

HvABA80x1 : ---MGAFILLCLLVPLVVCVAVR--ARKGAGGR-----SSSGGKKGRLP---PGSMGVPVVGFTTQLYSSKNPNVFFARKRKNRYGFIKFKTHLLGCPVMVSSPEAAKFLVLTQAHFKPTFPASKERMLGROAI
HvABA80x2 : ---MAFFLLLCILVSVAVVSYAHHAIRRRQGG---C-AHGRHEQAALKLP---PGSMGLPVVVGFTTQLYS-ODPSVFLSSKQKRYGFIKFKTHLLGCPVMVLSPEAARFVLVSAHLLFKPTYPRSKERLIGFSAL
OsABA80x1 : ---MGAFLLFVQVLAFFLVCAVVR--GRRQAG-----SSEAAACGLPLP---PGSMGVPVVGFTQLYSSKNPNVFFARKRKNRYGFIKFKTHLLGCPVMVSSPEAARFVLVTOAHLLFKPTFPASKERMLGROAI
OsABA80x2 : MAFLFFVVFVTAALVCFVVPFALLLCTSVQRRR---VGQGGDRWDQKKKRLP---PGSMGVPVVGFTTQLYS-ODPNVFFASKQKRYGFIKFKTHLLGCPVMVLSPEAARFVLVSAHLLFKPTYPRSKERMIGFSAL
OsABA80x3 : ---MAASFVIVIVISFFISLAFMCMVHYTSRQRRK-----LHGYGHEKAVRLP---PGSMGVPVVGFTTQLYS-ODPNVFFASKQKRYGFIKFKTHLLGCPVMVLSPEAARFVLVTOAHLLFKPTYPRSKERMIGFSAL
SbABA80x1 : ---MGALLLVQVLLAPIVLCAAVVRGSRKRSAS-----PASSCGKALPLP---PGSMGVPVVGFTQLYSSKNPNVFFARKRKNRYGFIKFKTHLLGCPVMVSSPEAARFVLVTOAHLLFKPTFPASKERMLGROAI
SbABA80x2 : ---MAFFLLAVACIYIVFSLTLLVLLVSVRRRTTAVTAGKTGGATEQDHNKLP---PGSLGLPFLIGETLQLYT-ONPKDFASRLKRYGFIKFKTHLLGCPVMVLSPEAARFVLVTOAHLLFKPTYPRSKERMIGFSAL
SbABA80x3 : ---MAFFFLILACTLIFLAAYFYQYARWQKGRG-----RS-GGGHEKQASSSKSLP---PGSMGVPVVGFTTQLYS-ODPNVFFASKQKRYGFIKFKTHLLGCPVMVLSPEAARFVLVTOAHLLFKPTYPRSKERMIGFSAL
ZmABA80x1a : ---MGAFLLFVQVLLAPVVLACAVRG-RKRR-AS-----SAAAGGKALPLP---PGSMGVPVVGFTQLYSSKNPNVFFARKRKNRYGFIKFKTHLLGCPVMVSSPEAARFVLVTOAHLLFKPTFPASKERMLGROAI
ZmABA80x1b : -----XKRAAAPAP-----APACGKALPLP---PGSMGVPVVGFTTQLYSSKNPNVFFARKRKNRYGFIKFKTHLLGCPVMVSSPEAARFVLVTOAHLLFKPTFPASKERMLGROAI
ZmABA80x2 : ---MAFFLAVACIYIVS-TLLVLLLDASRRR-RTTG---GGSSSTEEHKLFP---PGSLGLPFLIGETLQLYS-ONPKVFFASRLKRYGFIKFKTHLLGCPVMVLSPEAARFVLVTOAHLLFKPTYPRSKERMIGFSAL
ZmABA80x3a : ---MAFFLALVQVLLILLLAASVYQYTRWQKGGK-----R-FGGHGRSAPLKLFP---PGSMGVPVVGFTTQLYS-ODPSVFFASKQKRYGFIKFKTHLLGCPVMVLSPEAARFVLVTOAHLLFKPTYPRSKERMIGFSAL
ZmABA80x3b : ---MAFFFLILACTLIFVALASYAQYARWQKGGK-----R-LGGHEKASSSSK-LP---PGSMGVPVVGFTTQLYS-ODPNVFFASKQKRYGFIKFKTHLLGCPVMVLSPEAARFVLVTOAHLLFKPTYPRSKERMIGFSAL

HvABA80x1 : FFQOQDYHHLRRLVSRFSPFAIRGSVSSIEAIALRSLGSMWEG-HEVNTFOEMKTYALNVALLSIFGE--EMQYIEELKQCYLTLEKGYNSMPVNLPGTLFHKAMKARKRLGAVVAHIIISARR-----EREGC---
HvABA80x2 : FFHQGDYHLRRLRRLVQGLGPEALRKLKLPDIEAAVRSITLAAWDGDMASFTHAMKRLSFDVCIIVIFGG-RLDERRKELRNNYAVVEKGYNSFPNSFPGLTYKAIQARRRLNGVLSDVVHERR-----ERGEHC---
OsABA80x1 : FFQOQDYHHLRRLVSRFSPFESIRASVPAIEAIALRSLHSWDC-QFVNTFOEMKTYALNVALLSIFGE--EMRYIEELKQCYLTLEKGYNSMPVNLPGTLFHKAMKARKRLGAVVAHIIISARR-----ERQRG---
OsABA80x2 : FFHQGEYHLRRLRRLVQAALAPDSLRALVDPDVAVAATLAASGSHWASFTHAMKRLSFDVGVVITFGG-RLGRRHREELRNTYNSVVERGYNCFNRFPGTLYKAIQARRRLRAILSEIVABRRARG---GGGGGG---
OsABA80x3 : FFHQGDYHLRRLRRLVQGLGPDALRALVDPDVEAAVRSITLAW-DGNVSSFTHAMKRLSFDVCIIVIFGG-RLDERRKELRNNYAVVEKGYNSFPNSFPGLTYKAIQARRRLHGVLSDTMRERR-----ARPEG---
SbABA80x1 : FFQOQDYHHLRRLVSRFSPFAIRGSVPAIEAVALRSLDSWDC-QLVNTFOEMKTYALNVALLSIFGE--EMRYIEELKQCYLTLEKGYNSMPVNLPGTLFHKAMKARKRLGAVVAHIIISARR-----ERQRG---
SbABA80x2 : FFHQGDYHLRRLRRLVQSWVGPDALRALVDPDVEAAVASTLRWEG-RVNTSFTHAMKRLSFDVGVVITFGR-RLADHVKEELRKHLYLVEKGYNSFPNIPVFTSYQAIKARRRLGELSGILABRRRAR---SGDLGGCDD
SbABA80x3 : FFHQGDYHLRRLRRLVQGLGPDALRALVDPDVEAAVRSITLAWDC-RVNTSFTHAMKRLSFDVCIIVIFGG-RLDERRKELRNNYAVVEKGYNSFPNSFPGLTYKAIQARRRLQGVLSDTMRERR-----ERGEHC---
ZmABA80x1a : FFQOQDYHHLRRLVSRFSPFAIRGSVPAIEAIALRSLDSWDC-RVNTSFTHAMKTYALNVALLSIFGE--EMRYIEELKQCYLTLEKGYNSMPVNLPGTLFHKAMKARKRLGAVVAHIIISARR-----EGERQRG---
ZmABA80x1b : FFQOQDYHHLRRLVSRFSPFAIRASVPAIEAVALRSLRSWDC-RVNTSFTHAMKTYALNVALLSIFGE--EMRYIEELKQCYLTLEKGYNSMPVNLPGTLFHKAMKARKRLSITVAHIIISARR-----ERPRRG---
ZmABA80x2 : FFHQGDYHLRRLRRLVQGLGPDALRGLVDPDVEAAVSTLDWEG-RVNTSFTHAMKRLSFDVGVVITFGH-RLAGHVKEELRNNYFTMEKGYNSFPNIPVACTSYQAIKARRRLGAVLSGILABRRRAR---SDDD---DD
ZmABA80x3a : FFHQGDYHLRRLRRLVQGLGPDALRALVDPDVEAAVRSITLAWDAGHRSFTHAMKRLSFDVCIIVIFGG-RLDERRKELRNNYAVVEKGYNSFPNSFPGLTYKAIQARRRLHGVLSDTMRERR-----QAQAC---
ZmABA80x3b : FFHQGDYHLRRLRRLVQGLGPDALRALVDPDVEAAVRSITLAWDC-QVRSFTDAMKRLSFDVGVVITFGGGGLDERRKELRNNYAVVEKGYNSFPNSFPGLTYKAIQARRRLHGVLSDTMRERR-----ERGAPC---

HvABA80x1 : SDLLGSFMDGREA-----LTDQIADNAGVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKALS-GEPLSWADTRRMRVTSRVIQETMRVASILSFTFREAVDVEYQGYLIPKGWKVPLFLFRNI
HvABA80x2 : DDLLGCLMRSRAGGDDADDEGALLTDQVADNIGVLFAAQDTTASVLTWVVKVYLDHPKLEAVRAEQAAIHEANDGG-RLPLTWAQTRSMALTRVILDESRLMASIISFTFREAVDVEYQGYLIPKGWKVPLFLFRNI
OsABA80x1 : NDLLGSFMDGREA-----LTDQIADNVIQVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQLQIAKEKAS-GEPLSWADTRRMRVTSRVIQETMRVASILSFTFREAVDVEYQGYLIPKGWKVPLFLFRNI
OsABA80x2 : DDLLGCLMRSRDDGTAG--AVALTDQIADNVVGVLFAAQDTTASVLTWVVKVYLDHPKLEAVRAEQAAIHEANDGG-RLPLTWAQTRSMALTRVILDESRLMASIISFTFREAVDVEYQGYLIPKGWKVPLFLFRNI
OsABA80x3 : SDLLGCLMQSRAG-----DDGALLTDQVADNIGVLFAAQDTTASVLTWVVKVYLDHPKLEAVRAEQAAIHEANDGG-RLPLTWAQTRSMALTRVILDESRLMASIISFTFREAVDVEYQGYLIPKGWKVPLFLFRNI
SbABA80x1 : RDLLASFLDDREA-----LTDQIADNVIQVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKALS-GEPLSWADTRRMRVTSRVIQETMRVASILSFTFREAVDVEYQGYLIPKGWKVPLFLFRNI
SbABA80x2 : DDLLNTLMRYRDDTGAA-----LSDDQVADNIGVLFAAQDTTASVLTWVVKVYLDHPKLEAVRAEQAAIHEANDGG-RLPLTWAQTRSMALTRVILDESRLMASIISFTFREAVDVEYQGYLIPKGWKVPLFLFRNI
SbABA80x3 : TDLLGCLMQSQGDDG-----APLSDQVADNIGVLFAAQDTTASVLTWVVKVYLDHPKLEAVRAEQAAIHEANDGG-RLPLTWAQTRSMALTRVILDESRLMASIISFTFREAVDVEYQGYLIPKGWKVPLFLFRNI
ZmABA80x1a : SDLLASFLDDREA-----LTDQIADNVIQVIFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKALS-GEPLSWADTRRMRVTSRVIQETMRVASILSFTFREAVDVEYQGYLIPKGWKVPLFLFRNI
ZmABA80x1b : SDLLASFLDGREA-----LTDQISDNVIGVMFAARDTTASVLTWVVKFLGDNPAVLKAVIEEQAIEARSKALS-GEPLSWADTRRMRVTSRVIQETMRVASILSFTFREAVDVEYQGYLIPKGWKVPLFLFRNI
ZmABA80x2 : HGLLNALMRSRDDSGAAP---PLSDQIADNVIQVLFAAQDTTASVLTWVVKVYLDHPKLEAVRAEQAAIHEANDGG-RLPLTWAQTRSMALTRVILDESRLMASIISFTFREAVDVEYQGYLIPKGWKVPLFLFRNI
ZmABA80x3a : TGLLGCLMRSRAGGDDG-----APLSDQIADNIGVLFAAQDTTASVLTWVVKVYLDHPKLEAVRAEQAAIHEANDGG-RLPLTWAQTRSMALTRVILDESRLMASIISFTFREAVDVEYQGYLIPKGWKVPLFLFRNI
ZmABA80x3b : TDLLGCLMRSQGGDDGA--RRPLTDQVADNIGVLFAAQDTTASVLTWVVKVYLDHPKLEAVRAEQAAIHEANDGG-RRPLTWAQTRSMALTRVILDESRLMASIISFTFREAVDVEYQGYLIPKGWKVPLFLFRNI

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

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).