

**Additional file 7** Primers list.

| Name of primers  | Sequences                                                                    |
|------------------|------------------------------------------------------------------------------|
| Atgai Xba        | 5'- GCTCTAGA ATGAAGAGAGATCATCATCATCAT -3'                                    |
| Atgai Sac        | 5'- GCGAGCTCAGTAATTTAGGCGAGATTAAAAT -3'                                      |
| CoYMV pro FP Sal | 5'- GCGTCGACGGTATCGATTCTTAGG -3'                                             |
| CoYMV pro RP Spe | 5'- GCACTAGTAGTAATTTAGGCGAGATTAAAAT -3'                                      |
| T7 tag R         | 5'- AGCGGTACCCTATCCCATTGTGTGCTCCAGTCAT<br>AGAAGCCATTCCTCCATTGGTGGAGAGTTT -3' |
| CoYMV pro F1     | 5'- CCTATGCCTTTATTCGCAGC -3'                                                 |
| Atgai R1         | 5'- TCAAGCCACGTGTAAAGCTCCGC -3'                                              |
| Atgai F2         | 5'- TTGAGCTTAGACCAAGTGAGATTG -3'                                             |
| Atgai R2         | 5'- CTGACTCAACGTTTCATGACGCTCA-3'                                             |
| Atgai F3         | 5'- TCGGAGCTATGAGACAAGTCG-3'                                                 |
| Atgai R3         | 5'-ACGTGAATCGCCTCAGCTAAA-3'                                                  |
| Atgai QF         | 5'- CAACTCGGCATGTTGTCCTGGTTG -3'                                             |
| Atgai QR         | 5'- TTCGGCGAAGTAAGTAGCGAC -3'                                                |
| Ubi QF1          | 5'- CAGGACAAGGAGGGTATC -3'                                                   |
| Ubi QR1          | 5'- CACGTCATCAACAACAGA -3'                                                   |