Table S1 Primers and sequences used in this experiment

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| Species | Primer name | Use | Sequence |
|  *Pyropia haitanensis* | *PhbZIP2F* | PCR amplification | CTCCCATCCGTCGTTATCTC |
| *PhbZIP2R* | CATCCGTTTTCTTTTCGTTG |
| *PhbZIP2QF* | qRT-PCR | GGACTTTTCGCCCCTTACC |
| *PhbZIP2QR* | ACGCAAACGCACTCGCTAC |
| *Chlamydomonas reinhardtii* | *SODQF* | qRT-PCR | CAAGGTCCTTGAGCTCGG |
| *SODQR* | AGCACCACCAGACCTACGTGA |
| *CATQF* | TCCGCGGGGTCCATGGTCTG |
| *CATQR* | CGCCCGTCATCGTGCGGTTC |
| *HSP70AQF* | AGCACTGATGCTGTGTTTCG |
| *HSP70AQR* | CATGTTGGCAAAATCAATCG |
| *HSP70BQF* | AGTCCACCCAAGTGCCTTACC |
| *HSP70BQR* | GCTGGGAGTCATTGAAGTAGGC |
| *HSP90AQF* | GCTCAAGAAGATGGGCTACG |
| *HSP90AQR* | GTGGCTGACCATGACCTTCT |
| *HSP90CQF* | AGAAGAAGAAGGCGGAGGAG |
| *HSP90CQR* | GCTGTCTAGTAGGCGGTTGG |
|  *Pyropia haitanensis* | *PhUBCF* | Reference genes | TCACAACGAGGATTTACCACC |
| *PhUBCR* | GAGGAGCACCTTGGAAACG |
| *Chlamydomonas reinhardtii* | *TubulinQF* | CTCGCTTCGCTTTGACGGTG |
| *TubulinQR* | CGTGGTACGCCTTCTCGGC |
| *Halo Tag-PhbZIP2 expression vector* | *PhbZIP2 DapF* | *PhbZIP2* amplification (Homologous arm base) | ACTTTCAGAGCGATAACGCGATGAGTTACATGCCGTACAAC |
| *PhbZIP2 DapR* | TACCGAGCCCGAATTCGTTTTCATGCGCCCGCAATTGCCCG |