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AI LHS1      ----- IENK I SRQVTF AKRRNGL LKKAYEL SLLCDAEVAL I IFS-
Ec LHS1      ----- LENK I SRQVTF AKRRNGL LKKAYEL SLLCDAEVAL I IFS-
Ds LHS1      ----- IENK I SRQVTF AKRRNGL LKKAYEL SLLCDAEVAL I IFS-
Cl LHS1      ----- IENK I SRQVTF AKRRNGL LKKAYEL SLLCDAEVAL I IFS-
ZMM14       ----- FAKRRNGL LKKAYEL SLLCDAEVAL I IFS-
ZMM8        ----- K I SRQVTF AKRRNGL LKKAYEL SLLCDAEVAL I IFS-
Sb LHS1      ----- IENK I SRQVTF AKRRNGL LKKAYEL SLMCDAEVAL I IFS-
Si LHS1      ----- IENK I SRQVTF AERRNGL LKKAYEL SLLCDAEVAL I IFS-
Pg LHS1      ----- IENK I SRQVTF AKRRNGL LKKAYEL SLLCDAEVAL I IFS-
Pm LHS1      ----- IENK I SRQVTF AKRRNGL LKKAYEL SLLCDAEVAL I IFS-
WLHS1-A     ----- MGRGKVMRR I ENK I SRQVTF AKRRNGL LKKAYEL SLLCDAEVAL I IFS-
WLHS1-B     ----- MGRGKVMRR I ENK I SRQVTF AKRRNGL LKKAYEL SLLCDAEVAL I IFS-
BM7         ----- MGRGKVMRR I ENK I SRQVTF AKRRNGL LKKAYEL SLLCDAEVAL I IFS-
WLHS1-D     ----- MGRGKVMRR I ENK I SRQVTF AKRRNGL LKKAYEL SLLCDAEVAL I IFS-
Lp MADS9    ----- MGRGKVMRR I ENK I SRQVTF AKRRNGL LKKAYEL SLLCDAEVAL I IFS-
As LHS1      ----- IENK I SRQVTF AKRRNGL LKKAYEL SLLCDAEDAL I IFS-
Lh LHS1      ----- IENK I SRQVTF AKRRNGL LKKAYEL SLLCDAEVALV I IFS-
Os MADS1    ----- MGRGKVELKR I ENK I SRQVTF AKRRNGL LKKAYEL SLLCDAEVAL I IFS-
Lv LHS1      ----- LENK I SRQVTF AKRRNGL LKKAYEL SLLCDAEVAL I IFS-
Ee LHS1      ----- IENK I SRQVTF AKRRNGL LKKAYEL SLLCDAEVAL I IFS-
Os MADS5    ----- MGRGKVELKR I ENK I SRQVTF AKRRNGL LKKAYEL SVLCDAEVAL I IFS-
Lp MADS6    ----- MGRGKVELKR I ENK I SRQVTF AKRRNGL LKKAYEL SVLCDAEVAL I IFS-
ZMM3        ----- K I SRQVTF AKRRNGL LKKAYEL SVLCDAEVAL I IFS-
WSEP-A      ----- MGRGRVELKR I ENK I NRQVTF AKRRNGL LKKAYEL SVLCDAEVAL I VFS-
WSEP-B      ----- MGRGRVELKR I ENK I NRQVTF AKRRNGL LKKAYEL SVLCDAEVAL I VFS-
BM9         ----- MGRGRVELKR I ENK I NRQVTF AKRRNGL LKKAYEL SVLCDAEVAL I VFS-
WSEP-D      ----- MGRGRVELKR I ENK I NRQVTF AKRRNGL LKKAYEL SVLCDAEVAL I VFS-
Os MADS45   ----- MGRGRVELKR I ENK I NRQVTF AKRRNGL LKKAYEL SVLCDAEVAL I IFS-
ZMM6        ----- MGRGRVELKR I ENK I NRQVTF AKRRNGL LKKAYEL SVLCDAEVAL I IFS-
Os MADS24   ----- MGRGRVELKR I ENK I NRQVTF AKRRNGL LKKAYEL SVLCDAEVAL I IFS-
Ta MADS1     ----- MGRGRVELKR I ENK I NRQVTF AKRRNGL LKKAYEL SVLCDAEVAL I IFS-

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Supplemental Figure 1. Alignment of deduced amino acid sequences of class E MADS-box genes of wheat and other monocot species.

Al LHS1	GRGRLEFESSSSSCMYKTLERYRSCNYP--QEAKAPQESE I ---NYQEYLKLRTRVEFLQ
Ec LHS1	GRGRLEFESSSSSCMYKTLERYRTCNFNS--HEVKAPLDSK I ---NYQDYLLKLRTRVEFLQ
Ds LHS1	GRGRLEFESSSSSCMYKTLERYRTCNFNS--QEAKAPLDSE I ---NYQEYLKLRTRVEFLQ
Cl LHS1	GRGRLEFESSSSSCMYKTLERYRSSNYNS--QEVKAPLDSE I ---NYQEYLKLRTRVEFLQ
ZMM14	GRGRLEFESSSSSCMYKTLERYRSSNYS--QEVKTPLDTE I ---KYQDYLLKLRTRVEFLQ
ZMM8	GRGRLEFESSSSSCMYKTLERYRSSNYST--QEVKAPLESE I ---NYQDYLLKLRTRVDFLQ
Sb LHS1	GRGRLEFESSSSSCMYKTLERYRSSNYSS--QEVKVPDSE I ---NYQDYLLKLRTRVEFLQ
Si LHS1	GRGRLEFESSSSSCMYKTLERYRSSNYGS--QEIKTPLDGE I ---NYQDYLLKLRTRVEFLQ
Pg LHS1	GRGRLEFESSSSSCMYKTLERYRSSNYGS--QEVKTPSDGE I ---NYQDYLELKRTRVEFLQ
Pm LHS1	GRGRLEFESSSSSCMYKTLERYRSSNYSS--QEVKTPDGE I ---NYQDYLLKLRTRVEFLQ
WLHS1-A	GRGRLEFESSSSSCMYKTLERYRTCNSNS--QEAAPPLE-----
WLHS1-B	GRGRLEFESSSSSCMYKTLERYRTCNSNS--QEATPPELESE I ---NYQEYLKLRTRVEFLQ
BM7	GRGRLEFESSSSSCMYKTLERYRTCNSNS--QEATPQVENE I ---NYQEYLKLRTRVEFLQ
WLHS1-D	GRGRLEFESSSSSCMYKTLERYRTCNSNS--QEATPPELENE I ---NYQEYLKLRTRVEFLQ
Lp MADS9	SRGRLEFESSSSSC IYKTLERYRTCNHNS--QEANPPELENE I ---SYQEYLKLRTRVEFLE
As LHS1	GRGRLEFESSSSSCMYKTLERYRTCNYNS--QEAAPLVENE I ---NYREYLKLRTRVEFLQ
Lh LHS1	GRGRLEFESSSSSCVHKTLELYRSCNYNT--QEANAPVENE I ---NYHEYLKLRTRVDFLQ
Os MADS1	GRGRLEFESSSSSCMYKTLERYRSCNYNS--QDAAAPEN-E I ---NYQEYLKLRTRVEFLQ
Lv LHS1	GRSRLFEFSSSSSCMYKTLERYRSCNYNS--QDAAAPEN-E I ---NYQEYLKLRTRVEFLQ
Ee LHS1	GRGRLEFESSSSSCMYKTLERYRSCNYNS--Q-EAAPEN-E I ---NYQEYLKLRTRVEFLR
Os MADS5	TRGRLEFESTSSSCMYKTLERYRSCNYNLNSCEASAALETELS--NYQEYLKLRTRVEFLQ
Lp MADS6	TRGRLEFESTSSSCMYKTLERYRSCNYNS--KATATPETELS--NYQEYLKMKTRVEFLQ
ZMM3	SRGRLEFESTSSSC IYKTLERYRSCSFAS--EASAPLEAELN--NYQEYLKLRTRVEFLQ
WSEP-A	NRGKLYEFCSTQSMTKTLDKYQKCSYAG--PETTVQNRENEQLKNSRNEYLLKLRVDNLQ
WSEP-B	NRGKLYEFCSTQSMTKTLDKYQKCSYAG--PETTVQNRENEQLKNSRNEYLLKLRVDNLQ
BM9	NRGKLYEFCSTQSMTKTLDKYQKCSYAG--PETTVQNRENEQLKNSRNEYLLKLRVDNLQ
WSEP-D	NRGKLYEFCSTQSMTKTLDKYQKCSYAG--PETTVQNRENEQLKNSRNEYLLKLRVDNLQ
Os MADS45	NRGKLYEFCSTQSMTKLEKYQKCSYAG--PETAVQNREREQLKASRNEYLLKLRVENLQ
ZMM6	NRGKLYEFSSSTQSMPKTLKLYQKCSFAG--PETALQNRENEQLKSSRNEYLLKLRVDNLQ
Os MADS24	NRGKLYEFCGQSMPKTLERYQKFSYGG--PDTA IQNKENELVQSSRNEYLLKLRVENLQ
Ta MADS1	NRGKLYEFCGQSMPKTLERYQKCSYGG--PDTA IQNKENELVQSSRNEYLLKLRVENLQ

Supplemental Figure 1. (continued)

AI LHS1	TTQRN I LGEDLGPLSMKELVQLENQ I E I SLKQ I RSRKNQMLLDQHYDLKNEQKQLQDLNK
Ec LHS1	TTQRN I LGEDLGPLSNKELEQLEKQ I E I SLTQ I RSRKNQMLLVQLLDLKSKEQELQDLNK
Ds LHS1	TTQRN I LGEDLGPLSSKELEQLENQ I E I SLKH I RTRKNQALLDQLFDLKSKEQELQDLNK
CI LHS1	TTQRN I LGEDLGPLSMKELEQLENQ I E I SLKH I RTRKSQVLLDQLFDLKTKEQELED I SK
ZMM14	TTQRN I LGEDLGPLSMKELEQLEDQ I E I SLKH I SSRKNQMLLDQLFDLKSKEQELLDLNLK
ZMM8	TTQRN I LGEDLGPLSMKELEQLENQ I EVSLKH I RSRKNQMLLDQLFDLKSKEQELQDLNK
Sb LHS1	TTQRN I LGEDLGPLSMKELEQLENQ I E TSLKQ I RSRKNQMLLDQLFDLKSKEQELQDLNK
Si LHS1	TTQRN I LGEDLGPLSMKELEQLENQ I E I FLKH I RTRKNQMLLDQLFDLKSKEQELQDLNK
Pg LHS1	TTQRN I LGEDLGPLSMKELEQVENVQ I E I SLKH I KDKNQMLLNQLFDLKSKEQELQDLNK
Pm LHS1	TTQRN I LGEDLGPLSMKELEQLENQVE I SLKH I RTRKNQMLLDHLFDLKSKEQELQDLNK
WLHS1-A	-----NEEQELQDENK
WLHS1-B	SSQRN I LGEDLGPLSMKELDQ I ENQ I DASLKH I RSKRNQVLLDQLFELKSKEQELQDENN
BM7	SSQRN I LGEDLGPLSMKELDQ I ENQ I DASLQH I RSKKNQVLLDQLFELKSKEQELQDENK
WLHS1-D	SSQRN I LGEDLGPLSMKELDQ I ENQ I DASLKH I RSKKNQVLLDQLFELKSKEQELQDENN
Lp MADS9	SSQRN I LGQDLGPLS I KELDQ I END I DVSLKH I RSRKSQVLVDQLSDLKNKEQELQDQNK
As LHS1	SSQRN I LGEDLGPLSMKELDQ I ESQ I DVSLKH I RSRKNQVLLDQLFDLKSKEQELQDQNK
Lh LHS1	TNQRN I LGEDLGPLSMKELEQLDNQ I E TSLKQ I RSRKNQVLLDQLFDLKSKEQELQD I NK
Os MADS1	TTQRN I LGEDLGPLSMKELEQLENQ I EVSLKQ I RSRKNQALLDQLFDLKSKEQQLQDLNK
Lv LHS1	TTQRN I LGEDLGPLSMKELEQLENQ I EVSLKQ I RTRKSQALLDQLFDLKSKEQQLQDLNK
Ee LHS1	TTQRN I LGEDLGPLSMKELEQLENQ I VVSLKQ I RDKKNQALLDQLFELKSKEQELRDLNK
Os MADS5	TTQRNLLGEDLVPLSLKELEQLENQ I E I SLMN I RSKKNQQLLDQVFELKRKEQQLQDANK
Lp MADS6	TTQRNLLGEDLGPLS I KELEQLENQ I E I SLKN I RSTKSQQSLDQLFELKRKEQQLQDVNK
ZMM3	TTQRNLLGEDLGPLSVKELEQLENQ I E I SLKQ I RSKKNQQLLDQLFDLKRKEQQLQDANK
WSEP-A	RTQRNLLGEDLDSLG I KELESLEKQLDSSLKH I RTRTRQHMVDQLTELQRREQMFSEANK
WSEP-B	RTQRNLLGEDLDSLG I KELESLEKQLDSSLKH I RTRTRQHMVDQLTELQRREQMFSEANK
BM9	RTQRNLLGEDLDSLG I KELESLEKQLDSSLKH I RTRTRQHMVDQLTELQRREQMFSEANK
WSEP-D	RTQRNLLGEDLDSLG I KELESLEKQLDSSLKH I RTRTRQHMVDQLTELQRREQMFSEANK
Os MADS45	RTQRNLLGEDLDSLG I KELESLEKQLDSSLKHVTRTRTKHLVDQLTELQRKEQMVSEANR
ZMM6	RTQRNLLGEDLES LG I KELEHLEKQLDSSLKH I RSTRTRQHMVDQLTELQKKEQMFCEANK
Os MADS24	RTQRNLLGEDLGTLG I KELEQLEKQLDSSLRH I RSTRTRQHMLDQLTDLQRREQMLCEANK
Ta MADS1	RTQRNLLGEDLGSLG I KDLEQLEKQLDSSLRH I RSTRTRQHMLDQLTDLQRREQMLCEANK

Supplemental Figure 1. (continued)

Al LHS1	DLRKK--LQETSG----ENALH- I SWEE -GGHSGASG-----NAIE-----PNQGFLQH
Ec LHS1	DLRKKKQLKKTG----ENATH- I SWEE -GGHSGTSR-----NANE-----PNQGFLQH
Ds LHS1	DLRKK--LQETSG----ENAVH- I SWEE -GGHSGASG-----NAME-----PSQGFLQH
Cl LHS1	GLRKK--LHETSG----ENALH- I SWEE -GGHSGASG-----NAVE-----PYQGFQQH
ZMM14	DLRQK--LQETRP----ENALR- VSWEE -GGHSGASG-----NVLD-----PYQGLLQH
ZMM8	DLRKK--LQETSP----QNV I HDVSWEE -GGHSGSS-----VLG-----PFQGLLQY
Sb LHS1	DLRKK--LQETSP----ENALHVSSWEE -GGHSGASG-----NVLD-----PYQGLLQH
Si LHS1	DLRKK--LQETNA----ESVLH- VSWEE -GGHSGTSG-----NAIE-----PYQGFLLQ
Pg LHS1	DLRKK--LQETNA----ESVLH-LSWEE -GGHSGTGG-----NAIE-----PYQGFLLQ
Pm LHS1	DLRKK--LQETNA----ENVLH- VSWEE -GGHSGASG-----NAIE-----PYQGFLLQ
WLHS1-A	DLRKK--LQDTS-SCGENAVHMS-WQD-GGQSSSR-----VLQH
WLHS1-B	DLRKK--LQDTS-CCGENAVHMS-WQD-GGQCSSR-----VL-H
BM7	DLRKK--LQDTTTS-SCGENAVHMS-WQD-GGQSSRR-----HATE-----PYPGVLQH
WLHS1-D	DLRKK--LQDTS-CCGDNVAVHMS-WQD-GGQCSSR-----VLH
Lp MADS9	DLRKK--LQDT I L---EKNVAVHML-WQD-GGQNSGHA-----I EPY-----QG--LLQY
As LHS1	DLRKK--LQEMSC---GENAVHMS-WQDGGGQSSSSG-----QAVD-----PYPGPLQH
Lh LHS1	DLRKK--LQETNG---DQKVVI NSWQD-GGQSSSSG-----HAIE-----PYQGLIQH
Os MADS1	DLRKK--LQETSA----ENVLH-MSWQDGGG-HSGSS-----TVLA-DQPHHHQGLLHP
Lv LHS1	DLRKK--LQETSA----ENVLY-MSWQDGGG-HSGSA-----TVLAADQPHHHQGLLHP
Ee LHS1	DLRKK--LQETT G---DNVLH-MSWQDGGGQHSGSS-----GLTA-----EHHQGLLHH
Os MADS5	DLRKK--IQETSG----ENMLH- I SCQDVGPSG---H-----ASEAN-----QEFLHH
Lp MADS6	DLRKK--IQETSA----ENVLH-MSQDVGPSGSSGQ-----ANQANE-----QELFHS
ZMM3	DLRKK--IEETSE----ENVLR-LSSQD I GCSGSSGH-----GDEAN-----QEHLQL
WSEP-A	CLRIK--LEESNQ-----VHGQQLWEHNNNVLSYE-----RQPEVQPPMHGNGFFHP
WSEP-B	CLRIK--LEESNQ-----VHGQQLWEHNNNVLSYE-----RQPEVQPPMHGNGFFHP
BM9	CLRIK--LEESNQ-----VHGQQLWEHNNNVLSYE-----RQPEVQPPMHGNGFFHP
WSEP-D	CLRIK--LEESNQ-----VHGQQLWEHNNNVLYE-----RQPEVQPPMHGNGFFHP
Os MADS45	CLRRK--LEESNH-----VRGQVWEQGCNLI GYE-----RQPEVQPLHGNGFFHP
ZMM6	CLRRR--LEESNQ-----VIWQHAWEQS-----E-----RHSEVQPQLNGNFFHP
Os MADS24	CLRRK--LEESNQ-----LHGQVWE-HGATLLGYE--RQSPHAVQVPPHGNGFFHS
Ta MADS1	CLRRK--LEESSQ-----MQGQWWEQAANLLGYDQLRQSPH-QQAPHHGNGFFHP

Supplemental Figure 1. (continued)

AI LHS1	PEN-D-SSLQIGYHQQA-----YMDQLSNEDMGAHH-----
Ec LHS1	AEN-NYSSLQIGYYQQA-----YMDQLNNQDIGAAHN-----
Ds LHS1	PEN-D-SDLHMGYHQQA-----YMDHLNNEDEMAAPHH-----
CI LHS1	REN-E-SSLQIGYRQQA-----YMEQLNNEDEMED-----
ZMM14	LDN-D-PSLQFGYHHQA-----YMDQLNNEDELVDPNEHGRSGWI-----
ZMM8	HGN-D-PSLQTRYHQQA-----YMDQLN-EDMADPDEHGRSGWI-----
Sb LHS1	PES-D-PSLQIGYHQQA-----YMDQLNNEDEMAG-----
Si LHS1	PDN-D-PSLQIGYHQQA-----YMDQLNNEDEMGD-----
Pg LHS1	PEN-D-PSLQIGYHQQA-----YIDQLNNEDEMD-----
Pm LHS1	PEN-D-PSLQIGYHQQA-----YMDQLNNEDEMD-----
WLHS1-A	PEH-D-TSMQIGYP-QA-----YMDQLNSRDHVASERPGG--GSSAGWI
WLHS1-B	PEH-D-TSMQIGYP-RA-----YMDQLNNRDHSVACERPGG--GSSAGWI
BM7	PEH-D-TSMQIGYP-QA-----YMDQLNNRDHMASQRPGGHPGSSAGWI
WLHS1-D	PEH-D-TSMQIGYP-QA-----YMDQLNKQ-----RSRGF-
Lp MADS9	PDH-G-SSMQIGYH-QS-----YTDQLNNDKIASQNNPNEGEPGSSAGWI
As LHS1	PEH-D-SSMQIGYH-QT-----YMEQLBNEDHTASHHPNAQPGSSAGWI
Lh LHS1	PEN-D-PSMQIAYH-QV-----YMDQLNHEDMAAQH-----
Os MADS1	HPDQGDHSLQIGYHHPAHHHQAYMDHLSNEAADMVAHHPNEHPSGWI-
Lv LHS1	HPE-GDHSLQIGYHHTH-HHHQAYMDHLNNEA-DMVAHH-----
Ee LHS1	QDQ-GNHSLQIGYHQAY-----MDHLNNEA-EMAGHN-----
Os MADS5	AIC--DPSLHIG-YQAY-----MDHLNQ-----
Lp MADS6	AVC--DPTLHIGFHQSY-----LDQLNND-----
ZMM3	AL---DPSLHIG-YQAY-----MDHLNND-----
WSEP-A	LDAAGEPTLHIGYPPE-----SLNSSCMTT-FMPPWLP-----
WSEP-B	LDAAGEPTLHIGYPPE-----SLNSSCMTT-FMPPWLP-----
BM9	LDAAGEPTLHIGYPPE-----SLNSSCMTT-FMPPWLP-----
WSEP-D	LDAAGEPTLHIGYPPE-----SMSNSCMTT-FMPPWLP-----
Os MADS45	LDAAGEPTLQIGYPAEH-----HEAMNSACMNT-YMPPWLP-----
ZMM6	LDGAGEPTLQIGYPSE-----ALTSSCMTT-FLPPWLP-----
Os MADS24	LEAAAEPQLQIGFTPE-----QMNNSCVTA-FMPTWLP-----
Ta MADS1	LDPTTEPTLQIGYTQE-----QINNACVAASFMPWLP-----

Supplemental Figure 1. (continued)