**Supplementary file 1: Primers used for cloning and mutagenesis**

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| **Primers** | **Sequence (5′→3′)** |
| RecJ\_F (NdeI) | TTTTTTCATATGAGCCGGCCTGCCCACTGG |
| RecJ\_core\_F (NdeI) | TTTTTTCATATGCTAGAACTGACGCCCAACCCGG |
| RecJ\_R (BamHI) | TTTGGATCCTTAACCCGCAGCGAGCGCCAG |
| RecJ\_core\_R (BamHI) | TTTGGATCCTCAAGCCGGGACCGGGGTCGG |
| RecJ\_ΔC\_R (BamHI) | TTTGGATCCTCAGCGCAGCGCCGCCGCGT |
| RecJ\_ΔαCT\_R (BamHI) | TTTGGATCCTCACGGTACAGGCAGCCCGAGCATC |
| RecJ\_Y80A\_F | CCCCGTCGGCGTCGGCGTCACCGTGAATAC |
| RecJ\_Y80A\_R | GTATTCACGGTGACGCCGACGCCGACGGGG |
| RecJ\_R109A\_F | GTAGCCCTCGTTCAATGCGTGGGGAATGAACCCG |
| RecJ\_R109A\_R | CGGGTTCATTCCCCACGCATTGAACGAGGGCTAC |
| RecJ\_Y114A\_F | GTCAGGATGAATCCCGGCGCCCTCGTTCAATCGG |
| RecJ\_Y114A\_R | CCGATTGAACGAGGGCGCCGGGATTCATCCTGAC |
| RecJ\_V224A\_F | GCAGCGGCGCCGCGTCGGCCACC |
| RecJ\_V224A\_R | GGTGGCCGACGCGGCGCCGCTGC |
| RecJ\_F269A\_F | CGGCGCGAGGATAGCGGCCACGTCACGC |
| RecJ\_F269A\_R | GCGTGACGTGGCCGCTATCCTCGCGCCG |
| RecJ\_R280A\_F | CGCCTCCCCCATCGCCCCAGCCGCATTG |
| RecJ\_R280A\_R | CAATGCGGCTGGGGCGATGGGGGAGGCG |
| RecJ\_R313A/R314A\_F | AACATATCGTCCTGAATCTTGGCCGCCTCCTGGTTGCGAATTTCCAG |
| RecJ\_R313A/R314A\_R | CTGGAAATTCGCAACCAGGAGGCGGCCAAGATTCAGGACGATATGTT |
| RecJ\_K353A\_F | ACGTCTCCACCAGCGCGCTCGCCACGATGC |
| RecJ\_K353A\_R | GCATCGTGGCGAGCGCGCTGGTGGAGACGT |
| RecJ\_S371A\_F | TGGAGCGCACCGCGCCTTTGCCCTG |
| RecJ\_S371A\_R | CAGGGCAAAGGCGCGGTGCGCTCCA |
| RecJ\_R373A\_F | GCCGGGGGTGGAGGCCACCGAGCCTTTG |
| RecJ\_R373A\_R | CAAAGGCTCGGTGGCCTCCACCCCCGGC |
| RecJ\_R393A\_F | TGCCCGCCGAAGGCCCCCAGGAGGTC |
| RecJ\_R393A\_R | GACCTCCTGGGGGCCTTCGGCGGGCA |
| RecJ\_H397A\_F | CCGCGCCGGGGGCCCCGCCGAAGC |
| RecJ\_H397A\_R | GCTTCGGCGGGGCCCCCGGCGCGG |
| RecJ\_R475A\_F | GCTTGCCCACCAATGCGGTGTCAGTCAGCG |
| RecJ\_R475A\_R | CGCTGACTGACACCGCATTGGTGGGCAAGC |
| RecJ\_V477A\_F | GCCCTGCTTGCCCGCCAATCGGGTGTC |
| RecJ\_V477A\_R | GACACCCGATTGGCGGGCAAGCAGGGC |
| RecJ\_Y496\_F | TCGCGTTCGCTGGCTTTCATGCCTTTGACGCCACCG |
| RecJ\_Y496\_R | CGGTGGCGTCAAAGGCATGAAAGCCAGCGAACGCGA |
| RecJ\_W517A\_F | GGTCCGGCCCTTCGCCTCGTTGAGGGCA |
| RecJ\_W517A\_R | TGCCCTCAACGAGGCGAAGGGCCGGACC |
| RecJ\_D79A\_F | CGTCGGCGTCGTAGGCACCGTGAATACGG |
| RecJ\_D79A\_R | CCGTATTCACGGTGCCTACGACGCCGACG |
| RecJ\_D81A\_F | CCCCGTCGGCGGCGTAGTCACCG |
| RecJ\_D81A\_R | CGGTGACTACGCCGCCGACGGGG |
| RecJ\_D83A\_F | ACTACGACGCCGCCGGGGTGAGTGC |
| RecJ\_D83A\_R | GCACTCACCCCGGCGGCGTCGTAGT |
| RecJ\_D135A\_F | GGACACCCCACAGGCCACCGTGACCAC |
| RecJ\_D135A\_R | GTGGTCACGGTGGCCTGTGGGGTGTCC |
| RecJ\_D223A\_F | GCGGCGCCACGGCGGCCACCGTG |
| RecJ\_D223A\_R | CACGGTGGCCGCCGTGGCGCCGC |
| RecJ\_D158A\_F | GCGCGTGGTGGGCGGTGACCACG |
| RecJ\_D158A\_R | CGTGGTCACCGCCCACCACGCGC |
| RecJ\_H159A\_F | CCCGGCGCGTGGGCGTCGGTGACCAC |
| RecJ\_H159A\_R | GTGGTCACCGACGCCCACGCGCCGGG |
| RecJ\_H160A\_F | TCGCCCGGCGCGGCGTGGTCGGTGAC |
| RecJ\_H160A\_R | GTCACCGACCACGCCGCGCCGGGCGA |