**Supplemental Table S1 Primer information**

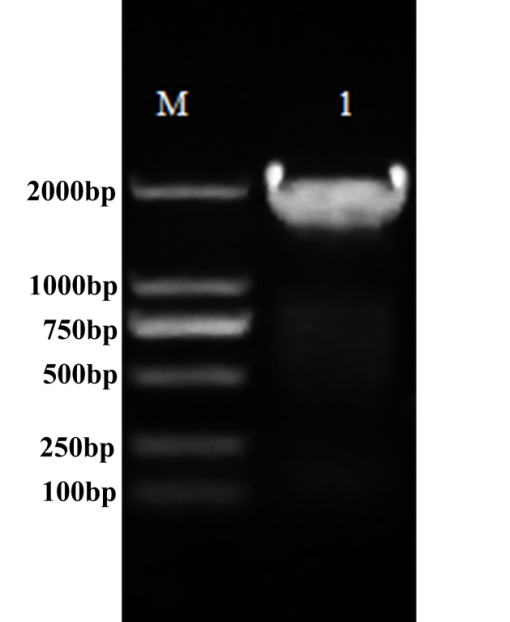
|  |  |  |
| --- | --- | --- |
| Primer name |  |  |
| PdbHLH57-F | ATGGCTACTAAGCTCCACAA | Gene Clone |
| PdbHLH57-R | TCAACATTTCCCAGCAACTC |
| PAN580-PdbHLH57-F | AAGTCCGGAGCTAGCTCTAGAATGGCTACTAAGCTCCACAACCA | Subcellular localization |
| PAN580-PdbHLH57-R | GCCCTTGCTCACCATGGATCCTCAACATTTCCCAGCAACTCTTC |
| PGBKT7-PdbHLH57-F | GCATATGGCCATGGAGGCCGAATTCATGGCTACTAAGCTCCAC | Transcriptional activation assay |
| PGBKT7-PdbHLH57-R | GCGGCCGCTGCAGGTCGACGGATCCTCAACATTTCCCAGCA |
| PGBKT7-PdbHLH57-1-F | GCATATGGCCATGGAGGCCGAATTCATGGCTACTAAGCTCCACAA |
| PGBKT7-PdbHLH57-1-R | GCGGCCGCTGCAGGTCGACGGATCCATGGCTTGCACCATTTTC |
| PGBKT7-PdbHLH57-2-F | GCATATGGCCATGGAGGCCGAATTCGCATTATCTGAGAGGAAGCA |
| PGBKT7-PdbHLH57-2-R | GCGGCCGCTGCAGGTCGACGGATCCTCAACATTTCCCAGCAAC |
| PdbHLH57-RT-F | TCAGTTGGTGAAGCCAGTCC | RT-qPCR |
| PdbHLH57-RT-R | CCCTTGGCCAACGTCGAATA |
| Actin2-F | CTCCTCTGTTGAGAAGAACTA |
| Actin2-R | TGTATGTAGTCTCGTGGATG |
| EF1-F | AAGCCATGGGATGATGAGAC |
| EF1-R | ACTGGAGCCAATTTTGATGC |
| UBQ-F | CGTGGAGGAATGCAGATTTT |
| UBQ-R | GATCTTGGCCTTCACGTTGT |

**Supplemental Table S2 Proteins used to predict the interaction network**

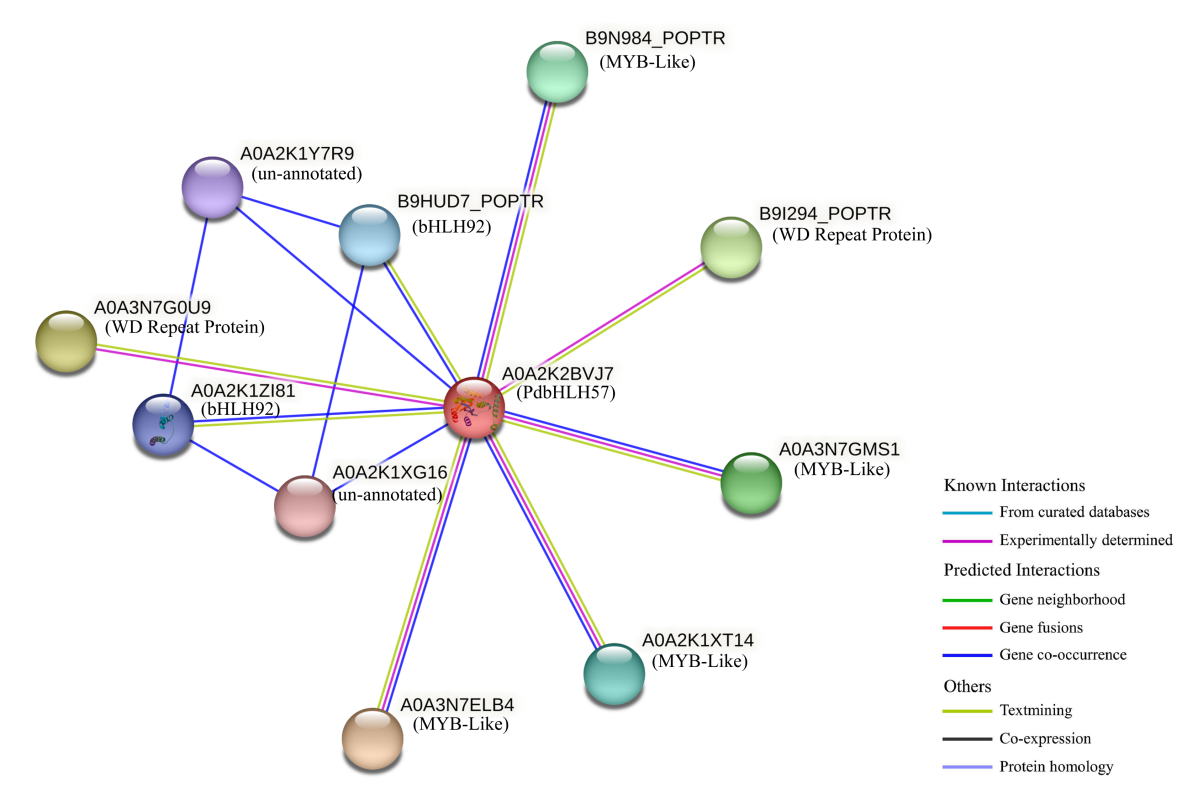
|  |  |  |
| --- | --- | --- |
| Gene Name | Gene Defline | Score |
| A0A3N7ELB4 | MYB-Like Dna-Binding Protein Myb | 0.560 |
| A0A3N7G0U9 | WD Repeat Containing Protein // Protein Transparent Testa Glabra 1 | 0.551 |
| B9I294\_POPTR | WD Repeat Containing Protein // Protein Transparent Testa Glabra 1 | 0.551 |
| A0A3N7GMS1 | MYB-Like Dna-Binding Protein Myb | 0.542 |
| B9N984\_POPTR | MYB-Like Dna-Binding Protein Myb | 0.528 |
| A0A2K1XT14 | MYB-Like Dna-Binding Protein Myb | 0.524 |
| B9HUD7\_POPTR | Transcription Factor Bhlh92 | 0.524 |
| A0A2K1ZI81 | Transcription Factor Bhlh92 | 0.522 |
| A0A2K1Y7R9 | - | 0.515 |
| A0A2K1XG16 | - | 0.511 |

**Supplemental Table S3 CDS Sequence of *PdbHLH57***

|  |
| --- |
| ATGGCTACTAAGCTCCACAACCAAGAGAGACTACCAGGGAACCTCAAGAAACAGCTTGCTCTTGCTGTCAGGAGCATTCAGTGGAGCTACGCAATCTTCTGGTCCATTTCAGCAAGACAACCAGGAGTGTTGGAGTGGGGTGATGGGTACTACAACGGAGATATTAAAACAAGGAAGACAATTCAATCCATAGAGCTTGATGAAGATGAATTGGGTTTACAGAGAAGTGAGCAGTTAAGAGAACTCTACGAGTCACTTTCAGTTGGTGAAGCCAGTCCACAAGCTAGAAGACCTTCAGCTGCATTATCTCCAGAAGATCTCACTGATACAGAGTGGTATTATTTGGTTTGCATGTCCTTCATATTCGACGTTGGCCAAGGGTTGCCAGGAACAACATTAGCAAATGGTCATCCTACTTGGCTATGCAATGCTCATTCTGCAGATAGTAAAGTATTCAGTCGCTCTCTGCTAGCTAAGAGTGCATCAATTCAGACCGTGGTTTGCTTTCCATTTATGAGAGGTGTGATTGAGCTGGGTGTGACTGAGCAGGTTTTGGAGGACCCAAGTCTCATTAATCACATAAAAACATCATTCTTGGAGATCCCATACGCAGTAGCTGCCAAGAATTCTAGTGCAAGAAGTGACAAAGAGCTTGCATGTGCCACCTTCAATCGTGAAACACTTGACACCAAACCGATTCCAATTATAGGATGTGGAGAACTAGACATAACTTCCCCTAACTGCAATTCAAATGATCAGCCGGCTGCAGATTTGATTATGGTTGAAGGGCTAAATGGAGGAGCTTCCCAAATGCAAAGTTTGCAGTTCATGGATGATGACCACAGTGTCCATCATTCCTTGAATTCTAGTGACTGCATATCTCAAACCATTGTAGATCCTGTGAAGGTTGTTCCTATTTTGAAGAATGTGAAGGTAAATAACCAGAATCATCTGGATGTTCAAGACTGCAATCACACGAAGCTGACTTCATTGGACCTTCGAAGCGAAGATTTTCATTATCAAAGTGTTCTCTCATGTCTCCTAAAGACCTCCAGTCCATTGATTTTAGGACCCGATGTCCAGAATTGTCACCAGGAATCGAGCTTTGTCAGTTGGAAGAAAGCAGGATCGGTGCATACTCACAAGTTGAAAAGTGGAACTCGACAAAAAGTACTAAAGAAGATACTACTTGAAGTTCCTCGGAAGCATGTTGATGGCTTGCTTGACTCCCCAGAATATAATAGCAATAAAGTTGTAGTAGGGAGGCCAGAGGCTGATGAAAATGGTGCAAGCCATGCATTATCTGAGAGGAAGCAAAGAGAAAAGCTGAATAAAAGGTTTATGATTCTGAAATCAATTGTCCCTTCAATCAGCAAGGTTGATAAAGTATCTATACTAGATGAGACCATCGAATACCTTCAAGAGCTTGAAAGAAAGGTTGAAGAGTTGGGATCTAACAGGGAGCTATTGGAGGTTCTTACCAAAAGAAAACCCCAAGATACTGCGGAGAGGACATCTGATAACTATGGCAGCAATAAGATTGGAAATGGAAAACATTTGTTGACAAATAAGAGGAAGGCTCCAGACATTGATGAAATGGAGCCAGATATCAACCATAATGTATCAAAAGATGGTTCAGCTGAAAGTATGACTGTCAGCGTGAATAAAGAGGATGTTCTAATCGAGATCAAGTGTCGTTGGAGGGAGGGAATATTGCTGGAGATAATGGATGTAGCTAGTCATCTCCATTTAGATTCTCACTCGGTTCAATCATCTACCATGGACGGGATCCTTTCTCTGACTATCAAATCAAAGCACAAGGGATTGAATGCTGCATCAATTGGCACAATCAAACAAGCCCTTCGAAGAGTTGCTGGGAAATGTTGA |



Supplemental Figure S1. PCR amplification of the full-length *PdbHLH57* CDS. M, DNA marker DL2000; 1, PCR product of *PdbHLH57* CDS from cDNA.



Supplemental Figure S2. Interaction network prediction of PdbHLH57 using STRING. The interactions were predicted based on the homologous genes of PdbHLH57 in *Populus trichocarpa*.