**Supplementary file 3. Primers used for cloning and gene construction**

| **Plasmids** | **Oligonucleotides** | **5’3’ Sequence** |
| --- | --- | --- |
| pGEM *sec31*A1249V::*AFpyrG* / pGEM *sec31*A1249P::*AFpyrG* / pGEM *sec31A1249S::AFpyrG* / pGEM *sec31A1249G::AFpyrG* | sec31 ORF SphI F | GCGGCATGCCGTCCAGTGCACCCATTTCCTC |
| sec31 3’ UTR XbaI R | CGCGTCTAGACGTAATTCCTCGGGAGCGCG |
| sec31 3’ XbaI F | CGCGTCTAGACGGATGAAACGACACTGTCGACG |
| sec31 3’ NotI R | CGCGCGGCCGCCGGCGATCGTTCAACACTGCTAG |
| AFpyrG XbaI F | CGCGTCTAGAGCCTCAAACAATGCTCTTCACCC |
| AFpyrG XbaI R | CGGTCTAGACTGTCTGAGAGGAGGCACTGATGCG |
| sec31 A1249V F | GCACGTGACTACGAGACGGTTCGTACAATCCACATTGATATCATGAC |
| sec31 A1249V R | GTCATGATATCAATGTGGATTGTACGAACCGTCTCGTAGTCACGTGC |
| sec31 A1249P F | GCACGTGACTACGAGACGCCTCGTACAATCCACATTGATATCATGAC |
| sec31 A1249P R | GTCATGATATCAATGTGGATTGTACGAGGCGTCTCGTAGTCACGTGC |
| sec31 A1249S F | GCACGTGACTACGAGACGAGTCGTACAATCCACATTGATATCATGAC |
| sec31 A1249S R | GTCATGATATCAATGTGGATTGTACGACTCGTCTCGTAGTCACGTGC |
| sec31 A1249G F | GCACGTGACTACGAGACGGGTCGTACAATCCACATTGATATCATGAC |
| sec31 A1249G R | GTCATGATATCAATGTGGATTGTACGACCCGTCTCGTAGTCACGTGC |
| sec31 3’ check R | CCGAACACAGAGAGCCGAGG |
| sec31 seq F | GGCCAAGCACAGCCTCTTCTG |
| pGEM *sec16-mCherry* | sec16-ORF-AatII-F | CGCGGACGTCGGTCGTGGATTTCGAAACCAAGCATG |
| sec16-ORFns-SpeI-R | CGCGACTAGTTTGGGCCATTACATCAACATACCGGC |
| sec16-3-SpeI-F | CGCGACTAGTGAAGCTCTTAACATCGCTTCCAACTC |
| sec16-3-NotI-R | CGCGGCGGCCGCGAGGTCCCGCTTCCTGCACTTCAC |
| mCherry-SpeI-F | GCGACTAGTGGAGCAGGTGCTGGTGCTG |
| mCherry-XbaI-R-3 | CGCGTCTAGACCTGTTATCCCTAGCGGATCTG |
| pGEM *thiAp-ykt6::AFpyrG* / pGEM *thiAp-ykt6::AFriboB* | ykt6 5’ ApaI F | CGCGGGGCCCCTGCAATTGCCTGCATCTGTGCTG |
| ykt6 5’ SpeI R | CGCGACTAGTGCTGGATGAGGCAGGGAGATAATAG |
| ykt6 ORF SpeI F | CGCGACTAGTATGAAGATCGTTTACATTGGTGTAAGCTGC |
| ykt6 ORF NotI R | CGCGGCGGCCGCCTACTACTATGGTTGGCGGGATACGG |
| AFpyrG SpeI F | CGCGACTAGTGCCTCAAACAATGCTCTTCACCCTC |
| AFriboB SpeI F | CGCGACTAGTCCCGGGCTGCAGGAATTCG |
| thiAp SpeI R | CGCGACTAGTGTTGACTCAGTTCAATGGTTCGAC |
| pGEM Δ*sec22*::*AFpyrG* | sec22 5’ SphI F | CGCGGCATGCGTGCTGTAGGCCCTTGAATGTCC |
| sec22 5’ SpeI R | CGCGACTAGTGTTATAGCTGGGTTCGTTAACTGGCGG |
| sec22 3’ SpeI F | CGCGACTAGT CCCAGCGATGCCACGTAACTACC |
| sec22 3’ NotI R | CGCGGCGGCCGCGGCTCCTTCCAAGTTGTCTCATCG |
| AFpyrG SpeI F | CGCGACTAGTGCCTCAAACAATGCTCTTCACCCTC |
| AFpyrG SpeI R | CGGACTAGTCTGTCTGACAGGAGGCACTGATGCG |
| pGEM *thiAp-sec9::AFpyrG* / pGEM *thiAp-FLAG-sec9::AFpyrG* | sec9 5’ SphI F | GCGGCATGCCGGAGTTGACTGAACAGTTGGTCAG |
| sec9 5’ SpeI R | CGACTAGTCGACTCCACTAAGCCGAAAGAAGC |
| sec9 ORF SpeI F | GCGACTAGTATGAAGCGATTCGGCCTCAAAAAGTC |
| sec9 ORF NotI R | CGCGCGGCCGCGCCAGGCAGTCGTCATAACAATCG |
| AFpyrG XbaI F | CGCGTCTAGAGCCTCAAACAATGCTCTTCACCC |
| AFpyrG SpeI R | CGGACTAGTCTGTCTGACAGGAGGCACTGATGCG |
| thiAp SpeI F | CGCGACTAGTCGACCTGGCACCTACAGAAGAATC |
| thiAp SpeI R | CGCGACTAGTGTTGACTCAGTTCAATGGTTCGAC |
| thiApFLAG XbaI R | CGCGTCTAGACTTGTCATCGTCGTCCTTGTAGTCC |
| pGEM Δ*synA*::*AFriboB* | synA 5’ ApaI F | CGCGGGGCCCGACTTGCCGTGATCATATATCTTGTCC |
| synA 5’ SpeI R | CGCGACTAGTCACGGGTTGTGGAAGAAGAGGAGG |
| synA 3’ SpeI F | CGCGACTAGTCTACGACACTTCAACGACGGTCATG |
| synA 3’ NotI R | CGCGGCGGCCGCGACTTGGTGGTGGAAGCTCTCCG |
| AFriboB SpeI F | CGCGACTAGTCCCGGGCTGCAGGAATTCG |
| AFriboB SpeI R | CGCGACTAGTCCCGGGCTGCAGGAATTCGA |
| pGEM *ΔnyvA::AFpyrG /* pGEM *ΔnyvA::AFpyroA* | nyvA 5’ ApaI F | CGCGGGGCCCGCTGGGTTCGTTGGATGATGAC |
| nyvA 5’ XbaI R | CGCGTCTAGAGCCAAAATACCAAGAGCCAACCG |
| nyvA 3’ XbaI F | CGCGTCTAGAGGCCATATATGTGCAATTGTGTCAC |
| nyvA 3’ NotI R | CGCGCGGCCGCGTCATGTGACGCACATTCCACTG |
| AFpyrG XbaI F | CGCGTCTAGAGCCTCAAACAATGCTCTTCACCC |
| AFpyrG XbaI R | CGGTCTAGACTGTCTGAGAGGAGGCACTGATGCG |
| AFpyroA SpeI F | CGCGACTAGTGGACATCAGATGCTGGATTAC |
| AFpyroA SpeI R | CGCGACTAGTGCGAGTGTCTACATAATGAAGG |
| pGEM *alcAp-mCherry-synA::AFpyroA* | AFpyroA XbaI F | CGCGTCTAGAGGACATCAGATGCTGGATTAC |
| AFpyroA SpeI R | CGCGACTAGTGCGAGTGTCTACATAATGAAGG |
| alcAp XbaI F | CGCTCTAGATAAGTCCCTTCGTATTTCTCCGC |
| alcAp XbaI R | CGCGTCTAGAATTTTGAGGCGAGGTGATAGG |
| mCherry ORF SpeI F | GCGCACTAGTATGGTGAGCAAGGGCGAGG |
| mCherry NS GA XbaI R | GCGCTCTAGATGCTCCCTTGTACAGCTCGTCCATGCC |
| 5 AN8769 ApaI F | GCGCGGGCCCCCTGCGAGATCCAATGACTC |
| 5 AN8769 SpeI R | GCGCACTAGTGATGCTCTGTGCGAAGAGCTTG |
| AN8769 5 check | CTGATGAATTCAACCGTAGTGTCCG |
| AN8769 ORF SpeI F | CGCGACTAGTATGTCTGAGCAACCGTACGATCC |
| AN8769 ORF3 NotI R | CGCGGCGGCCGCGTGACTCAGACCACCAAGATCACC |
| pGEM *thiAp-FLAG-sarA::AFpyrG* | AN0411 5 ApaI F | CGCGGGGCCCGAAGACTCGGAAGCAACTAGGTTTC |
| AN0411 5 SpeI R | CGCGACTAGTCGCCGTGTAAATGCAGACACAAAG |
| AN0411 ORF SpeI F | CGCGACTAGTATGTGGATTATCAACTGGTGTAAGTCTGC |
| AN0411 3 NotI R | CGCGCGGCCGCGGAGCTTAACCAGAATGCCAGTG |
| AFpyrG XbaI F | CGCGTCTAGAGCCTCAAACAATGCTCTTCACCCTC |
| AFpyrG SpeI R | CGGACTAGTCTGTCTGAGAGGAGGCACTGATGCG |
| thiAp XbaI F | CGCGTCTAGACGACCTGGCACCTACAGAAGAATC |
| thiA FLAG XbaI R | CGCGTCTAGACTTGTCATCGTCGTCCTTGTAGTCCATGTTGACTCAGTTCAATGGTTCGACTATAG |
| pGEM *thiAp-FLAG-sec12::AFpyrG* | AN11127 5 ApaI F | CGCGGGGCCCGCGTGTCCGAGAATTTCTGATGG |
| AN11127 5 XbaI R | CGCGTCTAGACCAGGGGTGTGACAACTAATTGC |
| AN11127 5 check | GCCAAATACGACATCAGAAACCC |
| AN11127 ORF XbaI F | CGCGTCTAGAATGGCGCCCAAAATACCGTCTGC |
| AN11127 ORF NotI R | CGCGGCGGCCGCCAAGATACGGAGGCATGACGCCTC |
| AFpyrG XbaI F | CGCGTCTAGAGCCTCAAACAATGCTCTTCACCCTC |
| AFpyrG SpeI R | CGGACTAGTCTGTCTGAGAGGAGGCACTGATGCG |
| thiAp XbaI F | CGCGTCTAGACGACCTGGCACCTACAGAAGAATC |
| thiA FLAG XbaI R | CGCGTCTAGACTTGTCATCGTCGTCCTTGTAGTCCATGTTGACTCAGTTCAATGGTTCGACTATAG |
| pGEM *thiAp-FLAG-sec24::AFpyrG* | AN3720 5 SphI F | CGCGGCATGCCGGCTCAAACAAGTCGAAGACCTTATC |
| AN3720 5 SpeI R | CGCGACTAGTCTAGGCATTTGCAGCTTATGAACGTTTC |
| AN3720 ORF SpeI F | CGCGACTAGTATGGCATCTCCACAAGGGGGCTAC |
| AN3720 ORF NotI R | CGCGGCGGCCGCCACAGACACTTGTGCCTTGGAGCAC |
| AFpyrG XbaI F | CGCGTCTAGAGCCTCAAACAATGCTCTTCACCCTC |
| AFpyrG SpeI R | CGGACTAGTCTGTCTGAGAGGAGGCACTGATGCG |
| thiAp XbaI F | CGCGTCTAGACGACCTGGCACCTACAGAAGAATC |
| thiA FLAG XbaI R | CGCGTCTAGACTTGTCATCGTCGTCCTTGTAGTCCATGTTGACTCAGTTCAATGGTTCGACTATAG |
| pGEM *thiAp-FLAG-sec13::AFpyrG* | AN4317 5 ApaI F | CGCGGGGCCCCCAGCTTGCGTACATCGAATCATG |
| AN4317 5 SpeI R2 | CGCGACTAGTGAGCTATTTGCAGCTCTAGGCCGATG |
| AN4317 ORF SpeI F | CGCGACTAGTATGGTACGTCTTCGCCGTCAATTC |
| AN4317 3 NotI R | CGCGCGGCCGCGGAAGACAGGATTTGCTGGCTTG |
| AFpyrG XbaI F | CGCGTCTAGAGCCTCAAACAATGCTCTTCACCCTC |
| AFpyrG SpeI R | CGGACTAGTCTGTCTGAGAGGAGGCACTGATGCG |
| thiAp XbaI F | CGCGTCTAGACGACCTGGCACCTACAGAAGAATC |
| thiA FLAG XbaI R | CGCGTCTAGACTTGTCATCGTCGTCCTTGTAGTCCATGTTGACTCAGTTCAATGGTTCGACTATAG |
| pGEM *thiAp-sec31::pabaA*/ pGEM *thiAp-FLAG-sec31::AFpyrG* | 5 sec31 ApaI F | GCGCGGGCCCGTACGTCCGTACAGCTCGCTC |
| 5 sec31 SpeI R | GCGCACTAGTGCTGAGAGTAGGGGTCTGC |
| ORF sec31 SpeI F | GCGCACTAGTATGGTGCGTCTGAGGGAGATTC |
| ORFsec31NotIR | GCGCGCGGCCGCCCTGGGCAAATAATCAACAGTTTC |
| AFpyrG XbaI F | CGCGTCTAGAGCCTCAAACAATGCTCTTCACCCTC |
| AFpyrG SpeI R | CGGACTAGTCTGTCTGAGAGGAGGCACTGATGCG |
| thiAp XbaI F | CGCGTCTAGACGACCTGGCACCTACAGAAGAATC |
| thiA FLAG XbaI R | CGCGTCTAGACTTGTCATCGTCGTCCTTGTAGTCCATGTTGACTCAGTTCAATGGTTCGACTATAG |
| thiA SpeI F | CGCGACTAGTCGACCTGGCACCTACAGAAGAATC |
| thiA XbaI R | CGCGTCTAGAGTTGACTCAGTTCAATGGTTCGAC |
| pGEM *thiAp-FLAG-ykt6::AFpyrG* | AN8488 5 ApaI F | CGCGGGGCCCCTGCAATTGCCTGCATCTGTGCTG |
| AN8488 5 SpeI R | CGCGACTAGTGCTGGATGAGGCAGGGAGATAATAG |
| AN8488 ORF SpeI F | CGCGACTAGTATGAAGATCGTTTACATTGGTGTAAGCTGC |
| AN8488 ORF NotI R | CGCGGCGGCCGCCTACTACTATGGTTGGCGGGATACGG |
| AFpyrG XbaI F | CGCGTCTAGAGCCTCAAACAATGCTCTTCACCCTC |
| AFpyrG SpeI R | CGGACTAGTCTGTCTGAGAGGAGGCACTGATGCG |
| thiAp XbaI F | CGCGTCTAGACGACCTGGCACCTACAGAAGAATC |
| thiA FLAG XbaI R | CGCGTCTAGACTTGTCATCGTCGTCCTTGTAGTCCATGTTGACTCAGTTCAATGGTTCGACTATAG |
| pGEM *thiAp-FLAG-ssoA::AFpyrG* | AN3416 5 ApaI F | CGCGGGGCCCGTGTGTTTTCCCAGGCTCTGGGC |
| AN3416 5 SpeI R | CGCGACTAGTCAGCTCCTGACGACAGCAGTGAC |
| AN3416 ORF SpeI F | CGCGACTAGTATGAGTGTATGTCCGCCGGCCTAATG |
| AN3416 3 NotI R | CGCGGCGGCCGCCGTCAAGCCGCCTCATAGATGCAAC |
| AFpyrG XbaI F | CGCGTCTAGAGCCTCAAACAATGCTCTTCACCCTC |
| AFpyrG SpeI R | CGGACTAGTCTGTCTGAGAGGAGGCACTGATGCG |
| thiAp XbaI F | CGCGTCTAGACGACCTGGCACCTACAGAAGAATC |
| thiA FLAG XbaI R | CGCGTCTAGACTTGTCATCGTCGTCCTTGTAGTCCATGTTGACTCAGTTCAATGGTTCGACTATAG |
| pGEM Δ*rabD*::*AFpyrG* | AN6974 5 ApaI F | CGCGGGGCCCGACCTACGAAGTCCTTTTATGGGC |
| AN6974 5 SpeI R | CTATAATCAGCCGACTAGTGGTTCG |
| AN6974 3 NotI R | CGCGGCGGCCGCCTCCGGCGTTTCTACCGATTG |
| AN6974 3 SpeI F | GGGACTAGTATGTGTATTCTCCTG |
| AN6974 5 check | GAAACTTGTCCGGACCATACGCC |
| AFpyrG SpeI F | CGCGACTAGTGCCTCAAACAATGCTCTTCACCCTC |
| AFpyrG SpeI R | CGGACTAGTCTGTCTGACAGGAGGCACTGATGCG |
| pGEM *thiAp-rabO::AFpyrG* | rabO 5 ApaI F | CGCGGGGCCCGAAGGGTTCAAGGATGAAACGAAC |
| rabO 5 XbaI R | CGCGTCTAGACTCAGTGCAGGAGAGCAAAGGAG |
| rabO ORF XbaI F | CGCGTCTAGAATGAACCCTGAGTGGTAAGTGCTTTG |
| rabO 3 NotI R | CGCGGCGGCCGCCAACCTCTAATTTACCACGGCAGC |
| AFpyrG SpeI F | CGCGACTAGTGCCTCAAACAATGCTCTTCACCCTC |
| AFpyrG XbaI R | CGGTCTAGACTGTCTGAGAGGAGGCACTGATGCG |
| thiAp SpeI F | CGCGACTAGTCGACCTGGCACCTACAGAAGAATC |
| thiAp SpeI R | CGCGACTAGTGTTGACTCAGTTCAATGGTTCGAC |