Supplementary Materials

**Table.S1.** Primer sets used in the transgenic overexpression.

**Table.S2.** Primer sets used in qRT-PCR.

**Figure S1.** Main economic characters of different silk-producing strain.

**Figure S2.** Expression of silk protein transcription factor in wild type and transgenic lines.

**Figure S3.** Overexpression of *BmJHBPd2* results in inhibition of JH catabolic enzyme in silk gland.

|  |  |
| --- | --- |
| **Gene** | **5’-3’** |
| *BmJHBPd2* F（*BamH* I） | GGATCCATGTGGACCGGTCTGTTTTTAGT |
| *BmJHBPd2* R（*Not* I-Myc） | GCGGCCGCTTACAGATCCTCTTCTGAGATGAGTTTTTGTTCTTCGGGCATTAATTCGTCAA |

**Table.S1.** Primer sets used in the transgenic overexpression. The underlined sequence is *BamH* I restriction site, *Not* I restriction site and Myc tag sequence.

|  |  |
| --- | --- |
| **Gene** | **5’-3’** |
| *BmJHBPd2*-F | TAGAAAAGGCTGTGTTTCGC |
| *BmJHBPd2*-R | ATGAGTGATCCGCAGATTT |
| *BmfibH-*F | *TCTGTGTCATCTGCTTCATCTCG* |
| *BmfibH-*R | *TATCCAGGACGAAGTAAGAAACAA* |
| *BmfibL-*F | ATACCGATTGGTCACATAACAG |
| *BmfibL-*R | GCAGATAGATGGGCGATAA |
| *BmP25*-F | AGCCGCTGTGGCAGTTTTG |
| *BmP25-*R | TAGGTGGCGTTGAAGTATGG |
| *BmKr-h1-*F | CTTCCTCCTACTCCACCT |
| *BmKr-h1-*R | GGCAACGAAATGTAATGT |
| *BmMet1-*F | AATCTTGCCACCAACAGC |
| *BmMet1-*R | ACCCAACGCACATCTTCT |
| *BmMet2-*F | CCGAACCAACGCAGTATGTAA |
| *BmMet2-*R | ACGCACGACGCCAATGA |
| *BmSRC-*F | TCAAACGAGTCAAATAGGGTCA |
| *BmSRC-*R | GCGGTCGGTGGTAGGGTT |
| *Bmjhe-*F | ACAGATTGGCGGTTTTCGGA |
| *Bmjhe-*R | CCCTTAGCGGCATCAGACAT |
| *Bmjheh-*F | GGACTCTTCGGGTTAGTGATAA |
| *Bmjheh-*R | TGTGGTATTTCGTGCATTCC |
| *Bmdimm-*F | CGTGGAACCCGCATTTGTA |
| *Bmdimm-*R | AACCTCGGCAATCCAGTCG |
| *Bmsage-*F | AGCAATCACGAAGGTCCGC |
| *Bmsage-*R | CGTATCGTGGTTGGAGTCGT |
| *Bmsgf-1-*F | ATCCGACATTCGCTGTCCTT |
| *Bmsgf-1-*R | TGACGTCGCAAGAAACAACC |
| *BmEcR-*F | GCTGGTCTGATAACGGTGGCT |
| *BmEcR-*R | CAAGGATTCCGGCGACATAAC |
| *BmHR3-*F | TCAACGAGAAGACACCACGG |
| *BmHR3-*R | AGAAACATCCTGGGGCTTGC |
| *BmE75A-*F | GAAATTCCGCGCTATGAGGC |
| *BmE75A-*R | TTTTAGCGAGCACCGAATGC |
| *BmE74A-*F | AGCAGTCAACTGCAAGGGTA |
| *BmE74A-*R | GTGCCCGATCTAAGGAGTTG |
| *BmUSP-*F | AGAAGTGGACGTTCTTCGAG |
| *BmUSP-*R | GGTGGAACAGGTAGAGGTGC |
| *BmBrc-*F | TCGCTGACAAACACGCTG |
| *BmBrc-*R | ATGGTAAGAACGGCGGAC |
| *BmRPL3-2-*F | TTCGTACTGGCTCTTCTCGT |
| *BmRPL3-2-*R | CAAAGTTGATAGCAATTCCCT |

**Table.S2**. Primer sets used in qRT-PCR.



**Figure S1**. Main economic characters of different silk-producing strain. A. Pupaus and cocoons of *Dazao* and *S872*. B. Cocoon weight from *Dazao* and *S872*. C. Pupau weight from *Dazao* and *S872*. D. Cocoon shell weight from *Dazao* and *S872*. D. Cocoon shell percentage from *Dazao* and *S872*. Data are means ± SD. \*\*\**P* < 0.001.



**Figure S2**. Expression of silk protein transcription factor in wild type and transgenic lines. *BmRpl3* expression was used as a control. Results are expressed as means S.D. of three independent experiments. \* *P* < 0.05; \*\* *P* <0.01; \*\*\* *P* < 0.001.

**** **Figure S3.** Overexpression of *BmJHBPd2* results in inhibition of JH catabolic enzyme in silk gland. The following JH catabolic enzyme related genes were selected: JHE(A) and JHEH(B). *BmRpl3* expression is shown as a control. Results are expressed as means S.D. of three independent experiments. \* *P* < 0.05; \*\* *P* <0.01; \*\*\* *P* < 0.001.