

HvABA80x1 : ---MGAFILLCLLVPLVVCVAVR--ARKGAGGR-----SSSGGKKGRLP---PGSMGVPVVGTEITQLYSSKNPNVFFARKRKNRYGFIKFKTHILGCPVMVSSPEAAKFLVLTQAHLFKPTFPASKERMLGROAI
HvABA80x2 : ---MAFFLLLCILVSVAVVSYAHHAIRRRQGG---C-AHGRHEQAALKLP---PGSMGLPVVGTETQLYSS-ODPNSVFLSSKQKRYGFIKFKTHLLGCPVMVLSPEAARFVLVSAHLLFKPTYPRSKERLIGFSAL
OsABA80x1 : ---MGAFLLFVQVLAFFLVCAVVR--GRRQAG-----SSEAAACGLPLP---PGSMGVPVVGTEITQLYSSKNPNVFFARKRKNRYGFIKFKTHILGCPVMVSSPEAARFVLVTOAHLLFKPTFPASKERMLGROAI
OsABA80x2 : MAFLFFVVFVTAALVCFVVPFAFLLLCTSVQRRD---VGQGGDRWDQKKKRLP---PGSMGVPVVGTEITQLYSS-ODPNVFFASKQKRYGFIKFKTHLLGCPVMVLSPEAARFVLVSAHLLFKPTYPRSKERMIGFSAL
OsABA80x3 : ---MAASFVIVIVISFFISLAFMCMVHYTSRQRRK-----LHGYGHEKAVRLP---PGSMGVPVVGTEITQLYSS-ODPNVFFASKQKRYGFIKFKTHLLGCPVMVLSPEAARFVLVTOAHLLFKPTYPRSKERMIGFSAL
SbABA80x1 : ---MGALLLVQVLLAPIVLCAAVVRGSRKRSAS-----PASSCGKALPLP---PGSMGVPVVGTEITQLYSSKNPNVFFARKRKNRYGFIKFKTHILGCPVMVSSPEAARFVLVTOAHLLFKPTFPASKERMLGROAI
SbABA80x2 : ---MAFFLLAVACIYIVFSLTLLVLLVSVRRRTTAVTAGKTGGATEQDHNKLP---PGSLGLPFLIGETLQLYT-ONPKDFASRLKRYGFIKFKTHVLCGCPVILASPEAARMVLVSAHLLFKPTYPRSKERMIGAGAL
SbABA80x3 : ---MAFFFLILACTLIFLAAYFYQYARWQKGRG-----RS-GGGHEKQASSSKSLP---PGSMGVPVVGTEITQLYSS-ODPNVFFASKQKRYGFIKFKTHLLGCPVMVLSPEAARFVLVTOAHLLFKPTYPRSKERMIGFSAL
ZmABA80x1a : ---MGAFLLFVQVLLAPVVLACAVRG-RKRR-AS-----SAAAGKALPLP---PGSMGVPVVGTEITQLYSSKNPNVFFARKRKNRYGFIKFKTHILGCPVMVSSPEAARFVLVTOAHLLFKPTFPASKERMLGROAI
ZmABA80x1b : -----XKRAAAPAP-----APACGKALPLP---PGSMGVPVVGTEITQLYSSKNPNVFFARKRKNRYGFIKFKTHILGCPVMVSSPEAARFVLVTOAHLLFKPTFPASKERMLGROAI
ZmABA80x2 : ---MAFFLAVACIYIVS-TLLVLLLDASRRR-RTTG---GGSSSTEEHKLFP---PGSLGLPFLIGETLQLYS-ONPKVFFASRLKRYGFIKFKTHVLCGCPVILASPEAARMVLVSAHLLFKPTYPRSKERMIGAGAL
ZmABA80x3a : ---MAFFLALVQVLLILLLAASVYQYTRWQKGGK-----R-FGGHGRSAPLKLFP---PGSMGVPVVGTEITQLYSS-ODPNSVFLSSKQKRYGFIKFKTHLLGCPVMVLSPEAARFVLVTOAHLLFKPTYPRSKERMIGFSAL
ZmABA80x3b : ---MALFFILACTLIFVALASYAQYARWQKGGK-----R-LGGHEKASSSSK-LP---PGSMGVPVVGTEITQLYSS-ODPNVFFASKQKRYGFIKFKTHLLGCPVMVLSPEAARFVLVTOAHLLFKPTYPRSKERMIGFSAL

HvABA80x1 : FFHQGDYHHLRRLRVSRFSPFAIRGSVSSIEAIALRSLGSMWEG-HEVNTFOEMKTYALNVALLSIFGE--EMQYIEELKQCYLTLEKGYNSMPVNLPGTLFHKAMKARKRLGAVIAHIIISARR-----EREGC---
HvABA80x2 : FFHQGDYHHLRRLRVQGLPGEALRKLKLPDIEAAVRSITLAAMDGDWASTFHAMKRLSFDVCIIVIFGG-RLDERRKELRNNYAVVEKGYNSFPNSFPGLTYKAIQARRRLNGVLSDVVHERR-----ERGEHC---
OsABA80x1 : FFHQGDYHHLRRLRVSRFSPFESIRASVPAIEAIALRSLHSDWDC-QFVNTFOEMKTYALNVALLSIFGE--EMRYIEELKQCYLTLEKGYNSMPVNLPGTLFHKAMKARKRLGAVIAHIIISARR-----ERQRG---
OsABA80x2 : FFHQGDYHHLRRLRVQGLPGEALRKLKLPDIEAAVRSITLAAMDGDWASTFHAMKRLSFDVCIIVIFGG-RLDERRKELRNNYAVVEKGYNSFPNSFPGLTYKAIQARRRLNGVLSDVVHERR-----ERGEHC---
OsABA80x3 : FFHQGDYHHLRRLRVQGLPGEALRKLKLPDIEAAVRSITLAAMDGDWASTFHAMKRLSFDVCIIVIFGG-RLDERRKELRNNYAVVEKGYNSFPNSFPGLTYKAIQARRRLNGVLSDVVHERR-----ERGEHC---
SbABA80x1 : FFHQGDYHHLRRLRVSRFSPFAIRGSVPAIEAIALRSLDSDWDC-QLVNTFOEMKTYALNVALLSIFGE--EMRYIEELKQCYLTLEKGYNSMPVNLPGTLFHKAMKARKRLGAVIAHIIISARR-----ERQRG---
SbABA80x2 : FFHQGDYHHLRRLRVQSWVGFEDALRALVPEVEAAVASTLRWEG-RVNTSFTHTMKRLTDFDVCIIVIFGR-RLADHVKEELRKHLYLVEKGYNSFPNIPVPTSYCQAIKARRRLGELSGILARRRRAR---SGDLGGCDD
SbABA80x3 : FFHQGDYHHLRRLRVQSWVGFEDALRALVPEVEAAVASTLRWEG-RVNTSFTHTMKRLTDFDVCIIVIFGR-RLADHVKEELRKHLYLVEKGYNSFPNIPVPTSYCQAIKARRRLGELSGILARRRRAR---SGDLGGCDD
ZmABA80x1a : FFHQGDYHHLRRLRVSRFSPFAIRGSVPAIEAIALRSLDSDWDC-RVNTSFTHTMKRLTDFDVCIIVIFGR-RLADHVKEELRKHLYLVEKGYNSFPNIPVPTSYCQAIKARRRLGELSGILARRRRAR---SGDLGGCDD
ZmABA80x1b : FFHQGDYHHLRRLRVSRFSPFAIRGSVPAIEAIALRSLDSDWDC-RVNTSFTHTMKRLTDFDVCIIVIFGR-RLADHVKEELRKHLYLVEKGYNSFPNIPVPTSYCQAIKARRRLGELSGILARRRRAR---SGDLGGCDD
ZmABA80x2 : FFHQGDYHHLRRLRVQGLPGEALRKLKLPDIEAAVRSITLAAMDGDWASTFHAMKRLSFDVCIIVIFGG-RLDERRKELRNNYAVVEKGYNSFPNSFPGLTYKAIQARRRLNGVLSDVVHERR-----ERGEHC---
ZmABA80x3a : FFHQGDYHHLRRLRVQGLPGEALRKLKLPDIEAAVRSITLAAMDGDWASTFHAMKRLSFDVCIIVIFGG-RLDERRKELRNNYAVVEKGYNSFPNSFPGLTYKAIQARRRLNGVLSDVVHERR-----ERGEHC---
ZmABA80x3b : FFHQGDYHHLRRLRVQGLPGEALRKLKLPDIEAAVRSITLAAMDGDWASTFHAMKRLSFDVCIIVIFGG-RLDERRKELRNNYAVVEKGYNSFPNSFPGLTYKAIQARRRLNGVLSDVVHERR-----ERGEHC---

HvABA80x1 : SDLLGSLFDGREA-----LTDQIADNVAIGVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKGSS-GEPLWADTRRMRVTSRVIQETMRVASILSFTFREAADVVEYQGYLIPKGWKVPLPFRNI
HvABA80x2 : DDLLGCLMRSRAGGDDADDEGALLTDQIADNVAIGVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKGSS-GEPLWADTRRMRVTSRVIQETMRVASILSFTFREAADVVEYQGYLIPKGWKVPLPFRNI
OsABA80x1 : NDLLGSLFDGREA-----LTDQIADNVAIGVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKGSS-GEPLWADTRRMRVTSRVIQETMRVASILSFTFREAADVVEYQGYLIPKGWKVPLPFRNI
OsABA80x2 : DDLLGCLMRSRDDGTAG--AVALTDQIADNVAIGVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKGSS-GEPLWADTRRMRVTSRVIQETMRVASILSFTFREAADVVEYQGYLIPKGWKVPLPFRNI
OsABA80x3 : SDLLGCLMRSRAGGDDADDEGALLTDQIADNVAIGVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKGSS-GEPLWADTRRMRVTSRVIQETMRVASILSFTFREAADVVEYQGYLIPKGWKVPLPFRNI
SbABA80x1 : RDLLASFLDDREA-----LTDQIADNVAIGVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKGSS-GEPLWADTRRMRVTSRVIQETMRVASILSFTFREAADVVEYQGYLIPKGWKVPLPFRNI
SbABA80x2 : DDLLNTLMRYRDDTGAA-----LSDDQIADNVAIGVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKGSS-GEPLWADTRRMRVTSRVIQETMRVASILSFTFREAADVVEYQGYLIPKGWKVPLPFRNI
SbABA80x3 : TDLLGCLMRSRAGGDDADDEGALLTDQIADNVAIGVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKGSS-GEPLWADTRRMRVTSRVIQETMRVASILSFTFREAADVVEYQGYLIPKGWKVPLPFRNI
ZmABA80x1a : SDLLASFLDDREA-----LTDQIADNVAIGVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKGSS-GEPLWADTRRMRVTSRVIQETMRVASILSFTFREAADVVEYQGYLIPKGWKVPLPFRNI
ZmABA80x1b : SDLLASFLDDREA-----LTDQIADNVAIGVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKGSS-GEPLWADTRRMRVTSRVIQETMRVASILSFTFREAADVVEYQGYLIPKGWKVPLPFRNI
ZmABA80x2 : HGLLNALMRSRDDSGAAP---PLSDDQIADNVAIGVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKGSS-GEPLWADTRRMRVTSRVIQETMRVASILSFTFREAADVVEYQGYLIPKGWKVPLPFRNI
ZmABA80x3a : TGLLGCLMRSRAGGDDADDEGALLTDQIADNVAIGVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKGSS-GEPLWADTRRMRVTSRVIQETMRVASILSFTFREAADVVEYQGYLIPKGWKVPLPFRNI
ZmABA80x3b : TDLLGCLMRSRAGGDDADDEGALLTDQIADNVAIGVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKGSS-GEPLWADTRRMRVTSRVIQETMRVASILSFTFREAADVVEYQGYLIPKGWKVPLPFRNI

HvABA80x1 : HHPDHFQDPKDFDPSRFVAPKPNTEFPFGNGTHSCPGNELAKLEMLVLEHLLVTKYRWSTSKSESGVQFGPFALELNGIPMTFTRKA-----
HvABA80x2 : HHPDHFQDPKDFDPSRFVAPKPNTEFPFGNGTHSCPGNELAKLEMLVLEHLLVTKYRWSTSKSESGVQFGPFALELNGIPMTFTRKA-----
OsABA80x1 : HHPDHFQDPKDFDPSRFVAPKPNTEFPFGNGTHSCPGNELAKLEMLVLEHLLVTKYRWSTSKSESGVQFGPFALELNGIPMTFTRKA-----
OsABA80x2 : HHPDHFQDPKDFDPSRFVAPKPNTEFPFGNGTHSCPGNELAKLEMLVLEHLLVTKYRWSTSKSESGVQFGPFALELNGIPMTFTRKA-----
OsABA80x3 : HHPDHFQDPKDFDPSRFVAPKPNTEFPFGNGTHSCPGNELAKLEMLVLEHLLVTKYRWSTSKSESGVQFGPFALELNGIPMTFTRKA-----
SbABA80x1 : HHPDHFQDPKDFDPSRFVAPKPNTEFPFGNGTHSCPGNELAKLEMLVLEHLLVTKYRWSTSKSESGVQFGPFALELNGIPMTFTRKA-----
SbABA80x2 : HHPDHFQDPKDFDPSRFVAPKPNTEFPFGNGTHSCPGNELAKLEMLVLEHLLVTKYRWSTSKSESGVQFGPFALELNGIPMTFTRKA-----
SbABA80x3 : HHPDHFQDPKDFDPSRFVAPKPNTEFPFGNGTHSCPGNELAKLEMLVLEHLLVTKYRWSTSKSESGVQFGPFALELNGIPMTFTRKA-----
ZmABA80x1a : HHPDHFQDPKDFDPSRFVAPKPNTEFPFGNGTHSCPGNELAKLEMLVLEHLLVTKYRWSTSKSESGVQFGPFALELNGIPMTFTRKA-----
ZmABA80x1b : HHPDHFQDPKDFDPSRFVAPKPNTEFPFGNGTHSCPGNELAKLEMLVLEHLLVTKYRWSTSKSESGVQFGPFALELNGIPMTFTRKA-----
ZmABA80x2 : HHPDHFQDPKDFDPSRFVAPKPNTEFPFGNGTHSCPGNELAKLEMLVLEHLLVTKYRWSTSKSESGVQFGPFALELNGIPMTFTRKA-----
ZmABA80x3a : HHPDHFQDPKDFDPSRFVAPKPNTEFPFGNGTHSCPGNELAKLEMLVLEHLLVTKYRWSTSKSESGVQFGPFALELNGIPMTFTRKA-----
ZmABA80x3b : HHPDHFQDPKDFDPSRFVAPKPNTEFPFGNGTHSCPGNELAKLEMLVLEHLLVTKYRWSTSKSESGVQFGPFALELNGIPMTFTRKA-----

Supplementary Fig. S1. Multiple alignment of proteins encoded by ABA 8'-hydroxylase genes of maize (Zm) and orthologs from *Oryza sativa* (Os), *Sorghum bicolor* (Sb) and *Barley* (Hv).