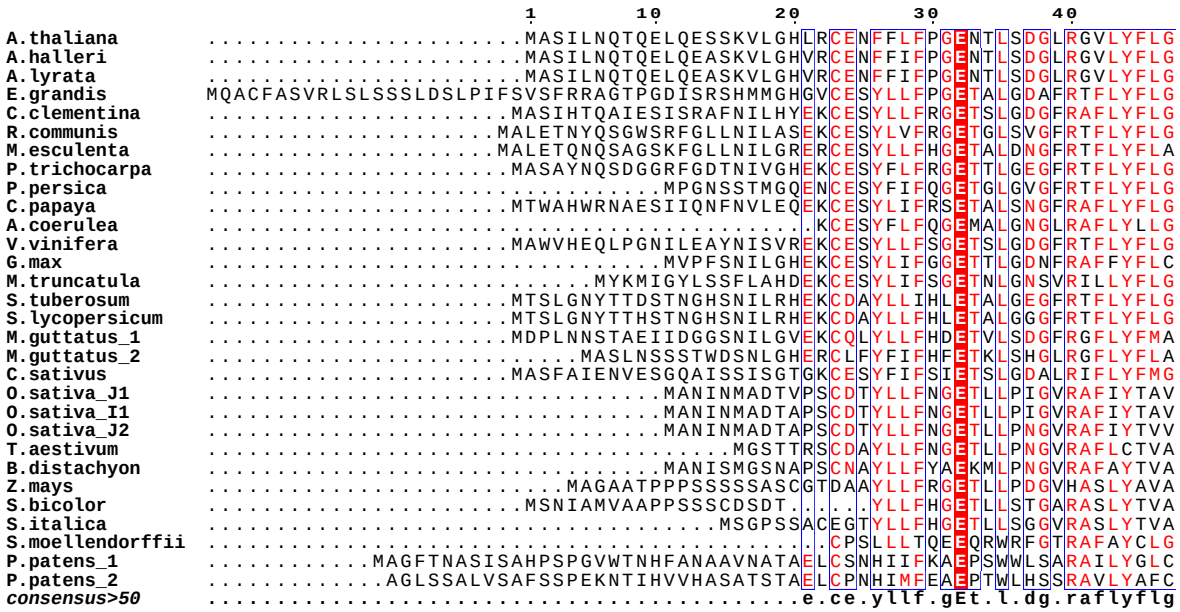
Additional file 5. Alignment of MHX proteins

The file presents the alignment of all currently identified MHX proteins. The sequences were aligned by Multalin using the identity-1-0 method. Identical residues were indicated by white letters on a red background and by uppercase letters in the consensus sequence. Similar residues, or the most conserved residues in each position, were indicated by red letters in the protein sequences and a lowercase letter in the consensus sequence. The similarity codes are ! - I or V, $ - L or M, % - F or Y, and # - D, E, N, or Q. Dots indicate gaps.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A.coerulea
V.vinifera
G.max
M.truncatula
S.tuberosum
S.lycopersicum
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M.guttatus_2
C.sativus
O.sativa_J1
O.sativa_I1
O.sativa_J2
T.aestivum
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Z.mays
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P.patens_1
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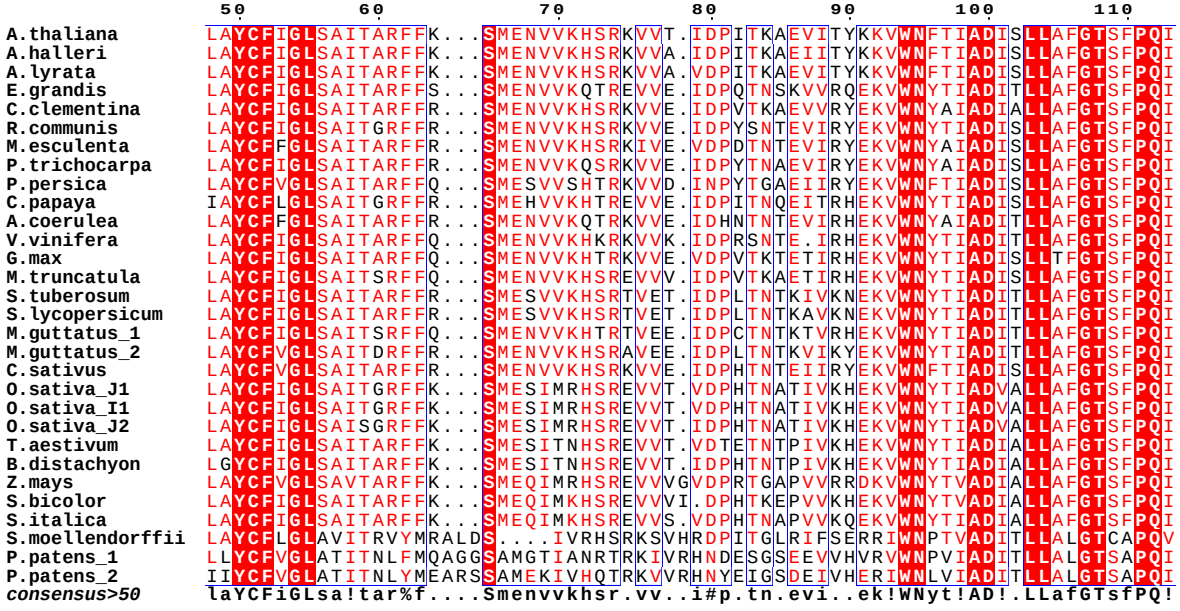
consensus>50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V.vinifera
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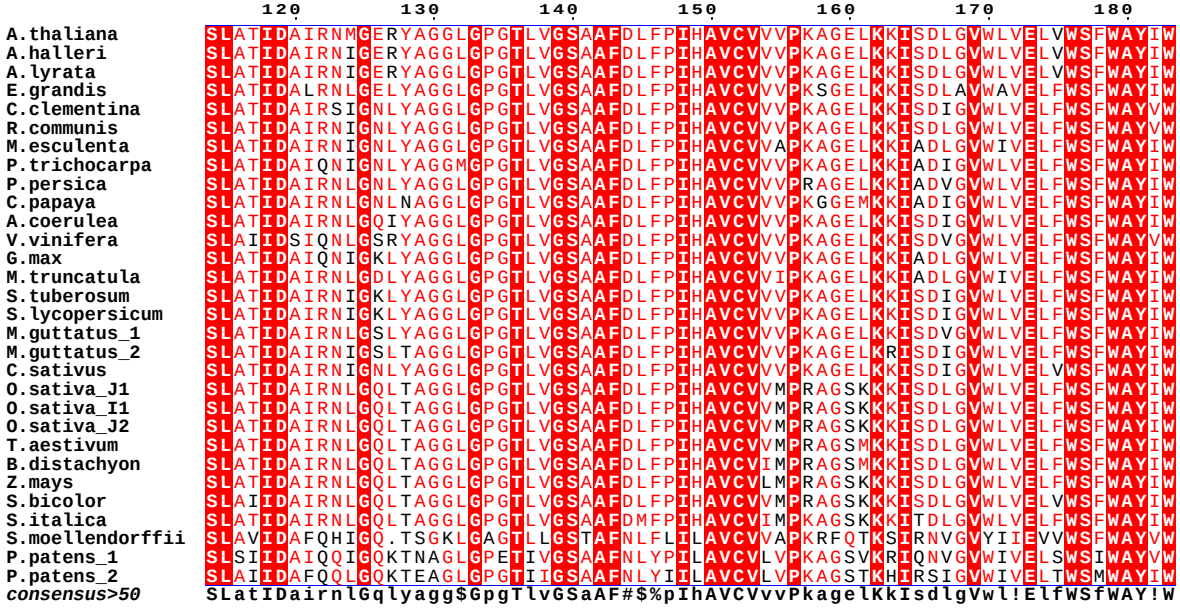
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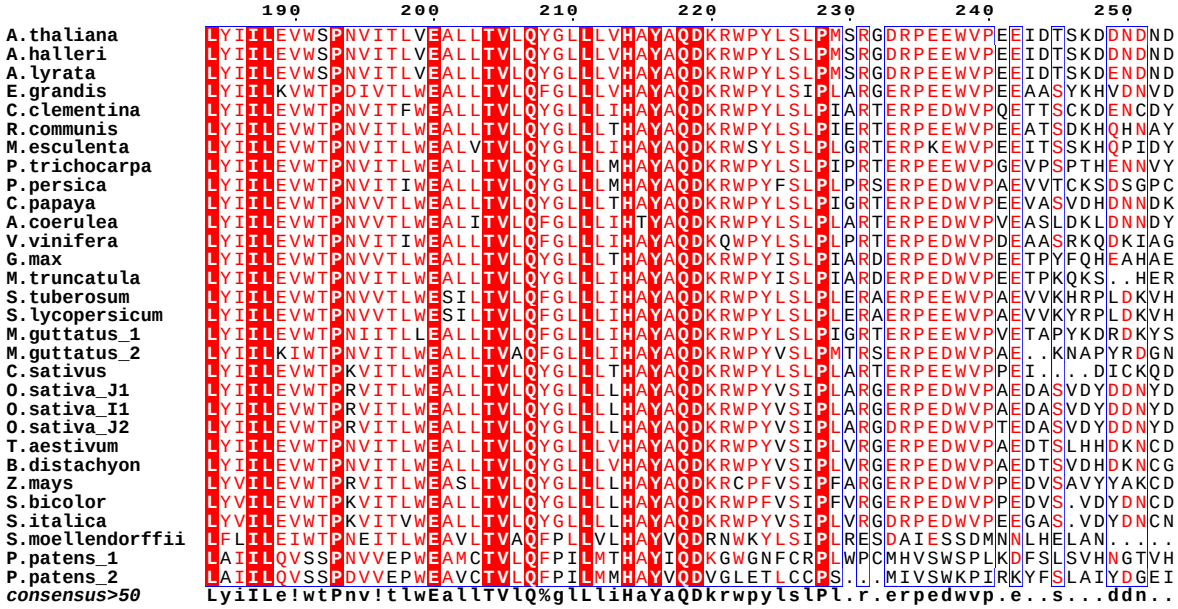
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E.grandis LYIILKVWTPDIVTLWEALLTVLQFGLLLVHAYAQDKRWPYLSIPLARGERPEEWVPEEAASYKHVDNVD
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M.truncatula LYIILEVWTPNVITLWEALLTVLQYGLLLIHAYAQDKRWPYISLPIARDERPEDWVPEETPKQKS..HER
S.tuberosum LYIILEVWTPNVVTLWESILTVLQFGLLLIHAYAQDKRWPYLSLPLERAERPEEWVPAEVVKHRPLDKVH
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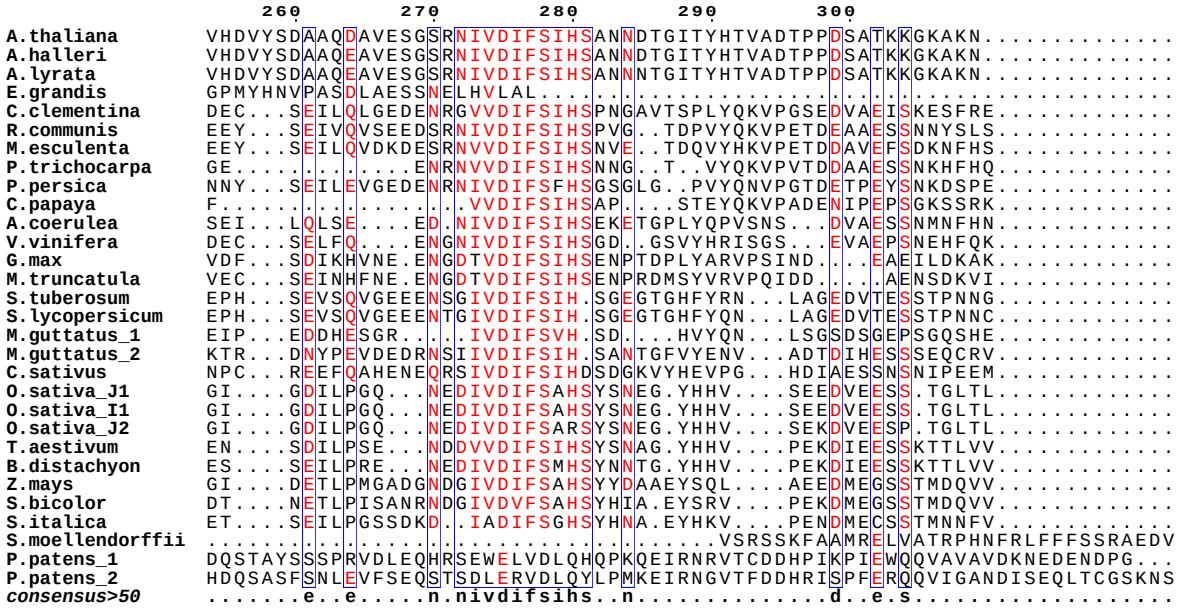
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E.grandis GPMYHNVPASDLAESSNELHVLAL.....
C.clementina DEC...SEILQLGEDENRGVVDIFSIHSPNGAVTSPLYQKVPGSEDVAEISKESFRE.....
R.communis EEY...SEIVQVSEEDSRNIVDIFSIHSPVG..TDPVYQKVPETDEAAESSNNYSLS.....
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P.persica NNY...SEILEVGEDENRNIVDIFSFHSGSGLG..PVYQNVPGTDETPEYSNKDSPE.....
C.papaya F.....VVDIFSIHSAP....STEYQKVPADENIPEPSGKSSRK.....
A.coerulea SEI...LQLSE....ED.NIVDIFSIHSEKETGPLYQPVSNS...DVAESSNMNFHN.....
V.vinifera DEC...SELFQ....ENGNIVDIFSIHSGD..GSVYHRISGS...EVAEPSNEHFQK.....
G.max VDF...SDIKHVNE.ENGDTVDIFSIHSENPTDPLYARVPSIND.....EAEILDKAK.....
M.truncatula VEC...SEINHFNE.ENGDTVDIFSIHSENPRDMSYVRVPQIDD.....AENSDKVI.....
S.tuberosum EPH...SEVSQVGEEENSGIVDIFSIH.SGEGTGHFYRN...LAGEDVTESSTPNNG.....
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M.guttatus_1 EIP...EDDHESGR.....IVDIFSVH.SD....HVYQN...LSGSDSGEPSGQSHE.....
M.guttatus_2 KTR...DNYPEVDEDRNSIIVDIFSIH.SANTGFVYENV...ADTDIHESSSEQCRV.....
C.sativus NPC...REEFQAHENEQRSIVDIFSIHDSDGKVYHEVPG...HDIAESSNSNIPEEM.....
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T.aestivum EN....SDILPSE...NDDVVDIFSIHSYSNAG.YHHV....PEKDIEESSKTTLVV.....
B.distachyon ES....SEILPRE...NEDIVDIFSMHSYNNTG.YHHV....PEKDIEESSKTTLVV.....
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S.moellendorffii .....VSRSSKFAAMRELVATRPHNFRLFFFSSRAEDV
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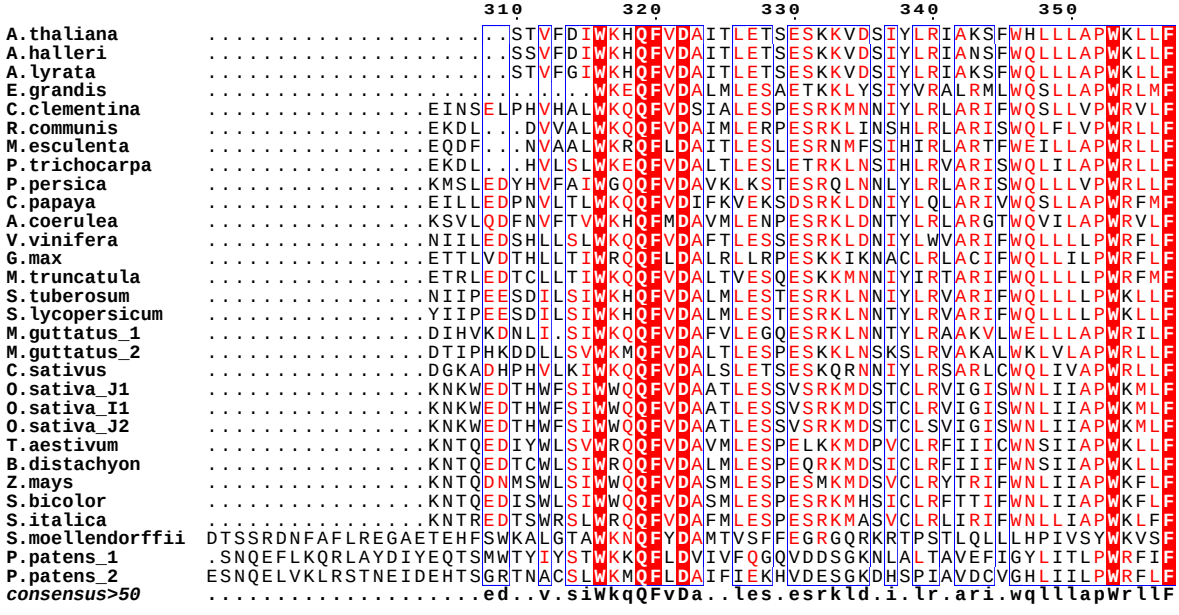
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E.grandis .....WKEQFVDALMLESAETKKLYSIYVRALRMLWQSLLAPWRLMF
C.clementina .....EINSELPHVHALWKQQFVDSIALESPESRKMNNIYLRLARIFWQSLLVPWRVLF
R.communis .....EKDL...DVVALWKQQFVDAIMLERPESRKLINSHLRLARISWQLFLVPWRLLF
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V.vinifera .....NIILEDSHLLSLWKQQFVDAFTLESSESRKLDNIYLWVARIFWQSLLLLPWRFLF
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M.truncatula .....ETRLEDTCLLTIWKQQFVDALTVESQESKKMNNIYIRTARIFWQLLLLPWRFMF
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B.distachyon .....KNTQEDTCWLSIWRQQFVDALMLESPEQRKMDSICLRFIIIFWNSIIAPWKLLF
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S.italica .....KNTREDTSWRSLWRQQFVDAFMLESPESRKMASVCLRLIRIFWNLLIAPWKLFF
S.moellendorffii DTSSRDNFAFLREGAETEHFSWKALGTAWKNQFYDAMTVSFFEGRGQRKRTPSTLQLLLHPIVSYWKVSF
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P.patens_2 ESNQELVKLRSTNEIDEHTSGRTNACSLWKMQFLDAIFIEKHVDESGKDHSPIAVDCVGHLILPWRFLF
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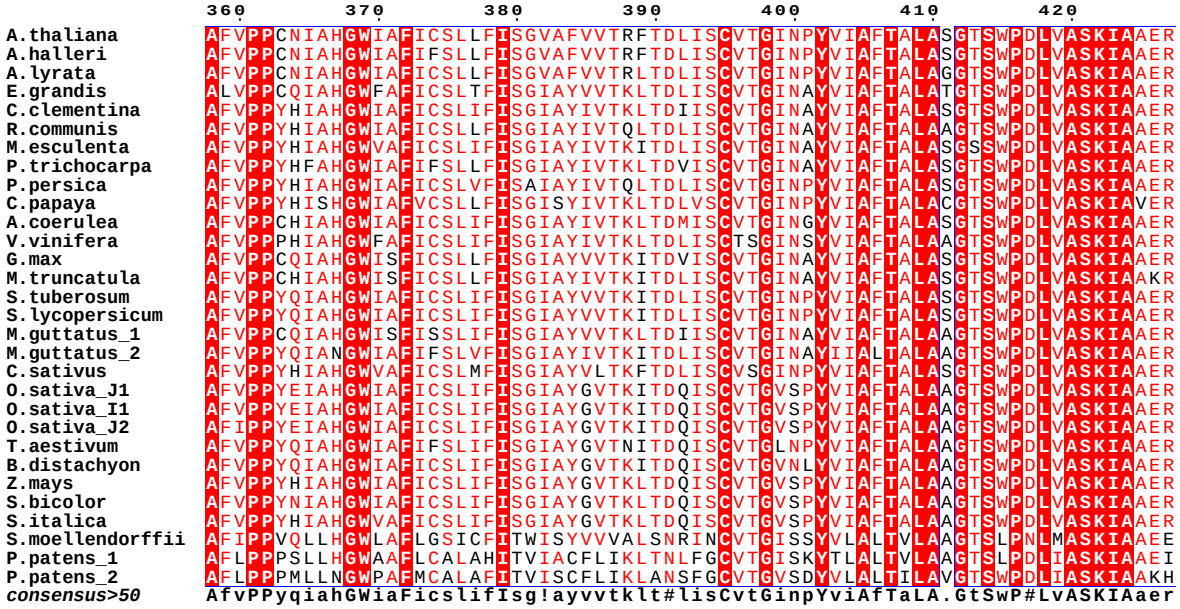
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E.grandis ALVPPCQIAHGWFAFICSLTFISGIAYVVTKLTDLISCVTGINAYVIAFTALATGTSWPDLVASKIAAER
C.clementina AFVPPYHIAHGWIAFICSLIFISGIAYIVTKLTDIISCVTGINAYVIAFTALASGTSWPDLVASKIAAER
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M.truncatula AFVPPCHIAHGWISFICSLLFISGIAYIVTKITDLISCVTGINAYVIAFTALASGTSWPDLVASKIAAKR
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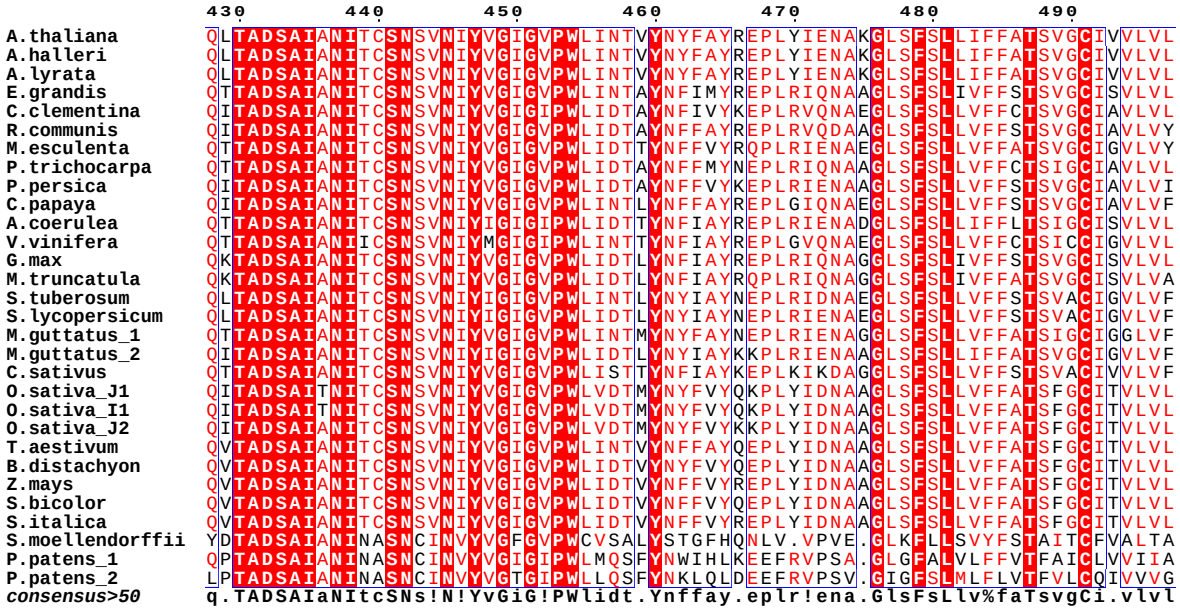
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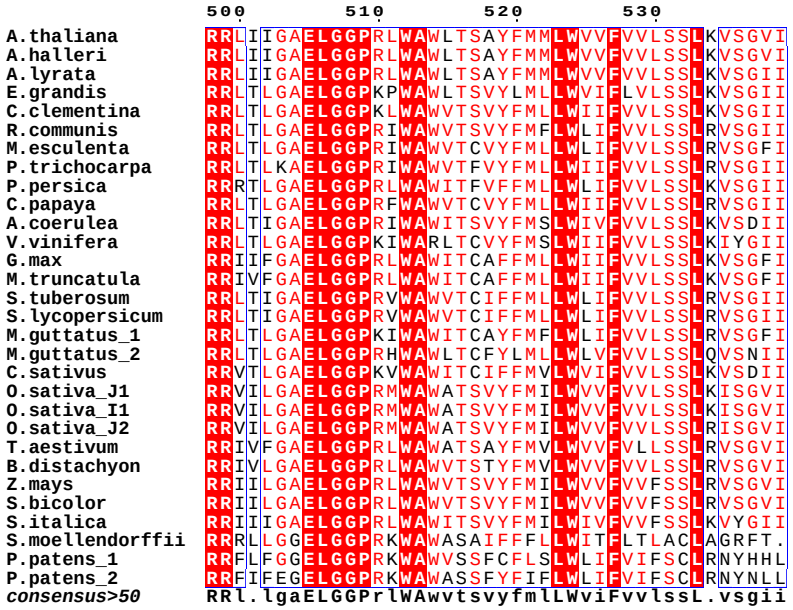
O.sativa_J1 QITADSAITNITCSNSVNIYVGIGVPWLVDTMYNYFVYQKPLYIDNAACLSFSLLVFFATSFGCITVLVL
O.sativa_I1 QITADSAITNITCSNSVNIYVGIGVPWLVDTMYNYFVYQKPLYIDNAAGLSFSLLVFFATSFGCITVLVL
O.sativa_J2 QITADSAIANITCSNSVNIYVGIGVPWLVDTMYNYFVYKKPLYIDNAAGLSFSLLVFFATSFGCITVLVL
T.aestivum QVTADSAIANITCSNSVNIYVGIGVPWLINTVYNFFAYQEPLYIDNAACLSFSLLVFFATSFGCITVLVL
B.distachyon QVTADSAIANITCSNSVNIYVGIGVPWLIDTVYNYFVYQEPLYIDNAAGLSFSLLVFFATSFGCITVLVL
Z.mays QVTADSAIANITCSNSVNIYVGIGVPWLIDTVYNFFVYREPLYIDNAAGLSFSLLVFFATSFGCITVLVL
S.bicolor QVTADSAIANITCSNSVNIYVGIGVPWLIDTVYNFFVYQEPLYIDNAACLSFSLLVFFATSFGCITVLVL
S.italica QVTADSAIANITCSNSVNIYVGIGVPWLIDTVYNFFVYREPLYIDNAAGLSFSLLVFFATSFGCITVLVL
S.moellendorffii YDTADSAIANINASNCINVYVGFGVPWCVSALYSTGFHQNLV.VPVE.GLKFLLSVYFSTAITCFVALTA
P.patens_1 QPTADSAIANINASNCINVYVGIGIPWLMQSFYNWIHLKEEFRVPSA.GLGFALVLFFVTFAICLVVIIA
P.patens_2 LPTADSAIANINASNCINVYVGTGIPWLLQSFYNKLQLDEEFRVPSV.GIGFSLMLFLVTFVLCQIVVVG
consensus>50 q.TADSAIaNItcSNs!N!YvGiG!PWlidt.Ynffay.eplr!ena.GlsFsLlv%faTsvgCi.vlvl


500 510 520 530
A.thaliana RRLIIGAELGGPRLWAWLTSAYFMMLWVVFVVLSSLKVSGVI
A.halleri RRLIIGAELGGPRLWAWLTSAYFMMLWVVFVVLSSLKVSGVI
A.lyrata RRLIIGAELGGPRLWAWLTSAYFMMLWVVFVVLSSLKVSGII
E.grandis RRLTLGAELGGPKPWAWLTSVYLMLLWVIFLVLSSLKVSGII
C.clementina RRLTLGAELGGPKLWAWVTSVYFMLLWIIFVVLSSLKVSGII
R.communis RRLTLGAELGGPRIWAWVTSVYFMFLWLIFVVLSSLRVSGII
M.esculenta RRLTLGAELGGPRIWAWVTCVYFMLLWLIFVVLSSLRVSGFI
P.trichocarpa RRLTLKAELGGPRIWAWVTFVYFMLLWIIFVVLSSLRVSGII
P.persica RRRTLGAELGGPRLWAWITFVFFMLLWLIFVVLSSLKVSGII
C.papaya RRLTLGAELGGPRFWAWVTCVYFMLLWIIFVVLSSLRVSGII
A.coerulea RRLTIGAELGGPRIWAWITSVYFMSLWIVFVVLSSLKVSDII
V.vinifera RRLTLGAELGGPKIWARLTCVYFMSLWIIFVVLSSLKIYGII
G.max RRIIFGAELGGPRLWAWITCAFFMLLWIIFVVLSSLKVSGFI
M.truncatula RRIVFGAELGGPRLWAWITCAFFMLLWIIFVVLSSLKVSGFI
S.tuberosum RRLTIGAELGGPRVWAWVTCIFFMLLWLIFVVLSSLRVSGII
S.lycopersicum RRLTIGAELGGPRVWAWVTCIFFMLLWLIFVVLSSLRVSGII
M.guttatus_1 RRLTLGAELGGPKIWAWITCAYFMFLWLIFVVLSSLRVSGFI
M.guttatus_2 RRLTLGAELGGPRHWAWLTCFYLMLLWLVFVVLSSLQVSNII
C.sativus RRVTLGAELGGPKVWAWITCIFFMVLWVIFVVLSSLKVSDII
O.sativa_J1 RRVILGAELGGPRMWAWATSVYFMILWVVFVVLSSLKISGVI
O.sativa_I1 RRVILGAELGGPRMWAWATSVYFMILWVVFVVLSSLKISGVI
O.sativa_J2 RRVILGAELGGPRMWAWATSVYFMILWVVFVVLSSLRISGVI
T.aestivum RRIVFGAELGGPRLWAWATSAYFMVLWVVFVLLSSLRVSGVI
B.distachyon RRIVLGAELGGPRLWAWVTSTYFMVLWVVFVVLSSLRVSGVI
Z.mays RRIILGAELGGPRLWAWVTSVYFMILWVVFVVFSSLRVSGVI
S.bicolor RRIILGAELGGPRLWAWVTSVYFMILWVVFVVFSSLRVSGVI
S.italica RRIIIGAELGGPRLWAWITSVYFMILWIVFVVFSSLKVYGII
S.moellendorffii RRRLLGGELGGPRKWAWASAIFFFLLWITFLTLACLAGRFT.
P.patens_1 RRFLFGGELGGPRKWAWVSSFCFLSLWLIFVIFSCLRNYHHL
P.patens_2 RRFIFEGELGGPRKWAWASSFYFIFLWLIFVIFSCLRNYNLL
consensus>50 RRl.lgaELGGPrlWAwvtsvyfmlLWviFvvlssL.vsgii