

垂丝海棠 *Malus halliana* MAAS .MALSSETEAGKAVLLEFGATELFGNGRVMRRTAKKVVSSGSFWYGDRVKYLGPFSGEPPSYLIGFEPGDYGDWDTAGLSADPETFAKNRELEVI
 白梨 *Pyrus x bretschneideri* MAAS .MALSSETEAGKAVLLEFGATELFGNGRVMRRTAKKVVSSGSFWYGDRVKYLGPFSGEPPSYLIGFEPGDYGDWDTAGLSADPETFAKNRELEVI
 番木瓜 *Carica papaya* MAAS .MALSSETEAGKAVLLEFGATELFGNGRVMRRTAKKVVSSGSFWYGDRVKYLGPFSGEPPSYLIGFEPGDYGDWDTAGLSADPETFAKNRELEVI
 甜瓜 *Cucumis melo* MAAS .MALSSETEAGKAVLLEFGATELFGNGRVMRRTAKKVVSSGSFWYGDRVKYLGPFSGEPPSYLIGFEPGDYGDWDTAGLSADPETFAKNRELEVI
 大桉 *Eucalyptus grandis* MAAS .MALSSETEAGKAVLLEFGATELFGNGRVMRRTAKKVVSSGSFWYGDRVKYLGPFSGEPPSYLIGFEPGDYGDWDTAGLSADPETFAKNRELEVI
 杨树 *Populus trichocarpa* MAAS .MALSSETEAGKAVLLEFGATELFGNGRVMRRTAKKVVSSGSFWYGDRVKYLGPFSGEPPSYLIGFEPGDYGDWDTAGLSADPETFAKNRELEVI
 桃 *Prunus persica* MAAS .MALSSETEAGKAVLLEFGATELFGNGRVMRRTAKKVVSSGSFWYGDRVKYLGPFSGEPPSYLIGFEPGDYGDWDTAGLSADPETFAKNRELEVI
 大桉 *Eucalyptus grandis* MAAS .MALSSETEAGKAVLLEFGATELFGNGRVMRRTAKKVVSSGSFWYGDRVKYLGPFSGEPPSYLIGFEPGDYGDWDTAGLSADPETFAKNRELEVI
 月季 *Rosa chinensis* MAAS .MALSSETEAGKAVLLEFGATELFGNGRVMRRTAKKVVSSGSFWYGDRVKYLGPFSGEPPSYLIGFEPGDYGDWDTAGLSADPETFAKNRELEVI
 maastmalssp fagkavqlsp apelfgngrvsmrktatk vssgsfwygpdrvkylgpfsgppsytlbgefpdgygdwtagsadpetfaknrelevi

垂丝海棠 *Malus halliana* HSRWAMLGALGCVFPELLSRNGVKFGEAVWFKAGCQIFSEGGLDYLGNPSSLVHAQSILAIWACQVLLMGAVEGYRAGGFLGCVTDHLYPGGSFDPLGLA
 白梨 *Pyrus x bretschneideri* HSRWAMLGALGCVFPELLSRNGVKFGEAVWFKAGCQIFSEGGLDYLGNPSSLVHAQSILAIWACQVLLMGAVEGYRAGGFLGCVTDHLYPGGSFDPLGLA
 番木瓜 *Carica papaya* HSRWAMLGALGCVFPELLSRNGVKFGEAVWFKAGCQIFSEGGLDYLGNPSSLVHAQSILAIWACQVLLMGAVEGYRAGGFLGCVTDHLYPGGSFDPLGLA
 甜瓜 *Cucumis melo* HSRWAMLGALGCVFPELLSRNGVKFGEAVWFKAGCQIFSEGGLDYLGNPSSLVHAQSILAIWACQVLLMGAVEGYRAGGFLGCVTDHLYPGGSFDPLGLA
 大桉 *Eucalyptus grandis* HSRWAMLGALGCVFPELLSRNGVKFGEAVWFKAGCQIFSEGGLDYLGNPSSLVHAQSILAIWACQVLLMGAVEGYRAGGFLGCVTDHLYPGGSFDPLGLA
 杨树 *Populus trichocarpa* HSRWAMLGALGCVFPELLSRNGVKFGEAVWFKAGCQIFSEGGLDYLGNPSSLVHAQSILAIWACQVLLMGAVEGYRAGGFLGCVTDHLYPGGSFDPLGLA
 桃 *Prunus persica* HSRWAMLGALGCVFPELLSRNGVKFGEAVWFKAGCQIFSEGGLDYLGNPSSLVHAQSILAIWACQVLLMGAVEGYRAGGFLGCVTDHLYPGGSFDPLGLA
 大桉 *Eucalyptus grandis* HSRWAMLGALGCVFPELLSRNGVKFGEAVWFKAGCQIFSEGGLDYLGNPSSLVHAQSILAIWACQVLLMGAVEGYRAGGFLGCVTDHLYPGGSFDPLGLA
 月季 *Rosa chinensis* HSRWAMLGALGCVFPELLSRNGVKFGEAVWFKAGCQIFSEGGLDYLGNPSSLVHAQSILAIWACQVLLMGAVEGYRAGGFLGCVTDHLYPGGSFDPLGLA
 hsrwamlgalgcvfPELLSRNGVKFGEAVWFKAGCQIFSEGGLDYLGNPSSLVHAQSILAIWACQVLLMGAVEGYRAGGFLGCVTDHLYPGGSFDPLGLA

垂丝海棠 *Malus halliana* DDPEAFAEIKVKEIKNGRLAMFSMFGFFVQAIVTGKPLENLADHLADPWNNAAYATNFFVPG
 白梨 *Pyrus x bretschneideri* DDPEAFAEIKVKEIKNGRLAMFSMFGFFVQAIVTGKPLENLADHLADPWNNAAYATNFFVPG
 番木瓜 *Carica papaya* DDPEAFAEIKVKEIKNGRLAMFSMFGFFVQAIVTGKPLENLADHLADPWNNAAYATNFFVPG
 甜瓜 *Cucumis melo* DDPEAFAEIKVKEIKNGRLAMFSMFGFFVQAIVTGKPLENLADHLADPWNNAAYATNFFVPG
 大桉 *Eucalyptus grandis* DDPEAFAEIKVKEIKNGRLAMFSMFGFFVQAIVTGKPLENLADHLADPWNNAAYATNFFVPG
 杨树 *Populus trichocarpa* DDPEAFAEIKVKEIKNGRLAMFSMFGFFVQAIVTGKPLENLADHLADPWNNAAYATNFFVPG
 桃 *Prunus persica* DDPEAFAEIKVKEIKNGRLAMFSMFGFFVQAIVTGKPLENLADHLADPWNNAAYATNFFVPG
 大桉 *Eucalyptus grandis* DDPEAFAEIKVKEIKNGRLAMFSMFGFFVQAIVTGKPLENLADHLADPWNNAAYATNFFVPG
 月季 *Rosa chinensis* DDPEAFAEIKVKEIKNGRLAMFSMFGFFVQAIVTGKPLENLADHLADPWNNAAYATNFFVPG
 ddpeafaelkvkEIKNGRLAMFSMFGFFVQAIVTGKPLENLADHLADPWNNAAYATNFFVPG

Supplemental Figure S5. Protein sequence analysis of *MhLHCB15* gene in *M. halliana* and the protein of other species.