**Supplementary table 1.** Primers used in this study

**A: Primers for yeast experiment**

|  |  |
| --- | --- |
| **Primer** | **Sequence 5´ 🡪 3´** |
| SC\_aqpA.1\_FW | GCAT**CGTCTC**ATC**GGTCTC**ATATGGGGCCGCAACAATGGTTTC |
| SC\_aqpA.1\_RV | ATGC**CGTCTC**CGTGACCCGGGCGCTGGCTTGG |
| SC\_aqpA.2\_FW | GCAT**CGTCTC**ATCACCTCCAAACACCTCAAACCTG |
| SC\_aqpA.2\_RV | ATGC**CGTCTC**A**GGTCTC**AGGATCCCACCTGCTCTGCCCCGTG |
| SC\_aqpB.1\_FW | GCAT**CGTCTC**ATC**GGTCTC**ATATGGTGCACCCGGTTAGATCTCTC |
| SC\_aqpB.1\_RV | ATGC**CGTCTC**CGGCGCCCCTCCTGGAGGTTTCTTC |
| SC\_aqpB.2\_FW | GCAT**CGTCTC**ACGCCTCTCGCAACAAAAGTCATGGAAC |
| SC\_aqpB.2\_RV | ATGC**CGTCTC**CTCCCTTTCTTCCTTTCGATCCTCCGGCAAGGCTCCATACCGCATTCCGTCCCGGAC |
| SC\_aqpB.3\_FW | GCAT**CGTCTC**AGGGACGAGGATGGACGAGAACGCC |
| SC\_aqpB.3\_RV | ATGC**CGTCTC**CGGCCGAGAGTGATGGCGATGG |
| SC\_aqpB.4\_FW | GCAT**CGTCTC**AGGCCTCTGCGGCGGGTTGTCAACC |
| SC\_aqpB.4\_RV | ATGC**CGTCTC**CTTTCGACGGAGAGGTTGACGATG |
| SC\_aqpB.5\_FW | GCAT**CGTCTC**AGAAACCAACCTCCCACAAAGCGAAAC |
| SC\_aqpB.5\_RV | ATGC**CGTCTC**CCCTCCTCGGCGGGTAATTGATCG |
| SC\_aqpB.6\_FW | GCAT**CGTCTC**AGAGGCGCAAGCGCGCACTGCTGATC |
| SC\_aqpB.6\_RV | ATGC**CGTCTC**C**GGTCTC**AGGATCCATCCTGGTTCTCCTCAACTG |
| **Primer** | **Sequence 5´ 🡪 3´** |
| SC\_aqpC\_FW | GCAT**CGTCTC**ATC**GGTCTC**ATATGGCAGGCCTACTGTTTCGTC |
| SC\_aqpC\_RV | ATGC**CGTCTC**A**GGTCTC**AGGATCCTGCCTTCCATGGCGGCAC |
| SC\_aqpD.1\_FW | GCAT**CGTCTC**ATC**GGTCTC**ATATGTTTCTCAACACTGGCCTCTC |
| SC\_aqpD.1\_RV | ATGC**CGTCTC**CTCCCCCTCATAGAGGAATGTGTCG |
| SC\_aqpD.2\_FW | GCAT**CGTCTC**AGGGACGGGTCGCGCATCACCGATG |
| SC\_aqpD.2\_RV | ATGC**CGTCTC**A**GGTCTC**AGGATCCGTGCAGCCGCAGAGCAC |
| SC\_aqpE.1\_FW | GCAT**CGTCTC**ATC**GGTCTC**ATATGGACGACGGGGAAACCAGG |
| SC\_aqpE.1\_RV | ATGC**CGTCTC**CAACGCGGCGGGTGGGAGAAAC |
| SC\_aqpE.2\_FW | GCAT**CGTCTC**ACGTTTCTGGCCGTGATGGCTCCG |
| SC\_aqpE.2\_RV | ATGC**CGTCTC**CTGTCTCTTCTGGGCCAGCCATGGTG |
| SC\_aqpE.3\_FW | GCAT**CGTCTC**AGACACCTCAGCTGCGCTTGGC |
| SC\_aqpE.3\_RV | ATGC**CGTCTC**CTTTCACTGGGAGCCGGGGTTTCGCC |
| SC\_aqpE.4\_FW | GCAT**CGTCTC**AGAAACCCATGAGGAACCCCCTCAG |
| SC\_aqpE.4\_RV | ATGC**CGTCTC**CAACGTAGATGGCCATCATGGTAGC |
| SC\_aqpE.5\_G-Block | GCAT**CGTCTC**ACGTTTCCGGTGGTGTGTCCGGTGCACATCTCAATCCGACCATCACCATTATGCTATGGTTTTACCGCGGTTTCCCCAAGAGCAAGATGCCCGAGTACTTCGCCGCGCAATTCTTGGGGGCCTTCATCGCCGCGCTCGCCGCGTACGGTCTTTACTATCACTCCATCCAACACTATCTCCTGACCAACTCCACCACGGGCATCATCACCAGCTTTGTGACAAGTCAGCGCGAAACCTGGATCGGTCCTGGTACTGCCTTCTTTACCGAATTTCTGGGCACGATGATACTGACGGTGGTGGTCCTGGCGCTGGGTGACGATCAGAACGCACCCCCGGGAGCGGGTATGAACTCACTCATCGTGGGGCGGAGACGGCAT |
| **Primer** | **Sequence 5´ 🡪 3´** |
| SC\_aqpE.6\_FW | GCAT**CGTCTC**AGGGCTCATGGTGACCTGCAACACG |
| SC\_aqpE.6\_RV | ATGC**CGTCTC**A**GGTCTC**AGGATCCACGAACAGTCTTCTCTCCC |
| SC\_aqpF\_FW | GCAT**CGTCTC**ATC**GGTCTC**ATATGGTGGTCACTTATCTCCCCG |
| SC\_aqpF\_RV | ATGC**CGTCTC**A**GGTCTC**AGGATCCCTCCGCGCGAGGATCCTTC |
| SC\_aqpG.1\_FW | GCAT**CGTCTC**ATC**GGTCTC**ATATGATACCTGAGACAGAGAAGAGT |
| SC\_aqpG.1\_RV | ATGC**CGTCTC**CCATCTCGATCTTTGGAGGTGGGTGC |
| SC\_aqpG.2\_FW | GCAT**CGTCTC**AGATGACCCCGGTAACCTTTCCTAC |
| SC\_aqpG.2\_RV | ATGC**CGTCTC**A**GGTCTC**AGGATCCACTCAACGAAGCTGCCCC |
| SC\_FPS1\_FW | GCAT**CGTCTC**ATC**GGTCTC**ATATGAGTAATCCTCAAAAAGCTCTAAAC |
| SC\_FPS1\_RV | ATGC**CGTCTC**A**GGTCTC**AGGATCCTGTTACCTTCTTAGCATTACC |
| SC\_pYTK001\_FW | GCCTATGGAAAAACGCCAGC |
| SC\_pYTK001\_RV | CGCTTGGACTCCTGTTGATAG |
|  |  |

Remark:

1. SC: primers for *Saccharomyces cerevisiae* experiment

2. underline letter: type specific overhangs

3. bold letter: restriction site for *BsaI* (GGTCTC) and *BsmBI* (CGTCTC)

**B: Primers for RT-qPCR**

|  |  |
| --- | --- |
| **Primer** | **Sequence 5´ 🡪 3´** |
| AN\_qPCR\_hist\_FW | ACAATGACTGGCCGTGGAAAGG |
| AN\_qPCR\_hist\_RV | ATACGCTTGACACCACCACGAC |
| AN\_qPCR\_aqpA\_FW | CGCTATGCTTTGGGTTCTCG |
| AN\_qPCR\_aqpA\_RV | CCAGACACAGGGCCAGAGTGACCG |
| AN\_qPCR\_aqpB\_FW | CCACGGATATTCCGAAGACGGATG |
| AN\_qPCR\_aqpB\_RV | AGAGTGATGGCGATGGTTGTCC |
| AN\_qPCR\_aqpC\_FW | CGGTGGTGGAATGCGTTGGAACC |
| AN\_qPCR\_aqpC\_RV | GGAGAGGGGGGAGCCACATTCG |
| AN\_qPCR\_aqpD\_FW | ACTCCCGGACAATGGCGTAAAC |
| AN\_qPCR\_aqpD\_RV | ATGGCAGCACCAACAAATCCAC |
| AN\_qPCR\_aqpE\_FW | TGGTGAATCGCCGGTCAACTAC |
| AN\_qPCR\_aqpE\_RV | TCATCCGACTCTTTCGCATCGC |
| AN\_qPCR\_aqpF\_FW | TGACAGGACGGACCCTAAGAAC |
| AN\_qPCR\_aqpF\_RV | GCTATGCATTCTAGCACTGCGAAC |
| AN\_qPCR\_aqpG\_FW | ATCCCGGTGCAAGATCTAATG |
| AN\_qPCR\_aqpG\_RV | CGAGACTACCATCCTCATCAAAG |
| AN\_qPCR\_goxC\_FW | AATGCTGCCCGTGTGTATGGTG |
| AN\_qPCR\_goxC\_RV | TGGGACGACATTTGCGTAGGAG |
| AN\_qPCR\_catR\_FW | GCTGAAGTTGAACAGGCTGGTTTC |
| AN\_qPCR\_catR\_RV | TCGGTGAAGTCAATGCCAGGAAC |
| AN\_qPCR\_lctA\_FW | CGGAAATTGCCATCTCACC |
| **Primer** | **Sequence 5´ 🡪 3´** |
| AN\_qPCR\_lctA\_RV | GGCGATGGAATCGTTGTTG |

Remark:

AN: primer for *A. niger* experiments

**C: Primers for *A. niger* experiment**

|  |  |
| --- | --- |
| **Primer** | **Sequence 5´ 🡪 3´** |
| AN\_aqpD\_FW | ATGTTTCTCAACACTGGCCTCTCG |
| AN\_aqpD\_RV | TTAGTGCAGCCGCAGAGCACCG |
| AN\_aqpD\_KO\_p1 | GGAGTCCCTCTACCTTTCCAGG |
| AN\_aqpD\_KO\_p2 | CAATTCCAGCAGCGGCTTGGGAAGATTCGTAGGGGTACCG |
| AN\_aqpD\_KO\_p3 | ACACGGCACAATTATCCATCGCGATACTGGCTGGAATAGAGG |
| AN\_aqpD\_KO\_p4 | CGCCAAGAACAGTGTGTCC |
| AN\_aqpD\_KO\_p11 | GGTGCCGAGTCCGTTCGCC |
| AN\_aqpD\_KO\_p12 | CCAACCTTACCAAAGAATTCC |
| AN\_aqpE\_FW | ATGGACGACGGGGAGACCAGG |
| AN\_aqpE\_RV | TCAACGAACAGTCTTCTCTCCC |
| AN\_aqpE\_KO\_p1 | GGAGCAAGAATCAAGGAACG |
| AN\_aqpE\_KO\_p2 | CAATTCCAGCAGCGGCTTGGGCGAAGGGTGATAAAATTGCTCC |
| AN\_aqpE\_KO\_p3 | ACACGGCACAATTATCCATCGCCAGATTGTTTGAGAATGCC |
| AN\_aqpE\_KO\_p4 | GCGGCAAAGTTAGGCGACTCC |
| AN\_aqpE\_KO\_p11 | CCTCGGAAGACACAATGGATCG |
| AN\_aqpE\_KO\_p12 | CGAATGCGAGCAGCGAAACAGGG |
| AN\_aqpF\_FW | ATGGTGGTCACTTATCTCCCCG |
| AN\_aqpF\_RV | TTACTCCGCGCGAGGATCCTTCC |
| AN\_aqpF\_KO\_p1 | CGCTAAGATCGCTGGCACGCG |
| **Primer** | **Sequence 5´ 🡪 3´** |
| AN\_aqpF\_KO\_p2 | CAATTCCAGCAGCGGCTTGGGGCTGCTATCAAGATAAGTG |
| AN\_aqpF\_KO\_p3 | ACACGGCACAATTATCCATCGCATGGGAACGGAGTGTCGG |
| AN\_aqpF\_KO\_p4 | GGCTGCAGATAAGCTGGACG |
| AN\_aqpF\_KO\_p11 | CCGAAAGTATTTACAGTTGAC |
| AN\_aqpF\_KO\_p12 | GCGCTCTGATGTCTGGTCGG |
| AN\_AOpyrG12FW\_p5 | AAGCCGCTGCTGGAATTG |
| AN\_AOpyrG13RV\_p6 | CGATGGATAATTGTGCCGTGT |
| AN\_AOpyrG14FW\_p7 | ATTGACCTACAGCGCACGC |
| AN\_AOpyrG15RV\_p8 | CCGGTAGCCAAAGATCCCTT |
| AN\_AOpyrGintFW\_p14 | GGCAATTGTCGTGCAGTTTG |
| AN\_AOpyrGintRV\_p13 | AATTCCACGGCCAGCAATAA |

Remark:

underline letter: overlapped sequences of *pyrG* gene