

Arabidopsis -----MEEEKVRVRLVFE**DR**ILSKY**Q**KK**Q**GLTRSWVVL**NR**CK**HR**TISEFSDH 48
 Brassica -----MAEETVRIRLVFEN**QR**ILSKH**Q**KK**Q**GLKRSWAVL**NP**KY**HR**TVSEFSNH 48
 Ricinus -----METVRLRLVFD--**Q**ILSKV**Q**NT**Q**GLKRCWILL**KP**Q--**H**QTISDLSSY 43
 Populus -----METVRLRLVLD--**N**ALT--**T**TTEGLRKCWILL**KP**Q--**H**KTISDLSSH 41
 Vitis -----MAMETVVRVRLVLEDPDLL**LN**KT**Q**NSEGLRRSWLL**LK**PQ--**H**KTISDLSSY 47
 Medicago MVTESDKTATLTMMSNKVRLRL**LF**DD**R**N**M**LSK**S**KK**E**GLKCCW**F**LL**K**PH--**L**TTISDLASH 59
 Brachypodium -----MATPPAPSPVRLRL**LF**DN**R**RL**R**RA**Q**R**D**D**G**LRRCWLL**L**R**P**E--**L**ETVADLSAH 51
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Arabidopsis IFHTFSLCEACPHGLSLSMEGFVLP**PF**ESS**CV**LKDKD**I**VCV**KK**KKESLLEIVGEDSDEN- 107
 Brassica ILYTFSLFEACPHGLSLYMDGFVLP**PF**ESS**CV**LKDKD**I**VCV**KR**KK**E**P**L**LEIVGEDSEEN- 107
 Ricinus LLNVFN**LQ**NHCPHGL**LL**LM**E**GFAL**P**GF**E**CTSILKDK**I**IRVEK**NG**GV**S**SEI**V**MVGDD**V**NN 103
 Populus ILQVFDLHNACPSGL**F**LS**M**EGFVLP**PF**ES**T**CILNDK**D**I**V**R**V**IK**D**GT**A**TE**I**IKID**D**GLND 101
 Vitis LLRIFNLHDFCPNGL**LL**SMDGFVLP**S**F**E**STC**I**LKDK**E**IS**V**KR**K**GG**A**VID**L**LE**V**GD**E**T**N**C 107
 Medicago ILAVFRLHRNCPDGITLSMDGFVLP**S**F**E**STC**I**LKDK**D**I**V**CV**KK**GS**M**L**T**GS**K**P----- 112
 Brachypodium VAARFRLRRSCPHG**I**V**F**SMDGFAL**PF**ES**T**C**I**FRDK**D**I**R**V**K**Q**K**--**S**CK**N**I**V**H**H**NA**V**H**C**I 109
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Arabidopsis VYNAI**E**VEER--**P**QIR**P**G**E**ML**L**AN**E**EF**Q**ETGGY**E**SESE**E**DE--**L**EE**E**-----**A**EE**F**V**P**E**K** 159
 Brassica VCAAI**E**IEERRAR**I**CPDA**V**L**I**G**N**E**E**----**T**GGY**E**SESE**E**E-----**E**E**I**V**P**E**K** 150
 Ricinus ALE**V**VE**I**ET**Q**PL**V**TT**G**M**N**LLAN**E**EF**E**KE**S**GGY**Q**S**D**E**E**ED**V**P**K**Q**E**E**A**--**V**H**V**EN**A**SE**V**K 162
 Populus LLNV**V**E**I**ID--**K**PP**V**TT**G**T**N**LLAN**E**EF**E**KE**S**D**S**Y**E**SE**Q**E**V**D**V**AA**E**VED-----**V**EN**S**P**E**V**K** 155
 Vitis **S**E**D**E**A**I**V**EN--**Q**H**I**HR**G**V**K**LLAN**E**EF**D**KE**T**GGY**E**SESESE**E**DE**P**D**Q**PEE--**T**V**Q**VE**T**AS**A**GN 163
 Medicago --**A**ML**P**S**E**TH**E**N**Q**L**I**EL**P**KL**L**A**I**EG**F**Q**E**K**R**E**E**Y**E**T**I**SE**D**DD**D**D**N**D**Q**S**E**D**V**V**N**VE**S**KL**D**GN 170
 Brachypodium **Q**E**P**E**I**VE**K**R**P**L**P**T**D**E**K**I**L**A**I**E**Y**Q**M**D**C**G**K**H**Q**E**E**V**H**C**E**Y**Q**SE-----**N**AT**S**N**Q**D 157
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Arabidopsis **K**AS**K**R**K**T**S**S**K**N**Q**S**T**K**R**K**K**C**K**L**D**T**T**E**S**P**D**E**R**E**N**T**A**V**V**S**N**V**V**K**K**K**K**K**K**S**L**D**V**Q**S**AN**N**-- 217
 Brassica **K**T**S**K**K**R**P**-----**R**F**K**K**R**A**M**S**P**D**E**----- 168
 Ricinus **T**I**S**K**K**R**K**A**M**K**D**L**K**S**P**K**R**K**K**T**S**A**R**A**E**K**H**A**A**V**L**E**D**M**G**N**N**V**T**G**E**Q**N**G**T**S**C**T**P**K**F**D**E**R**S**---- 218
 Populus **A**V**S**K**K**R**K**A**S**K**D**A**H**S**P**K**R**K**K**T**S**A**S**A**K**K**C**V**E**V**S**E**N**V**T**D**V**S**A**E**Q**N**G**T**L**G**I**D**V**D**E**R**S**G**K**S**R** 215
 Vitis **A**G**S**K**K**R**K**A**S**R**K**L**K**S**P**K**R**K**N**K**Y**T**R**L**E**K**C**P**V**L**E**D**V**E**N**G**V**C**E**E**Q**T**K**S**C**D**D**C**T**A**L**P**K**G**S**L**K** 223
 Medicago **A**T**S**K**K**R**K**A**S**K**L**K**S**P**S**K**K**I**K**M**S**T**T**E**N**L**A**D**I**P**E**A**H**E**E**E**N**G**S**V**K**D**C****T**H**R**K**A**S**L**A**K**K**D**I**G**-- 228
 Brachypodium **T**S**S**K**R**K**Q**R**D**G**D**A**G**R**P**E**S**L**K**R**K**L**K**V**T**P**D**N**V**C**Q**D**R**V**H**C**S**S**N**N**S**K**P**S**T**I**D**A**E**A**K**K**G**A**S**--- 214
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Arabidopsis -----**D**E**Q**N**N**D**S**T**K**P**M**T**K**S**K**R 233
 Brassica -----
 Ricinus -----**E**S**S**K**A**L**S**K**A**K**R** 229
 Populus **K**A**M**R**D**T**K**K**R**K**K**T**S**A**S**A**E**K**C**M**E**V**S**E**N**V**T**S**V**C**A**G**Q**N**G**T**L**S**F**F**K**A**D**E**R**S**S**K**S**T**E**A**T**I**N**A**Q**K 275
 Vitis **K**H**K**S**S**N**V**N**G**K**P**D**K**A**R**T**L**N-----**I**D**E**R**S**N**D**V**D**E**S**S**P**N**A**K**R** 258
 Medicago -----**K**S**S**T**L**S**C**Q**K** 237
 Brachypodium -----

Arabidopsis **S**S**Q**--**Q**E**S**K**E**H**N**D**L**C**Q**L**S**A**E**T**K**----- 254
 Brassica -----**L**C**I**M**S**A**E**T**K**----- 177
 Ricinus **I**S**Q**P**Q****E**N**G**D**A**S**V**D**A**S**P**S**T**S**G**T**K**----- 251
 Populus **S**C**Q**P**E****Q**N**G**N**G**S**V**D**A**S**H**I**L**S**G**S**K**K**V**L**I**Y**H**F**T**E**H**M**A**N**I**C**V**F**N**S**E**M**C**C**S**L**S**L**R**N**W**V**K**L**S**M**M**L**G** 335
 Vitis **C**G**E**L**Q****E**N**G**S**Q**G**V**E**V**A**N**P**D**G**T**Q----- 280
 Medicago **N**D**K**S**G**S**T**S**E**E**T**R**S**L**Q**P**Q**D**E**G**E**P**K**----- 260
 Brachypodium -----**Q**A**E**G**I**V**R**L**D**E**K**Q**K**T**D**S**V**C**T**----- 233

Arabidopsis -----**K**T**P**S**R**S**A**R**R**K**K**A**K**R**Q**W**L**R**E**K**T**K**L**E**K**E 281
 Brassica -----**K**L**Q**Q**N**----- 182
 Ricinus -----**K**L**P**S**R**S**A**R**R**K**Q**A**K**R**R**W**L**R**E**K**L**R**A**E**R**K**E** 278
 Populus **V**L**Q**V**V**P**V**D**Q**G**A**Q**A**R**G**Y**W**P**P**Y**A**S**N**D**S**N**T**C**I**S**L**S**C****Q**C**P**S**R**S**A**R**R**K**K**A**K**R**H**W**L**K**E**Q**L**K**A**E**K**K**A** 395
 Vitis **K**Y**P**S**R**S**A**R**R**K**K**A**K**R**K**W**L**R**E**L**A**K**V**E**K**K**E** 307
 Medicago -----**K**L**P**S**R**S**A**R**R**K**K**A**K**R**K**W**L**R**E**L**K**L**K**E**K**E**K** 287
 Brachypodium -----**S**C**Q**S**R**S**A**R**R**K**L**K**R**Q**L**K**K**K**A**K**E**L**K**E**N** 260
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Arabidopsis LL-----QTQLVVAPSQKPVITIDHQATKEK-----HCETLENQQAEVSDGFGDEVVVP 331
 Brassica -----MQMVVAPSKKPATITIDHQEETEN-----RSEALEKQQPDEQDQDGVREVV-- 228
 Ricinus QS-----SQTLAEEKGNNGVFEELPESGG-----EEPQEDDQQPKDSDLEDD-IVPI 324
 Populus QNKR-----ELLLNINQOSSEKLNQNVSGESPEPGSQKTSEEKLRDNQLGERDSDVEGD-VVVP 454
 Vitis MH-----OROSPEKEVQ-----KNSLEHQQPDQNSDITDDAIVVPI 342
 Medicago EKE-----KENENEKDKLHPSQVLEKDDQQIPIKDNNGKVSQVDRQQSNEESEADDDMVPV 342
 Brachypodium GHCQ-----EPPIAADCPPSSNQDDLCPSSNQKDPHLPFSSHEAEAESEETADDIVPV 315

Arabidopsis EVRPGHIRFKPLAG-----TDEASLDSEPLVENVLWNGNMTKKKGQKQWGTEK-SGFSKR 384
 Brassica -----VPVEESFLWNGNMTKKKGQKQWGTEK-TGFSKR 259
 Ricinus VIRPGHIRFEPLSK-----AGANQAEQOOTHIPVEIFHWNGITSKKKGQKQWGKEKATSYKRN 380
 Populus VIRPGHIRFEPLKKGLMLGSDSHAVPQNHVSIERFQWNGITSKKKGQKQWGKEKVVSCRRN 514
 Vitis VIRPGHIRFEPLGK-----DQTIQQNPVSVETVQWNGTTSKKKGQKQWGKEK-MSCRRN 394
 Medicago EIRPGHIRFQPRGK-----DLAAPENQLPVDTFQWNGTTSKKKGQKQWGKERTSSHKQD 395
 Brachypodium VVRPGHIRFEPAGIS-----RERSTSSAKEIQGTFTWSGTMSKKKGQKQWGMNNSNKKKSD 370

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Arabidopsis YAQDFNED-ATTQPA----- 398
 Brassica YAWDLNDTYHQTPA----- 274
 Ricinus DHRNVS-QECSEVRK----- 394
 Populus DYNMFKKESSYSSLTI----- 529
 Vitis DYKDFNQQHSETFAV----- 409
 Medicago DYEPSSQDGHAAQWRGTVSKKDPKWKERTSSHKQNDYEQSSQDGRTVQWSGTASKKKDQ 455
 Brachypodium IGHVGVKAVAGTNTTEVNHLVLDLSDKNEENGFCG----- 400

Arabidopsis ----- 515
 Brassica -----
 Ricinus -----
 Populus -----
 Vitis -----
 Medicago IWGKGWTSSHKQDDHEQSSQDRPTVQRNGTISKDQKQWGKEK'TSAHKHDHEQSSQDRPTVQ 515
 Brachypodium -----VS 402

Arabidopsis -----EAETLAN-----CPIDYEQLVAYTGSVKK 422
 Brassica -----EAETLAN-----GQIDYEQLVAYTGSVKK 298
 Ricinus -----DGGRPVY-----DRVDFEKLEFYTTLPKE 418
 Populus -----EEQTPVY-----DCTNFEEFPLYASLPKE 553
 Vitis -----EEGTPPK-----DPMDFDKLPLSTSSPKE 433
 Medicago WNGTISKDQKQWGKEK'TSAHKQDDCEQSSQDRPTDQNAGKKRTFDVDFEKLTPYTDLPE 575
 Brachypodium NQIVESHHDVLLREKTHAEEG-----KSISESMDFDSLYPLTRLPE 444

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Arabidopsis GDVIAYRLIELTSSWTPEVSSFR-----VGKISYYDPDS 456
 Brassica GDIIAYRLIELTSSWTPEVSSFRVKFLTLFEPVDQSKYLSRLRYVHLLVGKISYYDPVS 358
 Ricinus GDVIAYRLIELSPSWTPEISSYR-----VGKISRYDMQS 452
 Populus GDVIAYRLVELSSSWTPELSSYR-----VGKVS KYDLES 587
 Vitis GDMIAAYRLIELSSTWTPELSTFR-----VGKISSYDPES 467
 Medicago GNVIAAYRLIELSESWTPELSSFR-----VGKTTQYDSKS 609
 Brachypodium GDLIVYRLVELSSSWCPPEISSYR-----VGKVLIIYDLIS 478

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Arabidopsis KMTLMPVQEFPIEK-KTEEDDDFCMQ---PDTSLYKEDG---SLEIEFSALLDVRVSVK 508
 Brassica KMTLMPVQGYPIEK-KIEEDDDSSMQ---ADTSLYNEDG---SLEVEFSSLLDVRVSVK 410
 Ricinus NRVLVVPVPGYPVTH-KETGDDASAAP---SETIPYAKDG---SLWIEFASLIEVRLVT 504
 Populus NIVMLAQVPEYPVIP-EKIDDEASDAL---PETSPYQDDGSLEVGVSIKFSALFEVRLVH 643
 Vitis NKLILISVPEPIVA-ETRIDEDASALEPDPDTSLYREDG---SLEIDFSSLLDVRRIK 522
 Medicago NRIWLQPVSEFPFDWFKIDDMDDEDGSPSQSDPSYQEDG---SLEIDYASLADVRIK 665
 Brachypodium MRIILLPVPEYPIIKEETAGEDESDMP---VDMSPYSEDG---SLEIEYSSLLDVRLLK 531

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Arabidopsis TSSSDSAEVAKSA---L-PEPDQSAKKPKLSAN----- 537

Brassica TSSSDVVEVAT-----KPDQAATNLKLTNS----- 436
 Ricinus RGNSNSVKSVAGEIDKV-PVRDQDNRTGCRSNN----- 536
 Populus HGNIKSAKSVTGGGSNEV-HVRDQDSGTGFKLNN----- 675
 Vitis SGNSHLEKAVTAR-VEA-PVDTQDAVSGVKPNNKNSGMSTSLPGGELNITQVSVAGVEHN 580
 Medicago HGHSDLATVVAHSDAFVTPTKATNNSTDEKPADN-----ETAAGSSK 707
 Brachypodium GSESVSTAVSTPIRETGKKGESLVKQPVTLDKNK-----GVIHSQ 571

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Arabidopsis --KELQTPAKENGEVSPWEELSEALSAKKAALSQANNGWNKKG-SSSGGSWSYKALRGSA 594
 Brassica --NGLQTTVKENGKGNPWEELSEAVSAKKAKLSEANNGWNKKGKSSSGGSWR----RGGG 490
 Ricinus -GNESHVSAQENGKGNAWEEISEALNAKKAELAQEDN-WNKPG-SSGRRPWSYKALRGSA 593
 Populus -NHEAGTSAQENGKHNPEETNQALTAQKAWLSQEDS-CKKPE-SSGRSPWSYKALRGSA 732
 Vitis INREMTAPPPEKGVNAWDEIDKVLSAKKAQLSQEDG-SSKKE-SPGRSPWSYKALRGSA 638
 Medicago PQIEGHVTAKENGEVNVWDEINEALKAKKTRLSQEDR-WKKEGDSSENRSWSQRALRCSA 766
 Brachypodium TEPLVPNNTKDPEANKIWDESIESLSDKPDEVQENGWGTWKPN--SSTSAWSYRAQRSTA 629

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Arabidopsis MGPVMNYLRSQKEI----- 608
 Brassica IGPLMNYLRSQKEI----- 504
 Ricinus LGPTMALLRAQNEL----- 607
 Populus LGPTVALLRAQNEL----- 746
 Vitis LGPTMSFLRAQNNF----- 652
 Medicago LGPTMALLRSQNGFKK----- 782
 Brachypodium LGPTLALLRGKNGKGGKAKPPNRKYGK 656

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