

S2 Text. Multiple alignment of protein sequences of HUB1 from various plants by Clustal W.

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Zea      ---PDLFAVLKYNQKLAQLEVHRFEFCALSRFNDLKEKQTHNKTLLVVKYSWERLADLGLVSVCKNESSRSSCS---TG---NNNIRKDFLN
Brassica ---LDFAVLQFNKLSQKLEAQVCEVLEDRLSIKRDKLPFSSCLKTVHRSWEKLTAVVESCISIVSDSSGAGHSV---LYGS---SPAVDFDFIN
A.lyrata ---LDFAVLQFNKLSQKLEAQVCEVLEDRLSIKRDKLPFSSCLKTVHRSWEKLTAVVESCISIVSDSSGAGHSV---LYGS---SPAVDFDFIN
A.thaliana ---LDFAVLQFNKLSQKLEAQVCEVLEDRLSIKRDKLPFSSCLKTVHRSWEKLTAVVESCISIVSDSSGAGHSV---LYGS---SPAVDFDFIN
Coffee    ---LDAAVLFQNKQKLEKLEAQKIEIDFPEKIKGLTVQKLVYVNVVAVSNBQWETVLDLSEHSIHTNDCAKERGVKDLLVYDGNPLPYGGGSSPDTFSRDSAPDALLS
Sesamum   ---LDAAVLFQNHKILQKLETKVFEINALEDRCLQKIDQVYETLVAVNNSWEEVLDLSEHSICTLDVHGHRGFGHLLTKDDG---SLPFDALLS
N.ylyvestria METLGLDFAVLHQNKLSQKLEAQKIEIAVLEKFTLDRQKPYDNTLSAQKSWEEVLDLSEHSICTRTEPDIRHGNANSQDSCAEDGS---FYACDSDFLS
S.lycoopersicum MENLGLDFAVLHQNKLSQKLEAQKIEIAVLEKFTLDRQKPYDNTLSAQKSWEEVLDLSEHSICTRTEPDIRHGNANSQDSCAEDGS---FYACDSDFLS
N.benthiana MENLGLDFAVLHQNKLSQKLEAQKIEIAVLEKFTLDRQKPYDNTLSAQKSWEEVLDLSEHSICTRTEPDIRHGNANSQDSCAEDGS---FYACDSDFLS
S.tuberosum MENLGLDFAVLHQNKLSQKLEAQKIEIAVLEKFTLDRQKPYDNTLSAQKSWEEVLDLSEHSICTRTEPDIRHGNANSQDSCAEDGS---FYACDSDFLS
Nelumbo   ---LDFAVLQFNKLSQKLEAQVCEVLEDRLSIKRDKLPFSSCLKTVHRSWEKLTAVVESCISIVSDSSGAGHSV---LYGS---SPAVDFDFIN
P.vulgaris ---LDVIVLYQYQKHLQKLETKVFEYAGLENRFSLLEKQKSYDSTLAVVKNBQWEEVLDLSEHSICTRTEPDIRHGNANSQDSCAEDGS---FYACDSDFLS
G.soja     ---LDIAVLYQYQKHLQKLETKVFEYAGLENRFSLLEKQKSYDSTLAVVKNBQWEEVLDLSEHSICTRTEPDIRHGNANSQDSCAEDGS---FYACDSDFLS
P.mume     ---LDIAVLYQYQKHLQKLETKVFEYAGLENRFSLLEKQKSYDSTLAVVKNBQWEEVLDLSEHSICTRTEPDIRHGNANSQDSCAEDGS---FYACDSDFLS
Citrus     ---LDIAVLYQYQKHLQKLETKVFEYAGLENRFSLLEKQKSYDSTLAVVKNBQWEEVLDLSEHSICTRTEPDIRHGNANSQDSCAEDGS---FYACDSDFLS
Theobroma ---LDIAVLYQYQKHLQKLETKVFEYAGLENRFSLLEKQKSYDSTLAVVKNBQWEEVLDLSEHSICTRTEPDIRHGNANSQDSCAEDGS---FYACDSDFLS
G.arboreum ---LDIAVLYQYQKHLQKLETKVFEYAGLENRFSLLEKQKSYDSTLAVVKNBQWEEVLDLSEHSICTRTEPDIRHGNANSQDSCAEDGS---FYACDSDFLS
Vitis      ---LDIAVLYQYQKHLQKLETKVFEYAGLENRFSLLEKQKSYDSTLAVVKNBQWEEVLDLSEHSICTRTEPDIRHGNANSQDSCAEDGS---FYACDSDFLS
Jatropha   ---LDIAVLYQYQKHLQKLETKVFEYAGLENRFSLLEKQKSYDSTLAVVKNBQWEEVLDLSEHSICTRTEPDIRHGNANSQDSCAEDGS---FYACDSDFLS
P.trichocarpa ---LDIAVLYQYQKHLQKLETKVFEYAGLENRFSLLEKQKSYDSTLAVVKNBQWEEVLDLSEHSICTRTEPDIRHGNANSQDSCAEDGS---FYACDSDFLS
P.euphratica ---LDIAVLYQYQKHLQKLETKVFEYAGLENRFSLLEKQKSYDSTLAVVKNBQWEEVLDLSEHSICTRTEPDIRHGNANSQDSCAEDGS---FYACDSDFLS
Zea      GLEAGATGSSSSPNCQLGNDV---S---SEQSTTIDILQKLFPSGGVHVNFVSAALMKLPNEHSRQLHNATSVDLSKLVHMVMTVDNLHLKHKQLAANVQQRDSSAWNFR
Brassica RLEGTGATSSSSNFCGNG---MEENEN---TSQSTTIDILQKLFPSGGVHVNFVSAALMKLPNEHSRQLHNATSVDLSKLVHMVMTVDNLHLKHKQLAANVQQRDSSAWNFR
A.lyrata RLEGTGATSSSSNFCGNG---MEENEN---TSQSTTIDILQKLFPSGGVHVNFVSAALMKLPNEHSRQLHNATSVDLSKLVHMVMTVDNLHLKHKQLAANVQQRDSSAWNFR
A.thaliana RLEGTGATSSSSNFCGNG---MEENEN---TSQSTTIDILQKLFPSGGVHVNFVSAALMKLPNEHSRQLHNATSVDLSKLVHMVMTVDNLHLKHKQLAANVQQRDSSAWNFR
Coffee    RLVLTGATSSSSNFCVNTS---TEGHN---EDSKIRNTLITLAAVDHMLKLDNLCSALSASFSDGSHRQ---RTSLDLQAEVNVNMSVGNLHSHKRSILAEFQKRDSEAKRKA
Sesamum   RLEGTGATSSSSASITLNPTEDDRKIDGGTFRNPKSILPHIVASFDHMLKHLRLTVSLKTFSSNGSQK---VSSDLQTEVNRMLMAVILKHLKHSILAEFQKRDSEAKRKA
N.ylyvestria RLGQTGATSSSSANNVQ---TEDEHK---MODEKIRLQNTVAVTWKMDKDLCAVLEVPEDGSCIQ---KSSDLHGVGNKIQTNELHSHKRSILAEFQKRDSEAKRKA
S.lycoopersicum RLGQTGATSSSSDVT---Q---TEYEQK---MDDQKIVKFRNIVSTVDNVMQDKDLCAVLEVPEDGSCIQ---KSSDLHGVGNKIQTNELHSHKRSILAEFQKRDSEAKRKA
N.benthiana RLGQTGATSSSSDVT---Q---TEYEQK---MDDQKIVKFRNIVSTVDNVMQDKDLCAVLEVPEDGSCIQ---KSSDLHGVGNKIQTNELHSHKRSILAEFQKRDSEAKRKA
S.tuberosum RLGQTGATSSSSDVT---Q---TEYEQK---MDDQKIVKFRNIVSTVDNVMQDKDLCAVLEVPEDGSCIQ---KSSDLHGVGNKIQTNELHSHKRSILAEFQKRDSEAKRKA
Nelumbo   RLEGTGATSSSNVFNQ---LEEEQ---A---CTMFRNIFQNVSSITDDVYSQDQLSGLLENFQ---DPCFQ---KTSNDSBMDVRRLEMEDDLKHKITLASEVQNHDKANRKA
P.vulgaris RLMGTATGATSSSNVFNQ---MEEHEI---T---FEKTRNIFQNVSSITDDVYSQDQLSGLLENFQ---DPCFQ---KTSNDSBMDVRRLEMEDDLKHKITLASEVQNHDKANRKA
G.soja     RLMGTATGATSSSNVFNQ---MEEHEI---T---FEKTRNIFQNVSSITDDVYSQDQLSGLLENFQ---DPCFQ---KTSNDSBMDVRRLEMEDDLKHKITLASEVQNHDKANRKA
P.mume     RLMGTATGATSSSNVFNQ---MEEHEI---T---FEKTRNIFQNVSSITDDVYSQDQLSGLLENFQ---DPCFQ---KTSNDSBMDVRRLEMEDDLKHKITLASEVQNHDKANRKA
Citrus     RLMGTATGATSSSNVFNQ---MEEHEI---T---FEKTRNIFQNVSSITDDVYSQDQLSGLLENFQ---DPCFQ---KTSNDSBMDVRRLEMEDDLKHKITLASEVQNHDKANRKA
Theobroma RLMGTATGATSSSNVFNQ---MEEHEI---T---FEKTRNIFQNVSSITDDVYSQDQLSGLLENFQ---DPCFQ---KTSNDSBMDVRRLEMEDDLKHKITLASEVQNHDKANRKA
G.arboreum RLMGTATGATSSSNVFNQ---MEEHEI---T---FEKTRNIFQNVSSITDDVYSQDQLSGLLENFQ---DPCFQ---KTSNDSBMDVRRLEMEDDLKHKITLASEVQNHDKANRKA
Vitis      RLEGTGATSSSNVFNQ---MEEHEI---T---FEKTRNIFQNVSSITDDVYSQDQLSGLLENFQ---DPCFQ---KTSNDSBMDVRRLEMEDDLKHKITLASEVQNHDKANRKA
Jatropha   RLEGTGATSSSNVFNQ---MEEHEI---T---FEKTRNIFQNVSSITDDVYSQDQLSGLLENFQ---DPCFQ---KTSNDSBMDVRRLEMEDDLKHKITLASEVQNHDKANRKA
P.trichocarpa RLEGTGATSSSNVFNQ---MEEHEI---T---FEKTRNIFQNVSSITDDVYSQDQLSGLLENFQ---DPCFQ---KTSNDSBMDVRRLEMEDDLKHKITLASEVQNHDKANRKA
P.euphratica RLEGTGATSSSNVFNQ---MEEHEI---T---FEKTRNIFQNVSSITDDVYSQDQLSGLLENFQ---DPCFQ---KTSNDSBMDVRRLEMEDDLKHKITLASEVQNHDKANRKA
Zea      QRRLGELSTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
Brassica LRKRIEGELEDEVEVLLQCGNDLSALRAERDATAGAFFPVLNLSKLTADSDREIDRDLDMETVLEKLTVLASGRQLQKLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
A.lyrata LRKRIEGELEDEVEVLLQCGNDLSALRAERDATAGAFFPVLNLSKLTADSDREIDRDLDMETVLEKLTVLASGRQLQKLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
A.thaliana LRKRIEGELEDEVEVLLQCGNDLSALRAERDATAGAFFPVLNLSKLTADSDREIDRDLDMETVLEKLTVLASGRQLQKLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
Coffee    LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
Sesamum   LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
N.ylyvestria LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
S.lycoopersicum LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
N.benthiana LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
S.tuberosum LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
Nelumbo   LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
P.vulgaris LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
G.soja     LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
P.mume     LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
Citrus     LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
Theobroma LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
G.arboreum LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
Vitis      LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
Jatropha   LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
P.trichocarpa LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
P.euphratica LRKRIEGELESTVVAKLESQKLAIVLKAQGDNRQATFLVPLFQNHMTAEKVIKQDQTEQLDEATHKEMELISKRLEETIRRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
Zea      DLBATHLEMLIQLSLEIEIRLHETIILNKLATFQ---LIDFSGIHSRFAQLVDD
Brassica DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
A.lyrata DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
A.thaliana DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
Coffee    DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
Sesamum   DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
N.ylyvestria DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
S.lycoopersicum DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
N.benthiana DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
S.tuberosum DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
Nelumbo   DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
P.vulgaris DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
G.soja     DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
P.mume     DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
Citrus     DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
Theobroma DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
G.arboreum DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
Vitis      DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
Jatropha   DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
P.trichocarpa DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
P.euphratica DMSLILDKLTVLASSRQLDHEERTKMLKMNLNQ---KSKVRCISSQACLSLKD
Zea      LRAEVHSLSTQTRKQTEKMSFRSAHAGSDISQLSRLVLEKHEKTEKLFVLYKHESTDSQMLKSRDLAEKAWARHILKYSLESEKLEQVISAANEAEASISQRLATAEAEIAD
Brassica LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
A.lyrata LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
A.thaliana LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
Sesamum   LRANVKSITDVIKRAKELTSSSAQONSEVQLQAMISDLVTEKDKLFLEMVGHQLVDSAEISARASSEKAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
N.ylyvestria LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
S.lycoopersicum LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
N.benthiana LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
S.tuberosum LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
Nelumbo   LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
P.vulgaris LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
G.soja     LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
P.mume     LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
Citrus     LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
Theobroma LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
G.arboreum LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
Vitis      LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
Jatropha   LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
P.trichocarpa LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
P.euphratica LRADVQSLSGVLCRKTCEALHTSADYASQGLDNATVCDLNSHEELKFLDMYKRESTDPRDIAEAKEQYRAWARVQSLKSLDQNLLELVKAAEAEASISQRLATAEAEIAD
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