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Btau\_rhodopsin 1 MN--------------------------------------GTEGPNFYV----------------------PFSNK------- 16

Craj\_UV2-anc 1 MHLTN----------------Y--S-VKFP-------------------------EAR--VM---D---SGHQLIAWNVPAAD 31

Adif\_UV2-anc 1 MVWSVSLSAVANPPTMMRLINW--T-DHTIL--A---------------------EPR--IM---E---SR**P**GSMEWNISPEN 49

Craj\_UV1-der 1 MKEMM--------------FNG--TFLDGPL--P---------------------QAR--VL---S---EERRLLGWNVDNSD 36

Adif\_UV1-der 1 ML-----------------LNW--TAIDRPL--P---------------------QLG--GD--SG---HE**V**RLLGWNIPPSE 34

Focc\_UV 1 MEYPESAD-C---------SNG--T-AWLPV--A---------------------EARIGSGVSGP---SEQRLLGWNVPPDE 44

Dcit\_UV 1 MESDFY-------------LND--T-SIGPVALARVAAQQSFSVNEKLFVPIFSPRVAAQQSF-SV---NGKRMLGWNVPPED 63

Pcel\_UV 1 ----------------------------------------------------------------------------------- 0

Apis\_UV-anc 1 MSPTLIMD-----------FNR--T-VSRPL--A---------------------QLG--LME-NE--VGE**T**HL**L**GWNLQ**A**ED 41

Rmai\_UV-anc 1 MSPTLIMD-----------FNR--T-VSRPL--P---------------------QLG--LME-NE--VGE**T**HL**L**GWNLP**A**ED 41

Mper\_UV-anc 1 MSPTMIMD-----------FNR--T-VSRPL--Q---------------------QLG--LME-NE--VGE**T**HL**L**GWNLP**A**ED 41

Sfla\_UV-anc 1 MFPALIMD-----------FNR--T-VSRPL--P---------------------QMG--SAD-DA--GGE**T**HL**L**GWNLG**A**ED 41

Cced\_UV-anc 1 MMM---MD-----------FNR--T-VSKPL--P---------------------ELG--LLE-NEPGETG**R**QL**L**GWNLA**A**ED 40

Apis\_UV-der 1 MD-----------------FNR--S-VSRPL--S---------------------QLGSSFME-NE---EE**L**QL**M**GWNLT**P**ED 36

Rmai\_UV-der 1 MD-----------------FNR--S-VSRPL--S---------------------QLGSSFME-NE---DE**L**QL**M**GWNLT**P**ED 36

Mperi\_UV-der 1 MD-----------------FNR--S-VSRPL--S---------------------QLGSSFME-NE---DE**L**QL**M**GWNLT**P**ED 36

Sfla\_UV-der 1 MD-----------------FNR--S-ISRTL--S---------------------QLG--FME-EE---PE**L**HL**M**GWNLT**P**ED 34

Cced\_UV-der 1 MD-----------------FNG--S-VLRPL--P---------------------QLG--PMD-ND---EE**A**HL**M**GWNLT**P**ED 34

Ncin\_UV 1 MEFFNGAS-----------YNTSS-----PVAMA---------------------RMG--LG---A---GAPRMLGWNVPTED 38

Evit\_UV 1 MEVFDGAN-----------YNASAA-LFQPQALP---------------------RLG--M----P---NGVQMLGWNVPTEE 41

Monu\_UV 1 MEYLSGAD-----------YNASAA-LFQPQALP---------------------RLG--M----P---NGVQMLGWNVPTEE 41

Nlug\_UV-anc 1 MEAFGGANNC---------PNG--T-VWGPQ--A---------------------S----F----R---TA**Q**RSLIWNVP**T**DE 37

Lstr\_UV-anc 1 MDVFGGAKNC---------PNE--T-VWGPQ--A---------------------S----F----R---TA**Q**RSLIWNVP**T**EE 37

Sfur\_UV-anc 1 MDVFGGAKNC---------PNE--T-VWGPQ--A---------------------S----F----R---TA**Q**RSLIWNVP**T**EE 37

Nlug\_UV-der 1 MEVFRGASDC---------PNE--S-VWGPQ--V---------------------S----F----R---TA**E**RTLIWNVP**L**EE 37

Lstr\_UV-der 1 MDVFGGAKNC---------PNE--T-VWGPQ--V---------------------S----F----R---TA**E**RTLIWNVP**L**EE 37

Sfur\_UV-der 1 MDVFSGAKNC---------PNE--T-VWGPQ--A---------------------S----F----R---TA**E**RTLIWNVP**L**EE 37

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Btau\_rhodopsin 17 TGVVRSPFEAPQYYLAEP----WQFSMLAAYMFLLIMLGFPINFLTLYVTVQHKKLRTPLNYILLNLAVADLFMVFGGFTTTLY 96

Craj\_UV2-anc 32 --L----EHIPEHWLKYPAPEASLHLLLGLLYIGLFLMSILGNGLVLWIFSSAKCLRTPSNMFIVNLAFCDFVMML-KTPIFIY 108

Adif\_UV2-anc 50 --I----PYVPEHWLKFPPPEMSLNLLLGLLYIVFFFMSIIGNGLVIWIFSTAKSLRTPSNMFVVNLAFLDFVMML-KTPIFIF 126

Craj\_UV1-der 37 --L----VHIPEHWLKYPEPEASIHFLLGLLYILYFLMSTIGNGLVLWIFSSSKSLRTPSNLFVVNLAFCDLIMLL-KAPLFVY 113

Adif\_UV1-der 35 --L----VHIPEHWLKYPEPEASLHFLLILLYLICFLLSTVGNGMVIWIFSTAKSLRTPSNMFVVNLAVLDFIMLS KSPLFIY 111

Focc\_UV 45 --L----PHIPTHWLVYPEPDPLINYGLGVLYCFFFFFAVMGNGIVIYIFLTSKNLKTPSNIFVVNLAICDFVMMA-KTPIFIY 121

Dcit\_UV 64 --R----FRIPEHWFQYEEIDPMYNYVLGCLYIVFTIFSICGNGMVIWVFIAAKSLRTPSNIFVLNLALMDFMMMV-KTPIFIY 140

Pcel\_UV 64 ----------------------MNNYILGSLYCVFCAVSLIGNGLVIWIFLTAKALRTPSNLFVVNLAIMDFVMML-KTPIFIY 161

Apis\_UV-anc 42 --L----IHIPEHWLKYQEP**S**SLQHYYLAFMYTI**F**MFVALFGNGLVIWVFCVAKPLRTPSNIFVINLALCDF**V**M**M**A-**K**API**F**IL 118

Rmai\_UV-anc 42 --L----IHIPEHWLKYQEP**S**ALQHYYLAFMYTL**F**TFIALFGNGLVIWIFCIAKPLRTPSNIFVINLALCDF**V**M**M**A-**K**API**F**IY 118

Mper\_UV-anc 42 --L----IHIPEHWLKYQEP**S**SLQHYYLAFMYTI**F**TFVALFGNGLVIWIFCIAKPLRTPSNIFVINLALCDF**V**M**M**A-**K**SPI**F**IY 118

Sfla\_UV-anc 42 --L----IHIPEHWLKYEEP**S**ALQHYYLAFMYTI**F**TIIALVGNGLVIWIFCISKSLRTPSNIFVINLALCDF**L**M**M**A-**K**API**F**IY 118

Cced\_UV-anc 41 --L----VHIPDHWLNYQEP**S**SLSHYYLAFMYSI**F**TIFALVGNGLVIWIFCVAKPLRTPSNIFVINLALCDF**C**M**M**A-**K**API**F**IY 117

Apis\_UV-der 37 --L----THIPEHWLSYPEV**R**SLYHYILAFSYTI**L**FCLGVIGNGLVLWIFCVSKPLRTPSNLFVLNLALCDF**S**M**V**L-**V**LPI**L**IY 113

Rmai\_UV-der 37 --L----THIPEHWLSYPEV**R**SLYHYILAFAYTI**L**FSLGVIGNGLVLWIFCVSKPLRTPSNLFVLNLALCDF**S**M**V**L-**V**LPI**L**IY 113

Mper\_UV-der 37 --L----THIPEHWLSYPEV**R**SLYHYILAFAYTI**L**FCLGVIGNGLVLWIFCVSKPLRTPSNLFVLNLAMCDF**S**M**V**L-**V**LPI**L**IY 113

Sfla\_UV-der 35 --L----IHIPEHWLSYPEV**R**SIYHYILAFMYSI**L**FSLGVIGNGLVLWIFCVSKPLRTPSNLFVLNLALCDF**S**M**V**L-**V**LPI**L**IY 111

Cced\_UV-der 35 --L----VHVPEHWLSYPEV**R**SMYHYIMAFSYSI**L**FVIGIIGNGLVIWIFSLSKPLRTPSNLFVLNLALCDF**S**M**V**L-**V**LPI**L**IY 111

Ncin\_UV 39 --L----VHIPQHWLKYQAPEAMQHYMLGFIYIFFMIASLIGNGLVIWIFCGARNLRTPSNMFVINLAICDFMMML-KTPIFIY 115

Evit\_UV 42 --L----VHIPQHWLKYPAPEPIQHYVLGFLYIFFMFAALFGNGLVIWIFCGAKNLRTPSNMFVINLALCDFLMMS-KTPIFIY 118

Monu\_UV 42 --L----VHIPQHWLKYPAPEPIQHYVLGFLYIFFMFAALFGNGLVIWIFCGAKNLRTPSNMFVINLALCDFLMMS-KTPIFIY 118

Nlug\_UV-anc 38 --L----AN**I**PEHWFN**Y**P**E**P**D**PMYNYVLGL**L**YVF**F**MFFS**L**IGNGLVIWIF**C**SAKSLRTPSNMFVVNLALCD**F**MMMV-KTPIFIY 114

Lstr\_UV-anc 38 --L----PH**I**PEHWFN**Y**P**E**P**D**PMYNYVLGL**L**YVF**F**MFFS**L**VGNGLVIWIF**C**SAKSLRTPSNMFVVNLALCD**F**LMML-KTPIFIY 114

Sfur\_UV-anc 38 --L----PH**I**PEHWFN**Y**P**E**P**D**PMYNYVLGL**L**YVF**F**MFFS**L**VGNGLVIWIF**C**SAKSLRTPSNMFVVNLALCD**F**MMML-KTPIFIY 114

Nlug\_UV-der 38 --L----EH**V**PEHWFN**H**P**A**P**E**PIYNYVLGL**V**YMF**Y**MFFS**F**IGNGLVIWIF**S**SAKTLRTPSNMFVVNLAICD**L**LMMV-KIPIFIY 114

Lstr\_UV-der 38 --L----EH**V**PEHWFN**H**P**A**P**E**PIYNYVLGI**V**YMF**Y**MFFS**F**VGNGLVIWIF**S**SAKSLRTPSNMFVVNLAICD**L**LMMI-KIPIFIY 114

Sfur\_UV-der 38 --L----EH**V**PEHWFN**H**P**A**P**E**PIYNYILGL**V**YMF**Y**MFFS**F**VGNGLVIWIF**S**SAKSLRTPSNMFVVNLAICD**L**LMMV-KIPIFIY 114

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Btau\_rhodopsin 97 TSLHGYFVFGPTGCNLEGFFATLGGEIALWSLVVLAIERYVVVCKPMSNFRFGENHAIMGVAFTWVMALACAAPPL-VGWSRYI 179

Craj\_UV2-anc 109 NSFNRGFAAGFVSCQVFGVMGTLSGIGAGMSNACIAYDRYHTITNPLEG-KLTRTKALVMILFVWTYTTPWAILPLFEIWGKFV 191

Adif\_UV2-anc 127 NSFKQGFYLSMVWCYVFVIAGTYSGIGASMTNVCIAYDRYHTITNPMEG-RLTRTKALLMILFIYVYVTPFAILPYLKIWGNFI 209

Craj\_UV1-der 114 NAFNRGYATGHIGCQIFAMVGSLSGIGAGTTNACIAYDRYTTITNPLEG-RLSKTKAVILIIFVWMYTMPWVVLPLLEIWSRFV 196

Adif\_UV1-der 112 NAFHRGYA**A**G**H**LGCQI**F**GTI**GT**LS**GI**GA**G**MTDVCIAYDRY**T**TITNPLEG-RMSKIKAIIMIIFVWLYTLPWIILP**F**TEVWNRFV 194

Focc\_UV 122 NSFNLGPASGPTACLVFATMGSFSGIGAGATNAVIAYDRYMTIAKPFGS-KMTRGKAIMIIFFLWMWVTPWVVFPATEIWGRFV 204

Dcit\_UV 141 NSFNQGYALGHQGCQIFGLMGSISGIGQSATNVAIAYDRYRVIAKPMDG-RMSYSKALMILILIYCYVIPWAMFPYLEKWSRFV 223

Pcel\_UV 162 NSFHQGYELGHQGCQWFGLMGAITGIGQSATNVAIAYDRYRVIAKPMDG-RMSFSKAFIILIMIYAYVLPWALFPYFEKWSRFV 144

Apis\_UV-anc 119 GSINR**G**Y-**Q**GHFLCQLFGTAG**A**FSGIGA**S**ATNAAIAYDRFSTIAKPF**D**G-RMTYG**R**AFFLIICIWTYTLPWGLLPLTEKWNRYV 200

Rmai\_UV-anc 119 SSINR**G**Y-**Q**GHFLCQLFGVAG**A**FSGLGA**S**ATNAAIAYDRFSTIAKPF**D**G-RMTYG**R**ALFLIVCIWTYTLPWGILPLTEKWNRFV 200

Mper\_UV-anc 119 SSINR**G**Y-**Q**GHFLCQLFGVAG**A**FSGLGA**S**ATNAAIAYDRFSTIAKPF**D**G-RMTYG**R**AFFLIICIWTYTLPWGLLPLTEKWNRYV 200

Sfla\_UV-anc 119 GSVQR**T**Y-**Q**GHFLCQAFALAG**T**ISGLGA**S**ITNAAIAYDRYSTIAKPF**E**G-RMTYG**R**AFFIMILIWAYVFPWCFLPATEKWNRYV 200

Cced\_UV-anc 118 NSIQR**G**Y-**Q**GHLNCQIFAMAG**S**ISGIGA**S**ATNAAIAYDRFSTIAKPF**D**G-RMTFG**K**AFILIICIWTYVLPWCFLPLTEKWNRFV 199

Apis\_UV-der 114 DSIDH**K**Y-**P**GHLQCQIFALCG**S**ISGIGA**G**ATNAAIAYDRYSTIAKPF**E**G-RMTYG**K**ALILIICIWIYVLPWCLLPLTEKWNRFV 195

Rmai\_UV-der 114 DSINH**K**Y-**P**GHLQCQIFALCG**S**ISGIGA**G**ATNAAIAYDRYSTIAKPF**E**G-RMTYG**K**ALILIICIWIYVLPWCILPLTEKWNRFV 195

Mper\_UV-der 114 DSIDH**K**Y-**P**GHLQCQIFALCG**S**ISGIGA**G**ATNAAIAYDRYSTIAKPF**E**G-RMTYG**K**ALILIICIWIYVLPWCLLPLTEKWNRYV 195

Sfla\_UV-der 112 DSINH**K**Y-**P**GHLQCQIFALCG**S**ISGIGA**G**ATNAAIAYDRYSTIAKPF**E**G-RMTYG**K**ALILIICIWMYVFPWCFLPLTEKWNRYV 193

Cced\_UV-der 112 DSIDH**K**Y-**P**GHLQCQIFALCG**S**ISGIGA**G**ATNAAIAYDRYSTIAKPF**E**G-RMTYG**K**ALILIVCIWIWVFPWCYLPLSEKWNRYV 193

Ncin\_UV 116 NSFNLGFALGQTGCQVFSIMGSLSGIGAAATNAAIAYDRYSTIARPLDG-KMSRGKAFLFILCIWAYVSPWVFLPATQTWGRYA 198

Evit\_UV 119 NSFKLGFALGQFWCQVFAIAGSLSGIGAAATNAVIAYDRYSTIARPLDG-KMSKGKAFLFLLCIWIYTTPWVFLPATQTWGRYA 201

Monu\_UV 119 NSFKLGFALGQFWCQVFAIAGSLSGIGAAATNAVIAYDRYSTIARPLDG-KMSKGKAFLFLLCIWIYTTPWVFLPATQTWGRYA 201

Nlug\_UV-anc 115 NSFNLGFA**T**GHLGCQIFATIGSFSGIGASATNAAIAYDRYNVIAKPLDG-RMSKGKAFLIILLIWAYVTPWSLMPLYGVWSRFV 197

Lstr\_UV-anc 115 NSFNLGFA**S**GHLGCQIFGTIGSFSGIGASATNAAIAYDRYNVIAKPFDG-KMSKGKAFLIILLIWAYVTPWSLMPLYGYWSRFV 197

Sfur\_UV-anc 115 NSFNLGFA**S**GHLGCQIFGTIGSFSGIGASATNAAIAYDRYNVIAKPFDG-KMSKGKAFLIILLIWAYVTPWSLMPLYGYWSRFV 197

Nlug\_UV-der 115 NSFNLGFA**A**GHLGCQIFGTIGSFSGIGASATNAAIAYDRYNVIAKPFDG-KMSRGKAFLIILLIWAYVTPWSIMPLLEVWSRFV 197

Lstr\_UV-der 115 NSFNLGFA**A**GHVGCQIFGTIGSFSGIGASATNAAIAYDRYNVIAKPFDG-KMSRGKAFLIILLIWAYVTPWSIIPLLEVWSRFV 197

Sfur\_UV-der 115 NSFNLGFA**A**GHLGCQIFGTIGSFSGIGASATNAAIAYDRYNVIAKPFDG-KMSRGKAFLIILLIWAYVTPWSIMPLFEVWSRFV 197

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Btau\_rhodopsin 180 PEGMQCSCGIDYYTPHEETNNESFVIYMFVVHFIIPLIVIFFCYGQLVFTVKE--AAAQQQESA----------T--TQKAEKE 249

Craj\_UV2-anc 192 PEGFLTQCTFDYLTNTFDT--HLFVGVLFTFSYVIPMSLIIYYYSQIVSHVIDHEKALREQAKKMNVDSLRSNQQQQNQSAEVR 273

Adif\_UV2-anc 210 PEGYLTQCGIDYLTLTFDN--KSFVTTLFTCSYVIPMSLIIYYYIQIVGHVMDHEKALKEQAKKMNVDSLRSNQQQQNQSMEIR 291

**Craj\_UV1-der** 197 PEGFLTACSFDYLTDSFDN--HLFVASIFTTSYVIPMLLIIYYYSQIVMHVIRHERTLKEQAKKMNVDSLRSNQTQMNQSTEIR 278

Adif\_UV1-der 195 PEGFLT**T**C**S**FDYITDTFDT--RLFVVT**I**FVWS**Y**VFPLLLIIYFYTQIVAHVFRHEKALKQQAKKMNVDSLRSNQ**A**QADQSMEIR 276

Focc\_UV 205 PEG**F**LTSCTFDYMSDTDHI--RVFVGVMFFVCYCIPMTMIIYFYSQIVSHVVAHEKALKAQAKKMNVESLRSNVDKNQDSTEIR 286

Dcit\_UV 224 PEGYLTSCTFDYLTPTESI--RFYVLFMFIICYCIPMGMIINFYSQIVGHVFSHEKALREQAKKMNVESLRSGQKEGQSSAEVR 305

Pcel\_UV 145 PEGYLTSCSFDYLTPTESV--RFYVLFMFIICYCFPMTLIINFYSQIVGHVFSHEKALREQAKKMNVESLRSGQKEGQSSAEVR 226

Apis\_UV-anc 201 PEG**Y**LTSC**T**FDYLSPTDET--RAFVGIMFVICYVIPVSL**V**IFFYSQIVSHVFNHEKALREQAKKMNVESLRSNQDANAQSAEVR 282

Rmai\_UV-anc 201 PEG**Y**LTSC**T**FDYLSPTDET--KAFVGIMFVICYVIPVSL**V**IFFYSQIVSHVFNHEKALREQAKKMNVESLRSNQDANAQSAEVR 282

Mper\_UV-anc 201 PEG**Y**LTSC**T**IDYLTPTDET--RAFIGIMFVICYVIPVSL**V**IFFYSQIVSHVFNHEKALREQAKKMNVESLRSNQDANAQSAEVR 282

Sfla\_UV-anc 201 PEG**Y**LTSC**T**IDYLTPTDET--RAFIGIMFTICYIIPVSL**V**IYFYSQIVSHVFNHEKALREQAKKMNVESLRSNQDANAQSAEVR 282

Cced\_UV-anc 200 PEG**Y**LTSC**T**FDYLSPTDET--KAFVGIMFVICYVIPMSL**V**VYFYSQIVTHVFNHEKALREQAKKMNVESLRSNQDANAQSAEVR 281

Apis\_UV-der 196 PEG**F**LTSC**S**FDYLTPTEET--KAFVGTMFVICYVIPMSF**I**IYFYSQIVCHVFNHEKALREQAKKMNVESLRSNQDANAQSAEVR 277

Rmai\_UV-der 196 PEG**F**LTSC**S**FDYLTPTEET--KAFVATMFVICYVIPMSF**I**IYFYSQIVCHVFNHEKALREQAKKMNVESLRSNQDANAQSAEVR 277

Mper\_UV-der 196 PEG**F**LTSC**S**FDYLTPTEET--KAFVGTMFVICYVIPMSF**I**IYFYSQIVCHVFNHEKALREQAKKMNVESLRSNQDANAQSAEVR 277

Sfla\_UV-der 194 PEG**F**LTSC**S**FDYLTPTDET--KAFVGILFVICYVIPMSF**I**IYFYSQIVSHVFNHEKALREQAKKMNVESLRSNQDANAQSAEVR 275

Cced\_UV-der 194 PEG**F**LTSC**S**FDYLTQTDET--KFFVGVLFVICYVIPLSF**I**IYFYSQIVNHVFNHERALREQAKKMNVESLRSNQDANAQSAEVR 275

Ncin\_UV 199 PEGYLTACSFDYLTNTDEN--RFFVLVLFCVCYVLPMSLIVFFYSQIVSHVVHHEKALRDQAKKMNVESLRSNQQQQSQSAEIR 280

Evit\_UV 202 PEGYLTACSFDYLTNTDEN--RFFVLVLFFVCYVLPMSMIIFFYSQIVSHVVDHEKALREQAKKMNVESLRSNQSQQAQSAEIR 283

Monu\_UV 202 PEGYLTACSFDYLTNTDEN--RFFVLVLFFVCYVLPMSMIIFFYSQIVSHVVDHEKALREQAKKMNVESLRSNQNQQAQSAEIR 283

Nlug\_UV-anc 198 PEG**Y**LTSCSFDYLTK**S**ESI--**Q**YW**V**GTMFVICYCIPMSLIIYYYSQIVSHVVNHEKALREQAKKMNVDSLRSNQAQQN**Q**SAEVR 279

Lstr\_UV-anc 198 PEG**Y**LTSCSFDYLTK**N**ESI--**Q**YW**V**GTMFVICYCIPMSLIVYYYSQIVSHVVNHEKALREQAKKMNVDSLRSNQAQQN**Q**SAEVR 279

Sfur\_UV-anc 198 PEG**Y**LTSCSFDYLTK**N**ESI--**Q**YW**V**GTMFVICYCIPMSMIIYYYSQIVSHVVNHEKALREQAKKMNVDSLRSNQAQQN**Q**SAEVR 279

Nlug\_UV-der 198 PEG**F**LTSCSFDYLTK**T**DSI--**R**YW**T**ATMFVICYCIPMSMIIYYYSQIVSHVVNHEKALRKQAKKMNVDSLRSNQAAQS**M**SAEVR 279

Lstr\_UV-der 198 PEG**F**LTSCSFDYLTN**T**DSI--**R**YF**T**ATMFVICYCIPMSMIIYYYSQIVNHVVNHEKALRKQAKKMNVDSLRSNQAQQS**M**SAEVR 279

Sfur\_UV-der 198 PEG**F**LTSCSFDYLTK**T**DSI--**R**YF**T**AVMFLICYCIPMSMIIYYYSQIVNHVVNHEKALRKQAKKMNVDSLRSNQAQQS**M**SAEVR 279

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Btau\_rhodopsin 250 VTRMVIIMVIAFLICWLPYAGVAFYIFTHQGSDFGPIFMTIPAFFAKTSAVYNPVIYIMMNKQFRNCMVTTLCCGKNPLGDDE- 332

Craj\_UV2-anc 274 IAKVAITICFLFVASWTPYAVLAMIGAFGDQSLITPGFAMIPACACKLVACLDPYVYALSHPRYRVELQKRLPWLAINEKDP-- 355

Adif\_UV2-anc 292 IAKVAITICFLFVAAWTPYGVMCLIGMYGDQNLITPGSAMVPALFCKTVACLDPYVYALSHPRFRLELQKRIPWLGINEKAP-- 373

Craj\_UV1-der 279 IAKVALTITFLYVAAWTPYAVVAMIGAFGDQSLLTPGITMIPSCFCKCVACLDPYVYALSHPRYRVELQKRLPWLAIVEPTQ-- 360

Adif\_UV1-der 277 IAKVAITITFL**F**VAAWTP**YA**VV**S**FIGAFGDRSLLTPGVTMIPA**CC**CKFIACVDPYVYALSHPRYRVELQRRLPWLSIKEHVP-- 358

Focc\_UV 287 IAKMAISLSFLFVLSWTPYATVALIGAFGNKALLTPGVTMIPACCCKLVACFDPYVFALSHPRFRLELQKKMPFLDIKEDKPT- 369

Dcit\_UV 306 IAKTAITLCALFVASWTPYAVVALTGAFGDQSLLTPGLTMIPACTCKAVACLDPYVYAISHPRYRLELSKRIPCLGIKEKEPE- 388

Pcel\_UV 227 IAKTAITLCALFVFSWTPYAVVALTGAFGDRSLLTPGLTMIPACACKTVACLDPYVYAISHPRYRLELTKRFPCLGIKEKEPE- 309

Apis\_UV-anc 283 IAKAAITICCLFIASWTPYAVVAMIGAFGDRSLLTP**G**ITMIPA**I**F**C**KTVACFDPYVYAISHPRYRLELSKRVPCLGISEKPPPT 366

Rmai\_UV-anc 283 IAKAAITICCLFIASWTPYAIVAMIGAFGDRSLLTP**G**ITMIPA**I**F**C**KTVACFDPYVYAISHPRYRLELSKRVPCLGINEKPPPT 366

Mper\_UV-anc 283 IAKAAITICCLFIASWTPYAVVAMIGAFGDRSLLTP**G**VTMIPA**I**F**C**KTVACFDPYVYAISHPRYRLELSKRVPCLGINEKPPT- 365

Sfla\_UV-anc 283 IAKAAITICFLFIAAWTPYAVVAMIGAFGDQSLLTP**G**ITMIPA**I**F**C**KSVACFDPYVYAISHPRYRLELSKRIPCLGIEEKPPAT 366

Cced\_UV-anc 282 IAKAAITICFLFIAAWTPYAVVAMIGAFGDKSLLTP**G**VTMIPA**I**F**C**KTVACFDPYVYAISHPRYRLELSKRIPCLGINEKPPAT 365

Apis\_UV-der 278 IAKAAITICFLFVAAWTPYAVVAMIGAFGDQSLLTP**I**ASMLPA**V**F**A**KTVACFDPYVYAISHPKYRLELSKRVPCLGITEKPLA- 360

Rmai\_UV-der 278 IAKAAITICFLFVAAWTPYAIVAMIGAFGDQSLLTP**I**ASMLPA**V**F**A**KTVACFDPYVYAISHPKYRLELSKRVPCLGINEKPPA- 360

Mper\_UV-der 278 IAKAAITICFLFVAAWTPYAVVAMIGAFGDQSLLTP**I**ASMLPA**V**F**A**KTVACFDPYVYAISHPKYRLELSKRVPCLGITEKPPA- 360

Sfla\_UV-der 276 IAKAAITICFLFVAAWTPYAVVAMVGAFGDQSLLTP**V**VTMLPA**V**F**A**KTVACLDPYVYAISHPKYRLELSKRVPCLGINEKSSV- 358

Cced\_UV-der 276 IAKAAITICFLFIAAWTPYAAVALIGAFGDQSLLTP**I**VTMLPA**V**F**A**KTVACFDPYVYAISHPRYRLELSKRLPCLGINEKPPV- 358

Ncin\_UV 281 IAKAAITICFLFVASWTPYAVLALIGAFGDQSLLTPGVTMIPALTCKAVACIDPYVYAISHPRYRVELAKRLPFLAINEQAP-- 362

Evit\_UV 284 IAKAAITICALFVASWTPYAVLALIGAFGNQAMLTPGVTMIPALTCKAVARIDPYVYAISHPRYRVELAKRLPWLGVNEQEPK- 366

Monu\_UV 284 IAKAAITICALFVASWTPYAVLALIGAFGNQAMLTPGVTMIPALTCKAVACIDPYVYAISHPRYRVELAKRLPWLGVNEQEPK- 366

Nlug\_UV-anc 280 IAKVAITICFLFVA**S**WTPYA**V**VA**M**IGAFGNQALLTPG**L**TMIPA**CT**CKAVACIDPYVYAISHPRYRVELAKRLPWLAIKEAAPV- 362

Lstr\_UV-anc 280 IAKVAITICFLFVA**S**WTPYA**V**VA**M**IGAFGNQALXTPG**L**TMIPA**CT**CKAVACIDPYVYAISHPRYRVELAKRLPWLAIKEAPPP- 362

Sfur\_UV-anc 280 IAKVAITICFLFVA**S**WTPYA**V**VA**M**IGAFGNQALLTPG**L**TMIPA**CT**CKAVACIDPYVYAISHPRYRVELAKRLPWLAIKEAPPP- 362

Nlug\_UV-der 280 IAKVAITICALFVA**A**WTPYA**I**VA**L**IGAFGNQSLLTPG**V**TMIPA**LA**CKSVACIDPYVYAISHPRYRMELAKRLPWLKIKETPTA- 362

Lstr\_UV-der 280 IAKVAITICFLFVA**A**WTPYA**I**VA**L**IGAFGNQSLLTPV**V**TMIPA**LA**CKSVACIDPYVYAISHPRYRVELAKRLPWLRIKETSAA- 362

Sfur\_UV-der 280 IAKVAITICFLFVA**A**WTPYA**I**VA**L**IGAFGNQSLLTPV**V**TMIPA**LA**CKSVACIDPYVYAISHPRYRVELAKRIPWLRIKETPTA- 362

33333333333 33 333

33333334444 44 444

34567890123 45 678

Btau\_rhodopsin 333 -ASTTVSKTETS-QV-APA------- 348

Craj\_UV2-anc 356 -SDTQSTATESS-TN-K---P----- 370

Adif\_UV2-anc 374 -SDAQSVTTETA-SK-----G----- 387

Craj\_UV1-der 361 -TDTASAVTEAS-NP-ATR-T----- 377

Adif\_UV1-der 359 -SDSASVATESA-AP-NTGKI----- 376

Focc\_UV 370 ASETASTTTEAT-SA-NPD------- 386

Dcit\_UV 389 -KETASAQTEAT-T---P-------H 402

Pcel\_UV 310 -KETASANTEAT-T---P-------H 323

Apis\_UV-anc 367 AS**E**TQSTTTA---------------A 377

Rmai\_UV-anc 367 AS**E**TQSTTTTT--------------A 378

Mper\_UV-anc 366 PS**E**TQSTTTTT--------------A 377

Sfla\_UV-anc 367 AS**E**TQSTTTTT--------------A 378

Cced\_UV-anc 366 VS**E**TQSATTT---------------A 376

Apis\_UV-der 361 TS**D**TQSITTA---------------A 371

Rmai\_UV-der 361 TS**D**TQSITTA---------------A 371

Mper\_UV-der 361 TS**D**TQSITTA---------------A 371

Sfla\_UV-der 359 SP**D**TQSTTTT---------------A 369

Cced\_UV-der 359 LA**E**TQSTTTS---------------A 369

Ncin\_UV 363 SE-TVSTTTETTAA-TTPA------E 380

Evit\_UV 367 HDNVSTTTTEAT-A-TTPA------E 384

Monu\_UV 367 HDNVSTTTTEAT-A-TTPA------E 384

Nlug\_UV-anc 363 -SETQS**A**VTETT-AS-TPAES----- 380

Lstr\_UV-anc 363 -SETQS**A**VTETT-AT-TPAE------ 379

Sfur\_UV-anc 363 -SETQS**A**VTETT-AT-TPAE------ 379

Nlug\_UV-der 363 -SETQS**T**VTEST-VTATPAE------ 380

Lstr\_UV-der 363 -SETQS**T**VTEST-VTAPPAE------ 380

Sfur\_UV-der 363 -SETQS**T**VTEST-VSATPAVTATECN 386