**supplementary table 1:** *Ka* and *Ks* values of highlighted homologous gene pairs in *VbWRKYs*

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Gr-oup | Gene ID | | *Ka* | *Ks* | *Ka*/*Ks* | Gr-oup | Gene ID | | *Ka* | *Ks* | *Ka*/*Ks* |
| Ⅰ | *VbWRKY7* | *VbWRKY12* | 0.6678 | 2.6543 | 0.2516 | Ⅱa | *VbWRKY1* | *VbWRKY5* | 0.0458 | 0.0749 | 0.6111 |
|  | *VbWRKY7* | *VbWRKY16* | 0.6875 | 1.7358 | 0.3961 |  | *VbWRKY1* | *VbWRKY24* | 0.4281 | 3.4942 | 0.1225 |
|  | *VbWRKY7* | *VbWRKY28* | 0.8288 | 1.9786 | 0.4189 |  | *VbWRKY1* | *VbWRKY34* | 0.2353 | 0.9558 | 0.2462 |
|  | *VbWRKY7* | *VbWRKY29* | 0.6792 | 3.1767 | 0.2138 |  | *VbWRKY1* | *VbWRKY60* | 0.4294 | NaN | NaN |
|  | *VbWRKY7* | *VbWRKY38* | 0.7450 | NaN | NaN |  | *VbWRKY5* | *VbWRKY24* | 0.4003 | NaN | NaN |
|  | *VbWRKY7* | *VbWRKY40* | 0.6212 | 2.0039 | 0.3100 |  | *VbWRKY5* | *VbWRKY34* | 0.2503 | 0.8856 | 0.2826 |
|  | *VbWRKY7* | *VbWRKY41* | 0.6399 | 2.1370 | 0.2994 |  | *VbWRKY5* | *VbWRKY60* | 0.4688 | NaN | NaN |
|  | *VbWRKY7* | *VbWRKY43* | 0.6671 | NaN | NaN |  | *VbWRKY24* | *VbWRKY34* | 0.4354 | 2.8927 | 0.1505 |
|  | *VbWRKY7* | *VbWRKY45* | 0.6104 | 2.2337 | 0.2733 |  | *VbWRKY24* | *VbWRKY60* | 0.1299 | 0.8849 | 0.1468 |
|  | *VbWRKY7* | *VbWRKY52* | 0.6410 | NaN | NaN |  | *VbWRKY34* | *VbWRKY60* | 0.4424 | 3.1743 | 0.1394 |
|  | *VbWRKY7* | *VbWRKY59* | 0.7222 | 2.0769 | 0.3477 | Ⅱc | *VbWRKY2* | *VbWRKY4* | 0.6784 | NaN | NaN |
|  | *VbWRKY7* | *VbWRKY69* | 0.4538 | NaN | NaN |  | *VbWRKY2* | *VbWRKY15* | 0.6164 | NaN | NaN |
|  | *VbWRKY12* | *VbWRKY16* | 0.5682 | 2.1656 | 0.2624 |  | *VbWRKY2* | *VbWRKY18* | 0.5337 | 26.7286 | 0.0200 |
|  | *VbWRKY12* | *VbWRKY28* | 0.7155 | NaN | NaN |  | *VbWRKY2* | *VbWRKY19* | 0.6583 | NaN | NaN |
|  | *VbWRKY12* | *VbWRKY29* | 0.5342 | NaN | NaN |  | *VbWRKY2* | *VbWRKY22* | 0.6447 | 2.6042 | 0.2476 |
|  | *VbWRKY12* | *VbWRKY38* | 0.5828 | 3.4118 | 0.1708 |  | *VbWRKY2* | *VbWRKY25* | 0.5844 | NaN | NaN |
|  | *VbWRKY12* | *VbWRKY40* | 0.5534 | 2.3302 | 0.2375 |  | *VbWRKY2* | *VbWRKY31* | 0.5459 | NaN | NaN |
|  | *VbWRKY12* | *VbWRKY41* | 0.1866 | 0.7307 | 0.2553 |  | *VbWRKY2* | *VbWRKY35* | 0.3215 | 1.2748 | 0.2522 |
|  | *VbWRKY12* | *VbWRKY43* | 0.4973 | NaN | NaN |  | *VbWRKY2* | *VbWRKY36* | 0.6792 | NaN | NaN |
|  | *VbWRKY12* | *VbWRKY45* | 0.4760 | NaN | NaN |  | *VbWRKY2* | *VbWRKY42* | 0.6186 | NaN | NaN |
|  | *VbWRKY12* | *VbWRKY52* | 0.5778 | NaN | NaN |  | *VbWRKY2* | *VbWRKY44* | 0.6252 | NaN | NaN |
|  | *VbWRKY12* | *VbWRKY59* | 0.7307 | 3.6542 | 0.2000 |  | *VbWRKY2* | *VbWRKY47* | 0.6672 | NaN | NaN |
|  | *VbWRKY12* | *VbWRKY69* | 0.7747 | 4.3883 | 0.1765 |  | *VbWRKY2* | *VbWRKY48* | 0.5656 | NaN | NaN |
|  | *VbWRKY16* | *VbWRKY28* | 0.6638 | 3.2021 | 0.2073 |  | *VbWRKY2* | *VbWRKY49* | 0.5656 | NaN | NaN |
|  | *VbWRKY16* | *VbWRKY29* | 0.6272 | 2.2487 | 0.2789 |  | *VbWRKY2* | *VbWRKY63* | 0.6482 | NaN | NaN |
|  | *VbWRKY16* | *VbWRKY38* | 0.2175 | 0.7679 | 0.2832 |  | *VbWRKY2* | *VbWRKY64* | 0.5925 | NaN | NaN |
|  | *VbWRKY16* | *VbWRKY40* | 0.6268 | NaN | NaN |  | *VbWRKY2* | *VbWRKY67* | 0.6522 | NaN | NaN |
|  | *VbWRKY16* | *VbWRKY41* | 0.6019 | 2.5554 | 0.2356 |  | *VbWRKY4* | *VbWRKY15* | 0.3870 | 2.5042 | 0.1545 |
|  | *VbWRKY16* | *VbWRKY43* | 0.3585 | 1.8594 | 0.1928 |  | *VbWRKY4* | *VbWRKY18* | 0.6648 | NaN | NaN |
|  | *VbWRKY16* | *VbWRKY45* | 0.3908 | 1.7417 | 0.2244 |  | *VbWRKY4* | *VbWRKY19* | 0.6466 | 2.1326 | 0.3032 |
|  | *VbWRKY16* | *VbWRKY52* | 0.5561 | NaN | NaN |  | *VbWRKY4* | *VbWRKY22* | 0.4782 | NaN | NaN |
|  | *VbWRKY16* | *VbWRKY59* | 0.7120 | 2.1761 | 0.3272 |  | *VbWRKY4* | *VbWRKY25* | 0.4561 | 2.0220 | 0.2256 |
|  | *VbWRKY16* | *VbWRKY69* | 0.7330 | NaN | NaN |  | *VbWRKY4* | *VbWRKY31* | 0.6321 | NaN | NaN |
|  | *VbWRKY28* | *VbWRKY29* | 0.7450 | NaN | NaN |  | *VbWRKY4* | *VbWRKY35* | 0.6220 | 2.2173 | 0.2805 |
|  | *VbWRKY28* | *VbWRKY38* | 0.7408 | 6.0248 | 0.1230 |  | *VbWRKY4* | *VbWRKY36* | 0.5255 | NaN | NaN |
|  | *VbWRKY28* | *VbWRKY40* | 0.7461 | 3.0265 | 0.2465 |  | *VbWRKY4* | *VbWRKY42* | 0.6709 | NaN | NaN |
|  | *VbWRKY28* | *VbWRKY41* | 0.6906 | NaN | NaN |  | *VbWRKY4* | *VbWRKY44* | 0.6006 | NaN | NaN |
|  | *VbWRKY28* | *VbWRKY43* | 0.6571 | NaN | NaN |  | *VbWRKY4* | *VbWRKY47* | 0.5795 | NaN | NaN |
|  | *VbWRKY28* | *VbWRKY45* | 0.6889 | 3.5249 | 0.1954 |  | *VbWRKY4* | *VbWRKY48* | 0.5786 | 1.7313 | 0.3342 |
|  | *VbWRKY28* | *VbWRKY52* | 0.7657 | NaN | NaN |  | *VbWRKY4* | *VbWRKY49* | 0.5786 | 1.7313 | 0.3342 |
|  | *VbWRKY28* | *VbWRKY59* | 0.2081 | 0.7200 | 0.2891 |  | *VbWRKY4* | *VbWRKY63* | 0.6884 | 2.6476 | 0.2600 |
|  | *VbWRKY28* | *VbWRKY69* | 0.8964 | 2.1897 | 0.4094 |  | *VbWRKY4* | *VbWRKY64* | 0.1912 | 0.6452 | 0.2963 |
|  | *VbWRKY29* | *VbWRKY38* | 0.6820 | NaN | NaN |  | *VbWRKY4* | *VbWRKY67* | 0.5639 | 2.8317 | 0.1991 |
|  | *VbWRKY29* | *VbWRKY40* | 0.5106 | NaN | NaN |  | *VbWRKY15* | *VbWRKY18* | 0.7173 | NaN | NaN |
|  | *VbWRKY29* | *VbWRKY41* | 0.4953 | NaN | NaN |  | *VbWRKY15* | *VbWRKY19* | 0.6166 | 2.7637 | 0.2231 |
|  | *VbWRKY29* | *VbWRKY43* | 0.5990 | NaN | NaN |  | *VbWRKY15* | *VbWRKY22* | 0.5453 | NaN | NaN |
|  | *VbWRKY29* | *VbWRKY45* | 0.5748 | NaN | NaN |  | *VbWRKY15* | *VbWRKY25* | 0.3787 | 1.2970 | 0.2920 |
|  | *VbWRKY29* | *VbWRKY52* | 0.4951 | NaN | NaN |  | *VbWRKY15* | *VbWRKY31* | 0.5915 | 1.8968 | 0.3118 |
|  | *VbWRKY29* | *VbWRKY59* | 0.7485 | NaN | NaN |  | *VbWRKY15* | *VbWRKY35* | 0.6629 | NaN | NaN |
|  | *VbWRKY29* | *VbWRKY69* | 0.8301 | 2.2773 | 0.3645 |  | *VbWRKY15* | *VbWRKY36* | 0.7280 | 1.6054 | 0.4535 |
|  | *VbWRKY38* | *VbWRKY40* | 0.6574 | NaN | NaN |  | *VbWRKY15* | *VbWRKY42* | 0.5628 | NaN | NaN |
|  | *VbWRKY38* | *VbWRKY41* | 0.6467 | 2.7344 | 0.2365 |  | *VbWRKY15* | *VbWRKY44* | 0.6502 | NaN | NaN |
|  | *VbWRKY38* | *VbWRKY43* | 0.3741 | 2.2540 | 0.1660 |  | *VbWRKY15* | *VbWRKY47* | 0.7802 | 1.8050 | 0.4322 |
|  | *VbWRKY38* | *VbWRKY45* | 0.4450 | 2.1217 | 0.2098 |  | *VbWRKY15* | *VbWRKY48* | 0.5957 | 1.8036 | 0.3303 |
|  | *VbWRKY38* | *VbWRKY52* | 0.5425 | NaN | NaN |  | *VbWRKY15* | *VbWRKY49* | 0.5957 | 1.8036 | 0.3303 |
|  | *VbWRKY38* | *VbWRKY59* | 0.7432 | NaN | NaN |  | *VbWRKY15* | *VbWRKY63* | 0.5676 | 1.4860 | 0.3820 |
|  | *VbWRKY38* | *VbWRKY69* | 0.7444 | NaN | NaN |  | *VbWRKY15* | *VbWRKY64* | 0.4380 | 2.1893 | 0.2001 |
|  | *VbWRKY40* | *VbWRKY41* | 0.6105 | NaN | NaN |  | *VbWRKY15* | *VbWRKY67* | 0.5990 | NaN | NaN |
|  | *VbWRKY40* | *VbWRKY43* | 0.5947 | NaN | NaN |  | *VbWRKY18* | *VbWRKY19* | 0.6902 | 3.5968 | 0.1919 |
|  | *VbWRKY40* | *VbWRKY45* | 0.5120 | NaN | NaN |  | *VbWRKY18* | *VbWRKY22* | 0.7649 | NaN | NaN |
|  | *VbWRKY40* | *VbWRKY52* | 0.6054 | 5.0314 | 0.1203 |  | *VbWRKY18* | *VbWRKY25* | 0.7708 | NaN | NaN |
|  | *VbWRKY40* | *VbWRKY59* | 0.7477 | NaN | NaN |  | *VbWRKY18* | *VbWRKY31* | 0.6545 | 2.0020 | 0.3269 |
|  | *VbWRKY40* | *VbWRKY69* | 0.8477 | NaN | NaN |  | *VbWRKY18* | *VbWRKY35* | 0.6168 | 2.1377 | 0.2885 |
|  | *VbWRKY41* | *VbWRKY43* | 0.5574 | NaN | NaN |  | *VbWRKY18* | *VbWRKY36* | 0.6984 | 2.2971 | 0.3040 |
|  | *VbWRKY41* | *VbWRKY45* | 0.4950 | 2.5876 | 0.1913 |  | *VbWRKY18* | *VbWRKY42* | 0.8062 | NaN | NaN |
|  | *VbWRKY41* | *VbWRKY52* | 0.5302 | 2.1898 | 0.2421 |  | *VbWRKY18* | *VbWRKY44* | 0.8069 | 2.2793 | 0.3540 |
|  | *VbWRKY41* | *VbWRKY59* | 0.7190 | 3.1946 | 0.2251 |  | *VbWRKY18* | *VbWRKY47* | 0.6218 | 1.7808 | 0.3492 |
|  | *VbWRKY41* | *VbWRKY69* | 0.7829 | 1.9412 | 0.4033 |  | *VbWRKY18* | *VbWRKY48* | 0.7121 | 2.6178 | 0.2720 |
|  | *VbWRKY43* | *VbWRKY45* | 0.1798 | 0.8435 | 0.2132 |  | *VbWRKY18* | *VbWRKY49* | 0.7121 | 2.6178 | 0.2720 |
|  | *VbWRKY43* | *VbWRKY52* | 0.5622 | NaN | NaN |  | *VbWRKY18* | *VbWRKY63* | 0.6299 | NaN | NaN |
|  | *VbWRKY43* | *VbWRKY59* | 0.6893 | NaN | NaN |  | *VbWRKY18* | *VbWRKY64* | 0.5887 | NaN | NaN |
|  | *VbWRKY43* | *VbWRKY69* | 0.8021 | NaN | NaN |  | *VbWRKY18* | *VbWRKY67* | 0.6920 | NaN | NaN |
|  | *VbWRKY45* | *VbWRKY52* | 0.5020 | NaN | NaN |  | *VbWRKY19* | *VbWRKY22* | 0.5931 | NaN | NaN |
|  | *VbWRKY45* | *VbWRKY59* | 0.7112 | NaN | NaN |  | *VbWRKY19* | *VbWRKY25* | 0.7403 | NaN | NaN |
|  | *VbWRKY45* | *VbWRKY59* | 0.7112 | NaN | NaN |  | *VbWRKY19* | *VbWRKY31* | 0.5514 | NaN | NaN |
|  | *VbWRKY52* | *VbWRKY59* | 0.6979 | NaN | NaN |  | *VbWRKY19* | *VbWRKY35* | 0.6469 | NaN | NaN |
|  | *VbWRKY52* | *VbWRKY59* | 0.6979 | NaN | NaN |  | *VbWRKY19* | *VbWRKY36* | 0.1921 | 0.7554 | 0.2543 |
|  | *VbWRKY59* | *VbWRKY59* | 0.0000 | 0.0000 | NaN |  | *VbWRKY19* | *VbWRKY42* | 0.5605 | NaN | NaN |
| Ⅱb | *VbWRKY6* | *VbWRKY13* | 0.3614 | NaN | NaN |  | *VbWRKY19* | *VbWRKY44* | 0.7359 | NaN | NaN |
|  | *VbWRKY6* | *VbWRKY17* | 0.5836 | NaN | NaN |  | *VbWRKY19* | *VbWRKY47* | 0.6971 | NaN | NaN |
|  | *VbWRKY6* | *VbWRKY20* | 0.2761 | NaN | NaN |  | *VbWRKY19* | *VbWRKY48* | 0.5509 | 3.1099 | 0.1771 |
|  | *VbWRKY6* | *VbWRKY46* | 0.6457 | NaN | NaN |  | *VbWRKY19* | *VbWRKY49* | 0.5509 | 3.1099 | 0.1771 |
|  | *VbWRKY6* | *VbWRKY55* | 0.6340 | NaN | NaN |  | *VbWRKY19* | *VbWRKY63* | 0.4984 | NaN | NaN |
|  | *VbWRKY6* | *VbWRKY56* | 0.7237 | NaN | NaN |  | *VbWRKY19* | *VbWRKY64* | 0.6065 | NaN | NaN |
|  | *VbWRKY6* | *VbWRKY65* | 0.4605 | NaN | NaN |  | *VbWRKY19* | *VbWRKY67* | 0.5947 | NaN | NaN |
|  | *VbWRKY6* | *VbWRKY68* | 0.1813 | 1.1751 | 0.1543 |  | *VbWRKY22* | *VbWRKY25* | 0.5241 | 2.2848 | 0.2294 |
|  | *VbWRKY6* | *VbWRKY70* | 0.6328 | NaN | NaN |  | *VbWRKY22* | *VbWRKY31* | 0.6521 | NaN | NaN |
|  | *VbWRKY13* | *VbWRKY17* | 0.6716 | NaN | NaN |  | *VbWRKY22* | *VbWRKY35* | 0.5834 | NaN | NaN |
|  | *VbWRKY13* | *VbWRKY20* | 0.1629 | 1.1594 | 0.1405 |  | *VbWRKY22* | *VbWRKY36* | 0.6879 | 4.4029 | 0.1562 |
|  | *VbWRKY13* | *VbWRKY46* | 0.6359 | 2.3255 | 0.2735 |  | *VbWRKY22* | *VbWRKY42* | 0.6564 | NaN | NaN |
|  | *VbWRKY13* | *VbWRKY55* | 0.5781 | 4.3638 | 0.1325 |  | *VbWRKY22* | *VbWRKY44* | 0.6033 | NaN | NaN |
|  | *VbWRKY13* | *VbWRKY56* | 0.6303 | NaN | NaN |  | *VbWRKY22* | *VbWRKY47* | 0.7040 | 2.1485 | 0.3277 |
|  | *VbWRKY13* | *VbWRKY65* | 0.4365 | 4.1473 | 0.1052 |  | *VbWRKY22* | *VbWRKY48* | 0.5850 | NaN | NaN |
|  | *VbWRKY13* | *VbWRKY68* | 0.3935 | NaN | NaN |  | *VbWRKY22* | *VbWRKY49* | 0.5850 | NaN | NaN |
|  | *VbWRKY13* | *VbWRKY70* | 0.6368 | NaN | NaN |  | *VbWRKY22* | *VbWRKY63* | 0.5796 | NaN | NaN |
|  | *VbWRKY17* | *VbWRKY20* | 0.5967 | NaN | NaN |  | *VbWRKY22* | *VbWRKY64* | 0.5114 | NaN | NaN |
|  | *VbWRKY17* | *VbWRKY46* | 0.5187 | 1.5348 | 0.3380 |  | *VbWRKY22* | *VbWRKY67* | 0.4406 | NaN | NaN |
|  | *VbWRKY17* | *VbWRKY55* | 0.5579 | NaN | NaN |  | *VbWRKY25* | *VbWRKY31* | 0.6976 | NaN | NaN |
|  | *VbWRKY17* | *VbWRKY56* | 0.3668 | 2.0336 | 0.1804 |  | *VbWRKY25* | *VbWRKY35* | 0.6006 | 3.4861 | 0.1723 |
|  | *VbWRKY17* | *VbWRKY65* | 0.6152 | NaN | NaN |  | *VbWRKY25* | *VbWRKY36* | 0.5691 | NaN | NaN |
|  | *VbWRKY17* | *VbWRKY68* | 0.5953 | NaN | NaN |  | *VbWRKY25* | *VbWRKY42* | 0.6971 | NaN | NaN |
|  | *VbWRKY17* | *VbWRKY70* | 0.5688 | NaN | NaN |  | *VbWRKY25* | *VbWRKY44* | 0.5370 | NaN | NaN |
|  | *VbWRKY20* | *VbWRKY46* | 0.5986 | NaN | NaN |  | *VbWRKY25* | *VbWRKY47* | 0.7072 | 2.4662 | 0.2868 |
|  | *VbWRKY20* | *VbWRKY55* | 0.5774 | 2.8377 | 0.2035 |  | *VbWRKY25* | *VbWRKY48* | 0.5025 | 3.0772 | 0.1633 |
|  | *VbWRKY20* | *VbWRKY56* | 0.6327 | NaN | NaN |  | *VbWRKY25* | *VbWRKY49* | 0.5025 | 3.0772 | 0.1633 |
|  | *VbWRKY20* | *VbWRKY65* | 0.4281 | 2.8946 | 0.1479 |  | *VbWRKY25* | *VbWRKY63* | 0.6052 | 1.8012 | 0.3360 |
|  | *VbWRKY20* | *VbWRKY68* | 0.3312 | NaN | NaN |  | *VbWRKY25* | *VbWRKY64* | 0.4322 | 1.8146 | 0.2382 |
|  | *VbWRKY20* | *VbWRKY70* | 0.6604 | NaN | NaN |  | *VbWRKY25* | *VbWRKY67* | 0.5285 | 4.9707 | 0.1063 |
|  | *VbWRKY46* | *VbWRKY55* | 0.5984 | 4.0270 | 0.1486 |  | *VbWRKY31* | *VbWRKY35* | 0.5748 | NaN | NaN |
|  | *VbWRKY46* | *VbWRKY56* | 0.4951 | 1.7907 | 0.2765 |  | *VbWRKY31* | *VbWRKY36* | 0.6387 | 2.5790 | 0.2477 |
|  | *VbWRKY46* | *VbWRKY65* | 0.5581 | 2.3398 | 0.2385 |  | *VbWRKY31* | *VbWRKY42* | 0.6956 | NaN | NaN |
|  | *VbWRKY46* | *VbWRKY68* | 0.5837 | 2.4988 | 0.2336 |  | *VbWRKY31* | *VbWRKY44* | 0.7973 | NaN | NaN |
|  | *VbWRKY46* | *VbWRKY70* | 0.6953 | NaN | NaN |  | *VbWRKY31* | *VbWRKY47* | 0.5849 | 1.5329 | 0.3816 |
|  | *VbWRKY55* | *VbWRKY56* | 0.6004 | NaN | NaN |  | *VbWRKY31* | *VbWRKY48* | 0.4857 | 1.7624 | 0.2756 |
|  | *VbWRKY55* | *VbWRKY65* | 0.6116 | 4.0139 | 0.1524 |  | *VbWRKY31* | *VbWRKY49* | 0.4857 | 1.7624 | 0.2756 |
|  | *VbWRKY55* | *VbWRKY68* | 0.6009 | NaN | NaN |  | *VbWRKY31* | *VbWRKY63* | 0.5286 | NaN | NaN |
|  | *VbWRKY55* | *VbWRKY70* | 0.3135 | 0.8604 | 0.3644 |  | *VbWRKY31* | *VbWRKY64* | 0.6294 | NaN | NaN |
|  | *VbWRKY56* | *VbWRKY65* | 0.5950 | NaN | NaN |  | *VbWRKY31* | *VbWRKY67* | 0.5569 | NaN | NaN |
|  | *VbWRKY56* | *VbWRKY68* | 0.6487 | NaN | NaN |  | *VbWRKY35* | *VbWRKY36* | 0.5943 | NaN | NaN |
|  | *VbWRKY56* | *VbWRKY70* | 0.6774 | 3.2566 | 0.2080 |  | *VbWRKY35* | *VbWRKY42* | 0.7569 | 3.6512 | 0.2073 |
|  | *VbWRKY65* | *VbWRKY68* | 0.4184 | 2.4462 | 0.1710 |  | *VbWRKY35* | *VbWRKY44* | 0.6835 | NaN | NaN |
|  | *VbWRKY65* | *VbWRKY70* | 0.5977 | NaN | NaN |  | *VbWRKY35* | *VbWRKY47* | 0.6442 | 1.9582 | 0.3290 |
|  | *VbWRKY68* | *VbWRKY70* | 0.6288 | NaN | NaN |  | *VbWRKY35* | *VbWRKY48* | 0.5688 | NaN | NaN |
| Ⅱd | *VbWRKY26* | *VbWRKY27* | 0.5219 | NaN | NaN |  | *VbWRKY35* | *VbWRKY49* | 0.5688 | NaN | NaN |
|  | *VbWRKY26* | *VbWRKY33* | 0.5668 | NaN | NaN |  | *VbWRKY35* | *VbWRKY63* | 0.6601 | NaN | NaN |
|  | *VbWRKY26* | *VbWRKY39* | 0.4695 | NaN | NaN |  | *VbWRKY35* | *VbWRKY64* | 0.7305 | 2.5705 | 0.2842 |
|  | *VbWRKY26* | *VbWRKY50* | 0.3933 | NaN | NaN |  | *VbWRKY35* | *VbWRKY67* | 0.7102 | 1.8383 | 0.3863 |
|  | *VbWRKY26* | *VbWRKY51* | 0.5126 | NaN | NaN |  | *VbWRKY36* | *VbWRKY42* | 0.5544 | NaN | NaN |
|  | *VbWRKY27* | *VbWRKY33* | 0.3639 | NaN | NaN |  | *VbWRKY36* | *VbWRKY44* | 0.7468 | NaN | NaN |
|  | *VbWRKY27* | *VbWRKY39* | 0.1040 | 0.9128 | 0.1139 |  | *VbWRKY36* | *VbWRKY47* | 0.6439 | 3.4764 | 0.1852 |
|  | *VbWRKY27* | *VbWRKY50* | 0.2062 | NaN | NaN |  | *VbWRKY36* | *VbWRKY48* | 0.5653 | 2.2942 | 0.2464 |
|  | *VbWRKY27* | *VbWRKY51* | 0.2747 | NaN | NaN |  | *VbWRKY36* | *VbWRKY49* | 0.5653 | 2.2942 | 0.2464 |
|  | *VbWRKY33* | *VbWRKY39* | 0.4186 | NaN | NaN |  | *VbWRKY36* | *VbWRKY63* | 0.5510 | 2.6205 | 0.2103 |
|  | *VbWRKY33* | *VbWRKY50* | 0.3664 | NaN | NaN |  | *VbWRKY36* | *VbWRKY64* | 0.5254 | 2.5168 | 0.2087 |
|  | *VbWRKY33* | *VbWRKY51* | 0.4669 | 2.2304 | 0.2093 |  | *VbWRKY36* | *VbWRKY67* | 0.6264 | NaN | NaN |
|  | *VbWRKY39* | *VbWRKY50* | 0.1724 | NaN | NaN |  | *VbWRKY42* | *VbWRKY44* | 0.2419 | 1.0173 | 0.2378 |
|  | *VbWRKY39* | *VbWRKY51* | 0.2730 | 4.1457 | 0.0659 |  | *VbWRKY42* | *VbWRKY47* | 0.6982 | NaN | NaN |
|  | *VbWRKY50* | *VbWRKY51* | 0.0200 | 0.0270 | 0.7433 |  | *VbWRKY42* | *VbWRKY48* | 0.5089 | NaN | NaN |
| Ⅲ | *VbWRKY3* | *VbWRKY8* | 0.4309 | NaN | NaN |  | *VbWRKY42* | *VbWRKY49* | 0.5089 | NaN | NaN |
|  | *VbWRKY3* | *VbWRKY10* | 0.7095 | NaN | NaN |  | *VbWRKY42* | *VbWRKY63* | 0.5595 | NaN | NaN |
|  | *VbWRKY3* | *VbWRKY11* | 0.8151 | NaN | NaN |  | *VbWRKY42* | *VbWRKY64* | 0.5999 | NaN | NaN |
|  | *VbWRKY3* | *VbWRKY32* | 0.1986 | 0.8446 | 0.2352 |  | *VbWRKY42* | *VbWRKY67* | 0.5389 | NaN | NaN |
|  | *VbWRKY3* | *VbWRKY37* | 0.7835 | NaN | NaN |  | *VbWRKY44* | *VbWRKY47* | 0.7536 | NaN | NaN |
|  | *VbWRKY3* | *VbWRKY53* | 0.5133 | 2.1585 | 0.2378 |  | *VbWRKY44* | *VbWRKY48* | 0.5642 | NaN | NaN |
|  | *VbWRKY3* | *VbWRKY57* | 0.6254 | NaN | NaN |  | *VbWRKY44* | *VbWRKY49* | 0.5642 | NaN | NaN |
|  | *VbWRKY3* | *VbWRKY58* | 0.6035 | NaN | NaN |  | *VbWRKY44* | *VbWRKY63* | 0.5385 | NaN | NaN |
|  | *VbWRKY3* | *VbWRKY61* | 0.4355 | 2.8601 | 0.1523 |  | *VbWRKY44* | *VbWRKY64* | 0.5838 | NaN | NaN |
|  | *VbWRKY8* | *VbWRKY10* | 0.7133 | NaN | NaN |  | *VbWRKY44* | *VbWRKY67* | 0.6111 | NaN | NaN |
|  | *VbWRKY8* | *VbWRKY11* | 0.8362 | 1.8739 | 0.4462 |  | *VbWRKY47* | *VbWRKY48* | 0.6175 | 1.7888 | 0.3452 |
|  | *VbWRKY8* | *VbWRKY32* | 0.4956 | NaN | NaN |  | *VbWRKY47* | *VbWRKY49* | 0.6175 | 1.7888 | 0.3452 |
|  | *VbWRKY8* | *VbWRKY37* | 0.7309 | 2.3398 | 0.3124 |  | *VbWRKY47* | *VbWRKY63* | 0.6936 | NaN | NaN |
|  | *VbWRKY8* | *VbWRKY53* | 0.6160 | NaN | NaN |  | *VbWRKY47* | *VbWRKY64* | 0.6741 | NaN | NaN |
|  | *VbWRKY8* | *VbWRKY57* | 0.4639 | 2.8830 | 0.1609 |  | *VbWRKY47* | *VbWRKY67* | 0.7243 | 2.0917 | 0.3463 |
|  | *VbWRKY8* | *VbWRKY58* | 0.6084 | 2.1005 | 0.2896 |  | *VbWRKY48* | *VbWRKY49* | 0.0000 | 0.0000 | NaN |
|  | *VbWRKY8* | *VbWRKY61* | 0.4551 | 2.3128 | 0.1968 |  | *VbWRKY48* | *VbWRKY63* | 0.5675 | NaN | NaN |
|  | *VbWRKY10* | *VbWRKY11* | 0.8352 | NaN | NaN |  | *VbWRKY48* | *VbWRKY64* | 0.4878 | 1.2993 | 0.3754 |
|  | *VbWRKY10* | *VbWRKY32* | 0.7639 | NaN | NaN |  | *VbWRKY48* | *VbWRKY67* | 0.5128 | NaN | NaN |
|  | *VbWRKY10* | *VbWRKY37* | 0.7804 | NaN | NaN |  | *VbWRKY49* | *VbWRKY63* | 0.5675 | NaN | NaN |
|  | *VbWRKY10* | *VbWRKY53* | 0.7003 | 3.5330 | 0.1982 |  | *VbWRKY49* | *VbWRKY64* | 0.4878 | 1.2993 | 0.3754 |
|  | *VbWRKY10* | *VbWRKY57* | 0.6372 | NaN | NaN |  | *VbWRKY49* | *VbWRKY67* | 0.5128 | NaN | NaN |
|  | *VbWRKY10* | *VbWRKY58* | 0.7844 | NaN | NaN |  | *VbWRKY63* | *VbWRKY64* | 0.5855 | NaN | NaN |
|  | *VbWRKY10* | *VbWRKY61* | 0.7016 | 26.728 | 0.0262 |  | *VbWRKY63* | *VbWRKY67* | 0.6173 | NaN | NaN |
|  | *VbWRKY11* | *VbWRKY32* | 0.8418 | NaN | NaN |  | *VbWRKY64* | *VbWRKY67* | 0.5530 | NaN | NaN |
|  | *VbWRKY11* | *VbWRKY37* | 0.3805 | 0.8700 | 0.4373 | Ⅱe | *VbWRKY9* | *VbWRKY14* | 0.6073 | NaN | NaN |
|  | *VbWRKY11* | *VbWRKY53* | 0.8040 | NaN | NaN |  | *VbWRKY9* | *VbWRKY21* | 0.4630 | NaN | NaN |
|  | *VbWRKY11* | *VbWRKY57* | 0.8285 | 1.7418 | 0.4756 |  | *VbWRKY9* | *VbWRKY23* | 0.6991 | NaN | NaN |
|  | *VbWRKY11* | *VbWRKY58* | 0.6899 | NaN | NaN |  | *VbWRKY9* | *VbWRKY30* | 0.5808 | NaN | NaN |
|  | *VbWRKY11* | *VbWRKY61* | 0.8268 | NaN | NaN |  | *VbWRKY9* | *VbWRKY54* | 0.5032 | NaN | NaN |
|  | *VbWRKY32* | *VbWRKY37* | 0.8287 | NaN | NaN |  | *VbWRKY9* | *VbWRKY62* | 0.5090 | NaN | NaN |
|  | *VbWRKY32* | *VbWRKY53* | 0.5570 | 2.0495 | 0.2718 |  | *VbWRKY9* | *VbWRKY66* | 0.5553 | 3.0943 | 0.1794 |
|  | *VbWRKY32* | *VbWRKY57* | 0.6536 | 1.8888 | 0.3461 |  | *VbWRKY14* | *VbWRKY21* | 0.6735 | 2.8707 | 0.2346 |
|  | *VbWRKY32* | *VbWRKY58* | 0.6998 | 2.2585 | 0.3099 |  | *VbWRKY14* | *VbWRKY23* | 0.2419 | 1.0414 | 0.2323 |
|  | *VbWRKY32* | *VbWRKY61* | 0.5013 | 3.0044 | 0.1669 |  | *VbWRKY14* | *VbWRKY30* | 0.6339 | 3.7918 | 0.1672 |
|  | *VbWRKY37* | *VbWRKY53* | 0.7629 | 3.7598 | 0.2029 |  | *VbWRKY14* | *VbWRKY54* | 0.5891 | NaN | NaN |
|  | *VbWRKY37* | *VbWRKY57* | 0.6468 | NaN | NaN |  | *VbWRKY14* | *VbWRKY62* | 0.5981 | 2.2614 | 0.2645 |
|  | *VbWRKY37* | *VbWRKY58* | 0.7762 | 4.0474 | 0.1918 |  | *VbWRKY14* | *VbWRKY66* | 0.6783 | NaN | NaN |
|  | *VbWRKY37* | *VbWRKY61* | 0.8372 | NaN | NaN |  | *VbWRKY21* | *VbWRKY23* | 0.6569 | NaN | NaN |
|  | *VbWRKY53* | *VbWRKY57* | 0.6293 | NaN | NaN |  | *VbWRKY21* | *VbWRKY30* | 0.7112 | NaN | NaN |
|  | *VbWRKY53* | *VbWRKY58* | 0.7440 | 2.3991 | 0.3101 |  | *VbWRKY21* | *VbWRKY54* | 0.6696 | NaN | NaN |
|  | *VbWRKY53* | *VbWRKY61* | 0.2648 | 0.9521 | 0.2781 |  | *VbWRKY21* | *VbWRKY62* | 0.6148 | NaN | NaN |
|  | *VbWRKY57* | *VbWRKY58* | 0.3038 | 0.6506 | 0.4670 |  | *VbWRKY21* | *VbWRKY66* | 0.4320 | 2.7208 | 0.1588 |
|  | *VbWRKY57* | *VbWRKY61* | 0.6838 | 1.9685 | 0.3474 |  | *VbWRKY23* | *VbWRKY30* | 0.6400 | NaN | NaN |
|  | *VbWRKY58* | *VbWRKY61* | 0.7258 | 2.2574 | 0.3215 |  | *VbWRKY23* | *VbWRKY54* | 0.6241 | NaN | NaN |
|  |  |  |  |  |  |  | *VbWRKY23* | *VbWRKY62* | 0.6149 | 5.2341 | 0.1175 |
|  |  |  |  |  |  |  | *VbWRKY23* | *VbWRKY66* | 0.5526 | NaN | NaN |
|  |  |  |  |  |  |  | *VbWRKY30* | *VbWRKY54* | 0.5528 | 3.6843 | 0.1500 |
|  |  |  |  |  |  |  | *VbWRKY30* | *VbWRKY62* | 0.5151 | NaN | NaN |
|  |  |  |  |  |  |  | *VbWRKY30* | *VbWRKY66* | 0.6086 | 3.4735 | 0.1752 |
|  |  |  |  |  |  |  | *VbWRKY54* | *VbWRKY62* | 0.2004 | 0.9866 | 0.2031 |
|  |  |  |  |  |  |  | *VbWRKY54* | *VbWRKY66* | 0.5562 | 2.4302 | 0.2289 |
|  |  |  |  |  |  |  | *VbWRKY62* | *VbWRKY66* | 0.5096 | NaN | NaN |