDSLKISEQPPS |
| Cdu1 | Cupressus_dupreziana | onekp:QNGJ_scaffold_2010443 | MMTPNRRGRWPGWSRTSRSSPAVDDKAVAVAEKSAGKAAVEAPPR<br>NSLDGNGRFTPAPAAAAEPEVWRRFKESGSLDQDSLEKKDRAALLLHI<br>NKLDAELYDYQYNMGLLLIERKEWTSKYEQVKLTLIEAEESLKREQSAHL<br>VAITEAEKREESLKKSLGVEQQCVSDLEKALHEMRSEVAELKFMSESKL<br>AQAREMVAGTEEKALEAESRLHAAEALQAEASRKHAETERKLQEMESI<br>ENALRRERQSFKSERDAHEVELSLQRRSLLDWEKKLQDSQDRLLEGQR<br>LLNQREEHTNQRDEALKQIEKELEDAKKQIENDHSTLKEQEADIRVRLT<br>ALATREENAVKREILIDKKQQELLVLQEKLASKENEEIQKLLDEHRALLEA<br>RKIEFEAELEQKKISVEEELEKRRSALELFEADIKSKEEKISKREQQIEKKTE<br>KLKEKEKEVDSRSKNLKEREKTLKNEEKEIMIEKKKLDGEREEINTEKQEL<br>QNLKVSLEEEKQQICSEQDKLKLTEKERNELQNLQTELKEEIENYRARKQ<br>EIEKEAEELRLEKEKFEKEWEFLDEKREQANKELALVEEEKKRISKWLRD<br>EEERLKQEKSALKERVQNETEALHLEKEAFAASMQHERAEWLESIRRE<br>QADLVRDSELHRSDLENNIEKRQEEIEKFLREKEIGFQKEKERETQHITA<br>QRELVSKEMEEMRLERKKLEKEREEISKSRQHAESQWIEIKKDIVELQLQ<br>RDKLKEQREYLCKERGEVSRLSEQLANWKREVNISEDSLDLIANKGGSF<br>RSEDVYGFSQEAVPEKFFGTPASASAKGDPEPSSGRTVPGASGTPSRLS<br>WLQRCATKFFNQSPSPEKIIDGTGRKGETDRSPTVLPEPTIAESERMTG<br>EIVVGLEIQPTLSADDQNCDAGAQTEVVAQAKGTLKSSPAVKFDHSLP<br>SRYKGNGSKSNDKSKVKVFKRTRSIKAVVEDARGIIDDALSDQEKNESE<br>SREEHTVADNRQDKEARAGGDQTNSAQEVDDSNRESLATDKKSSKSG<br>RKRRRGHSSRVTSEQDVDDSEIQSEGAAGGRRKRRQKGTTNGGTSVL<br>ATPGGRRYNLRHSTIASHVGNQTPSRDAKDRVVAQPEEEEPMNIEGT<br>SSVKDTKDSREDSLDNTAMVPSAQDSDNNIPQGETHDFPRHPDGGLE<br>HDTEEVLSHELTKSETGDHYDETENGEVNEADAPVDEIEDEQIDELDED<br>GDDEEEDNDSSLKKKIWKFLTS |
| Cdu2 | Cupressus_dupreziana | onekp:QNGJ_scaffold_2075699 | SPVNENEMWRRLKKVGLDEETLQKKDKAALIAHITNLETEVYDYQYN<br>MGLILLERKELISKYEQLKLTAGEAEGNCKRDRASHSAAMAEAEKREES<br>LRKALGIEKQCVADLEKALHEMLAESAEIKFVSETKLAKARELVASTEEK<br>SIAAESKLYAGEALQAEAKHKFADAERFLQDVEAREDELRRQRQSFKSE<br>CEAREKELFFERENLREWEKNLQEGQERLLDGQRLLNQREEYVIERNET<br>TKQIEKELQDLKRNIEKEQSSLKEKEADLRGRLTDLTVREEALVKQEVIIN |

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| | | | KKEQELLLVQEKLATREREEIQRLTDEHQIALEERKAVFEEEIKQQCRAV<br>DDELANKRNAADVREFEIQCREEKLSKREQQVEKKVEKLKEKDKELDTR<br>LRHVKEREKSCKIKEKEIETQLKQLDLERDEMNISKQVLEESKATLEEER<br>QQIRKEQERLELTEKERDDLRIIQIKLKEEIDNFRQQEQELLKKDDVLNVE<br>KEKFEREWEILDEKTEQLRKELEKIDNEKKRVSKWLRDEEERLKQERRM<br>LREQIKNEEEALRLEKESFANNKKQEEAELLANFEKERADLYRDIELQKS<br>ELEKSIEQRQEELERNYQVRERVFRKEKQKQMQYINAQKELSEKESQE<br>MKLERQRLDREKQEIVTTREHIDREWSEMKKDIEEMEIRREKLKELRES<br>LHREREEFEAQLDQLKKLKDELKMTEDSLKISEQPPSQANVNDCEAISP<br>GHFDGGISQAGQSISGMAFNADGFRPELHLTRSTASASDTLSPLAWLQ<br>KCTSRIFKKSP |
| Cgr1 | Capsella grandiflora | Phytozome 12 Cagra.1125s0018.1 | MTTPLKVWQRWSTPTKATNPDSNGSSHGKGLDMVTPVSGRVSEIQF<br>DDPRILPEKISELEKELFEYQHNMGLLLIEQKEWSSKYEELQHDFVEANE<br>CLKRERNAHLIAIADVEKREEGLRKALGIEKQCALDLEKALRELRSENAEI<br>KFTADSKLTEANALVRSVEEKSLEVEAKLRAVDARLAEVSRKSSEVERKA<br>KEVEARESSLQRERFSYIAEREADEATLSKQREDLREWERKLQEGEERV<br>AKSQMIVKQREDRENDNDKIIKQRGKELEEAQKKIDAANLAVKKLEDD<br>VSLRIKNLALMEQETDVLKKSIETKAQELQALQEKLEAREKMAVQQLID<br>EHKAKLDATQREFELEMEEKRKLVDDSLKSKVVEVEKREAEWKHMEEK<br>VVKREQALERKLEKHKEKEKDFDARLKGINGREKVLKSEEKALETEKRKL<br>LEDKEIILNLKTEVEKIKAENEVQLSEIQKEKEGLRVTEEERSEYLRLQTEL<br>KEQIEKCRSQQELLLKEAEDLKSQRESFEKEWEELDERKAKIENELKNIT<br>DQKEKLERQNHLEEERLKKEKQAANENMQRELEALEVAKASFAETME<br>HERSMLSKKAESERSQLLHEIEMRNRKLESDMQAKLEERERELQAKEKL<br>FEEEREKDLSNINYLRDIASKEMADMKNERHRIVKEKLEVDASKNHLEE<br>QQTEIRKDVEDLVALTKKLKEQREQFISERSRFLSSMESNRNCNPCGELL<br>HELVLPEIDNVEMPNMSKLANILDNEVPRQEIRDISPTAAGLGLPVAG<br>GTVSWLRKCTSKILKLSPIKMAEPSVTWNLADQEQPADQANVNSGPS<br>STPQAVTNSFDVQKAESETGTKEVEVTNVNSDGDQSNINSKAQEVAS<br>DSLSNQNADGQSRMRGKAKARTRRTRSVKDVVEDAKAIYGESIDLCEP<br>NDSKENIEANDVSMGEPGRSDRATSKNGRKRGRVGSLRTCTTEQDGN<br>ESDGKSDSVTGGAQQRKRRQKVASEQQGEVVGQRYNLRRPRRVTGE<br>TTLSKKHNETSGAQQDEGVYCAQTTVEASVGVAVSDNGVSTNVVQH<br>EDTADSQDTDAGSPKRTGESEAMSEDGHKTPQRADSDGEDDESDAE<br>HPGKVSMGKKLWTFLTT |
| Cgr2 | Capsella grandiflora | Phytozome 12 Cagra.0917s0008.1 | MATSRSERFPITPSTAATNRLAITPNSRVLKSPLTEEVMWKRLKEAGFD<br>EQSIKKRDKAALIAYIAKLESEVYDYQHNMGLLLLEKNELLSKYEEVKASV<br>DEADLAHRREQSAYVSALAEANKREESLKKDVGVAKECISSLEKTLHEM<br>RAECAETKVSAGSKMSEAHIMIEDALKKYADAEAKMRAAEALQAEAN<br>RYHRIADRKLKEVESREDDLTRRLASFKSESEMKENEMIIERRNLNERRT<br>SLQQEHEKLLDAQVSLNQREEHIFARSQELAELKKGLEAAKTTFEEERK<br>AFENKKSNLEITLALIAKREEAVSGKESSLLKKEQELLVAEEKIASKESELIQ<br>NVLANQEVILRKRKSDVEAELECKSKLVEDEMESKRRASELREVDIKQR<br>EDLVGEKEHDLEVQLRELAEKEKDITEKSYNLDEKEKLLIATEEDNNHKA<br>TLLENEKERLRKLDLDLQQSLMSLEDKRKRVDSATEKLEALKSETSDLST<br>LEMRLKEELDDLRAQKLEMLAEADRLKVEKAKFEAEWEHIDVKREELR<br>KEAEYITRQREAFSMYLKDERDNIKEERDALRNQHKNDVDSLNQEREE<br>FMNKMVEEHSEWLNKIQRERADFLLGIDMQKQELEYCIENKREELENS<br>SREREKAFEQEKKLEEERIQSLKETVEKEVEHLQVELRRLDAERLEIKLDR<br>ERREREWAELKDSIEELKVQREKLEKQRHMLRAEREEIRHEIEELKKLEN<br>LKVALDDMSMAKMQLSNLERSWEKVSALKQKVVSRDDELDLQNGVS |

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| | | | TVSNSEDGYNSSMERQNGSTPSSATPFSWIKRCTNLIFKTSPEKSPLMY<br>QHEEEGGGGLPSEKSKLDSSKREEKAYTEGLSIAVERLEAGRKRRGNSS<br>GNDTSEPSNNKKRKHDVTQKTSDEADTQSVISSPQNVPEDKHELPSSQ<br>TQTPSGMVVISETVKVTTVTCETEVTNKVTTLDYSENPTEAGMGEEIPD<br>SDCNESGINASDDGGIVT |
| Cgr3I | Capsella grandiflora | Phytozome 12 Cagra.0613s0001.1 | MFTPQRNRWPETDRKGKAIAFSDEIMTPSPPRGLLREDDDWRKFKEV<br>GLLDEASLERKDRDALIEKILKLEKELFDYQHNMGLLLIEKKKWTSTNEEL<br>QQAFDEATEILKRERTSNLIALNEADKREENLRKSLNAEKQFVAELEKDL<br>KYWQQEHSEVKSTSEAKLAEADALVMGMKEKTLEVDRERAIAEEKLSV<br>INRKSSELERKLKEVETREKVHQREHLSLVTEREAHEAVFYKQREDLQD<br>WEKKLILEENRLSEAKRSLNHREERIMENERTIKKKEKLLEEMQQKTDIA<br>KSELTEREESINTLLNDISKKEKDFEAVKAKVDIKEKELHEFEEKLIVREQ<br>MEIGKLLDDQKTVLDSRRQEFEMELEQMRRSLDEELEGKKADIEQLQV<br>EINQKEEKLAKREAALEKMEERLKVKDKDLEARLKTVKENEKSLKAEGK<br>KLHLENQRLLEDKECLRKLKDEIEEIGAETTKQESRILEENESLRITKEERLE<br>FLRLQSELKQQLDRVEQEEKLLLKEREELKQDKERFEKEWEVLDEKKADI<br>AREQKEVFEEKEKLRRLQISEKDRLNREEMTSRDDLRRELDGVKMQKE<br>SFQADMEIKKLALHENAKNKTNQLVEDLEKQKRNLDMELQRQEEEGE<br>RDFNERARTYEKRSQEELENINYTKKLAQREIEEVQYEKLALEKERDEISI<br>QKKLLKEQEVEMHKDITELDVLRSSLKEQRAEFISTRERFLVFLEKLKSCS<br>SCGEIAENFVMSDLQLPDVKDGDKLFGKRKLKADEALNISPSAEISRKTS<br>FIGKIASKLLSISPIGKTDKVTDLGITVKLPKSSQRDDNLDTVSGDDHEPS<br>ATEQSFTDSRIQEGPEVSLQSEIQSEKPRRGRGRGKSVRGRSQATKAAS<br>KDLKPSDVETPRKRQREHASRITESEHTAGDSDEGVDSVATGGRRKKR<br>QIAVPVSQPPGQSRYHLRRHRNVGTEEDKAQASTGATEKQESVNGDI<br>RTVASPKDTLTLPQGEIRESGKAEVLVEAVTYEEIVRVEAETGFKDNNT<br>GKRAVEDAQLETGGISEIREHGEDDDENFSMIEEENEGEGEATERQGD<br>ASIGKKIWVFFTT |
| Cgr3II | Capsella grandiflora | Phytozome 12 Cagra.0568s0239.1 | MFTPQRKPWMSPAMTTPRSETHKIGGVTNPRTADRKGKAVAFSDDL<br>VISTLPPPPIGTLTGEGVSRVLADDTDMGDWRRFREVGLLDEASMEKK<br>DREALLEKVSTLEKELYGYQHNMGLLLMENKEWASKHEQLNQAFQEA<br>QEILKREQSSHLYALTTVEQREENLRKALGLEKQCVEELEKALRDIQEEN<br>SKVRLTSEAKLAEANALVASVNGRSSDVENKIYSAESKLAEATRKSSELE<br>MRLKEVETRESVMQQERLSFAKERESYEGIFHKQREYLHEWEKKLQEK<br>EESMPEQKRSLNQKEEKVNEKEKKLTLKEKELEESNRKVDLAMSKCKET<br>EEDITKRLEELTTKENEAHTLQSRLVEKEKELQAFEERLIAREETEIQKLID<br>DQKEALAAKMLEFELECEERRKSLDKELLRKIEELERQRVELDHNEEKLQ<br>KRNQAINKKFDRVNEKEMELEAKSKTIKEKEKILQAEEKKVSLEKQQLLS<br>DRESLEDLQQELEKIRSEMMKKEELIQEEFKSLEIKKEERDEFMRLQSEL<br>KSQIEKSRLHEEFLSKEVDNLKQEKERFEKEWEILDEKQAEYNKERLQM<br>SEEKAKFERFQLLEGERLEKEESALRVQIMQELDDIRLQRESFEASMEHE<br>RSALHEKAKLEQSKVIEDLEMTRRNLEIELQRRKEQDEKDLQTRVALFE<br>DKKKIELSDINHQKQALNREMEEMLSKRSALQKESEEIAKHKEKLKEQQ<br>LEMHNDIGELSTLSINLKKRREVFARERARFLAFVQKLKDCGSCGQLAN<br>EFVLSDLQLPSNEEEAILPPTGVLSDIPGSSDESDSCNIKKSLDGDASGSG<br>GSRRPNTSILQKCTSIFFSPSKKTGHGINTDKSDQRPSSSVAVNMEKIGE<br>KPLPVDLRPCPSNSSIPEEDEEYTDSRVQETSEGSQLSELQSARRGRGRP<br>RKVKPALNPKSLVKHAGPEESSKDELSGRVSVTSKKTTGGGGRKRQHIE<br>DTATGGHRKRQQTVAVLPQTPGQRRYNLRRNKTDQVPADVEDNAA<br>GGEDDADISPSVPSKENVEETSESVMESLRARRLETSEVGVERVVMVE<br>TIANLVTADNNGGVSVANAEPIANITTSPSVEDDQKQNTVNEDDMNE |

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| | | | EHEDGDEEAEVQGDDDDDDDDDGDDGDDDESPRPGEGSISKKLWTF LTT |
| Cma1 | Callitris_macleayana | onekp:RMMV_scaffold_2060306 | MMTPNRRGRWSGWSPTSRSSPAVDDKAVAVVEKSSGGKNRVEAPP RNSLDENGRFTSAAVAPAEPEVWRRFKDSGSLDQESLEKKDRAALIVHI NKLETELYDYQYNMGLLLIERKEWTSKYEQVKHSLVEAEESLKREQSAH LIAITESEKREESLKKSLGVEKQCVHDLEKALHEMRSEVAELKFMSESKL AQAREMVASTEEKTLEAESRLHAAEALQAEASRKYAETERKLQEIESIEN ALRRDRQSLKSERDAHEVELSRERRNLIDWEKRLQDGQDRLLEGQRLL NQREEYTNQRDEALKQIEKELEDAKKQIENDLSSLKEKEADISVRLSALS TREENAVKREILIDKKEQELLVLQEKLASKENEEIQNLVAEHKATLEAKKI EFEAELEQKRISIEEELEKRRGALELFEADIKSKEEKISKREQQIDKKTDKL KEKEKEVDARLKTLKEREKHLKNEEKEIIIERKKLDGEREEINNEKQELQS LKVSLEEEEERKVLSEQEKLKITDKERNELKKLQAELKEEIENYRAQKQEIE KEAEELRLEKEKFEKEWEFLDEKREQAKKELALVEEEKKRLSKWLRDEEE RLKQEKSALKERIQNETEALLLEKEAFAASMQHERAEWLENIRREQADL IRDSELHRSDLENNIEKRQEEIEKFLREKEIGFQKEKERETHHISAQKELLS KEMEEMRLERKKLEKDREEISKSRQHAETQWIEIKKDIVELQLQRDKLK EQREYLCKEREEVSRLSEQLDKLRRELNISEYSENLIAANGGNHRTGDV HGFSHDVVPQKLFGTPASAFAKVDPEPSSGGTVPSASGTPIRVSWLQR CATRFFNKSPSPEKRIDGTGQKEESDRLPRVLPETTGAESERMTGEIVV GLEIQPIFSADDQNHDAGAETEVDVQAQGTTKSSPVVKFDHSVASGSK GNGSKLNDKSKVKVFKRTRSIKAVVEDARGIIDAASDQEKNESEIRQEH LQIESAIADNGQDMEGGAGGEQTNSAQEIDDSNRDSLATDKKSSKLG RKRRRGHSSRITSEQDADGSEIQSEGAGGGRRKRRQQGISSGGSSVLG TPGGRRYNLRHSTIASHVGNQAPSMDVKDRVVAQTEEEEPKNLEGISS VKDTKDGQEDSLDNTAMEPLANDSDNNVPEGEIRGSPRCPDGGLQD ADEDPQEVLSHEPTKSEIGDHYDETENSDGNKEDAPVDEREDEEIDEL DEDGDDEEEETSSSLKKKIWKFLTS |
| Cma2 | Callitris_macleayana | onekp:RMMV_scaffold_2059816 | AERLLQDVEAREDELRRQRQSFKSECEAHEKELSFERQNLREWEKNLQ EGQERLLDGQRLLNQREEYVIERNEATKQIEKELQDLTRNIEKEQLSLKE KEADLRRRLADLTTREEALVKQEVIINKKEKELLLLQEKIATREREEIQRLT VEHQAALEDRKALFEEEIKQKRKSVDDELAIKMNAAVIRELEIQTREEKI SKREQQVEKKADKLKEKDKELETKLRNLKGREKLCKIKEKEIDTQLKQLEI ERDELNISKQVLEKSKAALEEERQLIQKEQERLELTDKERDDLRIIQIKLKE EIDNFRQQEQELLKKDEVLTIEKEKFEREWEILDEKTEQLRKELEKIDSEK KRASKWLKDEEERLKQERKMLREKHKNEEEALRLEKESFANSKKQEEA ELLANFEKERADLYRDVELQKRELEKSIEQRQEELERNCQVRELVFQKEK QKEIQYINAQKELSDKESQEVKLERLRLDREKQEIVMTREHIDKEWSEM KKDIEEMEIRREKLKELRESLHREREDFVAQLDQLKKLKDELKMTEDSLK LSEQQPSQAIANDCEVISPRHFDGGISQAACRQSISGIPFNADGFRPEIH LTRSTASASDTHSPLAWLQKCTSRIFMKSSE |
| Cor | Coleochaete orbicularis | (Koreny and Field, 2016) NCBI GBSL01031242 | MFQHQRKTPGRPSTGIFRNGPISQSPLPGIPLQGEAPSAREVATPVGR RRLEGEGHEDEAGVWQRFYEVGALDEESIEQKLKEDLMNQLQSKENE LKRYQFEMGKVLLENTNLRDELVAAELAAKDRELRLEAEQNEHREMV AQMRTREQQLHKSVEAERRCTADLERAVREMQNESMEAKKKAEVQ MEESMALWKEAERKRQEAEAQVRSAQALHREAEQKMGEIRRREEDV AARELEVNREHAKRLAEFEAEKAEVDRRQREVASWDASLKECDGKLK EAQQRLRQLEKSLEERSASILSNEKALEHRDSVLRAREENAKYKEEEVKA WEIERRAWIEALEEKLAVQQLNTEKWAAEVGARERAVVEAGDRLAVA EADVTQRSGELVQAQAEMAREHERLTELSTRLLSDEAGLASQILKHDS DWEQRHSHLRTLESEIEKKLAEAERAKESAVAREESLTVALSDEQRRRA |

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| | | | EITAARSACEAAQAQLQEKEENLRKREEAVERKSENMDKKLEKVKEKE<br>RDLGERERALRAQKKAVELDRQSLEEAGRASMKDKADIEDLLEELEGK<br>RAEFALEVDGLQTQKHALEEDKAALERENAEKLAGLQGELEKLKEEGEE<br>LAKIRQNLEAEREELKAERTRFEDKWVVLDQREKELAEMEERLAGEVK<br>SERLQLQEERVGMEQAVRDAEARATEAERAAAARVEQVEAAAKME<br>MEKERVAERELMDRQRAAELLKLEESGEKYRKDLEVEFATKLEEARLQ<br>MLQETVAEADKRMDKAMEEKAVEIDALRTQLANVEVMLKEKVEALE<br>RAEAALEEGRHEVREMRAEMAKKVAEAEEEKRVAANAEGLAVVERKE<br>LEKEREALEEQRRKVMAEAHAEAAVIVATKVVEVQKNLESARMALLKE<br>VEDLKRQAKEDLDKEREVLACARASAQEMKVRENAVETEHAKVKAAL<br>EKLRFERSKLVALKEELQAHQAQQLAGAVATGEIDGMHLPNVDAEAV<br>YLHGGEPDAALLTPLAASQPMDAVGEKERAMDVAGKRAEGSVERFN<br>QMRSPPLFSPGGTINWLQQCTRGFFTPKKNGDEQSPAEPEAQADAV<br>DDNHNEEDQRMMVSCPVQGRSGSSGSLRRKTTIEVTVAEAALFLGSG<br>GTASTHDGLPQEQGHAEAETASGCKERQDVRPIPRTRTISETIEEGRRF<br>LGLDAAAADDEDDDDMRVSMEMVMGPSVGAPLETVEEVDEEGEGA<br>EQLGIELSAADLVAVRESGMPMEGERRGEDSDAITSAAKSALRVTKRT<br>RSMRDVVDEGRKFVGISTDATDADDTTQIPLSGRTRRSSKPTAAASMD<br>NALELEASGPVSSAAAEGPIGNRLRRSNRPADHIKGGIDTDSETPSMQ<br>PVGVGVSVNRRSRRSNRPTEHTKAGPDTDSEAPSILQPGEESAQGSRR<br>LRQRRHSMADYSKGNTDSESEGMRPRKSRRFSTIGPSETPAMSADTA<br>TAHGSRYNLRKSKRFVWMDGCVIAGRHRSSGHTDVESESEATSAHAE<br>ATSPPKALD |
| Cpa1 | Carica papaya | Phytozome 12 evm.model.supercontig_179.33 | MGLLLIEKKEWSPKYEELKQDLTAAKDALKREQAAHLIAISEVEKREEGL<br>RKALGVEKQCLLDLEKALRDMLSENAEIKFTADSKLAEANALVTSVEEK<br>SLEVEAKLHAADARLAEVSRKSSEIERKLQEVESLENALRRERLSFIAERE<br>AHETILSKQREDLREWERKLQEGEERLAKSQRIINQREERANENDRIIKL<br>KEKDLEETQKKIDAAKLDLKHKEDDISCRLKDLTSKEQECDAMRKNIEM<br>KEKELLAVEEKLNTREKVEIQKLLDEHNAVLDVKKREFELEVDQKRKSVD<br>EDMKTKVSEVEKKEAEIKHMEEKAAKREQALDKKLEKLQEKEKDLDLRL<br>KGLKERDKVLKTDEKNLENQKKQLLAGMEELQGLKNEIEKMRYDNEQ<br>QLLRIHEEKDRLRVTEEERSEYVRLQTELKEQIEKSRLQEELLLKEAEDLK<br>QQKENFEKEWEELDERRMQIDKELKSIGSLRNGKKRSRARSSRVTVSE<br>QDNHGSDGGSDSVTTGQRRRRRQKVIPDVQTRGETRYNLRRPKVGV<br>AVKKDSSRSKKEIEKVDDVRVAEDRIVYSKAAPSSSVGVASENGGSAYL<br>VKCGTTVDATPEKKVQNVAVSEEVNGTREGDAEYGDGNEYSQGDIAV<br>AVEVEDEGESEDDDNDQEDSEHPGEVSIGKKLWTFFTT |
| Cpa2 | Carica papaya | Phytozome 12 evm.model.supercontig_129.57 | MASPYSGRLAITPTSVKGLSITPGSRVLLTDDDIWKRLKEAGFDEESIKK<br>RDKAALIAYIAKLEAEDFEIGAYFLIALCDAKEKELMLERQSLSERQKILQ<br>QEHERLLDSQTSLNQREDYIFNRSQELTQLEKDLETARSGVEEERRVLK<br>EEKSNLELTRVSLSKREEVVIEREVLLHKKEQELLVSQEKLASKESDEMQ<br>KIIANQETILRKRKSELEAELEIKRKLVEDEIETKRRAWELREVDLSQGEDL<br>LNEKEHELELQSMALADKEKDVAERSNLLDEREKALTASEKEIEQKRAIL<br>QKEKEEINKMKVDVTKTLDSLEDKRKQVDHAKQKLETMKSETNELSVL<br>EVKLKEELDSVRAQKLELMAEADKLKVEKAKFEAEWELIDEKQEELRKI<br>AEHVAQERDSLSKFLRDERESLREEKDALRDQHNHALETLNHEHEEFM<br>RKMVHERSEWFSKIQQERADFLLGIEMQKRDLENCIEKRRDELESNFK<br>EREKTFELEKKSELQHISTLKERAEKELEQVSLEMKRLDAERMEIKLDRE<br>RRDREWAELNHSIEELKVQRQKLEKQRELLHADREVIHSEVEELMKME<br>DLKAALDNMAMVKMQQSNVENSQLKVSGDRYLKQHNIMQDADLES<br>HKEKDVANGCGGSDSSMQKPVGYSPMSSARFSWIKRCTELIFKHSPD |

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|---|---|---|---|
| | | | KSLMKDDFGESKRTVDVVPDGEAEIKAPIKGSTKLIAQQALVAGRKRRV<br>NNFSVGNSVNSQLVHMQSKYKKRKQLNEPLVKLSEEASTERVILTIPNE<br>PEDKHELLSTSQTQGDAGETSLFTDRIVKISSVVNENAGSGSLVNKEKV<br>QLQSTVSQLEKDVLHGDIKSHETSACAEPQEEVCLRNVGQPTEDIQLQ<br>E |
| Cpa3 | Carica papaya | Phytozome 12 evm.model.supercontig_1.235 | MGLLLIEKKEWASRYEELTQALDEVEEILKREQSANLIALSEVEKREEML<br>RKALSVEKQCVEELEKALRDMQEEHAQMKLTSENKLSDAKDLVVGIDE<br>KLLEAEEKMRVAEAQLAEVNRKSSEMDIKLQEVEARENVLQREHLSLIA<br>EREAHAATFYKQREDLHEWERKLQKQEEQLSQLRRNIKMREEKENEN<br>DKIHKQKERDVEELQRKIDFASSTLKEKEDDINYRLKDLDVKEKAANSM<br>RSALEMKEKELCVLEEKLTARERGEIQKLLDDQRALLDTKMQKFELEQE<br>EEKESLDEELRKRIEVVEQQEAEVNHKEEKLRKREQALDKKSERLKEKEK<br>DLEARLKTIKEKERFLKGEEKMFELKKQQLDTARESLQDLKEEIDKIGAES<br>TRQELQIREEYEQLKITEEERAEHLRLQSELKQQIEKWQHQEELLLKERE<br>DLKQDRESFEKEWEALDEKRAKVLKEQKSIAEGKEKFEKFQLSEEERLKK<br>EESSMNDYIKRELDNIRLQKESFEAEMKHERLVLSEEAQNEQSKMLQD<br>FETQRRNLETEMWRRQEENEKYLQEKTSEFEEKCKKENYNIDRLKEIAR<br>REIEEIKIDSRALQKEKQDILIDKEKLKEQQLEMRKDIKELGNLSSNLKKK<br>QEQFIRERSRFLVFVEKLNNCSDCGEITRNFIISNHIRDALPPDVRNVDR<br>SPDVVDLGDANSGGQHVSWLQKCTSKIFSISPTRKGERISVSHLAEHM<br>PLSVEASIERKVDEPGMTISNEDRDLGTGSFDVQPPTSENTIRDLDDAC<br>TQSFDDNSCMDSKRQEPPEDSQQSELKSGRGRRGKKPKLALNRTRTM<br>KAVVEEAELFLKDSSRGLEQNTTVQPNDIPQENEESMSVSGRVEKAAS<br>TVARKRQRAQGSKMTESEQDAVDSDGHSDSVTTVRRRKRRQTVASA<br>LQTPGEKRYNLRRHKTAGKVAAQTSADLTKTVEKEVGDAEAITNPEAV<br>SVDVGTESGKSTPLVPVGKLNVVDFSQDRIVRLKTAATENTKSAIARDN<br>ADMKTVENTEFSEETNDATDYVQEDKSGSRGQEEEDEFDDEFEHPGE<br>VSIGKRIWTFFTT |
| Cru1 | Capsella rubella | Phytozome 12 Carubv10019693m | MTTPLKVVWQRWSTPTKATNPDSNGSSHGKGLDMVTPVSGRVSEIQF<br>DDPRILPEKISELEKELFEYQHNMGLLLIEQKEWSSKYEELQHDFEEANE<br>CLKRERNAHLIAIADVEKREEGLRKALGIEKQCALDLEKALRELRSENAEI<br>KFTADSKLTEANALVRSVEEKSLEVEAKLRAVDARLAEVSRKSSEVERKA<br>KEVEARESSLQRERFSYIAEREADEATLSKQREDLREWERKLQEGEERV<br>SKSQMIVKQREDRANDNDKIIKQRGKELEEAQKKIDAANLAVKKLEDD<br>VSLRIKNLALMEQETDVLKKSIETKAQELQALQEKLEAREKMAVQQLID<br>EHKAKLDATQREFELEMEEKRKLVDDSLKSKVVEVEKREAEWKHMEEK<br>VVKREQALERKLEKHKEKEKDFDARLKGINGREKVLKSEEKALETEKRKL<br>LEDKEIILNLKTEVEKIKAENEVQLSEIQKEKERLRVTEEERSEYLRLQTEL<br>KEQIEKCRSQQELLLKEAEDLKSQRESFEKEWEELDERKAKIENELKNIT<br>DQKEKLERQNHLEEERLKKEKQAANENMQRELEALEVAKASFAETME<br>HERSMLSKKAESERSQLLHEIEMRNGKLESDMQAKLEERERELQAKEK<br>LFEEEREKDLSNINYLRDIASKEMADMKNERHRIVKEKLEVDASKNHLE<br>EQQTEIRKDVEDLVALTKKLKEQREQFISERSRFLSSMESNRNCNPCGE<br>LLHELVLPEIDNVEMPNMSKLANILDNEVPRQEIRDISPTAAGLGLPVA<br>GGTVSWLRKCTSKILKLSPIKMAEPSVTWNLADQEQPADQANVNSGP<br>SSTPQAVTNSFDVQKAESETGTKEVEVTNVNSDGDQSNINSKAQEVA<br>SDSLSNQNADGQSRMRGKAKARTRRTRSVKDVVEDAKAIYGESIDLCE<br>PNDSTENIEANDGSMGEPGRSDRATSKNGRKRGRVGSLRTCTTEQDG<br>NESDGKSDSVTGGAQQRKRRQKVASEQQGEVVGQRYNLRRPRRVTG<br>ETTLSKKHNETSGAQQDEGVYCAQTTVEASVGVAVSDNGVSTNVVQ<br>HEDTADSQDTDAGSPKRTGESEAMSEDVHKTPQRADSDGEDDESDA |

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| | | | EHPGKVSMGKKLWTFLTT |
| Cru2 | Capsella rubella | Phytozome 12 Carubv10025809m | MATSRSERFPITPSTAATNRLAITPNSRVLKSPLTEEVMWKRLKEAGFD EQSIKKRDKAALIAYIAKLESEVYDYQHNMGLLLLEKNELLSKYEEVKASV DEADLAHRREQSAYVSALAEAKKREESLKKDVGVAKECISSLEKTLHEM RAECAETKVSAGSKMSEAHIMIEDALKKYADAEAKMRAAEALQAEAN RYHRIADRKLKEVESREDDLTRRLASFKSESETKENEMIIERRNLNERRTS LQQEHEKLLDAQVSLNQREEHIFARSQELAELKKGLEAAKTTFEEERKA FENKKSNLEITLALIAKREEAVSGKESSLLKKEQELLVAEEKIASKESELIQ NVLANQEVILRKRKSDVEAELECKSKLVEDEMESKRRASELREVDIKQR EDLVGEKEHDLEVQLRELAEKEKDITEKSYNLDEKEKLLIATEEDNNHKA TLLENEKERLRKLDLDLQQSLMSLEDKRKRVDSATEKLEALKSETSDLST LEMRLKEELDDLRAQKLEMLAEADRLKVEKAKFEAEWEHIDVKREELR KEAEYITRQREAFSMYLKDERDNIKEERDALRNQHKNDVDSLNQEREE FMNKMVEEHSEWLNKIQRERADFLLGIDMQKRELEYCIENKREELENS SREREKAFEQEKKLEEERIQSLKETVEKEVEHLQVELRRLDAERLEIKLDR ERREREWAELKDSIEELKVQREKLEKQRHMLRAEREEIRHEIEELKKLEN LKVALDDMSMAKMQLSNLERSWEKVSALKQKVVSRDDELDLQNGVS TVSNSEDGYNSSMERQNGSTPSSAIPFSWIKRCTNLIFKTSPEKSPLMY QHEEEGGGGLPSEKSKLDSSKREEKAYTEGLSIAVERLEAGRKRRGNSS GNDTSEPSNNKKRKHDVTQKSSDEADTQSVISSPQNVPEDKHELPSSQ TQTPSGMVVISETVKVTTVTCETEVTNKVTTLDYSENPTEAGMGEEIPD SDCNESGINASDDGGIVT |
| Cru3I | Capsella rubella | Phytozome 12 Carubv10019698m | MFTPQRNRWPETDRKGKAIAFSDEIMTPSPPRGLLREDDDWRKFKEV GLLDEASLERKDRDALIEKILKLEKELFDYQHNMGLLLIEKKKWTSTNEEL QQAFDEVTEILKRERTSHLIALNEADKREENLRKSLNAEKQFVAELEKDL KYWQQEHSEVKSTSEAKLAEADALVMGMKEKTLEVDRERAIAEEKLSV INRKSSELERKLKEVETREKVHQREHLSLVTEREAHEAVFYKQREDLQD WEKKLTLEENRLSEAKRSLNHREERIMENERTIKKKEKLLEEMQQKTDI AKSELTEREESINTLLNDISKKEKDFEAVKAKVDIKEKELHEFEEKLIVREQ MEIGKLLDDQKTVLDSRRQEFEMELEQMRRSLDEELEGKKADIEQLQV EINQKEEKLAKREAALEKMEERLKVKDKDLEARLKTVKENEKSFKAEGK KLHLENQRLLEDKECLRKLKDEIEEIGAETTKQESRILEENESLRITKEERLE FLRLQSELKQQLDRVEQEEKLLLKEREELKQDKERFEKEWEVLDEKKADI AREQKEVFEEKEKLRRLQISEKDRLNREEMTSRDDLRRELDGVKMQKE SFEADMEIKKLALHENAKNKTNQLVEDLEKQKRNLDMELQRQEEEGE RDFNERARTYEKRSQEELENINYTKKQAQREIEEVQYEKLALEKERDEISI QKKLLKEQEVEMHKDITELDVLRSSLKEQRAEFISTRERFLVFLEKLKSCS SCGEIAENFVMSDLQLPDVKDGDKLFGKRKLKADEALNISPSAEISRKTS FIGKIASKLLSISPIGKTDKVTDLGITVKLPKSSQRDDNLDTVSGDDHEPS ATEQSFTDSRIQEGPEVSLQSEIQSEKPRRGRGRGKSVRGRSQATKAAS KDLKPSDVETPRKRQREHASRITESEHTAGDSDEGVDSVATGGRRKKR QIAVPVSQPPGQSRYHLRRHRNVGTEEDKAQASTGATEKQESVNGDI RTVASPKDTLTLPQGEIRESGKAEVLVEAVTYEEIVRVEAETGFKDNNT GKRAVEDAQLETGGISEIREHGEDDDENFSMIEEENEGEGEATERQGD ASIGKKIWVFFTT |
| Cru3II | Capsella rubella | Phytozome 12 Carubv10011605m | MTTPRSETHKIGGVTNPRTADKKGKAVAFSDDLVISTLPPPPIGTLTGE GVSRVLADDTDMGDWRRFREVGLLDEASMEKKDREALLEKVSTLEKE LYGYQHNMGLLLMENKEWASKHEQLNQAFQEAQEILKREQSSHLYAL TTVEQREENLRKALGLEKQCVEELEKALRDIQEENSKVRLTSEAKLAEAN ALVASVNGRSSDVENKIYSAESKLAEATRKSSELEMRLKEVETRESVMQ QERLSFAKERESYEGIFHKQREYLHEWEKKLQEKEESMPEQKRSLNQKE |

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| | | | EKVNEKEKKLTLKEKELEEWNRKVDLAMSKCKETEEDITKRLEELTTKEN<br>EAHTLQSRLVEKEKELQAFEERLIAREGTEIQKLIDDQKEALAAKMLEFE<br>LECEERRKSLDKELLRKIEELERQRVELDHNEEKLQKRNQAINKKFDRVN<br>EKEMELEAKSKTIKEKEKILQAEEKKVSLEKQQLLSDRESLEDLQQELEKI<br>RSEMMKKEELIQEEFKSLEIKKEERDEFMRLQSELKSQIEKSRLHEEFLSK<br>EVDNLKQEKERFEKEWEILDEKQAEYNKERLQMSEEKAKFERFQLLEG<br>ERLEKEESALRVQIMQELDDIRLQRESFEASMEHERSALHEKAKLEQSK<br>VIEDLEMTRRNLEIELQRRKEQDEKDLQTRVALFEDKKMIELSDINHQK<br>QALNREMEEMLSKRSALQKESEEIAKHKEKLKEQQLEMHNDIGELSTL<br>SINLKKRREVFARERARFLAFVQKLKDCGSCGQLANEFVLSDLQLPSNE<br>EEAILPPTGVLSDLPGSSDESDSCNIKKSLDGDASGSGGSRRPNTSILQK<br>CTSIFFSPSKKTGHGINTDKSDQRPSSSVAVNMEKIGEKPLPVDLRPCPS<br>NSSIPEEDEEYTDSRVQETSEGSQLSELQSARRGRGRGRPRKVKPALNP<br>KSLVKHAGPEESSKDELSGRVSVTSKKTTGGGGRKRQHIEDTATGGHR<br>KRQQTVAVLPQTPGQRRYNLRRNKTDQVPADVEDNAAGGEDDADIS<br>PSVPSKENVEETSESVMESLRARRLETSEVGVERVVMVETIANLVTADN<br>NGGVSVANAEPIANITTSPSVEDDQKQNTVNEDDMNEEHEDGDEEA<br>EVQGDGDGDDDDDDDDDGDDDGDDDESPRPGEGSISKKLWTFLTT |
| CRWN1 | Arabidopsis thaliana | AT1G67230.1 | MSTPLKVWQRWSTPTKATNPDSNGSSHGTGLDMVTPVSGRVSEIQF<br>DDPRILPEKISELEKELFEYQHSMGLLLIEKKEWSSQYEALQQAFEEVNE<br>CLKQERNAHLIAIADVEKREEGLRKALGIEKQCALDLEKALKELRAENAEI<br>KFTADSKLTEANALVRSVEEKSLEVEAKLRAVDAKLAEVSRKSSDVERKA<br>KEVEARESSLQRERFSYIAEREADEATLSKQREDLREWERKLQEGEERV<br>AKSQMIVKQREDRANESDKIIKQKGKELEEAQKKIDAANLAVKKLEDD<br>VSSRIKDLALREQETDVLKKSIETKARELQALQEKLEAREKMAVQQLVD<br>EHQAKLDSTQREFELEMEQKRKSIDDSLKSKVAEVEKREAEWKHMEEK<br>VAKREQALDRKLEKHKEKENDFDLRLKGISGREKALKSEEKALETEKKKL<br>LEDKEIILNLKALVEKVSGENQAQLSEINKEKDELRVTEEERSEYLRLQTE<br>LKEQIEKCRSQQELLQKEAEDLKAQRESFEKEWEELDERKAKIGNELKNI<br>TDQKEKLERHIHLEEERLKKEKQAANENMERELETLEVAKASFAETMEY<br>ERSMLSKKAESERSQLLHDIEMRKRKLESDMQTILEEKERELQAKKKLFE<br>EEREKELSNINYLRDVARREMMDMQNERQRIEKEKLEVDSSKNHLEE<br>QQTEIRKDVDDLVALTKKLKEQREQFISERSRFLSSMESNRNCSRCGELL<br>SELVLPEIDNLEMPNMSKLANILDNEAPRQEMRDISPTAAGLGLPVTG<br>GKVSWFRKCTSKMLKLSPIKMTEPSVTWNLADQEPQSTEQANVGGPS<br>TTVQAATTYSFDVQKAESETGTKEVEVTNVNSDGDQSDINSKAQEVA<br>ADSLSNLDVDGQSRMKGKGKARTRRTRSVKDVVDDAKALYGESINLY<br>EPNDSTENVDDSTKASTGETGRSDKAISKNGRKRGRVGSLRTCTTEQD<br>GNESDGKSDSVTGGAHQRKRRQKVASEQQGEVVGQRYNLRRPRRVT<br>GEPALSKKNEDIGGVQQEEGIHCTQATATASVGVAVSDNGVSTNVVQ<br>HEATADSEDTDAGSPKRTDESEAMSEDVNKTPLRADSDGEDDESDAE<br>HPGKVSIGKKLWTFLTT |
| CRWN2 | Arabidopsis thaliana | AT1G13220.2 | MTPRSETHKIGGVTNPRNADRKGKAVAFSDDLVIPTLPPPPIGTLTGQ<br>GVSRGHTDDMDMGDWRRFREVGLLNEASMEKKDQEALLEKISTLEK<br>ELYGYQHNMGLLLMENKELVSKHEQLNQAFQEAQEILKREQSSHLYAL<br>TTVEQREENLRKALGLEKQCVQELEKALREIQEENSKIRLSSEAKLVEAN<br>ALVASVNGRSSDVENKIYSAESKLAEATRKSSELKLRLKEVETRESVLQQ<br>ERLSFTKERESYEGTFQKQREYLNEWEKKLQGKEESITEQKRNLNQREE<br>KVNEIEKKLKLKEKELEEWNRKVDLSMSKSKETEEDITKRLEELTTKEKEA<br>HTLQITLLAKENELRAFEEKLIAREGTEIQKLIDDQKEVLGSKMLEFELEC<br>EEIRKSLDKELQRKIEELERQKVEIDHSEEKLEKRNQAMNKKFDRVNEKE |

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| | | | MDLEAKLKTIKEREKIIQAEEKRLSLEKQQLLSDKESLEDLQQEIEKIRAE<br>MTKKEEMIEEECKSLEIKKEEREEYLRLQSELKSQIEKSRVHEEFLSKEVE<br>NLKQEKERFEKEWEILDEKQAVYNKERIRISEEKEKFERFQLLEGERLKKE<br>ESALRVQIMQELDDIRLQRESFEANMEHERSALQEKVKLEQSKVIDDLE<br>MMRRNLEIELQERKEQDEKDLLDRMAQFEDKRMAELSDINHQKQAL<br>NREMEEMMSKRSALQKESEEIAKHKDKLKEQQVEMHNDISELSTLSIN<br>LKKRREVFGRERSRFLAFVQKLKDCGSCGQLVNDFVLSDLQLPSNDEV<br>AILPPIGVLNDLPGSSNASDSCNIKKSLDGDASGSGGSRRPSMSILQKCT<br>SIIFSPSKRVEHGIDTGKPEQRLSSSVAVGMETKGEKPLPVDLRLRPSSSS<br>IPEEDEEYTDSRVQETSEGSQLSEFQSSRRGRGRPRKAKPALNPTSSVK<br>HASLEESSKDELSGHVSVTSKKTTGGGGRKRQHIDDTATGGKRRRQQT<br>VAVLPQTPGQRHYNLRRKKTVDQVPADVEDNAAAGEDDADIAASAP<br>SKDTVEETVVETLRARRIETNADVVSAENNGDVPVANVEPTVNEDTNE<br>DGDEEEDEAQDDDNEENQDDDDDDDGDDDGSPRPGEGSIRKKLWT<br>FLTT |
| CRWN3 | Arabidopsis thaliana | AT1G68790.1 | MFTPQRNRWPETDRKGKAIAFSDEIITPPPQRVLLREDDDWQKFKEV<br>GLLDEASLERKDRDALIEKILKLEKELFDYQHNMGLLLIEKKQWTSTNNE<br>LQQAYDEAMEMLKREKTSNAITLNEADKREENLRKALIDEKQFVAELE<br>NDLKYWQREHSVVKSTSEAKLEEANALVIGMKEKALEVDRERAIAEEKF<br>SVMNRKSSELERKLKEVETREKVHQREHLSLVTEREAHEAVFYKQREDL<br>QEWEKKLTLEEDRLSEVKRSINHREERVMENERTIEKKEKILENLQQKIS<br>VAKSELTEKEESIKIKLNDISLKEKDFEAMKAKVDIKEKELHEFEENLIERE<br>QMEIGKLLDDQKAVLDSRRREFEMELEQMRRSLDEELEGKKAEIEQLQ<br>VEISHKEEKLAKREAALEKKEEGVKKKEKDLDARLKTVKEKEKALKAEEK<br>KLHMENERLLEDKECLRKLKDEIEEIGTETTKQESRIREEHESLRITKEERV<br>EFLRLQSELKQQIDKVKQEEELLLKEREELKQDKERFEKEWEALDKKRA<br>NITREQNEVAEENEKLRNLQISEKHRLKREEMTSRDNLKRELDGVKMQ<br>KESFEADMEDLEMQKRNLDMEFQRQEEAGERDFNERARTYEKRSQE<br>ELDNINYTKKLAQREMEEMQYEKLALERE REQISVRKKLLKEQEAEMH<br>KDITELDVLRSSLKEKRKEFICERERFLVFLEKLKSCSSCGEITENFVLSDLR<br>LPDVEDGDKRFGKQKLKAEEALNISPSAENSKRTSLLGKIASKLLSISPIGK<br>TDKVTDLGITVKLPESSQPDDSLDRVSGEDHEPSATEQSFTDSRIQEGP<br>EGSLQSEMKSDKPRRGRGRGRGRGKSVRGRSQATKAVSRDSKPSDGE<br>TPRKRQREQTSRITESEQAAGDSDEGVDSITTGGRRKKRQIAVPVSQTP<br>GQTRYQLRRHRNVGTEEDKAQASKGATEKQERVNDDIRKVPSPKETR<br>TPPEGENRENGKAEVLVETVTHEEIVTVETETVFKVNNTGKNPVEDPQ<br>LEVGGSGEIREHGEEDDENISMIEEENEGEEEEETERQGNDASIGKKIW<br>VFFTT |
| CRWN4 | Arabidopsis thaliana | AT5G65770.2 | MATSSRSERFPITPSTAATNRLTITPNSRVLKSPLTEEIMWKRLKDAGFD<br>EQSIKNRDKAALIAYIAKLESEVYDYQHNMGLLLLEKNELSSQYEEIKASV<br>DESDLTHMREKSAYVSALAEAKKREESLKKDVGIAKECISSLEKTLHEMR<br>AECAETKVSAGSTMSEAHVMIEDALKKLADAEAKMRAAEALQAEANR<br>YHRIAERKLKEVESREDDLTRRLASFKSECETKENEMVIERQTLNERRKS<br>LQQEHERLLDAQVSLNQREDHIFARSQELAELEKGLDTAKTTFEEERKA<br>FEDKKSNLEIALALCAKREEVCFYSHNSLLFLVLHYRSSKKFLGDKIAVSE<br>RESSLLKKEQELLVAEEKIASKESELIQNVLANQEVILRKRKSDVEAELEC<br>KSKSVEVEIESKRRAWELREVDIKQREDLVGEKEHDLEVQSRALAEKEK<br>DITEKSFNLDEKEKNLVATEEDINRKTTMLEDEKERLRKLDLELQQSLTSL<br>EDKRKRVDSATQKLEALKSETSELSTLEMKLKEELDDLRAQKLEMLAEA<br>DRLKVEKAKFEAEWEHIDVKREELRKEAEYITRQREAFSMYLKDERDNI<br>KEERDALRNQHKNDVESLNREREEFMNKMVEEHSEWLSKIQRERADF |

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| | | | LLGIEMQKRELEYCIENKREELENSSRDREKAFEQEKKLEEERIQSLKEM<br>AEKELEHVQVELKRLDAERLEIKLDRERREREWAELKDSVEELKVQREKL<br>ETQRHMLRAERDEIRHEIEELKKLENLKVALDDMSMAKMQLSNLERS<br>WEKVSALKQKVVSRDDELDLQNGVSTVSNSEDGYNSSMERQNGLTPS<br>SATPFSWIKRCTNLIFKTSPEKSTLMHHYEEEGGVPSEKLKLESSRREEK<br>AYTEGLSIAVERLEAGRKRRGNTSGDETSEPSNNKKRKHDVTQKYSDE<br>ADTQSVISSPQNVPEDKHELPSSQTQTPSGMVVISETVKITRVTCETEV<br>TNKVTTLDCSESPSEAGRKMGEETEDGDCNQVVFMNSLKKNCLQTLQ<br>QMNNTLWLFL |
| Csa1 | Cucumis sativus | Phytozome 12 Cucsa.238180.1 | MFTPQKVWSGWPLTPKTGAQKTGAGSASNPNSVTPNLSRKGDGIKG<br>KTVAFGETTTPLSGALVENGGEMFVGSAEAAALDQEGLAEKISRLENEL<br>FEYQYNMGLLLIEKKDWTLKYEELKQALAETKDTLKREQMAHMIAISD<br>AEKQEENLKKALGVEKECVLDLEKALREMRAENAEIKFTGDSKLAEANA<br>LVTSIEEKSLEVEARLRAADAKLAEVSRKNSEVERKLQDLEAREGALRRD<br>RLSFNAERESHEATLSKQRDDLREWERKLQDAEERLAKGQTILNQREE<br>RANESDRMVKQKEKDLEELQKKIDSSNLALKRKEEDIGSRLANIALKEQ<br>ESDSLKVSLEIKEKELLVLEEKLSAREKVEIQKLLDEHNAILDAKKIEFELEI<br>DQKRKSLDEELKSKVSEVEKKEAEIKHMEEKVGKREQALEKRTEKFKEK<br>EGDYDAKFKALKQREKSLKLEEKNLEAEKKQLLADTEELISLKAEVEKIRA<br>ENEAQLLKLHEERESLKVSETERSDFLRLQSELKQEIEKYRQQKELLLKEA<br>EDLKQQKETFEREWEELDEKRAQVEKEQKTLLLQKEEFEKRIFSEEERLK<br>SERLETEAYIHREQENLKLAQESFAASMEHEKSAIAEKAQSDRSQMMH<br>DFDLQKRELESAMQNRVEEMERGFREKDKLFKEEKERELENIKFLRDV<br>ARREMDELKLERLKTEKERQEAEANKEHLERQRIEIRKDIEELLELSNKLK<br>DQRERLVAERDRFISYVDKHVTCKNCGEIASEFVLSDLQYLDGFENADV<br>LNLPGLPDKYMEIQGLQVSVSPGGNLGGAGQKSPISAGTISWLRKCTS<br>KIFKFSPGKKIVSPAFEKQDDEAPVSDEHDDLAEPSKRMSVGEDEVELS<br>LAIASDSLDDRRIQSDVSGRDVEPSQNLSIDNQSNIVSKVPEVAVDSQP<br>SDVRENKKRPKRGKPKINRTRSVKAVVEDAKAIIGELQPTQQAEYPNG<br>NAEDSSQLNNESRDESSLAGKGTQRNLRKRTRANSSQIMGENDHDDS<br>EVRSGSVVEGQPRKRRQRAAPAVRAPEKRYNLRRKVVGASKEPSNISK<br>EHEEVGTVNRREEDVHYSRVRPTPSMGVASDNAGSAHLVRCGTVQD<br>NQDDGVAGTSKISIDMVSQSEEVNGSPENAGKYEDHGEYRSESCEEV<br>GNEDDDDDEEESAHPGEVSIGKKLWTFFTT |
| Csa2 | Cucumis sativus | Phytozome 12 Cucsa.103490.1 | MASPQSAGLTLSSGKGLSLTPGSRVLQTPLADEAIWRRLKEAGFDEESI<br>KRRDKAALIAYIAKLEAEMFDHQHHMGLLILERKELASDYEQMKSKAE<br>TAELMYRRDQAAHLSALTEAKKREDNLKKAIGIKEECVASLEKALHEMR<br>LESAEIKVAAESRLAEARIMMEDAQKKFVEAEAKLHAAESLQAESNRC<br>NRAAERKLHEVEAREDDLRRRMACFKSDCDKKGEEIVLERQSLSERQK<br>ALQQEHERLLDGQALLNQREEYILSKTQELSRSEKELEELRASIENERRA<br>VHDEKSKMQLYEASLSKREEAVNRMEIMMNRRQQELLVLEEKIATKET<br>NEIQKVVANHESTLRTKISDFDAELQIKQKAVEDEIESKRRAWELREMD<br>LKQRDEQILEKEYDLEVQSRSLVAKEKEVEELSKSLDEKEKNLKALEQELE<br>LSKVLLQKEKDECSKMKRDLQCSLDSLEDRRKQVDCAKDKLEAFRSETN<br>ELSLLEMKLKEELDSVRVQKLELMDEADKLMVEKAKFEAEWEMIDEKR<br>EELRTEAEILAAERLAVSKFIKDERDGLRLEREVMRKQFKNDREILSRERE<br>EFLNKMTCERSEWLNKMQQERKDLLMDVEAQKKELENCLEQRREELE<br>GQLREKLKNFEQEKKNELDKINFLKDKATKDLEEVALETKKLETERMEIN<br>LDRERRNREWAELNNSIEELKVQREKLEKQRELLHADREEILADIERLKK<br>FENLKVALDNMAVAEMNQSDLDVAQPISYPRRRPLVRDAEHQIDTQK<br>ITNGFDSPSVLKVDGDLPPTSTRFSWIKRCSELIFKQSPERERAPTRYPVK |

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| | | | NPINQADQSSSISGQLFQSPEFEMDRGNEKSQRTITERQDVKYAIGEPK<br>VIVEVPPANKNMNGVPVLESEIVDDVTLSDHRVLTGKKRRATNITHPD<br>SLGQLEFENNNKKQRQEEISGDPTEDDSSCPEEATQMNMPEDPKAFV<br>SSTDNQENAKEAEVVIVSTDINIIEVTTYKQKNSDMSSDHQETISEKC |
| Csa3 | Cucumis sativus | Phytozome 12 Cucsa.280830.1 | MFTPQRTGWPAASLTPRTEPKLALTNSIILGKGKDVTFTDDPPPPLGSL<br>NDELYKTATAVDTGDMDDWRKFKKAGLLDAAAMERKDREALLEKAS<br>RLQSELLDYQHNLGLLLIEKKDWASKFDELGQDLAETEEIFKREQSAHLI<br>ALSEVETRRDNLKKALAAEKQHVSSLKMAFYEVNEERAEIKLTSQKKLA<br>DANALMHGIEEKSLELQKKLNAAEAKLAEVNRKSSELEMRMHEVEAR<br>ESVLQTEQISLVTGKEAHEATSHKERESLRKWQQKLQEREEKLSKSRELL<br>NDKEQKVSENSTTMKQKEKDLEEMKKKIDLSSSVQKGKEDNVNRRLA<br>DVEAKEKEADFSRSLLEKKQEELRQMEENLHGREMMEIQQLLDEQRVI<br>LQKKKEQFELQLEEKRQSLDNEGSTVLGALKRKDLEINHEKEKLVKQEQ<br>ALDKKLLRAKEKEGDLEQKIKTLKSKDRILKADEKKLEVERLQMLADRES<br>LRSLINEIEEIRTENSQKEQQFHEERAKLQVMKEERSEHVRLECQLMQE<br>IESYRLQNKIVMKEHEDLKQERVKFERDWEALDEKRTEIHDELSDLVEE<br>RKKLEILQGAEEGRLRNEKNEMLIYMQRELENVKQEKELFASTTRQEQ<br>QALSEQAQTKHSQLLQDIEFQRKDLESHLQNSQMELEKERQERELAFE<br>EERERERNKLFCLRDIAQKETDDLLSERHQLEKEKEVVSLNRKQMIADH<br>LEIHQDIDKLNILSKELKIQREQLIRDRVCFLTFVDKHKSCGKCGVSIEEFV<br>VPDLQIPEEIRKSHPLPKLDANSLQTLQREFAASEFDSSDSGGRMSWLR<br>RCSRKILKLSPIKKIGHVVPSVPMKLAADCTDLEVKEPRVNVGDVKRSGI<br>ADEPQQSSFIESEPSGVQRFSFSDNIRLAENRHEHTLDDFNNLDSKFEE<br>ASEASKQPDMKKERPKHAKGLKSGHRTRSVKATVQDAKAFLGETGGQ<br>SDLNVPVQSDSNSLYKETSNIRKRPLPEDEQDDDSEGCSDSITTVRQRK<br>RQQKILPVQTQGESRYHLRRHKNPGKASAVQVSPNLTTVMEKENEETL<br>AVGGENGEKMDSVKITTVRTIYHSEDRVVRFESQRTAEDNAPTEKLVT<br>TVNDLCDEVNGSSEYEDEDQSILDDEDEYDEEQPDVGSIGKKIWTFFTT |
| Csi1 | Citrus sinensis | Phytozome 12 orange1.1g048767m | MFTPQRKALSGWSLTPRGEKNGTGSVSNPTTVDGLTGKGKSIVAFTEP<br>RTPQNGVGLADDVESLAEKVSKLENELFEYQYNMGLLLIEKKEWSSKYE<br>ELKQTFAEAKDALKREQAAHLIAITDVEKREENLRKALGVEKQCVLDLE<br>KALREMRSENAEIKFTADSKLAEANALVTSIEEKSLEVEVKLRSVDAKVA<br>EINRKSSEIERKSHELESRESALRMERASFIAEREAYEGTFSQQREDLRE<br>WERKLQDGEERLVKGQRIVNQREEKANEKEKIFKQKEKDLEEAQEKID<br>ATNLSLMRKEDDINKRLANLITKEKEYDAARKSLEMKEEELRQLEEKLN<br>AREKVEVEKLLDEHKASLDAKQREFDLEIDQKRKAFDDDLKSKVVEVEK<br>KEAEINHKEEKIAKREMALEKRLEKCKDKEKDVESKLKDLNGREKTMKS<br>EEKNLETEKKQLLADKEDILTEKAELEKIRDANEQQLLKIYEEKNQLRISE<br>EERAEYLRLQSELKEQIGKCRLQEEMLLKEAEDLKQQKENFEKEWEQL<br>DEKRAEVEKELKKISEQTEKLEKEKLSEEERIKRDKQLAEDHIKREWEALE<br>VAKESFKATMDHEQSMITEKAESERRQLLHDFELQKRKLESDMQNRQ<br>EELEKDLKEKERLFEEEKERELSNINYLRDIARKEMEEMKLERLKLEKEKQ<br>EVDSHRKHLEGEQVGIRKDIDMLVGLTKMLKEQREQIVKERDRFLNFV<br>EKQKKCEHCAEITSEFVLSDLVQEIVKSEVPPLPRVANDYVNEKKNSEM<br>SPDVLASGSPASAGTISWLRKCTSKIFKLSPSKKDENTVVRELTEETPSSG<br>GQTKLQESSRRLGQTNEPDLSFAIVNDSFDAQRFHSETSTREVEADQH<br>KQVDGQNNLNGKAPEVQENSQPSDLNHGRQPRKRGRPRVSRTRSVK<br>AVVQDAKAILGEGFELTESENLNGNADDSVQEAAESRGEPSLDDKGTS<br>RNARKRNRAQSSQITTSEHDVDDSEAQSGSVVVGQPRKRRQKVDPAE<br>QTPVPTRYNLRRPKT |
| Csi2 | Citrus sinensis | Phytozome | MASPSSGRLAITPSSRVLQSPLSDESIWKRLKEAGLDEVSIKRRDKAALI |

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| | | 12 orange1.1g002268m | AYIAKLETEIFEHQHHMGLLILEKKELASKYEQIKASAEAAELLQKHDRAS HLSAIAEARKREESLKKTLGVEKECIASLEKAVHEIRAESAETKVAADSKF AEARCMVENAQKKFAEAEAKLHAAESLQAEANRYHRSAERKLQEVVA REDDLSRRIASFKADCEEKEREIIRERQSLSDRKKILQQEHERLLDAQTLL NEREDHILSKLQELSRKEKELEASRANVEEKFKALNEEKSNLDLTLVSLLK REEAVIEREASLQKKEQKLLVSQETLASKESNEIQKIIANHESALRVKQSE FEAELAIKYKLAEDEIEKKRRAWELRDLDLGQREESLLEREHDLEVQSRA LVDKEKDLVERSHLLEEKENKLIAFEKEADLKKSLLQKEKEEVNIIKSDLQ KSLSSLDEKKKQVNCAKDKLEAMKSEAGELSVLEIKLKEELDVVRAQKLE LMVETDKLQLEKAKFEAEWEMIDEKREELRKEAERVAVERVVVSKSLK DERDSLRQERDAMRDQHKRDVDSLNREREEFMNKMVHEHSEWFTKI QQERADFLLGIEMQKRDLENCIEKRREELESSFREREKAFEEEKMREFQ QISSLKEKAEKELEQVTLEIKRLDLERMEINMDRQRRDREWAELNNSIE ELMVQRQKLEEQRQLLHADREEIQAESERLKKLEDLKIAVDYMAVSEM QRSRLEHSQKKISAKRHLNQQTSLAHADLGSDQKFDVTNNGDRFNTP SVQKTASASPPSLARFSWIKRFADLVFKHSGENSVENDEEKSPTSDHED ASLTINSRKRQPVRYSFGEPKVILEVPSENEVVKRTVDLESENNQNAAQ KCKQSVSEDGIHAARKRRVDVDCVDPSELLMQNNKRRKQQEDFPRNS SEEAINHGC |
| Csi3 | Citrus sinensis | Phytozome 12 orange1.1g000847m | MFTPQRRPIPATKLTPRGTEAQSSGAISNARNIKGKAVAFAETQSVPPP PPVNSLLDYNSGSATVFPAESEDDWRRFREAGLLDEATMERKDREAL MEKVSKLEKELYDYQYNMGLLLIEKKEWTSKIEELRQSFEETQEILKREQ SAHLIAFSEAEKREDNLRRALSMEKQCVADLEKALRDMGEERAQTKLF SEKTLTDANTLLGGIEGKSLEVEEKFHAAEAKLAEVNRKSSELEMKLQEL ESRESVIKRERLSLVTEREAHEAAFYKQREDLREWEKKLQIGDERLSELR RTLNQREVKANENERILKQKERDLEELEKKIDLSSSKLKEREDEINSRLAE LVVKERVGFLAYLIYLLYFICAYSLPSFSYNVLLNFFFQEADCLRSTVEMK EKRLLTIEEKLNARERVEIQKLLDDQRAILDAKQQEFELELEEKRKSIEEE MRSKISALDQQEFEISHREEKLERREQALDKKSDRVKEKENDLAARLKS VKEREKFVKAEEKKLELEKQKLIADKESLQILKVEIDQIESENAQQELQIQ EECQKLKINEEEKSELLRLQSQLKQQIETYRHQQELLLKEHEDLQQDREK FEKEWEVLDEKRDEINKEQEKIADEKKKLEKLQHSAEERLKKEECAMRD YVQREIEAIRLDKEAFEATMRHEQLVLSEKAKNDRRKMLEEFEMQRM NQEAELLNRRDKMEKELQERTRTFEEKRERVLNDIAHLKEVAEGEIQEI KSERDQLEKEKHEVKVNREKLQEQQLGMRKDIDELDILCRRLYGDREQ FKREKERFLEFVEKHTSCKNCGEMMRAFVISNLQLPDDEARNDIPLPQ VAERCLGNRQGDVAAPYDSNISNSHGGMNLGRADSGGHMSWLRKC TSKIFSISPIKKSEHISTSMLEEEEPQSAVPTIMQEKAEGPGVLVSKEAIGY SIPEDEPQSSFRLVNDSTNREMDDEYAPSVDGHSYMDSKVEDVAEDS QQSELRSGKRRPGRKRKSGVNRTRSVKAAVEDAKLFLGESPEGAGLNA SFQAHEDSQGISSHTQEASNMAKKRRRPQTSKTTQSEKDGADSEGYS DSVTAGGGRRKRHQTVATVSQTPGERRYNLRRHKTSSAVLALEASADL SKANKTVAEVTNPVEVVSNPKSASTFPPAVLNENGKSTHLVQVTSVKS MELSRDRAVRFKSTTNIVDENADAPKSIENTVLSEEVNGTSEYVDEDEN GGRVLEDEEDDDDDSDHPGEASIGKKLWNFFTS |
| DcNMCP1 | Daucus carota | NCBI BAA20407 | MGRVEDMGLNAKLMKLETELFDYQYNMGLLLIEKKEWTSKFEELQQV YTETKDALKQEQEAHLIAISDAEKREENLTKALGVEKQCVLDLEKALRD MRSDYAEIKFTSDSKLAEASALITKVEEKSLEVESKLHSADAKLAELSRKG SDIERKSHELEARESALRRERLALNAEREALTDNISRQREDLREWERKLQ EDEERLAEVRRLLNQREERANENDRLYQQKQSELDGEQKKIEIIMVSLK NKEDDISSRIAKLNIKEKEADAVKHSLEVKEKDLTEFEQKLNAREQSEIQ |

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| | | | KLLDEHKAILEVKKQSFEMEMDKRKNDFENDLQNRAVEVEKKEVEVK<br>HLEAKLAKREHALDQKHEKLKEKEQYLASKLQDLNEREKSMKLEENKIE<br>DERNQLLSDKQEMLCLKAEIEKDRASTEEQRLKLSEEIERLKITEEERLEL<br>ARLQSELKQEIENCRHQRELLLKEEDELKQEKMRFEKEWEDLDERRTAL<br>MKDLKDITVQKENFEKLKHSEEDRLNNKKLDTESYVQKELDALRLTKDS<br>FAATMEHEKAVLAERTSSEKKQMLNDFELWKRELETKLFNEREDMEN<br>ALRLREKQFDEEREKELNNINYIKEVISKEREDIKLERSRIAKEKQEILMH<br>QKHLDEQHVVMQKDIGQLVSLSEKLKDQREQFFKERECFIRFVESQKS<br>CKNCGEMTSEFVVSDLQSLAELENLKALSVPQLAENYLRQDLQGTPDK<br>NLSTVTPGAVGLGSPASGGTKSWLQKCTSKIFIFSASKKNNSPDQNTSR<br>RLHVEASPNKLLNTEVIPELPSGVAGETLEMQNMQVSNSNREMESNL<br>NLSGTEQSNIDSKALDVEDSQQSDVRAGNRKPGKRAKGRVRRKRSAK<br>EVAEEAKTVLADPIELNENEHSNGLASAYTNESRGDSSLVGKRTRNSRK<br>RNPSQPSQSAAGDVGADSEGHSDSVTAGGRQKRRRKVVPAVQAPTG<br>RYNLRRHKTAAPLVANGALSDPNKGKEKEIDDGGGIGEEIPDEVDGNT<br>HLVQVTTLKKRINVVNEFSSAGFHGINATSESQDRDAANQLVSDTMLS<br>EEVNGTPEQSRGYQNQGDTSGAEGEDEDGDEVEHPGEVSMRKKVW<br>KFLTT |
| DcNMCP2 | Daucus carota | NCBI<br>BAI67718 | MASPRLTVIQSEKTTVTSSRVSRSSMSDDDIWKRLQEAGFDEDSIKRRD<br>KASLIAYITKLEAEIYDHQYQMGLLIMERKEWGSKFERVEAALNSAELM<br>RKHDKNLYLKDLAEAKKREENLKKAIEIERECLANIEKTLHELRAEYAETK<br>VMADSKLVEARSMIEDALKKLSEADAKKHAAESLEAEASRYHSAAERKL<br>HEVEAREDDLRRRATSFKTECDTKEEEILHERRLLNERQKALQQSQQRL<br>VDGQDLLNKRESHIFERTQELNRKEKELEASKLKQEEELQALVEQQANL<br>ETKASSLSLREEVITKSELEVKKREEELCVLQEKLEKKESERIQQLLANYEA<br>SLSMKKSEFEAELEVKRKSVHDDIENKRRDWELREVDLHHREELILEKE<br>HELEMQSRAVVDKERDLAGRFSLLEEKENRLHAVEKEIESKEALLQKEK<br>EEIISSKLDIQRSLDALEDEKKQLHHAEEKMEAMKSETNELCVLESKLKE<br>EIETIRAQKQELETEADEMKELKLKFEIEWQSIDEKRKELQKEAECINEQ<br>RESLELTLKDERNSLKLEKDAMRDEYMRNNESLSRDREDFMKKMEHE<br>RSEWFSKIQKERSDYLLAIEVQSKDLEDRLAKRREEIESYLAERERAFEEE<br>KKKELMRMDTLRETLARETEQVNAELNRLDTERREINLDRERRDREWA<br>ELNTLIEELKVQRQKLEKQRELMRADKEEILVQIEHLKQLEDLKVVPDRI<br>ALTDIQQSDLQPSKRVSARRSLKRQSGLDSGCRAEDNGNASSGNGSVI<br>LSPPLSSPFSWLKRCASSLLEQKVSNKKMRHSEEIITPSTIPARLNAPDDE<br>HAVISANQQTPVHAKETTVYIDKIITIREVTSFNDAIVDGNNQNLEEALS<br>QRAEEKLEDDNNIESEKLEKNGEVDPKIMQASLTEQ |
| DcNMCP3<br>I | Daucus carota | NCBI<br>BAN14787 | MFTPQKSNTNRSNLIPTTTMSHTNPRSTNKAKSVVFVNDPAPPRALLG<br>GDYVAVERGEEEDWRRFREAGLLDEAAMERRDRDAVVEKVAKLEREL<br>FDYQYNMGLLLMEKTEWTLKYEEMRRAQVELKEVLEQEQTTHLILLSE<br>SEKREENLRKALDMEKKCITDLEKALRDSGADNAQTKQSSEAKMVKA<br>NALLSGFKEKSMDVETKLHVADAKLEEVYKTSLELERKLQEVETRDSLL<br>QRERMSFIAEREAHEATFSIQKKDLQEWEKKLQEAEERLCEIRRTTSGR<br>EVKVNEMEMALNLKKQELNKAQKENDLSTSVLKKEADDINHRLANLT<br>AQEHKAETLRNELEMRDKELLALAEKLTARESVEIQTLLDEQQAVLDAK<br>MQEFEVDMDGKRKSLDEEMRSKLDAVQYKKDEITHIEEKLNRLELSLE<br>NKSERIKEKEKDLESKLRTLKDKESLLKSDEKRLDLEKKHMLADKDTLQT<br>LKDEIEKTRADISQQQSKIQEEIVKLKISEDERAEYIRLRSELKEEIEKCRFE<br>KELLLKAHKNLKEDRKSFEEKWEALDERSNALSREIKLIGEEKEKFEKFRL<br>SMEEKIKNDRLATEDYIRRELETLETEKETFATITRQEQSLISEKAELEYSQ<br>MLHEFELRRKDLEVDIQKKRDELESHMSERERFEEEREKEHNNISRLK |

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| | | | EVAQKDMEELRSEKRRIEKDRQEIALKKKELKEHQLEMHKDIDELEVLN<br>KKVKIQREQFIKERDRFLLFVDTLKSCNYCGGCTREYELSDLQLLEKEIDN<br>SPIVELGPGVSYESQDRINLRSSNSGGHISWLQKCTSKIFKYSPGKAAQD<br>SEFQSDMLATVEEDERPSDGHLETRGLNIANDGPEPSFGIANESCEIHL<br>LASNDNKRDADQRHEICTDELSNIDSKAPVAPEDSQQSELSSGRRRPG<br>KKTRSGSVAVGTTKRKRQAQPSGVMKSAVTADHSEEHSESVSEVGRR<br>KRQQSVTSSVQTPGEKRYNLRRNKIVGTSGSALASVDVLKVESEVDVN<br>KTETVQDYALASSQVIASEKDNPTGPLEDMTCRSLEIYDLSTEGDVELKT<br>SKSRDKSIDPAIMGNIEFNEEVNSTIPECSIENGRGSTLHEDRDNEVEVE<br>VLNEDEDLDIDSEGDVSIHKKLWTFLTT |
| DcNMCP3<br>II | Daucus carota | NCBI<br>APO14219 | MFTPQRKNWGNFTTTPRGPSPKSSDKGKSVAFLDGPPRSILTESHTVA<br>VSRSDIGDVEDWRRFTEAGLLDEASMEKKDHQALLEKIAKIERELYDYQ<br>YNMGLLLIEKKEWTLNSENLREALAETQELLKREQTAHLISLSQVEKREE<br>NLRKALETEKKCVGDLEKALKEVRAEHAQMKQSFEAKLVNTDFLKSGL<br>EEKSLDVEKKLHVADAKFAEVTKKSLELDRKLQEVETRDSLLQRERLSFIA<br>EREAHEATYNKHKKDLHEWERKLQEGEERLCEGRRICNQREEKVNEIE<br>RDFRLKETKLKKAQEEIDSSKSALEKAEDDIEHRRAKLTAEEHKAKALRS<br>DLETKEKELETKEKELLALAEKLSVRERVEIQKFLDEQAVLDARRQEFEAE<br>MDGKRKSLDEEMRCKMGALCDKEVAINRQGEEDLGKLEQSLQNNSE<br>RFKEKEEDLEAKIKELKEKEEVLKSDERRLDMEKKKISVDENILQTLKHEF<br>ERTKTDVSQKLKISEEERAEYLRLQSQLKQEIEKYQHERDLLLRERESLKE<br>DRKHFEEEWEALDERNTALNRELREFGEEKEKFEKMRLFDEDRLKNER<br>LAMEKHFKVKLEALETEKESFATVMRHEQALLSEKSKAEHSQMLLDFEL<br>RKKNLEDDMQRRKDELETHVHDRERAFNEEKEKEYSKIKSLKEAVQKD<br>MEELRSERSRIEKVEQEIALNKKQLEEHQLEMNKDIVELDLLNKKVKLQ<br>REQLIKERDRLLAFVDRLKSCNHCGEFTREYELSDLQQQLETEYKLSPLS<br>RSGHGRVYKVQDGTDLTSSNSGGHISWIKRCTSNIFKYSPNETAQYSKS<br>QSDMLANVDEKDEGPSACDLASRGLRKAEDGPEPSLGLANESSDVHL<br>VTLKTDREVAEGHDICTDEFSNINSTTAEAPEDSQQSELKSGRRRSSRKP<br>KVGIHRTHSVKAVVGDAAVILGRTSAGKLGDNVPHESADVNEESRGDS<br>SYGEKALGTTQRKRQRAQTSRVTVSEVAGDYSEECSESVSEEVGRRKR<br>RQTVVSSVQTPGERRYNLRRNKTVGTAASAQASVNTENMQSKVNVD<br>KVEAVQNPKDAPTRSLKIAPEKSNPTTFIQVTANKSVQFQDLLAENDAK<br>LKTFETPEKSIEQLVIAENIGFSEEVIAMTPEGRVGAERGSTLHEDGDNG<br>LEDPDNAEDVDDEPENPGEVSIHKKIWTFFTT |
| Dct1I | Dendrobium<br>catenatum | KEGG<br>110102645 | MFTPQRKGWAGLGLQENGSVVRANPRSSLGGVLGRGKGVVGAEETP<br>VPPPKGLLGDKDGERADIGVGGSGSEDWKRFRESGLLDEKVQLRRDKE<br>VLTGRVSALEIERDECLYNMGLLLIEKNEWSSQIEELRQALAEAQEILKR<br>EEAAHIIAVSELEKREDNLKKALGIEKQCVVDLEKALREMRAEVSETKFIS<br>ENKLANAHALEASLEEKQLQIESKLHAADARLAEANRKNSELDRKLEDL<br>EARERKAQRELSSLHTERKAFENDLSKQRDHLLEWEKELQEKQRRLLDE<br>QRLLNEREERANDLDLILKKKEVEVEEARKKIDVTSSTLKSQEDDYKVRL<br>RALTMREKGVEIKSSNLEKKEKDLMEVEEKLNAREREEIQKLLDEHNAIL<br>DAKKQEFELEMAKKRRSFNEEVKNHMDMLGKDKNIVRCKEEQLLKRE<br>NALEIEADELKNKEKDIDSKSKALKEWEDSLKTDEKLLQEQRKQVLKDF<br>NEIEASRAKLHNEKIAIEAEVQKVIFEKENLKLTQEEKEHHLKLQKELKLE<br>KDEYQMMMESLEKQKEALRQEREMFERDWEVLDEKRVALEADLKQL<br>CAEREKLEKWRHTEEERLKHEVLEARASMHRELEDLRLKKETFEKIIAQE<br>RAGARADIDSERADLSREFELFKHGLEMTGQRKQDDAEKKFQEKKNEF<br>EMWREVELSRIKSSIESNDLEFRRLEMQQKQLLRDKEQFSDQRRKIEAD<br>RQEIQKDIDTLLRLSKNLKDQREEFAKERENFLSAAEQCKTCHNCGVPI |

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| | | | NNVDQLVLQPLGATVDSEEVLLPSLTDGFLEEHAKGGSPDLSHGGPVA<br>GSANSGSQMKRWFQRCASLFKISPRNNVHSPTEDHNETSFGERLDKV<br>AFEDADYEPAPSASFENQMAHVDSGDVVTGELVRVDNAEDDAEASL<br>DGANSSMDIVKIDSDDGSQKTAAVTDGMNNEVEGSSMHAEKDLKPE<br>PSKQGQRHQPNRRAKSAIRRTRSVKAVVEDAKAILGEVYETMVDEKQ<br>NDNAKDSQNIPNENPEASVKADRAVTGKRKKRRLREVEPEDSEPLSES<br>VSIGGRPKRQQTSSRPTTPGEKRYNLRRSTVASSAATSHGTSHQTGAT<br>NVGKLELLHESNIVEGGQPVSNKGEGGQQESNIEQASNRTECGQPVS<br>YKVEGSRPVSNEVEGSQQENNIFEDGQPENNITEGGLGSERNSFHDP<br>QPSRWFENSEYVLPKDAVDSAMEVQSEKIVQVTKYKTQEVHDDSIIVK<br>SVKFIEQIQDRKEVDGDNGITVKSTEFIEQIAEDGDEVDGDIDILNNSAE<br>FSEQVAEDGDEVDGDAATATPSDWSSEDEDEYSKKHNASIGKKLWTF<br>FTT |
| Dct1II | Dendrobium catenatum | KEGG 110108144 | MGLLLIEKKEWSSQIEELKQAFIESQETLKRKRDAHIISVSELEKRKENLK<br>KTLGVEKQCVLDLEKALHEMRAENAETKFISGKRLADAHAIEASVEEKK<br>MEIEAKMHSADARLAEANRKNSEIDRKSENLAAREYKLQRELSSLNIGR<br>KTIETDVSKQREHLREWEKDMQEKQRMLLNEQRLLNEREERANDMD<br>IILKKKEAEIEDARKNIDAASSILRSQEDGLKARLRTLIVKEQDTEIKSSTLE<br>KKEEDLMAIEERLSVRESEEIQKLLDEQNATLDAKIQDFELEMVKKRQSF<br>DKEVKNHVDLLDKEKRQVKCKEEQIVKRDETLDKKTDKLKSKEEVLDTK<br>SRTLKKWEDSLKTDEKKLQEEREQLIKDANELEASRAKLHNEKAAIEAE<br>GQKVVLEKENLRLTQLERERHLKMQAELKLEKEEYRMMMESLEKEKD<br>VLGQEKEMFERDWEVLDVRRVALEAEIKQLSAEREKFEKWQHTEEERL<br>KNEGLLAITDSQRELEDLRLKKEAFESMMAQERADVHAEVDRERADM<br>SREFELLKHKLEMNMQRIQDDVEKELKEKENMFERWREVELSRIKSST<br>ESNDFRGKRLEMELNQLQREKAAFSDQRGKLEADRQEIQNDIDTLLRL<br>SKNLKDQREEFAKEKEMFLSAVEQCKTCHNCGVPIYNIDLLDLQPLKST<br>EGSEEIILPSLADGFLEEHMKGRSTVISPRVLAVGSSNSGSHMTRWLQR<br>CASLFKISPKMNVHLPSDDQIGTSFGERLNRAALEDADYEPAPSGNHSF<br>GNQVHFDCGDRMSGEPDRVHKTGDEVESSFGVADSSNDIVRIDTDKA<br>KATRKTVVVIDDENDEMQGSSIHVENDSQTDLTKQVQRHKPNRRAKP<br>NLIRRTRSVKAVVEDAKAIIGESSELKIDEQQNDDAKGSQNIPDESQGA<br>SVQADQAQTGTRQKRPSRELEPEGSEAHSESFSVGGCRKRRQTSSLLP<br>APGNKRYNFRRSTVASTAAASQAKSHQKEAANAGSFKALPENNIRDG<br>GHGGERISCHDTVPSGALESSAHLLQKSAFPTVLEVNSNERVQHESHN<br>LLHDGGIVEYALFSEQTAENREEEVDGGAASAHTENTASYGGSESDDE<br>DSEKQNTSIGKKLWHFLTT |
| Dct2 | Dendrobium catenatum | KEGG 110098035 | MATPPPATLPESFGVTRLAGARASPSTAKGGSSLREEAIWKRLREAGF<br>DEETVKRRDKAALITYVTRLEAEIYDYQCNMGLILLEKKDLESKYNEIKAS<br>AESAEIIYKRDKAANLSALGEARKREENLKQTLGIEKECLANIEKTLHETL<br>VESAETKVACERKLVEAQSMMETAQRMFDEAKSKTHEAEASQAEAR<br>RRQNTALRTLQDVEAREDELRRRIASFHAECEAKEKEVSLQRQSMNDS<br>QKILHQEQERLMEGQSLLNQREEHLHVRLKELSRAEKELAEAKLKFEND<br>SSTFGEEKANLELNVAALANREEALIKREALIDKKDRELLILQEKISNKEFD<br>EIQRLKAEYQYSFERKTFEFEAEMEQRRKSLEGEMEMNRNACSVFEAE<br>LKQREQQILKMENSVRTDLHAISEKQEDVMKKLNLLEEKEKSLLLTERTL<br>ESKMQDLQKEKKEIDEMREELHKEKISFEDVKMQILRAEEKLAITANER<br>NELLVIERKLKEEIDSFRAQMLELEVQAGKLKSEKEKFEIEWDLIDEKTEV<br>LRKEAERIAEERRAVDIHLRNELDSLNAEKESLREQLKRNAESLSIERDDF<br>MRKMEREHSDWFIKFHKEKEDFLNDVKIQRKELENSICRRREDVENYL<br>KEKEEAFEQEKSKELQSIVSQKEEIAKQLRHAASELKRLDMERMEIAHD |

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| | | | REQRQKEWSEINHFIEELNVQREKLQKQRELLHADREEIDKQIQHLLKL<br>EHSNIELESRTLYDSNADNPKVNIGNLSSRKGLYQKEAANNSHNPDCQ<br>KISLTDSLKNMSSMNASDNASPLSAPMTWFRKCAEVIFKLSPERVTDA<br>TFQGGVGSGSSTSLQHYHENIEDVQNLEFKSNEEEINHPMEDGVIAISE<br>EKHKSNISKNMLPLRRKRPGHAASNGYNSSKSYYSRKHPKKLRQNSVA<br>EMEAVLDCPDVNNGMLEDQTAEEALLEAAVLSEVIRLADANGSEMKE<br>DVECDQQSCEDIVEEEDEQPSLGAKIKKFLIT |
| Dob1 | Dendrolycopodium_obscurum | onekp:XNXF_scaffold_2008050 | SPEDNEFLVAAADRSRSEQEIWKQFKDAGALDEESLEKKDRAALLAHIS<br>TLESELYDYQYQMGLLLLESKSWGPKFEKMKGAIADAEENLKREQAAH<br>MIAITEAERREDALKKALSTEKQCVADLEKALKEMQAELAEVKEDAAR<br>QLAQAKNLLVGMEEKSVKADSRLHAGEAILAQASRKQADAERKLQEV<br>QAREDALRRQQQEFTVNCEARKHELDHDEENLKEWEKRLQDGQNRL<br>LDGENIINKREEFVNQKDLDLKKLDEDLKVARKQLEQSRLQLQQDEIDL<br>KARITATSLREESAVKKEVALDKKEQEVLLLQERVATRECIFEQHERHVQ<br>ETEIFNLKEKERLEALESSLKSREDSFSEKKQELDNLMKALEEARKEEVRT<br>KSELQNTMDELERLRESMKAEQEELGKTRQSCIVLEVEMNQKEEKLLK<br>KEQQMDKKAEKLKEREKDLDGKMKGVKERERLLKNEEKRADAERRLIE<br>QEKEGLMKEKEELEKWRLEILAENKKIEDEKEKLRSIEQEREDLLHVKTQ<br>LKGEIDELRAQRQEIILAAEELKKEKERFEKEWELLDEKNELVRKERDSLE<br>QESRRISKWVQDEEERIKKEKRDMHERNHREYEILRAEKEALLNSSEAD<br>KRNLFEMVERERDDLARDIELHRVELERGVEKRKTEVEKEAEELKSKLN<br>EEIHKAQEEIRTSREAIQRESEEISKQRSKFEKEKQEMAKQREEVEEKWL<br>EIKKDIEELQLQREKLKEQRESLRNERAEMLIEAERMKKLRDELKEADESI<br>QISEQQPSRKYATDNEV |
| Dob2 | Dendrolycopodium_obscurum | onekp:XNXF_scaffold_2071271 | KQLEGSGTLDVLSLEKKDRSALLSHISSLQKELYDYQYQMGLLLVECKN<br>WGPRYDKLKVAVSETEENWQKEETMHAKALAEAKKREEVLKQSLEIEK<br>QCIVDLEKALKEMQLEVAEGKEAAGKQLSQARILVNEAEEKSLMAESK<br>LHSAEALHAEASRKLAETERKLQEIEAREDALRREQHKLNAEYEARKGD<br>LDTDEENLQNWEKRLQEGQDRLRQGEKLLNDREEYVYEKEEGLKQLEK<br>AIKDERVLLEKEHSRLRQEEADLNAQMAAISLREKTTIEREVSLDKKEQE<br>LLIFQERLVNRERVTEKHEQEVKDKEASLAEEREKLECARIGLQQMEDSI<br>NEEKQKLAAMTKVLDGKNKDLSTREEELQEKVAELEKLQQSILIQQQDL<br>DKTKHSLATREADINKLYESVHKEKEQCQEERDKLKDRERDLDEMLKQI<br>VSKEQDFANEKRQFMIEKEELKQQVSSLYKQRDEVEERKKELKLEKEQL<br>QEEKRQLEVIKQEREDILKVQVQLKEEIDSLRGCKHDVQHKEEELKVEK<br>ERFEKQWEFLDEKKEQLRKDEDNIKQERKKFEKWIQDEEARLKEEKREL<br>WQQIQKESELLNSEKRAFILSMEMEKADLFSKIQKEREELARDIELRGAE<br>LERCLEKRRMEVERKSEELELKLEETLRKEKLDLQLLKENAQKEMEFVLK<br>EKQKLEKEKEEMLNQKEKLEPERCEIKGDIMELKLQREKLMEQRESLHK<br>EKQELMQEAERLKRLRQEVKHVDDSLLNSEQ |
| Egi1 | Equisetum giganteum | (Vanneste et al., 2015) cds.Locus_9256_Transcript_1_1_m.19285 | MFTPQRRGWPGWALPPSAERKDKGRMLSPELRFSGGSDRDASPAKG<br>LIEAPPARSLQDNGHVLARPELETWRRFREAGTLDEVSIEKKDRAALVS<br>FISNLETELYDYQYNMGLLLMERKEWDAKAEKLKAAVQEAEENLKREL<br>AAHLIVITEAEKRQEDLKKALTVEKQCVFDLEKALKEMRAEAAEIKASAE<br>SKLTEAREMLSGIEEKSMLAESKLHAAEALQAEASRKHGDAERKLQEVE<br>GREDAIRRERHLFKAECEAREIEFEREKQNLCKWEKKLQEGQERQLEG<br>QGLLNQREEYANKKDETLKQLEKSLRDAKKQLEREQEAVQQLKADLES<br>RVAAIALREQNVIKQEISIDKKEQGILLLQEKIASRERAVEQHENHLQSLE<br>SFVGKERDRLEALERTLKLKEEAMPQQKKELMELQRSLDQQKVELENS<br>KLQCESALAELERQRSLFSQEEEELNQRKAAALERDAELGRKEDKLLKKE<br>QQLEKKAEKLKEKEKEVDAKMKAQKERERSLKAEEKQLEAGRRTAAEE |

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| | | | RGNLQLLKEEVENLRNNLEAEKKQIEEEREKLKVIEQEREDVLTTQQLLK<br>EEIDSCRAATKAVHMQAEELKKEKEKFEKEWEILDEKRQFSTKEFEQVE<br>EEKKRIEKWLQDAQERLKQEKWMLHEQIEKDTEALRLEKEDFVRSME<br>QERGEWFSKVENLREDLIRDVEVRRKDLEKSIEKRKADIEKQIKEREARL<br>KADAEREKESIRVLKIAAQKELKEAQQQRKNVEKERQDIVKHREESEKD<br>WMEIKKDIEELEHQREKLKEQREGLRKEREETVREFEVLKKLRDEMKIA<br>EDSMKSDQVSHRNEVEVSSPRILLPNEKAYILPTVNKSTMDDTPGNFL<br>GSPGRFSWLQKCASVLFLTPEKNARMAGDSKGATEIGVNSVSPGANI<br>GGESINEVVSVEEEMQISASEHSKSGSFTLSEYVDSEMKEEPSRRQKKA<br>KAYARRTRSIRAVVEDARVFLKLPGEAKEGSEEEGRMNSVQEEDDTTT<br>LEEERDSKLVKQSRKRYRAQAAMTSEHEVDDAETGSEVTIGGSRRKRR<br>QREVNIGVEPGTRRRYNLRHSTVATKVVPQGGNGKEKPTISENSCHGT<br>SDGPRKEAIETQQEISPEHNHLDGLNEIQNGTDVSLLCVQLDSVEEAAG<br>KEVAAAVNSRSSTEVNVNEVIETSKKHAEKVFVENAEGEALRGEGEGV<br>ADSADEEREEEEEADNDKGILEEGHSEEEEEGEEGEEEEEKEEEMDEG<br>GEEEDDEQAPATLREKLWDFLTT |
| Egi2 | Equisetum giganteum | (Vanneste et al., 2015) cds.Locus_12462_Transcript_1_1_m.24822 | MFTPQRRGWPGWALSPPHTEQKDKGKIMSPGGVGTDLVVSPAKSLV<br>ELPLTRTMEENGQILARPEPEIFRRFREGGPFDELLIEKKDRAALAAHIAT<br>LDAELYDYQYNMGLLLMERKEWDAKLEKMRAAVLETEENLRRELSVH<br>HAVVTEAEKREEVLKKSVAVEKQCVLDLEKALRELRSEAAEVKVSAENKI<br>CQAREMITSTEEKALLAESKFHSAEAFEAEASRKQADAERKLQEVEARE<br>DTLRRERQSLKAEYEARQMELEREKRNLCEWEKKLQGGQERLLEGQR<br>SLNQREEYANQMDGMLKEFEKNMQEAKKQIEKEQGALQQLEADISS<br>RMAAVVSREENVIKQEICIGKKEQELLLLQEKIASRERAAEQHEKHVESL<br>ESLAVKERDRLEALEKTLKLKEEAMPQQKKELMELQRSLDQQKTELENS<br>KLECESAIAELERQRNLFTVEEEEINKRMSAAAERDAEFDRKEQKLLKKE<br>QQQEKKAEKLKEKEKDLDAKIKAQKERERALKAEEKQIQVEREKFAGER<br>EGLELAKEEIEKLRNDLEAEKKQIQEEREKLKVIEKEREEVLKTQLLLKEEI<br>DSCRAATKAIHVQADELKKEKEMFEKEWEILDEKREVVKKEAEQVEQE<br>KKRLEKWLQDEQQRLKQEKRLLREQFERDTEELRVEKEAFVDSMEQER<br>SQWFAKVESLKEELLADVEVKRKELENTIKKQKEDIEREIKDREFRLEVA<br>TQREKEGISELRMAAEKELEEAQQERWKVEKEREDIIKHREESEKEWM<br>AIKKDIEELEVQREKLKEQREALRREREEIINEFERLKKLKGEEKSAAEEDS<br>SELDEKSVERNNNNEIQASSPIRGAAAPLSSERRRILGIFGAGRSVVDET<br>PGKSSGSPGRFSWLQKCASVLFNTPEKRAGMEGSNRPTEAADSPASV<br>NIVVEFDNPSQTQNDLNEGCNNEEGNLIEEEEEVGRSSSQHSKSSDSFT<br>LGEFVESVSREQPGKKRKKKVAEGGVKRTPSIYVAAEDKKDNIMMKPS<br>LEGEEGRGEIRNENGEDRRMDSTFEETVKGQDSNNPLAPPASEEERDR<br>SKAMITKQGRKRNRRQLSTSKQEEGEGVETESEVTTGGKRKRRQREVS<br>HITIDLGKESPAAKRYNLRRTTVATKPVTQGYVANGKEKLMADNTQSS<br>DDEVRNDGVETLQENSLPESDYQDGINADVTTPPCN |
| Egi3 | Equisetum giganteum | (Vanneste et al., 2015) cds.Locus_15311_Transcript_1_1_m.2904 | MIKNSPVYGWDRSEPIQPSFKSSNLLLHLCKPLCRLFKGDVVEIPVLNT<br>MLASDRRGSQPSWALLMPQTLLAQEEEENPPLFRKEPPIEMEEPTSDN<br>NPLLRSLRGQTTAMDPPPFQVFRPPSDRITPLHSDRTLLLAQITKLEAEL<br>YDHQYNMGLLLMERKEWDIKSEQLREVVVQAQENLRKHIAANNAVK<br>LEFRKREESLKKAVMIEKQCVGDLEKALREMRSEAADLKVSAESKFIEAK<br>DMVTNIELKLHLADTKLQTAEVLQAEASRKHEDMERKLKEVEAQEAVF<br>RREKILLKEEQEAHESELCHLKYKLQETERKLQEDQDRLLKGQLNMNQ<br>RDDLASQKENALKRTDFFLEDRKKGLEKERAALKQLETDANSRMVAVE<br>AQEQKIIDKEIYLGKKQQQLLLSQERVVSKERAIQKHENHVKMMETLEE<br>KEKVRLEALGKAIELEEEALHEQKRELKTFERSLDQQKSELDSRKAEYQT |

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|---|---|---|---|
| | | | LKAEAEKCHRLLSFENGQLEDLVQSQGEKEAAMEQREEALCKKEQEVD<br>EEGERLKQKETEVDAKTEQVKQRSEALKKEFGDIMSERRVMAGEMEA<br>LRKSGKEIESMRAILEAQRSRIVEEREGFELRYPESEELRTLRAQLKEGLD<br>GFWALVNLTDMEAELLQKRREEAEKERNLLDKRIGSIRKEAERVEQEKR<br>RMLWWIQDEERRVEQEKGSLRNQVRREMESLRLEKEFFISIMEQDKLE<br>WITKAEKQKLDLATEVDMQSMVVERNMGKWKEDIEKQLDEREANLK<br>KEILAQTEHLSSIRASAENEQKLLHSERIRLRNGKQELLKYCREMEKERV<br>EIKKDIEELQDQSGKLQEQREGLKKDRGKLMDEINKLTKMKGKEGSPN<br>NCPSLAMISIKPPKSAEMPEHMSWLKRCASLVFTSPESKQGRGRINGS<br>TEIDIVLKDLMPS |
| Egr1 | Eucalyptus grandis | Phytozome 12 Eucgr.J01462 .1 | MFTPQRKAWSGWTLSPRGQAPRSGSGSGPDPSADGKGKSIVPAEPV<br>TPPLGSNGMVVVDGGGDPAGRVSLLEKELFEYQYNMGLLLIEKKEWA<br>SKNEELRRALEEIKDALKREQAAHLIAMSDVEKREDDLRKALGVEKQCV<br>SDLEKTLREMRAEYAEIKFTADSKLAEANALAASIEEKSLEVEAKSHAAD<br>AKLAEISRKNSEIERKMRDVDAREASFRRERLSFMTEREVHETTLSKQR<br>EDLQEWERKLCDGEERLGDRFRVLNQREEMANEKDKIYKQKEKDLEE<br>AQKTIDEANLTLSRKEEDISSRLANLKLKEKEFETIRKNLEIKEKQLVATEE<br>KLNARERDEIQKLLDEHARVLDVKKNEFELELEQKSKKFDEDLERKGFDI<br>QKKEAEIKHKEDKLVKREQAVEKKTEKLKEKEDDLQLKLKDLKEKEKFLK<br>SEEKNLETQKKSVAVEKEELLSLRAALEKIRAENEEQLVKIRMEKDQLNV<br>SEEERSDFVRLQSELKEEREKCRLQKELLLKEAEDLKQQKEAFEKEWDEL<br>DEKRAQIEKERMDAERQKEKFEKLKHSEEEKLRRDRMEKDDYIKRELED<br>LELAKGSFEARMEHETSVLAEKVQSERSQMLRDFELQKKELETNMQN<br>KWDEMENNLHGRMKSFEEEKERELNNINYLREVARREMEEMKQERA<br>ELQKEREGFAANKKHLEDEQVEIRKDIEQLVALSKKLKDQREKFIEERDR<br>FISFAKQQSSCNTCGELTREFLLSDLQSISEIENAELSRSKLAEAYAKEEA<br>NTTFNPSGRPNTDTSPNLVGSSTPLTVGTVSWLRKCTTKIFSLSPGKKT<br>DSHPVQDLTQEGRVHGDPVNVEEPSKANTENDAEVSFAVASVSFDVE<br>GYQREDEGGQDMSYDSNVNSKRQEIAEDSQPSDLNNGVRQPRKRGR<br>PRVNRTRTMKEVVKDANTFLGKGFGSNETEQENGNVEDSAPTNADS<br>RDEASLASKGRPRNVRKRGRDNTTVSEHDADDTEGHSDSVSKGQRGK<br>RRQRNTAAVQALGEQRYNLRRPKGGVKTTASGMSNDLNKDNKKEAD<br>REGAEEEIHYAKAAPALSVTVASENGRSAHLMRCGSLADTQDGDANG<br>TKEIVEDLALSEEVNGTPDKGDKHDNRSESLGVNAVTRDEDGDDDECE<br>DEHPGEVSIGKKLWNFLTT |
| Egr2 | Eucalyptus grandis | Phytozome 12 Eucgr.I00661 .1 | MASPQSGRLAPASSGRFGSLTAGTRAPQSPLGDEAVWRRLRDAGFDE<br>ESVKRRDKAALIAYIAKLEAEIFDHQHHMGLLILEQKEITSKYEQAKASA<br>EAAELKCKRNQAAHLSGLAEARKREETLRKSLGVEKECIASLEKALHEM<br>RAESAETKVAAENKLSEAHLMVENAQKKFTEAEAKLQAAESLQAEAN<br>RYHRLAERKLQEVGEREDDLRRRIQSFKSECDAKENEIFLERQSLGERQ<br>RILEQGEKRLLDGQASLNQREGYIFTRSQELDQLEKELEASRANIEKQRG<br>ALNDEKSDLELRVASLVDKEQDLLRKEVSLNQKEQELLVLQEKLASKESA<br>DIQKVIANQEAVLRSRKAEFESEMEMKRKLVEDEIETKQRAWELREMD<br>ITHQEDHLKEREHDLGIQIRSLTEKEKDVKERWDNVDAREKKLASAEAD<br>FELRKDMLQKEKEEINKLKQDLQKSLDLLEDKKKQVDSAKDKLEVMKT<br>ETSELSVLEIKLKEELDRVRAEKLEREELKKDAERIAEERVAVAKFLKDER<br>DSLKIEKDAMRNQYKHDVESLRLEREEFMNRMVQERSEWFSKIQQER<br>TDVLLEIEVQKRELEDCIEKRREELESSLRDKEKAFEEEKKNELQRIGSLKE<br>AAEKELDRVALEMKRLESERMEINVDRERRDREWAELQNSIEELKLQR<br>QKLERQRELLHVDREEICTHIEQMNKLEDLKLALDRKAVETQQSVSESR<br>LMKISGNRHPKQLTAVNNNNMDLDDRVYEVGHVNGPNSPTLQKAG |

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| | | | HSSSPSSAPLSWIRRYSDLLFRSSEKSHLASEKEPSISKNDEQATPMVRQ<br>LDLSLRYDVQKHEQKKRLEGIRGMSRPEKHVGEEKTIFEVPTGGEDAN<br>EESKKKETASHKPSESIAEKGPQTRRKRRVKELLPRDSVNIQPEERKSKK<br>NKGMQVDGGADLSDLANTNHVNAGQPCIADVEDASLSSKETRFVAE<br>ETTVLVVDEVVNISVSSEKESLKQRVNEDNNDHLLEGGSADAEHVPGG<br>NGVLTHETASVVLVEDVRLVGDIGQGHDVSAKADQIPRDQGLSNLDT<br>HGEDG |
| Egr3 | Eucalyptus grandis | Phytozome 12 Eucgr.G02361.1 | MFTPQRKAYPAISLTPRTEAARTGGGGGKGKAVAFLEGGPPPPPPPVA<br>SLDGNVMGNVGLEGLEDVEDWRRFREAGLLDEAEMDRKDRQAIAEK<br>VTKLENELLDYQYNMGLLLIEKKEWNLKFEELGQALSEVQQLLKREQSA<br>HLIAMSEAEKKEENLRRALALERQCVADLEKALHEIHNDQHKMKLDSE<br>KKLAQASALTTGIEDRSLEVKEKLHDVDAKLAEVSRKSSQLDLKMQEVE<br>ARESVLQRERLSLKTEQEAHKASFYKQREDLREWDQKLREREKKLCEDR<br>RILNEKEEKANEIDQHLMQKERDIEEAYRNIESSKSMLPEKEKHINQSLA<br>DLAAKEKEVLSKESIIRSKEEKLNALENKLNLRESVEIQKLVDEQKALLDG<br>KMLSFETELEERRKSLDKELKIKKEELERKEVEINHKEQKLGKRESALHAK<br>TERFKEKDKELESMLKILKEKEKSMKAEEKKLEVEKKQLSAEKEALENLK<br>DEIEKIKADIAGKELEIKEESENLRLNDEERSEHLRLQAELKMEIENCRSQ<br>QESLLRESEELKEEREKFEKEWEALDEKRAAIIEENRKFLEQKEKSEKWQ<br>SAEQERLKREKHEMEEHMQGELEAIKLEKELFATKMKHEESDLSEKVQ<br>NERSQMLREFELMKVDLETSLQKRQEETEKKAVLLEKQFELEKEKELKSI<br>NELKESALRELDEIRSEKHRIEKDKQALVLNKKQLDENQIKVREDIDQLF<br>LLSHKLKDQREELIKERSRFLSFVEKFKNCEKCGDEAREFTLSDLQLPQM<br>GDKEILPPPRLVEELSNKPCSRMSPFGRSPSEKSPDELGLVHSDSGSHM<br>SWLRKCTSKIFKLSPSKKIKDDSASPQSHKNFNFEENDGRLSMARNEET<br>NNGHGTNEDEAEPSLGKVEVATFNQRFKSVDVIKEVDDGHVSSLDDS<br>NYLHDQMPDLPEDSQHSEVKKSRRKGGKRNNGIHRTRSVKAVVEDAK<br>AFLGDVSKDTLPNDDTSKADQADLVHKGKAVSNVPRKRQHAESSQIT<br>ESEQDGGDSEGPSNSVSVSGRKKRRQTVHVPAVQTPGQKRYNLRRQK<br>TVGNVAAEEASADLNQDGKVEAASGGGEEAINGEDNNVPSHNSDEH<br>HNQMHLTQATSLRTMELSQQKVVRFTTVNVVDNSVNLAKPDENGET<br>VGTGELSGEDENGSALNEAEDDYDDELEHPGGASVGKKIWTFFTT |
| Egu1I | Elaeis guineensis | KEGG egu:105047097 | MFTRQKKGWSLLPRAAERSSGSVPLNPRDGSGMLLNRGNGKGKEIAV<br>AEARPPPPQASPGDDKGAVLARECGEEEVWRSFREAGFLDESVLQRR<br>NCEAFAQRISDLEKELYDYQYNMGLLLIEKNEWASKYEEIRKGLAEAEE<br>TLKRERAAHWIARSELERQDENMRKALGVEKQSIIDLKALHEESGENAE<br>AKFMFDKKLVEIHALEASIGDGYLEIKGKLHSAVPRLAEESQKNPETGRK<br>LEDVEAYEHEIQKESTAFTTGKRKHEELTQQREELRSWEQKLQDRQKK<br>LDEEEKFLDERENEANERDIILIQDEEELEEARKEMEVANNSLKNKEKDI<br>NAGLEALDAKEKLEIQKLLDDHNMILDSKKQEFEWEMEKKRNIFDQEV<br>KDRLDAVEKKSTEINIREVQIFNKEQDLEIELQKLKDKEKXFNEILDALKE<br>REDSIRKDENKLQDEKEKLARDTQKLLSSQTELENSRNAMEAERLQTIR<br>EKENLKVAKEERAHHLQLQSKLEQEIGDYRIMKESHRKETEELRKERDR<br>LEKVSEVLDNRKLALETELKQLNVEKERFEKWQCVEEGKLKKERLESTIH<br>IQRVLEELRLIKETFGKSLVHQLDPVELFKKKHADIKDADALKIHKLNPD<br>QDWLEGDKELYVCRNKREAEQLDIQKDISILQLICKNLKNQQEVVIKEK<br>ERIFALAEQLKCCKNCGFKIDDADIHGIQIPNGTEGSENILLSTIANDYLK<br>EPQEGENTDVSPQGTSPPHVTSRGCESLLQKCSSLFSHRKVVNQSSDG<br>HIKKSCLFDAHLDAEALDDEVKFQYVPSFSVANAAVDMCRARSVGGV<br>SYDGESKGLGKANDVAKPSFGVADISTEMMKFQSANGATEMEGVPN<br>FPLIHEQNGREGSFLLPETNSQLQASKQRQHQSSSSAGSKIIKRTNSVK |

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| | | | AVIEDAKAITGVNSEEKHDKPSNGEDGYSQYVHEESRDDSVHDDQVA<br>SNAEQNTHFSDASGLTNSELDAGDGEVHFESVSCRAHRKRRQTTSPGT<br>VTPGVKRYNLRRSTIMATMTTAQGSSNQSKGQKKXSLWQPH |
| Egu1II | Elaeis guineensis | KEGG egu:105056331 | MFTPQKKGWAGWSLSPRVGDGPDGGSAPVNARSAGGLSLGKGKGK<br>GKSVVEALPPPPQASLGENGNDAAGGAGDVEVWRRFREAGLLDESVL<br>QKKEKEALVQRISELETELHEYQYNMGLLLIEKKEWTCKYEEIRQGLAEA<br>EEILKREQAAHTIAVSEYEKQKENLQKALGVEKQCVADLEKALREMRGE<br>IAEAKYTSDKKLAEAHALEANLEEKYLEIEGKLHSADAKLAEASRKSSEVD<br>RKLDDVEARERKLQKEYLSLNTERKTYKKDLDEQREHLREWEKNLQES<br>QKRLLEGQRSINDREERANETDRLLKKKEEELEEARKMIEVTKNSLKEKE<br>DDISNRQKALISKEKESSIKIENVEKKEKELLAIEEKLNAREKVEMQKLLD<br>DHTEALNSKKQEFELDLERRRKFFDEEIKGKLDAVDKKKIEIDRKEEQVT<br>KREREVENKMQSLKQKEKDFDTKSKALKKWEESIKIDQKKLEEEKQQL<br>DRELQDLCKSRNELENLKATVEEAKQQMIKEEEKLELTKEEREQHLLLQ<br>TKLKQEIEDCRIIKESLLKEREDLRELRENFEKEWDVLDEKKVELEAEVKK<br>VNDERERFEKWRFSEEERLNNEVLEAKAGIQRELEELRLKKETFDSTME<br>LEKSNASEELKRGHADIARELELRKHELEMDMQKKHEDMEKQLQEKE<br>NQFNRWRDRELNQINSLKNLNESKIQKLKVEQDQLEREKEEFSEHRKK<br>LESDQLEIQNDIETLRMLSRNLKDQREQFTKEKERFLAFAEQYKVCKNC<br>GVTMSDLELLQLGSDDAGDVQLPSLALEEHLKGKNAEISPTGTGLRSVI<br>SGGRMSWLQKCSRLFNFSPGKKEEKLSECQAEKSLSFGARLDGEASEG<br>EANYEPGPSYVVGNDTIDAQRVQSDSGVRENEESERLVEAGDGPEPSF<br>GIADNSTDIQVESEQIIPPIDERNEREESSLPPENEFQPEPLKQRRRLPNR<br>KGRPKATRRTRSVKAVVEDAKAILGETSEEKNDGPPNGVTRDSLNIQEE<br>SQGDSVHADAVATSSRQKRRLAQTSGMTAGELEQMTVKRVQRAFHL<br>VGVERGVKSQLLEHRLLERNATISGALQSQTMPDQTKEHKTGSHQQS<br>TENEVLKGGSDGEGTSKRVPAAEPSSGIVGENKKTSHMLQRTTVGSAE<br>EVHENSQKLALVEETHANESDCDIIVKSMDCSEQSGEDGIVVDGAAGA<br>SEPATPDGGCGSEDDYDEDEEDSEKHDASIGKKLWTFFTT |
| Egu2I | Elaeis guineensis | KEGG egu:105061208 | MASRRPRSSPLALGAARSLAPMVAGASPPACGAGSLGDEAIWKRLRE<br>AGFDEESVKRKDKAALIAYISKLESEIYDYQHHMGLLILERKEWTSKYEQ<br>VKASAESAEIVYQREKAAHLSAIAEARKREESLKKALGIEKECVTNIEKAL<br>HDMRAESAETKLAYENKLAEARQMMEVAQQKFDEAKGKLLAAESLH<br>AEASRSHNTALRTLQDVEAREDELRRDLISFRLECDAKEQEMNRERQT<br>LYDRQKILHEEQERLIAAQTLLNQREEYIFERTKELSCFEKELEKTRTNLEE<br>EHRALKEEKSDLDLKIAALATREEAMIKRESLLDKRERELLMLQEKIACKE<br>HDEIKKLTDKHQSALERKRIEFEAELEHRHRILEDEMEAKRTACEVREAG<br>LSNRENAIQKREHSIKLELSALAEKEENVAKKMKLLEEREQNLHSTQKA<br>AEIELQNMQKEREDMLKMKLDLENSKSILEDEKKVLLCVQEKLELTIAEK<br>NEFFVLEGKLKEEIDGLRAQKMELVAEADKLKAEKEKFEIEWELIDEKRE<br>ELRKEAEWVAEERKAVDRYLKNEHDSIKLEKENLRNQFKSDVESLSHER<br>EEFLTKMELEHSDWFSKIQQEREDFVRDIMIQRKELENCIDKRREEIETY<br>LKEREEAFEQEKARELQHINSQKELIAKELEHVASELQKLNDERMEIAQ<br>DREKREKEWSEIKSSIEALDVQREKLQKQRELLRSDREEIYQQIQRLKKL<br>EDLDIDSENRALSETPNKWRVSFRTNMNAGVVQDIDDPNGQQVTAN<br>GGSKLKLLSEKTPDASPPTPAALSWVRKCAEVIFKHSSEKTIEHVECKNS<br>TKFVKVSEGNDFSPSKSVYHRKKTSGDGKRISMSKWKDLQDPSVASEK<br>MESKGHERTGREEMQSVRSDSLHVDNEGLCIAKIESNTNKKVSALPLG<br>RKRHNNALSHDHADMQLEPSQKHQRKTKQHGSADVEGITSNCLFRM<br>QMPNSDDCDSASLNPPSGCEELPVGCKDQERENPEVSIPKSPEASQNT<br>SAVLHFHISENGNSNGSGSSSLVGDGMLLSGSNFHEMMKKQEKVED |

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|---|---|---|---|
| | | | QVVFEGEEPSKEIAKLAVELIANEGDKIKEQDVHNRDGDNEVEDEDEN SLSAKQKLWKFLIT |
| Egu2II | Elaeis guineensis | KEGG egu:10506006 8 | MASPRTRASPLATGATRSPVPRVAGASPPATGGTPLGDEAIWRRLREA GFDEESVKRRDKAALIAYISKLEAEIYDYQHHMGLLILERKEWTSKYEQV KTSAESAEVVYKREKAAQLSALAEARQREESLKKALGIEKECVANIEKAL HDMRAESAETKLAYENKLAEARQLMEAAQQKFDEAERKLLASESLHAE ASRSRNTALRNLQDVEAREDELRRDRISFKSECDAKEQEINRERQSLYD RQKILNEEQERLIAAQTLLNQREEYIFERSKELSCFEKELEEARRNLEEKH RALKEENSNLDLKIAGLANREESVIKRESLLDKRERELLILQEKIACKEHDE IQRLMDEHQSALQRKRSEFEAELEQRRMMLDDEMEAKQMAYEIREA DLNDRENAIREREHAIKLESSALAEKEEDVVKKLKLLDEREQKLHFTQKA AEIEMQNMQNERAQILKMKRNVENSKSSLEDEKKEIQCAQEKLELTVA ERNELLVLERKLQEEIDNLRTQKMELTAEADKLKAEKEKFEIEWELMDE KREELRKEAERVAEERKAVDQYLKNEHDSIKLEKENFRNQFKSDVESLA REREEFLSKMEREHLDWFSKIQQEREDFVRDIMIQKKELENCMDKRRE EIETYLKEKEEAFEKEKARELQHIGSQKELIAKELEHVASEMQKLNDERM EIALDRERREKECSEIKSSIEALNIQREKLQKQRELLHSDREEIYEEIQRLKK LEHLDIESENRALSETPNTWRLSWKTNTNADAAPDIDDPIEQKITANG GSNLKLLSEKTSDASPRTSTTLSWVRKCAEVIFKLSPEKNIEYVEYKNSAK SAGVSEGNGYSSPKAGSHRNKNSGDGKRISLSKWNDLQIPSVASEVM ESKGHERRGRRETQSVRSDSPYVERNQGLCNAEIEGNREKELIEDSEKS RNADGALPLGRKRLHNTLSHEHADMQLEPSRKHQRKTRQNGSADVE GVTSDCLHAVQMPNSDDCDPSSLNPTAGCEELPVGCKDQEYENPEVS ISKTPEVSKDTSTIVRPHILENGNSHGSENSSLLGDGILLYGSNFHKMLKK QENVGDQEIFEAEEPSKEITTPTMEQTADDGGKIKEQDGCNQDGDDE VEDEDDDRLSMKEKLWKFIIT |
| Esa1 | Eutrema salsugineum | Phytozome 12 Thhalv10018 034m | MSTPLKVWQRWSTPTKATNPDSNGKGPANMVTPVPGRVSEIYYDDP RILPEKVSELEKELFEYQHNLGLLLIEQKEWSSKYEELQQEFEEVNECLKR ERNAHLIAVADVEKREEGLRKALGIEKQCAVDLEKALRELRSENAEIKFT ADSKLTEANALVRSVEEKSLEVEAKLRAVDARLAEVSRKSSEVERKSKEV EARESSIQRERFSYIAERDADEATLSKQREDLREWERKLQEGEERVAKS QMIVKQREDRANEGDKIIKQKGKELEEAQKKIDAANLALKKKEDDISSRI KALAFREQETEVLKKSIETKERELLALQEKLDAREKVAVQQLIDEHQAKL EAAQREFELEMEQKRKSIDDSLRSKVVEVEKREAEWKHMEEKVAKRE QALDRKLEKHKEKEKEFELRLKGVSSREKALKSEEKALETEKRKLLEDKDII LNLKAEVEKMKTENEVQLSEIHKEKEGLRVTEEERSEYLRLQTELKEQLE KCRSQEELLLKEVEDLKAQRECFEKEWEELDERKAEIESELKNITDQKEK LERHSHLEDERLKKEKQAANDNMKRELETLEVAKASFAETMEYERSVIS KKAESEKSQLLHDIEMLKRNLEADMQTKLEEREKELQAKEKLFEEEREK ELSNINYLRDVARREMADMQNERQRIEKEKLEVDASKKHLEEQQTEIR KDVDDLVALTKKLKEQREQFISERNRFLSSMESNRNCNPCGELLQEIVL PDIDNLEMTNLSKLTNILENEAPRQEMRDISPTAAGLGLPVPGGTVSW LRKCTSKILKLSPIKMAETSATRNLAGQEPQSTEQANVNSGPSTMLQA QSVSDTREVEVNNADSDGDQSNINSKAQEVEANSLSTLNADGQSRIR GKARARVRRTHSVKAVVEDAKAIYGKSIEFNEPEDSTENVEDSSKAND GNTGEPDHSGKGASKNGRKRGRVGSLRTCTTEQDGTESDGKSDSVTG GERQRVKRRQKVTSEQQEVVGQRYNLRRPRRGAGKTALGKKNEETVT VQQEEGIYSAQTIATASVGVAVSDNGASANVVQSETMADSEDTDAGS PKRTCESAAMSEEDVNKTPQRAHSGNEYDGEEDESESEHPGKQSIGKK LWTFLTT |
| Esa2 | Eutrema | Phytozome | MATSRSERFPITPNTASNRLTITPGSRVLKSPLTEEVMWKRLKEAGFDE |

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| | salsugineum | 12 Thhalv10003 578m | QSIKNRDKAALIAYIAKLESEVYDYQHNMGLLILEKDELLSKYEEVKASV NEADLAHRRDQSAYVSALAEAKKREEDLKKDVGIAKECISSLEKTLHEM RAECAETKVSAGSKMSEAHLMIEDALKKYADAEAKMRAAEALQAEAN RYHRIAERKLKEVESREDDLARRLASFKSDSETRENEIDIERQTLSERRKS LQQEHERLLDAQASLNQREDHIFGRSQELAELEKGLESAKTTFEEERRA LEDKISNLEIALASLAKREEAVSERESSVLKKEQELLVAEEKIATKESELIQK VLANQEVILRKRKSDVEAELESKCKLVEDEIESKRRAWELREVDIRQRED LVGEKEHDLEVQSRATAEKEKDITERSYNLDEKEKNLNAREKDINLKTTL LENEKERLKQLDLDLQQSLMSLEEKRKRVDCATRKLEALKSETSDLSFLE MNLKKELDDLRAHKLELLAEADRLKVEKAKFEAEWEHIDVKREELRKEA EYITRQREAFSMYLKEERDNIREERDALRNQHKNDVEALNREREEFMN KMVEEHSEWLSKIQRERADFLLGIEMQKRELEYCIETKREELENSSRDRE KVFEQEKKLEEERIQSLKESSEKELEHVQVELKRLDAERLEIKLDRERRER EWAELKDSVEELKVQREKLETQRHMLRAEREEIRREVEELKKLENLKVT LDDMSMAKMQLSNLERSWEKVSALKQKVVTRDDELYFQNGVSTVSN SDDGYNSFMERQNGSTPSSGTPFSWIKRCTNLIFKASPEKSPPMDPHQ EGGLPLENLKLDSSRREERAYTEGLSIAVERLEAGRKRRGNTGRDTSGP SSNKKRKHDDVTQKPKPSDETDPHSVISSPQNVPEDKHELPSSQTQTP SGMVVISETVKITKVTCETEVINKVTNIDCSENPSEAGTTMVEEQHDSG CNETVVNVSETVTRKEAESDNRKEQDSDDGGVVA |
| Esa3I | Eutrema salsugineum | Phytozome 12 Thhalv10019 562m | MHVDTHLYDYKSIMHWTSTNEELQQAIDEASEILKRERMSKLIALNEA EKREENLRKALISEKQFAAELERDLKYLQQEHSEVKSTSEAKLAEANALV MGIKENSLEVDRKRAIAEEKLSVINRKSSELEKKLKEVETREKVLQREHLS LVTEREAHEAKKLTLEEDRLSEAKRSVNHIEERIIESEKTIKKKEKILKEKEE FINSMLNDISMKEKAFEAMKTNIDMKEKELHELEEKLIVREQMETGKLF DDQNAVLDSRKHEFEMELEQMRISLNEELERKKSEVEQLEVEISHKGEK LAKKESTLEKMEEIVKEKEKDLEARQEVVKEKEKALKAEEKKLHMENKR LLEDKESLRQLKDEIEEIGAKTTKQESRIREEHESLRITKEERLKFLRLQSEL KQQIDRVEQEEELLLKEREELKTAKGRLEKEWEALDEKRADKTREQKEV TEEKENLRSLQTSEKHRLKREDIILRDNSKREVDDVEMQRESFEAGIETK KLFSHDNANIQTKREMEEVQYEKLALKRereEEISVKRKTLYKQSVVFYM GVDDSLRISLKEKREQICCAKERFALFLKENKLCNSCGEKFHKFVQSNRA PDIETMKSEMKKLDLPAKNQTTPDVENGDKLSDNSKSASLIGTLAAIKL PESWQHYDTLDTLDTLDTLDTVAGNDHEASGTEQSFAEIKSDKSRRGR GRSKSVRGRPQATKAASRDSKTSDEEIVKVEAETEFKNDNRGKRPVQD PQFEAGSSGEKKEDDGNISMIEEENKGEEEEEETERPDEASIGKKIWAF LTI |
| Esa3II | Eutrema salsugineum | Phytozome 12 Thhalv10006 601m | MFTPQRKPWISPAVTPRSETRKIGGVSNPRNDDRKGKAIAISEDPVIST LPPPPIGTLTGEGVYRGQAEEMDMGDWRRFREVGLLDEASMERKDR EALLEKISTLEEELYGYQHNMGLLLMENKEWVAKHEELNQAFQEAQEI LKREQSSHLYALTTVEQREENLRKALGLEKQCVEELEKALREIQEENNKI RLTSEAKLAEANALVASVTGRSSDVENKIYSAESKLAEATRKSSELEMRL KEVETRESVLQQERLSFAKERESYEGIFHKQREYLHEWEKKLQEKEESIP EQKRSLNQREEKVTEKEKNLKLKAKQLEEWDRKVELSVSKSKETEEDM NKRLQELAAKEKESCTLQSMLVAKESELRALEEKLIVREGTEIQKLIDDQ KEALAAKMLEFELECEERRKSLDRELQKKIEEVERQRVEINHSEEKLQKR NEALNKKFDRVNEKEIELEARVKTIKEKEKIMQAEEKKLSLDKQQLLSDK ENLKDLQQELENIRSEMMRKEEMIQEEHKSLEIKKEEREEYLRLQSELKS QIEKSRLHEEFLSKEVENLKQEKEKFEKEWEILDEKQAEYNKERMIISEE QAKFQRFQLLEGERLKNEENALRAQIKQELDDIRLQRESLEANMDHER SALHEKAKLEHSKVLEDIEMMRRNIEIELQKRKEQDEKDRQDRLAQFE |

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| | | | DKRMKELSDLNHQKQALNREMEEMVSKRSALQKESEEIAKHKMKLKE<br>QQVEMQNDISELGTLSNNLKKRREEFARERARFLAFVQKLKDCESCGQ<br>LANEFALSDLQLPYNEEEATLPPNGVLCDLPESSDASDSCNIKKSLDGD<br>APASGGSGRPTMSILQKCTSLLFSPSKRAEHGMDTGKPEHLSSSVAVSK<br>EIKVEKPLPVDLRPRPSSSSIPEEDEEYTVSRVQETSEGSQLSEFQSAKRG<br>RGRGRPRKPKPALNPSSSVKHASPEESSKDEAGGHVSVTSEKTTGRGG<br>RKRQHIEDTTTTGGRRKRQQTVAVLPQTPGQRRYNLRRNRTVDQAPA<br>DDEDNAAGGEYDADIAALAPSKDNVEETSESVVESLRARRLESSEVRVE<br>RVVTVETVTDADVAANNNVGVSVANEELAPNIARSPSVEDEQRQRTV<br>DEDKNEEYEDGDEEVHDDQDDDDEGGDDDDDDDGDDDGLKAGEG<br>SIRKKLWTFFTT |
| Fho1 | Fokienia_hodginsii | onekp:UEVI_scaffold_2062441 | MMTPNRRGRWPGWSPTSRSSPAVDEKAVAVVEKSSGGSAGKAAVE<br>APPRNSLDGNGRFTPAAAEPEVWRRFKESGSLDQDSLEKKDRAALLLH<br>VNKLDAELYDYQYNMGLLLIERKEWTSKYEQMKLALVEAEESLKREQS<br>AHLVAITEAEKREETLKKSLGVEKQCVSDLEKALHEMRSEVAEVKFISES<br>KLAQAREMVAGTEEKTLEAESRLHAAEALQAEASRKHAETERKLQEIES<br>IENSLRRDRQSFKSERDAHEVELSHERRNLLDWEKKLQDGQDRLLEGQ<br>RLLNQREEYTNQRDEALKQIEKELEDAKKQIENDHSALKEKEVDISVRLT<br>ALSTREENAVKREIVIDKKEQELLVLQEKLASKENEEIQKLLDEHKAMLE<br>ARKIEFEAELEQKMISVEEELENRRSALELFEADIKSKEEKISKREQQIEKK<br>TDKLKEKEKEVDARSKILKEREKTLKNEEKEIMIEKKKLDGEREEINNEKQ<br>EIQNLKVSLEEEKQQIFSEQEKLKVTEKERNELQKLQTELKEEIENYRARK<br>QEIEKEAEELRLEKEKFEKEWELLDEKREQAKKELTLVEEEKKRISKWLR<br>DEEERLKQEKSALKERIQNETEALHLEKEAFAASMQHERAEWLESIRRE<br>QADLIRDSELHRSDLENNIEKRQEEIEKLLREKEIGFQKEKERETQHISGQ<br>RELVSNEMEEMRLERKKLEKEREEISKSRQHAETQWIEIKKDIVELQLQ<br>RDKLKEQREYLCKEREEVSRLSEQLENLKRELNISDDSLDLIANKSGNRG<br>TGDVYGFSQEAVPQKFFGTPASASAKGDPEPSSGRTVPSASGTPGRLS<br>WLQRCATRFFNQSPSPEKLIDGTGRKEENDRSPTMLPETTGAESERMT<br>GEIVVGLEIQPTFSADDQNHDAGAETEVDAQAQGTTKSSPAVKFDHS<br>APSRSKGNGSKSNDKSKVKVFKRTRSIKAVVEDARGIIDAPSDQEKNES<br>ESRQEHVQIQAAVADNRQDKEGRAGGDQTNSAQEINDSNRESLATD<br>KRSSKSGRKRRRGYSSKVTSEQDADDSEIQSEGVAGGRRKRRQQQGM<br>TNGSSSGLGTPGGRRYNLR |
| Fho2 | Fokienia_hodginsii | onekp:UEVI_scaffold_2062429 | SPVNENEMWRRLKKVGLDEETLQKKDKAALIAHITKLETEIYDYQYNM<br>GLILLERKELISKYEQLKLTAGEAEGNFKYDLAAHSSAIAEAEKREESLRK<br>ALGIEKQCVADLEKALHEMRAESAEIKFISETKLAKARELVASTEEKSLTA<br>ESKLHAGEALQAEAKHKHADAERLLQDVEAREDELRRQRQSFKSECEA<br>HEKELFFERQNLREWEKNLQEGQERLLDGQRLLNQREEYVIERNEATK<br>QIEKELQDLKRNIEKEQSSLKEKEIDLRGRLADLTTREEALVKQEVIINKKE<br>QELLLLQEKLATREREEIQMLTNKHQVALEERKSVFEEEMKQRRKAVD<br>DELAYKRNAADVRELEIQCREEKISKREQQVEKKAEKLKEKDKELDARLR<br>IVKEREKSCKIKEKEIETQLKQLEIERDEMNISKHVLETSKAALEEDRQQI<br>HKEQERLELTEKERDDLRIIQIKLKEEIDNFRQQEYELLKKDEVLNVEKEK<br>FEREWEILDEKTEQLRKEIEKIDNENKRVSKWLKDEEERLKQERRMLRE<br>QMKIEEEALRLEKESFANSKKQEEAELLANFEKERAELYRDIELQKSELEK<br>SIKQRQEELERNYQVRESVFRKEKQKEMHYINAQKELSDKESQEMKLE<br>RQRLDREKKEIVTTREHIDREWSEMKKDIEEMEIRREKLKELRESLHRER<br>EEFEAQLDQLKKLKDELKMTEDSLRLSEQPPS |
| Fve1 | Fragaria vesca | Phytozome 12 | MFTPKRWSDWSLTPRTGTGSGREMNSGKAKVNSGEGRGVVLFEPTT<br>PATGLVENGDRDGITRKLLELENELYEYQYNMGLLLIEKKEWSSSQEEL |

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| | | mrna10337.1-v1.0-hybrid | AQSLAEARDALKREQASHLIAISEVEKREENLRKALGVEKQCVVDLEKAL<br>HETRSEIAEIKFIADSKLAEANALVASIEEKSLELEAKLRTADAKLAEVSRK<br>SSEIESKFKELEAGESALRRDRSSFSSEQEARETSLAKWREDLLEWERKL<br>QEGEERLARGQRNINQREERANEHDKSLKNKEKDLENAEKKIDATKET<br>LKRQEDDLTSRLASLALKEKASEYNAMRMNLEVKEKELLALEEKLDARE<br>RVEIQKAIDEHNAILHAKQGDFELEIDQKRKSLDEELRNRLVVVEKKESE<br>VNHMEEKVTKREQALEKRGEKFREKEKDYESKMKALKEKEKSIKLEEKN<br>FEAEKKQLLADKEDLARLLAELEQIKADNEDKLRKISEESDRLKVTEEERS<br>QCQRLQSELKQEIDKYMQQKELLLKEAEDLKQQKELFEKEWEELDDKR<br>AEIEKELKSVREQKEEVEKLSQLEGERLKNERAAAQDCIQREREDLALA<br>QESFAAHMEHEKAALAEKVQSEKSEMVHEFEALKRELETDMRKRLEEL<br>EKPLRERENAFAEERERELDNVNYLRDVARREMEDIKAERTKIGKERQE<br>ADENKEHLERQRVEIRKDINGLLDLSGKLKDQRENFIKEREQFISYVEKL<br>KGCTNCGDMISEFVLSNLQPSAETEGAEVLALPRLSDDYVKVSHNESLA<br>AAERNNNEKSPADSKSPGGMSWLRKCTSKILIFSPGKKTESGALHKETP<br>FSLEENRELSNRLHAENEAEVSFGVASGSLDVQIIQSDSSTREAPNVLED<br>SQVTNLKGGSPKPRRRGRPAVHRARSVKAVVKDAKAILGEAFETNDN<br>RHQNGTAEDSANMHTESHDDSSLAGKRPARNGRKRGRAQTSQVSVS<br>EHGGNDSEEQSESVMTGQRKKRREKAPLAEQPPNERRYNLRRSKAGG<br>KVAAAKVSDDLVKKNEEVDRARNTEAEILYAKAAPATLTGFAGENGGS<br>THFVRCGTLADTQDGGADGVENSTENMAVSEANGSTEGGKEFYVDG<br>EEYGSESRGEDANLIEDEDDESEQPGEASIGKKFWTFLTT |
| Fve2 | Fragaria vesca | Phytozome 12 mrna03889.1-v1.0-hybrid | MFSPLRKAPAALSLTPRNTDKGKAVAYVDGPPPPLGSLSEIRSGGGAKT<br>SPELQNADWRRFKEVGLLDEAAMERRDRQELANKVDRLEAELYDYQH<br>NMGLLLIEKKEWELQHEELSQALAETQEILHREQRAHLIAMSEVESREE<br>NLRKILVEEKKAVAELEKSLREMHEEYTRTKRASEAKLADANALIVSVED<br>KSLVTDEKFLAAEAKLAEANKKSLEVERRLQEVETQENVLRREQASLAT<br>EREAHKETFYRQRVDLNEWEKKLKEGEARLSNLRKLLNEKEEKTNENEII<br>LKQKEKDLYEAERKIESSNALLKDKEDDVNRRLADLVSKEKEVDSASYIL<br>EMKEKELHALEEKLSSRENVEIQEHLDQHRAILDRKTQAFELGLEERRKE<br>FDKELSSRIDTVEQKELEISHKEEILKKQEKALDEKSERLKEKNKEVEVNL<br>KNLKEREKNFKADEKKLELERQQILVNIEHLQNLKDEIQKIKDENVQLEQ<br>QIREGREKHAITEKEKSDHLRLQSELQQEINNYRLQNELLLKEAEDLKQE<br>REKFEKEWEDLDERRAKVDGELRKVVEEKEQLERLQCIEAERLKEERKA<br>VEDYRQREIENLKQERESFTAKMTNGQIALSEKAQSEHAQMVQDFES<br>RRRDLETDMQKRQDKMVKQLQERETAFEEEKDREYTNINFLKGVADK<br>QREELLSERNTNEKEREALALQKKELEANQLEMREDIDQLDKLSKKIKC<br>QREQLIEERGRFLAFVERVKSCKDCGEITREFVLSDLQVPGMYNVEAVP<br>NSEHKESGWGEKLQQKCKLVVSKVTSNKKLDVSTELPRPPAMQKGKE<br>PKLLASEEARGHSSHENEPQPSLRRCNDSANAEAAVADNNCKAVDGY<br>APSIDDYSFISSQEQDIPEDSEQSELKSGRRKPARGRKSRLSRTHSVKAV<br>VEDAKKFLGETPEPSNASLLNESSYINEGDSSFTSIGRKRPRPRSSRVESE<br>QDDCDSEGRSGSVTAGGHRKRRQPVASAVQTPGGQRYNLRNRKTAG<br>TLAAASAAPHLKSRRKEESKPESVGAELIQVTTLKPVESTEERVVRFATP<br>EPRDTVNGKADATKLVEEAELSTELNGTESSHSTGGESGDSSGDESGD<br>DYDDEDHPGQVSIGKKIWTFFST |
| Fve3 | Fragaria vesca | Phytozome 12 mrna03889.1-v1.0-hybrid | MFSPLRKAPAALSLTPRNTDKGKAVAYVDGPPPPLGSLSEIRSGGGAKT<br>SPELQNADWRRFKEVGLLDEAAMERRDRQELANKVDRLEAELYDYQH<br>NMGLLLIEKKEWELQHEELSQALAETQEILHREQRAHLIAMSEVESREE<br>NLRKILVEEKKAVAELEKSLREMHEEYTRTKRASEAKLADANALIVSVED<br>KSLVTDEKFLAAEAKLAEANKKSLEVERRLQEVETQENVLRREQASLAT |

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| | | | EREAHKETFYRQRVDLNEWEKKLKEGEARLSNLRKLLNEKEEKTNENEII<br>LKQKEKDLYEAERKIESSNALLKDKEDDVNRRLADLVSKEKEVDSASYIL<br>EMKEKELHALEEKLSSRENVEIQEHLDQHRAILDRKTQAFELGLEERRKE<br>FDKELSSRIDTVEQKELEISHKEEILKKQEKALDEKSERLKEKNKEVEVNL<br>KNLKEREKNFKADEKKLELERQQILVNIEHLQNLKDEIQKIKDENVQLEQ<br>QIREGREKHAITEKEKSDHLRLQSELQQEINNYRLQNELLLKEAEDLKQE<br>REKFEKEWEDLDERRAKVDGELRKVVEEKEQLERLQCIEAERLKEERKA<br>VEDYRQREIENLKQERESFTAKMTNGQIALSEKAQSEHAQMVQDFES<br>RRRDLETDMQKRQDKMVKQLQERETAFEEEKDREYTNINFLKGVADK<br>QREELLSERNTNEKEREALALQKKELEANQLEMREDIDQLDKLSKKIKC<br>QREQLIEERGRFLAFVERVKSCKDCGEITREFVLSDLQVPGMYNVEAVP<br>NSEHKESGWGEKLQQKCKLVVSKVTSNKKLDVSTELPRPPAMQKGKE<br>PKLLASEEARGHSSHENEPQPSLRRCNDSANAEAAVADNNCKAVDGY<br>APSIDDYSFISSQEQDIPEDSEQSELKSGRRKPARGRKSRLSRTHSVKAV<br>VEDAKKFLGETPEPSNASLLNESSYINEGDSSFTSIGRKRPRPRSSRVESE<br>QDDCDSEGRSGSVTAGGHRKRRQPVASAVQTPGGQRYNLRNRKTAG<br>TLAAASAAPHLKSRRKEESKPESVGAELIQVTTLKPVESTEERVVRFATP<br>EPRDTVNGKADATKLVEEAELSTELNGTESSHSTGGESGDSSGDESGD<br>DYDDEDHPGQVSIGKKIWTFFST |
| Gbi1 | Ginkgo biloba | GymnoPlaza GBI00022631 | WTSKYEQMKLAAAEAEENLKREQAAHLIAISEAEKREESLRKALGVEKQ<br>CVADIENALHEMRSENAELKFTSENKLAQAREIVASTEAKALAAESKLH<br>AAEALQAEASRKHAETERKLQEVEARECALQRERQSFKSEREAREAELA<br>HERQNMYEWEKKLQEGQDRLLEGQRLLNQREEYTNQRDDALKQIEK<br>ELEDARKQIEKDQTILKEKEADLSARLAALATREENAVKREIVIDKKEQEL<br>LVLQEKLASRENEEIQRILDEHKATLEARKNEFEAELGLKQRSVEEELEN<br>KRSAAEMKEADINRKEEKINRREQQLEKKAEKLKEKEKELDVRSKALKE<br>RERTFKNEEKETEIEKKKLEGEREEINNAKQELEKIKNALEEEKQQILSEQ<br>ENLKVTEKERDELLTLQTKLKEEIEEFRAQKQEVVNEAEELKKEREKFEKE<br>WEILDEKREQVRKELAQVDEDRRRVSKWLLDEEERLKQEKCALREHIQ<br>SDSDALRLEKEAFVESMQHERAEWFGNVQRERADLVRDIELHRSELES<br>SIEKRQEEIERLLEEREMGFQKEKEREMQQISAQRELARKEMEEMRLE<br>RLKLERERQEITASREHAEREWTEIKKDIEELQIQREKLKEQRESLHKERE<br>EILRLFDQLKKLKAEVNVKEDALKISDQQLIQQNVNRGKSHSPCPGDLC<br>GLSQEALRQNIFGTPVDASMKVNPEPSSGRIVTSASGTPSRLSWLQKC<br>ASRLFNQSPEKVVESVDQKEETERSPTPVPEVLVVAETERATHETVNGT<br>ENQPASSADVQNEDATVETEKSN |
| Gbi2 | Ginkgo biloba | GymnoPlaza GBI00020189 | MEQKRRLVEDELENKQNVAELKEVEINRKEEKISKREQQLEKKAEKLKE<br>KEKELDARSRALKEREKTIKIEEKEMEIEKKKLEVEREEINNVKQELKIFKK<br>ALEDERLQILTEQEKLEFTENERNELLNLQIKLKEEIDDFRGQKKELVNEA<br>DELKIEKEKFEREWEILEEKREQLRKEIEQVDDERKRVSKWLKDEEERLK<br>QEKSVLREQIKSDAEALRLEKEAFVSSMEHERAEWFAKVQRERADLVQ<br>DIELRSRELESSIEKRQEEIERHFQEKELEFQKEKEKEMEYISAQMEVAH<br>REIEEMKLERQKLEKERQEIAANKDKSEREWSEMEKDIEQLHIQREKLK<br>EQRESLRKEREEFQIQIEELKKLKDELKMTEXXXXXXXXXXXXXXXKCE |
| Gma1I | Glycine max | Phytozome 12 Glyma.18G280500.1 | MFTPQRVWSGWSLTSNRSGVRGGTGSGSDLGPNSGDGASTKGKGV<br>ALVENGGNLDREVLVERVSSLEKELYEYQFNMGLLLIEKKEWNSKYTEL<br>SQDLVEVKDALDREKAAHLIALSEAEKREENLRKALGVEKECVLDLEKAL<br>REMRSEHAKIKFTADSKLAEANALVASIEEKSLEVEAKLRSADAKFAEISR<br>KSSEFDRKSLDLESQESALRRDRLSFIAEQEAHESTLSKQREDLREWEKK<br>LQEGEERLAKGQRIINEREQRANENDRLCRQKEKDLEEAQKKIDATNV<br>TLRNKEDDVNNRFANITLKEKEYDSLRINLDIKEKELSAWEEKLNAREKV |

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| | | | EMQKLLDEQNTILDVKKQEFEVELDEKRKSFEDGLKNKLVEVEKKEAEIT<br>HAEEKVVKREQALGKKAEKLKEKEIEYEQKVKALKEKEKLIKSEEKSLETE<br>KRKIESEREELLTHKAEVEKIRANNEEELLRINEEIDRLKVTEEERSEYLRL<br>QSQLKHEVDQYRHQKELLLKEAEDLRQQKETFEREWDELDLKRTDVEK<br>ELKSVVQQKEELLKLQQYEEEKLKNEKQDTQAYVQRELETLKLAKESFA<br>AEMELEKSSLAEKALSERNQMLLDFELQKKELEADMHNQLEQKEKDLI<br>ERKKLFEEKRESELNNINFLREVANREMDEMKLQRSKSEKEKQEADEN<br>KKHLERQRMEMQEDIDVLVDLNRKLKNQREEFIVERRRFIEFVEKLRSC<br>QNCGEMISEFVLSDLQSSVDIENLEVPSHPKLAADIVQGVSNENLASSR<br>QNTGVSPATDPKSPVSGGTVSWLRKCTSKIFKISPIRKIESEDSGTLRDV<br>VTLSVEKTNVEDSPGRIPDAENEAELSFAVVNDSFDVQRVQSGNDIVE<br>VEADHEPSVENLNNVDSKAPEDLQAPDSKVGQQKSRKGGGRPRVKR<br>THTVKAVIKEARGILGESAEALPGESVDDHENEFPNGNAEDSANVNSE<br>SQKPSNRRIPANVRKRNRVQTSSQMTVSGHGGDASEGHSDSLIPGQR<br>KRRRQKAAAPPAQTAGESRYNLRRPKIGATTSSVRAMSGGGKESQGE<br>VDRVKDTGEGIVDSKTSHSHSVGITNENGGSIHLEQSLKGAETRDGYG<br>GDTIGTFVNNMALSEEVNGTADDVEENDAEYRSESHGEDAAGGVEN<br>EDDEDYLQPGEASIGKKLWNFFTT |
| Gma1II | Glycine max | Phytozome 12 Glyma.08G256300.1 | MFTPPRVWSGWSLTPNKSGVRGGTGSGSELGPNSGDGASAKGKGV<br>VVVENGGNLDREVLVERVSSLEKELYEYQFNMGLLLIEKKEWSSKYTEL<br>SQDLVEVKDALEREKAAHLISLSEAEKREENLRKALGVEKECVLDLEKAL<br>REMRSEHAKIKFTADSKLAEANALVASIEEKSLEVEAKLHSADAKFAEIS<br>RKSSEFDRKSQELESQESTLRRDRLSFIAEQEVHESTLSKQREDLREWEK<br>KLQEGEERLAKGQRIINEREQRANENDRLCRQKEKDLEEAQKKIDETNI<br>TLRNKEDDVNNRIVNITLKEKEYDSLRTNLDLKEKELSAWEEKLNAREK<br>VEMQKLLDEHNAILDVKKQEFEVELDEKRKSFEDGLKNKLVEVEKKEAE<br>ITHMEEKVAKREQALGKKAEKLKEKEIEYEQKVKALREKEKLIKSEEKSLV<br>TEKGKIESEREELLTHKAEVEKIRANNEEESLRINEEIDRLKVTEEERSEYL<br>RLQSQLKHEVDQYRHQKELLLKEAEDLRQQKETFEREWDELDLKRTDV<br>EKELKSVIQQKEEILKLQQYEEEKLRNEKQDTQAYVQRELETLKLAKESF<br>AAEMELEKSSLAEKAQSERNQILLDFELQKKELEADMQNQLEQKEKDLI<br>ERKKLFEEKRESELNNINFLREVANREMDEMKLQRSKLEKEKQEADEN<br>KKHLERQRMEMQEDIDVLVDLNRKLKNQREQFIVERRRFIEFVEKLRSC<br>QNCGEMISEFVLSDLQSSVDIENLEVPSLPKLAADIVQGVSNENLASSR<br>QNTGLSPATDPKSPVSGGTVSWLRKCTSKIFKISPIRKIESEDSGTLRDVV<br>TLSVEQTNVEDSPGRIPDAENEAELSFAVVNDSFDARRVQSGNDIIEVE<br>ADHDPSVENLNNVDSKAPEDLQAPDSKVGQQKSRKGGGRPRVKRTH<br>TVKAVIKEARDILGESAEALPGESVDDHETEFPNGNAEDSANVNSESQ<br>KPYNRRIPANVRKRNRVQTSSQISVSGHDGDANEGHSDSLIPGQRKRR<br>RQKAAAPPAQTAGESRYNLRRLKTGATTSSARAMSGGGKESQGEVDR<br>VKDTEEGIIDSKTSHSHSVGITNENGESIHLEQSLKGVETRAGYGGDTTE<br>TFANNMALSEEVNGTADDVEENDAEYRSESRGEDAGGVDNEDDEED<br>YLQPGEASIGKKLWNFFTT |
| Gma2I | Glycine max | Phytozome 12 Glyma.11G045200.1 | MATPITPDSATLASRDPWKRLKQPAFDDNSIQRKDKIYDQLHHMGCLI<br>FERKLLAFKYEQVKASIDSSEFMHKHDSAMNLSALIEARKREESLKMAI<br>GINEACIASLEKALHEMRTECAETKVSAESKVSEAHQLIDEAQKKSTEAE<br>AKLRAAESFQAEACGYYSVADRKLRDVEAREDELRRQIKSFKSDRSQEL<br>DSLQKELEDTKTNTNKEHGALCDEKTNLKLMEATLTIREEALSKRESELN<br>KKEQELLDLQVKLASRESDETQKVKAVQEAELGARKTNFEAELQIQLKL<br>VENEIEMKRWAWELKEVDLTQREEKLQEREHELEILSRTLGEKEKDLVD<br>MSSALKEKDQSLRASEKELELNKVLLQKDKEEINKTKLDVQMSLVSLEN |

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| | | | NLRQFDNAKERHEALKSETNDLSVLEVKLKEEIDVVRSQKLEIVAEADKL<br>EAEKAKFEAQWELLDEKKEELRKEAEYIAEEKKAVSAFIKKERDKLRQEK<br>ENMRDQYKRDLESLTCEREEFMNKMAHEHDDWFGKMQQERANFLR<br>DVEMQNRNMNILIDKRREEIESYLKEREKSFEEEKNNQLEYINALKEKV<br>AKEYKQVSFEMRRLEVERPEISSDCEQRNKIEIHAQTEELKKVKDLKIVS<br>DDIALTELLNSDMESNQQKISMKKKLNQRTLKHDDHLNSPQKIDANKI<br>SNGFDSSFVQNSSVVLPSSPVRFSWIKRCTKLVFRRSPEKSLVHDDDKG<br>CG |
| Gma2II | Glycine max | Phytozome 12 Glyma.17G157900.1 | MELSTPNSSSKHLSITPGSRVLRNPLSDEQIWKRLRDAGFDEESIKHKDK<br>AALIAYIAKLEAEIYDHQHHMGLLILEKKDLASKYEQVKALAESSELMHK<br>HDSTMNKSALTESKKREESLKKTVSIKDACIASLEKALHELRTESAETKVA<br>AESKFVEARQLIDEAQKKFTEAEAKVRAAESLQAEAKRYHNVAERKLH<br>DVEAREDNLRRQIISFKSDCDEKDKEMIIERQSLSERQKGLQQEQERLL<br>QSQSLLNQREEHFLSRSQELNRLQRELEDTKVKFEKEHEALYDEKTTLKL<br>KEATLIQQEEELAKWKSELSKKEQELLEFQAKLSNRESDKTQKVVASQE<br>AALRTKKYNLEVELQMQRKLVENEIEEKRRAWELKEVDLKHCEDQILER<br>QHELEVLSRSLSEKEKDLKDLSSALEEKDQRLSAAEKDFELNKVLLQKEK<br>DHVEQAKQDVQKSLESLEDKIRQVDMEKEKLEAMKSETGDLSILEVKL<br>KEEIDLVRSQKLELLAEAEKLKAEKAKFEAEWELLDEKKEELREEAEFIAK<br>EREAVSTFIRNERDQLREEKENLHNQYNQDLGFLASEREKFMNKMAH<br>EHAEWFGKMQQERADFLREIELQKQELNNLIEKRREEVESYLKEREKAF<br>EEEKNTELQYINALKEKAAKELEQVSLEMKRLQTERAEINLDRERRNRE<br>WAELTNCIEELEVQRDKLQKQRELLHADRIEIYAQTEELKKLEDLKAVSD<br>DNAITEMLKSDMESNQKKISARKNLKHQSLTHGGDRISNGFDTPLVQK<br>STVSPPSPVRFSWIKRCTELIFRNSPERPLERNEDFLMGSDTGNVSNLK<br>KHLENDEPLGNIGKRQEIGFALEEPKVIVEVPSLDDARRSEIESEAKDVN<br>GKSALLIPDGHRAGRLKRRRGNMTDKVGNPFVDVGQNKKSRAEEQT<br>NEKVQSGVSKVQQVLTSSNQTQGNTEETRVVIMVDKVIHVSEVTSEKL<br>DVLPILSQEPRDNFPSPTLGADQCNLHGETIDQSNYKTRQEDVLPCASS<br>VLGSTEEISKGNNEQVSEHC |
| Gma3I | Glycine max | Phytozome 12 Glyma.02G101800.1 | MFTPQRKAWPAAAAFTPLRGGSASAKGKAVAEGPPPPPLGSLTETTV<br>AVGLDAAGDAEDWKRFTKLGLLDEAVMQRKDHEALVEKVSRLERELF<br>DYQYNMGLLLIEKKEWNSKFDQLRQELAETEEILKREQSAHLIALFEVEK<br>REENLKKALSTERQCGADLERALRAMQEEHAQVKSSSHTKLAKANALV<br>DGIEEKSSVVDKKLLDAEAKLAEINRKNAELDMKLRQVDVRESLLQKER<br>LSLATDRESFEATFYKQREDLKDWERKLKQREDMLCDGRQNLGEKEEK<br>IVETEKNLKQKERDLEVLEKKIDSSNSLVKEKEAEIIQRVADLDVEEKKVN<br>SLKSMLEMKEKELLALELKLSAREREGIEKLLGEQKATLDLKLQQVELEM<br>EQKQKSLVEEFSSKEEALEQREVEVNHREKKVGKEEQALNKKAERIKEQ<br>NKEIEAKLKSLKEKEKTMIIKEKELEKEKQQLLADRESLENLNAELEKMK<br>AEISQKELQICQETENLKLTEDDRAEHSRLQLELKQEIEHTRLQKDFIMK<br>EAENLREERQRFEKEWEVLDEKRAEITNKQHGIDMEKESLRKFQNSEE<br>ERLKSEKQHMQDHIKKELEMLESEKESFRDSMKQEKHLLSEKVKNEKA<br>QMLQDFELKMRNLENEIQKRQEEMEKDLQERERNFQEEMQRELDNI<br>NNLKDVTEKEWEEVKAEGIRLENERKVLESNKQQLKSGQHEMHEDSE<br>MLMNLSRKVKKERERLVAERKHFLELVEKLRSCKGCGEVVRDFVVSDI<br>QLPDFKERVAIPSPISPVLNDNPPKNSQDNIAASEFNISGSVKPVSWLR<br>KCTTKIFNLSPSKRADAVGALDMPGTSPLSDVNFSVENIDEELPTSLPNI<br>GARVIFDERQPAGGMAHHSSDTPHLQSDNIGKEVGDEYSLSVGDHSR<br>VDSFVDGDPGDSQQSVPKLGRRKPGRKSKSGIARTRSVKAVVEEAKEF<br>LGKAPKKIENASLQSLNTDHIREDSREDSSHTEKAIGNTRRKRQRAQTS |

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| | | | RITESEQNAGDSEGQSDSITAGGRRKKRQTVAPLTQVTGEKRYNLRRH<br>KIAGKDSSTQNISNATKSVEKEAAAGKLEGDKNTPEVVETSLAVDDDN<br>VQDTNLVQVSTVKTVEFSDHRAVRFELPKDVVDDNAAATETLNRVEE<br>NGTPEYQDEDGSTIHEVENDDDDEEEEEEEEHPGEVSIGKKIFRFFTT |
| Gma3II | Glycine max | Phytozome 12 Glyma.01G090100.1 | MQRKDHEALVEKVSRLERELFDYQYNMDLLLIEKKEWSSMFDQLGQE<br>LAETQEILKREQSAHLIALFEVEKREENLKKALSTERQCGADLERALRAIQ<br>EEHAQVQSFSHTKLAEANALVDGIEEKSLAVDKKLLDAEAKLAEINRKN<br>AELDMKLRQVDVQESLLQKERLSLATDRESFEATFYKQREDLKDWERK<br>LKQREDMLCDGRQNLGEKEEKIVETEKNLRQKERDLEVLEKKIDSSNSL<br>LKGKEAEIIKRVADLDVEEKKADSLKSMLEMKEKELLALELKLSARE REGI<br>ENLLGEQKATLDLKLQQVELEMEQKQKSLVEEFSSKEEVFEQREVEVN<br>RREKKVGKEEQALNKKTERIKEQNKEIEAKLKSLKEKEKTMIIKEKELEKE<br>KQKLLADRESLENLNAELGKMKAEISQKELQICQETENLKLTEDDRAEH<br>SHLQLELKQEIEHTRLQKDFIMKEAENLREERQRFEKEKLQNSEERLKSE<br>KQHMQDHIKKELEKLVLEKESFRDSMKQEKHLLSEKVKNEKAQMLQD<br>FESKTRNLENEIQKRQEEMEKDLQERERNFQEEMLRELDNINNLKDVIE<br>KEWEEVKAEGIRLENERKELESNKQQLKSGQHEMHEDSEMLMSLSRK<br>VKKERECLVAERKHFLELVEKLRSCKGCGEVVRDFVVSDIQLPDFTERV<br>AIPSPISPVLNDKPPKNSQDNVASSEFNISGSVRPVSWLRKCTTKIFNLS<br>PSKIADAVGASDMAGTSPLSDVNFSVENIDALPASLPNIGARVIFDERQ<br>PAGGMAHHSSDTPHLQSDNIDKEVGDEYSLSIGDHSHVDSFIDGDPG<br>DSQQSVPKLGRCKPGRKSKSGIARTCSVKAVVEEAKEFLGKDPKKIENA<br>SLQSLNTDHIREDSREDSSFTEKAIGNTRRKRQWAQTSRITETELNAGD<br>SEGHSDSITAGGCRKKRQTVAPLTQVTGEKRYNLRRHKT |
| Gpe1 | Glyptostrobus_pensilis | onekp:OXGJ_scaffold_2010028 | PPRNSLDGNGRFVSTAAAVAEPEVWRRFKESGSLDHESLEKKDRAALL<br>LHINKLDAELYDYQYNMGLLLIERKEWTSKYEQMKLALAEAEESLKREQ<br>SAHLVAITEAEKREESLKKSLGVEKQCVSDLEKALHEMRSEVAEIKFISES<br>KLAQAREMVAGTEEKNLEAESRLHAAEALQAEASRKHAETERKLQEIE<br>AIESALRRDRQSFKSERDAHEVRLSLERQNLLDWEKKLQDGQDRLLEG<br>QRLLNQREEYTNQRDEALKQIEKELEDAKKQIENDHTTLKEKEADIIVRL<br>TALSTREENAVKRENLIDKKEQELLVLQEKLASKENEEIQKLLDEHKAML<br>EARKIEFESELEQKKISVEEELEKRRSTLELFEADINFKEEKISKREQQIEKK<br>TEKLKEKEKEVDARSKALKEREKILKSEEKEITIEKKKLDGEREEINNEKQE<br>LQNLKVYMEEEKQQIFSEQEKLKVTEKERNELQKLQTELKEEIENYRARK<br>QEIEKEAEELRLEKEKFEKEWEFLDEKRDQAKKELTMVEEEKKRISKWL<br>RDEEERLKQEKSALQERVQNETEALHLEKEAFAAIMQHERAELLESIRR<br>EQADLIRDSELHRSDLENNIGKRQEEIENFLQEKEIGFQKEKDRETQNIS<br>AQRELVSKEMEEMRLERNKLEKERQEISRSRQHAEMQRIEIKKDIVELQ<br>LQRDKLKEQRESLSKEREEVSRLVEQLDKLKAELNMSEDGLDLIANKGG<br>NRRMGDFNGFSQEGVPQKIFGTPASASTKGDPEPSSGRMVRSASGTP<br>SRLSWLQRCATRFFNQSPSPEKMIDGSRQKEETDRSPMVVPETTGAES<br>ERMTGEIIVGLEIQPTFSADDQNHDGGVETEVDAQNQGTTKSSPAVKF<br>DHSLPSRSKGNGSKSNDKSKVKVFKRTRSMKAVVEDARGIIDVPSDQE<br>KNESESRQEHLQNQSAVPDDRQDKEGRPGGDQTNSAQEVDDSNRES<br>LANDKRSSKSGRKRRRGYSSRVTSEQDADDSEIQSELSAGGRRKRRQQ<br>GTANGGSSGLGTPGGKRYNFRHSTIASSVATQALSMDGKDRVVAQPE<br>EEEPKNLQGTSSGKDTKDSQQDSLDKTVMVPSAQDSDNNIPQGETQ<br>DSPGCPDGGLEDAVEDLQDVLSHELTKSETGDRYDETEGDGGGNEED<br>APADEIEDEEIDELDEDGDDEEEDNDSSLKKKIWKFLTS |
| Gpe2 | Glyptostrobus_pensilis | onekp:OXGJ_scaffold_200 | SPVNENEMWRRLKKVGLDEETLQKKDKAALIAHITKLETEIYDYQYNM<br>GLILLERKELISKYEQLKLTAGEAEGNFKRDQAAHLAAIAEAEKREESLRK |

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| | | 9976 | ALGIEKQCVADLEKALHEMRAESAEIKFVSETKLAKAHELMASTEEKSLT<br>AESRLHAGEALQAEANRKRADAERLLQDVEAREDELRRQRQSFKSECE<br>AHEKELFFERQNLREWEKNLQEGQERLLDGQRLLNQREEYVIERNEAT<br>KQIEKELHDLKRNIEKEQSTLKEKEADLRGRLADLTTCQEALVKQEVIINK<br>KEQELLLLQEKLATREREEIQRLTDEHQAALEERKSVFEEEMKQQLKAV<br>DDELENKRNAADVREFEIQCREEKISKREQVVEKKAEKLKEKDKELDAR<br>LRNAKEREKSCKMKEKEIETLLKKLEIERDEMNISKQVLEKSKAALEEER<br>QQIHKEQERLELTEKERDDLRIIQIKLKEEIDNFRQQEQELSKKDEVLKVE<br>KEKFEREWEILDEKTEQLRKELEKVDDEKKRVSKWLKNEEERLKQERR<br>MLREQIKNEEEDLRLEKESFANSKKQEEAELLANFQRERADLYRDIDLQ<br>KSELEKSIEQRQEELERNYQVRELVFRKEKQKEMQYINAQKELSDKESQ<br>QMKLERQRLDREKQEIVRTREHIDRECSEMKKDIEEMEIRREKLKELRE<br>SLHKEREEFEAQLDQLKKLKDELKMTEDSLKLSEQPPSQAIVNDYEVISP<br>RHFDGGISQVACRQSISGMPFNADGFCSETHLTRSTTSASDTPSPLAW<br>LQKCTSRIFKKSP |
| Gra1I | Gossypium raimondii | Phytozome 12 Gorai.007G178500.1 | MFTPQRKVWSGWSFTPGKKADGSGSDLNSNGVSVGKGKGAAFAEPL<br>TPNCKDVGSEDQEEGLREKVLRLENELFEYQYNMGLLLIEKKEWTSKYE<br>ELNEALIEAKDALKQEQAANLIAINDVEKREEILRKALGVEKQCVLDLEK<br>ALRDIRSENAEIKFTADAKLSEANAVIASVEEKSLEVEAKLRADDAKLAEI<br>SRKNSEIERKLQELESRENALRRERQSFISEREAHETTLSKQREDLREWE<br>KKLQDVEERLAKGQTYVYQREERANENDSLFKQKEQHLEETQKMIDA<br>AHKTLKEKEDDINNRLTKLTLKEKEWSVVREKLEMKEKELLIIEEKLNARE<br>KTEIQKLLDEHNAILDETKRAFELEIDGKRKSLDLELKSKVIDVEKKEVEVK<br>HMEEKISKREQALDKKLEKFKAKEKEFELKVKSLKEREQVIRSEEKNLEIK<br>KKHMDADKEELLTLKAETEKLRIANEEQLSKMHEEKDRLRVSEEERSEY<br>LRLQLELKEEIEKCRLQEELLLKEAEDLKRQKEKFEREWEELDGKKLEVEK<br>ELKNINLQKEKFEKEKLAEDERLKNEKQVAEDCIKRELEALEVAKETFAA<br>TMEHERSVVAEKAESERSQRLYDLELLKSKLESDMQDKFEEMEKEFGE<br>RKKSFEEEKERELDNINYLREVARREMEELKQERLKIEKERQEVNASKSH<br>LEGQQIEIRKDIDDLVDLSKKLKDQREQLIKERNRFISFLEKQKSCKNCGE<br>ITSEFLLSDLKYLQEIENEGVPLLPSLADNYTSGNIFGNFVASERQMMSP<br>SVASGSPISAGTMSWLRKCTSKIFKFSPAKNIEPHALKKLNVGPSLSSQQ<br>VNMKGMSTTENEPELTSVAATESLEIDRFQSDTSTRDVEAGQDLSVDN<br>QNNMDCKELEALEDSQNCDLNHGKQVHRRSRPRAKVRRSAKAVVND<br>AEAILGKALEPNELEHPNGSVDSVHANALSRGESGLADGGTSRNERKR<br>NHAQTSQISDSKQDVSEGHSDSIAAGQRRKRHQKVVSAIPTGQKRYNL<br>RRPKNGVTVAKTTSDMNRETEGAKDAVDQVNYSSMPASETGDASEN<br>SGAHFLQQGETGPDTKDGNAGATKTFDANMALSEEVNGTPQGVGEY<br>GDGNDYHSESHSEGHKDEDEDETDEEEENNLEHPSEVSIGKKLWSFLT<br>T |
| Gra1II | Gossypium raimondii | Phytozome 12 Gorai.001G200600.1 | MFTPQRKVWSGRSLTPWKKVDGSVSDPNSNGVVVGKGKAAAFVESV<br>TPDGNDLGSEDQEGVPEKVLRLENELFEYQYNMGLLLIEKKEWISKHEE<br>LNQELMEAKDALKREQAAHSIAINDVEKREENLMKALGVEKQCVLDL<br>DKALRNMRAENAEIKFTADSKLSEANALIASVEEKSLEVETKLRAADAKL<br>AEVSRKSSQIERKSQELESRENVLRRERLSFISEQEAHEITMSKQREDLW<br>EWEKRLQDAEERLAKSQRYVNQREERANENDRLLKQKEKDLEEAQKKI<br>DAANQTLKEKEDDINSRLTNLTLKEKEWGVVKEKLEMKEKELLVFEEKL<br>NTREKAEIQKLMDDHNAILDEKKRKFDLEIDEKRKSLDADWKSKVIEVE<br>KKEAEVKHMQEKVSKQEQALDNKLEKLKEKEKELELKVKTQKEREKTIK<br>SQDKDLEIEKLQMVADKEELLSLKAEVEKIRTANEEKLQKIHEETDRLRV<br>TEEERSEYLRLQLELKEEIEKCRLREELLLKEAEDLKQQKDNFEREWEELD |

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| | | | EKRIKIEKELNSISQQKEKFEKQNLAEEERLKKEKQVTDDYIKRELEALEV<br>AKETFAATMEHERSVIAAKAESERSQMLHDLELLKRKLEIDMQNRLEE<br>MEKELGERKKSFEEEKERELDSINYLREVARREMEELKQERLKIEKERQE<br>VNASKMHLEGQQIELRKDIDDLVELSKKLKDQREQLIKERNRFISFVEKL<br>KSCKNCGEITSEFVLSDLRCLQEIENEEVFPLPTSADEYISGNVFGNLAAS<br>ERQKDEMSAPVGSGSPVSGGTMSWLRKCTSKIFKFSPSKDSGPHAIAK<br>LNMEALLSGQKDNLEGTSKTEHEPELSFAAATTSLDIHGVQSDSSRRNV<br>DVGHDLSVDNQSNMESKEQEVHGDSQSSDLNRGKQVHKRGKPRAK<br>RTRSVKAVVKDAEAIIGKTLESNELEHPDESRGESGLADGRATRNARKR<br>NRAQTSQTQTADTEQDGDDSEGRSDSVVGGQRRKKHQKVVLAMPIP<br>GEKRYNLRRLKIGVTVAKDTADHVNNSEAPVPAGENGDASENGGADF<br>LQQSETALDAKDDDAGTTKKLDPHTALSEEVSGTPKGVGEYGDGNDY<br>KSESRSEGLKGDGEDDGDEDEEDEVEHPGEVSIGKKLWNFFTT |
| Gra2I | Gossypium raimondii | Phytozome 12 Gorai.003G033100.1 | MASPFTPGTGKALSITPGSRVSKSSLGDETIWKRLKEAGFDEESIKKRDK<br>AALIAYIAKLEAELSDHQYHMGLLTLEREELASKYEEIKASAEATELMHK<br>RDQAAHISALAEAKKREDGLKKALGVEKECLASIEKALHEMRTESVETK<br>VAAESRLAEARIMIEDAEKKFSEAETKFRAAKSLQTEATFIQRDAKRKLQ<br>EVEAREDDLSRQIVLFKKDSDAKEKEINLERQSLSERKKIVQQEHERLLD<br>GQASLNQREEHIFNRMEELNRLEKELEASKAELEKERRALKDDKSNLEL<br>TLVSLSKREEAVIEREALLSKKEQELLVSQEKLANKESSEFRKVIASHENAL<br>RTRNSEFEAELELKRRMVEDEIEMKRRAWELKEMDINNKEDQICEREH<br>GLDVRLRILAEKEKDVAEKSNLIDVKENNMSAFEKELELKKAALEKEKEE<br>MSKMKLELQKSLLSLEDKRNQVDHEKEKLEALRSETHELSTLELKLKEEL<br>DLVRAQKLELMADVDRLEVERAKFETEWELIDEKREELRKEAARVCKD<br>REEISKYLKDERDRLRSVRDVMREQHNKDVESLNRERED FMKKMVTE<br>HSDRFNKIQQERADFLLGIETQKRELENCIEKRREELESSLKEREEAFERE<br>KKNQLDHINALKEIAEKELEQATLEMKRLDAERTEIKLDRERREHEWAE<br>LNKSIEELKVQRHKLKQQRELLHADRKEIHFDIEELKKLGDLKAALDNM<br>TVAQMQRSIVELSQLKASERNNLKQQAVLQNVESGSDKNKIFAVDGN<br>GFNSPMAKPDSSPSGSARFSWIKRCSELIFKHTPDKAQMKPEERPLELD<br>GEPKILEVPSEGEVFERTQAGRKRRVDNMPSNGTKKSRQKDASVLEVE<br>DNTHRVHSIEPNVVLDQPELMSYNQSKGGADETNELIVDRVINISEAIP<br>VKETVDDFSNVENIDQLQDTGEKDKSGEPLVVPMGNVSQLNIHCQRT<br>EDKSGKGKQKLEDNVTVQPDDKVRTRSRAGLKQVL |
| Gra2II | Gossypium raimondii | Phytozome 12 Gorai.007G227800.1 | MASPITPGSGRALSIMPGSRVVKSPLSDETIWKRLKEAGFDEESIKKRDK<br>AALIAYIAKLEAELFEHQHHMGLLILERKELASKYEQIKASAEASEIMQM<br>RDQAAHASALAEAKKREDGLKKSLGVEKECIASIEKALHEMRAESAETK<br>VAAESRLAEARIMIEDAQKKFAEAEVKFHAAKSLQTEASLFQRTAERKL<br>QEVEAREEDLSRRIVLFKNDCDTKEKEITLERQSLSERQKIIQQEHERLLD<br>GQASLNQREEYIFSRSQELNQLEKELEASRVDIEREHKALKDEKSKLELTL<br>ASLSKREEVCIFHLTIEAITEREVLLSKKEQQLLVSQEKLANKESDEIRKAI<br>ASHETVLRTKKSEFEAELEIKRKMAEDEIEMKRRAWELKEMDNNQRE<br>DLIREREHDFDVRSRILAEKEKDVTEKSNLIEEREKSLSGFEKELELNKVLL<br>ENEKEEIKKMKLELQKSLSSLEDKRNQVDFAKEKLQAMRSETHELSNLE<br>SKLKEELDLVRAQKLELMANADRLQVEKAKFETEWELIDEKREELKKEA<br>MRVHEEREAVLKFLKDERDSLRRERDVMREKHNKDVESLNRERED FM<br>NKMVSEHSDWFNRIQQERAELLLGIETQKRELENFIEKRREELESSLKER<br>EEAFEREKRTQFQHINALKERAEKELEQATLEMKRLDAERIEIKLDRERR<br>EREWAELNKSIEELKLQRHKLKQQRELLHADRKEIHAEIEELKKLGDLKA<br>AVDNMMVAQMQCSIVELSRQKASERKTLKEQTVMQNSGSGSVKNR<br>VVADNGNGFNSPMSKPDSASPSSARFSWIKRCRELIFKNAPDMAQM |

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| | | | KPEERSLISDHEDVFLTSAGKLVLSHGCDGQKYKQYGRKPLGFDGEPKV<br>TVEVPSEDEVLKGIHHLESGFEKSNAGKSLVSEEGIQAGRKRRVDSSPSR<br>GTKKRRQTKDASVIQEEDCAHSVNSTEPNSLPDQPVSLSYDQSQGGA<br>DETNALVVDKITEILEETFEKKVVVDSSNLGNTDHLQDIVAESMQGIPQ<br>SGGMCSLASASGENGGSGDPVIVQEAHLGKVSQVTKPYQPMKDVSE<br>GGTKLEDNVVPKLDENEKMGMRTRSKQKL |
| Gra3 | Gossypium raimondii | Phytozome 12 Gorai.008G187500.1 | MITPRRKAWSPLTLTPPTEPQMAGVPNTSSGGIRGKGKAVAFAHDTR<br>KLPPPPVASLSGKGPLNVEVEEEDMEDWRRFKEAGLLDEAALERRDHE<br>ALAERLSNLEGELFNYQYNMGLLLIEKKEWTSKCEELKQELAEVEEILRR<br>EQAAHLIALSEVEKREENLAKALAAEKQCVADLEKALRDIQEEHVQVKL<br>SSDTKLANANALVAGIEGKSLEVEEKLRAADGRLAEVNRKSSELERKLQ<br>EMEARESVLQRERLSFVAEREAYQATFYKQREDLNEWEKRLNKGEEKL<br>TELRRMLNQREEKVNENDRHFKQKERSLEELQNKIDLSTLKLKEMEDDI<br>GKRLTDLVSKEKEAESIRSTLEAKEKDLVALEEMLTARERVEIQKLVDEQ<br>RVILDAKRQEFELELEEKRKSVDEELEGKIHEINQQEAEINHKEEKLRKQE<br>QALDKKSERMKEKEKDLEVRLKAVKDKEKFVKTEEKKLELERQQLYAAK<br>ENLQALKDEIDKIGSETSQQELRIQEESEKLKITEKDRAEHIRLQSELKQQ<br>IVNCRHQEELLLKEHEDLKQQRENFEKEWDALDDKRAEIIMKQKEIDEE<br>KEKFEKLQHSEEERLKKEEAAMQNYACREMESLRLQKESFEATMKHEK<br>SNLLEEAQNERTRMLQDFEERKMNLETDMKNRFDQMQKDLQERIVA<br>FEEVKERELANLRCSKEDAESQLEELKSARCAVEREKQEVAMNRDKLKE<br>QQLEMRKDIEELGILSSKLKDQRQQFIRERHSFLEFVEKHKSCKNCGEVT<br>RDFVLSNFEIPDLQDRKILPLPQLAGETLSHHQRYVGGSGATNINRSPE<br>ADAQYPESAGRMSWLRKCTKIFSISPTKRNESKAERPSMLTATEAGVSI<br>QGEAGEPYLGITGDTVRNQLLQSNTIREVGDGSVPSADHSFGESKVQD<br>VPEDSQQSEQKSDHRKPRRKPKSGLNRTRSVKAVVEDAKLFLGESPEG<br>PEPSNRVQSHETSHVNEESAGVSSHTVEGAGPRSNARKRQRQQNSQ<br>VRDSELDAADSEGHSDSVTAGGRRKRQQTVTPGLQTPGQNRYNLRRP<br>KTTVTATAAQASSDVLKTRKEPEDGGLEGGVHTRKEPEDGGLEGGVH<br>TRKEPEDGGLEGGVHTRKEPEDGENRRSNLVQVTTIKNVEILESEVVKL<br>KTSVDVGGNEIAAKTVKSVDLIEEVDVTAENGDEDESWGRFHEEDEED<br>EGDDEMENPGDVSIGKKIWTFFTS |
| Hse1 | Huperzia_selago | NYBX_scaffold_2021345 | DRAALLVHISTLESELYDYQYQMGLLLLESKDWEQKVEKMKSAIADVEE<br>NLKREQAANMIAITEAERREDALKRALSTEKQCVADLEKALKEMQAEH<br>TEVKENAERHIAQAKDMLVGMEEKSVKADSRLHAGEAIFAQASRKQA<br>DAERKLQEVQAREDALRRQQQEFKVNCEARKHELDHEEDNLKEWEK<br>RLQDGQNRLLDGERILNKREEFVNQKDLDLRKIEEDVKVARKQLEQCR<br>SQLHQDEIESIARSTAISLREECAVKKEVALDKKEQEVLLLEERVASRECIF<br>EQHKRHIQETELFNCKERERLEALESSLKLKEDFFNDKKQGLDDLMKAL<br>DETRKEEVRTKLELQSTIDELERLRELVSVEQDDLEKKKQSCMALESEM<br>NQKEEKLSKREQQIEKKAEKLKEREKDVDRKLKGVKEREKVLKNEEKQA<br>NADRRLIEQEKEGLVKEKEEIERWRIEILTKNQKIEEEKEKLRAVEQEREE<br>LLLVKTQLKGEIDELRAEKHEFFLAAEDLKKEKERFEKEWDLLDEKNEEA<br>RRQRESLEQESQRVSKWLQDEEERIKREKREMHERNHREHQALQAEK<br>EAFLNNSDMDKINLFEMVEKDRDNLARDLELHRVELEKSIEKRRDELEK<br>EVEELKIKLNEEIRRAQEEIWASKDALQLESKEVSKERSKFDKERQEMAK<br>QRDEVEEKWLEIKKDIEELQLQREKLREQRESLRNERAEVVMEAEKLK |
| Hse2 | Huperzia_selago | onekp:NYBX_scaffold_200682 | SLREKNAVEREFSLDKKEQELLVFQERLTDRERVFEKREQEVRDKEASLA<br>EERKKLESSTVSFQQMEDSMAEEKKKLAAMKKALDHKSKDLSTWKEE<br>LQEKAVDLEKQHQSLLMELEDLDKTKHLLAARETDINKLHDNALKEKE<br>QCQEEKGMLKGREKDLDEMLKKILNREKGLADEKRQSVAEQEQLQQK |

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| | | | FNSLNKQIEEVEERTKKLELEKEKLQEERLQLEVVKQEREAILEVQVKLKE<br>EIDSLRACKQDVQREAEDLQVEKERFEKQWEFLDEKKVQLKKEEDDIE<br>QQRRKFAKWIQEEEARLKEEKHELWQQIQKESEVLNSEKRTFVLSMEV<br>EKADLFSKMQKEHEELAKDMELRGAELERCLEKRQLEVESQNKELELKL<br>EETRKKEKQELHLLRENAQKEMEFVLQEKQKLEKEREELLARKDKLEPE<br>RSDIKGDIMELQIQREKLMEQREALHKEKQVLMEEAVRLQRLKDEVKQ<br>VDDSLLISEQFSQRDMNEGEVISPQRIQKDYNDEVEEKHYVPGGAEGG<br>KPLFGNAMTPGRLSWLQRCTSIFFQPSSE |
| Iso | Isoetes_sp. | onekp:PYHZ_scaffold_2076822 | EQDIWKTFREAGALDEESLEKKDRSALLEHISKLESELYHYQYQMGVLLL<br>QCDDRNKDCNKLKVAVEEERECLRREKAAHMLAVAEADKREDALKKA<br>LATEKQCVADLEKALKDMQAEMTAEKEVAEKCVSEAKTKANDAEEH<br>WYSAESKMRTAEALRAEASRKLAEVDRKLQEVESREDALRRQIQNFQA<br>ESEAQKSEVESERRNLVEWETRLHEGQDRMQQSEQFLNKQEEYLNKK<br>DEALKKLENDLQEAKRSFDKERTAFQEAEAEFKAQMSSVFLREEAGVE<br>REIATAKKEQELLLLQQKLLSRDRVFDQREQLVKEIEASNIRERERLEALE<br>ICLKANEESLAEKTSSIGATLKDIKAQKEELKKREQEIKDRAMEIKVEGLE<br>LDRKRQSFGNWEKRMLEEQERFQNLETVLKSREDYLNSKDETLKQME<br>LDMQKQSNNLEKEQLMIQKARKEFLAQTGSISEREKIVIEKEAAIAKEEL<br>ELSDLKEQLTSADTIVQQERDNLLRVQTQLKDEIDDYRTQKQEVNKQV<br>EELKKEREAFEKQWELLDEEKEQMRKEKEQSEQESKRFSRWLQNEED<br>RLKREKREMQEKILRESEALQAEKESFNRSMEAQKTELLNRAERENEELI<br>RHMDLRRIELERSIKKKEEAVEHQAQEQRLQLTEEIHKEKQEIQAMHD<br>AVQRELAEIKAEREKLQNEREEMSKYREKAQIEWEEIKKDITELQLQREK<br>LKEQREGLKREREELL |
| Kni | Klebsormidium nitens (before K. flaccidum) | (Koreny and Field, 2016) kfl00193_0080 | MFDSPGTAILAEELHAREAARSIRVWTAVNESVGVSVDRREENTERAL<br>TAVNPSGEEEVWRRFRGAGALDEEVLVRREKEELQRQLDDVERELAD<br>YRYNLGVLILEHKKCKPQIDELEKALQRTREELQKEGRSLQLALDDVTRR<br>EDGLRASLKAERTVIADLKQSLEEMHAKLQAEEKSSRERLARAQELEAG<br>AVKDRERSEELFEKAARDLKGAQQLEEGLKVRESELDGKLRGLAEREDD<br>AASREKALNEGEAALNAGKRELTEKGIKLAERKRKVEGELEEERKKLGRE<br>REEEELRVEALRRSVEGEREQMQKEMQAEKEAAEHDMSTRKAEISVK<br>EDSLAAQEKALQMSQDELERKQEDANKRDQDLDQREKLLGDEKREM<br>LRTEADLREQQKSMNEERARLAEQESEWQRIEAKIDARVKEIDAREAA<br>VQAFESTAESSAKELEEGAKALRERQAGLEEKEEAVQKKEEDLGKLEKQ<br>LKGRAQMLESERAALERRKGEDVLEREQAEKKAAQLEMEAAALLDKE<br>AQLEEQTRQLASKDKDLAAREHELLLRESGTDENLRQQKEELEAQRRQ<br>AEADVAKQLQQLQGDRAKGEALLQASRAQLDKERAAMQLELQETRA<br>SLEIEFQTKMLTADAATQRAAKSEVEKRVKDLEREAEIRAEERATVRLQ<br>ERLAGVDLEVERRVSAQLKERVSELEVRNREEVERRVSEGSKKGVEREV<br>KAQVKDAVKKAKEEAKAKYDQERGAAIQKAVRDAERKAEGEKRAAID<br>KAVKEERSRTAGQARAVSEAEGEKSSLQNGEGLEGVSQLTEGEQAGG<br>PKEGVPRRSWFGLGSPRRGAQPSEARENEEGERQILVDGVPPLEQIDG<br>LLSQVGMETPPVAVNPVGSSEAAGVEGASADEVAVHAEPTPVVSAGV<br>NGAPSPKRPKLQSKRKQPETPPEEAPEERPLKQRRIIADAGPDKPVLEE<br>KHGGPVEALGAAVTAVGRAADTITGPFGFVLDDTDLGFVPGHTDRKA<br>PREVSVKKPRWSLWPGFLSPRKAKAEEGGQDGAGTSPSGEEGAEKNL<br>PGGQVEGQSSPLLENARNDGGEVGPVLMDVQQGPLPTENETPPEM<br>DLRGDETRAAEERATRVAKTPNTRVGRAVLPTPKPARTPKPPLSAVRTS<br>SRLRERTLSSDLKGTLEPTSATQLAGSSGKRGKSSPPGADVGPDAQSQE<br>PPKQTERVSPLTDGTRNQAPGKSAEIAGREQRDPSPAKTPGTGPARRL<br>QRALTAEEQAKIERIMARLEAEERAIAADEAAVGPLNARTSPDLAPERE |

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| | | | FLNAGSADGAKTSVPEREAANADIVDGATVKGLEKVRGAPETGNSGLK<br>KAKVAVKRRSGERAGASGKTDETLLIEAAAAKNQELPNDDPQEAPAP<br>NPMAPGGASAAVDAAELPTVSPSPPGPTSTLPPKTPKSAFGRAFDGFR<br>AAWGFGAGSSRGPASEGDEEGSLEGSGGVYRSQVGELRSIVGDLVEA<br>ADRDEDMEMGGPERLEFGTPEGVPFDGPEGEERGREAAQGGEGLLN<br>TFTETVVEKSEAALREVVEKGQKAGSVIVKKAKTAAFDLNETAMELAD<br>AAVGVSASDVADDVTRSAADLADDVTALGGAVEATVGGVADELTGNI<br>GEALADELGAVHTRDAQGKSLVETGSDLVTGALGSLQGAGAAGSSAL<br>AADPSRGAEGGARSTRGGAKVQSKKEGGNGEERRGSKRKAPESGKGK<br>GKVTDSENEDDVGPKRGKVKRRVKQADSEDEAGLVDPRVVEFATKFR<br>GEVEGEDTPSEGGGKRHLRAVVDPRDGEDMSAGLRRYNLRKSTLVK<br>MHIWEPRGADFGTVSTGSEGIHTRGGASSTPRNLQRSVFGGDNPFLE<br>DIAPGNPHSL |
| Ksu | Klebsormidium subtile | (Koreny and Field, 2016) NCBi JG442173 | GEAALKAGKREVIENGIELAGRKRKVEGELEEERKKLEWKRQEEELRIEA<br>LRRSVEGEREQMRKEMQEEREAAERDLSARKADISTKEESLAAQEKAL<br>QASQEELERKHKNAIKRGQDLDQREKLLGDEKREMLRKDADLREQEKS<br>MEEKRARLTEQESEWRRIEAKIDARVKELDGREAAVQAKESAAESSTK<br>ELEEGGAALRERQAVL |
| Lan1 | Lycopodium_annotinum | ENQF_scaffold_2018070 | KKQELDNLVKALEETRKEEVRTKLELQNTIDELEKLRESMKVEQEELGKK<br>RQSCMVLEAEMNQKEEKLLKKEQQMEKKAEKLKEREKDLDGKMKGV<br>KERERGLKNEEKRADAEKRLIEQEKEGLIKEKEELEKCRLEILAENKKIEDE<br>KEKLSAIEQEREDLLHVKTQLKGEIDDLRAQKQEIILAAEELKKEKERFEK<br>EWDLLDEKNEQIRKERDSLEQESRRISKWMQDEEERIKKEKRDMHER<br>NHREYEILRAEKETLLNSSEADKRSLFEMVEKERHDLARDIELHRVELER<br>SVEKRKTEVEKEAEELKLKLNEEIHKAQEEIRTSREAIQRESEEIAKQRSN<br>FEKEKQEMAKQRKEVEEKWLEIKKDIEELQLQREKLKEQRESLRNERTE<br>VLMEAERLKKLRDELKEGDESIQISEQQPSHKFANDYEVLSPQGLLEAG<br>FSHSRGPEGKTLPVGLNAAVASECSPSKLAVSGRSVTPGSLSWLQRCAS<br>RLFPNSGGDKAEPNTLHGRSNGSATIIDTPKQEQSK |
| Lan2 | Lycopodium_annotinum | ENQF_scaffold_2083706 | EALKLLDNNLKLEKKKIEKDRTLLHQDEDDLNARMAAFSLREEAAIQRE<br>VALDRKEEELLIYQERLVSREREIIENEQQVKDMESNIAKEREELKVFESS<br>LKGLQDYIDEQKQKQDAMAKVLDEKKKNIKNKERELQENIASLENVRKI<br>ISTEREELDGWRDSIAKREDAVEHTKENLLKKEKQLEEESENIKKREEEL<br>ARVFKTLSEREKALNHEESQVEEGKAKLKQQTEELQKEKGKVVKERRDI<br>EEVSQQVLAKEEQLRMIEEEREDLLQIKGQLKEEIDSLREHRLKVDHDA<br>EELRNEKERFEKNWELLDERKEQVQKEREHVELESKRAEKWLQDAEIR<br>LKQEKKELWEKINKELESVYSEKQAFLIHMEKEKGMLFAAIQKEREELSR<br>DMELHRTETERSLEEKRAEIEQQKAEVELKLAQASHKETENIQFLQEHA<br>QKERE |
| Lan3 | Lycopodium_annotinum | onekp:ENQF_scaffold_2085347 | TEQDFSKQLEGSGTLDVLSLEKTDRSALLNHISSLQKELYDYQYQMGLLL<br>VECKNWGPRYDKLKAAVSETEENWQREETMHAKAIDEAKKREEALK<br>QSLEIEKQCILDLEKALKEMQLEVTEGKEAAGKQLSQARILVNEAEEKSL<br>LAESKLHSAEALHAEASRKLAETERKLQEIEAREDALRREQHKLNADYE<br>ARKGDLDTEEENLQNWEKRLQEGQDRLRQGEKLLNDREEYVYEKEEA<br>LKHLEKAIKDERVLLEKEHSRLRQEEADLNAQMAAISLREKTTIEREVSL<br>DKKEQELLIFQERLVNRERVTEKHEQEVKDKEASLAEEKEKLECARISLQ<br>QMEDSTNEEKKKLAAMTKVLDGKNKDLSTREEELQEKVADLEKLHQNI<br>LIEREDLDKTKHSLAAREADINKLLEDVHKEKEQCQEERDKLKDREKDL<br>DEMLKRLVSKEHDFANEKRQFMIEKEELEQRFSSLYKERDEVEERKKEL<br>KLEKEQLQEEKMQLEVIKQEREDILKVQVQLKEEIDSLRGCKHDVQREA<br>EELKVEKESFENQWEFLDEKKEQLRKDEEDIKQERKKFAKWVQDEEAR |

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| | | | LKEEKRELWQQIQKESELLNSEKRAFVLSMEMEKADLFSKVQKEREELA RDIELRGAELERCLEKRRMEVERKSEELELKLEEILRKEKLDLQLMKETA QKEMEFVHKEKQKLEKEKEEILNQKEKLEPERCEIKGDILELQIQREKLM EQREALHKEKQELMQEAERLKSLRHEVKQVDDSLLNSEQVSHRDIHEG EVLSPQRVERDHTLQNEGIEEKDRFRDSAEGTSGMAVFGSAVTPGRLS WLQKCASIFYQPSSE |
| Lde1 | Lycopodium_deuterodensum | onekp:PQTO_scaffold_2083887 | SPEDNEFIVGASDRSRSEQEIWKQFKDAGALDEESLEKKDRAALLAHIS TLESELYDYQYQMGLLLLESKSWGPKFEKMKGAIADAEENLKREQAAH MIAITESERREDPLKKALSTEKQCVADLEKALKEMQAELAEVKENAAG QLAQAKSLLVGLEEKSAKADSRLHAGEAILAQASRKQADAERKLQEVQ AREDALRRQQQEFKVNCEVRRRELDHDEENLKEWEKRLQDGQNRLL DGENIINKREEFVNQKDFDLKKLDEDLKVARKQLEQSRLQLQQDEIDLK ARITAISLREESAVQKEVALDKKEQEVLLLQERIASRECIFEQHERHVEEA QSFNLKERERLEVLESSLKSREDSFSEKKQELDNLMKAVEETRKEEVRTK LELQNTIDELERLRESMKVEQEELGKRRQSCMVLDAEMNQKEEKLLKK EQQIEKKAEKLKEREKELDGKMKGVKERERGLKNEEKRADAERRLIEQE KEGLTKEKEELEKWRLEILAESKKIEDEKEKLRAIEQEREDMLNVKTQLK GEIDELRAQKQEIILAAEELKKEKERFEKEWELLDEKNEQVRKERESLEQ ESRRISKWVQDEEERIKKEKREMHERNHREYDILRAEKEALLNSSEADK RNLFEMVEKERDDLARDIELRRVELERNIEKRKTEVEKEAEELKSKLNEEI HKAQEEIRISRDSIQQESEEITKQRSKFEKEKQEMAKQREEVEEKWLEIK KDIQELQLQREKLKEQRESLHNERAEMLMEVERLKKLRDELKEGDESV QISEQQ |
| Lde2 | Lycopodium_deuterodensum | onekp:PQTO_scaffold_2083719 | MQSETADGKREAEEKLLQAREMVTDAEERSLLAEAKVHSAEALHAEAS RKLAEIERRLQEIEARENALRRQLESFNNECEARRMDLNLEEENLQKWE TRLQESQNRLRQGEHLLSSREDYVYQKSEDLKLLEDKLKLEKKKLEKDRT LLHQDEGDLNARMAAFSLREEAEIQREIALERKEEELLIYQERLVSREQEI IQNEQLVKDMESNIVKEKEDLEVFESSLKGLQDFIDEQKQKQDAMATV LDEKKKEVENKEQELQEKIASLENVRKMISTEREELDGWRDSIAKREDA VEHTKENLLKKEKQLEEESENVKKREEQLANAFQTLAEKEKALNDEESQ IEEGKAELKRQIEELQKEKGDVAKERRELEEVRQQVLAKEEQLRMIEEE REDLLKVKGQLKEEIDSLRECRLKIDHDAEELRNEKERFEKQWELLDERK EQIQKEREHVELESKRAEKWLQDGEIRLKQEKRELWAEIHKESKSVYSE KQAFLIHMEKEKGRLFAEIQKEREELTRDIELHRTETKRCLEEERAEIEQH KPEIELKMAQTTHKETEKLQSLQEHAQKVREDINRERQKLEKEKEELAK QRIESELERAEIKNDIEELTLQRQNLKEQREGLRLERNEVLEEAGRLRKLK DEIEADTVEQSDKSALKQIIHGEVLSPLCTQPMQDPNLDIKTPFMVDG VEGSSGKEVSCTPPTPARFSWLQRCASIFF |
| Lde3 | Lycopodium_deuterodensum | onekp:PQTO_scaffold_2012132 | ILDLEKALKEMQLEVAEGKEAAGKQLSQARILVNNAEEKSLMAESKLHS AEALHAEASRKLAETERKLQEIEAREDALRREQHKLNAEHEARKADLDT EEENLQNWDKRLQEGQDRLRQGEKLLNNREEYMYEKEEGLKQLEKAI KDERVLLEKELTRLRQEEADFNAQMAAISLREKEREVSMDKKEQELLIF QERLVNRERVIEKHEQEVKDKEASLAEEREKLECARIGLQRMEDSVNEE KQELADMKEVLDGKNKDLSIREEELQEKVADLEKLRQGILIEREDLDKM KHSLAAREADINKLNEVVHKEKEQCQEEREKLKDREKDLDEMLKQIVSK EHDFANEKRQFMIEKEELEKQVSSLYKERDEVEERKKELKLEREQLQEE RMQLEVIKQEREDILKIQVQLKEEIDSLRGCKSDVQHEAEELKVEKERFE KQWEFLDEKKEQLRKDEGDIKQERRKFAKWIQDEETRLKEEKRELWQ QIQKESELLNSEKRAFILSMEMEKADLFSKVEKEREELARDIELR |
| Mac1I | Musa acuminata | Phytozome 12 | MFTPQKKGWPGWSPSPRVGDGVDNGMTTPVVNTRSGSVLAFLKGK GKGKGNNTAEALPLPLPLQASLGENGDTVVVGGGDAEVWRNFREAG |

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| | | GSMUA_Achr8T14400_001 | LLDESALQNKDREALVQRILALEKELHEYQYNMGLLLIEKKDWALKYEEI<br>RQALMDVEETLKREKLAHLASISEFEKREENLQKALGVEQQCVSDLEKA<br>LREMHSELAEVKFTSDKKLDDAHALEAGLEEKYLEVEQKLHSADAKLAE<br>ASRKSSVANRKLEDVEAREHKLQKEYLSLSSEWKLHEKGITEQREHLCY<br>WEKKLQDSQKRLVESQRFLNQREYQANEADRFHKKKEAELEESRKMIE<br>ATKKSLKSKEEDITIKLRSIAAKEKEIDVKIESLGKKEKDLFSREETLNARER<br>VEIQKLLDDHNALLISKREEFELNLEKRRKSFDADLEGKVHEVEEKKREID<br>CMEDQVKKREQALEINLQKLMDKEKELDSKSKASKKWEESVKNDERK<br>LEKDRQHLASECEELLKCNSELESLKAAIESSKKQIINEEENLRLTKVERED<br>HLLLQSNLKQEILDCRLMKELLLRDTEDLQLQRKKFEEEWEVLDEKRLAL<br>EAEIKKFNDEREKVEKWQCHEKERLNSEALIAKANFERELEELSQKEEAL<br>EKAMEHERLEAFELLKREHADMDRELELRKHELQMDMQKMQGMEK<br>KLLDKENEFQRTRDLELSQMISLSSLNDSKSKRLKMEEDRLEREKEDILS<br>HRKRLEVEQLEIEKDIDALCMLSRNLKEQREEFMKEKEHFLDQAEQKTC<br>KNCGHPLGDMGTYCILDAGNVLLPNLVFEERSNNMNAKSSPNAMVS<br>VPAASGGRMSWLQKCSRLFSPGKKTSCKPVSFHGVADFSYRQENKEP<br>KRLGEAGEEPEPSLEVADNSIDIMRTWMDNGAREVVDDYVMPSFAQ<br>NERENFAPAESDTLPESLKQRRSQPRRRGRPKAVKRTGTTKAVVTDVK<br>AILGKSSNEKNHGSQDLVLANSTTSAGQKRCVAQISGMTTSDLNLGDS<br>EAHSESISLGGRHKKRQILAPAAQIPGEKRYNFRHSAIAAVTTAAQTIFE<br>RTKGPKAGGHEDSTGNEIPMQSGGEEGSARPVVEPVSDVDSKKASN<br>MLQKTAVESTTEVHEIFPNKIVQAESNDDVKSVEHSDQSEDGFVVDDA<br>ATGTDPATPSNGGCSEDDEDEEEYDQLNASIGKKLWTFFTR |
| Mac1II | Musa acuminata | Phytozome 12 GSMUA_Achr6T09340_001 | MFTPQNKGWSLSPRIRGGADDGSGSTANPRGGLGGLASTKGKGKSV<br>VEAAPPPQALLGDDGEDAFGGSTEVEAWRRFREAGLLDQSVLQRKDR<br>EALVQRITELEKELHEYQYNMGLLLIEKKESIARYEEVRQALAEAEEILKR<br>EQTAHLIAISEYEKREETWLKDLGVEKQKVSALEKDLREVRFEISEVKFSS<br>ERKLSEAHALETGLEEKYLEIEARMHAADAKLAEAGRRNSETNRKLEDI<br>EAHERKLQRDCLSLTSERKAHEKDLLEQREHLFDWEKRLQESQRRLVEE<br>QRLLNEREDSANEADHILKKKETELEETREAIEASKRSLKLEEDDITIRLSS<br>LASKEKEAEIKMGSLERKERELFAREEKLNSRERVEIQKLLDDHNAMLD<br>SKKHEFELEMENQRKSFEEEMKAKIDEVEEIKKELDHKEEQILEREHALE<br>INMQKLKEMEKNLESKSQALKRWEESVQIYEKKLEEDKQQLDRDRADI<br>VKSISELESLKVTIEAAKEQIIKEEEKLRLTKEEREEHNLQKSKLKQEIEDY<br>MIMKDSLCRDSEDLRQQREKFEEEWQLLDEKQLALELETKQINDERVR<br>FGKWQYDEEERIRNEEKAKRISIATELEDLRMKKQAFEKTMEHERLNV<br>HEMLTRERSAVAREFELRKDELEMDMRKRQEAMEKDLQDRESEFQR<br>KMTIELDEIRSVSSDFELKSRNLEMEQDRLEREKEDLSAFRESLKTDQLEI<br>QKDIDTLRVLSRELKDQREKFVEERDRFLGLANQFKICKNCGSSVCNLD<br>LLGLQNTDVVQLPSLTFEDRLEAKDSETSPRHMVSPSVSSGGRLSWLR<br>KCSGFFSFSPKGSEDTAQNQVKNPISLDVRLAREALDGEASDEPAPSQ<br>GIFAKSFDTQRTQSDSGIRDNEVSKRLGRAREELESSFGLSVPPRNESQP<br>EPSNEKPRQPKRSGRPRKISRTRTVKAVVEEAQAILGETSMGKNGQPN<br>GLAKRSLNIQESTEGNLVHAGQKRGLTHISVAAASELDGEDSETRSESIS<br>LGGRRKRRQINIPETQTPGEKRYNFRHSTIAAAARSISDQTKGHKRGGH<br>QQPSGDESLRGDGDGEGTSKLRLDVEPASSFAAESLKSVDMQKMAAE<br>NVLDVQEIFQKPVSHEIEECHADDAGKSVEFSKQTGIEGVMADGATAV<br>EREPATPDDGCSEDDDSDEAEENSDDQNESSIAPMEKTEQEALYMVI<br>QGFVGQRWNGSDLYPDPCGWTQIQGVSCDLFDGLWYVTALSIGPILE<br>NSLECTEKSEFTNLGQLRNLRSLVLVDNSLVGELPMELGNLIQLKRLML<br>SGNRFSGQIPASLCINLNQLLILDLGGNSLTGSLPSSLCGLSSLLKLDINSN<br>RLHGSLPPGLGNLSHLALLDLRNNSLSGVPSKSLAGMESLQVLLLSYNP |

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| | | | WGGSLLEFEWKNLRNLTTLDLSHMGLEGTIPETIASLKRLRYLALDNNH<br>LSGIVSSKFAALPSLTALYLNGNNLTGELEFPERFYRRMGKRFASWNNP<br>NLCCNAAAMATGSAPHGVAQCKQDQEPSANGSNANERVDDRNPD<br>QNSGLSTSFLFPASSISGFWWGIVVQEIRTWVLPLEL |
| Mac1III | Musa acuminata | Phytozome 12 GSMUA_Achr11T13580_001 | MVLIKGDRFESNRTGASFPTTRRPDRRKIACIKGDGVDKRYWIVGSPI<br>WDREALPFVLVFVLKFLDEELGFLMFTPQRKGWSPSPRYGDGVDNR<br>MTTPAVNTRTGSGVAFLKGKGKSAVEALPPPPPLQALLGENGSIGVVD<br>QGDAEVWRSFREAGLLDESSLQRKDRDALVQRISELEKELHEYQYNM<br>GLLLIEKKDWASKYEEIRQALAEVDETLKKEKSACLASISEFAKREENLQK<br>ALGVEQQCVSDLEKALREMRSELAEVKFTSDKKLDDAHALEIGLEEKYL<br>EVEQKLHAADAKLAEASRKSSDVDRKLEDVEAREHKLQKEYLLFDSGRK<br>LHEKDITEQREHLRDWEQKLQDSQKRLVETQRYLNEREDRTNEADRVL<br>KKKEADAEEARKMIEATKKSLKTKEEEITKRLGSLAAKEKEVDVKVESLE<br>NKEKDLISREEKLNARERVEIQKLLDDHNLLISSKKEEFELDLEKRRKSLSK<br>EIECKIREVEKKRREIDSMEEQITKREQALQMNLQKLMDKEKDVDLKSN<br>DLKKWEESVQNDEKKLEKERQQLASDSEEFLKSKSDLESLKAAIESRKE<br>QIMKEEENLRLTKGEREEHLLLQSNLKQESEDCRILKESLLRDTEDLQQQ<br>REKFEEEWEVLDEKRLALEAERKKFNDEREKFEKWRHDEEERLNNEAL<br>VARANFERELEELNQKTEAFGEIMEHERLEALEVLKRERADMARELELC<br>KHELEMDMQKRQEDTEKKLLDKENDFQRKRDLDFNQMISLSSSNDLK<br>IQKLKMEEDRLEREKEDLSSYRKRLEIDRLEIQKDIDALRMLSRNLKEQR<br>EEFMKEKERFLAQAEQKTCKNCGLLVGDLDTFCIQDAGDVQLPNLGFE<br>EHLNDTNAETTNAKVSPAASGGRMSWLQKCSRLFNLSPGKKVLDSSQ<br>HPLDNSNLYSSLDREAFDGEASHKPAASYGVVDSSDSQRAQSVTGIGD<br>NVESKRLCGVVEEPEPSFEVANNSIHIMRTQTQMDNGVRDVVDQLA<br>MPSVSLNDREKYAPAGSDNLRVSFKQRQSQPGRRGRPKAVKRTHTIK<br>AVVKDAKAILEQSSDEKNHGPHNGEAKDPRRVAQTSGVTNSDPDAED<br>SEAHSESISLGGHRKRRQILASAVPVEKRYNFRRSTIAATTTAAQTMSD<br>QTKGFKAGYDRQLTGNEILKEIGGEGSSRPAVEPVSDVVNSIIASNMLQ<br>KTAAVGIAEVREISSQKIVQAESNDDTVKSVEVSYQSGEDGHILDDAAT<br>GSRPATPSDDEDEDEEECEQQNASVGRKLWTFFTT |
| Mac1IV | Musa acuminata | Phytozome 12 GSMUA_Achr3T28980_001 | MLAPQKKGLFLSPRAVAARRNGPAQSSFGNWGGVVPGTRKGREVVA<br>GNAIPQPEELPLCGDGEDREKEQSEAQVWRRFREAGFLDEAVLQRRD<br>REALVRRISELEKELYQYQYHMGLLLIEKKEWAVKYDKLRQEMSEAAQL<br>QKCMQAAHIVAVAEFEKSEGNLRRAMGFQRQSIIHLEKALNDMHAEI<br>AEVKLDSQKKLSEAHTLEATIEEKCLEIKEKQHSLDARLAKVSRKSSEVDR<br>RLEDVEAREHELFKQTSSFIAEKKAFEKDLSRQRENLRAWEQQLQDNQ<br>KKLGKWHSTENQREMETNERDNTFRKKEKELEEARKTLEISNELIKLKE<br>EDMCMRIGALDAKEKEALLKQEFLEKKENELLAIEEQLNNKERVEIQKIT<br>DFHNSILESQKDEFELETEKKKRAVDEQLQGRIEEVAHKEIILENRERELF<br>KKEQLLEREIGNLKNREKENDIMLSAVKVSIENEKEEMRQGRGKLEKE<br>WELLGERRLSLEEGLKQLFDEKERFDQWRCTEEERLRKENPEVSIHAQ<br>MDLEDSISDEEAFKDKTTHQKMDVLEVFNSENAHVVYEIMQRIPEKVK<br>ETLLEKEDNSNRRSNIVLNNCKILSSLDESNILKLKEQEDQLKSEKQLLVL<br>GKKSEAGQSTSGTLSRNNKDQVVEPAEEGDYLPASAEQLKACRYCGFE<br>DGGDTALSGGSVEVSDQGTCPGSVKLEARIPCMQRCSRLLNFSPGKKA<br>TEHSEKSVCLDGEPLEHEDNLEPGPLPGDVNAFQWAQSAGGVQYNA<br>EPERSNNDDDATKRDSQIADRSADILIFELNDRVRDLEEPTLHSVDEQK<br>YREGCSIRPELNSLLWPLKQKQSGRSVRRKSILVKKSRSVNALVEDANLE<br>EASQIKHSEQSTCRAQCLIKDKCLEEKYSLNDDEVTVCSKKRCLDLKYG<br>MMSLEGECAEAHTEDVSSLGCCFQMENIPGTEIPGLKRYNLRHSTIVR |

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| | | | AVAASQALACRTKQKRKGELELSLENKVLKVARRDGEGAESHASASETL<br>RSDIRNS |
| Mac2 | Musa acuminata | Phytozome 12 GSMUA_Achr6T31730_001 | MTSPRPGGTPASRAVNASKTPATGGTPLGDDAIWKRLKESGLDEESVK<br>RRDKAALISYITKLESEIYEYQHHMGLLILERKELVSKYEQVKASSDSAEIA<br>YKREEAKRSSALAEARKRELNLEKLLGIQKECVANIEKALHDNLVESAER<br>KLGYESKIAEAHAMMTAAQEKLDEAEKKLLAAESLQAEANRTRNTAIR<br>TLDDVEAREDELRRRLATFKSQCDAKENEISIQRQALYESQKTLHQQQE<br>RFLEGQTLLNQREEYIFERTKELNRIEKELEESKANIEEESRTLKLERSNLD<br>LEIAALRNREEVIVKRESMLDKRERELLILQEKIACREHDEIQRIMEEHQS<br>ILEKKKSELEADIEQRHLLLKNELEAKKIACEIREADLCSREISLQEKEHAIE<br>LQSSVLAKKQEDVANKLRLLEDKEHNLSSTKREAEIEVQNMQKEREIFL<br>KMKVDLEKTKAVLEDEKKEIILAEEKFEITLGERNELLLLENKLKEEIDSLR<br>AQKLALVAEADILKAEKEKFEIEWEMIDEKREDLQKEAERIDEERKTLAQ<br>YLKNEHDSIKLEKENLHNQFKRDVERLSCEREEFICEMDRQHSDWFTK<br>MQQERENFTKDIGIQRNELENSINERREEIETYLREKEESFEKDKVKELQ<br>LINSQKDMIAKQLEHVASEMQKLNTERLEIAQDREQREREWADIKRFT<br>EALDLQCEKLQKQRELLHAEREEINQKIQQLKKLEELQIESENRALSVM<br>QTDKCDASVGKSCQCINGADRHIATPNGVSTMKLLPQGTPNPSTPTS<br>VTKSWIKKCTEAMFKHSPEKDSDTGHEENVESKMLAKSRDFRFSEMD<br>LQGHGNFAEGKEVSVQEMDNFTPKRTKSNRQEKVNGQEIKCVRCNF<br>DEQNMISDARPVAKSAQSPSEVGANSIKFNQALEDSGQKSRTLFSSINS<br>WISRRKRSNDMLSHDHADMDSEPNPKQQKRPRQNGNSDVEGDSSN<br>GLAEQQPNIDDECEPVLRNQTSGCEQLHAVAFKDQQHENMVVPNAE<br>PIESSQHKLAVSNFDIVENGNFCKFEHSPLAGVGAATSSDANEISMKDK<br>QVFDKEHIARKPSQETSVSASDLIVEDNDKLKEQDRYNEVLDELEDEDD<br>GSGLSVKEKIWNFLIT |
| MacV | Musa acuminata | Phytozome 12 GSMUA_Achr9T21820_001 | MCLHYVFLYTYCIYFSGHICRHPFFISIYCFIYILLVNCFSSWNTYPILYQYQ<br>YHMGLLLIEKKESAAKYKKLWQEMSEAVQIQKHMQAAHNVAVSEFEK<br>KEEDMRRAMRFQRQYSIYFSISVLSIYFIFFVQLEKALNEMHAEVAEAKL<br>ESQKKLFELHALEATVEEKYLEAKGKLHSLNARLAEVSRKSSEIDRRLQD<br>VEAQKTHLRRILHNKERVCKLGNRSCRIVRRSLPGGIAF |
| Mdo1 | Malus domestica | Phytozome 12 MDP0000312257 | MGNFVFTYKTIEPPTLLSIKPAGSNSETTLLLSVQLYENEGQIGSFNMKF<br>RAGPEIKKEXTFLMFTPQRWSGWSRTPRTGAEKTGTGSGAPNSNSGD<br>GIVAKGKGVNLFEPATPVSGSMLENVGKMLVESGGAATDREVLAHRV<br>XELENELFEYQYNMGLLLIEKKEWTSKYEEVRQSLNEAKEAVRREQSAH<br>LIAMTEIEKREENLRKALGVEKQCVHDLEKALHEIRSENAEIKFTAESKLA<br>EANALVASVEEKSLELEAKMXAADAKLAEVNRKSSEIERKLKDLESRESA<br>IRRDRLSFCSEQEAHETSLSKRREDLLEWERKLQEGEERLAKGQRILNQ<br>REERANEIDKSFKQKEKDLEDAQRKIDATNETLKRKEDDISNRLANLTLK<br>EKARIFYEYDGLRMNLEMKEKELLVWEENLNAKEKVEIQKLIDEHNAXL<br>DAKKCEFELEIDERRKSLDDELRNRAVDVEKKESEINHLEEKIAKREQAL<br>EKKAEKLREKENDFETKVKSLKEKEKSVKSEEKNLESEKKQLVNDKEDLV<br>RLLAEVEKIRADNEEQLQKISEQRDLLKVTEEERSDYLRLQSELKQEIDKY<br>RQQKELLLKEAEDLKQQKELFEREWEELDDKRVEIEKELKNVGEQKEEI<br>EKWKHAEEERLKNERVAAQHFIEXEQGDLKLARESFAAHMEHEKSELA<br>EKAQSERSQMLHEFETRKRELETDMQNRLEDMEKPLRERXKXFAEEQ<br>ERELDNVNYLREVARREMEEIKVERLKIEKERQEADANKEHLERQQVEI<br>RKDIDGLLGLSRKLRDQREQFIKERESFISFIEKLKSCTNCGEMILEFVQLR<br>PLAEIENAEVIPQPRLSDDYLKGGLNENLAASKRQKNEMSPAAEPRSPV<br>SGGTISWLRKCTTKIFSLSPGKKIEFGAPQNSPNEASFPGEQNEEPSERV<br>HGTENEAEISLGVASDSFDVQRIQSDNSIREVEVVQYPSHDEHSNMNS |

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| | | | EAPPDVPEDSQPSDLKGSRRKPSRSRRPAVTRARTKKAVVKDAKAILGE<br>ADSEYANGTAEDSVDMQSESLGGSSLADKRTTRNGRKRGRAETSQIAL<br>SDGGDSERLSDIVMGSQRKKKRERVLPAEQVPGESRYNLRRPKTGVRG<br>AAATASRDLVKENEEVDGAIGTEAVIHYSKAAPATSMGVASENGGSSH<br>FVRCETLANTQDGDADAVKNQEENPVASEEVNGSTAGGQEYVEGDE<br>YRSESREATPIEEDDDDDEEESSEHPGQASIGKKLWTFLTT |
| Mdo2I | Malus domestica | Phytozome 12 MDP0000322171 | MASPQSEPFGRTPSSXRALSITPGSRILQSPGSVSDETIWKRLKEAGFDE<br>ESIKRRDKAALITYIAKLEAEIFDHQHHMGLLILERKELASNYDQIKASAE<br>TAXLLHKCDQAAHLSALADARKREECLKKTVGVKEECIASIEKAMHELR<br>AESAETKVAADCKLAEAQNMVEEAQKKFTDAEVKLHAAESLQAEACR<br>FHHIAERKMQEVEAREDDLRRNILAFKXDCETKEKEISLERQSLSERQKS<br>LQQEQDRLLDAQALLNQREDFIFGRSQELNRLEKELEDVKTKXEKERRA<br>LNDGKLNLDLTEASLINREEALTRREALLNKKEQEILALQEKLVSKESDVI<br>KKAIASHEADLRKKKSELETELDIKRKSFEDEIEAKRRAWELREVDLSQR<br>DDLLREREHELEVQLRALVDREKEVTGMSNLVGKKEKTLREAEKEFEM<br>NSGILQREKEEIIKMKLELQSSLDSLEEKRKQLDCARERFELLKSETSELSD<br>LEMKLKEEIDLVRAQKLELMAEADELAIEKAKFESEWELIDEKREELRKE<br>VERVSEERLAXSKFIKDEHDNLRREKDEMRDQHKRDVESLVSEREDFM<br>SKMVHERTEWFSKMQKERADFLLEIEIRKGELENCIDKKHEELECSLKEK<br>EIAFEQEKKNEVQNISSLKEEAXKEREQVALERKKLESERIEINLDRXRRD<br>XEWAELNNSIEELKVQREKLKEQRELLHADRGEILXHIQHLKELEHLKAA<br>LDSASVADMQQSNLGPRSRKTSRRYLKQTTSVRDTXVNSHNEVNAAN<br>ISIPSMLKTGLSPSSSARFSWLRRCTELFSKNSSEKXQLEFEESHEISRGKT<br>NLTVTEQVETSSKYDGHRYMGNGSSPAFSSKRQSAFGGPKVXVEVPFV<br>GDXANGTKDSEIKEVDGESCDPVVSEQVFKGGRKRRVDKSSSNGCFDP<br>VLEPRQNVKKRRQQQDAIEKVLEDQHVSVPCDQFREGAEEGSVLIVDK<br>VTKVTEVIFEESVTGTLSNEDKFEAQNSVVEPHHVKNDIFGFFNDSYKY<br>AVKSMHKLWDLMECADISQKIILLEGIVSFNFSVIVIPDPXSPIKNNMDP<br>LRVCFTTNRGTVKVRLQTETKVQPRRRGLTELLALEVFRESMRFAPDSG<br>EQAVAGRWVSNPVNQIY |
| Mdo2II | Malus domestica | Phytozome 12 MDP0000253645 | MASPQSELFARTPSSGRALSITPGSRILQGPGAVGDEAIWKRFKEVGFD<br>EESIKRRDKAALITYIAKLEAEIFDHQHHMGLLILERKELASNYEQIKASA<br>KTAELLHKRDKAADLSALADASKREECLKKTVGVKEECIASIEKTMHEQ<br>RAESAETKVAADSKLAEARKVVEDAEKKFTDAEGKLHAAESLQAEACR<br>FHRIAERKMREVEAREDDLRRNILSFKTDCETKEKEISLERQSLNERQKS<br>LQQEQDRLLDAQALLNQREDFIFGRSQELNQLEKELEDVKANIEKERRA<br>LDDEKLNLELTGASLINREEALTRREVLLNKKEQEILALQEKLVSKESDVIK<br>KAIASHEADLRKKKSEFETELDVKLKSFEDKIEAKRRAWELREVDLNQRE<br>DLLHEREHDLEVQLRALMDREKEVAEMSNLVGEKENNLREAEKEFEQ<br>NGGMLQIEKEEIIKMKLELQRSLDSLXEKRKQLDCARERFELLKSETSELS<br>DLEMKLKEEIDLVRAQKLELMAEADKLSIEKAKFESEWELIDEKREELRK<br>EAERVAEERLAFSKFIKDEHDNLRREKDEMRDRHKRDVESLVSEREDF<br>MSKMVHERTEWFSKMQKERADFLLEIEIRKGELENCIDKKHEELECSLK<br>EKEIAFEQEKKNEVEIISFLKEESAKERDQVALERKRLESERIEINVDRKRX<br>DCEWAELCNSIEELRVQREKLKEQRELLHADREEILGLIQHLKELQHLKA<br>ALDSAPVAEMQQSDLVPHSRKTSRRSLKQTSSVRDADVNLHNEVNAD<br>NISNQSMLKTGLSPSSSARFSWLRRWRELMFKNSPEKHQLEFEESPVIS<br>LEKTSLTVTEQVETSSKYDGHRNMGNGNSPAFSSKRQCAFGEPKVIVE<br>VPFVGDLSNGTKDSESEIKEFDGESCGPIVSEQVFKGGRKRRVDKSSSA<br>GCFDPLLEPRQNVKKRRQQQDAVPNSSEHANSQCVASVPFHQIHEDA<br>EEGTVSIVDKVTKVTKVIFGETFTGTLSSEDKSEAQNSVVEPDHVKNGV |

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| | | | LPGDTKAQEKMQESNLGDAGQFIDHCQCGDVSCLMRIDSRVVV |
| Mdo3I | Malus domestica | Phytozome 12 MDP0000428602 | MMFTPQRKASTAALLLTPRSGGVVSNPRNTGKGKAVALVDGPPPPLG SLSEXGPYTTAGLDTGDMDDWRAFKEAGFLDEASMERKDHQALAEK VSKLQXELFDYQYNMGLLLIEKKEWASKNEELSQALAETQEILKREQSA HLIAISEVEKREENLRRVLVAEKQCVAQLEKALREMHEEHAQIKRESEA KMVDANSLVVGIEEKSLETDAKLCAAEAKLAEVNRKSSELEMRLEEVEA RESVLRREKLSLSTEQEVHKTTFYKQREDLKEWERKLQEGEERLCKLRRI LNEKEEKSNQNEMSMKQKEKXIEEGQRKIEALNTMLKEKEADVNKRL DDLASKEKEANSLRNILELKERELHEFEXKLSSRENVEIQEVLEKHRSXLN MKMQEFELEMEERRESLNKELRIKVDGVEQKELEISHREEKLLKREQAL HEKSERLNEKNKELETKLKTLKENEKTIKVDEKTLEVERQQLLADIECLQ NLRDEIQKIKDENLQLELHIREEREKQVITQEERSEHLRLQSELQQEIKTY RLRNELLLKEAEDLKQQREKFEEEWEDLDERKAEISRDLKKIVEEKEKLEK LQGMEEERLKKEKDAMQNYLQRERDSLKLEKESFASKMRNEQLALAE KAQFEHSQMVQDFESQKRDLEADMQNKEQEMKKRLQEMERAFEEE KDREHAKINYLKGVTDEQREELRSERHRMEKEREELALNKKQQEVNQL EMRKDIGQLAMLSKKIKQQREQLIEERRHFLSFVEKLKSCKDCGEMTRE FVLSDLQVPGMYQVEAVSLPRLNDELLKNSSADLGVPDLEYTESGWGT SLLRKCKAMVSKVSPIKKMEYITDAGSSELPPLSAIQVNVEEKRIESNMLI NEGEGGHISHEDEPGPSFRMLNDSSAQPLPSDNTSKEVDDGYAPSIDD HSFIDSKVKDVPDDSGQSEIKSGRQQPARGRKSRLSRTRTVKATVEEAK KFLGNTPEEPSNASMLPNDSSYNYEEIQGASSFAEKANSSIGRKRRRAQ SSRITESEQDDCDSEGRSGSVTTAGGRRKRRQSIASSVQTPGEQRYNLR HRKTAGSVTAAPXAADLKKRSKEETGGGGIEPIPESVSVSSLGTAGENG QTTQLMQVTTLKGAEFSQERVVRFRTPTATVDDNAEADAAKSVENTD MSVKDIGTPESGCGNNTNGESXDDYDDEDVEERPGEKSIGKKIWTFLT T |
| Mdo3II | Malus domestica | Phytozome 12 MDP0000208604 | MFTPQRKASTAALSLTPRSGGGVVSNPRNTEKGKAVVLVDGPPPPLGS LSESGPYTTVGFDSGDMDDWRAFKEAGLLDEAAMDRKDRQALAEKV SKLQTELFSYQYNMGLLXIEKKEWASKHEELTEALVETQEILNREKSAHL IAVSEVEKREENLRRVLFAEKQCVAQLEKALLEMHEEHAQIRXEAEAK MADASSFVVGIEEKSLETDAKLCAAYAKLGEVNRKSSELDMRLQEVEA RESVLRREQFSLSAEQEAHKTTFYKQREELKEWERKLEEXEERLCKLXRT LNEKEEKSNQNDMIMKQREKDIEEAQRKIEALNTMLKEMEADVNKRL DDLVSKEKEANSVRNVLXLKEKDLQEFEQKLSLQENVEIQEVLDKHRAIL NTEXQEFELEMEERRETLNKELRSKVDGVEQKELEISHREEKLSKRKQAL HEKSERLXEKNNELETKLKTLKENEKAIKANEKMLEVEKQQLLADIECLQ NLRDEIQKIKDENLQLELQIREEREKQVITQEERSEHLRLLSELQQELRTY RLQNELLLKETEDLKQQREKFEEEWEELDERKAEISRDLEKIVEEKENLE KLQGMEEERLKKEKHAMQDYIQSEQDSLKLEKESFVSKMRNEQLALAE KAQFEHSQMVQDFESRNRDLEADMQNREQEMKKGLQEMERAFEEE KDREHSNINYLKGVTNEQMEELRSERHRMEREREELALNKKQQEVIQL EMRKDIGQLDILSKGIKQQREQLIEERRHFLSCVEKLKSCKDCGEMTREF VLSDLQVSAVFQVEAVSLPRVNVDFLKNSPADSGVPELEYTESGWGTS LLRKCKSIVSKVSPIKKLEHITDAGSSELPPVSTIQVNTEEKRNESNMLIN EGARGHIGHEDEAGASFRMPNDSSAQPLPSDNTTKEVDDGCAPSIDD HSFIDSKVKDVPDDSEQSELKSGRQKPARGRKSRLSRTRTVKATVEEAK KFLGDTPEEPSNXSMLPNDSSYNHEXSRGDSSFXEKANSSIGRKRMHA QTSRITESEQDNCDSEGCSGSVATAGGRRKRRQPIASSVQTPGEQRYN LRHRKTTGSVTAAPATADLKKRNKEETGGGGVEPIPESVSVSSLGTAGE NGRTTQLMQVTTLKSVEFSQERVVRFRTPKETVDDNAEADAAKSVEN |

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| | | | TELSAEXNGTPESGGGNNTNGESDDDYDDEDVEERPGEKSIGKKIWTF<br>LTT |
| Mes1 | Manihot esculenta | Phytozome 12 Manes.01G1 07600.1 | MMFTPQRKVWSSWSLTPRSEAQKSGAGSDPNTNVNGAKNLNSVDG<br>SLLKGKTVAFAEPVTPNGVGSALEGDVLEKISKLESELFDYQYNMGLLLI<br>EKKEWNSKYEELRQAITETTDALKREQAAHLIAISDAERREEHLKKALGV<br>EKQCVLDLEKAVREMRAENAELKFTADSKLAEANALITSVEEKSLEIEAK<br>LRAADAKLAEVSRKSSEVDRKSQDMESRESALKRERLSFIAEREAHESAL<br>SRQREDLREWERKLQEGEERLSKAQRIINQREERANENDRIFKLKEKDL<br>EEAQKKIDEANSILKSKEDDINSRLANLTLKEKEFDATRKKLEMKEEELH<br>ALEEKLNDREKVEIQKLIDEHDAILDGKKREFELEAEEKRKSLDEDLKSKV<br>VEVEKKEVEIKHMEEKILKREQALDKRLDKIKEKEKDFESKSKTLKEREKII<br>RSEEKNLETERRQVNADREDFLNLKAELEKIRAANEEQLLKICEEKEQLK<br>VSEEERAEYVRLQSELKEEIEKCRRQEGLLLKEAEDLKQQKEKFEREWED<br>LDEKRAEIEKELKSISEQKEKFEKQKVSEEERIKDEKKAVEDYVKREREAL<br>EMAKESFEANMEHERSVLAEKAQSEKKQMLYEFELQKSELENDLQKR<br>QEEMENLLRKKDKLFEEEKERELNNINFLRDLARREMEEMKLERTKIEK<br>ERQEIEENKKHLQEQQLEMREDIDKLGDLSRKLKDHREQFIKEKERFILF<br>VEQHKSCKNCGEITSEFVLSDIIASKEIENAEVLPKQGLVNNNVIGDDN<br>QNLAAPARQEIDKSPTAVPSVSPVSWLRKCTSKIFNLSPGKKNEPGSLQ<br>SPTDVVENMEEPSKQLNSTVNERESSFAIGNDLLDLQRQSDSSIREVEA<br>TQDLSVDNQSNVNSEALEIQEETQPSNLKRDSQPHKRRRPRVSRTRSV<br>KAVVQDAKAILGESLEVNETEDSSHLKAESRDESSLADKGTSRNARKRN<br>RARASQNTVSEHDVGESEGHSDSVTAGKRRKRQQKVAPVQAPGEKR<br>YNLRRPKRGVTVVTDKALSGNNGKDKEEGVRGLTSTGMVSENGGGQ<br>HTAQLEKVSDNQDGDADTPRNLVDSAAALSEEVNGTPEAAGQYGVG<br>DEYRSESHIEDEEDDEEEEPEHPGEVSIGKKLWTFFTT |
| Mes2I | Manihot esculenta | Phytozome 12 Manes.13G1 07600.1 | MASPVTPSNGRALSITPGARVLKTPLSDGTIWKRLKEAGFDEESIRRRD<br>KAALIAYIAKLESEIYDLQHHMGLLILEKKEFASIFEQIKASAEATELKHKQ<br>DQAAHLSGLAEARKREESLKKALGVEKECIRSIEKALHEIRAESAETKVA<br>ADCKLADACSMVEDAQKRYTDTEAKLHAAEALQAEASQHHRAAERKL<br>QEVEAREDDLVRHISIFKADCDAKEKEIVLERQTLSERREVLQHEHERLL<br>DGQALLNQREDYVASKSQELSCIEKELEASKASIEKELRDLNDRKSNLEV<br>TVASLSQREEAVIEREALLNKREQDILALKEKLASKESEEIQKVIANHETIL<br>KTRKSEFEAEVEKNCKLVENQIEAKRRAWELREVDLRQREDMLNEREH<br>DLEVQTRLLSDKEKDMADKINFLDEKERSLNAAERDSEMRRTLLQKEK<br>EEINKIKLELQESLNSLEDKKKQVDCAKEKLENMRSETNELSLLGMKLKE<br>EVDMVRAQKMELVAEEDRLKVEKAKFETEWELIDEKREEMRMEAERI<br>DEERQAVCRLLKDERDSLSLEKETIREQHKRDVESVNHEREEFMKKME<br>YEHSEWFNKIQKEHSDFLLGIEMQKRELENSIEKRREEVESYLRGQEKA<br>FEIEKKNELQHISSLREKAAKGLEEVALEIQKLDSERMEINLDRERRDKE<br>WTVLNKSIEELKDQTQKLEKQRELLRAEREEVCAQIEHLKKMEDVKIM<br>MDNMEVAKMQQSSMESSWQKISAIRYLRNHSSVKDTDLVSHERVDI<br>TNNGNGLDSPSLQKSGVASSPDSARFSWIKRCTELIFKSSLEKPLLKSDE<br>KSLILNNDYANLTSAGKLDSSNGYHEQKLKSIESSGKRQPMRYTFSEPN<br>VILEPPKDVIAKEELDEESEKKDDANEEIALSLSEHVIHAGKRRNSLSTDP<br>HPDERQNNKRRNQHKGATVNLSIDANNPCVTSTQINAPENHHSTEGE<br>AADDMVNADRIIKISEVTSEVTCDYCEVQDGGTDDH |
| Mes2II | Manihot esculenta | Phytozome 12 Manes.12G1 18800.1 | MASPVSPNTVRALSITPGARILKTPLSDETIWKRLKEAGFDEDSIKRRDK<br>AALIAYIAKLESEIFDLQHHMGLLILERKEFASKYEQIKASAEAAELKQKH<br>DQAVHLLALAEARKREESLKKSLGVEKECLKSIEKALHEMRAESAESKVA<br>ADCKLADARSMVEDAQNKYMDAEAKMRAAEALQAEANQHRRAAE |

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| | | | RKLQEVEAREDDLRRRINTFKADCDAKEKEIVLERQSLSERRKVLQQEH<br>ERLLDGQALLNQREEYVANKSQDLDRLEKELQASKTGIEKELRDLNDKK<br>SNLELTLASLSQREAAVIEREALISKREQQLLVSQEKLASRESVEIQKVIAD<br>HETILKTRKSVFEAELEMNRKLVEDEIEAKRRAWELRELDLRRREDMLN<br>EREHELEVKSRMLAEEEKDVAEKMNFLDEKERGLNAAERDSELRSALL<br>QQEKEDINKIKLELQESLNSLEDKKNQVDCAKEKVETMKCETNELSVLV<br>MKLKEEVDMVRAQKLELMAEEDRLKVEKAKFETEWELIDEKREELRM<br>EAERIVEERQAVSRLLKDERESLRLEKERIREQHTRDVESLNHEREEFMN<br>KMVYEHSEWFNKIQKEHSDFLLGIEMQKRELENSIEKRREEIEDYLRDQ<br>EKAFEIEKKNELEHVSYLREKAAKELEQVALEMKKLESERTEINLDREQR<br>DKEWAVLNKYIEELKDQTQKLEKQRELLRTEREEICAQVEHLKKLEDLKL<br>MLDNMEVAKIQQSNMESSLQKISAVRHLRNHSSVKDAGLVSHEREDV<br>TNNGNRLDSPSMQKSVVDSSPNSARFSWIKRCTEMIFKSSPEKPLLRSE<br>EKSLISNDAAFLASAGKLDSSNSYHGEKFNSEESSGKRQSMIYAFGEPK<br>VISEPPEDEIAKGKCEKESETKKDANEDIDPSFSEQAIHAGRKRRSEKSSL<br>YVTTDPQPEQRQNNKRRRQQKGAAVNLSKDAKNPCVTSTKINATEED<br>KHSTEEGAEDDVEVIAERIIKISEVTSEVTCDYGDVHDGGRNGHSNQKG<br>VEHSAVPCEFEVSVILKDQMGHVGHGTGQHQSGEDEDASKTSDLRVD<br>ISDVARSDNSEKFAEDVGRRTRSKQKL |
| Mes3 | Manihot esculenta | Phytozome 12 Manes.06G074000.1 | MFTPQRRPSSAITLTPRSEVRKSGVANVASTSLKIGGKGKEVAFMDGS<br>MPPPLPPPVGSLSGNGAELDTEDMEDWRRFREAGLLDEVVMERKDR<br>QALLEKASRLEKELFDYQYNMGLLLIEKKEWNLKYEELRQALAEAQEILR<br>REQSANRIAFSEAEKREENLRKALSIEKQCVADFEKALRDLQEERRQIKH<br>ASESKLADAKALAVGMEEKSAEVEEKLRVAEAKLAEINRKNLELDVKLQ<br>ELEDRESVFQRECLSLNTEREAHEASRCKQREDLLEWERKLQKGEERLC<br>ELRRTLNHREEKANENEKILEQKERDLEEAEKQIDLSFAKLKEREDDVN<br>NRLSDLTAKEKKADSTRRIMERQENDLIALEVKLSAREKVEVQQLLDEH<br>QTALDAKMHEVELELEEKRKELDHELRSTAEVLGQREGEILHREEKLRK<br>REQALDKKLERVKEKEKDLDVKLKSFKDKEKSMKVEQKKLDFDQQKLL<br>ADKQSLQVLKDDCEKIRSEIAQQELQIGEKSENLKITNYERLEHLRMQA<br>ELKQELEKCRRHGEFLLKEGEDLKEERDKFEKEWEVLEGKRAQLSKELN<br>KITEEKEQFVKFQRNEEERLKKEENATKEYIQRELEAVRLEKESFEVRKR<br>DEQVLLSKNTDMEHDQMMQDFESQRITFEADLIRRREAMEKVLQER<br>QRLFDEQREREHKDMDYLKEVAQKELKEIRSEKLKIEKEKQEVAKNKKQ<br>LEGQQFGMQKDIDELVVLSNKLRDQREQVIRDRNHFLAFVGKHKSCK<br>NCVDITSEFILSDLLPPDMEDRMILPLRRQSDEILRNVEDDVDVPVVMN<br>VNRSPGELDLGYSNSQERMSWFRKCTSKIFSISPTKKVEHCSVPILQEEK<br>TDDFGAFASKAARRSRVSGDESGQLDYDGIKGKEDRYSVSVDDHSIM<br>DSKVEDSEQSELKSSRRKPGRRRKAGISRTRSVKAVVEDAKLFLEKSSEE<br>PECHAKDVRSNDIYHIVDESIEKPAGNIARKRERAPTESEQDAGDSEGG<br>SESVTTGARRKRRQVVASAITPGQKRYNLRRHRTTGATSVNQASSGLT<br>KMRERETDGCESVETTTKPETANALPLGVASKTGKSTDALNVTTVKNV<br>ESTGDRAVRVNQADVAKSIEITELSEEVNVTTEYVDEDENGSTIHEEDE<br>EEYDDDELEHPGEVSIGKKIWTFFTT |
| Mfi1 | Microstrobos_fitzgeraldii | onekp:BBDD_scaffold_2078409 | KFDQVKFALAETEENLKREQAAHLVAISEAEKREESFKKALGVEKQCVA<br>DLENALHEMRAEIAEAKFTADNKLAQAREMMATTEQKSLTAESKLHA<br>TEALQAEASRKHAETERKMQEIEAIESALQRDRQSFKSECDARDAQLSL<br>ERQNLLEWEKKLQEGHERLLEGQRLLNQREEYTNQRDEALKQIEKELD<br>DARKLIESDLASLKEKEADISVRLAALATREENAVKREIIIDKKEQELLCLQ<br>EKLTSRENEEIQKVIDEHKAIFEARKNEFEAELEQTKIAVEQELEKRQNT<br>VASKEADIMRKEEKLGKREQQFEKKSEKLKEKEKEVDSRLKALKEREKAL |

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| | | | KNEEKKVEVEKNQLETEREEINNEKEELQKTKIALEEEKHQVLNEQEHLK<br>IIDKERNELLKLQTQLKEEIENYRAREQEVEKEAEELRLQRENFEKEWEF<br>LDEKREQVMKESARVDEERKRISKWLLDEQERLKHDKSTLRERIQSETE<br>TLRLEKEAFEASMQHERSEWLENIRNEQADLVRDIELQRSELENSIEKR<br>REEIEKLSREKEISLQKDKEREMQHINAQRELASKETEEMRLERHKLEKE<br>RQELSISREHADRQWSEIKKDIEELQVQRDKLKEQRDSLHKEREEVLRLF<br>EHLHKLKTDINVTDDVLNLTANKDGSNSQEALTQNIFGTPADGSLKFN<br>PGTSSGRVFESGSGTPNRLSWLQRCASRFLKSPSPLKIVDSTDKKGETA<br>VRPTVGTDAVGGESERGNREIVVGLEIEPAFLADGEKYDLAVQNKNEM<br>MHEHDVPKPLPSVYFDHSLPSSSNGNRRKPSDKSKIKVFKRTRSIKAVV<br>EDARGLLEVSSDKEMDEFGKGQEHGQNEAAFADNREKGESAGGEKAI<br>SGQEIDGSNRESLATDKRPSKSGRKRRRVQSSRATSEQDAEDSEIQSEP<br>AVGGRRKKRQQSAANGGNSGVGTPGAKRYNFRHSTIASSVATQVQS<br>VDAKDNDNAPAEEDKSKNTHASPSDADVMNREVNREETSLNKSAMV<br>PSGQESEKHSPSVRTGDNDLGDAIEDLQEVSSHELTKSETDVYPRSEED<br>EGGNGEEYQYTEERDDEDDDFDDDGNDEEEDNDPPSLRKKLWKFLTT |
| Mfi2 | Microstrobos_fitzgeraldii | onekp:BBDD_scaffold_2010913 | IEKQCVADLEKALHEIRAESAEIKFVSENKLAQACELVAATEENSLAAES<br>KLHAGEALQAEANRKRADAERMLQEVEAREDELRRQCEAHEKELYFE<br>RQTLREWHMKLQEGQDRLLEGQRLLNQREEYIMERSEAIKQIEKELQD<br>VKQKLGKEQSTLKEKEADMKVNLADLTIREEALVKRETIIDKKEQELLLL<br>QEKLATREREEIQRLTDEHQAVLEARTLEFEAELEQKCRAVDDELENKR<br>NDADTREDEIKCKEEKLNKRGQQVEKKAEKLKEKQKELDAKLRALKERE<br>KILKIDEKEIETQQKKLEAERHEMNNLKQVLEKLKSALEEERHQIHIEQEK<br>LELTENERNDMKIIQTKLKEEIDNLRAKERELSQKEDVLNVEKEKFEREW<br>EILDEKTELLRKDSEQVDEEKRRVSRWLKDEEERLKQETRVLREHIKSDE<br>EALRLKKEAFASSKRHEEAELLAKIERERADLYRDIELRTSELEKSFEQRQ<br>EELEKHYQDRESAFQKEKQKEMQHIVAQKEMSDKELERIQLERQRLDR<br>EWKETATTHEQTEQEWSEIKKDIEELQIQKDKLKEQRESLHNERQELEA<br>QLDQLKKLKAELKMTEDSLKLSEQQISQVNVNDCEVISAKQFDGCVSS<br>QVAIRENVVSAIPCKTDEFRPEINLGGTPGSASDTPSPLGWLQKCASRL<br>FKQSP |
| Mgl1 | Metasequoia_glyptostroboides | onekp:NRXL_scaffold_2066762 | MMTPNRRGRWPGWSPTSRSSPAVDDKAVAVVEKSGHVTVGSGGSA<br>GKATVEAPPRNSLDGNGRFAVTAAAAEPEVWRRFRESGSLDHDSLEK<br>KDRAALLLHINKLDAELYDYQYNMGLLLIERKEWTSKYEQMKLALAEAE<br>ESLKREQSAHLVAITEAEKREESLKKSLGVEKQCVSDLEKALHEMRSEVA<br>EVKFISESKLAQAREMVASTEEKSLDAESKLHAAEALQAEASRKHAETE<br>RKLQEIEAIESALRRDRQSLKSECDAHEVEISLEKRNLLDWEKKLQDGQ<br>DRLLEGQRLLNQREEYTNQRDEAFKQIEKELEDAKKQIENDHSTLKEKE<br>ADITVRLTALSTREENAVKREILIDKKEQELLVLQEKLASKENEEIQKLLDE<br>HKAMLEARKIEFEAELEQKNKSVEEDLEKRRSTLELFEKDINSKEEKISKR<br>EQQIEKKVEKLKEKEKEVDARSKTLKEREKILKNEEKEIMIEKKKLDGERE<br>EINNEKQELQNVKVSLEEEKQQIFNEQEKLKVTEKERNELQKLQTDLKE<br>EIENYRAQKQEIEKEAEELRLEKERFEKEWEFLDEKREQAKKELALVEEE<br>KKRISKWLRDEEERLKQEKSALQERIQNETEALQLEKEAFAANMQHER<br>AEWLESIRREQADLIRDSELHRSDLVNNIEKRQEEIEKSLQEKEIGFQREK<br>ERETQHISAQRELVSKEMEEMKLERNRLEKERQEISTSRQHADMQWT<br>EIKKDIVELQLQRDKLKEQRESLCKEREEVLGLFEQLRKLKTELNISEDGL<br>DLIANKGGICRTGDDYGFSLEVVPQKIFGTPASASAKGDPEPSSGRTFPS<br>ASGTPGRLSWLQRCATRFFNQSPSPEKMIDSTGRKEETDRSPTVVPET<br>TGAESERMTGEIVVGLEIQPTISADDQNHDAGVETEVDAQEQGITKSS<br>PAVKFDHSPPSRSKGNGSKSNDKSKVKVFKRTRSMKAVVEDARGIIDV |

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| | | | PSDQEKNESESRQEHLQNQSAVPDNRQDKDGRAGGDKTNSAQEIDD<br>SNRESLANDKRSSKSGRKRQRGHSSRVTSEQDADDSEIQSELVAGGRR<br>KRRQQGTANGGSSGLGTPGGKRYNFRHSTIASSVAT |
| Mgl2 | Metasequoia_glyptostroboides | onekp:NRXL_scaffold_2066709 | SPVNENEMWRRLKKVGLDEEILQKKDKAALIAHITKLETEIYDYQYNM<br>GLILLERKELISKYEQLKLTAGEAEGNFKRDQAAHLAAIAEAEKREESLRK<br>ALGIEKQCVADLEKALHEMRAESAEIKFVSENKLAKARELVASTEEKSLT<br>AESKLHAGEALQAEANRKRADAERLLQDVEAREDELRRQRQAFKSECE<br>AREKELFFERQNLREWEKNLQEGQERLLDGQRLINQREEYVIERNEAT<br>KQIEKELQDVKRNIEKEQSALKEKEADLRGRLADLTTREEVLLKQEVIINK<br>KEQELLVLQEKLASREREEIQRLTDEHQAALEVRKSVFEEELKQQRKAV<br>DDELENRRNAADIREIEIQCREEKISKREQQVEKKAEKLKEKDKELDARL<br>RNVKEREKLHKIKEKEIETHLKKLEIERDEMNISKQVLEKSKAALEEERKQ<br>ICKEQERLELTEKERDDLRSIQIKLKEEIDNFRQQEQELSKKDEVLNVEKE<br>KFEREWEILDEKTEQLRKELQKVNDEKKRVSKWVKDEEERLKQERRML<br>REQMKNEKEALRLEKESFANSKKQEEAELLANFQRERADLCHEIELQKS<br>ELQNSFKEIKCLEEDYKERVREFEEKKKEEEQYIKAQKELSDKESQEMKL<br>ERQRLDREIQEKIVTTREHIDREWSKMKKDIEEMETRREKLKDLRESLH<br>REREEFEAQLDQLKKLKDELKMTEDSLKLSEQPLLQAVLNDCEVISPGH<br>FDGGISQAACTQSISAMPFNADNFCSEIHVTRPPASASDTPSPLAWLQ<br>KCTSRIFKKSP |
| Mgu1 | Mimulus guttatus/ Erythranthe guttata | Phytozome 12 Migut.H00533.1 | MFTPKKKLWSLTPSSEPGQKNGSVSGLNTNPISPRNGEASAKGKSVGF<br>LQSDGIMDQASLTERVAKLENELFEYQYNMGLLLIEKKEWTLSYDELKQ<br>ALADATDTLKREQAGRSSVLSEAEKREENLKKALGVERQCVHDLEKALR<br>EIRSEYAEIKFNADSKLAEANALVTSVEEKSLEVEAKFHAADAKLAEISRK<br>SSEIERKLHELEAQENALRRERSIFNTEREAHDASISNQREDLREWERKL<br>QEAEERLADGRRLLNQREERANANDKILKEKQNDLEELRKKIEMGNSA<br>LKNKEEDVRSRLASITIKEKEDDDVRKKLEEKEKQLLELEENLNTREKFEI<br>QKLLDEHNRILAEKQKEFELEMEQKRKLNDEHLKDKVVELEKKEAEITH<br>MEEKIKKREQAIEKKTEKVREKEMDFESKSKALKEKEKSLKIEEKNLEKER<br>KQMLAETEDLLTRKAELESIKIDIEKLQQRLNEEREQLKVTEAERIEYARL<br>QSELKEEIDKYRFQSEQLMKEADGLKQEKEKFEKEWEELDDKRTEIKKE<br>QEDVLEQKIYLEKLRHSEEEKLRGEKLETEQYVQRELEALKLAKDSFAAS<br>MEHEKSIYAEKTQSEKSQLVHDFEMRKQELETEMRRKQEERESSLQER<br>EKSFEQEKEMELNNINYLREVAKREMEEMKLERLRMEKEKTEMSHNK<br>KHVEAQQHEMKKDIMELVDLSQKLKDQREQFIKERERFIAFAEKQKNC<br>NICGETISEFMLSDLHTLTEMKNLEAPPLPRVAENYLEGVEGTIAGFDAE<br>SSPARVNSGSPTAPGGTMSWLRKCTTKIFKFSPGKKLELDYTEDLAGSS<br>ALPEKRDVDSPKSLPGGEKEAEPSSQIANDSFDVQIVESDSAIRKVEDPV<br>NTQEYSQKSDLKARRRGPGKGGRPRTRTVKAVVTGSKTNGNAENSVY<br>TNDESQTESDLVGTTKDRRKRTRVHGSQATVSDSQTEGHSDSIKDGDR<br>PKRRQRVVAAEQSVGQRRYNLRQPKKSVGTTNGSLPQVRKGKENESD<br>KLPVLEADQYENFVTEGASREEIDECGAAAPLPKRFGGEEPVRSNNGA<br>SEFSADSPFKNAVGTRREHVDDMVLSEEVNGTAEEGMEYSGEEFKTES<br>EVEEGDNNEDDEVEHPGQASIGKKFWNFLTT |
| Mgu2 | Mimulus guttatus/ Erythranthe guttata | Phytozome 12 Migut.H00316.1 | MASSNYRSDKFALTPRSAATGLLSSPNSGSARVLKTPLSDEAIWKRLKE<br>AGFDEESIKRRDKSALIAYIAKVEAELYEHQHHMGLLILERKEWLSKYEE<br>AQSMADSAELKFNRERASHVSDLADAKKREDGLKKALGIEKECVKNIEK<br>TLHEMRAEYAEVKVAGESKFVEARSMVEDALKKLTEAEEKTRAAESLE<br>AEASRYHRTAERKLHEVEEREDDLRRRIMSSKADFEAKEKEIQLERQSLS<br>ERQKVLQHTQETILDGQALLNSREEHIFNRNQELKRFEKELEDLKISIDK<br>ERIALNEEKLVLELKASSLSVREEAVIKRECDLFKKEEQALLLQAKVTSKES |

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| | | | DNAQRVISNHEAILAMKNSAFEAEAEMKRKSLEDELDAKRRDWELREL<br>DIKQKEDLILERERDLNVESELLKEKTKEVEEASRFVKEKEKNLLAAEEEL<br>EVKKKSLEQEKEEIHQKKLDLKKFSDLLEEKKKHISDAEEKMEEMKRETN<br>ELLALELRLKEEIDIISAQKQELEAEAERLKAEKAQFEAEWELIDEKREELE<br>KEAGRIAEERSTVSKYLKEERESLKEEKNAMREQYKRDLQLLSRDRETF<br>MTEFESERTEWFSRIQKEREDFLLDIETRKKELDDCMEKRREEVENYLR<br>ERENEWEERKEKELQHMTSLKERVEKELEGLKSEMKILYSERTEKIILDR<br>EKRAHECAELNMSIEELKVQREKLEKQRESLRADREEILSQIETLRKLEDL<br>KDRLDSITVHEMHQANMRSNNLKLSAKKIVNRENELVSDQNGNINNG<br>FGHNAIGTVELDKLSSPLSAPFSWLKRCADTLLEQRQSNKKRRREKDVT<br>THGSENSTPSSTQKYSNASKIEHTVTQFNQTPDGGETTVYIDKIITIQEV<br>TTVDVERITGDNEEAEFQHKDEKLENNGDVELEINGKL |
| Mgu3 | Mimulus guttatus/ Erythranthe guttata | Phytozome 12 Migut.L01107.1 | MFTPKRQWPGAPMTPKTEVRATPNPSRKDKMVAFTDGTPPPPPPTS<br>FLSANGNTAQAENMEDWRRFHEVGLLDEVELERRDREALVERTQRLE<br>RELFDYQYNMGLLLIEKKEWTSKHEELQESIQEVQELLKREKTAHLIAVS<br>QVEERESNLRKALDAERQCVNELSRSLRDIGSEHEKIKMTSASKLANAN<br>DLVAGIEDRSLEVQQKLLSADAKLTEANRKALELERKLQEVETRESVFKR<br>ERMSFISEREAHEANFLKHKEDMREWERKLQEGEERLCQNRRNINERE<br>EKVNELSRMLKERERELEDEQKKADLANLTLKEKEDEINKKLAELIVEED<br>KAKSVRSNLEMKEKQLTALTEKLSSREKVELQNLLDEHRSALDIKKQEFE<br>LEIEERRKSLEEEIKIKHENLVKKESEINHMEEKLRKQDQALEKKSDRVNE<br>KEKDIELKLKGLKEKEKALKLEEKNLDLLRRETASDKESLQILKDELEKMK<br>AEISQKKLEIHDEKEKLSVTNEERKEHNRLLMNLKQEIERYKHEKDLLSK<br>ESDDLKQDRKNFEEEWEALDEKRAELTRDAQQLEEEKTEIEKLKSSLEK<br>QLKEDKIVTEDYVKRELEALKLEKESFAATMEHEQSMLSEKSRHEHDQL<br>VRDYEIRKRDLEADMLNKQEEMERSLQERERAFEEKTEKELSNISRLKE<br>VLQKETEDMKAERSRLEKDKQSITLNKTQLEEQQLEMHKDINELGVLS<br>KKLKLQRQQFIKERSRFFSFVETLKDCENCGDRAREYILSDLQITDKEEAS<br>PLQALGEELLEKVSSYKSNAKKDALSEEDPKLSESGGRMSWILRKCTPRI<br>FNSPSPTKKVQEMPPQNLDQALTDTLVNVAENVGVSNMPDNHEVPE<br>DSQNSGLKNRRRKSSRKFGGVHRTRSVKDVVEDAEVFLRRKSGDVELN<br>EEQSKDEESRGESGLVGKAASAVRRKRTRAQSSKMTESVDADYDSEG<br>HSESVTAGGRRKRHQTAAPAVQNSGQTRYNLRRHTAKSKGVAISTDS<br>ERIPDKEVGYATVSRDNEITSAPPEEVTSQKRSSAQLVQVTSRKQAQM<br>VSVERVVRFQAGENLDENADAAKLTETVDLSEEVSGTPEYNTGDEENE<br>DEEGDEYAPGEASIPKKLWTFFTS |
| Mpo | Marchantia polymorpha | Phytozome 12 Mapoly0160s0011.1 | MFTPQKRAQPSWALQSSGEKANRRDKGKVISPDGRVGGSTPNSTTET<br>LTRTVVERSVVEMSMMDVAPPVASLDGRGPDGVQSEPEIWRRFQEA<br>GALDVESLEKKDRVALLAKVSTLEAELYDYQYQMGLLLMERKNWNIKS<br>EEFKAAILEAEENTQREQAANLIAREEAERREQILKKSLEIEKRCVIDLEK<br>ALKEMRAEAAEVKESADKQVVHAREMVYGIDEKLQTADAKLYEAQAI<br>RAEASRRHAESERKVQEAEAREDALRRERQGLYAEVEARKQELDKEEQ<br>SLKDWEKRLQEGRDRIHEGERLLNKREQSINQRDEEVKRLEKKQLDIKS<br>DLERDRLLLQIMEGDLNSRLAIITEREETALEREVSIDKKEQDALLTQQRL<br>AGRLVDLEEREQHLKSMEVNINNERERLEILEGTLKLREESLVEERDDLV<br>NLRLTIDEQKRELVALKEEVESAKATLEKERMKLEADREDFESKKDLVEQ<br>RLLEIDQKLESIAQREVQDHKRSTMLSEREENLEQMFQGIAVKERIVKE<br>EESAVEAERRRLAEEKEDLERAKEEIEDIKAQLALERQQVQDLKDKLKKD<br>HEAEMHELAEERNALRMGEEQGRKRLQEEKEVLQQQIEDEKRQITAE<br>KERLKVIEEEREELLLVQKQLKEEIDEFRARKLRVSNELEELKTEKERFERE<br>WELLDERREELKKEKEKYDEESRTMTEWLRTEEERLKAEKQEIHVQFLT |

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| | | | NSEDLSAEREAFIKRMERERVELFSRVEKEKEDIMRSVDLQRTELERSVE<br>KEREQFNKLAEERELRLFKDLEREKEKIKEANEALLRESELIGLERQKLEKE<br>RHEILTQRDNAEKEWSEIRKDIDQLHIQREKLKEQREALHNEREEILQEK<br>DTVQKEANRLRKMKYELKEGESSLRFSDQQQSQRRGQMGQDAEVLS<br>PPQQGQSVVRDSGKELTPKTPPGPGTSTGAEVTPSRKLITSPSAGLGW<br>LKACLFRSAEKTAGPSTAEGQAVAQGQRSQSRDVRQRLLQPSRSFNQ<br>SQIAQAVGVDAVGSVKKRVKRAKRTGPMQVVTEEARQGNSQADWT<br>GSQMEDREAEVMSEADGGRNQEALVPEEGSKGKDAEVNDIAQTSEP<br>RGAKGGRKRRRQPVKETSQNYLENNEESDSDTAGATRRKRRFKDIEVL<br>SGYNGDSGLDTPTSQANTPGGGRRYNLRRSTLINTKATQAASAQSEER<br>ELSAQQERSQRKKAPPASIPEASGDLPEVSSPPPSQREVRPMTTITLSTL<br>VIEETIVKTEVTNGIVEGNELEGNGSPEEGVGVLERASDEPVQEQHEGS<br>QDGAVQEQQEDPQEEAVQDLQHDLQEVIGEGLLAGYEFGQGSAGV<br>QLDARNGDGEEHDGDDGDGDEGVLEEEVVEEVEEEELEDGVEADVEE<br>VEEGGEEVEEVEEGEDEEEVELEEDEEMEEVDEVEPEEEQSESQEEAET<br>PKPTIGQRVWDFLIT |
| Mtr1 | Medicago truncatula | Phytozome 12 Medtr7g018610.1 | MFTPQRLWSGRNNTPNKRGSGHDLGVISGEGSKGKGVENGGNLDRE<br>VLVERVSNLEKELYEYQFNMGLLLIEKKEWNSNYNELSQDIVEVKDALE<br>QEKAAHLFALSEAEKREENLRKALGVEKECVLDLEKALREMRSEHAKIK<br>FAADSKLAEANALIASVEEKSLEVEAKLRSADAKLAEISRKSSEIDRKSHD<br>LESQESALRRERLSFIAEQESHESTLSKQREDLREWEKKLQDGEERLAKG<br>QRILNEREQRANDIDKICRQKEKDLEEAQKNIDAANVTLRSKEDDVNSR<br>LATITLNEKECDSMRMNLDFKEKELSAWEEKLNAREKVEIQKLVDDHS<br>AALDAKKQEFEIELEEKRKSFEDGLRDRLVEVEKKEGEVSHMEEKVAKR<br>EQALEKRAEKLKEKEKEHEVKVKALKEREKSLKSEEKDLGKEKGQIESER<br>EELLSLKSEVEKLRANNEEELLRIKEETNRLQVTEEERSEYIRLQSQLKHEI<br>DQYRQQKELLMKEADDLRQQKETFEREWDELDLKRADVEKELKNVLQ<br>QKEEILKLQQNEEERLKKEKQATEDYLQRELETLQLAKESFAAEMELEKS<br>SLAEKAQNEKNQLLLDFEMRRKELEADMQNQLEQKEKDLFESRRLFEE<br>KRESELNNINFLREVANRGMEEMKHQRSKLEREKQDADENRKHVERQ<br>RIEMQEDIDVLVDLNKKLKSQREQFIVERRRFIDVVEKLQSCQNCGEMI<br>SEFVLSDLQSSADIENLEVPSLPKLVGDITQGGSDVNLDSSRQNTGASP<br>ATDTKSPVPGGTVSWLRKCTSKIFKISPIKKIESDVDNLRSVDTLPFDKTN<br>EDLPANVPGTENEAELSFAIADDSFDVPRVQSGNDITDTEVEADHEPSI<br>DKQGNIDATATDYLQPPNSKAGQQKPRRGGGVRARVKRTQTVKAVIK<br>EAEAFLGESKAAEAVPGESVDDRETDFPNGIAEDSANMDSESQKPPEK<br>RTANLRKRNRIQSSQVTASGHEDDPSEGHSDIPGRPKRRRQKAAAPPA<br>QSAGETRYNLRRPKTGATTSSVRDVSAGGKESEGEVGRAKDAGVNIHS<br>KPSHSHSVGITNENEDSIDIDQSQKAAETHDDYDDTTTNNRALSEEVN<br>GTADDVEDHDTEYRSESRGEDAGRVDDDDDEEIDEDYQHPGETSVGK<br>KLWKFFTT |
| Mtr2 | Medicago truncatula | Phytozome 12 Medtr4g097580.1 | MEISTPSSAKPLSITPSSRVLRSPLSDEQIWKRLREAGFDEESIKHKDKAA<br>LVAYIAKLEAEIYDHQHHMGLLILERKELVSKYEQVKTMVESSELVHNR<br>DLSTNKSALAESRKREESLKKTIGVKDACIGSLEKALHEMRTECAETKVA<br>AESKLAEAHQLTDEAEKKFTEAEAKVRAAESLQADANRYKSVAERKLR<br>DVEAREDILRRQIISFKSDCDEKDKEMNLERQSLSERQKVLQQEQERLL<br>QSQSSLNQREDHLFSRSQELDRLQKELEDTKFKVEKEHEALHDKKTSLQ<br>LLEATLTQREEALTKSKTELNKKEQELLEFEVKLSNRESDETHKAIADREA<br>TMRAKKHDLEVELQMQRKSVENEIETKRRAWELKEVDLKQREDQILER<br>EHELEVISRSLSEKEKDLAEQSTALKDKDQSLKASEKEFELNTTLLQKEKD<br>DIEQAKKDLQVSLASLENEKRQVDNAKQRLEVIQSETGDLSIFEVKLKEE |

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| | | | IDLVRSQNLELLAQADKLKAEKAKFEVEWELLDEKKEELRKEAEFIENER<br>KAVSTFVKNERDKLREEKENLRKQYTHDLGLLASERENFMKKMAHEH<br>AEWFGKMQQERADFQRDIEMQKRELNNLIEKRREEVESYLKERETTFE<br>EEKNRELQHIDALKEKAAKELEQVSLEMKRLQTERTEINLDRDLRNKEW<br>AELTNCIKELEVQRDKLQKQRELLHADRINIYSKTEELKKLEDSKVVSDDL<br>AIVEMLKSDMEYNQQKISSRKNLKHQTLTQGVRLSSCKDVDVDNIDN<br>GFDTPFVQKSSGVSPASAARFSWIKRCTELIFRNSPDTLTKKGNLAVAS<br>DTNNGSNGQKHLENDNPLGNFSNGRQMGYSFGEPKVIVEVPSLVGN<br>ASRTSELKSVTKDVNGKPAFSEELQVGRGKRGRENLITKVADPLVDLAQ<br>NKKPRAEERMAKNPLDQATTYCVHSTQSDISEIQQVSGASNHKKGNT<br>EEARVVMVDKVIHVSEVTSEKVDTLIIPNQDNLHRETNDQSNSKTRSEE<br>ILPCGSSVLENTEGIRQENTEPVSDYC |
| Mtr3 | Medicago truncatula | Phytozome 12 Medtr6g015285.1 | MFTPQRKSRPIGTPAPFTPHRIGVTPKSALAKGKAVVFADEPLPPPPLG<br>SLTDTGGDVVVASSYAEDWKKFREVGLLDEAVMKRKDDEAMMEKIS<br>RLEKELYDYQYNMGLLLIEKQEWSSKFNRLRQELAETQEVLKRDQSLHL<br>IALSEVQKREENSRKALSLEKQCGADLERALHAMQEELAEVQSSSHTKL<br>DKANELVDGIEEKASTVNKKLHDAEARLAEVNRKNTELDMKLRELEVR<br>ESLLQKERLSVATDRESFESVFYKQREDLKEWERKLRQREDMLSDGRQ<br>NLGEKEQNVTETEKKLKQKERDLEVSEKNIDSSNSLLKEKEAEMSRRVA<br>DVDAEEKKVDSAKKMLEIKEKELQELELKLSARESEGIQKLLDEQKKTLD<br>LKLQQFELEMEQKRKSLAEEFSSKEEALEYREIEVNHRETKVGKEEQALS<br>TKSERIKEHDKELLTKMKSLKEEEKTMKIKERELEKEKEKLLADRRSLENL<br>NDELEKIKAEISQQKLQISQETENLKLIQDERSEHSRLQLELKQEIEHTRM<br>QKDLIMKEAENLREERLRFEKEWEELDKKRAEINGEQQEVEKEKEKLRK<br>LKNSEEERLKREKQDMEDNLKKELEKLELDKKSFSDSIKQEEFLLSEKVK<br>NEKAQMVQDFEWKTRNLENEIQKRKEEMEKDLQQRERKFQEEMEKE<br>LNNINILKDAAEKEWEEVKSEGIRLENERKELETNKQQLKSDQREMHE<br>DSEMLMNLSQKVKKERERLVAERNHFLALVEKLRNCKDCGEVVRDVV<br>VSDLQLPDSKECGVLPLPTSPLENSKDNVIASGSNHSGSKWPVSVFRKC<br>TSKIFSLSPSTNTDSIGTSNIAGTSPESDVNVNIEKVGEPVSSPNIEGPIVA<br>LQERQIADGVAFHSSDTAHLQSDNIAREGNTEYSLSIDEHSYMESLTGG<br>GPDDSQQSVPKVGRQRPGRKSKSGIARTRSVKAVVKEAREFLGKTSSQ<br>NLDTDYIKENSHEESSHTEKATGNSTRKRQRAQTSKIAEGEQNAADSE<br>GHSDSSTAGGRKKKRSTVAPPTTQVTGEKRYNLRRHKTAGTVSSTQEL<br>SNKTKALEKEASGGKQEAGDKNPEVAVVADDNIQTTTLVQISTVKSVEI<br>KDDRVVRFEIPRDNVDDNGATTNSVDRIEESGTLEYGDEDGSIVNDVE<br>NEDEGEEEDEDEEEEDPGEVSIGKKIFKFFTT |
| Nhy | Nitella hyalina | (Koreny and Field, 2016) HO490484,HO531334,HO566387 | LFLMEKRSLLAETSKSDNTVEGYEEIIKRRREEWSIMDFEELETQLKDTYL<br>KEQRDVEEVIKDXXXXXXXXXXXXXXXXETKENLLRRREREQVRILGADM<br>ETKRQELTERENIAREWEAKLATREQGVKKTEERMKAREDTVLRKERD<br>TEEGLARLEGKRKGLSEMEDDLRLREKDLSTKEEGLXXXLNMKDEELRS<br>AKERLLESEHDVKMERERLKELEAMLARRQEIIDQQKQQLSSRENAVT<br>ERELSSASAAHNMKLDREDIERKERDLRILREEIEEQKALLNDSRRKHSS<br>GKRSVELRERNXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXF<br>LRQHAAESENRRSTVRTTVTEEEARKRKRGHSELSRTDLQRGESVAVA<br>GSAELEEQGNADRRVDGVSSAGRSGTPPSGTDASPSRRRTRSMQDVI<br>NKGNEIWGASLVQGDEMEAQAVKGAGKxxSYIPKRRRKGQAMVDAX<br>DADEDTTTDDDTGKDDTEVARKIDRSVKYNLRKSTVYHQAARFSEQN<br>RDAQAYEGCGVLTRQVAGTSDRLVPPSPVMGRKLDSLVGLKQQASW<br>RQPSERELT |
| Nlo1 | Nothotsuga_lon | onekp:AREG | MLTPKRRGWPGWSPKTPSPPPPTAEDMAGSSHVATPAAAAGGSSG |

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| | gibracteata | _scaffold_2012690 | GRALVEAPPRNLLDNNGEIVATRGQPEIWRRFREAGSLDEESLEKKDR<br>AALVVHVTKLEAELYDYQYNMGLLLIERKEWTSKYEQMKVAIAEAEEN<br>LKREQSAHLIAISEAEKREESLKKALGVEKQCVIDLENALHEMRAEMAE<br>LKFTSEDKLAQAREIASSTEEKALAAESKLHAAEALQAEVSRKHAEMER<br>KGQDIEALERALQRERQSFMSEHEACESDLSLERQNLLAWEKKLQEGQ<br>ERLIEGQRLLNQREEYINKRDEAMKQIEKELEDAKMQIEKDHATLKEKE<br>ADISARMAALATREEDVVKGETVINKKEEELHALQEKLVIMENEEIQKLI<br>DDHKATLEARKIEFEAEIEQKKILVEEELGKKRSDIELMEDNVNRKEEKV<br>SKREQQLEKKAEKVKEKEKEVDARSKALKEREKTYKNEEKQIEMEKKKL<br>EAEREDINNEKQELQNLQVVLKEEKQQILNAQENLKVTEKERTELLKLQ<br>TELKEEIEDYRARKQQVENEAEELKLEREKFEKEWEILDEKREQVRKESA<br>QVDEDKKRISKWVLDEEERLKQEKRALREHIQSDSDALHLEKEAFKNS<br>MEHERAEWFENVRRERADLLRDIELQRSELESSIEKREEEIERLLHEKEV<br>EFQKEKEREMQHIFEQREIARKEMEEMRVERRKLEKERQENTKSREHA<br>EKEWSEIKKDIQELQVQREKLKEQRESLCKEREEVLSLFEQLKKLKTELN<br>VTEDHMKQIADKDGSHFLRPEDAFGFLQQGPGQNIFGTPVDTSMKV<br>NPEPSSGRTDASTSKTSRLSWLQRCASKIFNQSPSPGKVDDSTVWKEE<br>TERSHTPALEVDLGAEIEKMTYENTVGENVEHMSSADVQNDGCTVEA<br>AEDNRQGHGKLKSKSVVNFDSSLPSPSVGNGHKSKDKAKVKVFRRTRS<br>MKAVVEEAKGILDTPSDMEKNESEDRQEQEQNDAAVTANSEDPGKE<br>ADTDKTDTAKEIDESKGESLASDKKPSQSGKKRRRKYSSRATSAQDAED<br>AEIQSELTSGQRRKKRQRDSANGDNSVVGAPGGKRYNFRRSTIASTIA<br>AQTVSLEEKEKDLTTQEEEEDSRRVQENPPERVAEDNQEASSDEPARV<br>PSIGEKDMNTPPAEDQQPQSFQENGLGDAGDDLQEVSSHGLTKSETG<br>EFYAESEDEGGNGQDIEEIVETEDDVEEAEEFDEDENNDGDDQKTSLR<br>KKLWNFLTT |
| Nlo2 | Nothotsuga_longibracteata | onekp:AREG_scaffold_2012479 | SPVNESEMWRRLREVGLDEQTLQKKDKAFLVAYITKLESELYDYQCNM<br>GLLLIERKEWTSKYEQMTLSASEAEDKAKRDRAAHSVAIAEAEKREETL<br>KKGLGVEKEKALHEMRAECAELKFISDNKLAQAREMVATTEEKSLAAE<br>SKLHAGEALQAEANRKQADAERKLQEVEAREDALRRERQAFKSECESR<br>EKELILERQNLRGWDKKLQEGQERLLEGQKFLNQREAYTLERDEALKQI<br>EKDLQGLKMNVEKEHSTLKEKEAGLRASLAALMTREEVVVKQEITVDK<br>KEQELLVLQEKLASREREEIQRLTDEHKATLEAIRIEFEAELEQKRKIVEDE<br>LENKENATDLRGLEISRKEEKLSKREHHLEKKAEKLKEKENELDARSRTLK<br>EREKTYKTEEKEMENEKKKLEVERKEINSTKQELEKFKASLEEERCYIVKE<br>QQKLELTKNERDELLDLQTKLKEEIDDLRAQKQELLKEADELNVEKEKFE<br>REWEILDEKREQLRKELEWVDDERKKVPKWVKDEEERLKQEKIVLREEI<br>KRDAEGLRLEKEAFENSMQHQRAVLFAEVQRERADLLRDIELRSNELD<br>NSIERRREELEKHYREREFSFQKEKEKETQYISAQRELLRKEIEEIKSERQR<br>LERERKEIATNQQHTEKEWSEMKKDIEELQIQREKLKEQRQSLQKERQ<br>ELQAQLVELKKIKDELKMTEESLKISEQQLSQVNINDCEVISPGHGISQV<br>ALRENILAVPQNANIEFNSGISPERTSASASTPSPLAWLQKCASRLFKQS<br>PEK |
| Nmi | Nitella mirabilis | (Koreny and Field, 2016) NCBI JV767595 | MKSAKKASSMNGSASPKNPNPDNNMISAGSFEIRKMTTTTRTLRESA<br>SCEKKKKTVKEVEEKNAGHNFGGAFSREALALDLSGLPSDLKPIELGGA<br>WRRFQDSGALSEQGLEKKERNFMVDHIKQLEDELYKSQYHMGLLLME<br>RKSLLADVAKLDHTAKEYEEIIKREREEWSMTRIEYEEIETTLKENLLAEQ<br>QCVKEVEKAIRDVQKEKDETTRLAELRFSEARALMSEVEKKEHGVEISR<br>KNVEATRAEFTRKKVEIESRARELETKESLVRREREQVRIESSELEMKRQ<br>ELIERENVAREWEAKLASREQSVRKMEDRMKGREDTVLRKERDVEEG<br>MARLDGKRKGLSEMEDDLRLREKDLAMKEESLVRREVNVVQQEQAQ |

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| | | | QEIEERLSMKDEEMRSAKERLLESEHDVKLERERLKELEATLTRRQDIIE<br>QQKQQMSSKENALMERELSSASAVHNIKLEREDLERKDRDLRLLREEIE<br>EQKALLNDSRRDAQQWEAKLEMRERSIEAKEESLRERQQDVELRGKG<br>VLDKERELKMDRRRIEAISKKIEEEREEVRLDMELAKKDREALANEREEV<br>RKEIEDCRRLKVEADNVRADALAKRAEVKKEREDLARDREDFMRKRED<br>MRKERDAVSKDREELKREKELLEQKRDQVIRESENVDAEREEVERERREE<br>LDKEREEVKQLREENSKELEGLMKLKDDLNEKDRSLKIESRRVEIELRTV<br>KEDRDAVRRESEELRKDKEKVQQLKIEVKNEKTELDIWKEEIETERERM<br>EREKHEVRRDRELLIRQEEVHVKLKIEIEESQRTFKMDKKKFELDHRALK<br>EERDDIKKEREELARERDLVDIERESLKKERDEVERDRLELELERERLEAK<br>SELFEKEKEELETEREMVKKDMESLSRQESRYSSEVLQKETELSLEKRRW<br>KEGLEENRVTRETLIREKEEFSREKEDAAKQRAENQREKEDLERDREEL<br>DRDRIELTVKRDELKRARELHLRQEEELAKTMEDMLAKERMLKSERRKL<br>ESASAKLKEEREEVSGEANEVKRereEEVLRERESVRKEKDELLQDREDLE<br>RGKEDVRRERDEMRRERDVVRRERIQLLREEETLSMDRDELMRERAN<br>TAKLELELTIQVEELKRQREELELVKERLCDQKAALSLQNMELTKQGEEY<br>RRKMDDLGRVEDTMRRRREAMIVEADAAVNHSGSLVATLLANVAHV<br>EDGATAVLALPQALTASGEDALHGARSREERSLQERVSEGGREETDKIS<br>WRSETRVSSKLREGRGSYFLRQHAAESENRRSSVRAQAIEDEERRKRKR<br>GHSELSRTDLQKGESLVAVRSEEADEQANTDRRVDVSSAGRSGTPPSG<br>ADASPSRRRTRSMQDVINKGKEMWMTSTIGDEVDIDTIGSKGVGKLN<br>SVQGKRRRKVRAMVDADEDTTTEDDVGKEDSEVARKTEGKVKYNLRK<br>TTVYHQATRVIESRDEQPSAGGAEMALQVAVTSAGLIPPSPAMGWKL<br>TRSLGLKQQVPRRRPSEGEHTSSRDTSQETVALGARKSGGEEDASRGR<br>SREEEEEEEEEENNEDEGQDEEENEAEKDEGADAEEDEVVERGRENSS<br>WLEWLLPVPWNV |
| Nnu1l | Nelumbo nucifera | KEGG 104601026 | MFSPQRKVWSGWSPTPSDAQKNGGASVSNPRNGGGGDGSVAKGK<br>NVAFLEGPSPPLGSLGENGRSAVVRLESGTDKEDWQRFKEAGLLDEAL<br>LEKKDRLAFVEKVSKLENELFEYQYNMGLLLIEKKEWTSKCEETRQALLE<br>AQEIIKREQVAHLIALSEVEKREENLKKALGVEKQCVADLEKALREMHA<br>EYAEIKFTSDTKLSEANALVANIEDKSLEVEAKLRAAEAKGAEANRKISEI<br>ERKLQEVDARECVLRRERLSLNAEREVQETALSKQREDLREWEQKLQE<br>GEERLCEGRRILNQREEKANEKDRILKQREKDLEDAEKKIEITNVTLKKKE<br>DDINVILANLAVKEEEADTVKKNLEMKEKELLMLEEKLIAREKMEIQKLL<br>DEHNSILEKKKHEFELELEQKRRSLDEELKNKVVALEQKEVEINHKEEKL<br>GKREQALEKRLEKSKEKEKDLESKLKALKEREKSLKAGEKDLEMEKKQM<br>LSDRENLQISKAEVEKIRADIEEQQLKICEEREKLKVTEDERADHVQQQS<br>QLKQEMDKYRFEKELFLKEVEDLKQEREHFEREWEVLDEKRTKVMEEL<br>KEMNEERERLEKLKTSEEEKLKNERLAIQDSIQRKEEALKLEKESFAASM<br>EHERLVISERARSEHDKMLRDFELQKREFEADFHNRQDKMEKHLQERE<br>REFEEKREREQNNIDFLTEVARREMEELKLERLRIEKENEEVAANKRHLE<br>GYQIEMRKDIDELGICSRKLKDQREQFMKERERFLAFVEKHKNCNSCG<br>ELTSEFVLSDLWTLAEIDDAEALPLPRLATDYLKESIQGSGASAERTKIEV<br>SPGGSVLASPPGGRMSWLRKCTSRIFNLSPIKRNEQVAGQGLHMESPF<br>LVPEVNVEKETSKRLVVTEDEPEPEPSFVVPSDSFDAQKIQTDNSIRDLQ<br>AEPTLSVGEQSNMDNMAQEFPEDSQQSELKSGKRKYVKKHKPAQRT<br>HSVKAVEDAKTILGENREEDKNAQPNGNAQPNGNTEDISNLNEESQG<br>DYGVASMGRKRNHAHVSVTTVSEQDANDSEVHSDSVTTGGRRKRRQ<br>IVAPAMQKPGEKRYNLRRHRAAGRAVSAAQETSNLTKGTKVTDGGDA<br>TSEEASKPEASITPPQVSENGQNAHVVPVTTRESIVEVHEFSADGVVRQ<br>FEAATDGDNADVAKSNENVEFSDEVNGITEGATEYGYEEEYASEVGED<br>EGEVEDEDGDESEHPGEVSIGKKLWKFFTT |

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| Nnu1II | Nelumbo nucifera | KEGG 104603075 | MFTPQRKVWSGWSLTPRSDVRKNGGASVPNPRNGGGGDGSVAKGK<br>SVAFLEGPPPPLGSLADNGGNNVTVLDGGGDMDDWRRFSEAGLLDE<br>ASLEKKDRLALVEKVSKLEKELFEYQYNMGLLLIEKKEWTSKNEELRQAL<br>IEAQEILKREQAAHLIAISEVEKREENLRKALGVEKQCVDDLEKALREMR<br>GEYAEIKFTSDTKLAEASALVVNIEEKSLEVEAKLHAADANLAEARRKSS<br>EVERKLQEVEARESILRRERLSLNAEREAQETTLSKQREDLREWERKLQE<br>GEERLGEGRRILNQREERANENDRLLKQREKHLEEVEKKIDMMNITLKE<br>KEDDINTRLANLIAKEEEADLTKRSLDMKEKELLVLEEKLNARERMEIQQ<br>ILDEHNNILEKKKHEFELELEQKRKSLDEELKSRVVEVDQREVEVNHKEE<br>KIAKREQAVEKKLEKSKEKEKDLESKSKALKEREKVLKAEEKSLEIQKKQ<br>MLSERENLVILKAEVEKIKADIDEQQTRICKEREKLKVTEDERAEYIRLQS<br>ELKRENDKCRLEKELFLKEVEDLRQEKEHFEREWEVLDEKRTEIMKELKK<br>VSEEKERLEKLKTSEEERLKNERIAMQDSVKRKEEALKLEKESFTACMEH<br>EQSVLSEKARSEHDQMLHDFELLKRELEADIHNRQEEMEKHLQERERE<br>FGEERSREQNKIDHLREVARREMEEMELERRRIKKEKEEVATNKRHLEV<br>QQLEMRKDIDDLVTLSKKLKDQREQFLREREHFLAFVEKNKDCMNCG<br>EIISEFVFSDLQSLQELDGAEVLPLPRLAENYLESMQGGGTSADGANTE<br>FSPGGTCLGSPGGRMSWLRKCTSRIFNFSPIKKTEQVAAQGLGTESLPT<br>EVNIEEEESSKRLVGAEDEPEPSFVVPSDSFDVQRIQLDNSIRELQDEPTL<br>SVEQSNMDSKTEELPEDSQHSELKSGRRKYAKKRRPMRRTRSVKAVVE<br>DAKVILGETPEENKNEQNGNREGFVDIVEESRGDSGMASMGRKRNH<br>AHASITTVSEQDADDSEVRSDSVTTGGRRKRRQTVAPAMQTPGEKRY<br>NLRRPKVVGKAVAAVQATSDPTKGMKKAADGGEVTGEEASKQEAAI<br>ADSQGVNGENGQSTRLVQVTALESVVEIHEISADRAVRQFETVTGGG<br>NAEAMMLIGNAELSEEVNGTTEGPVEYGDEEYASEGDEGDGFGDEDE<br>DDDDDESEHPGEVSIGKKLWNFFTT |
| Nnu2 | Nelumbo nucifera | KEGG 104591220 | MVSPQQERLGITLSSSKAGSPASRVLEASTPVQRNNGSPLGDETIWRR<br>LREAGFDEESIKRRDKAALIAYIAKLEAEIFDYQHHMGLLILERKDWTSK<br>YETIKETVESLEILRKRDQAAHSSALAEAAKREESLKKALGVEKECIANIEK<br>ALHEMRMESAETKVAAESKMAEARSMVEAAQKKFADAEVKLHEAES<br>LQAEARRYHHAAERKLQEVEAREDELRRRLVSFKSDCEAKEKEINLERQ<br>AVHEGQKILQQGQERLLDGQTLLNQREDYIFGRVQELNQLEKELEASK<br>EMIEKQSVSLNEEKSNLDLKVVALSTREEAVIQREMLLAKKEQELLVLQE<br>KIASKEHDEIQRLNAEHESVLEKRKSEFEAELEVKRKLLEEEMENKRRAY<br>ELREVDLNHREELLQEKEQDLEALSRALLEKERETKEKLKLLEEKEKSLIAS<br>EKEADLEKIHLQKEREEINNMKLDINKSMDALENKRKRVHEEEEKLAA<br>MKTEREELLVLEMKLTEEIVSIRTEKLQLVAESDQLKAEKAKFETEWELI<br>DEKREELQREAERVAEERKTVLKFLKDERDSLKLEKDVLRDQLKHDAES<br>LSHEREAFISKMEHEHSEWFSKIQQERADFMLDIEMQKKELDRCIDKR<br>REEIESYLREKEEAFEQEKTKELQRISFLQEKIAKEMENVALEMKRLDAE<br>RIEINMDRDRRENEWAELRNSIEELQIQREKLKRQRELLRADREEIDAQI<br>EHLKKLEDLKIVSENIVLSEMQGDLKPGRAKGAAKKLPNLEKALKDSNL<br>DSHPYEGTAHDGLHLDSKQGPGGASPPSSTPFSWIKRCAELIFKHSPEK<br>LIKYGERLEFESANVNLSESKDSQNSRKCESVLLENVGNTSGTFERQRC<br>NENDGAVKAFTETQPEKSVFEEPKIILEVPATENLEDRHSLDLEPEPKSD<br>ATEKSVYSSSEKGLLAGRKRLKNTSNNNHADVQSEQSLSNKKKRQRKN<br>VSETPKEGSVNNCMVSTQQYSPGDGPDFEIAGDAEETSSFVDKNCKIP<br>EGIIENKVSHNYIEHAKLTCSLNKSVNLDDVQGRGTGYANSPQVGNAV<br>SSRRSKVQK |
| Osa1 | Oryza sativa | Phytozome 12 | MFTPQGKGWTGWSTPAPANQRSGGGAPAASAPLGKGKGTTLRVAE<br>LEQELHEYQYNMGLLLIEKKEWTAKLDEINQALTQKEEILKREQAAHLN |

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| | | LOC_Os02g48010.1 | AISEYERREESMRKALGVEKQCVTDLEKALREIRGEIAEVKFMSEKKITD<br>AQSLEASLEEKRLEIEGKLHAADAKLAEANRKKSQADRDLEEVEARQRR<br>LEKEKLYFENERKAGEDRIKRQEDSLRDWDKKLKESQNRILDLQRSLND<br>REERANENDKLFKIKQEELEEAKKALEHTKATLKIKEDDINKRLAELHLQE<br>KEAESKNRKLEEREKKIAEREEKVSAREKVGLQKLLEDHNVKLESKRRDF<br>DLQLENEKKSFDAMLVQKEADLVQREKDVRSSEEKLSKKEQVLNESKK<br>KLEEWQNDLDTKSNALKKWEESLQNDEKQLSEQKLQIENERKQAEMK<br>LELESLKATVVAEKEKILQEQNNLKLTEEERQEHIMLTAQLKKEIDEYRM<br>RSNSLSEETEDLRKQRQKFEEEWEQLDEKRTHLEEEAKKLNNEKKNLER<br>WHDNEEKRLKDREDELDIKYKEQGENLALKEKSLIDNIDHQRLENEELL<br>KRERADLQRNLQLHRHELEMEMEKKQASKERELEEKENELNRKMDFV<br>ENELKRAAELNESKIQKILLEKKQLQKEKEVLVEDRQKLETDKADIRRDID<br>SLNTLSKSLKERREAYNRDRNNLIDIFEKYKVCKNCGVIIFEGLDALALKD<br>STDIEYPSLAVEADDRSPNPDTLAQETGALVNSGGRLSLLQKCSRIFKFS<br>PRKKAEQSSEQQAVKNTDFGARLEEASQSDDDYEPTPVYQVAYNSFD<br>AEDLPSESGAFENEESERQDIADDVQMESSLGVADNCVDIHGTQSFD<br>GNTDMVVDTTIVDVDQNGKDSAVLPVVDLEPETSKQGRRQQNRKGR<br>AKGGVKRTRSVLAVVEDAKEILGENLEVKKDDGQGDSVTVGGTRKRRF<br>AGATISEQDEDSEAHSESVSLGGQRRKRRQTAAAVTQAPGEKRYNLRR<br>TTVANAATAAQTNKKKAAKKGSKQTVEATADDTEGTSKAEEPATGSK<br>GASQSADDASQLPEYSQAEAGDTHGPVEVTSAEGVDIVDGIDAAPDA<br>MPMTPSGSELGAEQDDEEDDDSERRNQSIGKKLWSFFTT |
| Osa2 | Oryza sativa | Phytozome 12<br>LOC_Os01g56140.1 | MASPRSAGGVGGGGGGGGSGGAAAGDDAIWSKLREAGFDEESLK<br>RRDKAALIAYISRLESEIYQYQHNLGLVLMERKELTSKHEQLRAASESAEI<br>MHKRERAAQQSALAEARKKEENLKKSLGIQKECVANLEKALHDMRGE<br>TAETKVSYESKLAEALQLMEAAHKKFDEAEEKLLLAKSLEAESIRTHNAA<br>LRSLHDIDDREDQLRRDRISCELENEAKEKEISLQRKSLNDMKKILHEKE<br>EVLLKEQALLNQRDENILERLAYVTHSEKRVEEEKNILEAERKVLLEEKYK<br>LELKMEAIVSREEALIQKESLLDKRESELLILQETIASKERAEIERLNQEQAI<br>ALERRKHDFESEMANKQMSFDAAMEVTRNALHQRECALSEQESVVV<br>QRSQNLDLQLAELASKEKALAGRSDELKEEEEKLLLHREAIHNELQKERE<br>EIQRIKSDLEKEKAFFEEEKREAIQAQQDLAITQADRDELLTLQMKLKEEI<br>DSLRAQKRELMADADRLQAEKERFEIEWELIDEKKEELQKEAIRIAEERR<br>AITEYLKNESDIIKQEKDNLRVQFKSNSETLSREHKEFMSKMQQEHAS<br>WLSKIQQERQDLKRDIDIQRVELLNSAKARQMEIDSYLREREEEFEQKK<br>AKELEHINSQKEMINTKLEHVAVELQKLKDERKEATLERERREQELSEIK<br>GTIEALNNQREKLQEQRKLLHSDREAITVQIQQLNVLEELKIDSENKQLS<br>LLQHDKSKLGSDINVKDNHHDNSHSSPKQRFGRKLDLSPVSTPISWVR<br>KCAQVIFKRSPEKSASHDQFVQNGVPKKVGDSVDVEDVNLDFAKVGQ<br>KRLNHLVSCDQTEVLEPKRKHRRSTIQKVNGGEITSNCLSALEEKCSKNE<br>HDEAPLGLSNTCKEHEYGDKGPENLTKPGEPASSVDVPYVNGIVDNSD<br>SVQEEPSVEATVSATETSNVDGPEDNNDSDEEDEEEEEKTSSAKKLW<br>RFLIT |
| Pab1 | Picea abies | Congenie.org lcl\|MA_10432363g0010 | MQSQGQHGYLSFHFTLLRWGSNSDPRGRSNSCLLRKKWRIPLTTQQL<br>RSEIPDADPQEEGLAWMVSQDAFSSSSSRRDGGFESRRDAHCHSRRQ<br>QRREAGSLDEESLEKKDRAALVVHVTKLEAELYDYQYNMGLLLIESKEW<br>TSKYEQMKAAIAEAEENLKREQSAHLIAISEAEKREESLKKALGVEKQCV<br>MDLENALHEMRAEMAELKFTSENKLAQAREFAASTEEKALAAESKLH<br>AAEALQAEVSRKHAEMERKGQDIEAVERTLQRERQSFMSERDAFESD<br>LSLERQNLLEWEKKLQEGQERLIEGQRLLNQREEYINKRDEAMKQIEKE<br>LEDAKIQIEKDQATLKEKEADISARMAALATREEDIVKGETVINKKEEEL |

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| | | | HALQEKLVSMENEEIQKLIDDHKATLEARKLEFEAEIEQKKILVEEELGKK<br>RGDVELMEANINRKEEKISKREQQLEKKAEKVKEKEKEVDARSKALKER<br>EKTYKNEEKQIETEKKKLEEERDDINNEKQELQNLRIILKEEKQQILNAQE<br>NLKVTEKERNELLKLQTELKEEIEDYRARKQQVENEADELRLEREKFEKE<br>WEIIDEKREQVRKESAQVDEDRKRISKWVLDEEERLKQEKHALREHIQS<br>DSDALHLEKEAFKSSMEHERAEWFENVRRERADLLRDIELQRSELENSI<br>EKREEEIEQLLHEKEVEFQKEKEREMQHIREQREVAHKEIEEMRMERR<br>KLEKERQENTESREHAEKEWTEIKKDIEELQVQREKLKEQRQSLCKERE<br>EVLRLFEQLKKLKTELNVTEDHLKQIADKDGSDSPRPVDAFGFSQQALG<br>QNVFGTPVDTSVKVNPEPSSGRTDASTSKASRLSWLQRCASKIFNQSP<br>SPGKVGDSDVWKEETERSHSAALEVVLDAEIERMTHGNTVGEKVEHA<br>SFADVQNDDYTVEAAEDNRQGHGKLKSRPVVNFDNSLPSPSVGNGH<br>KSKDKAKIRVFRRTRSMKAVVEEAKGILESLSDMEKNESEDRQEQEQT<br>DAAVTANSEDLGKESDKDKTDTAKEIDESKGESLASDKKPSHSGKKRRR<br>KYSSRATSAQDADDADIQSELTSGQRRKKRQRDSANGDNSGVGTPGG<br>KRYNFRRSTIASTIAAQTVSLEDKEKDLTTQEEEDSGRVQENVLDQVTE<br>DNQEASSDEPAKVPSAAETDMNIPPVEDQDPQSYQENGLGDAGNVL<br>QEVSSHELTKVLKEGAWLRREGRVGALVEIFFCSHREGLAASSTAANRA<br>ARGRRFTYDAPAGQICPRPNRPFLGLIQPDLCRPYRSFLGLSKG |
| Pab2 | Picea abies | Congenie.org<br>lcl\|MA_3102<br>3g0010 | MLSPQRTGRRSPVSPSTDGKEKNKGVVVVATSPEARSPVSSIGGSPVN<br>ENEMWRRLREVGLDEETLQKKDKAFLVAYITKLESELYDYQCNMGLLLI<br>ERKEWTSKYEQMKLSASEAEEKFKHERAALSTAVAEAERQEESLKKALG<br>VEKQCVADLEKALHEMRAECAELKFISDDKLAQAREMVATTEEKFLAA<br>ESKLHAGEALQAEANRKKADAERKLQEVKLVKMHFEESGGLSSLNVNP<br>VRRSLFLRGKICEDGIKIFRKAKKEHSTLKEKEADLRTSLAALMTREEAVV<br>KQEIVVDRKEQELLVLQEKLASREREEIQRLTDEHKAMLEAIRIEFEAELE<br>QKRRVVEDELENKENATDLRGLEINRKEEKLSKRELQLEKKAEKLKEKEN<br>ELDSRSRTLKEREKTYKTEEKEMENEKKKLEVERKELNNAKQELQKFKSS<br>LEDERCQILKEQQRLELTKNERDELLDLQTKLKEEIDDLRAQKQELLKEA<br>DELNVEKEKFEREWEILDEKREQLRKELEWVDDERKKVPKWLKDEEER<br>LKQEKIVLREEINRDAEGLRLEKEAFESSMQHQRAVCFAEVQRERGDLV<br>RDIELRTSELENSIERRREELERHYQEKELSFQKEKEKEKQYISAQRELLHK<br>ETEEMKSERQRLERERKKIATNQEHTDKEWSEMKKDIEELQIQREKLKE<br>QRESLHKEREELQAQLEELKKLKDELKMTEESLKVSEQQLSQVNINDCE<br>VISPGHGISQVALRQSVFAVPENANIEFNSGISPVRTPASASTPSPLSWL<br>QKCASRLFKPSPEKEGESIFQKQETEREENLVSERVLGAGIGSVSSAGRR<br>NDYLVENAKHTSEHVDGTLYSRPVMNITQSQSSFLGGNKVKANAKGN<br>LRVFRRTRSISAVVQEAKEILEVPSERENHESDHVKEPEHETLLNSTGNG<br>DTTLNGEEATRDKANSAQEIDEEREDSIDNGKKNLHSGQKRRHRYSSR<br>DTSEHNTEVVEIECELTSGGNRKRHQRETTGSPGLETLNGKRYNFRDST<br>IASMIAPRTTSAECKDKEVSHGEEQDPKNSLENNLEEVSQEPQEVLRYK<br>LTKASLAEVKFKVLPQGKKQIPKRPHQKTLEEFGGELLEGYSRELTRVPN<br>SRVDEDDQEAYSHELTM |
| Pch1 | Pseudotaxus_ch<br>ienii | onekp:YLPM<br>_scaffold_20<br>84352 | MLTPKRRGGWPGWSPTSRSSPAADDKAVVGAEKGGHVTAGSGGGS<br>SSGAGKAALDAPPRNSLDGNGRILATAAPAEPEIWQRFRESGSLDHES<br>LEKKDRAALLAHVNKLEVELYDYQYNMGLLLIERKEWTSKYEQMKLCL<br>AEVEENLKREQSAHLVAITEAEKREESLKKSLGVEKQCVYDIEIALHEMR<br>AEVAELKFTSENKLTQAREMVASTEEKALAAESKLHAAEAMQAEASRK<br>HAETERKLQEIEAIESAFRRDRQSFKSERDAHEVELSRERQNLLDWEKK<br>LRDGQDRLLDGQRLLNQREEYTNQRDEALKQFEKELEDVRKQIDNDH<br>ATLKEKEADINVRLAALSTREENAVKREIVLDKKEQELLVLQEKLANKEN |

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| | | | EEIQKLLDEHKAILEERKNEFEAELEQKKKSAEEELEKRQNTLELIEADINR<br>KEEKISKREQQMEKKAEKLKEKEKEVDARSKTLKEREKTYKNEEKEIEIEK<br>KKLEREREEINNEKQELQSVKISLEEEKQHIVNEQENLKVTEKERNELLKL<br>QTQLKEEIENYRARKQEVEKEAEELRLEKEKFEKEWEFLDEKREQVNKE<br>LTQVEEDKKRISKWLRDEDERLKQEKSALREQIQSETEALRLEKEAFEAS<br>MQHERVEWLESIRREQADLVRDSELHRSDLENNIEKRQEEIEKLLREKEI<br>GFQKEREREMQHISAERELASKEMEDMRLERHKLERERKEIGTSREHA<br>ERQWAEIKKDIEELQLQREKLKEQRESLCKEREEALRLFEQLHKLKSEGN<br>VTEDGLDLIGNKGRSHVRAGDIYGFSQETLAQNIFGTPAAASAKVDIEP<br>SSGRTFPSASGTRNRLSWLQRCASKLFNQSPSPEKIVDATGRKEETDRS<br>RTTVPETGGVESERVPGEIVVGLDIEPTFSVDAHNEDVAVETVRDDKE<br>QGINKSMHALPSLSRGNGRKSNDKTKIKVFKRTRSMKAVVEDARGILD<br>APCDNEKNESDDRQEPQKNEAAVPDHTEDKGGRAEGDKTNSAQGID<br>ESNMESLANDKRSSKPASSKPGRKRRRGHSSRATSEQDADDSEIQSEL<br>AVRGGRKRRHQGTANGGGSGLGTPGGKRYNFRHSTIASSVATQTLS<br>MDVKDKGVSLPEEEEAIYLQGSSSGKVANDRREPSLDKTARAPSAQDS<br>DN |
| Pch2 | Pseudotaxus_chienii | onekp:YLPM_scaffold_2084265 | AEIKFVSENKLAKARELVAATEEKSLAAESKLYAGEALQAEVSRKHADAE<br>RLVQDVEAREDELRRQRQAFKSQCEAHEKELFFERQNLQEWEKNLQE<br>GQERLLEGQRLLNQREEYVIERNEATKQIEKELQDVKRNVEKEQTTLKE<br>KEADLRGRLADLTIREEALVKREVIINKKEQELLVLQEKLASREREEIQRLT<br>DEHQAALKARKSMFEAELEQQRRAVDDELENKKKAADIRELEIKRTEEK<br>INKREKVVEKKAEKLKEKEKDLEGRSRAFKEREKLCKIEEKQTETQQKKL<br>EMEREEMNNLKQVLEKTKAALEEERQQIRKEQERLELTEKERDELRTIQ<br>TKLKEEIDNFRAQEQELSRKDELLNVEKEKFEREWEILDEKTEQLRKELE<br>QVDDEKKRVSKWLKDEEHRLKQERKMLREQIKNDEETLRLKKEAFVNS<br>KKQEEAELLARFQRERADLFRDIELRTIELENSFEQRREELESNYQERER<br>AFQKEKQKEMHHINAQKELSDKEFIEVKLERQRVDKERQEIATTREQID<br>REWSEMKTDIEQLEIQREKLKEQRELLHKERKEFEAELDQLTKLKVELK<br>MTEDSLKLSEQQLSQANLNDYEVISPGQYDGGVSQAAFRQNISAMPF<br>NTDGLCSEIHPGGAPASASDTPSPLAWLQKCASRIFKKSP |
| Pco1 | Podocarpus_coriaceus | onekp:SCEB_scaffold_2055976 | MLTPKRRGWPGWSPLSRTAPGGEEKSGGADKATGGSGGAAVEGPP<br>RNSLEENGGIVVPREEPETWRRFREAGSLDPESIERKDRAALVAQVNKL<br>EAELYDYQYNMGLLLIERKEWTSKYDHVKLAFAEAEENLKREQAAHLV<br>AISEAEKREESLKKALGVEKQCVADLENALHEMRAEIAEVKFTSDNKM<br>AQAREMIASSEEKSLVAESKLHAAEALQAETSRKHAETERKLQEIEGIES<br>TLQRDRQSFKSECDAREAQLFLERQNLLEWEKKLQEGQERLLEGQRLL<br>NQREEYTNQRDEALKQIEKELEDARKHIESDHATLKEKEADISLRLAALA<br>TREENAVKREIIIDKKEQELLVLQEKLTSRENEEIQKLIDEHKAIHEARKNE<br>FEAELEKTKIVVEQELEKKQTAVASMEADIIRKEEKLTKREQQFEKKFEKL<br>KEKEKEVDSRLKALKEREKTYKNEEKKVEVEKNQLEREREETNNEKEEL<br>QKIKIALEEEKIQVLNEQEHLKVTEKERNDLLTLQTQLKEEIENYRARKQE<br>VEKEAEELRLQRENFEKEWEFLDEKREQVRKESAQVDDERKKTSKWLL<br>DEQDRLKQEKSTLRERIQSETEALRLEKEAFEASMQHERSEWLENIRNE<br>QADLVRDIELQRSELENSIEKRREEIEKLLKEKEIGFQKEREREMQHINA<br>QRDLASKEMEEMRLERHKLEKERQELSISREHAERQWSEIKKDIEELQV<br>QRDKLKEQRDSLHKEREEVLRLLEQLNKLKTEISVTDDVLNLNGNKGGS<br>NSQRTGDVPSISKEALTQNIFGTPAGPSLKFNPEPSSGRLFESDSGTPNR<br>LSWLQRCASRFFSQSPSPQKMDDSTDRKGEAAVRPTEETETVGAESER<br>GNREIVVGLEIERAFLADAKDYDAADQDKNEKMHELDIPKIGPSVYFD<br>HSLPSSSNGNGRKSSDRSKIKVFKRTRSMKAVVEDSRGILEVSSDKEMN |

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| | | | ESDKGQALEQNEAVVTDNREKGESAGREKTTSGQEIDGSNMESPATD<br>KRPSKSGRKRRRGQSSRATSEQDAEDSEIQSEPAIGGRRKRRQQSAAN<br>GGSSGVGTPGAKRYNFRHSTIASSVATQAQSVDAKDKD |
| Pco2 | Podocarpus_coriaceus | onekp:SCEB_scaffold_2055963 | SPVNETEIWKRLKQVGLDEETLQKKDKAALIAHITKLESELYDYQYNMG<br>LILLERKEWTSRYEQLKISAEEAEGNYKHDQAAHLAALADAEKREESLRK<br>ALGIEKQCVADLEKALHELRAESAEIKFVSENKLAQAFELLAATEDKSLA<br>AESKFHAGEALQAEANRKRADAERMLQEVEAREDELRRQRQAFKSEC<br>DAHEKESYFERQSLREWQKKLQEGQDRLLEGQGLLNQREEYILERSEA<br>TKQIEKELQDVKRKVEKEQSTLKEKEADMRVKLADLTIREEALVKRETVI<br>DKKEQELLLLQEKLATREREEIQRLTDVHQAVFEAKILEFEAEVEQKCRA<br>VDDELENKRNAADMRELEMKCKEEKLSKRGQQLEKKAEKLKEKEKELD<br>AKLKALKEREKFFRIDEKEFETQQKKLEEEREEMNNLKQVLEKLKAALEE<br>ERHRIHKEQEKLELTENERNDMKIIQTKLKQEIDNLRAKDQELSKKEDLL<br>NVEKEKFEREWEILDEKTEQLKKELEQVDEEKRRVSQWLKDEEERFKQ<br>ERRVLREQIKSDEEALCLKKEAFASSKRHEETELLAKIEKERADIYRDIELR<br>TSELEKSFEQRREELERHYQDRESAFLKEKQKEMQQIVAQKEMSDKEL<br>EQIQLERQKLDREWKEIATTREQIEREWSEMKKDIEELQIQKDKLKEQR<br>ESLHNERHELEAQLDQLNKLKADLKMTEDSRKLSEQQISQVNVNDCEV<br>ISAKQFDGCGSSQAAIRQNVSAIPCKTDDFCSEIYLGGTPGSASDTPSSF<br>GWLQKCASRLFKQTP |
| Pda1I | Phoenix dactylifera | KEGG pda:103715139 | MFTRQKKGWSLLPRATERSSGSVPLNPRDGSGMILNMGNGKGKGIA<br>VAEALPPPPQASLGGDKGAVLARECGEEEVWRSFREAGFLDESVLHRR<br>NCEAFAQRISELEKELYDYQYNMGLLLIEKEEWASKYEEIRKGLAEAGET<br>RKRERAAHWIARSELEGRDENMRKALVVEKQSIVDLEKAFHDKSGEN<br>VEAKFMFDETLAETHALEASIGDRYLEIKGKLHSVDPRLAEESWRSPEM<br>DRKLEDVEVHEPELRKESTAFTTGKRKHENDLTQQREVFRAWEQKLRA<br>WEQKLQDGQKKLDEEQRFLDEGENEANRRDIVLQKEEELEEARKETEV<br>ANNSLKNKEKDISTRLEALDAKGKVEIQKLLDDHKMILESTKREFELEME<br>KKRNIFDQEVKDRLDAVEKKSIEINVREVQIFNKEQDLEIELQTLKNKDK<br>RFNEILDALKEREDSIRKDENKLKDEKENLARDTQKLVSSQTELENSRAA<br>MEAERLQTIKERENLEVAREERVYHLLLQSKLEQEVDDYRIMKEAHRKE<br>TEELRKERDRLEKESEVLDNRRLALETELKQLNVEKERFEKWRCVEEGKL<br>KKERLKLTILIQRELEEVGAVKETLGNSLIHQLDPVELFKKKHADIKDADE<br>LKIQKLKPDQDWLEGDKELHVCRNKWEAEQLDIQKDITTLQFIRKSLKN<br>QQEALIKEKERIFALAEQFKCCKNCGFKIGDADVHGIQIPRGTEGSENIL<br>LPSLANNYLKEPMEGEHTDASPQGTSPQHVTLGGCESFLQKCSSLFSH<br>GKVANQSSDGHIKKSSLFNAHLDAEASEEEAKFQHAPSFSVVNTSVDM<br>CRAQSVGEVWYNGESKGLDKANDEAKPSFGVADISTEMMKFQSGNN<br>ATEMEDEPNFPSIHEKSGREGSFLLPETNSQVQASKQRQHQSSSSARC<br>KIIKRTLSVKAVVEDARAITGVNSEEKHDEQSNGEDRHSQCVHEESLDD<br>SVHDDQSPSNAEQNTHFSDASGLTNSELDAGDGEVHSESVSRRGRRK<br>RRQTTSPGTVTPGLKRYNLRHSTIVATMTTAQGLSNQKNGQKKGSPW<br>QPY |
| Pda1II | Phoenix dactylifera | KEGG | MFTPQKKGWAAGWSLSTRVGDGPDGGSAPVNARSAGGVSFGKGKG<br>KSVAAEALPPPPQASLGENGSDVAGGAGDVEVWRRFREAGLLDESVL<br>QRKEKEALVQRISEIETELHEYQYNMGLLLIEKKEWTSKYEEFRQGLAEA<br>EEILKREQAAHAIAISEYEKQKENLQKALGVEKQCVADLEKALREMRGE<br>IAEVKYTSDKKLAEAHALEASLEEKYLEIEGKLHSADAKLAEASRKSSEVD<br>RKLDDAEARERKLQKEYLSLNTERKTYKKDLDEQRQHLREWEKNLQES<br>QKRLLEGQRSINDREERANETDRVLKKKEEELEEARKMIEVTKNSLKEKE<br>DDIRNRQNALAFKEKEASINIENLEKKEKELLAIEEKLNAREKVEIQKLLD |

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| | | | DHNETLNFKKKEFELDLEQRRKSFDEELKWKLDAVDKKKTEIDCKEEQV<br>TKREQEVEKKMQSLKQKEKDLDTKSKALKKWEESIKIGEKKLEEEKQQL<br>GREMQHLVGSRNELENLKATVEEAKQQMIREEENLKLTKEEREQHLLL<br>QSKLKQEIEDCRIIKESLLKEQEDLRGLRENFEREWDVLDEKKVELEAEV<br>KKVNYEREKFEKWRLNEEERLNNEVLAAKADIQRELEELRLKKETFEST<br>MELEKSNASEELERGHADIARELELRKHELEMDMQKKQEDMEKQLQE<br>KENQFNRWRDRELNQINSVKNLNESKIQKLKMEQDQLEREKEELSKHS<br>KKLESDQIEIQNDIETLRMLSRNLKDQREHFIKEKERFLAFAEQYKVCKN<br>CGVTMSDLELLQMGTDDAGDIQLPSLALEEHLKGKNAEISPPGTGLRS<br>VISGGRMSWLQKCSRLFNFSPGKQAEKMSECQAEKSLSFGARLDGEA<br>SEGEANYEPGPSYGVGNDFIDAQGVQSDSGVRGNEESERLVEVGDGP<br>EPSFGIADNSTDIQVEGEQITAPVDERNEREESSMPTENDLQPEPSKQR<br>RRLPGRKGRPKAIRRTRSVKAVVEDAKAILGETSEEKNDGPPNGVTKDS<br>LNIQEESQGDSVHADTGATSSRQKRRLAHASGMTTGEPEQRIVKHVQ<br>RAFHLADVEKGVISQLLEHRLLERSATISGALQLRAMLQQPKQCLIRLNS<br>IRQEAFNSQLKMR |
| Pda2I | Phoenix dactylifera | KEGG pda:103713670 | MASPRPRSSPLGPGAARSPASTVAGASPPASGAAPLGDEAIWRRLREA<br>GFDEESVKRRDKAALIAYISMVESERYDCQHHMGLLILERKEWTSKYEQ<br>VKASAESAEVVYRNEKAAHLSAIAEARKREESLKKALGIEKECVANIEKA<br>LHDMRAESAETKIAYENKLAEVRQMMEAAQEKFDEAERKLLAAESLH<br>AEASRSRNAALRTLQDVEAREDKLRRDRISFKFECDAKEQDINCDRQIL<br>YDRQKILHEEQERLIAAQTLLNQREEYIFERSKELSCFEKELERTRTNLEEE<br>HRALSEEKSDLDLKIAALATREESMIKRESLLEKRECELLMLQEKIACKEH<br>DEIKRLTDKHLSALERKRSEFEAELEHRCKMLEDEMEAKRTACEVREAE<br>LSNRENAIQEREHCIKLELSALAEKEENVAKKMKLLEEREQNLHSTQKA<br>AEIEMQNLQKEREDMLKMKLDLENYKSSLEDEKKGLLCVQEKLELTIAE<br>RNELLVLERKLKEEIDSLRAQKMELVAEADTLKAEKEKFEIEWELIDEKRE<br>ELRKEAEWVAEERKAVDRYLKDEHDSIKLEKENLRSQFKSDVESLSRERE<br>EFLGKMELEHSDWFCKIQQEREDFVRDIMIQRKELENCIDKRREEIETYL<br>KEREGAFEQEKARELQHINSQKESIAKELKRVASEMQKLNDERMEIAQ<br>DREKREKEWSEIKNSIEALNVQREKLQKQRELLHSDKEEIYQQIQRLKKL<br>EDLDIESENRALSETPNKWRVTLKTNMNSDVVQDIHDPNGRQVTAN<br>GGSKLKLLSEKTPEVSPPTPINLSWVRKCAEVIFKRSSEKNLEHVECKNP<br>VKFGKVSEGNDLNSPKSVYYRKKNSRDGKRISMSKWKDLQDPSVASQ<br>KMESKGHERTGRKEMQSARSDSLLVESNEGLRIAKIESNTNKEVGELIE<br>DCEEKSGNTDSALPLGRKRHNNALSHDQADMQLEPSQKHQRKTKQN<br>GSADVEGIASNCLFGMRMPNSDDCDSASLNPTSGCEELLVGCKDQEC<br>ENPEVSIPKSPEVSRNTSAVSHSHIFENGNLHGSGSSFLVGDGMLLSSS<br>NFHEIMKKQEKVEEQVIIEAEEPSKPAMELISNDGDEIKELDGSNQDGD<br>NEVEDEEDENSLSAKQKLWKFLIT |
| Pda2II | Phoenix dactylifera | KEGG pda:103712275 | MASPWPRASPLAVAATRSPAPRVAGASPPANGGTPLGDDAIWKRLR<br>EAGFDEESVKRRDKAALIAYISKLESEVYDYQHHMGLLILERKEWTSKYE<br>QVKISAESAEVVYKREKAAQLSALAEARQREESLKKALGIEKECVANIEK<br>ALHDMRAESXETKLAYENKLAEARQMMEAAERKFDEAERKLLAAESL<br>HAEASRSRNAALRNLQDVEAREDELRRDRISFKSECDAKEQEINSERQS<br>LYDRQKILNEEQERLIAAQTLLNQREEYIFERSKDLSCFEKELEEARRNLE<br>EKHKALKEENSNLDLKIAGLATREESVIKRESLLDKRERDLLILQEKVACK<br>EHDEIQRLMDEHQSALERKRSEFEAELEQRRMMLEDEMEAKRTANEA<br>KVADLSNRENAIQEREHAIKLELSALAEKEEDVVKKLKLLEEREQNLHST<br>QTAAEIEMQNMQNERGEMLKLKQSLENAKSSLEDEKKEIQCAQEKLEL<br>TLAERNELLVLEGKLKEEIDNLRAQKMELIAEADKLKAEKENFEIEWELI |

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| | | | DEKREELRKEAERVAEERKTVDQYLKTEHDIIKLEKENLRNQFKSDAESL<br>ARE REEFLSKMEREHSDWFSKIQQEREDFVRDIMIQKKELENCMDKRR<br>EEIETYLREKEEAFDQEKARELQHINSQKELIVKELEHVASEMQKLNDER<br>MEIALDREKREKECSEIKSSIEALNIQREKLQKQRELLHSDREKIYQEIQRL<br>KKLEHLDIESENRALSETPNKWKVSLKTNTNADVAHDIDDPIEQKITVN<br>DGSNWKLPSEKTSHASPRTSTTLSWVRKCAEVIFKHSLERNIEHAECKN<br>SAKFAKVSEGNGYSSEKSVSHRNKNCGDGKRISLSKWKDLQIPSVASEG<br>MDSKGHERTGRREAQPVRSDSPHVERNEGLCNAEIEGDRDNKVSHVI<br>EDSEKSRNADSALPLGRKRLHNTLSYENADMQLEPSQKHQRKTRQNG<br>SADVEGVTSDCLLTVQMPNSDDCDPSSLNPTSGCEELPVGCKDQEYE<br>NPEVSISKTPEVSKDTSTVLCPRILENRDSHGSENYSLLGDGILLYSSNFH<br>KMLKKQEKVGDQVIFEAEEPSKEITTSTMEQTADDGGKIKEQDRCNRD<br>GDDEVEDEDEDRLSTKEKLWKFIIT |
| Pen1 | Picea_engelmanii | onekp:AWQB_scaffold_2057224 | MLTPKRRGWPGWSPKTPSPPPPAEEMAGSSHVATPTATAGGSSGGR<br>ALVEAPPRNLLDNNGEIVAARGDPEIWRRFREAGSLDEESLEKKDRAAL<br>VVHVTKLEAELYDYQYNMGLLLIERKEWTSKYEQMKVAIAEAEENLKR<br>EQSAHLIAISEAEKREESLKKALGVEKQCVMDLENALHEMRAEMAELK<br>FTSENKLAQAREFAASTEEKALAAESKLHAAEALQAEVSRKHAEMERK<br>GQDIEAVERTLQRERQSFMSERDAFESDLSLERQNLLEWEKKLQEGQE<br>RLIEGQRLLNQREEYINKRDEGMKQIEKELEDAKIQIEKDQATLKEKEAD<br>ISARMAALATREEDIVKGETVINKKEEELHALQEKLVSMENEEIQKLIDD<br>HKATLEARKLEFEAEIEQKKILVEEELGKKRGDVELMEANINRKEEKISKR<br>EQQLEKKAEKVKEKEKEVDARSKALKEREKTYKNEEKQIETEKKKLEEER<br>DDINNEKQELQNLRIILKEEKQQILNAQENLKVTEKERNELLKLQTELKE<br>EIEDYRARKQQVENEADELRLEREKFEKEWEIIDEKREQVRKESAQADE<br>DRKRISKWVLDEEERLKQEKRALREHIQSDSDALHLEKEAFKSSMEHER<br>AEWFANVRRERADLLRDIELQRSELENSIEKREEEIERLLHEKEVEFQKEK<br>EREMQHIREQREVAHKEIEEMRMERRKLEKERQENTESREHAEKEWT<br>EIKKDIEELQVQREKLKEQRQSLCKEREEVLRLFEQLKKLKTELNVTEDHL<br>KQIADKDGSDSPRPVDAFGFSQQALGQNIFGTPVDTSVKVNPEPSSGR<br>TDASTSKASRLSWLQRCASKIFNQSPSPGKVGDSDVWKEETERSHSAA<br>LEVVLGAEIERMTQGNIVGEKVEHVSSADVQNDDYTVEATEDNRQGH<br>GKLKSRPVVNFDNSLPSPSVGNGHKSKDKAKIRVFRRTRSMKAVVEEA<br>KGILESLSDMEKNESEDRQEQEQTDAAVTANSEDLGKESDKDKTDTAK<br>EIDESKGESLASDKKPSHSGKKRRRKYSSRATSAQDADDADIQSELTSG<br>QRRKKRQRDSANGDNSGVGTPGGKRYNFRRSTIASTIAAQTVSLEDKE<br>KDLTTQEEEDSGRVQENVLDQVTEDNQEASSDEPAKVPSAAETDMNI<br>PPVEDQDPQSFQENGLGDAGNVLQEVSSHELTKSETAEFYVESEDEGG<br>NGEDIEELDETEEDGEEIDEDGNNVGEDQKTSLRKKLWNFLTT |
| Pen2 | Picea_engelmanii | onekp:AWQB_scaffold_2057216 | ARSPVSSIGGSPVNENEMWRRLREVGLDEETLQKKDKAFLVAYITKLES<br>ELYDYQCNMGLLLIERKEWTSKYEQMKLSASEAEEKFKHERAALSTAV<br>AEAEKQEESLRKALGVEKQCVADLEKALHEMRAECAELKFISDDKLAQ<br>AREMVATTEEKFLAAESKLHAGEALQAEANRKKADAERKLQEVEARED<br>ALRRERRAFKSECESREKEFILERQNLRGWDKNLQEGQERLLEGQKFLN<br>QREAHIMERDEALKQIEKELQDVKMTVEKEHSTLKEKEADLRTSLAAL<br>MTREEAVVKQEIVVDRKEQELLVLQEKLASREREEIQRLTDEHKAMLEA<br>IRIEFEAELEQKRRVVEDELENKENATDLRGLEINRKEEKLSKRELQLEKK<br>AEKLKEKENELDSRSRTLKEREKTYKTEEKEMENEKKKLEVERKELNNAK<br>QELQKFKSSLEDERCQILKEQQRLELTKNERDELLDLQTKLKEEIDDLRA<br>QKQELLKEADELNVEKEKFEREWEILDEKREQLRKELEWVDDERKKVP<br>KWLKDEEERLKQEKIVLREEINRDAEGLRLEKEAFESSMQHQRAVCFAE |

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| | | | VQRERGDLVRDIELRTSELENSIERRREELERHYQEKELSFQKEKEKEKQ<br>YISAQRELLHKETEEMKSERQRLERERKKIATNQEHTDKEWSEMKKDIE<br>ELQIQREKLKEQRESLHKEREELQAQLEELKKLKDELKMTEESLKVSEQQ<br>LSQVNINDCEVISPGHGISQASLRQSVFAVPENANIEFNSGISPVRTPAS<br>ASTPSPLSWLQKCASRLFKPSPEK |
| Pha1 | Panicum hallii | Phytozome 12 Pahal.A03119.1 | MFTPQGKGWTGWSTPTPANQRSGGGAPAASAPLGKGKGRVAELEH<br>ELHEYQYNMGLLLLEKKEWAEKLEEVSQMLKQKEEILKREQAAHLNAIS<br>EYERREESMRKALGVEKQCVIDLEKALREIRSEIAEVKFMSEKKTADAQS<br>LEASLEEKSLEIEGKLHAADAKLAEANRKKSQADRDLDEVEARQRRLEK<br>EKLYFETERKAREKQLKEQEESLQEWDKKLKESQNRLVDLQRSINDREE<br>RANKNDQLFKIKHGELEEARKSVEANKRALKAKEDDINRRLNELHSQEK<br>DANSKRKELEEQEKKLIEREEKASSREKEGLQKLLEDHQVDLETKRRDFE<br>LELARERKSFDEKMVQKQADLVKREKDVKSLEAKLSKSEQVLNDKKKE<br>MEGWQNDLDAKSKALKRWEESLKNDDKRLLEEKQRMDQEKHQVE<br>MSKSELERIKSTLEAEKERILEEQNNLKLTEEERQEHSVLTEKLKKEIEEYR<br>MRSNSLSEEIEDLRKQRQKFEEEWEQLDEKRAHLVEEGKKVNIERMDL<br>ERWRDSEEKRLNDAKLEMEERYKEKLENLDRKEKALNDDIKHKQMEN<br>DELLKGERADLKRKLQLHQHELEMELEQKQASKEKELEDKENELNKKM<br>DFVENKLRHAIELNESKIQKIISEKKQLQMERKILLEERQKLETDKADIKR<br>DIDSLHVLSQSLKLRRESYNRDRNNLINLFEKYKVCKNCGISLFEGLDSLA<br>LKDSVEIEYPSLAVERDDRSLNADTSAPDTGTLVNSGGRLSLLQKCSRLF<br>KFSPVKKGDQSSEQPTENIPFGARLEEASRSDGDYEPTPVYEIAHDSFD<br>AEDDLPSDSGARENEESKRHDPADDVQMESSFGVADNGIDVRGTQSF<br>DGTNDMAVDATIASVDQNGKDSAAPAEAVQPEISKQGRRQQNRKG<br>RGKGGVKRTRSVRAVVEDAKAILGETLEEKNDGQGDPVAVGTRKRRF<br>AGATISEQDEEGSEAHSESVSLGGQRRKRRQTAGAVTETPGEKRYNLR<br>RSTVANATAATVQTDKKKAAKAGKKHKVEAPADDTEGTSKAVEEPAP<br>ESKRASESADYGASQLHEFSQAEVGDAPAPAEGIGEEDGDIVDGKEAL<br>PDVPMTPSGSELGAEQDGEDDDDLERRNQSISKKLWSFFTT |
| Pha2 | Panicum hallii | Phytozome 12 Pahal.E01502.1 | MASPRSAGAGGGAAGDEAIWRKLREAGFDEDAVRRRDKAALIGYISR<br>LESEIYDYQHNLGLILLERKELASKYEQLKASSEATEIMLRRERAAQQSAL<br>AETRKKEENLKKNLCIQKECVSNLEKALHDMRGEAAEVKVSYEAKLAEA<br>LQMIEAAQKKFDEAEEKLLAAKSLEAESIRTRNASLRSLQDIEDREDQLR<br>RDRTSFELESASKEKEISLQRKLLDDTKKILHEKEQALLKEQTLLNQRDD<br>NILERLGYITHSEKRLEEEKLNLEDERKVLMEEKNKLDLKMQAIISREEAII<br>KKESLLDKHETELLVLQETIASKERAEIERLRQEQEVALAKRRQEFDTEM<br>EIKLTSFEEEIEARKALLDQRESALSEQEDSVAQREQNLNLRLAELTNKEE<br>SLVKRSDELNEEERKLSSHREVVYTELQKEREEIQNMKLDLEKEKSFFEE<br>EKREAIQAQEKLLITQNEREDLLILEMKLKEEIDSLRAQKVELMVDAERL<br>LAEKERFEIEWELIDEKKDELQKEAARIAEERRVIDEHLKNELDIIKQEKE<br>NLRIQFKNSAESLACEHKEFMNKMQREHASWLSRIQQEREDLKRDIDI<br>QRTELLNSAKARQMEIDSYLREKEEEFEQKKSKELEYINSEKETISSKLEH<br>VRLELQKLEDERKEAMLERERREQELSEIKNTIDALNEQREKLQEQRKLL<br>HSDREAITQQIQQLNELEELKIETENKQLSLRQCGRSKHGDCDVENLKE<br>NGVHQSPDEDQHASPKKCSSPKLILGKKLDVSPSVSTPISWVRKCAQVI<br>FKRSPEKSADHDNDRFAHAKLGNVNDPSLVGNGGLFACQMENGAGE<br>VQHAVEKVGKKRLNNALSHDQSEILEPKRKHQRSSTLPRRVRGGEIDS<br>NCSPSVLEEKCSKNEHDAVPVGLPGKGLHNPRTGELASSDASDIPEASE<br>PSEEISVSAAEALNGDAEDKDEPDEDSDDEGEEEDEEKTSSAKKLWRFL<br>IT |
| Por1 | Platycladus_orie | onekp:BUWV | MMTPNRRGRWSGWSPTSRSSPAVDDKAVAVVEKSAGKAAVEAPPR |

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|---|---|---|---|
| | ntalis | _scaffold_2010742 | NSLDGNGRFTPAAAAAAEPEVWRRFKESGSLDQDSLEKKDRAALLLHINKLDAELYDYQYNMGLLLIERKEWTSKYEQMKLALVEAEESLKREQSAHLVAITEAEKREESLKKSLGVEKQCVSDLEKALHEMRSEVAELKFISESKLAQAREMVASTEEKTLEAESRLHAAEALQAEASRKHAETERKLQEIESIENALRRDRQSFKSEREAHEVELSLQRRNLLDWEKKLQDGQDRLLEGQRLLNQREEYTNQRDKALKQIEKQLEDAKKQIENDHSILKEKEADISVRLTALSTREENAVKREILIDKKEQELLVLQEKLANKENEEIQKLLDEHRAILEARKTEFEAELEQKKVSVEEELEKRRSALELFEADIKSKEEKISKREQQIEKKTDKLKEKEKEVDSRLKTLKEREKTLKSEEKEIMIEKKKMDGEKEEINNEKQELQYLKVSLEEEKHQIFGEQEKLKLTEKERNELQNLQSELKEEIENYRARKQEIEKEAEELRLEKEKFEKEWEFLDEKREKANKELALVEEEKKRLSKWLRDEEERLKQEKSALKERIQNETEALHLEKEAFAASMQHERAEWLESIRREQADLIRDSELHRSDLENNIEKRQEEIEKFLREKEIGFQKEKERETQHICAQRELVSKEMEEMRLERKKLEKEREEISKSRQHAETQWIEIKKDIVELQVQRDKLKEQREYLCKEREEVSRLSLQLENWKRELNISEDSLDLIANNGGNCRAEDVYDFSHQGVPQKFFGTPASASAKGDPEPSSGRTVRSASGTPSRLSWLQRCATRFFNQSPSPEKIIDGMGQKGETDRPPTMLPETTGAESERMTGEIVVGLEIQPTFSADDQNHDAGAETEVVAQAEGTSKSSPAVKFDQSVPSRSKGNGSKSIDKSKVKVFKRTRSIKAVVEDARGIIDAPSDQEKNESESREEHAVADDRQDKEGRAGGDQTNSAQEVDDSNRESLATDKKSSKSGRKRRRGQSSRITSEQDADDSEIQSEGAAGRRKRRQKGTTNGGTSVLATPGGRRYNLRHSTIVSHIGNQTPSCNLKKKSRRIWKGLHQSRIQRIAESPAMEPSAQDSDNIIPQGETHDFPGHPDGGLEDNIQEVLSHEHTKSETGDHYDETDNGEGNEEDTPIDEIEDEQIDELDEDGDDEEEDNNSSLKKKIWKFLTS |
| Por2 | Platycladus_orientalis | onekp:BUWV_scaffold_2055365 | SPVNENEMWRRLKKVGLDEETLQKKDKAALIAHITKLETEVYDYQYNMGLILLEHKELISEYEQLKLTAGEAEGNFKRDRAAHSAAIAEAEKREESLRKALGIEKQCVADLEKALHEMRAESAEIKFVSETKLAKARELVASTEEKSIAAESKLHAGEALQAEAKHKYADAERLLQDVEAREDELRRQRQSFKSECEAHEEQLFFERQNLREWEKNLQAGQERLLDGQRLLNQREEYVIERNEVTKQIEKELQDLKRNIEKEQSSLKEKEADLRGKLADLTTREEALVKQEVIINKKEQELLLLQEKLATREREEIQRLTDEHQAALEERKSVFEEEMKQQRKAVDDELANKRNAADVREFEIQCREEKISKREQQVEKKIEKLKEKDKELDTRLRHAKEREKSCKIKEKEIETQLKQLAIERDEMNISKQVLEESKATLEEERQQICKEQERLELTEKERDDLRIIQIKLKEEIDYFRQQEQELLKKDEVLNVEKEKFEREWEILDEKMEQLRKELEKIDNEKKRISKWLKDEEERLKHERRMLREQIKNEEEALRLEKESFANSKKQEEAELLANFEKERADLYRDIELQKSELEKSIEQRQEELERNYQVRERVFQKQKQKEMQYINAQKELSEKESQEMKLARQRLDREKQEIVTTREHIDREWSEMKKDIEEMEIRREKLKELRELLLHRereefeaqldqlkklkdelkvtedslkiseqplsqaivndcevispghfdggisqaacrqsisgmafngddfrsemhltrstasasdtpsplawlqkctsrifkkspgvgterigLKQSLA |
| Ppa1 | Physcomitrella patens | Phytozome 12 Pp3c2_34830V3.1 Alias Pp1s76_81V6 | MSGLSPMYTPQGMRGSPHQRETPIRSLAREKGKTSPATATTVGVVTTTMTTLTAGGEEGLVLMNPLTGAPDTNGEADGVPDTDVWKRFQSEGALDISSLERKDRAALHARIAALEAELYDYQYNMGLLLLQRKTWSSQVDELKAAVADAQGTLQREKAAHLLELTEVIRREEAAKSALETEKQCVADLEKALKEIQADESEVRQAADKQLAQARELVASIEERSIQADLKLAQVQVVRADANRKLQESEHRLQEVEAREVALRLERHSLIADVEARKEQVESEEASLREWEKRLEDGRMRLQEGERLLNERENSLKERDEALKQINREVAEARSYIEKERVLIQKSDVDLNARAVAFSEKERALSERELEILKKDQDLILAEERIADKTREFETREQQVRETEVYFGQERTRLSDFETALKFREESLEEQKHELAEM |

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| | | | EKFLKSHTSDVDSKKAELLTAEEELRSVRKVLAAEKEEVETLKLVAESREA<br>RLRHLEAAITAREEELELRVQEVVDREKVLERRLEEVSNLEQGIRFEEKKY<br>ENEHQRIAELKEEIRKAKQEMEENKRKLELQKQQIEEEREHLRRECELER<br>QEIEEEREKVRKDWEEEREEWEQQRLLVQKDVEYKKEQLELEQERLRG<br>ELKAERERQGAELENLRVNLHNNLEVLREKLKAEVEYERDALRKEIEAD<br>QERVAGLREESRKAIEAEREQVDEGRSRIRRELELERQQLIEESERAHAA<br>IYLERQKFEDEQEKLKALEQEREELVRIQVQLKQEIDEIRARKQFVDEEA<br>QELKQQKDRFEREWELLDEKREATRKERERFEEEFKRVTEWMRDEEER<br>LKETRREFQEQSRRMTEELQKERISWESRLETERNQLYAQLDAERQEL<br>NRNLERQREDLDRRLELESEAFAKQFEEREAQLRAEVEQEKEDLRKNR<br>GSVIGELEQLRAERSKLEKERQELLKQRADAEKEWDEIKKDIHQLQVQG<br>EKLREQRQSLHIERQNTLLETERLQKLRDQMKGSEGSMSMRVSEQPM<br>RMDEEVVSPHSHGLVRTDTLRTSALPFVLGTHHASSSQTPSRRMIART<br>PSRLAWIQRCASRASQLFLSPNKLLTGQEPILEEKTDDEGEPRLGANDP<br>CSSFNQSQLGQVLDTTEDSHRFKRTWSTQRVVEEANTIPGLQEEKNFE<br>SRNRSNVVTFSTPDASGDTRKKKRARGNVDDEVPLLQSQPDAEDQGG<br>TKRKKRIKDIMVESETNGDSLIDTPRSRVGTPATKRYNFRPTTIVNMMG<br>ASENESSRHHDHSNKKAASAANQPAAASVDRLPDASSQPVQDTEIDM<br>HEAPTVEEGFEAREQNNSVAEDDQERDTTAAVADHFPITQVVTETTTT<br>VTETIREQAVFDLNIGVENVEIARTVPEQEGIPTAGEVYLSRSVWLPGE<br>AEEATAGDSLVQADEADARDAQNQSDRSDEEVAEVTDDSAEEVDED<br>GNGTESGENGDAASVGGESLSEEESGAEEVEEEDVGEVEDEDEYDTRE<br>DEPDDEGPTPTIREKIWDFLTT |
| Ppa2 | Physcomitrella patens | Phytozome 12<br>Pp3c1_1360 V3.1<br>Alias Pp1s200_64 V6.1 | MSGLSPMYTPQGRRGSPQQRVTPTRSLAREKGKTPPITNSTIGALTTTT<br>TTLAAMGEEAMALMDPLMGSPDMIGVADAVPETEVWKRFQNEGAL<br>DMPSLERKDRAALHARIAALEAELYDYQYNMGLLLLQRKTWTSQADD<br>LKAAVADAQETLQREKAAHLLELSEVMRREEAAKKALETEKQCVADLE<br>KALKEFQTDESEVRQAADKQLAQARELVASIEERSVQADLKLAQVQVL<br>RADANRKLQESELRLQEVEAREVALRRERHSLMADVDARKEQVASEE<br>ASLKEWEKRLEEGRARLQEGERLLNERENSLKQRDEALKQTSRELAETR<br>SYIENERALIKQTDADLNARVISLSERERTLSERELKILTKEQDLLLAEERIA<br>EQTREFENRELQVKETKEYVEQERARLDDYESALKFQETTLEEQKMELS<br>EMEALLKIHTSDVDSKKAELLAAEEELRSVRKTLAAEKEEVETLKLAAEA<br>REARSRHLETAITAREEELKLRVQEIVDREDVLNRRLEEVSNLEQGIRVE<br>EKKYENEHERIAELKEEIRKSKEEMEENKLKLELQKQLIEEEREHLRRECE<br>LERQEIEEEREKVRKDWEEEREEWEQQRLIVQKDVEYKKEQLEFEKERL<br>REELKAEREKQSAELERMRVNLHNELEALREKLKAEVEFERDALRKEIET<br>DQERVAELREESRRAIQAEREQVDEERSRIRRELEVERQQLAEESERAH<br>AAIDLERRKIEDEQEKLKALEQERGELVRIQVQLKQEIDEIRARKQFVDE<br>EALELKLQKDRFEREWELLDEKREATRKERERFEEESKRMAEWMQDE<br>EERLKETRRQVQEQSRRMTEELQKERESWESRLETERNQLYTQLDVER<br>QALNRNLELQREDLDRRLELERDAFEKQFEEREAQLRAEVEQEKEDLRK<br>NRGSVIGELEQLRAERAKLEKERQELLKQRVDAEKEWSEIKKDIEQLQL<br>QGEKLREQRESLHLERQNTMREAERLQKLREQMKGSEGSMSMRVPE<br>QPMRMEEEVVSPHPQGLLVRTDTQRAVGGRPAPGTHKPSSSHISSRR<br>MIARTPSRLAWLQRCASRASLLFSSPTKLLTGQEPVEEEAEEEQVKQDP<br>NAPSSSFNQSQLGQVEGNIDDGPRFRRTRSIQRVVEEANAILGIGVEET<br>SESNRNRSNADAFTTTPAESAETRQKKRARGNVDDDDANPLEADAHG<br>GTQRKKRIKDIMVEIETNEDSLHTPHSRVSTPATKRYNFRPSTIVNMTA<br>ASENVSPRHHDRTSKKAASATSQPTAAAVDDLPEVISQPVQETEAMH<br>EAPAVGETLEAQEEGDAVAESPHSGETTTVRVDHVTETQVVTETTTIVT<br>ETVKELAVFDLNVEELDMAEIEAEEVVPTAEAVHLSRSVELPESGEETA |

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| | | | GDSPMQAGEVDVGVTLDDSCDDEVEDVDAMEGNDEVDEDGEAAE<br>NGDNGVAVPENGELLSEEESEAEGEEASEAEVEEESEAESEAVVEEKSE<br>AEVEEDVGEVEDDDENEDTREDDPEDEPDDEGEKPSIRAKIWDFLTT |
| Ppe1 | Prunus persica | Phytozome 12 Prupe.3G240800.1 | MFTPQRWSGWSLTPKTGAEKTGTGSGSNMKSGTPNFNSGDGVVAK<br>GKGLSLFEPRTPASGSVLENGGNMQVESGEGATDREELAQRVSELENE<br>LFEYQYNMGLLLIEKKEWTSRHEELRQSLTEAKDAVRREQAAHLIAISEI<br>EKREENLRKALGVEKQCVHDLEKALHEIRSENAEIKFTADSKLAEANALV<br>ASIEEKSLELEAKSRAADAKLAEVSRKSSEFERKSKDLEDRESALRRDRLS<br>FNSEQEAHENSLSKRREDLLEWERKLQEGEERLAKGQRILNQREERAN<br>ENDRIFKQKEKDLEDAQKKIDATNETLKRKEDDISSRLANLTLKEKEYDT<br>MRINLEMKEKELLALEEKLNARERVELQKIIDEHNAILDAKKCEFELEIDQ<br>KRKSLDDELRNRLVDVEKKESEINHMEEKVAKREQALEKKGEKVREKEK<br>DFESKMKSLKEKEKSIKSEEKDLESEKKQLIADKEDLVRLLAEVEKIRANN<br>EEQLQKISEEKDRLKVSEEEKSEYHRLQSELKQEIDKYMQQKELLLKEAE<br>DLKQQKELFEREWEELDDKRAEIEKELKNVNEQKEEVEKWKHVEEERL<br>KSEKVMAQDHIQREQDDLKLAKESFEAHMEHEKSVLDEKAQSERSQ<br>MLHELETRKRELEIDMQNRLEEMEKPLREREKSFAEERERELDNVNYLR<br>EVARREMEEIKVERLKIEKEREEADANKEHLERQHIEIRKDIDELLDLSQK<br>LRDQREQFIKERESFISFIEKFKSCTNCGEMISEFVLSNLRPLAEIENAEVI<br>PPPRLGDDYLKGGFNENLAQRQNNEISLGIDSRSPVSGGTISWLRKCTS<br>KIFNLSPGKKIEFGSPQNLANEAPFSGEQNVEASKRGCGIENEAELSFG<br>VASDSFDVQRVQSDNRIREVEAVQYPSPDEHSNMNSEAPDLPEDSQP<br>SDLKGGCQKPSRRGGRRGRPAVKRTRSVKAVVKDAKAILGEAFETNDS<br>EYANGTAEDSVDMHTESHGGSSLADKRSARNGRKRGRAQTSQIAVSG<br>GDDSEGRSDSVMGAQRKKRREKVIPAEQAPGESRYNLRRPKTGVTVA<br>AASASRDLVKDNEEEVDNARATEHYSKAAPATSIGVGSENGGSTHFVR<br>CGTLGDTQDGEADAIKNLEENTAVSEEVNGSTEGGQEYVDGDEYRSES<br>QNGTPIEEDDDDEESEHPGEASIGKKLWTFFTT |
| Ppe2 | Prunus persica | Phytozome 12 Prupe.6G214100.1 | MASPQSELFARTPGSGRALSITPGARILQSPFSDEAIWKRLKEAGFDEES<br>IKRRDKAALIAYIAKLEAEIFDHQHHMGLLIMERKELASKYEEVKASNET<br>TELLHKRDQAAYVSALAEARKREECLKKVVGVKEECISSIEKSMHEMRA<br>ESAETKVAAESKLAEARNMVEGAQKKFTEAEAKLHVAESLQAEASRFH<br>RVAERKMQEVEAREDALRRNILSFKTDCDTKEKEISLERQSLCERQKTL<br>QQEQDRLLDAQALLNQREDFIFGRSQELNRLEKELEDVKANIEKERRAL<br>DDGKLNLELTEASLVNREEALTRREALLNKKEQEILVLQEKLVSKESDEIR<br>KALASHEVELRKKKFEFDSELDVKRKLFEDEIEAKRRAWELREVDLNQR<br>DDLLQEREHDLEVQLRTLVDREKDVAEMSNLVDEKEKTLRDAEKEFEL<br>NNVLLQREKEEIIKMKVELQCSLDSLEDKRKQLDCAREKFEVLKTETSEL<br>SDLEMKLKEEIDLVRAQKQELMAEADKLAVEKAKFESEWELIDEKREEL<br>QKEAEHVAEERLAFSKFIKDEHDNLRQEKEEMRDQHKRDVELLVSERE<br>DFMNKMVHERSEWFGKMQKERADFLLEIEMRKRELENCIDKKHEELE<br>CSLKEKEIAFEQEKKNEFQNINSLKEEAAKEREQVALERKRLETERIEINL<br>DRERRDREWAELNNSIEELRVQREKLKEQRELLHADREEILGQIQHLKE<br>LESLKAALDSASVSEMQQSDLVPRSRKTSRRYLKQLTSVREADHNSHN<br>EENVANISNSSIMLKSGFSPSSSARFSWLKRCRELLFKQSPEKHQTEYEE<br>NHVISREETSLTVTEQVDTSSKYDGHRYTGNGNSPRFFSKRQNAFGEP<br>KVIVEVPFVGETVKGTHTESEIKEFDGESCSPLISEHVCQGGRKRRVDKS<br>LSNDGFDPLLEPRQNLKKRRQQQDATVNSSEHANTHCIVSTQEKVLED<br>QNISMPLPSDQICEGAEEGSALIVDKIIKVSEVIFEETGTGSLGNEGKLEA<br>QNSIVEAHHGQNGVFQGAVGQVTEHCQIQAEDTSAKHVQSQ |
| Ppe3 | Prunus persica | Phytozome | MMFTPQRKALNAQSLTPRSGAVVSNPRTAGKGKAVAFVDGPPPPLG |

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| | | 12 Prupe.1G303700.1 | SLSESGPKTIPDFDTGDMDDWRRFKEVGLLNEAAMERKDRQALADKV SKLQKELYDYQYNMGLLLIEKKEWALKHEELGEALAETQEILKREQSAH LISISEVEKREENLRKVLVAEKQCVAELEKALREMHEEHAQIKLKSEAKLA DANSLVVGIEEKSLETDAKFLAAEANIAEVNRKSTELEMRLQEVEARES VLRREHLSLSAEREAHKKTFYKQREDLQEWERKLQEGEERLCKLRRILN EKEEKANENDLIMKQKEKELDEVQKKIELSNTILKEKKADVNKRLADLVS KEKEADSVGKIWELKEKELHELEEKLSSRENAEIEQVLDKQRALCNTKM QEFELEMEERRKSLDKELSGKVEVVEQKELKINHREEKLLKQEQALHEK SERLKEKNKELETKSKNLKENEKTIKVNEEMLEVERQQVLADLESFQNL KEEIQKIKDENVQLELQIREEREKLVITQEERSEHLRLQSELQQEIKTYRL QNELLSKEAEDLKQQREKFEEEWENLDERKAEISRGLEKIVEEKEKLEKL QGTEEERLKEEKHAMQDYIKRELDNLNLEKESFAAKMRNEQFAIAEKA QFQHSQMVQDFESQKRELEVDMQNRQQEMEKHLQEMERAFEEEK DREYTNINFLKEVAEKKSEELRSEKYRMEKEREELALNKKQVEVNQLEM RKDIDQLAMLSKKIKHQREQLIEERGRFLAFVEKIKSCKDCGEMTREFVL SDLQVPGMYHHIEAVSLPRLSDEFLKNSQADLSAPDLEYPESGWGTSLL RKCKSMVSKVSPIKKMEHITDAVSTELPPLSTMKVNEGARGHIGHEDE PEPSFRMPNDAISQPLPSDNTTKEVDDGYAPSIDDHSFIDSKVKDVPD DSEQSELKSYQCKPGRGRKSRLSRTRTVKATVEEAKIFLRDTLEEPSNAS MLPNDSSNIHEESRGDSSFVEKANTSIGRKRRRAQSSRITESEQDDCDS EGRSGSVTTAGGRRKRRQSIASSVQAPGEQRYNLRHRKTAGSVTAAP AAADLKKRRKEEAGGGGAEPNPESVSSLGMAGETGQTAQLMQVTTS KSVEFSQERVVRFSTPEDIVDGNAADAAKTVENTELSGEDNGTPESGS GNNTVGESDDDYDDEERPGEASIRKKIWNFLTT |
| Ppr1 | Pinus_parviflora | onekp:IIOL_scaffold_2016483 | DRAALVVHVTKLEAELYDYQYNMGLLLIERKDWTSKYEQMKVAIAEAE ENLKREQSAHLIAISEAEKREESLKKALGVEKQCVMDLENALHEMRAE MAELKFTSENKLAQAREFAASTEEKALAAESKFHAAEALQAEVSRKLAE MERKGQDIEALERTLQRERQSFMSEHDAFESELSLERQNLLEWEKKLQ EGQERLIEGQRLLNQREEYINRRDEAMKQIEKELADAKMQIEKDQATL KEKEVDISVRMAALAAREEDVAKGETVIKEKEEELYALQEKLVSMENEEI QKLIDDHKATLEARKTEFEAEIEQKKMLVEEELEKKRSDVELMEANMN RKEEKISKREQQLEKKAEKVKEKEKEVDARSKALKEREKTYKNEEKQIET EKKKLEAENEDLNNDKQELEKLRIILKEEKQQILNAQENLKVTEKERNEL LKLQTELKEEIENYRSRKQQVENEAEELRLEREKFEREWEILDEKREQAR KESAQVDEDRKRISKWVQEEEERLKQEKRALREHIQSDSDALNLEKEAF KSSMEHERAEWFENVRRERADILRDIELQRSELENSIEKRKEEIERLLHE KEVEFQKEKEREMHHICELREVARKEMEEMKVERRKLEKERQEIIESRE HAEKEWTGIKKDIEELQVQREKLKEQRQSLCKEREEVLRLFEQLKKLKTE LNVTEDHLKQIADKDGSHSPRPADALGFSHQALGQNIFGTPVDTSVKV NPEPSSGRTDASSSKTSRLSWLQKCASKIFNQLPSPGKVGDSTVGKEET EISYSPALEVDLGAEVERMTHENIVGEKVEHGSLADVQNDGLTVEAAQ DNRQGPGRVKPRPVVNFDSSLPSPSAGNGHKSKDKAKIRVFRRTRSM KAVVEEAKGILETPLDMEKNESEDGQEQEQNDAEVTANSEDLGKESD KDKSDTAKEIDESKGESLASDKKPSQSGKKRRRKYSSRATSAQDADDA DVQSELTSGQRRKKRQRDNANGDKSGIGTPGGKRYNLRR |
| Ppr2 | Pinus_parviflora | onekp:IIOL_scaffold_2016481 | SSVNENEMWKRLREVGLDEETLQKKDKAFLVAYITKLESELYDYQCNM GLLLIERKEWTSKYEQMKLSASEAEEKFKRERAALSTAIAEAQKQEESLK KALGVEKQCVADLEKALHEIRAECAELKFISDNKLAQAREMVAATEEKF LAAESKLHAGEALQAESNRKKADAERKLQEVEAREDALRRERQAFKSE CESREKELVLERQNLRGWDKKLQEGQERLLEGQKFLNQREAHLMERD EALKQSEKELQGLKINVEKEHSTLKEKEAELRTSLAALMTREEAVVKQEV |

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| | | | IVDRKEQELLVLQEKLANREREEIQRLTDEHKATLEAIRIEFEAELEQKRR<br>LVEDELENKENAADLRVLEIDRKEEKLSKRELHLEMKAEKLKEKENELEL<br>RSRTLKEMEKTYKTEEKEMEKEKKKLEMERKEINNAKQELQKFKASLEG<br>ERCQILKEQQRLELTKNERDELLDLQTRLKEEIDDLRAQKHELLKEADEL<br>DVEKEKFEREWEILDEKREQLRKELEWVDDERKKVPKWLKDEEERLKQ<br>EKIVLREEIKRDAEGLRLEKEAFESSMQHQRAVLFAEVQRERADLVQDI<br>ELRTRELENSIERRREELERHYQEKEASFQKEKDKEMQYISAQRELLRKE<br>TEEIKSGRQRLERERKEITTNQEHTEKEWSEMKKDIEELQIQREKLKEQR<br>ELLHREREELRAQLEELKKLKDELKMTEESLKFSEQQLSQVNINECEVISP<br>GHGISWAAPKQNVFAVPENANIEFNSGISPVRTPPSASTPSPLTWLQK<br>CASRIFKPSPGKEAESIFQKQETERAEN |
| Pra1 | Pinus_radiata | onekp:DZQM_scaffold_2056498 | MLTPKRRGWPGWSPKTPPPPPAEDMAGSSHVATPAATAGGNSGGR<br>ALVEAPPRNLLDNNGEIVATRGEPEIWRRFKEAGSLDEESLEKKDRAAL<br>VVHVTKLEAELYDYQYNMGLLLIERKEWTSKYEQMKAAIAEAEENLKR<br>EQSAHLIAISEAEKREESLKKALGVEKQCVMDLENALHEMRAEMAELK<br>FTSENKLAQAREFAASTEEKALAAESKLHAAEALQAEVSRKLAEMERKG<br>QDIEALERTVQRERQSFMSEHDAFESELSLERQNLLEWEKKMQEGQE<br>RLIEGQRLLNQREEYINKRDEAMKQIEKELADAKMQIEKHQATLKEKEA<br>DISVRMAALAAREEDFAKREAVIKEKEEELHALQEKLVSMENEEIQKLID<br>DHKATLEARKTEFEAEIEQKKMLVEEELEKKRSDIELMEVNINRKEEKIS<br>KREQQLEKKAEKVKEKEKEVDARSKSLKEREKTYKNEEKQIETEKKRLEA<br>EREEINNEKQELQKLRIILKEEKQQILNAQENLKVTEKERNELLKLQTELK<br>EEIENYRSRKQQVENEAEELRLEREKFEREWEILDEKREQARKESAQVD<br>EDRKRISKWVQDEEERLKQEKRALREHIQSDSDALNLEKEAFKSSMEHE<br>RAEWFENVRRERADLLRDIELQRSELENSIEKRKEEIERLLHEKEVEFQKE<br>KEREVQHICEQREVARKEMEEMKVEKRKLEKERQEISESREHAEKEWT<br>GIKKDIEELQVQREKLKEQRQSLCKEREEVLRLFDQLKKLKMELNVTED<br>HLKQIADKDGSHSPRPADALGFSHQALGQNIFGTPVDTSLKVNPEPSS<br>GRTDASSSKASRLSWLQKCASKIFNQSPSPGKVGDSTVGNEETERSHS<br>PALEVVLGAEVERMTHENIVGEKVEHGSSADVQNDGFTVEDAQGNR<br>QGPGKVKPRPVVNFDSSLPSPSAGNGHKSKDKAKIRVFRRTRSMKAV<br>VEEAKGILETPLDMEKNESEDGQEQEQNDAAVTANSEDLGKESDKDK<br>SDTAKEIDESKEESLASDKKPSQSGKKRRRKYSSRATSAQDAEDADVQS<br>ELTSGQRRKKRQRDNANGANSGVGTPGGKRYNLRRSTIASTIAAQAVS<br>LEDKDKDLTTQEEEDSRRVQENLLDHVTEDNQEASSDEPARAPSAGER<br>DTNILPAEDQDPQTFQENGLGDAGNDLREVSSHELTKSETAEFYAESE<br>DEGGNGVDIEELDETEDGEEIEEVDEDGNDDAEDQKSSLRKKLWNFLT<br>T |
| Pra2 | Pinus_radiata | onekp:DZQM_scaffold_2012000 | SPVNENEMWRRLREVGLDEETLQKKDKAFLVAYITKLESELYDYQCNM<br>GLLLIERKEWTSKYEQMKLSASEAEEKFKRERAALSTAIAEAEKQEESLK<br>KALGVEKQCVADLEKALHEMRAECAELKFISDNKLAQAREMVAATEEK<br>FLAAESKLHAGEALQAEANRKKADAERKLQEVEAREDALRRERQAFKS<br>ECESREKELVLERQNLRGWDKKLHEGQERLLEGQKFLNQREAHLMER<br>DEALKQIEKELQDLKMNVEKEHSTLKEKEAELRTSLAALMTREEAVVKQ<br>EVIVDRKEQELLVLQEKLASREREEIQRLTDEHKATLEAIRIEFEAELEQK<br>RRLVEDELENKENAADLRVLEIDRKEEKLSKRELHLEKKAEKLKEKENELE<br>LRSRTLKETEKSYKTEEKEMENEKKNLEMERKEINNAKQELQKFKASLE<br>DERCQILKEQQRLELTKNERDELLDLQTKLKEEIDDLRAQKQELLKEADE<br>LNVEKEKFEREWEILDEKREQLRNELEWVDDERKKVPKWLKDEEERLK<br>QEKIVMREELKRDAEGLRLEKEALESSMQHQRAVLFAEVQRERADLVR<br>DIELRTSELENSIERRREELERHYQEKESSFLKEKDKEILYISAQRELLHKET |

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| | | | EEMKSERQRLEKERKEITTNQEHTEKEWSEMKKDIEELQIQREKLKEQR<br>ESLHSEREELRAQLEELKKLKDELKMTEESLKFSEQQFSQVNINEKLFLLR<br>MVFLKRHLNRMFLLCQRMQTLSSGISPVRRTPPSASTPSPLAWLQKCA<br>SRIFKPSPGK |
| Psy1 | Pinus sylvestris | GymnoPlaza | MLTPKRRGWPGWSPKTPPPPPAEDMAGSSHVATPAATAGGNSGGR<br>ALVEAPPRNLLDNNGEIVATRGEPEIWRRFKEAGSLDEESLEKKDRAAL<br>VVHVTKLEAELYDYQYNMGLLLIERKEWTSKYEQMKVAIAEAEENLKR<br>EQSAHLIAISEAEKREESLKKALGVEKQCVMDLENALHEMRAEMAELK<br>FTSENKLAQAREFAASTEEKALAAESKLHAAEALQAEVSRKLAEMERKG<br>QDIEALERTVQRERQSFMSEHDAFESELSLERQNLLDWEKKMQEGQE<br>RLIEGQRLLNQREEYINKRDEAMKQIEKELADAQMQIEKHQATLKEKE<br>ADISVRMAALAAREEDFAKRETVIKEKEEELHALQEKLVSMENEEIQKLI<br>EDHKATLEARKTEFEAEIEQKKMLVEEELEKKRSDIELMEANINRKEEKIS<br>KREQQLEKKAEKVKEKEKEVDARSKSLKEREKTYKNEEKQIETEKKKLEA<br>EREDINNEKQELQKLRIILKEEKQQILNAQENLKVTEKERNELLKLQTELK<br>EEIENYRSRKQQVENEAEELRLEREKFEREWEILDEKREQARKESAQVD<br>EDRKRISKWVQDEEERLKQEKRALREHIQSDSDALNLEKEAFKSSMEHE<br>RAEWFENVRRERADLLRDIELQRSELENSIEKRKEEIERLLHEKEVEFQKE<br>KEREVQHICEQREVARKEMEEMKVERRKLEKERQEISESREHAEKEWT<br>GIKNDIQELQVQREKLKEQRQSLCKEREEVLRLFDQLKKLKMELNVTED<br>HLKQIADKDGSHSPRPADALGFSHQALGQNIFGTPVDTSLKVNPEPSS<br>GRTDASSSKTSRLSWLQKCASKIFNQSPSPGKVGDSTVGNEETERSHSP<br>ALEVVLGAEVERMTHENIVGEKVEHGSSADVQNDGFTVEAAQGNRQ<br>GPGKVKPRPVVNFDSSLPSPSAGNGHKSKDKAKIRVFRRTRSMKAVVE<br>EAKGILETPLDMEKNESEDGQEQEQNDAAVTANSEDLGKESDKDKSD<br>TAKEIDESKEESLASDKKSSQSGKKRRRKYSTRATSAQDAEDADVQSEL<br>TSGQRRKKRQRDNANGANSGVGTPGGKRYNLRRSTIASTIAAQAVSL<br>DDKDKDLTTQEEEDSRGVQENPLDHVTEDNQEASSDEPARAPSAGER<br>DTNILPAEDQDPQSFQENGLGDAGNDLREVYSHELIKSETAEFYAESED<br>EGGNGVDIEELDETEDGEEIEEVDEDGDNDAEDQKSSLRKKLWNFLTT |
| Psy2 | Pinus sylvestris | GymnoPlaza | MLSPQRTGWRSPVSPSTDGKEKNKGIVVAAASPEVRSPVSANRGSPV<br>NENEMWRRLREVGLDEETLQKKDKAFLVAYITKLESELYDYQCNMGLL<br>LIERKEWTSKYEQMKLSASEAEEKFKRERAALSTAIAEAEKQEESLRKAL<br>GVEKQCVADLEKALHEMRAECAELKFISDNKLAQAREMVAATEEKFLA<br>AESKLHAGEALQAEANRKKADAERKLQEVEAREDALRRERQAFKSECE<br>SREKELVLERQNLRGWDKKLHEGQERLLEGQKFLNQREAHLMERDEA<br>LKQIEKELQDLKMNVEKEHSTLKEKEAELRTSLAALMTREEAVVKQEVI<br>VDRKEQELLVLQEKLASREREEIQRLTDEHKSTLEAIRIEFEAELEHKRRL<br>VEDELENKENAADLRVLEIDRKEEKLSKRELHLEKKAEKLKEKENELELRS<br>RTLKETEKSYKTEEKEMENEKKNLEMERKEINNAKQELQKFKASLEDER<br>CQILKEQQRLELTKNERDELLDLQTKLKEEIDDLRAQKQELLKEADELNV<br>EKEKFEREWEILDEKREQLRNELEWVDDERKKVPKWLKDEEERLKQER<br>IVLREEIKRDAEGLRLEKEALESSMQHQRAVLFAEVQRERADLVRDIELR<br>TSELENSIESRREELERHYQEKESSFLKEKEKEILYISAQRELLHKETEDLKS<br>ERQRLEKERKEITTNQEHTEKEWSEMKKDIEELQIQREKLKEQRESLHSE<br>REELRAQLEELKKLKDELKMTEESLKVSEQQLSQVNINECEVISPEHGIS<br>QAAPKQNVFAVPENANIEFNSGISSVRTPPSASTPSPLTWLQKCASRIF<br>KPSPGKDVESIFQKQETERAENLVSARVPGAWIDSVPSAGRQNNNLVE<br>NSKNASEQVDGTLYSRPVMNINQSETSFLGGNKGKANAKGNLRVFRR<br>TRSINAVAQEAKEILEMPSERDNNESDHVKETVHETILNSTGNGDTTLN<br>AEEAMRHKENSATEIDEEREDSIDNGKKNLHSGRKRRHRYSSRDTSEH |

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| | | | NTEVVEIECELTSGGHRKRHQRETTNSPGLETPNGKRYNFRDSTIGNMI<br>APRMASAERKDKDASHGEEQDPKNPVENNLDEVSQEPQEVLHYKLTK<br>SSVAEVKFKVLPHGKKQLSKRPRQKTLEEFGGELLEGYARELTRVPDSR<br>GDEEDQEAYSHELTMSETGELFDESNENEDNNDDDAETFAGTEQDDE<br>DDDEEQKSLKAKLWNFLTT |
| Pte1 | Pinus taeda | Congenie.org\|cl\|PITA_000037238 | MLTPKRRGWPGWSPKTPPPPPAEDMAGSSHVATPAATAGGNSGGR<br>ALVEAPPRNLLDNNGEIVATRGEPEIWRRFKEAGSLDEESLEKKDRAAL<br>VVHVTKLEAELYDYQYNMGLLLIERKEWTSKYEQMKAAIAEAEENLKR<br>EQSAHLIAVSEAEKREESLKKALGVEKQCVMDLENALHEMRAEMAELK<br>FTSENKLAQAREFAASTEEKALAAESKLHAAEALQAEVSRKLAEMERKG<br>QDIEALERTVQRERQSFMSEHDAFESELSLERQNLLEWEKKMQEGQE<br>RLIEGQRLLNQREEYINKRDEAMKQIEKELADAKMQIEKHQATLKEKEA<br>DISVRMAALAAREEDFAKREAVIKEKEEELHALQEKLVSMENEEIQKLID<br>DHKATLEARKTEFEAEIEQKKMLVEEELEKKRSDIELMEVNINRKEEKIS<br>KREQQLEKKAEKVKEKEKEVDARSKSLKEREKTLKNEEKQIETEKKRLEA<br>EREDINNEKQELQKLRIILKEEKQQILNAQENLKVTEKERNELLKLQTELK<br>EEIENYRSRKQQVENEAEELRLEREKFEREWEILDEKREQARKESAQVD<br>EDRKRISKWVQDEEERLKQEKRALREHIQSDSDALNLEKEAFKSSMEHE<br>RAEWFENVRRERADLLRDIELQRSELENSIEKRKEEIERLLHEKEVEFQKE<br>KEREVQHICEQREVARKEMEEMKVEKRKLEKERQEISESREHAEKEWT<br>GIKKDIEELQVQREKLKEQRQSLCKEREEVLRLFDQLKKLKMELNVTED<br>HLKQIADKDGSHSPRPADALGFSHQALGQNIFGTPVDTSLKVNPEPSS<br>GRTDASSSKASRLSWLQKCASKIFNQSPSPGKVGDSTVGNEETERSHS<br>PALEVVLGAEVERMTHENIVGEKVEHGSSADVQNDGFTVEDAQGNR<br>QGPGKVKPRPVVNFDSSLPSPSAGNGHKSKDKAKIRVFRRTRSMKAV<br>VEEAKGILETPLDMEKNESEDGQEQEQNDAAVTANSEDLGKESDKDK<br>SDTAKEIDESKEESLASDKKPSQSGKKRRRKYSSRATSAQDAEDADVQS<br>ELTSGQRRKKRQRDNANGANSGVGTPGGKRYNLRRSTIASTIAAQTVS<br>LEDKDKDLTTQEEEDSRRVQENPLDHVTEDNQEASSDEPARARSAGER<br>DTNILPAEDQDPQSFQENGLGDAGNDLREVSSHELTKSETAEFYAESE<br>DEGGNGVDIEELDETEDGEEIEEVDEDGNDDAEDQKSSLRKKLWNFLT<br>T |
| Pte2 | Pinus taeda | Congenie.org\|cl\|PITA_000013513 | MLSPQRTGWRSPVSPSTDGKEKNKGIIVAAASPEVTSPVSANRGSPVN<br>ENEMWRRLREVGLDEETLQKKDKAFLVAYITKLESELYDYQCNMGLLLI<br>ERKEWTSKYEQMKLSASEAEEKFKRERAALSTAIAEAEKQEESLKKALG<br>VEKQCVADLEKALHEMRAECAELKFISDNKLAQAREMVAATEEKFLAA<br>ESKLHAGEALQAEANRKKADAERKLQEVEAREDALRRERQAFKSECES<br>REKELVLERQNLRGWDKKLHEGQERLLEGQKFLNQREAHLMERDEAL<br>KQIEKELQDLKMNVEKEHSTLKEKEAELRTSLAALMTREEAVVKQEVIV<br>DRKEQELLVLQEKLASREREEIQRLTDEHKATLEAIRIEFEAELEQKRRLV<br>EDELENKENAADLRVLEIDRKEEKLSKRELHLEKKAEKLKEKENELELRSR<br>TLKETEKSYKTEEKEMENEKKNLEMERKEINNAKQELQKFKASLEDERC<br>QILKEQQRLELTKNERDELLDLQTKLKEEIDDLRAQKQELLKEADELNVE<br>KEKFEREWEILDEKREQLRNELEWVDDERKKVPKWLKDEEERLKQEKI<br>AMREELKRDAEGLRLEKEALESSMQHQRAVLFAEVQRERADLVRDIEL<br>RTSELENSIERRREELERHYQEKESSFLKEKDKEILYISAQRELLHKETEEM<br>KSERQRLEKERKQITTNQEHTEKEWSEMKKDIEELQIQREKLKEQREAL<br>HSEREELRAQLEELKKLKDELKMTEESLKFSEQQLSQVNINECEVISPEN<br>GISQAAPKQNVFAVPENANIEFNSGISPVRTPPSASTPSPLAWLQKCAS<br>RIFKPSPGKEVESIFQKQETERAENLVSARAPGAWIDPVPSAGRQNNN<br>LVENAKNASEQVDGTLYSRPVMNINQSETSFLGGNKGKADAKGNLRV |

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| | | | FRRTRSINAVVQKAKEIVEVPSERENNESDHVKEPVHETLLNSTGNGDT<br>TLNAEEAMGHKENSATEIDEEREDSIDNGKKNLHSGRKRRHRYSSQDT<br>SEHNTEVVEIECELTSGGHRKRHQRETTNSPGMETPNGKRYNFRDSTI<br>GNMIAPRMASAECKDKDVSHGEEQDPKNLVENNLDKVSQEPQEVLH<br>YKLTKSSVAEVKFKVLPHGKKQISKRPRQKTLEEFGGELLEGYARELTRV<br>PDSRGDEEDQEAYSHELTMSETGELFDESNENEDNNDDDAETFAGTE<br>QDDEDDDEEQKSLKAKLWNFLTT |
| Ptr1 | Populus trichocarpa | Phytozome 12 Potri.017G111400.1 | MFTPQKKVWSGWSLTPRSEAGQKNGSESGSDPKGKSVGFVEQVTPN<br>GVRPNLDGEYLADKVSKLENELFEYQYNMGLLLIEKKEWGSKHEELMQ<br>AFAEATEAVKREQAAHLIALSDAEKQEENLRRALGVEKQCVLDLEKAVR<br>EMRSENADIKFTADSKLAEANALVMSIEEKSLEVEAKLRAADAKLAEVS<br>RKSSEIQRKLLDVESRESALRRERLSFIAEKEVYETTFSKQREDLQEWEKK<br>LQEGEERLSKSQRIINQREERANENDRILKQKEKDLEEAQKKIEDANSIL<br>KRKEDDISNRLTNLTIKEKEFDATRKKLEVKEVELRVLEEKLNERERVEIK<br>KLTDEHNAILDVKKHEFELEAEQKKKSLDEDLKNKVIELEKRETEINHKEE<br>KAAKREQALDKKLEKCKEKENEFESKSKSLKEREKAIRSEQKNLEGEKNQ<br>LESAKENFLNLKAELEKTRASNEEQLLKIHEEKERLKVSEEERSEYARLQA<br>ELKEEINKCRLQEELLLKEADDLKQQKGNFEREWEDLDEKRAEAEKELK<br>SIHEQKEKFEKYRLSEEERIRNERKETENYIKRELEALQVAKESFEANME<br>HERSVMAEKAQNERNQMLHSIEMQKTELENELQKRQEEMDRLLQEK<br>EKLFEEEREREFKNINFLRDVARREMEDMKLERLRIEKEKQEVDEKKRH<br>LQEQQIEMREDIDKLGNLSRKLKDHREQFIKEKERFIVFVEQNKGCKNC<br>GELTSEFVLSDLISSQEIEKADALPTSKLVNNHVTTDDGNPAASEKHDSE<br>MSPTLAHSVSPVSWLRKCTSKILKFSAGKRIEPAALQNLTDGTPLSGEQ<br>VNAEEMSKRLDFTENEPELSFAIVNDSLDAQRVLSDTSIREVEAGHDLSI<br>NDQSNNNGTAPEIQEDSQPSGLKHDPQPRKRGRPRVSRTRSVKEVVQ<br>DAKALLGGALELNEAEDSGHLKSESRDESSLADKGGPRNARKRNRTQT<br>SQISVSDRYGDDSEGHSDSVTAGDRRKRRQKVVPNQTQGQTQYNLR<br>RRKLGVAVVTVKASSNLNNEKEKEDDGVSSPQDGNLLRSAPAASAGA<br>ASENGESMHFARCANIMDTLDGDGSARRMDENAALSEEINGTPEGA<br>GEYGIADENRSETPRGENEDEDEDDDEEESLHPGEVSIGKKLWTFLTT |
| Ptr2 | Populus trichocarpa | Phytozome 12 Potri.012G034300.1 | MTSPITPSNGSGRALSLTSSAIVLKTPLTDEKIWKRLKEAGFDEESVKRR<br>DKAALIAYIANLEAEMFDLQYHMGLLILEKKEWTSKYDQMKSSAETAD<br>LMRRRDQASHLSALAEARKREESLKKALGVEKECISSMEKALHEMRAE<br>SAETKVAADSKLSEARDMVQDAQKKFLDAEAKLHAAEALQAEASRYH<br>RAAERKLQEVEAREADLSRRMTAFKTDCDAKEKEIGLERQSLSERRKVL<br>QQEQESLLDGQALLNQREDYVANKSQDLNQLEKVLEVSKENIEKELRA<br>LNDEKSKLELTIASLSQREEAVIEREAQLSKREQELLVFQEKLASKELVEIQ<br>KVTASHENVLRTMNSEFEAELDKKRKLVEDEIEAKRRAWELREVDLKQ<br>REDLVLEKEHDLEVQSRALVDKEKDVTDKINFLDDKERSLNVVEKDIELR<br>RALLLQEREEINKTKLDLQKSLDSLEDKRKQVDCAKEKLQTMTSETNEY<br>AALEMKLKEEVDTLRAQKLELVDEEDRLKNEKGKFETEWELIDEKREEL<br>RKEAERVAEEREAVSRLLKEERDSLRLEKKEIRDQHKKDVESLNHEREDF<br>MNKMEQERSEWFNRIQKEHSDFLLGIEMQKRELESSIDKRREEIESYLR<br>DKEKAFELEKKSELQHIASLREKAEKELEQVTLEMKKLDAERMEINLDRE<br>RRDGEWAMLNKSIEELKGQTQKLEKQRQLLRGEREEIYVQIEQLKKLD<br>NLKLALDDMEMEEMQLSNMESSRQKISTIRRLKQQTTVQDTDLASYG<br>KVDAASNVGGLNSPTPKTSVASPTNSARFSWIKRCTELVFKNSPEKPSS<br>RSEESGMSGHEDTSLTAGKLDSSNGYCGKKLKSVQIFDKSQPIRYAYGE<br>PKVILEVPPKGDISKESCGVEYDIMEVANERLTFPISDLAPQAERKRRVD<br>NSSLDNSVDSQHGKGQSNKRRRQEEIASAILPEDTVNDSVTSTQEAVC |

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|---|---|---|---|
| | | | KDQHAAEEADVVIMDKIIKVSEVTCEITSTDTFAHQEISVQLQSSEKTSH<br>HNTGIDKEVSEVLKE |
| Ptr3 | Populus trichocarpa | Phytozome 12 Potri.008G114800.1 | MFTPQRRPSPAITLTPRSEMHRSGGANAGATSTGIGAKGKALALIDGA<br>LPPPPPVGSLSVNAGELDTEDVEAWRRFREVGLLDEAAMERRDREALL<br>EKASRLEKELFDYQYNMGLLLIEKKEWTSKYEELRQAWAETEEILKREQ<br>AAHLIALSEVEKRQENLRKALSVEKQCVGELEKALHDLQEEHVLIKKVSD<br>SKLADAKALAAGNEEKSLEVEEKMRVAESKLAEVNMKSSELDMKLNQ<br>LEARENLLQRERLSFNTEREAHKATFYKQREDLQEWEKKLRQGEESLCE<br>LRRTLNQREEKASEDERVLKKKERDLEEAEKKIDISFAKLKEREVDVNNR<br>LLGLVTKEKEADSLRSTLEIKEKELLALEDKLSARERVEVQELLDEHRTILD<br>AKIQEADLELTEKRKNLEEELRSKADGVRLLETEIFHREEKLGKRELALDR<br>KSDRMKDKEKDLDAKLKVVKEKDKSMKAEQKQLELQKKQLLSDEVSV<br>QLLEDDCEKLRAEIAQQELQIGEESESIKITNNERLEYLRLQAELKQELEK<br>CRRQAEFLLKEAEELEQERERSEKEREVLEEKRAQINKEQKDIVEERERL<br>EKMKYAGGESLKKEENDMQEYAQRELEAIRLEKESFEARKRHEQLVLSE<br>KAENVHIQMVQDFESERCNFETGLINRQEEMEKALRGRERAFEVLKER<br>ELNTINNLKEVARREREEIESERRAMDKERQEVVKNKEKLEEQQYGIKK<br>DIDELGMLSNKLRKQREQVIRERNYFLSFVEKHKSCTNCGDVTREFVLS<br>DLQPPEMEERETLPSPKISDEFFRNNEGGADASDILNIKRPLSEDLGSNS<br>QGRMSWLRKCTSKIFSISPTRKIQHVSAPAFEGGFPSSPVRADMEERV<br>EGSAVQKAITSSSIPVDQAQVSFGTADDTVDIQHPQSDGIKRDAGGGY<br>SVSVDDQSYMDSKTQDLPEDSELSELKNRRHKPGRRQKSGPGRTRSIK<br>AVVEDAKLFLGESLKETEYNSSVQPNDISRNSDESRGINVTKKSDVARK<br>RQRLPTEREQDAGDSEGHSESVTTGGRRKRQQIVAPEEPTPGQKRYNL<br>RRHKIAGLTAATQASSDLMKGEKTADGAAAVEPIQNPETASGLSLGVT<br>SENNKSTDVVQVTTLKSVELSQDKVVRFQTTDVDYQAEAAKSVGITELS<br>EEVNGIPDFEDEAENGSTVHEDEDDYDEDELQHPGEVSMGKKIWTFF<br>TT |
| Pvi1I | Panicum virgatum | Phytozome 12 Pavir.Ab0283 3.1 | MFTPQGKGWTGWSTPTPANQRSGGGAPAASAPLGKGKGRVAELEH<br>ELHEYQYNMGLLLLEKKEWAEKLEEVSQMLKQKEEILKREQAAHLNAIS<br>EYERREESMRKALGVEKQCVIDLEKALREIRAEIAEVKFMSEKKTADAQ<br>SLEASLEEKSLEIEGKLHAADAKLAEANRKKSQADRDLEEVEARQRRLEK<br>EKLYFETERKAQEKQLKEQEESLQEWEKKLKESQNRLVDLQRSINDREE<br>RANKNDQLFKIKHGELEEARKSVEANKLALKAKEDDINRRLNELHSQE<br>MDANSKRKELEEREKKLIEREKTASIREKEGLQKLLEDYQVELETKRRDF<br>ELELERERKSFDEKMVHKQADLVKREKNVKSLEAKLSKSEQVLNDKKKE<br>MEGWQNDLDAKSKALKRWEESLKNDDKRLLEEKQRMDQKKDQVE<br>MSKSELERIKSTLEAEKERILEEQNNLKLTEEERQEHSVLTEKLKKEIEEYR<br>MRSNSLSEEIEDLRKQRQKFEEEWEQLDEKRAHLVEEGKKVNIERMDL<br>ERWRDSEEKRLNDAKLEMEERYKEKLENLDRKEKALNDDIKHKQMEN<br>DELLKGERADLQRKLQLHRHELEMEMEQKQASKEKELEAKENELNKKI<br>DFVENKLRHAIELNESKIQKIISEKKQLQMERKILLEEREKLETDKADIKR<br>DIDSLHGLSQSLKLRRESYNRDRNNLINLFEKYKVCKNCGISLFEELDSLA<br>LKDSVEIEHPSLAVERDDRSLNADTPAPDTGTLVNSGGRLSLLQKCSRLF<br>KFSPVKKGDQSSEQPTNNVTFGARLEEASQSHGDYEPTPVYEIAHDSF<br>DAEDDLPSDSGAREDNEESERHDPADDVQMESSLGVADNGIDVSGTR<br>SFDGTNDMAVDATIASVDQNGKDSAAPAEADLQPETLKQGRRQQNR<br>KGRGKGGVKRTRSVRAVVEDAKTILGETFEKNDGQGDPVAVGTRKRR<br>FAGAATISEQDEEGSEAHSESVSLGGQRRKRRQTAGAVAGIPGEKRYN<br>LRRSTVANATAATVQIDKKKAAKVGSKHKVDATADDTEGTSKAVEEPA<br>PESKRASESADYGALQLHEFSQAEVGDAPAPAPAEGIGKEGGDIMEGK |

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|---|---|---|---|
| | | | DALPDVPMTPSGSELGAEQDDEDDDDSERRNQSISKKLWSFFTT |
| Pvi1II | Panicum virgatum | Phytozome 12 Pavir.Aa00790.1 | MFTPQGKGWTGWSTPTPANQRSGGGAPGASAPLGKGKGRVAELEQ<br>ELHEYQYNMGLLLLEKKEWAEKLEEVSQMLKQKEEILKREQASHLNAIS<br>EYERREESMRKALGVEKQCVIDLEKALREIRAELAEVKFMSEKKTADAQ<br>SLEATLEEKSLEIEGKLHAADAKLAEANRKKSQADRDLEEVEARQRRLEK<br>EKLYFETDRKAREKQLKEQEESLQEWEKKLKESQNRLVDLQRSVNDRE<br>ERANRNDQLFKIKHGELEEARKSVEANKHALKAKEDDINRRLNELHSQ<br>EKDANSKCKELEEREKKLIEREEKASIREKEGLQKLIEDHRVELETKRRDF<br>ELELERERKSFDEKMVHKQADLVKRERDVKSLEAKLSKSEQVLNDKMK<br>EMEGWQNDLDAKSKALKRWEESLKNDDKRLLEEKQRMDQEKHQVE<br>MSKLELERIKSTLEAEKERILEEQNNLKLIEEERQEHSVLTEKLKKEIEEYR<br>MRSNSLSEEIEDLRKQRQKFEEEWEQLDEKRAHLVEEGKKLNIERMNL<br>ERWRDTEEKRLNDAKLEMEERYKEKLENLDRKEKALNDDIKHKQMEN<br>DEHLKGERADLQRKLQLHRHELEMEMEQKQASKEKELEDKENELNRK<br>MDFVENKLRHAIELNESKIQKIISEKKQLQMERKILLEEREKLETDKADIK<br>RDIDSLHVLSQSLKLRRESYNRDRNNLINLFEKYKVCKNCGISLFEELDSL<br>VLKDSVEIEHPSLAVERDDRSLNADTAPHTGTLINSSGRLSLLQKCSRLF<br>KFSPGKKGDQSSEQPTESIPFGARLEEASQGDGDYEPTPVYEIAHDSFD<br>AEYDLPSDSGARENEESERHDPADDVQMESSFGVADNGIDVRGTQSF<br>DGTNDMAVDATNDMAVDAIIASVDQNGKDSAAPAEADLQPETSKQ<br>GQRQQNRKGRGKGGVKRTRSVRAVVEDAKAILGETSEKNDGQRDPV<br>AMGTRKRRFAGSTISEQDEEGSEAHSESISLGGQRRKRRQTAGTVTETL<br>GEKRYNLRRSKVANATAATVQTDKKKAAKAGSKHKVEATADDTEGTS<br>KAVEEPAPESKRASEPADYGASQLHEFSQVEVGDAPAPAPAPAEEIGE<br>EGGDIDIVDGKDALPDVPMTPSGSELGAEQDDEDDDDDSERRNQSIS<br>KKLWSFFTT |
| Pvi2I | Panicum virgatum | Phytozome 12 Pavir.Ea02825.1 | MASPRSGGAGGGAAGDEAIWRKLREAGFDENAVRRRDKAALIGYISR<br>LESEIYDYQHNLGLILLDRKELESKYEQLKASSEDTDTMLKRERAAQQSA<br>LAETRKKEENLKKNLCIQKECVSNLEKALHDMRGEAAEVKVSYEAKLAE<br>ALQMIEAAQKKFDEAEDKLLAAKSLEAESTRTRNASLRSLQDIEDREDQ<br>LRRDKTSFELERASKEREISLQRKLLDDTRKILHEKEQALLKEQALLNQRD<br>DNILERLGYITHSEKKLEEEKLNLEDERKVLMEEKNKLDLKMQAVISREE<br>AIIKKESLLDKRETELLVLQETIASKERAEIERLRQEQEVSLVRRRQEFDTE<br>MEIKLTSFEEEIEARKALLDQRESALSEQEDSVAQREQNLNLRLAELTSK<br>EESLVKRSDELNEEERKLSSHREVVYIELQKEREEIRNMKLDLEKEKSFFE<br>EEKREAIQAQEKLLITQNEREDLLILQMKLKEEIDSLRAQKVDLMVDAE<br>RLLAEKERFEIEWELIDEKKDELQKEAARIADERRVIDEHLKNELDIIKQE<br>KENLRIQFKNSAESLACEHMEFMNKMQQEHASWLSMIQQEREDLKR<br>DIDIQRTELLNSAKARQMEIDSYLREKEDEFEQKKSKELEYINSEKETISSK<br>LEHVRLELQKLEEERKEAMLERERREQELSEIKNTIDALNKQREKLQEQR<br>KLLHSDREAITQQIQQLNELEELKIETENKQLSLRQCGRSKHGDGDAEN<br>LKENGVHQSSDEDQNASPKKCSSPKLILGKKLDVSPSVSTPISWVRKCA<br>QVIFKRSPEKSADHDNDRFAHAKLGNVNDPSLVGNGGLFACQLENGA<br>GEVQHAVEKVGKKRLNNALSHDQSENFEPKRKHQRSSTLTRRVRGGEI<br>ESNCSPSVLEEKCSKNEHDAVPVGLSGKGLGYPRPGELASSDASDIPEA<br>SEPSEEISVFASEALDGDAKDKDEPDEESDDEGEEEEEEKTSSAKKLWRF<br>LIT |
| Pvi2II | Panicum virgatum | Phytozome 12 Pavir.Eb03274.1 | MASPRSGGAAGDEAIWRKLREAGFDEDAVRRRDKAALIGYISRLESEIY<br>DYQHNLGLILLERKELASKYEQLKASSEATEIMLKRERAAQQSALAEARK<br>KEENLKKNLCIQKECVSNLEKALHDMRGEAAEVKVSYEAKLAEALQMI<br>EAAQKKFDEAEEKLLAAKSLEAESTRTHNASLRSLQDIEDREYQLRRDRT |

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| | | | SFELESASKEKEISLQRKLLDDTKKILHEKEQALLKEQALLNQRDDNILER<br>LGYITHSEKRLEEEKLNLEDERKVLMEERNKLDLKMEAIISREEAIIKKESL<br>LDKRETELLVLQETIASKERVEIERLRQEQEVALARRRQEFDTEMEIKLTS<br>FEEEIEVRKALLDQRESALSEQEDSVAQREQNLNLRLAEFTSKEESLVKR<br>SDGINEEERKLSSHREVVYVELQKEKDEIQNMKLDLEKEKSFFEEEKREA<br>IQAQEKLLITQNEREDLLILQMKLKVEIDSLRAQKVDLMVDAERLLAEKE<br>RFEIEWELIDEKKDELQKEAARIAEERRVIEEHLKNELDIIKQEKENLRIQF<br>KNSTESLACEHKEFMNKMQQEHASWLNRIQQERKDLKRDIDIQRTELL<br>NSAKARQMEIDSYLREKEEEFEQKKSKELEYINSEKEAMSSKLEHVRLEL<br>QKLEDERKEAMLERERREQELSEIKNTIDALDEQREKLQEQRKLLHSDR<br>EAITQQIQQLNELEELKIETENKQLSLRQFGRSKHGDGDAENLKENGVH<br>QSRDKDQNASPKKCSSPKLILGKKLDVSPSVSTPISWVRKCAQVIFKRSP<br>EKSSDHDSDRFAHAKLGNVNDPSLVGNGGLFACQLENGAGEVQHAV<br>EKVGKKRLNNALSHDQSEILQPKRKHQRSSTLTRRVIGGEIESNCSPSVL<br>EEKCSKNEHDEVPVGLSGKGLGYPRPGELASSDASDIPQASEPSESAAE<br>ALIGDAEDKDEPDEDSHDDEGEEEEEEKTSSAKKLWRFLIT |
| Pvu1 | Phaseolus vulgaris | Phytozome 12 Phvul.008G020600.1 | MFTPQKVWSGWSLTPNKSGVRGGTGSGSDLGPNSGDGVSAKEQGIV<br>AVVENGGNNLDRGVLVERVSNLEKELYEYQFNMGLLLIEKKEWTSKYT<br>EQSQDLVEVKDALEREKAAHLIALSEAEKREENLRKALGVEKECVLDLEK<br>ALREIRSENAKIKFTAESKLAEANALVASVEEKSLEVEAKLRSADAKFAEI<br>SRKSSEFDRKSQDLESQESSLRRDRLSFIAEQEAHESTLSKQREDLWEW<br>EKKLQEGEERLAKGQRIINEREQRANENDKLCRQKEKDLEEAQKKIDAT<br>NITLRSKEDDVNNRLADIALKEKEYDSLGINLDLKEKELSAWEEKLNAKE<br>KVEMQKLLDEHNAVLDVKKQEFEVELNEKRKSFEDGLKDKLVELEKKE<br>AEINHMEEKVGKREQALEKKAEKLKEKEKEYEQKVKALKEKEKSIKSEER<br>SLETTKKKIESEREELVTDKAEVEKIRSNNEQELLRINEEIERLKVTEEERSE<br>YLRLQSQLKHEVDQYRHQKELLVKESEDLRQQKESFEREWDELDLKRA<br>DVEKELKSVIQQKEEILKLQQFEEEKLKNEKQAAQDHIKRELETLALAKE<br>SFAAEMELEKSSLAEKAQSQRNQMLLDFELQKKELEADMQNQLEQKE<br>KDLIERKNLFEEKRESELNNINFLREVANREMDEMKLQRSKLEKEKQET<br>DENKKHLESQRMEMQEDIDLLVDLNRKLKNQREQFIVERQRFIEFVEK<br>LRSCQNCGEIISEFVLSDLQSSDDIENLEVPSLPKLAGDIILGDSIENLASS<br>RKNIGASPATDQKSPVSAGTISWLRKCTSKIFKISPISKFESEDSGTLRDV<br>MNLSVEKTNMDSRHENEAELSFAVVNDSLDGRRARSGNDITEVEAVD<br>QDPSVENQSNIDSKTPEESKAEQQKSRRGGGRTRIKRTHTVKAVLKEA<br>RGILGEAAELLPGESVDNHETEFPNGNAEDSANVNSESQGLSNRRIPM<br>NVRKRNRVQTSQMTVSEHDGEASEGHSDSVIPGQRKKRRQKAAAPP<br>AQTAGETRYNLRRPRTGATTSSARATSAGGKESQGEVHRVKDTEEEIV<br>DSKISHSLSVGITNEDGGSVHLEQSMKGVETRDGYGGDTTGTFANNIT<br>LSEEVNGTADDAEENDAEYRSESHGEDAGGVEIDDDEDYQHPGEASI<br>GKKLWNFFTT |
| Pvu2 | Phaseolus vulgaris | Phytozome 12 | MELSTPNSSKPLSITPGSRVLKSPLIDEQIWKRLRDAGFDEESIKHKDKA<br>ALIAYIAKLEAEIYDHQHHMGLLIMEKKDLASKYEQLEALAESSELMHK<br>HDSAMNKSALAESRKREESLKKTVSVKDACIASLEKALHELRTESAETKV<br>AAESKFAEAHQLIDEAQKKITEAEAKVRAAESLQTEANRYHNAAERKLR<br>DVEAREDNLRRKIMSFKADCDEKDKEMIFERQSLSERQKGLQEEQERL<br>LQSQSLLNQREEHFLSRSQELNRLQKELEDTKAKVEKEHETLHDEKTTLK<br>MKEATLMQREEELAKWKTELSKKEQELLEFQAKLSIRESDETKKVIAGQ<br>EAALKTKKYNLEVELQMQRKWVENDIETKRRAWELKEVDLKHCKDEIL<br>EKQHELEALSRSLSEKEKDLKDLSSALEEKDQKLSAAEKEFELNKVLLQKE<br>KDTIEQAKQDLQKSLASLENKRRQVDIDKERFEAVKNETGDLSILEVKLK |

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| | | | EEIDLVRSQKFELLAEADKLKAEKAKFEAEWELLDEKKEELQKEAEFIAKE<br>REAVSTFIKNERDQLKEEKENLRYQYTQDLGFLASERESFMNKMAQEH<br>AELFGKMQQERADFLREIEMQKQELNNLIEKRREEVESYLKEREKAFEE<br>EKNTELHYINARKEKVAKELDQVSLEMKRLQTERAEINLDRERRNREW<br>AELTNCIEELEVQRDKLQKQRELLHADRVEIFAQTEELKKLEDLKAVSDD<br>NAITEMLKSDMESNRKKISSRKNLKRQTLTQGGDKISNGFDTPFVERSS<br>AGSPPSPVRFSWIKRCSELIFRNSPVASDADTGSNSQKHLENDKPLGIG<br>KGQQMGFSFEESKVIVEVPSRDDARRREIESEAKNVNGKSALLFPDGH<br>LAGRRKRGRGNVTSKVGDPLVDLGQNKKSRAEGQTTENPIDQGTTRR<br>VVSTQSDVLKVQQVLTSSNQTQGNTEETRVVMVDKVIHVSEVTSEKV<br>DALPIDSQEPGDNPQNPALAEDHYGETIDQINSKTKREDILPRVSRVLG<br>STEEISKGNNGQDSENC |
| Pvu3 | Phaseolus vulgaris | Phytozome 12 | MFTPQQKAWPNAAVPFTPHRGGAATVSASAKGKAVADGPPPPPLGS<br>LTETTVAVGFDTGNAEDWKRFTELGLLDESVMQRKDHEALMEKVLRL<br>ERELFDYQYNMGLLLIEKKEWNSKFDQLRQELAETEEILKREQSAHLIAL<br>FEVEKREENLRKALSTERQCGADLERALRAMQEEHAQIQSKSHTKLAE<br>ASALVDGIEEKSSVVDKKLLDAEAKLAEVNRKNAELGMKLQEVEARESL<br>LQKERLSLVTDRELFDATFYKEREDLKEWERKLQQRENMLCNGRQNIG<br>EKEENIVKTEKNLKQKERDLEVLEKKINSSNSILKEKEAEIIRRTADLNME<br>EKKVDSLKSMLEKKEKELFALESKLSSREREGIQKLLGEQKATLDLQLQQ<br>VEFEMEHKRKSLVEEFSSKEEALEQREVEVNHREKKVEKEEQALSKKAE<br>RLKEQSKEIEAKLKSLKEKEKTMKIKEKELEKDNQQLLADRESLENLNAE<br>LQKIKAEISLQELQICEETKNLKLTEDDRLENSRLQLELKQEIENTRLQKD<br>SLVKEAESLREERQRFEKEWEVLDERREEITRKQHDIDEEKESLRKLQNS<br>EEERLRSKKQNMQEHIKKELEKLELEKESFRDSMNQEKHLLSEKVKNEQ<br>DKMLQDFESKTRNLENEIQKRQEEIEKDLQERERNFQEEMRKELDNINI<br>LKDVTEKEWEEAKAEGIRLENERKELELNKQQLKSGQQEMHEDSEML<br>MNLSQKVKKERQRLVAERKHFLELVENLKSCRVCGEVVGDFVISDIELP<br>DFKESMAIPSPISPVLNYKSPKNSQDIVASSDINNSGSVRPVSWIRKCTS<br>KIFKLSPNKRAEAVSALDTAGTSLPSDVNVSVEKADEPASLPNIEGARVI<br>LDERQPASGRAYHSLDTPLLQSENIDKELDDEYSQSVGDHSRVDSLVD<br>GDRDDSHQSVPKLRRGRPGKKSKSGIARTRSVKAVVEEAREFLGKTPK<br>KNENASLQSLTTDHIKEDSREDSSHVEKAVGNTGRKRQRAQTSRVTES<br>EQNAGDSEGQSESITAGGRRKKRQALAPPAQVTSEKRYNLRQHKIAGK<br>DSSTRDLPNATKSVVKEAAGGNKLKGEMSPEVVETSLAAADDNAQDK<br>SMVQDSTTKTVEVSDERVVVRFEVPRDIVDDNGAATDSLNPAEENGT<br>PEHQNENGSTIHDFEDEDDDDDEEEDGDEEHPGEVSIGKKIFRFFTT |
| Rco1 | Ricinus communis | Phytozome 12 29673.m000916 | MFTPQRKVWSGWSLTPRSEKTGSGSDSKMNGLNNVNSGDASVLKG<br>KSVAFAEPVTPNGVGLALDGDDVGLVEKISKLENELFDYQYNMGILLIE<br>KKEWTSKYEELKQAIREATDALKREQAAHLIAISDAERREENLRKALGVE<br>KQCVLDLEKAVREMRSENAELKFTADSKLAEANALIISVEEKSLEVESKL<br>HAADAKLAEVSRKSSEIDRKSQDVESRESALRRERISFIAEKEAHESTLSR<br>QREDLREWERKLQEGEERISKGQRIINQREERANENDRILKQKEKDLEE<br>AQKKIDEAEVVLKNKEDEMTIRLANLTLKEKEFDATGKKLEMKEEKLRS<br>LEESLNDREKVEIQKLIDEHTAILEVKKREFELEADQKRKSLDEELKNKVN<br>EVEKKEAEIKHMEDKVLKREQALDKKLDKLKEKEKEFESKSKALKEKEKTI<br>KSEEKNLENEKRQLNSDKENFLNLKAELEKIRAANEEQLLKIREEKDQLK<br>VNEEERVEYVRLQSELKEEIEKCRLQEQLFLKEVEDLKQQKENFEREWD<br>DLDEKRVEIEKQLKSISEQREKFEKQKASEEERIKHEKQNVEDYVIREREA<br>LEIAKESFEANMEHERSALAEKALSERQQMLHEFELQKSELGNDLQIKQ<br>EGMEKVLQEKEKLFEEEKERELKNINFLRDLARREMEEMKFERLRIEKE |

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| | | | RQEIEENKKHLQEQQLEMRDDIDKLGDLSKKLKDHREQFVKEKERFILF<br>VEQHKSCKNCGEITSEFVLSDLISSQEIEKAVLLPNQGLIQSATGNCNQN<br>LAATAVQDNDISPSAGRSASPVSWLRKCTSKIFSFSPGNKMEPAAVQN<br>LTAPLLAEDREEPSKRLDFTAHEPELSFTIGNDSLDVQRIQSDSSIREAEA<br>VQDFSIDDKSNINNEAIQVPEGTQPSNVKLGRQIHKRGRPRVSRTRSM<br>KAVVQDAKAILGESLELNTETEDSSHLKAESRGESNLADEKISRNARKRK<br>STRASQNTVSEHGDGDGDESEGHSDSITAGKRRKRQQKVAIVQTPGE<br>KRYNLRRPKKGAKPLSDIGREDKEEGGVRGPTSTGIASENGGNARFEQ<br>LEVVSDTDADSTRNLVEYAALSEEVNGTPDEGGEFGVAEEYRSESHRG<br>DEDDEEDEDEDESVHPGEASIGKKLWTFFTT |
| Rco2 | Ricinus communis | Phytozome 12 29825.m000318 | MASPITPGSVRGLSITPGARVLKTPLSDETIWKRLKEAGFDEESIKRRDK<br>AALISYIVKLESEIYDLQHHMGLLILERKELASNCEQIKTSAETTELKHKRD<br>QAAHLSALAEARKREESLKKALGVEKECIASIEKALHEMRAESAEIKVAA<br>DCKVAEAHSMVEDAQKKYTDAEAKLHAAEALQAEATQYRRAAERKLQ<br>EAQAREDDLSRRISTFRADCDAKEKEIDLERQTLSERRKLLQQEHERVLD<br>GQALLNQREDYIASKSQELDCLEKELEASKGSVQEELRALNDEKSKLGV<br>TVASLSQREQAVVEREALLNKREQDLLIMQEKLASKESVEIQKVIANHE<br>TLLRTRKLEFEAELEMNRKLAEDEIEAKRRAWELREVDLSQREELLNEKE<br>HDLEVKSRVLADLEKDVTEKVNFLDEKERCLNAAEKENELRRALLDQQK<br>NEINKMKLDIEKSLNSLENEKKQVDCAKEKLETMKNETNELAVLETKLK<br>EEVDMLRAQKVELMAEEDRLKVEKAKFEAEWELIDEKREELQIEAERV<br>AEERQSVCRLLKDGRDSLRVEKETIREQHKHDVELLNHEREEFMNKMV<br>QERSEWFNKIQKEHADFLLGIEMQKRELENSIEKRREEIECYLRDQEKAF<br>ELEKKNELEHISSLREKAAKELEQAALEMKKLDSERMEINLDRDRRDIE<br>WAVLNKSIEELKGQTQKLEKQRELLHAEREEVCAQIEHLKKLEDLKLML<br>DNMELAKMQQSNMESSQKKISAIRDLRQESTVKNADKISYKRVENGN<br>SGDVLDSPSMQKLDVSPSPGSARFSWIKRCTELIFKGSPEKPLLKSEEES<br>LISNHENASLISAGKLDSSNGFSEQVLKPGRKRRVKNSRLDGSADPWPE<br>QRQNNKRRKQQEDAAVILSPDANNHSVTSNQENAPKTQHLTEEDSE<br>NHVQVAERIIKISEVTCEIAHIDNFPNQEKVEQQLIPEATCDHSAVQDG<br>GTNGHANQGYVDHSLQPCGLEAPEMLKDQLGNDGRVTEQQQAGSN<br>ISLYEHYISINCVSFAYNIMNKLLLIC |
| Rco3 | Ricinus communis | Phytozome 12 29738.m001028 | MFTPQRRSSPAITTLTPRSEVRKSGATGNVGKGKAMTFIDGPTLLPPPP<br>PPPVASLSGNAEAETEDMEDWRRFKEAGLLDEAVMERKDRQALIEKA<br>SRLEKELFDYQYNMGLLLIEKKEWTSKFDELRQALAEAEEILRREQSANII<br>TFSEAEKREENLRKALGVEKQCVIDLEKALRDLQEERAQIKHASESKLAD<br>AKALSVGIEEKSLEVEEKMHAAEAKLTEINRRSLEVDMKLQEVEARDS<br>MLQRERLSLNTEREAHQANFYKQREDLLEWEKILKKGEERLCELQKTLN<br>QRENEVNESDRILEQKERDLENTEKKIDISSAKLKEREDDINNRLSDLAA<br>KEKKADCTQSILEVKEKNLLALEEKLNAREKMEIQELLDEHRATLVAKRQ<br>ELELELEERRKILDEELRSKVEALGQREVEVLHGEEKLRKREQALDKKAE<br>RVKEKEKDLDMKLKNAKEKEKSMKAEQKKLELEQKTLLAERDSLQNLK<br>DDCEKIRSEISNQEQQIGEKSENLKLTNDERLEHLRLQAELKQELEKCRH<br>QEEYILKEAEELKEERKNFEKELEVLEEKRAQLSKELNEITEEREKFKQLQY<br>TMEERLKKEENAMKEYTQKELETVRVEKEYFEMRKRNEQQVISKQAKT<br>EHDQMVQDFESQRSTFEADLVSRREEMEKGLRERERAFQLQRDRELK<br>EINYSKEAAQKELEEIRIERHVIEKEKQEVAKNKEELDGQQFGMRKDIDE<br>LVMLSNKLRDQREQVIRERNHFLAFVEKHKSCKNCGDVTAEFILSDLLP<br>PDMEDRKILLLQERADELRDVQDSPGALNVKKSQGELDLNSQECVSW<br>FRKCTSKIFSISPKKIEQVLAPVLAEEKTDALGTLARKEASRNGVPGDESR<br>PSFGTTHDSVEIQQLQFDSIKVEGDGNSISFDDHSNVDSKVEDSGPSKL |

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| | | | KSSQRKPGKRRKGGLNRTRSVKAVVEDAKLFLGKSAEEPEYISDESRGIS<br>THTEKLASNIPRKRERTPAESEQNAGDSEGFSDSVTTGGRRKRRQMVV<br>PTITPGQKRYNLRRHKVDQALSGSVKTGEKESDGGDAAEPIPKPETVSA<br>LSLGVASETEKSTDLVKFSTENVNDQADATKSVEITELSEEVNDTSEYGV<br>EDENGSTIHEDTQEDCDDDDESEHPGEVSIGKKIWTFFTT |
| Rmi1 | Retrophyllum_minus | onekp:VGSX_scaffold_2074329 | MLTPKRRGWPGWSPLSRTPPGGEEKSGGADKAVGGNGGAAEGPPR<br>NSLEENGGIVVPREEPETWRHFREAGSLDPESIERKDRAALVAQVNKLE<br>AELYDYQYNMGLLLIERKEWTSKYDQVKLAFAEAEENLKREQAAHLVA<br>ISEAEKREESLKKALGVEKQCVADLESALHEMRAEIAEVKFTSDNKMAQ<br>AREMIASTEEKSLAAESKLHAAEALQAETSRKHAETERKLQEIEGIESAL<br>QRDRQSFKSECDAREAQVFLERQNLLEWEKKLQEGQERLLEGQRLLN<br>QREEYTNQRDEVLKQIDKELEDAKKRIESDHATLKEKEADISVRLAALAT<br>REENAVKREIIIDKKEQELLVLQEKLTSRENEEIQKLIDEHKAVHEARKNE<br>FEAELEHTKIVVEQELEKRQTAVASMEADIIRKEEKLNKREQQFEKKSEK<br>FKEKEKEVDSRLKALKEKEKTYKNEEKKVEVEKNQLERE REEINNEKNEL<br>QKIKIALEEEKQEVRNEQEHLKVTEKERNDLLKLQTQLKEEIENYRAQKQ<br>EVEKEAEELRLQRENFEKEWEFLDEKREQVRKESAQVDDERKKTSKWL<br>LDEQDRLKQEKSTLRERIQSETEALRLEKEAFEASMQHERSEWLENIRN<br>EQADLVRDIELQRSELENSIEKRREEIEKLLKEKEIGFHKERE REMQHINA<br>QRDLASKEMEEMRLERHKLEKERQELSISREHAERQWSEIKKDIEELQV<br>QRDKLKEQRDSLHKEREEVLRLLEHLHKLKTEISVTDDVLNMTGNKGGI<br>NSPRTGDVPSISKEALTQNIFGTPGGPSLKFNPEPSSGSLFERDSGTPNR<br>LSWLQRCASRFFSQSPSPQKMVDSTDRKGETAVRPTLETEAVGAESER<br>GNREIVVGLEIERAFLADAKNYDAADQDENEKMHELDIPKLGPSVYFD<br>HSLPSSSNGNGRKPSDKSKIKVFKRTRSMKAVVEDARGIVEVSSDKEM<br>NESDKGQALEQNEAVVTDNREKGESAGREKTTSGQEIDGSNRESPAT<br>DKRPSKSGRKRRRGQSSRATSEQDAEDSEIQSEPAIGGRRKRRQQSAA<br>NGGSSGVGTPGAKRYNFRHSTIASSVATQVQSVDAKDKDNAPAEEDK<br>NKNSQASPSSKGIVNTEETSLDESAMVPSGQESDKHNPTVEKVDNGLE<br>NAVEDLQEVSSHEPTKSGTDVYPQSEEDEGGNGEETQYTEERDDEDG<br>DFDDDEDGDFDDNDPPSLRKKLWKFLTT |
| Rmi2 | Retrophyllum_minus | onekp:VGSX_scaffold_2013004 | NPVNETEIWRRLKQVGLDEETLQKKDKAALIAYITKLESELYDYQYNMG<br>IILLERKEWTFRYEQLKISAEEAEGNYKHDQAAHLAGLADAEKREESLRK<br>ALGIEKQCVADLEKALHEMRAESAEIKFVSDNKLAQACELLAATEDKSL<br>AAESKLHAGEALQAEANRKRADAERMLQEVEAREDELRRQRQAFKSE<br>CDAHEKEFYFERQSLREWQKKLQEGQDRLLEGQGLLNQREEYIIERSEA<br>TNQIEKDLQDVKRNVEKEQSNLKEKEADMRVKLADLRIREEALVKRET<br>VIDKKEKELLLLQEKLATREREEIQRLTDVHQAVFEARTLEFEAEVEQKR<br>KAVDDELENKRNAADMRELEMKCKEEKLSRGQQLEKKSKLKEKEKELD<br>AKLKALKEREKLFRIDEKEFETKQKKLEEEREEMNNLKQVLGKLKAALEE<br>ERHQIHKEQEKLELTENERNDMKIIQTKLKQEIDNLRAKDQELSKKEDLL<br>NVEKEKFEREWEILDEKTEQLRKELEQVDEEKRRVSQWLKDEEERFKQ<br>DRRVLREQIKRDEEALRLKKEAFASSKRHEETELLAKIERERADLYRDIEL<br>RTSELEKIFQQRREELERHYQDRESAFLKEKQKGMQQIVAQKEMSDKE<br>LEQIQLERQKLDREWKETATTREQIEREWSEMKKDIEELQIQKDKLKEQ<br>RESLHNERHELEAQLDQLKKLKADLKMTEDSLKLSEQQIS |
| Sac | Selaginella_acanthonota | onekp:ZYCD_scaffold_2003178 | WESFKEAGALDEASLEMKDRTALISHISKLENDLYQYQYQMGLLLLESK<br>NQGSESERLNILLEETRDALKREQAAQMVAISEAEKREESLKKAAATER<br>KCVADLEKALREMQLEIAEAKAASEREVQRAKEAAQLAEEKRLEAESRL<br>CSGEALHAEARNRFAEASRKLAEADSREDELRRERHYFKQESEARKAEI<br>ESERKSLKDLQKDLTELEQRLSRSEKSLSQRQDYIEQREEALTKLQKNLD |

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| | | | EAKEAIEKDRACMHQSEAELNAQMAAFSLREQAAIERENAALKKEQD<br>LLLLQEKVDNKDRAFAQHEQHVREAEAENAKERERLEALEANLRSRDQ<br>SILEAQRKMDEFAKCLEDQEEALRKKRTDFEKEAAELRRAVSCEKEELET<br>VKQQIQEEKERLKVIEQEREELLKVQTRLKEEIDDFRARKQDLTQESDEL<br>KKEKEKFETQWELLDERKEKLRKEIEHFEQEKRRTTKRLQDEEGRLKQE<br>RRELHEKTKRELEALTQERETLMKNMELQRAEIFSKAERERELLRDVD<br>LRRAELERNIRKRSEEIEKQAEEKESKLRMEIQKETQELETVREHTKRELE<br>DIQSERLKLEKERNDIVVQRELAEGEWQEIKKDINELQVQREKLKQQRE<br>ALRSEREELLRETERLRKMKDELKEVEDSQRISEQPSHRINEGEVVSQRR<br>RSKAQPALFEAQLLPDATPAPAGPSPVVAENITPARFSWLQRCASRIFP<br>LTSPTK |
| Sam1 | Sundacarpus_amarus | onekp:KLGF_scaffold_2015127 | MLTPKRRGWQGWSPLSRTPPGGEEKAGGDKPHGTVGVPSGSGGGA<br>MAAVEGPPRNSLEENGGILVPREEPETWRRFREAGSLDPDSIEKKDRA<br>ALVAQVNKLEIELYDYQYNMGLLLIERKEWTSKYDQLKFAFAEAEENLK<br>REQAAHLVAISEAEKREESFKKALGVEKQCVADLENALHEMRAEIAEVK<br>FTSDNKLAQAREMMASTEEKSLAAESKLHATEALRAEASRKHAETERK<br>MQEIEAIESALQRERQSFKSECDARDAQLSLERQNLLEWEKKLQGGQE<br>RLLEGQRLLNQREEYTNQRDKSLKQLEKELEDARKQMESDLETLKEKEA<br>DISVRLAALATREENAVERETIIDKKEQELLVLQEKLTSRENEEIQKLINEQ<br>KAILEARKIEFEDELEQTKIVIEQELEKRQSTVLSMEADIIRKEEKLGKREQ<br>QFEKKSEKLKEKEKDVDSKLKALKEREKTFKNEEKMVEVDKNQLERERE<br>EVNNEKEELQKIKIALEEERRVVLNEQEHLKVTEKERNELLKLQTQLKEEI<br>ENYRARKQEVEKEAEELRLQRENFEKEWEFLDEKREQVRKESAQVDEE<br>RKRISKWLLDEQERLKEEKSTLRERIQSETETLRLEKEAFEASMQHERSE<br>WLENIRNEQADLVRDIELQRSELENSIERRREEIDKLSREKEILFQKEKES<br>EMQHLNAQRELASKEMEEMRLERHKLEKERQELGISREHTEKQWSEI<br>KKDIEELQVQRDKLKEQRDSLHKEREEVLRLFEHLHKLKTEVNVTDDAL<br>NLTTNKGESNLQEAPTQNIFGTPAGASLKFNPEPSSGRVFENGSGTPH<br>RLSWLQRCASRFFQSPSPQKRFYDRKGETTVRSTVETEAVVVESERGN<br>REIVVGLEIEPALLADAKNYDEAVENKNEEMQEHEAGPSVYFDHSLPSS<br>SNGNGRKSSDKSKIKVFKRTRSMKAVVEDARGILEVSSDKEINESGKGQ<br>ALEQNEDAFPDNREKGESAGGEKTTSGQEIDGSNRESLATDKRPSKSG<br>RKRRRGQSSRATSEQDAEDSEIQSEPAVGGRRKRRLPTAANGVSSGVG<br>TPGAKRYNFRHSTIASSVATQAQSIDAKDKENSPAEEDKNKNSHSSTSG<br>KVIMNRDETSFDKSAMVPSGQESEKHSPTVETGDNGLGDAIEDLQEV<br>SSHELTKSETDVYPQSEEDEGDNGEEAQYTEERDDEDGDFDDDGNDE<br>EEDNDPPSLRKKLWTFLTT |
| Sam2 | Sundacarpus_amarus | onekp:KLGF_scaffold_2094915 | SPVNETEMWRRLKQVGLDEETLQKKDKAALIAHITKLESELYDYQYNM<br>GLLLLERKEWTSKYDQLKISAEESEGNYKRDRAAHLAALADAEKREESL<br>RKALGIEKQCVADLEKALHEMRAESAEIKFVSENKLAQACELVSATEEK<br>SLAAESKLYAGEALQAEANRKRSDAERMLQEVEAREDELRRQRQAFKS<br>ECEAHEKELYFERQTLGEWQMKVQEGQDRLLEGQRLLNQREEYIIERS<br>EATIQIEKDLQDVKRKVEQEQSTLKEKEADMRVKLADLTIREEALVKRET<br>VIDKKEQELLLLQEKLATREREGIQRLTDEHQAVLEARTLEFEAEMEHK<br>HRAVDDELENKRNAADIREHEIKSKEEKLSKKGQQMEKKAEKLKEKEKE<br>LDAKLRALKEREKILKIDEKEFETQQKKLEAERKEMDNLKQVLEKLKAAL<br>EEERHQIHEEQEKLELTENERNEMKIIQTKLKEEIDNVRAKDRELSQKED<br>VLNVEKEKFEREWEILDEKTEQLKKELEQVDEEKSRVSKWLKDEEERLK<br>QERRVLREQIKSDEEALRLKKEAFASSKRHEEAELLAKIERERADLYRDID<br>LRTSELEKSFEQRREELERHYQDKESAFKKEKQKEMQHIVAQKEMSDE<br>ELEQIRLERQILDREWKETATTREQIEKEWSEIKKDIEELQIQKDKLKEQR |

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| | | | ESLHNERQELEAQLDQLKKLKAELKMTEDSLKLSEQQISQVNVNDCEVI<br>SAKQFDGCDSSLAAIRQNVSAIPCKTGEFRSEIYLGGTPVSASDTPSPLG<br>WLQKCASRLFKQSP |
| Sbi1 | Sorghum bicolor | Phytozome 12 Sobic.004G264300.1 | MFTPQGKGWTGWSTPTAANQRSGGGAPAASAPLGKGKGRVAELEQ<br>ELHEYQYNMGLLLIEKKEWTAKSKEISEVLTQKEEILKREQAAHLNAISE<br>YERREENMRKALGVEKQCVADLEKALRDIRAEIAEVKFTSEKKITDAQSL<br>EASLEEKSLEIEGKLHAADAKLAEANRKKSQADRDLEEAEARQRRLEKE<br>KLYFETERKAREKQLKEQEESLQEWEKKLKESQNRLNDLQRSINEREER<br>ANKNDQLFKIKQDELEEARKTVEAAKVTLKVKENDINKRLNELHSQEKD<br>ADSKRSALEEREKKLVEREAKVTTREKEGLQKLLEDRQVEFESKRRDFEL<br>ELERERKSFDQKMTQNQADLLKREKNVKSLEAKLSKSEQALNDKKKSM<br>ESLQNDLDAKSKALKRWDESLKNDEKRLLEEKQQLDHEREQLETYKLEL<br>ERTKSALEAEKERISEEQNNLKLTEQERQEHSLLTAELKKEIEEYRMRSN<br>SLSEEMEDLRKQRQKFEEEWEQLDEKRALLVEEDKKLKIERMNLERWR<br>DNEEKRLNDVKLEMDEKLKDQLENLERKEKALTDDIKHKQMENDEFLK<br>GERADLQRKLQLRQHELEMEMEQKQASKEKELEEKENELNKKMDFVE<br>NKLQHAIELNESKIQKILLEKRELQMEREILLEERKKLETDKADIKRDIEIL<br>HSLSKSLKERRERYNRDRKSLIDLSEKYKACKNCGISIFGEELNSLLLKDG<br>AEIEHPSLAVEGDDRALTTGTSGPDTGTLVSSGGRLSFLQKCSGLFKFSP<br>RKKGEQSSEQPAEKNIPFGARLEEAAQIDGDYEPTPVYEVASFDAEDEL<br>PSDGGTRENEESERLDIADDAQMESSVGVADNSIDIVGTQSFDGTNNI<br>AVEPTIASVDQNGKDSAAPAEAGVQPETLKQGRRQQNRRGRGKGGV<br>KRTRSVRAVVEDAKTILGETFEEKNDGQGDKVKVGATRKRRFVGATISE<br>QDEEGSEAHSESVSLGGQRRKRRQTSGAVTEAPGERRYNLRHSRVAN<br>AATATAQADKKKSAKAGNKHTVDATADDTEGTSKVDEEPAPESKKAS<br>ESADYGASQLHEFSQVEVGDAHAPVEGAGEEDGDIDIVGGQGALPDV<br>LMTPSGSELGAEQEDEDDDDSERRNQSIGKKLWSFFTT |
| Sbi2 | Sorghum bicolor | Phytozome 12 Sobic.003G308200.1 | MASPRSAGGVAGDEAIWRKLREAGFDEDAVRRRDKAALIGYISRLESEI<br>YDYQHNLGLILLEGKEMTSKYEQLKASSEATEIMLKRERASHLSALAETR<br>KREENLKRNLAIQKECISNLEKALHDMRGETAEVKVSYEAKLAEALQMI<br>ERAQKKFDEAEEKLLTAKSLEAECIRTRSASLRSLQDIEDREDQLRRYRTS<br>LELENASKEKEINLLRKSLDDTKKVLHEKEQSLLKEQLLLNQRDDNILERL<br>GYITRSEKRLEEEKLNLEDERKVLLEEKNKLDLNMQAIISREEAIIQKESIL<br>DKRESELLVLQETIASKERAEIERLRQEQEVALVRRRQEFDTEMEIKLSSF<br>EEEIDARKALLDQRETAINEQEDAVAQRKQNLNLRLAELANKEESLVKK<br>SDELREEEKRLASERETLHMELEKEKEEIQNMKLDLEKEKSFFEEEKREAI<br>QAQENLAITQNEREDLQSLQVKLKDEIDSLRAQKVDLMVDAERLLAEK<br>ERFEIEWELIDEKKEELQKEAARIAEERRVMDEHLKDELDIIKQEKEDLR<br>VQFKSSAESLAREHDEFMNKMQQERASWLSRIQQEREDLKKDIDIQRI<br>ELLNSAKARQMEIDSYLREKEEEFEQKKSKELEYINSEKEAINSKLEHARL<br>ELQKLEEERKGAMLERERREQELSEIKNTINALNEQREKLQEQRKLLHS<br>DRESITLQIQQLNELEELKIESENKQLSLRQCGKSKNGGVENLKENGVHL<br>SPDEDQNASPKQTSVKKLEVSPSVSTPISWVRKCAQVFIFKRSPEKSAD<br>PHNDRLVPAKLANAIDSSLAAAYSDGLFAHQLENGAGKVPQTVDGLK<br>VGKKRLNNALSHGDSEISQPKRKQQRSTTQTLRVIGGEIDSNCSLSILEE<br>KCSKNEHDTVPVGLCGKGPHNTQAGELPSSDDVPLVNGKSDASEVPE<br>DDEHSEDISVSAADPSNRHGVVDSVDKHEPDEDSDDEGEEEEKTSSAK<br>KIWRFLIT |
| Sco1 | Saxegothaea_conspicua | onekp:QCGM_scaffold_2009809 | MLTPKRRGWPGWSPLSRSPPAGEEKGGDKVHVTGGVAGGSGAAVE<br>APPRNSLEENGDILVPREEPETWRRFREAGSLDPESIERKDRAALIAQVT<br>KLEAELYDYQYNMGLLLIERKEWTSKYDQVKFAFAEAEENLKREQAAH |

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| | | | LVAISEADKREESLKKALGVEKQCVADLENALHEMRAEIAEVKFTSDNK<br>MAQAREMIASTEEKSLAAESKLHSAEALQAEASRKHAETERKLQEIEAI<br>ESVLQRDRQSFKSECEAREGQLFLERQNLLEWEKKLQEGQERLLEGQR<br>LLNQREEYTNQRDEALKQIEKELEDARNQIESDHATLKEKEADISVRLAA<br>LATREENAVKREVIIDKKEQELLVLQEKLTSRENEEIQKIIDEHKAIHEARK<br>NEFEAELEQAKIVVEQELEKRQSAVASMEADIIRKEEKLSKKEQQFEKKS<br>EKLKEKEKEVDSRLKAMKEREKTLKNEEKKVEVEKNQLGREREETNNEK<br>EELQKIKIALEEEKLQVLNEQEHLKVTEKERNELLNLQTQLKEEIENYRAR<br>KQEVEKEAEELRLQRENFEKEWEFLDEKREQARKESAQVDEERKRMSK<br>WLLDEQERLKQEKSALRERIQSETEALRLEKEAFEASMQHERSEWLENI<br>RNEQADLVRDIELQRSELENSVEKRREEMEKLLKEKEIGFQKEKEREMQ<br>HINTQRELASKEMEEMRLERHKLEKERQDLGISREHAEKQWSEIKKDIE<br>ELQEQRDKLKEQRDSLHRERQEVLRLFEHLNKLKEELNVTEDVLNLTGN<br>KDGSNTPRTEDFPSISHEALAQNILGTPAGAPLKFNPEPSSGRVFESGS<br>GTPNRLSWLQRCASRFFIQSPSPQKMVDSKDGKSEAAVRSTMETEAV<br>GAEGERPNREIIVGLEIEPAFVADANNYDAADQDKNEKMHEHDITKPG<br>PSVYFDHSLPSSSNGNGRKSSDKSKIKVFKRTRSMKAVVEDARGILEVS<br>SDKEMNESEKGQALDQNEAVVPDNREKRESAGREKTTSGQEIDGSNR<br>ESPAPDKIPSKSGRKRRRGQSSRATSEQDAEDSEIQSEPAVGGRRKRR<br>QQSAANGGSSGVVGTPGAKRYNFRHSTIASSVATQAQSVDAKDKD |
| Sco2 | onekp:QCGM_scaffold_2076231 | Saxegothaea_conspicua | SPVNEIEIWRRLKKVGLDEETLQKKDKAALIAHITKLESELYDYQYNMGL<br>VLLERKEWTSKYEQLKISAEEAEGNYMRDQAAHSAALADAEKREESLR<br>KALGIEKQCVADLEKALHEMRAESAEIKFVSENKLAQACELVAATEDKS<br>LAAESKLHAGEALQAEANRKRADAERMLQEVEAREDELRRQRQAFKS<br>ECEAHEKELYFERQTLLEWQKKLQEGQDRWLEGQRLLNQREEYIIERSE<br>ATKQIEKELQDVKRKVEKEQSTLKEKEADMTLKLSDLTIREEALIERETVI<br>DKKEQELLLLQEKLATREREEIQRLTDVHQAVLEARTLEFEAELEQKHRA<br>VDDELENRKNAADTRELEINCKEEKLNKRGQQLEKKIEKFKEKEKELDA<br>KLRALKEREKFFKIDEKEFQTQQKKLEAKRQEMNNLKLVLEKMKASLEE<br>DRHLIHKEQEKVELTENERNDMKIIQTKLKDEIDNLRAKEQELSKKEDLL<br>NVEKEKFEREWEILDEKTEQLRKELEQVDEEKRRVSKWLKDEEERFKQE<br>RRVLREQIKSDEEALRLKKEAFASSKRHEEAELLAKFERERADLYRDIELQ<br>TSELEKSFGQRREELERHYQDRESAFQKEKQKEMQQIVAQKEISDKELE<br>QIQLERQRLDREWKETATTREQTDREWSEMKKDIEELQIQKDKLKEQR<br>ESLHNERQELEAQLEQLKKLKAELKMTEDSLKLSEQQISQVNVNDCEVI<br>SAKQFDGCGSSQAAIRQNVSAIPCKTDDFRSEIYLGETPASALDTPSPLG<br>WLQKCASRIFKQSPGDKIDSDKQESEIAANFVSERTMGVRVDPPSSGK<br>KKIDFLAEKAKCSSERQDEKLYSVPVSKITTTQPSS |
| Sdi | Sceptridium_dissectum | onekp:EEAQ_scaffold_2015195 | MFTPQRRGWPGWSFPPSADKKDKGKVLSPEFRAPGSNDVSPVKSLIE<br>APPVASLEDNGGILVRSEHEIWRRFRDAGSLDENSLEKKDRAALLVHVS<br>NMEAELYDYQYNMGLLLMERKEWDSKHEKLRAAVLEAEENLKRELAA<br>HLIAISEAEKREESLKKALAVEKQCVTDLEKALKEMRAEVAELKVTAENK<br>LAQARDMIASTEERSLLAESKLHAAEALEAEAARKKADAERKLQEVEAR<br>EDAMRRERHSAKAEREAHESELNRERQNLRDWERKLQEGQERLLEG<br>QRILNQREEHTNQRDEALKQLEKDLQDARKHLEKERTVLEQAEADLNA<br>RLAALAVREENAVKQEISIDKKEQELLLLQEKLASRERALEMHDQHVKE<br>TETFVSKERDRLEALERTMKLKEESLPELEKKKVECEEMLAELEKQHAAI<br>LEETEKLENSKASILASEADMERKDEKITKREQQLEKKTEKLKEKEKELDA<br>KTKAAKEKDRALKSEEKQLDAQRRMIAEEREAVKALKEEIENLRKELEVE<br>KKQVLEEREKLRVTEQEREDLLKMQTCLKEEIDDCRAQTKIVSVQAEEL<br>KKERENFEREWDILDEKREQVRKELEQAEQEKKRVAKWLQDEEARLK |

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| | | | QEKRSLREQITRETEALRLEKEAFVNSVEHERAEWFAKVDKEREDLVRD<br>IDVRKRDLERTMEKSKEEFEKQIKERELRHKRDTERERQNSSAVRALAE<br>KELQDVRQERQKLEKERQEILKNREDSEKDWVDIRKDIEELHIQREKLK<br>EQREALRRERDDILQEAEKLKKLREELKVTDDSVKSEQRSQRNDVEVVS<br>PNMGLVSQPLENGAIFETGQASQLPNTGKSPAGNTPGKSSGTPGRLS<br>WLQRCASALFHTPDKKLGALNMKVRTESEPETDLEAHTGAEPSNFVYE<br>VNDNKLHRNSVVEEEGMPAQQSRSSGSFTPDQLTDGENSQPPVQR<br>WKGKGFTRTRSIRAVVEDAKAILESYPDGGGDNELPNGSGDEEKVVLA<br>QDIEDEGKQGDSSTPVTIENDKGNKLNKQGRKRRRPQQSKEALTEQE<br>VEEAETESEVATGGKRKRRQRDTGSSMKGEPGKETPGAKRYNFR |
| Sfa1I | Sphagnum fallax | Phytozome 12 Sphfalx0064s0083.1 | MFTPQGRRGSPPQSRQPLLRTMARDNGKRGSPTNIGSSMAAGGDEA<br>LALVEPPTIMSAGRNGGEGTPSESDIWKRFQEEGALDMPSLERKDRAA<br>LHARIATLESELYDYQYNMGLLLLQRKTWTSQVDELKGAIADAHETLQ<br>REKAAHLLELSEALGRLESTQKALELEKQCVIDLETALKEMQAEESAVK<br>QAAERQLALAKEMAAEIDQKSLQADVKLSQAQVLHAEASRKLTESEHR<br>LHEIEAREDALRRERHSIFADVDAQKEQIKAEGESLHAWEKRLDDARA<br>RLQDGDRLLNEREEELNQREEVLKQRTNELEETRSFLDKERTLIQKSDN<br>ELNARALTLVEKEKALTERDLGVSKREQDFAILEERLAGRELAFEQHEQ<br>HVKETEQYVAEERSRLDAFNDGLKLREEAIGEHKQELVVLKQQLESQTS<br>EMELQKADLEEATQELQKVRELLVADRMVLDQAMATAKAQDHDIQL<br>QLLEIKVREQEVTQKMEELKERETTLDTQYHEVMELEKAVRVEETKHRL<br>EYQRITELNEEVEQATKEIEADKLKLIEEKQQIAEEREHLRRECELERQEIE<br>EEREKLQKDWELKREHLEIEQQDFQKKLDLQKQEIDSERENLRLELESEK<br>ERLQKELHNLREMLMSEVQLERKNLQTQIELDKNQVLEDREKARREIE<br>VEMDLVAEERERVKNELDIKRKLLLEESEKTHAAIASEKQKLEEEQEKLK<br>ALETERQELLTIQVHLKQEIDEIRSHKQIVEKEAQELKRHKEQFEREWEL<br>LDEKREATKKEHERFEEESKRMAEWMRDEEERLKKIRSEVEEWSRIATE<br>QLQQERGSWVKQMETDRAQLYAQIDSERQDLVHNLELQRSNLDRW<br>VEQERDAMERKFEEAERQLRMEIDQERKDLKMTHGSVSVELEQLHLE<br>RVKLEQERQDLVQQREEAEKEWKEIKNDIQQLHVQGEKLREQRESLHL<br>ERQGTIREMMRLQKLRDELKEAEGSMSIQASELPATAEQEVVSLHQQ<br>GIQVSQQVTETPIEPVMLASTAHPSRRMVARTPGRLSWLRKCASRAS<br>QLFSSASDVKAIAEAQEAETLNITASRPGDEADPLKAVNQPSSSFNQSQ<br>LAQVISHEDDSLHVDAANTDLPPYGEQHDVVGIGEEASESSRQGLHEE<br>PAVNVATPATSIDTQTGTKRRRQNSGSAQDPDAEIESETGSRTPRRKRL<br>RNSQVEDGSKFNSALNNRSSLMTTPGAKRYNFRPTTIVSSIATQSMSQ<br>EGSGLHQDRHGKRAAWSNGSQAAANDMTEVSSSEPANVLDGHEQA<br>LITVAEVVEIPDANEHGETVEVGVKCTQVTVVETVVEKVVETSIVEITEA<br>MPEVVLQGEVQEGSRDPVIEEQATIPEQIQREDQGVQTEEGSDGTDG<br>EEASDEIGDSGEDSEKGNEEEELEEDEDIEEEDENAGELLTDEAVDEDD<br>EAEIEAQEECEEEEEEEENNNDEDETDEELPPTFGEKLWDFFTT |
| Sfa1II | Sphagnum fallax | Phytozome 12 Sphfalx0064s0084.1 | MFTPQGRRGSPPQSRQPLLRTMARDNGKRGSPTNISSSMAAGGDEA<br>LALVEPPTIMSAGRNGGEGTPSESDIWKRFQEDGALDMPSLERKDRA<br>ALHARIAALESELYDYQYNMGLLLLQRKTWTSQVDELKGAISDSHETLQ<br>REKAAHLLELSEALGRLESAQKALELEKQCVLDLEMALKEMQAEESAVK<br>QAAEKQLALAKEMAAEIDQKSLQADVKLSQAQVLHAEASRKLTESEHR<br>LHEIEAREDALRRERHSIFADVDAQKEQVKSEGESLRAWEKRLDEARG<br>RLQDGDRLLNEREEELNQREEVLKQRTIELEETRAFLDKERTLIQQSDNE<br>LNARALTLVEKEKALTERGLGVTKREQDLVILEERLAGREQAFEQHEQH<br>VKETEQYVAEERSRLDAFNDGLKLREVAIAEHKQELVVLKQQLESQTSE<br>MELKKADLDEATQELQKVRELLVADRIVLDQAMASARAQDHDIQLQL |

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| | | | SEIKMREQEVTQKMEELRERETALDTRYHEVMELEKGVHVEETKHRLE<br>YQRITELKEEVQQATKEMEVNKLKLIEEKQQIAEEREHLRQECELERQEI<br>EEEREKVRKDWELKREHLEIEQQNVRKELDLQKQEIDSERENLRLELESE<br>KERLQKELHSLRETLMSEVQLERKNLQTQIELDKNRVLEEREKARREIEV<br>EMYHVAEERDRVKNELDIKRKLLSDESEKTHAAIASEKQKLEEEQEKLKA<br>LETERQELLTIQVHLKQEIDEIRSHKQIVEKEAQELKRHKEQFEREWELL<br>DEKREATKKEHERFEEESKRMAEWMRDEEERLKKIRSEVEEWSRIATE<br>QLQQERGSWVNQMETDRAQLYAQLDSERQDLVHNLELQRSNLDRW<br>VEQERDAMERKFEEAERQLRMEIDQERKDLKMTDGSVSVELEQLRAE<br>RLKLEQERQDLVQQREEAEKEWKEIKNDIQQLHVQGEKLREQRESLHL<br>ERQDTMKETMRLQKLRDELKEAEGSMSIRASELPATAEQEVASPQQQ<br>DLQVSQQVTEPQIEPVMLANTAHPSRRMVARTPGRLSWLRKCASRAS<br>QLFLSASDVKAIAEAQAAENFNITASRRGDETGPLKAVNQPSSSFNQS<br>QLAEVISHEDDSRHVDAANMDLPPYEEQRDVVGIVEEAAESSRQGLH<br>EEPAVNVATPAMSIDTQTRAKRRRQNSVSAQDLDSEIESETGSRTPRR<br>KRLRKSQVDDGSKVDSALKNPPSLVSTPGGKRYNFRPTTIVSSIATQSM<br>SQEGSGLHQDRQGKRAAWSNGSQAAANDMAEVSSSEPANVVDGH<br>EQALTTVAEVLEIPDAEHGETVEVGVNGTQVTVVETVVKKVVETSIVEI<br>AEVMPEAVLQGEEVQEGFRDPVIEEQAAIPEQIQREDLGVQTEEDSEG<br>TDGEEAIDETGDSGEDSEEGNAEEESDDDEDIEEEDENADELVADEAV<br>DEDEVEVEAQEEGEEEEEDKNDEHETDEESPPTFGEKLWDFFTT |
| Sfa2I | Sphagnum fallax | Phytozome 12 Sphfalx0160s0012.1 | MVSKIDGDANKMYTPQRRGPQSLRALAREKGKVVTYPPLPTQAEEDK<br>VEPPPMTPEEAIHAKALEVISGGGGEGMPPDGDISRHIQFEGSLDVPSL<br>EQKDWAALQARISGLESELYDYQFNMGLLLLQRKDWGKQMDEQKSA<br>VTKAQDMLQQEKAAHSLELTEAQKHEEAAKRALNTEQQCVADLEKVL<br>KEMQAEGFEVKEAADRQLSQAKEMLASVEEKSAQADTQLAKVQGER<br>TQTNRKLAESQLQLREVEMREDALRREHHRLMSEIEAQKAQMVQEES<br>TLREWERELIGKQEQLHEEEQKLNEREELINNRFETLKQSEKGLEVTCA<br>MLERDQAVLEQSEAELISRTVVVTDREEVLKEKDVAIKIREQELLVVEER<br>LAGRQRVFNQHEEHVKDTEAYVARERFWLDAFDMGVKMREEAVAE<br>HKQELVLLQQVLESQTQEVDMKKSELERATLELEKVQELLAFERKEVD<br>NAKVATEKREADICQLESAIIDKEHDLQVKVVEVEERELSLDLRLQKVEN<br>LEKAVWVEGNKYKAEHQKIVPLNEEISRDRSDLEIVQKELHIENQQVKA<br>EYEHLRKEKELDRQQIEDAWAKVRKDWELEKGKMEEERKKVEDEISGK<br>WQQLELHKEMLHKEFQQKIRELENETSAERERLKKEVYLERRKLQDEN<br>EVDREKAVQERDKAWMEIAEERQQIAQHQEDLKVQELEQQELANVQ<br>LQLKQELDEIQAHKCFVDEEAKELQMQKEKFEQGWELLDEMKKTVKK<br>DAEKFGEESKCRSKWLERSEEQLRISKLEIEEQSLKMAEELKRERDAWK<br>TKMESERTQLYAQLDAEHQVLVHNLEMQRAEFERLVSWEEVIEKQME<br>ECEAHLQSEIEKENEELKRSKRSLLMEMEQLELEHQKLEGEWQDLGKQ<br>REEADKERIEICKDIENLDLQLQKLKEQHQNLHQEREEVLHEAEKLHKLR<br>TDLTEAENSLHTAEPAIHHQTMLEARSPQQQEVNPIPIQEMTPSVPEH<br>ATSISRSPGKIAWLWSCASHAAQLFSQPSAVTGMVADIPDTRKGGTLT<br>ESSEHGDTPKLKHSPRLNQSQLAQVVVTEKQMQPYKRTQSIRAVVED<br>AIRMLGSETPHRVSNSKQKSAAGDLDTPPTGKKRSHEVAAKEQDEDET<br>KSEVGGEKPHKRRLHDILLVSTGVPNGVSLHGDMHSLPIVSPGSQRYD<br>FQSTTIANILLSPTTSRDVEGTDFHQDVNAERTVLSTGPDRARKSNLPA<br>TASSALSNVPGAKDVLLNESSKLPEGHVAVTQDGKGLEVEVAKITDEN<br>KKEVDKKEDGEEDREEDEDGEENDLDDDATQEMGVVAADKETEEQE<br>DGEDDVYDDEWQAHEDAKDAEKDKEDEKPMTLGEKFWNFLLT |
| Sfa2II | Sphagnum fallax | Phytozome | ISRLILQTKDLYSCFGVCVWDQLEKALKEMQAGGFEVKEAAERQLSQA |

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| | | 12 Sphfalx0008s0238.1 | KEMLASVEEKSAQADTQLAKVQGERTQTNRKLAESQLQLQEVEMRED ALRRLKPRKHRWCKRRSSTLREWERELIGKQEQLHEEEQKLNEREELIN NRFETLRQSEKGLEVTCAMLERDQAVLEQSETELISRTVVVTDREEVLK EKYVAIKIREQELLVVEERLAGRQQVFNQHEEHVKDTEVYVARERERLD AFDMGVKMQEDGVAEHKQELVLLQHVLESQNPRRLISRKRKEVGNA KVATEKQEADICQLESAIIDKEHELQVKVVEVEERELSLDSRLQEVKNLE KAVWVEENKYKAEHQKIVALNEEISRDRSDLEIVQKELHIENQQIEAEYE RLRKEKELDQQQIEVAWAKVQKAWELEKGKMEEERKKVEDEINGKRK ELLHKECQHKIQELENETSAERERLKKEVYLERNKLQDENEVDREKAVQ ERDKAWMEIAEERQQVAQQQEDLKVQEFGQQELANVQLQLKQELD EIRAHKCFVAEEAKELQMQKEKFEQGWELLDEMKKTVKKDAEKFGEE SKCRSEWLEHSEEQLRISKLEIEEQSLKMAEELKQERDAWKTKMESERT QLYAQLDAEHQVLVHNLEMQRAEFERLVSWEKEVIEKQMEERESHLQ SEIEKEKEELKRSKRSLLVEMEQLELEHQKLEGERQDLGKQHEEADKERI EICKDTENLDLQLQKLKEQHQNLHQEREEVLHEAEKLHKLRTDLTEAEN SFHTAEPAIHHQTMPEARSPQQQEVNPIPFQEMTPSVPEHSGSISRSL GKIAWMRSCASHAAQLFSQPSAVTGMVADIPDTRKGGTLTRLNQ |
| Sit1 | Setaria italica | Phytozome 12 Seita.1G292700.1 | MFTPQGKGWTGWSTPTPANQRSGGGAPAASAPLGKGKGRVTELEH ELHEYQYNMGLLLLEKKEWAEKLEEISQRLKQKEEILKREQAAHLNAISE YERREESMRKALGVEKQCVIDLEKALREIRAEIAEVKFTSEKKITDAQSLE ASLEEKSLEIEGKLHAADAKLAEANRKKAQVDRDLEEVEARQRRLEKEK LYFETERKAREKQLKEQEESLQEWEKKLKESQNRLVDLQRSINDREERA NKNDQLFKIKHDELEEARKSVEATKLTLKAKENDINKKLNELHSKEKDA DSKRKELEEREKKLIEREEKASIREKEGLQKLLEDHQVELKSKRRDFELELE SERKSFDEKMTQKQADLVKREKDVKSLESKLSKTEQALNDKKKTVEGW QNDLDAKSKALKRWEESLKNDEKRLLEEKQHMDQEKQQVEVSKSELE RIKSRLEAEKERILEAQNNLKLTEEERQEHSVLTERLKKEIEEYRMRNNSL SEEIEDLRKQRQKFEEEWEQLDEKRAHLAEEDKKVKIERMNLERWRDS EEKRLNDAKFEMEEKYKEQLENLDRKERVLNDDIKHKQMENDELLKGE RADLQRQLQLHRHELEMEMEQKQASKEKELEDKANELNKKRDFVDN KLRHAIELNESKIQKIISEKKLLEAERKILLEERQKLETDQADIKRDIDSLHG LSQSLKVRREAYNRDMKNLIDLFEKYKVCKNCGITLFEGLDSLALKDSAE IEHPSLAVERDHRSLNADTSAPDTGTLVNSGGRLSLLQKCSRLFKFSPIK KGEQPTENIPFGARLEEASQSDGDYEPTPVYEIAHDSFGAEDDLPSESG ARDNDESERHDPADDVQMESSVGVADNSIDILGAQSFDGTNDRAVD ATIASTDQNGKDPAAPAEADLQPETSKQGRRQQNRKGRGKGGVKRT RSVRAVVEDAKAILGETFEEKNDGQGDSVAAVGGTRKRRFTGATISEQ DEEGSEAHSESVSLGGQRRKRRQTAGAVTETPGEKRYNLRRSTVANAT AATAQTDKKKAAKTGSKHMVQATADDTEGTSKADEEPAPESKKASES ADYGASQLHEFSQAEIGDAHAPAEGTGEEDGDVVDGKDALPDVPMT PSGSELGAEQDDEDDDDSERRNQSISKKLWSFFTT |
| Sit2 | Setaria italica | Phytozome 12 Seita.5G331200.1 | MASPRSAGAGGGVAGDEAIWRKLREAGFDEDAVRRRDKAALIGYISR LESEIYDYQHNLGLILLEQKEVTSKYEQLKAASEATEIMLKRERAAQQSA LAETRKREENLKKNLCIQKECVSNLEKALHDMRGETAEIKVSYEAKLVEA LQMIDAAQKKFDEAEEKLLAAKSLEAESIRTHNASLRSLQDIEDREDQL RRDRTSFELESASKEKEISLQRKLLDDTKKILHEKEQALVKEQALLNQRD DNILERLGYITHSEKRLEEEKLNLEDERKALMEEKNKLDLKMQAIISREEA IIKKESVLDKRESELLVLQETIASKERAEIERLRQEQEIDLGRRRNEFDTE MEIKLTSFKEEIEARKTLLDQRESALSEQEDAVAQREQNINLRLAELSNK EESLVKRSDELKEEERKLSSHRDTVHSELQKEREEIQNMKLDLEKEKSFF EEEKREAIQAQEKLLITQSEREDLLILQMKLKEEIDSLRAQKVELMVDAE |

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| | | | RLLAEKERFEIEWELIDEKKDELQKEAARIAEERRVIDEHLKNELDVIKQE<br>KENLRIQFKSSAESLACEHKEFMNKMQQEHASWLSRIQQEREDLKRDI<br>DIQRTELMNSAKARQMEIESYLREKEEEFEQKKSKELEYINSEKETISSKL<br>EHVRIELQKLEDERKEALLERARREQELSEIKSTIDALNEQREKLQEQRKL<br>LHSDREAITQQIQQLNELEELKIESENNQLSLRQCGRSKHGDVETQKEN<br>GVHLSPDEDQNASPKKCSSPKVILGKKLEVSPSVSTPISWVRKCAQVIFK<br>RSPEKSADHDNDRSAHATLGNVNDFSLVENGGLFACQLENGAGEVPH<br>AVDGLKVGKKRLNYALSHDQSENLEPKRKHQRSSILTQKVVGGEIDSN<br>GSPSVLEEKCSKNEHDAVLVGLSRKGLPYPRTGEVASSDDALFVNGKP<br>DTSDIPDDEPSEEISVSAAEALNGDVAEDKDELDEDSDDEGEEEEEKA<br>SSAKKLWRFLIT |
| Skr | Selaginella_kraussiana | onekp:ZFGK_scaffold_2042863 | MFSPQRRGGAATPGRVAYTVSAEKRLAPADGSPGSAAGAAMMVERS<br>AAIIDLEAPKSPGEIWHSFREAGSLDEESLEMKNRAALIEHIAKLERELYQ<br>YQYQMGLLIIEKKEHASECDRLNLVLEETREVLKREQSAHMLALSEAEK<br>REESLKKAAATERKCVADLEKAFREVNTEMAEAKAAAEKEIANAKVAA<br>QSAEDKRLEAESRLHSAEALHAEANRKLAEADRKLQEVDSREDALRRQ<br>RHTSKAECEALKMELENQSRDLKQWEKTLGDRQDRLLESERLLNMRE<br>ASIEDRAQALKEMEENIDRLQRALDKDRESLRHAEADYSSQMTEVSVK<br>EEAAVARENAALKKEQELLLLQEEIMRRERLNDKHKQQTRERETEIAKE<br>HDRLKALEAELNARREVLAEERQNL |
| Sly1I | Solanum lycopersicum | Phytozome 12 Solyc03g045050.2.1 | MSTPPRKVFSGWTLTPRTDLANKTVSKGKDVVFMGSGQKVLSSIQDY<br>DTVDKVVLLDKVSKLENELVDYQYNMGLLLIEKKEWSAKLEEIKQALSE<br>ANEAYRREHTAHLIALSEVEKREENLRKALGVENQCVRELEKELREMRS<br>QYAETKYVADSKLDEAKALATSVEENSLHVELKLRAADAKTAEVSRKSS<br>DVERKMRDIEAQENALRRERSSFNTEREAHESAISKHREELREWERKLK<br>EGEERLADARTLLNQREQRANENDGILRQKQSDLEDEQRKIDIANSVL<br>RKKEVDMSSRLAILASKEKELEDVRKSLEIKKEELDELQEKLNAKEREEIQ<br>KLMDEHRAILKSKEEEFELEMRQRHASLDEELENKVIELEKKEAEVGHIE<br>EKLKKREQALEKKSDKMKEKEKDLELKLKALKEREKSLKIDERELETEKKQ<br>IFTEKDRLLDLRVELENRRAELEKQQLKINEGIEQLKITEDEKMEHARLQ<br>SELKQEIDKCRDLRDTLLNEAEDLKQEKERFEREWEELDEKRSAIKKELQ<br>EVNDSKKKFEKLQHTEEERLKKEKLETENYVQRELEALKVAQETFAATM<br>DHERSVLSEKTQSEKIRMLHDFEKQKRDLESEMQRKREEMESALHEQK<br>KRFEEERQRELSNANYLREVAHKEMEVMKSERVRLEHEKQEISSNKM<br>HLVEQQSEMKKDIDVLDGLSRKLKDQREAFAKERERFLAFVKKQENCS<br>SCGEGIRIFELSDLQPLNDVVDLEAPSLRNVAQEYLTDGFQDTPVRANN<br>ELLPGALNSGSMASAGTMSWLRKCTTKLLKFSPGKKIEHPASQDLIGGS<br>SPEEKFEGELPDTMVKKDQVDLAISIKDTFDDQKLQTDNSVREVEVGK<br>DVPEDSQHSNRNSQRRPVRKGRGKNSKTGHTNSKATSAKIILGENVKE<br>SENILVNGGFETSINVNESQKEDSSLFGEAPSKTRKRTRIHGTASEFDGS<br>HSDGQSDSVTTTSRRKRRQKAAPSVQAPGEKRYNLRHPRSAAVATAN<br>GSLPELVSKSQEENGDSKVVPETPAAISDGELRNSDAALPAVADSPLIEA<br>ADDQACAGDIANELVDDTGLSEEINGTPEGPSAYNVYDEEHEGDTIVQ<br>EEDGERDEDADENDELDEGNEEEEVPHPGEVSIGKKIWSFITT |
| Sly1II | Solanum lycopersicum | Phytozome 12 Solyc02g089800.2.1 | MDQEELIEKVSKLENELFDYQYNMGLILLEKKEWSSKFEEIKQTLEESNE<br>AYRREQAAHLIAISEVEKREENLRKALGVEKQFARELEKELREMRLEYAE<br>IKYTADSKLAEANALATSVEEKSLEVEAKLRAADAKLAEVNRRSSEVERK<br>LNEVYAQENSLRRERSSFNAEREAYETNLSRQREDSQEWERKLQAAEE<br>KLADGQRLLNQREKRANDTDRILRQKQNDLEDEQRKIVTANSVLRKKE<br>DDMGSKIEDLTHKEKELEDARKSLGIKERELLDLQEKLNIKERDGIQNLM<br>DEHRSVLRSKEKEFELELWQRRASLDEELKGKVLELEKKEAEVNHMEEK |

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| | | | IKKREQVVEKKTEKVKEKEKDHELKLKALKEKEKSLKNEEKILGTERKQLD<br>SEKGNLLALKAELENVRAELEKQQIKISEGTEQLKITEDERMEHSRLQSE<br>LKQEIVKCRLLREDLLKEAEDLKQEKERFEREWEELDEKRSEIKIDLQELN<br>ERRENLEKLKRSEEERISKEKLETDNYVQMELEALRVARETFEATMDHE<br>KSILAEETRSEKSQMLHAYEQQKRELESDMQRKQEEMESALRVQEKLF<br>EEESQKELSNIEYIKEITHREMEEMKLERVSLEKEKQEISANKGILEVQQL<br>EMKKDIDVLVGLSRKLKDQRLAYIKERERFIDFVKQQKSCSSCGEGIHVI<br>EFSDLQALAEAETFEAPPLPSVAQEYLKDGLQGSPGRASDELSPGALDT<br>ASMVSAGTMSWFRKCTSKILKFSPSKNIGNVASDCLVDESSLSQKCAGI<br>SPNKQSKEGNPMDLSISMNVLDDQRVQQDDGVREVKVGQDNVEDS<br>HHSDMKAGQRRTVKKGRGRTSKTEKAANMTVLGKISKEGENITNGSL<br>ETSVNMNEESQRGSGLLGGAPRNSRKRSHTSQGTACEIDGNNSEGQS<br>DSVASIRGKRRQQAAPSVQAHAERRYNLRRPRSAAPAASYGSLPEPVV<br>KSQEENQNSKASLQTPQVNNSEDVIDHPTVSESPFNDAVDNLESSANK<br>VNELLDDTGLSEEVNVTPKRPSASSDEEGSDDSDDEEEEIEHPGEVSVG<br>KKIWTFITT |
| Sly2 | Solanum lycopersicum | Phytozome 12 Solyc02g091960.2.1 | MASPGSGRLALTPVNPTPISGLGRVSKTPLTDEVIWKRLREAGFDEDSI<br>KRRDKAALIAYIAKLETELYDHQYQMGLLILERKEWVSKNEQSKAASES<br>AELLYKREQAARLSDTAEAKKLEANLKKALGIEKECVANIEKALHEMRA<br>ECAEAKVASENKLAEAQSMMEDAQKKYTDVEEKLRKAESLEAEASLFH<br>RTAERKLREVESREDDLRRQTLLFKSECEAKEKEIQLERQSLSERQKTLQ<br>RSQEELLDGQALLNKREEFIFSRSQELNRHEKDLEDEKSNFENDIKSLNE<br>EKRNLEVKLKSLSAREEGIIRREHELYEKEKELLLLQGKIQSKEIDGSKQV<br>MVNQEATLVTKISSIERCADTLLDRTPSNKRRREDGDFISQLTENGASC<br>PLPPTPDAPDVENLEVLPNQTHIAAEETTVYIDKIVTVHEVTEIDVRKVT<br>EGSPGTLSGDSGRKVGNNGSLESDQNGKPEGRARRTRATRK |
| Smo | Selaginella moellendorffii | NCBI gi\|302823872\| ref\|XP_002993584.1\| SELMODRAFT_431638 | MFTPHRRGATPNRGAGFSVSTERREVRFASSSPPDGRQQHQSADGTL<br>AGNGAGDGAGKSSSEIWQTFREAGALDQESLELKDRNALLAHISKLET<br>ELYDYQYQMGLLLLESNKLRGESERLKSVIDETRDGLKREQSAHMIALQ<br>EAERREDSLKRAVTTEKKCVADLEKALKEMHEEVAEAKAAAATQFQQ<br>GKATAMSAEEKLLEAESKLHSAEALLAKANRKHADAERKLQEVESRED<br>ALRRQRHSFLAECGAHKLELEHEKQNLKGWERTLEESQARFVENEKLL<br>NKREEYMQQRDDALTKLERDLDEARKVLEKDRSALRQEQAEYSALLSA<br>LSLREEAAVERENAATKKEQEILLLQEKLASRDRAFEQHEQMVRELEQA<br>NAKEKERLVDLEASLSTRENLLAVSKQSLVNIVFYVPHALICFCMVGGYL<br>EDPG |
| Spo1 | Spirodela polyrhiza | Phytozome 12 Spipo18G0020000 | MFTPQPQRRGWSLTPRAAEKNGSTPSQGRSAGGGLMGKGKGVALSE<br>APPPPRASLDENGTEGSEEGRDAAVWKRFQEAGLLDQASLEKKDREA<br>LVQRISKLEAELYEYQYNMGLLLIEKKEWTSKYEDLRQGLAEAEEILKRE<br>QTAHMIALSEVQKREDNLNRALGVEKQCVTDLEKALSEMRAECAEVK<br>FTSDQKLAEAHGMMTSVEEKSLEVDAKLRAADAKLAEASRKSSEIERKL<br>LDVTTRESMAQRELASINAEKQLMKDDLDRQREDLRTWERNLREGQE<br>RLVESQSLLNQREKRSNEHDVALKKREKELEAMREAIERSNLLLKEKEED<br>MGSRLTALAAREKEINIKMEGLEKKEQDLIALEDQLNAREKIEMQKLLD<br>DHDAFLDSKKREFELEMEKKRSLVEEELKEKLDSVEKKAKEVSMKEEKIA<br>KREQTVEKKTEKLKEEKADLDVKSKALKKWEAAVKANEKSLDKQSKQL<br>AEETQQLQASKSELEAEKAAVEEEKQSILTEKENLKVTEAEREEHALLQA<br>RLKQEIDECMILKGSLENEREDLRQERERFEREWDALDENRAGLAADL<br>KKFNDERASFEKWRTGEEERLKNEHQAAKDLIQKDLDDLNLKKEDFER<br>TILHERSELREMIEKERADAARALDLRKHELEISMQNKLGEMEEDLRRK<br>VAAFEAEREGELENIRSLRENAVAEVQKLSAEQRRFDREKQELAEQGK |

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| | | | KLEEERAEIRNDVEALHALSQSLKAQREDFIRERDHFLALVEEYKARKDG<br>GAAIAEFAPSEIEDPGSLLLPSLAEGYLDERLKGKQAEASSPPSGGSPSG<br>ASGGRMSWLRSCTKKIFSFSPVKRVEDEAAAPPSKVEDEAEPSEAERV<br>QSEGQARTEEEAPEELDGAGKEPEPSLPRDEADGGGKEAEGEAVIILPV<br>GGQEEVQPKPQRVTKRKVGRPAKRGRPATKRTRSVQAVVEDAKAFPK<br>EASSDRAGPSNGDANDGGAALHEIEESQGDSVHTDGRANVGQKRRL<br>HQASETMAGEPDGEESEARSESISLDGRRKRRQMAVPEAQTPADKRY<br>NFRRSTVANTVASTQAVLGAKAAVARPLSLDGEVSRGESEKEGTDKSQ<br>SQKPVSAMVCEIQSREFYQEIQEEEEAAEEEVTGMLVEGGGEELGTAS<br>SSSDEVGSSDSEEGRGGGDASISRRLWKFFTS |
| Spo2 | Spirodela polyrhiza | Phytozome 12 | MATTPLQREKGEKAVSPGVGYRTPVAMEPRVGSALKDEAIWKRLRDA<br>GFDEGVIQKRDKAALIAYIGKLESEIYDYQHHMGLLILEKKQWISKYEQV<br>KASADSAEMVHKRELAAQLSALSESRKQEENLKKAIGIEKESIASLEKTIH<br>EIRAQSAEAKVAAESKLSEAHKIMENAQKKFDEAQKKLREAESSCSEAR<br>RYERMAAIKLHEVEAREDELRRRLVLFNSQCEAREKDISLERQSLYDSQK<br>VLQEEQEKLLERQACLNQREEHVFGRLEELAQYEKQLEIVKQKLEVEQT<br>LLKEEKSNFALDVRTLATREESVIERESLLDKKQKELLILQEKLASREHDEI<br>QRLKTDNECVLELRMSEFEAKLEERRKEVDDEIENRRLACAQREIDLNQ<br>RTELIQERENALELQSAELTEKCKDFEEKLKLLEEKELSLAAAEKTAEKKM<br>LDMEKEKVEIKSLTLELEKMKQSLEAEKNEVLREKEKLDLSAIERNDLLL<br>MEKRLKEEIDSFRAQRAELMVEADKLKEEKEKFEREWELIDEKREELQR<br>EADRIAEDRKSVCQYLKNEQESLKAEKEDLRNQFKGYYDSLSHEREQFI<br>GNMEREHSDWFSKIQRERDDLMEDMKLQRQELENSIRKRRDEVDAY<br>LREKEESFEREKTNELQQIYFQKERIAKELEHLATEVKKFEDEKMAIALDR<br>EQREKEWSEIKCSIDVLNLQREKLQKQRELLQADREEIFSQIQHLRKLEN<br>QCITSEHKSLNDSAKNGVLGDYANLQSAENRNAGNREQKNGTSERLS<br>PGNVPHKALGSISPPMSMTFSWVRRCAQIILGRSPEKVIDASSGKDTTT<br>GDSIQHGEISNLKEAEDNENSGSSEDADKSHPLIDADGEENIQCTTDGP<br>YSSTMGRKRLQSSPLSVDGDVHPEPFLKRQKESKELNFVNELPVTEVTS<br>KCGSMAFDQTSEGGEMCEPCLEEVPDSSKHSEEIESSGCHPKDEEALV<br>ADTSTLNCDNVESGVYHGDDPSSNGQPLLKQPKDMLKRDS |
| Spr | Spirogyra pratensis | NCBI GB SM01021289 | MRNAFSPLRLRTQRDADENMSNYNRIGSESIPSSSIMPRHRAQEVIWT<br>DAQGPVIDEVSVIRSERDALSIRLQELELEYGDYKLQTEAAFDERDRCLS<br>QFSTIQSQLKEMVEKFKLEKNAHQSTIASNTEKERKLRDALTHTQRTAD<br>ELELALTEKNLEFDNFRQSLTSLENETIRKKCIAEEKILECEISLKESFSLKGE<br>YEKKKVEYESKLQETQITESNLRLEYLRLKDSQNEFQIQVSLKEQALKEM<br>EERSRKLISEYEQMNEEMEAKMKTILEKEEEMESKEKELIHFENETKIER<br>NELENLEKRLKEMQERLNEQEKLVIAKENSFSETKMHLTSFEEALNFRQ<br>ESIELKLNELESKEKEMNEEKIKLLSLEENLKHKQVAVDEHKTALIKEINEL<br>QFQREEMEKEKLFLFDREKELNELNHTLRKQREGLNLERDALDSKESNL<br>IDLERKLKQKESMVEIKKESVEEKDNLTNVKMNSASKKMRELMEEKRQ<br>LQEDLSRLGEDTTVLQRERELVKLMRESMDAEYSVMNEEKERIEQSAE<br>ENERVRREAEKALDEARREKEDVFRFKDMVEIEREELREEKRRFEHAYE<br>ELDAMKAILDEEKDEAKRMHEVRRRELEMQVMEINQMK |
| Sst | Selaginella_stauntoniana | onekp:ZZOL_scaffold_2006248 | MFTPHRRGATPNRGAGFSVSTERREVRFASSSPPDGRQQHQSADGTL<br>AGNDAGDGAGKSSSEIWQTFREAGALDQESLELKDRNALLAHISKLET<br>ELYDYQYQMGLLLLESNKLRGESERLKSVIDETRDGLKREQSAHMIALQ<br>EAERREESLKRAVTTEKKCVADLEKALKEMHEEVAEAKAAAATQFQQG<br>KATAMSAEEKLLEAESKLHSAEALLAKANRKHADAERKLQEVESREDAL<br>RRQRHSFLAECEAHKLELEHEKQNLKGWERTLEESQARFVENEKLLNK<br>REEYMQQRDDALTKLERDLDEARKVLEKDRSALRQEQAEYSALLSALSL |

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| | | | REEAAVERENAATKKEQEILLLQEKLASRDRAFEQHEQMVRELEQANA<br>KEKERLVDLEASLSTRENLLAVSKQSLEDI |
| Stu1I | Solanum tuberosum | Phytozome 12<br>PGSC0003D<br>MT400008676 | MGLLLIEKKEWSAKLEEIKQALNEANEAYRREHTAHLIALSEVEKREENL<br>RKALGVENQCVRELEKELREMRSQYAETKYVADSKLDEAKALATSVEE<br>NSLHVELKLRAADAKTAEVSRKSSDIERKLRDIEAQENALRRERSSFNTE<br>REAHESALSKHREELREWERKLKEGEERLADARTLLNQREQRANENDS<br>ILRQKQSDLEDEQRKIDTANSVLRKKEVDMSSRLANLASTEKELEDVRK<br>SLEIKKEELDELQEKLNAKEREEIQKLMDEHIAILKSKEEEFELEMRQRHA<br>SLDEELKNKVIELEKKEAEVSHVEEKLKKREQALEKKSDKMKEKEKDLEL<br>KLKALKEREKSLKIDEKELETEKKQIFTEKDRLLALRVELENRRAELEKQQL<br>KINEGIEQLKITEDEKMEHARLQSELKQEIDKCRDLRDTLLKEAEDLKQE<br>KERFEREWEELDEKRSAIKKELQEVNDSKKKFEKLQHTEEERLKKEKLET<br>ENYVQRELEALKAAQETFAATMDHERSVLSEKTQSEKIRMLHDFENQK<br>RDLESEMQRKREEMEFALHEQKKRFEEERQRELSNANYLREVAHKEM<br>EVMKSERVKLEKEKQEISSNKMHLAEQQSEMKKDIDVLDGLSRKLKDQ<br>REAFAKERERFLTFVKKQENCSSCGEGIRIFELSELQTLNDVVDFEAPSLR<br>NVAQEYLTDGFQDTPGRANNELSPGALNSGSMASAGTMSWLRKCTT<br>KLLKFSPGNKIEHPASQDFIGGSSLEEKFVGELPDTMSKKDQVDLAVSIN<br>GTFDDQKLQTDNSVRVVEVGQDVPEDSQHSNINSQRRPVRKGRGKN<br>SKTGHPNSKATSAKIILGENLKESENTHVNGGLETSINVNESQKEESSLF<br>GEARSKTRKRTRIHGTASEFDGSHSDGQSDSVTATSRRKRRQKAAPSV<br>QAPGEKRYNLRRPRSAAIATANGSLPELVSKSQEENGDSKAVPETPAAI<br>SDGELRNSDAALPAVADSPLMEAADDQGCTADIANELVDDTGLSEEM<br>NGTPEGPSAYNVYDEEHEGDTIVQEDGERDEDADENDEVDKGNEEEE<br>VLHPGEVSIGKKIWSFITT |
| Stu1II | Solanum tuberosum | Phytozome 12<br>PGSC0003D<br>MT400026041 | MSTPPRKSWTGWSLSPRTEPVDKGKGIAFTGTAHKSLTSQDYGNMD<br>QEALIEKVSKLENELFDYQYNMGLLLLEKKEWSSKFEEIKQALEELNEAY<br>RREQAAHLIAISEVEKREENLRKALGVEKQFARELEKELREMRSEYAETK<br>YTADSKLAEANALATSVEEKSLEVEAKLRAADAKLAEVSRKSSEIERKLN<br>AVYAQENALRREQSSFNAEREAYETNLSRQREDLQEWERKLQAAEEKL<br>ADGRRLLNQREQRANDTDRILRQKQNDLEDEQRKIVTANSVLRKKED<br>DMSSQIEDLTHKEKELEDARKSLEIKERELLDLQEKLNIKERDGIQNLMD<br>EQRSVLHSKEEEFELELRQRRASLDEELKGKVLELEKKEAEVNHMEEKIK<br>KREQAVEKKMEKVKEKEKDHELKLKALKEKEKSLKNEEKFLGTERKQLD<br>SEKENLLALKAELENVRAELEKQQIKISEDTEQLKIIEDERMEYARLQSEL<br>KQEIDKCRLLREDLLKEAEDLKQEKERFEREWEELDEKRSEIKINLQELNE<br>QSANFKKLKCTEEERISKEKLETENYVQRELEALRVAREAFEATMDHDK<br>SILAEETQSEKSQMLHAYEQQKRELESDMQRKQEEMESALHVQEKLFE<br>EERQKELSNIEYLKEITHREMEEMKLERVSLEKEKQEISANKGILEVQQL<br>EMKKDIDVLVGLSRKLKDQRLAYIKERDRFIDFVKQQKSCSSCGEGIHVI<br>EFYDLEALAEAETFEAPPLPSVAQEYLKDGLQGSPGRASDELSPGALNT<br>GSMVSAGTMSWLRKCTSKILKFSPSKNIGNAASDCLIDESSLSQKCAGI<br>SPNKQSNKGNPMNLSVSMNVLDDQRVQQDDGVREVKVGQDNVED<br>SHHSDMKAGQRRTVKKGRGRSSKTEKAANTRTFLGKIPKEGENITNGS<br>LETSDNMNEESQRGSGLLGGAPRNARKRSHTSQGTASEIDGNNSEGQ<br>SDSVASIRGKRRQQAAPSVQAHAERRYNLRRPRSAAPATSNGSLPDPV<br>SESQEENRNSKASLQTPQVNNSEDVKDRNFVIGHPTVAESPLNDAVD<br>NQESSANMANELLDDTGLSEEVNETPKRPSAYRDEEGSDDSDDEEEEI<br>EHPGEVSVGKKIWTFITT |
| Stu2 | Solanum tuberosum | Phytozome 12 | MASPGSGRLALTPVNPTPISGLGRVSKTPLTDEVIWKRLREAGFDEDSI<br>KRRDKAALIAYIAKLETELYDHQYQMGLLILERKEWVSKNEQFKAASVS |

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| | | PGSC0003DMT400026041 | AELLYKREQAARLSDMAEAKKLEANLKKALGIEKECVANIEKALHEMRAECAEAKVASENKLTEAQSMMEDAQKKYADVEEKLRKAESLEAEASLFHRTAERKLREVESREDDLRRQTLLFKSDCEAKEKEIQLERQSLSERLKTLQRSQEELLDAQALLNKREEFIFSRSQELNRHEKDLEDEKSNLENDIKSLNEKKRNLEVKLKSLSAREEGIIKREHKLNEKEEELLLLQGKMQSKEIDDSKQVMVNQEATLVTKISSIEAELETKRKLVEDEIQTKRRAWELKDMDIKSREDLITDKEYDLERQSRTLAEKEKELEDKVHVIEEKERNLQAAEKEVELQRTVLQQEREGISKMRNDLEKSLKMLDEKRKCVDHEEEKVEAMKNETQELLILETRLKLEIDMIRAEKEEIEMEADRLKAEKAKFETEWEVIDEKREELQKEAERVAEEKLAISKLLKDSRDSLKAEKNAIQEEYKQNLESLSRDRETFMYEIESERAEWFNKIQKERENFLLDVEMQKKELENRIEKRREEIETDLKEKEKAFEELKKRELQDIASLRETVEKELEHVGLELNKLDAERKEINLDRERRDKEWAELNNAIEELKVQRLKLEKQRELLHADRKEILAQIEQLKKLEDVKIIPDRIATPKKLHSGLPSNELKPSAKRLLKHASVLGSGLDGNGNNGVRQDTPSIMKENGNSSSTLSTPFSWLKRCADTLLDRTPSNKRRREDGHFISQLTEYGASGTLSSSPDAPDVEHLEVLPNHTPIAAEETTVYIDKIVTVHEVTEIDVRKVTEGSLETLSGESGRKVGNNGSLQSDKNGKPEGRSRRTKATRK |
| Sve1 | Sciadopitys_verticillata | onekp:YFZK_scaffold_2045444 | MLTPKRRGWPGWSPTSRSSPGEEKAVAVAEKSGHGAAGGSGSAGKAPAEAPPRNFLDEKGGVLAAAREEPEIWRRFRESGSLDQESLEKKDRAALVVHVTKLEAELYDYQYNMGLLLIERKEWTSTYEQMKLALAEAEENLKREQSAHLVAITEAEKREESLKKALGVEKQCVADIESALHEMRAEIAELKFTSENKLAQARELVASTEEKALAAEAKLHAAEALQAEASRKHAETERKLQDIEAIESALRRDRQSFKSERDAHEVELSLERQNLLEWEQKLQEGQDRLLEGQRLLNQREQYTNQRDEALKQIEKELEDARKQIEKDHVTLKETEADISVRLAALATREENAIKREIVIDKKEQELLVLQEKLASREHEEIQKLIDEHKATLEARKIEFEAELERIKISAEEELAKRQSAAELMEAEIKRKEEKIGKREQQMEKKAEKLKEKEKEVDARSKALKEKERAYKNEEKALEIEKKNIERERREEINNEKQELQKTKIAVEEEKQQIVNEQENLRVTEEEKNELLKLQTQLKEEVDNYRARELEVEKRAQELKMEMEKFEKEWDILDERREQARKESKQVEDEEKRISKWLRDEDERLKQEKSALQERIQSEMETIRLEKEAFEASMHHERALWLENIRRQQADLVRDIELQRTELENSVEKRQEEIEKVLREKEIGFQKEKEREMQHINAQRELASKEMEEMSLERHKFERERQEISKSREHAEREWTAIKIDIEELQIQGDKLKEQRECLHKEREEVLRMFEQLHKLKTDSNVTEDGLNLIANKGGFSQEVPTQNVFGTPASSSAKVNPELSSGRTFASASVTPARLSWLHRCATRFFNQSPSPEKMVDSTVRKEETAKSPTVVPEGTYAESERVTQEIVVGLEIDPAFSADEQNNDVAVETEKDEHGIISSRPAVNFDHSLPSPSRGNGCKSNDKAKIKVFKRTRSMKAVVEDARGILEIPSDKEKTESGNRQGHHQNELAVPDKREDKGERAGANNTNSAQEIDGSNRESLANDKINSKAGRKRRRAHSSRATSEQDADDSEIQSELAAGGRRKRRQQGTTNGGSSVVGTTGGKRYNFRHSTIANSAATQTISMDVKDKTITCDEEEETKTLQESPSGKVAINSQEASSDKNARVASVQESDKDIFPGEAEHPQSFPNGSEDAAEDQQEVSSRELTKSETGDRYVQSEEDESGNGEDEVQEIEDEEIDELDDDGNDEEEDRNSSLRKKLWKFLTT |
| Sve2 | Sciadopitys_verticillata | onekp:DZQM_scaffold_2056498 | SPVNENEMWRRLKEVGLDEETLQKKDKAALIAHITKLESELYDYQYNMGLILLERKEWTSRYEELKLSAEEAEGNFKRDKAAHLAVMAEAEKREEGLRKALGIEKQCVADLEKAIHEIRAESAEMKYLSDNKLAQAHELVAATEEKSLAADSKLHAGEALQAEANRKRADAERKLQEVEAREDELRRQWQAFKSEFEAHEGELFLERKNLQEWEKKLQEGQERLLEGQKLLNQREEYVIERNEATKQIEKELLNVKRNVEKEQLILKEKETDLRGRLAALTTREEALVKCEVTINKKEQELLVLQEKLASREHEEIRRLTDEHQAALDARKSEFEAELDKQRRAVDDELENRRNAADTKDLELKCNEEKISNTEQQLEKKTEKLREKEKELD |

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| | | | ARSKNLKEREKKYNIEEKDIENQQKKLELEREEMNNLKQVLEKFKATLEE<br>EKQQIHKEQERLELTENERNELRIIQTNLKEEIDNLRAKEQELLKKEDAL<br>NVEKEKFEREWEILDEKAEQLRRGLEQVDDEKKRVSRWLKDEEERLKQ<br>ERWMLRQQIKSDEEALRLKKEAFACSKKQEEADLLAKFQRERADLYRDI<br>ELQTSELENGIEQRQEELERHYQERELAFQKEKQKEMHYINEQKELSDK<br>ELEEMKLERQRLEREKQEIAITRQQIEREWSEMKKDIEALEIQRQKLKEL<br>RESLHKERKEFEGQLNQLKKLKDELKITEDSLQLSENPLSQANVNDREAI<br>SPGHFDVYGISQAAFRQSVSVMPCNTDEFRSEIYPGGKLASASDTPSPL<br>AWLQKCASRLFKQSP |
| Svi1 | Setaria viridis | Phytozome 12 Sevir.1G297800.1 | MFTPQGKGWTGWSTPTPANQRSGGGAPAASAPLGKGKGRVTELEH<br>ELHEYQYNMGLLLLEKKEWAEKLEEISQRLKQKEEILKREQAAHLNAISE<br>YERREESMRKALGVEKQCVIDLEKALREIRAEIAEVKFTSEKKITDAQSLE<br>ASLEEKSLEIEGKLHAADAKLAEANRKKAQVDRDLEEVEARQRRLEKEK<br>LYFETERKAREKQLKEQEESLQEWEKKLKESQNRLVDLQRSINDREERA<br>NKNDQLFKIKHDELEEARKSVEATKLTLKAKENDINKKLNELHSKEKDA<br>DSKRKELEEREKKLIEREEKASIREKEGLQKLLEDHQVELKSKRRDFELELE<br>SERKSFDEKMTQKQADLVKREKDVKSLESKLSKTEQALNDKKKTVEGW<br>QNDLDAKSKALKRWEESLKNDEKRLLEEKQHMDQEKQQVEVSKSELE<br>RIKSRLEAEKERILEAQNNLKLTEEERQEHSVLTERLKKEIEEYRMRNNSL<br>SEEIEDLRKQRQKFEEEWEQLDEKRAHLAEEDKKVKIERMNLERWRDS<br>EEKRLNDAKFEMEEKYKEQLENLERKERVLNDDIKHKQMENDELLKGE<br>RADLQRQLQLHRHELEMEMEQKQASKEKELEDKANELNKKRDFVDN<br>QLRHAIELNESKIQKIISEKKLLEAERKILLEERQKLETDQADIKRDIDSLH<br>GLSQSLKVRREAYNRDMKNLIDLFEKYKVCKNCGITLFEGLDSLALKDSA<br>EIEHPSLAVERDHRSLNADTSAPDTGTLVNSGGRLSLLQKCSRLFKFSPI<br>KKGEQPTENIPFGARLEEASQSDGDYEPTPVYEIAHDSFGAEDDLPSES<br>GARDNDESERHDPADDVQMESSVGVADNSIDILGAQSFDGTNDKAV<br>DATIASTDQNGKDPAAPAEADLQPETSKQGRRQQNRKGRGKGGVKR<br>TRSVRAVVEDAKAILGETFEEKNDGQGDPVAAVGGTRKRRFAGATISE<br>QDEEGSEAHSESVSLGGQRRKRRQTAGAVTETPGEKRYNLRRSTVAN<br>ATAATAQTDKKKAAKTGSKHMVQATADDTEGTSKADEEPAPESKRAS<br>ESADYGASQLHEFSQAEIGDAHAPAEGTGEEDGDVVDGKDALPDVP<br>MTPSGSELGAEQDDEDDDDSERRNQSISKKLWSFFTT |
| Svi2 | Setaria viridis | Phytozome 12 Sevir.5G335100.1 | MASPRSAGAGGGVAGDEAIWRKLREAGFDEDAVRRRDKAALIGYISR<br>LESEIYDYQHNLGLILLEQKEVTSKYEQLKAASEATEIMLKRERAAQQSA<br>LAETRKREENLKKNLCIQKECVSNLEKALHDMRGETAEIKVSYEAKLVEA<br>LQMIDAAQKKFDEAEEKLLAAKSLEAESIRTHNASLRSLQDIEDREDQL<br>RRDRTSFELESASKEKEISLQRKLLDDTKKILHEKEQALVKEQALLNQRD<br>DNILERLGYITHSEKRLEEEKLNLEDERKALMEEKNKLDLKMQAIISREEA<br>IIKKESVLDKRESELLVLQETIASKERAEIERLHQEQEIDLGRRRNEFDTE<br>MEIKLTSFKEEIEARKTLLDQRESALSEQEDAVAQREQNINLRLAELSNK<br>EESLVKRSDELKEEERKLSSHRDTVHSELQKEREEIQNMKLDLEKEKSFF<br>EEEKREAIQAQEKLLITQSEREDLLILQMKLKEEIDSLRAQKVELMVDAE<br>RLLAEKERFEIEWELIDEKKDELQKEAARIAEERRVIDEHLKNELDVIKQE<br>KENLRIQFKSSAESLACEHKEFMNKMQQEHASWLSRIQQEREDLKRDI<br>DIQRTELMNSAKARQMEIESYLREKEEEFEQKKSKELEYINSEKETISSKL<br>EHVRIELQKLEDERKEALLERARREQELSEIKSTIDALNEQREKLQEQRKL<br>LHSDREAITQQIQQLNELEELKIESENNQLSLRQCGRSKHGDVETQKEN<br>GVHLTPDEDQNASPKKCSSPKVILGKKLEVSPSVSTPISWVRKCAQVIFK<br>RSPEKSADHDNDRSAHATLGNVNDFSLVENGGLFACQLENGAGEVPH<br>AVDGLKVGKKRLNYALSHDQSENLEPKRKHQRSSILTRKVVGGEIDSN |

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| | | | GSPSVLEEKCSKNEHDAVLVGLSRKGLPYPRTGEVASSDDALFVNGKP<br>DTSDIPDDEPSEEISVSAAEALNGDVAEDKDELDEDSDDEGEEEEEKA<br>SSAKKLWRFLIT |
| Swa | Selaginella_wallacei | onekp:JKAA_scaffold_2012323 | ARRTRTEIWESFREAGALDEASLEMKDRTALISHISKLENDLYQYQYQM<br>GLLLLESKNQGSECERLNVLLEETRDALKREQAAQMVAISEAEKREEYL<br>KKAAATERKCVADLEKALREMQIEIAEAKAASEREVQRAKEAAQLAEE<br>KRLEAESRLCSGEALHAEARNKVAEASRKLAEADSREDDLRRERHHFNL<br>DCEARKAEFESERKSLKNLENKLNELEERLARSEKSLSQREEHVEQRDEA<br>LANLEKYLDEAKEAMEKDRASIHQSEAELNAQMAAFSLREQAALEREN<br>AALKKEQELLLLQEKVDNRDRAFAQHEQHVREVEAENAKETERLNALE<br>ASLRSRD |
| Tba1 | TBA00021990 | GymnoPlaza | MLTPKRRGGWPGWSPTSRSSPAADDKTVVVAEKGGHVTAGSGGGG<br>SSGGAGKAALDAPPRNSLDGNGRILAAAAPEEPEIWQRFRESGSLDHE<br>SLEKKDRAALLAHVNKLEAELYDYQYNMGLLLIERKEWTSKYEQMKHC<br>LAEVEENLKREQSAHLVAITEAEKREESLKKSLGVEKQCVYDIELALHEM<br>RSEVAEFKFTSENKLAQAREIVASTEEKALQAESKLHAAEAMQAEASRK<br>HAETERKLQEIEAIESALRRDRQSFKSEREAHEVELSLEKQNLLDWEKKL<br>RDGQDRLLEGQRLLNQREEYTNQRDEALKQFEKELENVRKQIDNDHA<br>TLKEKEADISVRLAALSTREENAVKREILLDKKEQELLVLQEKLVNKENEE<br>IQKLLDEHKAILEERKNEFEAELEQKKRSVEEELEKRRNTLELIGADINRK<br>EEKISKREQQMEKKAEKLKEKEKEVDARMKTLKEREKTYKNEEKEIGIEK<br>KKLEKEREEINNEKQELQSMKISLEEEKQHIVNEQENLKVTGKERNELLT<br>LQTQLKEEIESYRARKQEVEKEAEELRLEKEKFEKEWEFLDEKREQVNKE<br>LTQVEEDKKRISKWLRDEDERLKQEKSALREQIQSETEAIRLEKEAFEAS<br>MQHERAEWLESIRREQADLVRDSELHRSDLENNIEKRQEEIEKLLREKEI<br>AFQKERELREMQHISAERELASKEMEDMRLERHKLERERKEIGTSREHA<br>ERQWAEIKKDIEELQLQREKLKEQRESLCKEREEALRLFEQLHKLKSEVN<br>VTEDGLDLIGNKAQSHVRTGDTYGFSQEALTQNIFGTPAAASAKVDLE<br>PSSGRTFPSASGTRNRLSWLQRCASKLFNQSPSPEKIVDATGRKEETDR<br>SQTMVPETGGVESERVXXXLEKLL |
| Tba2 | TBA00016809 | GymnoPlaza | MLSPQQKRWLSSPVSPSKDGKKGNKGGSAIVAFSPSNGRGSPMNESE<br>IWRRLKAAGLDEETLQKKDKAALIAYITKLESELYDYQYNMGLILLERKE<br>WMSKSEQLKLAAEEAEGNFKRDKAARLATIAEAEKLEESLRKALGIEKQ<br>CVADLEKALHEMRAESAEIKFVSENKLAKARELVAATEEKSLAAESKLYA<br>GEALQAEASRKHADAERLVQDVEAREDELRRQRQAFKSQCEAHEKEL<br>FFERQNLQEWDKNLQEGQERLLEGQRLLNQREEYVIERNEATKQIEKE<br>LQDVKRNVEKEQTTLKEKEADLRGRLADLPIREEALVKREIIINKKEQELL<br>VLQEKLASREREEIQRLTDEHQAVLEVRKSAFEAELEQQRRAVDDELEN<br>NRNAADIRELEIKCTEEKINKREKLVEKKAEKLKEKEKDLEGRSKTLKERE<br>KLCKIEEKQIETQQKKLEMEREEINNLKQVLENTKAALEEERQQIHKEQE<br>RLELTEKERDELRIIQTKLKEEIDNFRAKEQELSKKDEVLNVEKEKFEREW<br>EILDEKTEQLRKELEQVDDEKKKVSKWLKDEEQRLKQERRMLREQIKN<br>EEETLRLKEEAFANSKKQEEAELLARFQREQADLFRDIELRTIELENSFEQ<br>RREELERNHQERERAFRKEKQKEMHHINAQKELSDKEFIEVKLERQKV<br>DRQKQEIATTREQIDREWSEMKTDIEQLEIQREKLKEQRESLHKERKEF<br>EAELDQLKKLKVELKMTEDSLKLSEQQLSQVNLNDYEVISPGQFDGGIS<br>QEALRQNISAMPFNADGLCSEILPGGAPASASDTPSPLAWLQKCASRIF<br>KKSPGSRVESNIHEQEIEIAANLVSEGTPGVGIDPALSGLKQYSMPVAN<br>LFESQPSFPAINRHGRNDKGSLRVFKRARAVRAVVEEVKGSIEDMSER<br>DKNESDNGNECQQNTVVNSVDDDDAMLNREKEVCDSAVSAQXXXX<br>XSEH |

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| Tca1 | Theobroma cacao | Phytozome 12 Thecc1EG019537t1 | MFTPQRKVWSGWSLTPGKKVDGSGSDPNSNGVAVGKGKGAAFVEP<br>VTPNGNGLGSEDHEGVPEKVLRLENELFDYQYNMGLLLIEKKEWTSKY<br>EELSQALIEAKDALKREQAAHLIAIADVEKREENLRKALGVEKQCVLDLE<br>KALRDMRSENAEIKFTADSKLSEANALIASVEEKSLEVEAKLRAADAKLA<br>EVSRKNSEIARKSQEVESRENALRRERLSFISEQEANETTLSKQREDLRE<br>WEKKLQDTEERLAKSQRYVNQREERANENDRLFKLKEKDLEETQKKID<br>AANQTLKEKEEDINSRLAHLTLKVKEWDAVREKLEMKEKELLIIEEKLNA<br>REKVEIQKLLDEHNAILDGRKHEFELEIAEKRKSLDADLKSKVIEVEKKEA<br>EVKHLEEKVSKREQALDKKLEKFKEKEKEFELQVKNHKEREKAIRSEGKN<br>LEIEKKQMLADKEDLLSLKAEVEKIRVENEEKLLKMHEENDRLRVTEEER<br>SEYLRLQLELKEEIEKCRLSEELLLKEVEDLKRQKENFEREWEELDEKRLEI<br>EKELKNISQQTEKFEKQKLAEEERLKNEKQVAEDYIKRELDALEVAKETF<br>AATMEHEQSVIAEKAESERSQRLHDLELQKRKLESDMQNRFEEMEKEL<br>GESKKSFEEEKERELDKINHLREVARRELEELKQERLKIEKEEQEVNASK<br>MHLEGQQIEIRKDIDDLVDISKKLKDQREHFIKERNRFISFVEKHKSCKN<br>CGEMTSEFMLSDLQSLQKIEDEEVLPLPSLADDYISGNAFRNLAVSKRQ<br>KDEISPPVGSGSPVSGGTMSWLRKCTSKIFKLSPGKNIEPHAVTKLNVE<br>APLSGGQVNMEGMSNVEHEPELSIAAATESLDVHRVQSDTSTRDVDA<br>GQDLSIDNQSNIDSKELEVLGDSQNSDFNRGNQLRKRGRPRVKRTRSV<br>KAVVKDAEAIIGKALESNELEHPNGNLDSGHANAESRDESGLFDGGTS<br>RNARKRNRAQTSQKTESEQDGVDSGHSDSIVAGQQRKRRQKVVLAM<br>PTPGEARYNLRRPKTGVTVAKTTSDVNRENEGAKDAGDQVNYSKAP<br>MPVSENGDASENGGSAHFLQQCETARDTNDGDADATKKLAADAALS<br>EEVNTAPEGVGEYGDGNDYRSDSRSEGLKDEDEDEDDEEHPGEVSM<br>GKKLWNFFTT |
| Tca2 | Theobroma cacao | Phytozome 12 Thecc1EG000864t1 | MASPVTPGTSRALSITPGSRVLKSPLSDETIWKRLKEAGFDEESIKKRDK<br>AALIAYIAKLETELFDHQHHMGLLILERKELASKYDQIKSSAEATEIMHKR<br>DQAAHISALAEAKKREDGLKKALGVEKECITSIEKALHEMRAESAETKV<br>AAESRLAEARIMIEDAQKKFVVAEAKFNAAKSLQAEVSLFQRTAERKLQ<br>EVEAREDDLGRHILLFKKDCDAKEKEIVQERQSLSERQKIVQQEHERLLD<br>GQASLNQREEYIFSRTQELNLLEKELEASRADIEKERRALKDEKSNLELSL<br>ASLSKREEAVIEREALLSKKEEQLLVSEQKLANKESVEIRKAIASHETVLRI<br>RKSEFEAELEIKRKMTEDEIEMKRRTWELKEMDINYREDQIREREHDFE<br>IRSRMLAEKEKDVAEKSNLIDEREKNVSVLDRELELKKALLEKEKEEITKM<br>KLELQKSLSSLEDKRNQVDCAKEKLEAMRSETRELSTLELKLKEELDLVR<br>VQKLELMADADRLKVEKAKFENEWELIDEKREELRKEAARVRDEREAV<br>LKFLKDERDSLRRERDVMREQHKKDVESLNREREDFMNKMVLEHSD<br>WFNKIQQERGEFLLGIETQKRELENCIEKRREELEGSLKEREETFERERK<br>NELQHINALKERVEKELEQATLEMKRLDAERMEIKLDREQREREWAEL<br>NKSIEELKVQRHKLKQQRELLHADRKEIHAEIEELKKLGDLKAALDNMM<br>VAQMQQSIIELSQQKASERKNLKQQTLMQNAGSDSDKNMVVADNG<br>NGFNSPMLKPTGASPPSSARFSWIKRCSELIFKHNPDKAQMKPEEGSLI<br>SDTENVCLTSAGKLVSSDGQKYKRYGRKPVGFDREPKVIVEVPCEGEVV<br>KGIHDLESEIEKNDAEKSVLVSEQDNQAGKKRRVANSPSRGTKKRRQK<br>KDASLIEEEDITNSINSTEPNASQDQPALTDNRGHGGADETNGLIIDKII<br>NISEVTYEKKSVGDDDIVAESVQDISQSGVMCSHANATQGKNGGSEE<br>PGMVQEAHLGDLSQVIEPCQPMEDISERSEQKLEANVAPKPDDNEKI<br>GMRTRSMQKL |
| Tca3 | Theobroma cacao | Phytozome 12 Thecc1EG01 | MFTPQRKAWPGLPLTPSTEPQRAGVSNTRSGGIGGKGKAVAFFDDTR<br>KLPPPPVGSLSGRGPLNVGLEEEGMEDWRRFKEAGFLDEAALERRDH<br>EALVERLSKLERELFDYQYNMGLLLIEKKEWTSKCEELTQELAEAEEILRR |

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| | | 1885t1 | EQAAHLIAYSEVQKREENLAKALDVEKQCVADLEKTLRDIQEEHAQVKL<br>SSDTKLANASALVAGIEGKSLEVEEKMHAADATLAEVNRKSSELEMKL<br>QEMEARESLLQRERLSLIAEREAHQATFYKQREDLNGWERKLNKGEER<br>LSELRRTLNQREEKANENDRLLKQKERSFEEVQNKIDLSTLKLKEMEDD<br>VSKRFTDLVSKEKEAESMRSILQAKEKDLVALEEMLTARERVEIQKLVNE<br>QRVILDAKMQEFELELEEKRKSVNEELESKVNEVNQQEAELHHKEEKLR<br>KQEQALDKKLERVKEREKDLEVRLKTVKDRDKFVKTEEKKLELEKQQLY<br>SAKESLQALKDEIDKIGAETSQQELRIREESQKLKITEEERSEHIRLQSELK<br>QQIDSCRHQEELLLKEHEDLKQQRENFEKEWEVLDEKRAEITMQRKEI<br>VEEKDKFEKFRHSEEERLKKEESAMRDYVCREMESIRLQKESFEASMKH<br>EKSVLLEEAQNEHIKMLQDFELQKMNLETDLQNRFDQKQKDLQERIV<br>AFEEVKERELANMRCSKEDVEREMEEIRSARLAVEREKQEVAINRDKL<br>NEQQQEMRKDIDELGILSSRLKDQREHFIRERHSFLEFVEKLKSCKTCGE<br>ITRDFVLSNFQLPDVEDREIVPLPRLADELIRNHQGYLGASGVKNIKRSP<br>EAYSQYPESAGRMSWLRKCTTKIFSISPTKRNESKAEGPGELTNKEAGG<br>NIHEKAGEPSLRIPGDSINNQLLQSDKIGKVDDRSGPSLDHSYTDSKVQ<br>EVPEDSQQSERKSGRRKPGRKPKSGLNRTRSVKAVVEDAKLFLGESPEE<br>PEPSESVQPDDISHANEVSAGVSTHSENRARNNARKRRRPQDSKITDT<br>ELDAADSEGRSDSVTTGGQRKRQQTAAQGLQTPGEKRYNLRRPKLTV<br>TAKAALASSDLLKTRQEPDGGVVEGGVSDTENRSSNLVQVTTLKNVEI<br>VEEKVVRFKTSVDVDDNANAAKPVGSVDLSEEVGTAENGNEDQSVSSI<br>DEDEDDSDDEIEHPGEVSIGKKIWTFFTS |
| Tdi1 | Taxodium_distichum | onekp:FHST_scaffold_2065748 | PPRNSLDGNGRFVSTAAAVAEPEVWRRFKESGSLDHESLEKKDRAALL<br>LHINKLDAELYDYQYNMGLLLIERKEWTSKYEQMKLALAEAEESLKREQ<br>SAHLVAITEAEKREESLKKSLGVEKQCVSDLEKALHEMRSEVAEIKFVSE<br>SKLAQAREMVASTEEKNLEAESRLHAAEALQAEASRKHAETERKLQEIE<br>AIESALRRDRQSFKSERDAHEVGLSLERQNLLDWEKKLQDGQDRLLEG<br>QRLLNQREEYTNQRDEALKQIEKELEDAKKQIENDHTTLKEKEADISIRL<br>TALSTREENAVKRENLIDKKEQELLVLQEKLASKENEEIQKLLDEHKAML<br>EARKIEFEAELEQKKISVEEELEKRRSTLELFEADINSKEEKISKREQQIEKK<br>TEKLKEKEKEVDARSKALKEREKILKSEEKEIMIEKKQLDGERGEINNEKQ<br>ELQNLKVSMEEEKQQIFSEQEKLKVTEKERNELQKLQTELKEEIENYRA<br>QKQEIEKEAEELRLEKEKFEKEWEFLDEKRDQAKKELTMVEEEKKRISK<br>WLRDEEERLKQEKSALQERIQNETEALHLEKEAFAAIMQHERAELLESI<br>RREQADLLRDGELHRSDLENNIGKRQEEIEKFLQEKEIGFQKEKDRETQ<br>NISAQRELVSKEMEEMRLERNKLEKERQEISKSRQHAEMQRIEIKKDIV<br>ELQLQRDKLKEQRESLSKEREEVSRLVEQLDKLKAELNMSEDGLDLIAD<br>KGGNRRTGDFNSFSQEGFPQKIFGTPASASAKGDPEPSSGRMVRSAS<br>GTPSRLSWLQRCATRFFNQSPSPEKMIDGSRQKEETDRSPTVVPETTG<br>AESERMTGEIVVGLEIQPTFSADDQNHDGGVETEVDAQNQGTTKSSP<br>AVKFDHSLPSRSKGNGSKSNDKSKVKVFKRTRSMKAVVEDARGIIDLPS<br>DQEKNESESRQEHLQNQSAVPDNRQDKEGRPGGDQTNSAQEVDDS<br>NRESLANDKRSSKSGRKRRRGYSSRVTSEQDADDSEIQSELSAGGRRKR<br>RQKGTANGGSSGLGTPGGKRYNFRHSTIASSVATQALSMDGKDRVVA<br>QPEEEEPKNLQGTSSGKDTKDSQQDSLDKTAMVPSAQDSDNIPQGET<br>QDSPGCPDGGLEDAVEDLQDVLSHELTKSETGDRYDETEGDGGGNEE<br>DAPVDEIEDEEIDELDEDGDDEEEDNDSSLKKKIWKFLTS |
| Tdi2 | Taxodium_distichum | onekp:FHST_scaffold_2065741 | SPVNENEMWRRLKKVGLDEETLQKKDKAALIAHITKLETEIYDYQYNM<br>GLILLERKELISKYEQLKLTAGEAEGNFKRDQAAQLAAIAEAEKREESLRK<br>ALGIEKQCVADLEKALHEMRAESAEIKFVSETKLAKAHELMASTEEKSLT<br>AESRLHAGEALQAEANRKRADAERLLQDVEAREDELRRQRQSFKSECE |

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| | | | AHEKELFFERQNLREWEKNLQEGQERLLDGQRLLNQREEYVIERNEAT<br>KQIEKELQDLKRNIEKEQSTLKEKEADLRGRLADLTTCQEALVKQEVIIN<br>KKEQELLLLQEKLATREREEIQRLTDEHQAALEEGKSVFEEEMKQQRKA<br>VDDELENKRNAADVREFEIQCREEKISKREQQVEKKAEKLKQKDKELDA<br>RLRDVKEREKSCKMKEKEIETLLKKLEIERDEMNISKQVLEKSKAALEEER<br>QQIRKEQERLELTEKERDDLRIIQIKLKEEIDNFREQEQELSKKDEVLKVE<br>KEKFEREWEILDEKTEQLRKELEKVDDEKKRVSKWLKNEEERLKQERR<br>MLREQIKNEEEALRLEKENFANSKMQEEAELLANFQRERADLYRDIELQ<br>KSELEKSIEQRQEELERNYQVRELVFRKEKQKEMQFINAQKELSDKESQ<br>QIKLERQRLDREKQEIVRTREHIDRECSEMKKDIEEMEIRREKLKELRESL<br>HKEREEFEAQLDQLKKLKDELKMTEDSLKLSEQPPSQAIVNDYEVISPG<br>HFDGGISQVACRQSISGMPFNADGFCSETHLPRSTASASDTPSPLAWL<br>QKCTSRIFKKSP |
| The1 | Tsuga_heterophylla | onekp:GAMH_scaffold_2009581 | MLTPKRRGWPGWSPKTPSPPPPPPPAEEMAGSSHVATPAAAAGGSS<br>GGRALVEAPPRNLLDNNGEIVASRGQPEIWRRFREAGSLDEESLEKKD<br>RAALVVHVTKLEAELYDYQYNMGLLLIERKEWTSKYEQMKVAIAEAEE<br>NLKREQSAHLIAISEAEKREESLKKALGVEKQCVIDLENALHEMRAEMA<br>ELKFTSEDKLKQAREIASSTEEKALAAESKLHAAEALQAEVSRKHAEME<br>RKGQDIEALERALQRERQSFMSEHEACESDLSLERQNLLAWEKKLQEG<br>QERLIEGQRLLNQREEYINKRDEAMKQIEKELEDAKMQIEKDHATLKEK<br>EADISARMTALATREEDVVKGETVINKKEEELHALQEKLVIMENEEIQKL<br>IDDHKATLEARKIEFEAEIEQKKILVEEELGKKRSDIELMEDNVNRKEEKI<br>SKREQQLEKKAEKVKEKEKEVDARSKALKEREKTYKNEEKQIEMEKKKL<br>EAERGDINNEKQELQNLQVVLKEEKQQILNAQENLKVTEKERTELLKLQ<br>TELKEEIEDYRARKQQVENEAEELKLEREKFEKEWEILDEKREQVRKESA<br>QVDEDRKRISKWVLDEEERLKQEKRALREHLQSDSDSLHLEKEAFKNT<br>MEHERAEWFENVRRERADLLRDIELQRSELESSIEKREEEIERLLHEKEA<br>EFQKEKEREMQHIFEQREIARKEMEEMRVERRKLEKERQENTKSREHA<br>EKEWSEIKKDIHELQVQREKLKEQRESLCKEREEVLSLFEQLKKLKTELNV<br>TEDHMKQIADKDGSHFLRPEDAFAFSQQGPGQNIFGTPVDTSVKFNP<br>EPSSGRTDASTSKTSRLSWLQRCASKIFNQSPSPGKVDDSTVWKEETER<br>SHTPALEVDLGAEIERMTYENTVGANIEHTSSADVQNDGCIVEAAEDN<br>RQGHGKLKSKSVVNFDSSLPSPSVGNGHKSKDKAKVRVFRRTRSMKA<br>VVEEAKGILDTLSDMEKNESEDRQEQEQNDTAVTANSEDPGKEADTD<br>KTDTAKEIDESKGESLASDKKPSQSGKKRRRKYSSRATSAQDAEDAEIQ<br>SELTSGQRRKKRQRDSANGDNSVVGAPGGKRYNFRRSTIASTIAAQTV<br>SLEEKEKDLTTQEEEEDSRRVQENPPERVAEDNQEASSDEPARVPSIGE<br>RDMKTPPAEDQRPQSFQENGLGDAGDDLQEVSSHGLTKSETGEFYAE<br>SEDEGGNGQDIEEIVETEEDVEEAEEFDEDENNDGDDQKASLRKKLW<br>NFLTT |
| The2 | Tsuga_heterophylla | onekp:GAMH_scaffold_2011463 | TPVNESEMWRRLREVGLDEETLQKKDKAFLVAYITKLESELYDYQCNM<br>GLLLIERKEWTSKYEQMTLATSEAEDKAKRDRAAHSVAIAEDEKQEESL<br>KKALGVEKQCVADLEKALHEMRAQCAELKFISDNKLAQAREMVAITEE<br>KSLAAESKLHAGEALQAEANRKQADAERKLQEVEAREDALRRERRVFK<br>SECESHEKELILERQNLRGWDKKLQEGQERLLEGQKFLNQREAYTLERD<br>EALKHIEKELQDLKMNVEKEHSTLKEKEAGLRASLAALMTREEAVVKQE<br>ITVDKKEQELLVLQEKLASREREEIQRLTDEHKATLEAIRIEFEAELEQKRK<br>IVEDELENKENATDLRGLEISRKEEKLSKREHYLEKKAEKLKEKENELDAR<br>SKTLKEREKTYKTEEKEMQNEKKKLEVERKEINNTKQELEKFKASLEEER<br>CHIVKEQQKLELTKNERDELLDLQTKLKEEIDDLRAQKQELLKEADELNV<br>EKEKFEREWEILDEKREQLRKELEWVDDERKKVPKWVKDEEERLKQEK |

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| | | | IVLREEIKRDAEGLRLEKEAFENSMQHQRAVLFAEVQRERADLLRDIEL<br>QSNELDNSIERRREELEKHYQDKELSFQKEKEKEIQYISAQRELLRKEIEEI<br>KSERQRFERERKEIATNQQHTEKEWSEMKKDIEELQIQREKLKEQRQSL<br>HKERQELQAQLVELNRIKDELKMTEESLKVSEQQLSQVNINDCEVISPG<br>HGISQVALRENILAVPQNATIEFNSGISPERTSASASTPSPLAWLQKCAS<br>RLFKQSPEK |
| Tnu1 | Torreya_nucifera | onekp:HQOM_scaffold_2018373 | PPRNSLDGNGRIPATAVAAEPEIWRRFREAGSLDHESLEIKDRAALVVH<br>INKLEAELYDYQYNMGLLLIERKEWTSKYEQMKLALAEVEENLKREQSA<br>HLVAISEAERREESLKKSLGVEKQCVYDIEKALHEMRSEVAELKFTSDNK<br>LAQAHEMVASTEEKALAAESKLHAAEALQAEASRKHAETERKLQEIEAI<br>ENAFRRDRQSFKSERDAHEVELSHERKNLLDWEKRLQDGQDRLLEGQ<br>RLLNQREDYTNQRDEALKQIEKELEDARKQIENDHATLKEKEADISVRL<br>ATLSTREENAFQREIVIDKKEQELLLLQEKLSNKENEEIQKLLDEHKAML<br>DARKNEFEDELEQKKISVEEELEKRRSTVELIEADINRKEEKINKREQQM<br>EKKAEKLKEKEKEVDARSKTLKEREKTYKNEEKEIEMEKKKLERE REEINN<br>EKQELQGVKISLEEEKQQIVNEQENLKVTEKERNELLKLQTQLKEEIENY<br>RARKQEVEKEAEELRLEKEKFEKEWEFLDEKREQVSKDLAQAEDEKKRI<br>LKWLRDEEERLKQEKSALRERIQSETELLSLEKEAFEASMQHERAEWLE<br>NIRREQADLVRDSELHRSDLENNIEKRQEEIEKLLQEKEIGFQKEKEREM<br>QRINAQRELACKEIEEMRLERHKLEKEKQEICTSREHAERQWAEIKKDI<br>DELQLQREKLKEQRESLHKEREEVLRLFEQLHKLKTELNFTEDGLDLIAN<br>KGRSNVRTGDVYGISQEALTQNIFGTPAAASAKFDPGPSSGRSFPSALG<br>TPSRLSWLQRCASKLFNKSPSPEKMVDATGQKEETDRSHTILKLLVQKV<br>KETGEIVVGLEIEPAFSADAHDAAVEMVKADQEQDINKSTHDLPSPSR<br>GNGRKSNDKSKIKVFKRTRSMKAVVEDARGILDNPSDKEKNESDDKQE<br>HQQNEAAVPDIREDKGGRADGDKTNSVQEIDESNRESLANDKRSSKP<br>GRKRRRGQSSRATSDQDADDSEIQSELAVGGRRKRRQQGTANGGSS<br>GLGTPGGKRYNFRHSTIASSVATQTLSMDVKEKGVTLPEDEETKNLRVS<br>SSDKVADDSHEASLDKTARVPSAQDSDNNIPPGEAECRPSCPDDGLED<br>VGEDLQGVSSHEPTKSETGDIYDESEEDGGGNGEDAFVDEIEDEEIDEL<br>DEDGDDDEEDNNSSLKKKIWNFLTS |
| Tnu2 | Torreya_nucifera | onekp:HQOM_scaffold_2007523 | ARELMAVTEEKSLAAESKLHAGEALQAEASRKHADAERLLQDVEARED<br>ELRRQRQAFKSECEAHDKELFFERQNLREWEKNLHEGQERLLEGQRLL<br>NQREEYLIERNEATKQIEKELQDVKRNAEKEQSTLKEKEADLRGRLVDL<br>TAREEALVKQEVIINKKEQELLVMQERLASREREEIQRLTNEHQAALEA<br>RKSVFEAELEQQRRAVDDELENKRNAADIRELEINCREEKINKREQVVE<br>KKAEKLKEKEKELEARSRSFKEREKLCKIDEKKIETQQKKLELERDEMNN<br>LKQVLEKSKAALEEERQQICKEQERLELTEKERDELRIIQIKLKQEIDNFRE<br>KEQELSKKYEVLNGEKEKFEREWEILDEKTEKLRKELEQVDDEKKRVSQ<br>WRKDEEERLKQERRMLREQIKNDEETLRLKKEAFASSKKQEEAELFAKF<br>QRERADLYRDIELQTSELENSIEQRREELERNYQERERAFQKEKQKEMH<br>YINAQKELSDKEFIDVKLERQRLDRERQEIATTREQIDREWSEMKTDIE<br>QLEIQRNKLKEQRELLHKERKEFEAQLGELKKLKEELKMTEDSLKLSEQQ<br>LSQANVNDYEAISPGHFDGGISQAAFRQSISAMPFNADGFCSEIHPGR<br>APASVSDTPSPLAWLQKCASRIFKKSP |
| Tta1 | Torreya_taxifolia | onekp:EFMS_scaffold_2015241 | MLTPKRRGGWPGWSPTSRSSPPADDKAVVGAEKMCAGGSSSGAGK<br>AAVEAPPRNSLDGNGRIPATAVAAEPEIWRRFREAGSLDHESLEIKDRA<br>ALVVHINKLEAELYDYQYNMGLLLIERKEWTSKYEQMKLALAEVEENLK<br>REQSAHLVAISEAERREESLKKSLGVEKQCVYDIEKALHEMRSEVAELKF<br>TSDNKLAQAHEMVASTEEKALAAESKLHAAEALQAEASRKHAETERKL<br>QEIEAIENAFRRDRQSFKSERDAHEVELSHERKNLLDWEKRLQDGQDR |

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| | | | LLEGQRLLNQREDYTNQRDEALKQIEKELEDARKQIENDHATLKEKEAD<br>ISVRLATLSTREENAFQREIVIDKKEQELLVLQEKLSNKENEEIQKLLDEH<br>KAMLDARKNEFEAELEQKKISVEEELEKRRSTVELIEADINRKEEKINKRE<br>QQMEKKAEKLKEKEKEVDARSKTLKEREKTYKNEEKEIEIEKKKLERERE<br>EINNEKQELQGVKISLEEEKQQIVNEQENLKVTEKERNELLKLQTQLKEE<br>IENYRARKQEVEKEAEELRLEKEKFEKEWEFLDEKREQVSKDLAQAEDE<br>KKRILKWLRDEEERLKQEKSALRERIQSETELLSLEKEAFEASMQHERAE<br>WLENIRREQVDLVRDSELHRSDLENNIEKRQEEIEKLLQEKEIGFQKEKE<br>REMQRINAQRELACKEIEEMRLERHKLEKEKQEICTSREHAERQWAEIK<br>KDIDELQLQREKLKEQRESLHKEREEVLRLFEQLHKLKTELNFTEDGLDLI<br>ANKGRSNVRTGDVYGISQEALTQNIFGTPAAASAKFDPGPSSGRSFPS<br>ASGTPSRLSWLQRCASKLFNKSPSPEKMVDATGQKEETNRSHTILPETA<br>GAESERVTGEIVVGLEIEPAFSADAHDAAVEMVKADQEQDINKSTHDL<br>PSPSRGNGRKSNDKSKIKVFKRTRSMKAVVEDARGILDNPSDKEKNES<br>DDKQEHQQNEAAVPDIREDKGGRADGDKTNSVQEIDESNRESLAND<br>KRSSKPGRKRRRGQSSRATSDQDADDSEIQSELAVGGRRKKRQQGTA<br>NGGSSGLGTPGGKRYNFRHSTIASSVATQTLSMDVKEKGVTLPEDEET<br>KNLRVSSSDKVADDSHEASLDKTARVPSAQDSDNNIPPGEAECRPSCP<br>DDGLEDVGEDLQGVSSHEPTKSETGDIYDESEEDGGGNGEDAFVDEIE<br>DEEIDELDENGDDDEEDNNSSLKKKIWNFLTS |
| Tta2 | Torreya_taxifolia | onekp:EFMS_scaffold_2013322 | AEVKFVSENKLAKARELMAVTEEKSLAAESKLHAGEALQAEASRKHAD<br>AERLLQDVEAREDELRRQRQAFKSECEAHDKELFFERQNLREWEKNLH<br>EGEGQERLLEGQRLLNQREEYLIERNEATKQIEKELQDVKRNTEKEQST<br>LKEKEADLRGRLADLTAREEALVKQEVIINKKEQELLVLQERLASRERE<br>QRLTNEHQAALEARKSVFEAELEQQRRAVDDELENKRNAADIRELEIN<br>CREEKINKREQVVEKKAEKLKEKEKELEARSRSFKEREKLCKIDEKKIETQ<br>QKKLELERDEMNNLKQVLEKSKAALEEERQQICKEQERLELTEKERDEL<br>RIIQIKLKQEIDNFREKEQELSKKYEVLNGEKEKFEREWEILDEKTEKLRKE<br>LEQVDDEKKRVSQWRKDEEERLKQERRMLREQIKNDEETLRLKKEAFA<br>SSKKQEEAELFAKFQRERADLYRDIELRTSELENSIEQRREELERNYQERE<br>RAFQKEKQKEMHYINAQKELSDKEFIDVKLERQRLDRERQEIATTREQI<br>DREWSEMKTDIEQLEIQRKKLKEQRELLHKERKEFEAQLGELKKLKEELK<br>MTEDSLKLSEQQLSQANVNDYEAISPGHFDGGISQAAFRQSISAMPFN<br>ADGFCSEIHPGRAPASVSDNPSPLAWLQQCASRMFKKSP |
| Vvi1 | Vitis vinifera | Phytozome 12 GSVIVT01031076001 | MELLSEIKKKNSVHVRLGFLFHLSLHSASPTLRVVEIVVMFTPQRKVWS<br>GWSLTPRSDAQKNAAGSGSNLSPRNGGVGDGSVSKGKSAAFVEPVT<br>PGENGGNMVERPGEVASDLEALVAKVSKLESEIFEYQYNMGLLLIEKKE<br>WTSKYDELRQALVDVKDALKREQDAHLVAMSEVEKREENLRKALGIEK<br>QCVLDLEKALHEMRSEYAEIKFTSDSKLAEANALVTSIEERSFEVEAKLH<br>AADAKLAEVSRKSSEIERKSQEVDARENALRRERLSFNAEREAHETTLSK<br>QREDLREWEKKLQEEEERLGEGRRILNQREERANENDKIFTQKEKDLEE<br>AQKKNEMTHLTLKKKEDDISGRLSNLTLKEKETDAVRQSLEIKEKELLEL<br>EEKLCARERVEIQKLVDEHNIILDAKKREFELEIEQKRKSLEEELKSKVVEV<br>EKKETEFNHMEAKVAKREQALEKKLEKFKEKEKEFESKSKALKEKEKSIR<br>AEEKNLEAEKKHILADKEDLLSLKAVAEKIRVEIEEQKLKVHEEREQLEITE<br>EERVGNIDELVSLSRKLKDQRELFSKERERFIAFVEQQKSCKNCGEITCEF<br>VLSDLQPLPEIENMTPGIVGSGSPTSGGTISFLRKCTSKIFNLSPGKKIEV<br>AAIQNLTEAPEPSRQAIVEPSKRLGSTEDEPEPSFRIANDSFDVQRIQSD<br>NSIKEVEAGQDLSIDESNIDSKALELQQHSQHSDLKGARRKPGKRSKQR<br>IHRTRSVKAVVRDAKAILGESLELKSSFADKGTPRNGRKRQRAYTSQTM<br>VSEQDGDDSEGRSDSVMARRQGKRRQKVPPAVQTLGQERYNLRRPK |

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| | | | TTVTVAAAKSSTNLHKRKETETDGSGAGGTGEEIPDCNAAPATSVGLIS<br>ENGGSTHVLQLEAAEDTQDDNADVTKELVENMALSEEVNETPDEGP<br>MEYNDEDEEYEHPGEVSIGKKLWTFLTT |
| Vvi2 | Vitis vinifera | Phytozome 12 GSVIVT01007428001 | MASPQPARFSIAATPGSRVLQSPLSDDAIWKRLRDAGFDEESIKRRDK<br>AALIAYIAKLEAEIFDHQHHMGLLILERKEWATKYEQIKTEAESAEIVYKR<br>DQSAHSSALAEARKREDSLKKALEIEKECIANLEKALHEMRQECAETKV<br>AAEIKLAEAHSMVEDAQKRFVEAEAKLHAAEAFQAEAICFRRTAERKL<br>QEVEAREDDLRRRLISFKSDCDEKEKEIILERQSLSERQKNVQQGQERLI<br>DGQALLNQREEYIFSRSQELNRLEKELEASKSNIEKELRALNEEKSNLELK<br>LASLTTREEDVVKREALLNKKEHEILILQEKIASKESDEVQKLMALHEIAL<br>KTRKAEFEAELETKRKLVEDEIEAKRRASELREVDLSNREDFALEREHELE<br>VQSRALAEKEKDVTEKLNSLDEKEKYLNAAEKDVELEKIHLEKEKEEINK<br>MKLNIEKSLSSLEDKKKQVDHAKEKVEAMKSETSELLVLEMKLKEEIDVI<br>RAQKLELMAEADELRAQKANFEAEWESIDEKREELRNEAERIAEERLAI<br>SKFLKDERDSLKLEKDAMRDQYKQEVESLSREREDFMSKMVHERSEW<br>FSKIQQERADFLLDIEMQKKELENCIDNRREELESYFKEREKTFEQEKMK<br>ELQHISSMKERVAKELEHVASEMKRLDAERMEINLDHERRDREWAELS<br>NSIEELKMQRQKLKKQRELLHADRKEIHTQIEHLKKLEDLKIASDNIALA<br>EMQQSNQEPSQRKVYVKRYYKAQNTIPNADFESHQKINVVKNGSGF<br>NLPALPDSSSPSTATPFSWFKRCAELIFKLSPEKPSIKHGEKSSISNSENA<br>NLTLAGNLDLSDGFDREVHDRNEKTHSISDRQPTRYALGEPKVILEVPS<br>SGEDVKGLHTLESEIKKDTSENSSHSFSEKELLAGRKRRVVNSSSNDWV<br>DTTLEQRQKNKKRRQQESAADPCGVSIQSDAREGQDVSISLNQTQGG<br>AEETNLLITDEIIKISEVTCENVVFDNQAKPNALQNSVVELGQDIQHGG<br>TNGLADSNAENCVLSSDFKAQEKIGKEVLFVDVGQVIEHSQPQDESISE<br>KSQQELQEQGVPKSDDDKKLSEKVGRRMRSRQKS |
| Vvi3 | Vitis vinifera | Phytozome 12 GSVIVT01011972001 | MFTPQRKAWTGLSLTPRSEAQKSGGGAVSNPVNGGKGKSVAFVDGP<br>PPPLGSLSGKAMLTGIDGGDMEDWRRLREAGLLDEAAMERKDREAL<br>VEKVSKLQNELFDYQYSMGLLLIEKKEWTSKYEELSQALAEAQEILKREK<br>SAHFIAISEVEKREENLRKALGVERQCVAELEKALGEIHAEHSQIKLSSET<br>KLSDANALVAKIEKRSLEVEEKLLAADAKLAEASRKSSELERKLQEVEARE<br>SVLRRERLSLNAEREAHEATFHKQKEDLREWERKLQEGEERLCEGRRII<br>NQREEKANEIDRTLKLKERNLEEAQKKIDLDSLNVKVKEDDINNRLAELT<br>VKEKQAESMRGILEVKEKELIVLQEKLSARERVEIQKLLDEHRAILDTKK<br>QEFELEMEQKRNSVDEELRSKVHEVEQKEVEVLHREEKLGKREQALEK<br>RLERVKEKEKELEAKLKTLKEKEKSLKAEEKRVEGEKKQMLADKESLHLL<br>KDELEKIRADITEQELQIHEETERLKVTEEERSEHHRLQLELKQEIDKCRH<br>QEEMLQKEREDLKQERIMFEKDWEALDEKRAVITKEMREIGDEKEKLE<br>KLHLSEEERLKKEKLAMEEHIQRELEAVRIEKESFAAIMKHEQLRKRDLEI<br>EMQNRQDEIQKRLQERERAFEEERERELNNINHLKEVARREIEEMKTE<br>RRRIEKEKQEVLLNKRQLEGHQLEMRKDIDELGILSRKLKDQREQFIKER<br>DRFLTFVDKHKTCKNCGEITREFVLNDLQLPEMEVEAFPLPNLADEFLN<br>SPQGNMAASDGTNVKISTGEIDLVSSGSDELEPSFGIANDSFDIQQLHS<br>DSVMREVDGGHAQSVDGVSNMGSKEQEGPEDSQQSELKSGRRKPG<br>RKRRTGVHRTRSVKNEGERETSHAEKAASTITRKRQRAPSSRITESEQD<br>AADSEGRSDSVTAGGRGKRRQTVAPVVQTPGEKRYNLRRHKTAGTVA<br>TAQASANLPKRDEKGGDGGDDNTLQTKANPKAASSPSLADSDNPKTT<br>PLVHVTTLKSVEIREYSPDRVVRFKTVDIVGGNNDSARLAENMELRQEI<br>PGNPGDTPGYEDENGSMSHEEDDNSDEDESEHPGDASIGKKLWNFF<br>TT |
| Zma1 | Zea mays | Phytozome | MFTPQGKGWTGWSTPTPANQRSGGGAPAASAPLGKGKGRVAELEQ |

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| | | 12 GRMZM2G015875_T01 | ELHEYQYNMGLLLIEKKEWAAKFEEISEVLTQKEEILKREQAAHLNAISE YERREENMRKALGVEKQCVADLEKALRDIRAEIAEVKFTSEKKITDAQSL EASLEEKSLEIEGKLHAADAKLAEANRKKSQADRDLEEAEARQRRLEKE KLYFETERKAREKQLKEQEESLQEWEKKLKESQNRLNELQRSINEREER ANKNDQLFKIKQDELEEARRTVEAAKVTLKVKEDDINKRLNELHLQEKD ADSKRSALEEQGKKLDEREAKVTNREKEGLQKLLEDHQVELESKRRDFE LELERERKSFDQNMTQKQADLLKREKDVKSLEAKLSKSEQALNDKKKS MENLQNDLDAKSKALKSWDESLKNDEKRLLKEKQQMDHEREQLETYK LELEKIKSALEAEKEKISEEQNNLKLTAQERQEHSLLIAKLKKEIEEYRMRS NSLSEEMEDLRKQRQKFEEEWEQLDEKRALLVEEDKRLNIERMNLER WRDNEEKRLNDMKLKMDEEYKQQLESLERKEKALSDDMKHKQMEN DEFLKGERADVQRKLQLKRHELEMEMEQKQATKEKELEEKENELNKKI DFVENKLRHAIELNESKIEKLLLEKREVQMERELLLEERKKTETDKADIRR DIESLHSLSKSLKERREAYNRDRSRLIELFEKYKACKNCGISIFEGLDSLLLK DSAEIEHPSLAVEGDDHALTTDTSGPDTGTLVNSGGRFSLLQKCSRLFK FSPRKKGEQSSEQPSERNISFGARLEEATQSDGDYVPTPVYEIAHDSFN AEDELPSDGETRENEESERHDIADNAQMESSVGVADNSIDILGTKSFD GANDMAVEATIVSVDQNGEDSVVPAEAGVEPETSEQGRRQQNQRG RRKGGMKRTRSVNAVVEDAKMILGEVFEEKTDDQGDTVKVGATRKR RFAGATISEQDEEGSEAHSESVSLGGQRRKRRQTAGAVTDAPGERRYN LRHSRAANAGAATAQADKKKSSKARNKHTVEASADDTEGTSKVVEEP APESKRVSESADYDASQLHEFSQVEVGDAHAVDGEGAGEEDGDILDG QDALPDVPMTPSGSEFGAEQEDEDDDDSERRNQSISKKLWSFFTT |
| Zma2 | Zea mays | Phytozome 12 GRMZM2G320013_T01 | MASPRSAGGDEAIWMKLREAGFDEDAVRRRDKAALIGYISRLESEIYEY QHNLGLILLERKELTSKYEQLKASFEATEIILKRERASQQSALSETRKREE NLKKNLAIQKECISNLEKALHDMRGETAEIKVSYEAKLAESLQMMETA QKKFDEAEEKLLTAKSLEADCIRTRNTSLRRLQDIEDREDQLRRYQTSFE LENASKEKEINLLRKSLDDTKKILHEKEQCLLKEQVLLNQRDDSILERLAYI TSSEKRLEEEKLNLEDERKVLLEEKNKLDLNMQAIISREEAIIQKESILDKR ESELLILQETIASKERAEIERLRQEEEIALVRRRQEFDTDMEIKLTSFEEEID ARKALLDQRETTINEKEDAVAQREQNLNLRFAELANKEESLVKKSDELR EEEKRLSSERETLHIDLQKEKEEIHNMKLDLEKEKSFFEEEKREAIQAQEN LAITQNEREDLQSLQVKLKDEIDSLRAQKVDLMADAERLLSEKERFEIE WELIDEKKEELQKEAARIAEERRVIDEHLKSEFDIIKQEKEDLRVQLKISTE SLAHEHAEFMNKMQQEHASWLSRIQLEREDLKKDIDIQRTELLNSAKA RQMEIDSYLREKEEEFEQKKSKELEYINSEKETISSKLEHVRLELQKLEEER KRSMLERERREEELSETKKTIDALNEQREKLQEQRKLLHSDRKSITQQM QLLNELEELKIESENRQLSLRQCGKSKHAGVENLEDNGVHLSPDEDQN ASPKQTTVKKLEVSPSVSTPISWVKKCAQVIFKRSPEKSADPNNDIPPKL GNVNDCTSLATAYSDGLFACHLENGAEKVPQAIDGLKVGKKRLNNALS HGDSEISQPKRKQQKSATQILRVIGGEIDSNCSPSVLEEKCSKNEHDAV PVGLCGKGPQNPQAEHSEDISVSASEPSNGPGVVDSEDKDGADEESD DEGEDEEEEKTSSAKKLWRFLIT |