# Supplementary File 1

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| Name | Sequence |
| hb-P2(*hb* intron included) | ctgtcgactcctgaccaacgtaatccccatagaaaaccggtggaaaattcgcagctcgctgctaagctggccatccgctaagctcccggatcatccaaatccaagtgcgcataattttttgtttctgctctaatccagaatggatcaagagcgcaatcctcaatccgcgatccgtgatcctcgattcccgaccgatccgcgacctgtacctgacttcccgtcacctctgcccatctaatcccttgacgcgtgcatccgtctacctgagcga**tatataaa**ctaatgcctgttgcaattgttcagtcagtcacgagtttgttaccactgcgacaacacaacagaagcagcaccaataatatacttgcaaatccttacgaaaatcccgacaaatttggaatatacttcgatacaatcgcaatcatacgcactgagcggccacgaaacggtaggatattgttagccattaccaagtgtctccattttgaacacaaaatcactcaaatcgccttcagggggtgggtgccgcccagccacccctgacgtattttttgttaggggtggtgccgcaagcacaccaaaaaaagagaaaaaaaaaataaaagcgaggaaaaataaaatgaaaaacaagcggaaaaaaagaggaaaaaactcgacgcaggcgcagtgcatgaatgaataaatgaatatgcccactaaccccactctctctgttttcttatccattacagccgtctagagccgccaagg |
| iRFP | atggcgcgtaaggtcgatctcacctcctgcgatcgcgagccgatccacatccccggcagcattcagccgtgcggCTGTCTCctagcctgcgacgcgcaggcggtgcggatcacgcgcattacggaaaatgccggcgcgttctttggacgcgaaactccgcgggtcggtgagctactcgccgattacttcggcgagaccgaagcccatgcgctgcgcaacgcactggcgcagtcctccgatccaaagcgaccggcgctgatcttcggttggcgcgacggcctgaccggccgcaccttcgacatctcactgcatcgccatgacggtacatcgatcatcgagttcgagcctgcggcggccgaacaggccgacaatccgctgcggctgacgcggcagatcatcgcgcgcaccaaagaactgaagtcgctcgaagagatggccgcacgggtgccgcgctatctgcaggcgatgctcggctatcaccgcgtgatgttgtaccgcttcgcggacgacggctccgggatggtgatcggcgaggcgaagcgcagcgacctcgagagctttctcggtcagcactttccggcgtcgctggtcccgcagcaggcgcggctactgtacttgaagaacgcgatccgcgtggtctcggattcgcgcggcatcagcagccggatcgtgcccgagcacgacgcctccggcgccgcgctcgatctgtcgttcgcgcacctgcgcagcatctcgccctgccatctcgaatttctgcggaacatgggcgtcagcgcctcgatgtcgctgtcgatcatcattgacggcacgctatggggattgatcatctgtcatcattacgagccgcgtgccgtgccgatggcgcagcgcgtcgcggccgaaatgttcgccgacttcttatcgctgcacttcaccgccgcccaccaccaacgctaa |
| MS2 | GGATCCTACGGTACTTATTGCCAAGAAAGCACGAGCATCAGCCGTGCCTCAATGTCGAATCTGCAAACGACGACGATCACGCGTCGCTCCAGTATTCCAGGGTTCATCAGATCCTACGGTACTTATTGCCAAGAAAGCACGAGCATCAGCCGTGCCTCAATGTCGAATCTGCAAACGACGACGATCACGCGTCGCTCCAGTATTCCAGGGTTCATCAGATCCTACGGTACTTATTGCCAAGAAAGCACGAGCATCAGCCGTGCCTCAATGTCGAATCTGCAAACGACGACGATCACGCGTCGCTCCAGTATTCCAGGGTTCATCAGATCCTACGGTACTTATTGCCAAGAAAGCACGAGCATCAGCCGTGCCTCAATGTCGAATCTGCAAACGACGACGATCACGCGTCGCTCCAGTATTCCAGGGTTCATCAGATCCTACGGTACTTATTGCCAAGAAAGCACGAGCATCAGCCGTGCCTCAATGTCGAATCTGCAAACGACGACGATCACGCGTCGCTCCAGTATTCCAGGGTTCATCAGATCCTACGGTACTTATTGCCAAGAAAGCACGAGCATCAGCCGTGCCTCAATGTCGAATCTGCAAACGACGACGATCACGCGTCGCTCCAGTATTCCAGGGTTCATCAGATCCTACGGTACTTATTGCCAAGAAAGCACGAGCATCAGCCGTGCCTCAATGTCGAATCTGCAAACGACGACGATCACGCGTCGCTCCAGTATTCCAGGGTTCATCAGATCCTACGGTACTTATTGCCAAGAAAGCACGAGCATCAGCCGTGCCTCAATGTCGAATCTGCAAACGACGACGATCACGCGTCGCTCCAGTATTCCAGGGTTCATCAGATCCTACGGTACTTATTGCCAAGAAAGCACGAGCATCAGCCGTGCCTCAATGTCGAATCTGCAAACGACGACGATCACGCGTCGCTCCAGTATTCCAGGGTTCATCAGATCCTACGGTACTTATTGCCAAGAAAGCACGAGCATCAGCCGTGCCTCAATGTCGAATCTGCAAACGACGACGATCACGCGTCGCTCCAGTATTCCAGGGTTCATCAGATCCTACGGTACTTATTGCCAAGAAAGCACGAGCATCAGCCGTGCCTCAATGTCGAATCTGCAAACGACGACGATCACGCGTCGCTCCAGTATTCCAGGGTTCATCAGATCCTACGGTACTTATTGCCAAGAAAGCACGAGCATCAGCCGTGCCTCAATGTCGAATCTGCAAACGACGACGATCACGCGTCGCTCCAGTATTCCAGGGTTCATCAGATCC |
| HSBG promoter | ACCGCCGGAG**TATAAATA**GAGGCGCTTCGTCTACGGAGCGACAATTCAATTCAAACAAG**C**AAAGTGAACACGTCGCTAAGCGAAAGCTAAGCAAATAAACAAGCGCAGCTGAACAAGCTaaacaatcggggtacggctagca |
| B6 | TCGACTCATGGGATTAGACTCGAGGGATTAGACCGGGATTAGAACCTGGGGATCGGGGATTAGACTCGAGGGATTAGACCGGGATTAGAGGATCCAAGCTTATCGATTTCGAACCCTCGACCGCCGGAG**TATAAATA** |
| B9 | TCGACTCATGGGATTAGACTCGAGGGATTAGACCGGGATTAGAACCTGGGGATCGGGGATTAGACTCGAGGGATTAGACCGGGATTAGAGGATCCATGGGATTAGACTCGAGGGATTAGACCGGGATTAGAGGGATCCAAGCTTATCGATTTCGAACCCTCGACCGCCGGAG**TATAAATA** |
| B12 | TCGACTCATGGGATTAGACTCGAGGGATTAGACCGGGATTAGAACCTGGGGATCGGGGATTAGACTCGAGGGATTAGACCGGGATTAGAGGATCCATGGGATTAGACTCGAGGGATTAGACCGGGATTAGAACCTGGGGATCGGGGATTAGACTCGAGGGATTAGACCGGGATTAGAGGGATCCAAGCTTATCGATTTCGAACCCTCGACCGCCGGAG**TATAAATA** |
| H6 | TCGGTACCATAGTTTTTTGAGTATCGATAGTTTTTTGAGTCCATATTTTTTGAGTACTCATAGTTTTTTGAGTATCGATAGTTTTTTGAGTCCATATTTTTTGAGTGTCGACGGTATCGATAAGCGGATCCAAGCTTATCGATTTCGAACCCTCGACCGCCGGAG**TATAAATA** |
| H6B6 | TCGGTACCACTCAAAAAATATGGACTCAAAAAACTATCGATACTCAAAAAACTATGAGTACTCAAAAAATATGGACTCAAAAAACTATCGATACTCAAAAAACTATGGTACCGTACCCCGTCGACTCATGGGATTAGACTCGAGGGATTAGACCGGGATTAGAACCTGGGGATCGGGGATTAGACTCGAGGGATTAGACCGGGATTAGAGGATCCAAGCTTATCGATTTCGAACCCTCGACCGCCGGAG**TATAAATA** |
| Z2 | TCATGGATCTCAGGTAGTAACTGACCAGGTAGGAGGATCCAAGCTTATCGATTTCGAACCCTCGACCGCCGGAG**TATAAATA** |
| Z2B6 | TCATGGATCCAGGTAGTAACTGACCAGGTAGCTATGGTACCGTACCCCGTCGACTCATGGGATTAGACTCGAGGGATTAGACCGGGATTAGAACCTGGGGATCGGGGATTAGACTCGAGGGATTAGACCGGGATTAGAGGATCCAAGCTTATCGATTTCGAACCCTCGACCGCCGGAG**TATAAATA** |
| Z6 | TCATGGATCCAGGTAGATATCGCACAGGTAGCGATCATACAGGTAGCCTAGATCCAGGTAGTCAATGATCAGGTAGTAACTGACCAGGTAGGATCCAAGCTTATCGATTTCGAACCCTCGACCGCCGGAG**TATAAATA** |
| Oligo for 5’ cut Fw | 5’-GTCGGTCTAATTGATTCCTAAATT-3’ |
| Oligo for 5’ cut Rv | 5’-AAACAATTTAGGAATCAATTAGAC-3’ |
| Oligo for 3’ cut Fw | 5’-GTCGGAATGAACGAAAACAGTATC-3’ |
| Oligo for 3’ cut Rv | 5’-AAACGATACTGTTTTCGTTCATTC-3’ |
| Bcdnull\_5HR\_fw | 5’- TAAGAGACGTATAGGAGACCTATAGTGTCTTCGGGGCCGATTCGAAAACTTTCTGCTGCC-3’ |
| Bcdnull\_5HR\_rv | 5’-TTTAACGTACGTCACAATATGATTATCTTTCTAGGGTTAATCAATTAGACAAGTGTCGAATGTTTAATTTG-3’ |
| Bcdnull\_DsRed\_fw | 5’- ACAAAAATTCAAATTAAACATTCGACACTTGTCTAATTGATTAACCCTAGAAAGATAATC-3’ |
| Bcdnull\_DsRed\_rv | 5’- ATTTTTAAATTCATAAGATTTTCGGGAAAACCAGATACTGTTAACCCTAGAAAGATAGTC-3’ |
| Bcdnull\_3HR\_fw | 5’-gcgcGCTCTTCgTAACAGTATCTGGTTTTCCCGAA-3’ |
| Bcdnull\_3HR\_rv | 5’-tataGCTCTTCaCGGCTGGTGAAGGCAGTCCGTGA-3’ |

**Supplementary File 1. Promoter sequences of hb-P2, synthetic MS2 reporters and oligonucleotides required for generating the * bcd* molecular null allele.** The sequences are shown in modules, as arranged in Figure 1 in the main text. The TATA boxes of hb-P2 and HSBG promoter are highlighted in bold. In the binding array sequences, the binding sites for each protein are highlighted in grey (Bcd), green (Hb) and yellow (Zelda). For clarity, the binding array sequences are shown up to the TATA box of HSBG promoter.