### Supplemental Table S1 | Primers used in map-based cloning, RT-PCR and plasmid construction

| 引物名称 | 引物序列 | 备注 |
|--------|---------|------|
| RM23662 | F GAGAGGACGATGGCATATTGG  
          | R CGAGGACTTGGATCCCATGG  |
| RM23916 | F GTCCAGTGATAGCAAGCATGCCCTG  
          | R GGATGACTTGGATCCCATGG  |
| NN9S-L4 | F GAATTGCTTAGGTTCCCTTGAT  
           | R ACAGGGACACCAAAAGATTATA  |
| NN9S-L7 | F CATTGTGTGGATATGACCCCTT  
           | R CTGGAGCTGTTGTAAGAGAAAG  |
| NN9S-R7 | F GTCCAGTGATAGCAAGCATGCCCTG  
           | R GGATGACTTGGATCCCATGG  |
| NN9S-R2 | F GCTGGACTTTAAAACCAAGAA  
           | R ACAGGGACACCAAAAGATTATA  |
| JY-10 | F GGATGACATAGAGGTAGAAGTG  
        | R TGATGCTTACACACA  |
| OsMFS1-DL | F TGCTGGAATCAGCTGAGGA  
           | R TCAGAGTCTCCTCCTGCTCT  |
| OsHOP2-DL | F CCTCAGCTTGGTCAATGAGC  
           | R TGGGCTTCTTTGAGGCTAA  |
| CRISPR-MFS1 | F TGTCATCAGTCTCAGTCTGA  
            | R TCAGAGTCTCCTCCTGCTCT  |
| CRISPR-HOP2 | F GATCAATTCAATCAATCAAAA  
           | R TGGGCTTCTTTGAGGCTAA  |
| AD-MFS1 | F GAGGGCCAGTGAATTCTGTCGGAAGAGGGTCTT  
            | R CATCTGCAAGTTAATCTTGAGTATATATGAAAT  |
| BD-MFS1 | F TAGTTATGCGGCCGCTGACTTTCATGAGATATACGAAATT  
           | R CATCTGCAAGTTAATCTTGAGTATATATGAAAT  |
| AD-HOP2 | F GAGGGCCAGTGAATTCTGTCGGAAGAGGGTCTT  
           | R CATCTGCAAGTTAATCTTGAGTATATATGAAAT  |
| BD-HOP2 | F TAGTTATGCGGCCGCTGACTTTCATGAGATATACGAAATT  
           | R CATCTGCAAGTTAATCTTGAGTATATATGAAAT  |
| GUS-MFS1 | F CCATGATTCAAGTATCGGATGATGGGTCGAAGAGGGGTTCTT  
           | R CTCAGATCTACATGGTGCTTGCTCGATGATTGAGAGAG  |
| PN580-MFS1 | F CCGAGCTGACGTCTAAGATGGTCAAGAAGAGGGGTTCTT  
             | R TCAGAAGCAGATCCTGCGGATATATGAGATATAGG  |

**Map-based cloning**

**Real-Time PCR**

**CRISPR/Cas9**

**Y2H**

**GUS Staining**

**Subcellular localization**
