**Table 1**

Forward and reverse primers used for site-directed mutagenesis. The mutated nucleotides are underlined.

| Substitution | Oligonucleotide primer sequences |
|---|---|
| **W531G** | 5'-GCTGGTATAGACCAG**G**GGCTAGAGGTGTTC-3'<br>5'-GAACACCTCTAGCC**C**CTGGTCTATACCAGC-3' |
| **W531A** | 5'-GCTGGTATAGACCAGG**C**GCTAGAGGTGTTC-3'<br>5'-GAACACCTCTAGC**G**CCTGGTCTATACCAGC-3' |
| **W531S** | 5'-GCTGGTATAGACCAGT**C**GCTAGAGGTGTTC-3'<br>5'-GAACACCTCTAGC**G**ACTGGTCTATACCAGC-3' |
| **F535A** | 5'-CAGTGGCTAGAGGTG**GC**CTGTGAGCAGGAG-3'<br>5'-CTCCTGCTCACAG**GC**CACCTCTAGCCACTG-3' |
| **W542G** | 5'-GAGCAGGAGGAAAAG**G**GGGTATGTGTAGAC-3'<br>5'-CTCCTCTGTCTGCC**C**CTTTTCCTCCTGCTC-3' |
| **W542A** | 5'-GAGCAGGAGGAAAAGG**C**GGTATGTGTAGAC-3'<br>5'-CTCCTCTGTCTGCG**C**CTTTTCCTCCTGCTC-3' |
| **W542S** | 5'-GAGCAGGAGGAAAAGT**C**GGTATGTGTAGAC-3'<br>5'-CTCCTCTGTCTGC**G**ACTTTTCCTCCTGCTC-3' |
| **Y585A** | 5'-GATGTCACACAGAGG**GC**CGACCCAGTCTGG-3'<br>5'-CCAGACTGGGTCG**GC**CCTCTGTGTGACATC-3' |
| **Y585G** | 5'-GATGTCACACAGAGGG**G**CGACCCAGTCTGG-3'<br>5'-CCAGACTGGGTCG**C**CCCTCTGTGTGACATC-3' |
| **Y585S** | 5'-GATGTCACACAGAGG**T**CCGACCCAGTCTGG-3'<br>5'-CCAGACTGGGTCGG**A**CCTCTGTGTGACATC-3' |
| **K595G** | 5'-GGATGACAGTGACCCGC**GG**GTGCCGGGTTGATGCTG-3'<br>5'-CAGCATCAACCCGGCAC**CC**GCGGGTCACTGTCATCC-3' |
| **R597G** | 5'-CAGTGACCCGCAAGTGC**G**GGGTTGATGCTGAGTGG-3'<br>5'-CCACTCAGCATCAACCC**C**GCACTTGCGGGTCACTG-3' |
| **P635A** | 5'-CACATGGACCAGCCTTTG**G**CCACTGCCATTGGC-3'<br>5'-GCCAATGGCAGTGG**C**CAAAGGCTGGTCCATGTG-3' |
| **Y641A** | 5'-CCCACTGCCATTGGCTTA**GC**TAAGAACCACCCTCTG-3'<br>5'-CAGAGGGTGGTTCTTA**GC**TAAGCCAATGGCAGTGGG-3' |
| **K642G** | 5'-CTGCCATTGGCTTATAT**GG**GAACCACCCTCTGTATGC-3'<br>5'-GCATACAGAGGGTGGTTC**CC**ATATAAGCCAATGGCAG-3' |
| **H644A** | 5'-GGCTTATATAAGAAC**GC**CCCTCTGTATGCCCTG-3'<br>5'-CAGGGCATACAGAGGG**GC**GTTCTTATATAAGCC-3' |
| **Y647A** | 5'-GAACCACCCTCTG**GC**TGCCCTGAAGCGGCATCTC-3'<br>5'-GAGATGCCGCTTCAGGGCA**GC**CAGAGGGTGGTTC-3' |
| **R651G** | 5'-CCTCTGTATGCCCTGAAG**G**GGCATCTCCTGAAATATG-3'<br>5'-CATATTTCAGGAGATGCC**C**CTTCAGGGCATACAGAGG-3' |

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| **K655G** | 5'-GAAGCGGCATCTCCTG**GG**ATATGAGGCCATCTATCC-3'<br>5'-GGATAGATGGCCTCATAT**CC**CAGGAGATGCCGCTTC-3' |
| **Y656A** | 5'-CGGCATCTCCTGAAA**GC**TGAGGCCATCTATCCC-3'<br>5'-GGGATAGATGGCCTCA**GC**TTTCAGGAGATGCCG-3' |
| **Y660A** | 5'-GAAATATGAGGCCATC**GC**TCCCGAGACAGCTGCC-3'<br>5'-GGCAGCTGTCTCGGGA**GC**GATGGCCTCATATTTC-3' |
| **Y676A** | 5'-CGTGGAGAAGCGGTC**GC**CTCCAGGGATTGTGTG-3'<br>5'-CACACAATCCCTGGAG**GC**GACCGCTTCTCCACG-3' |
| **R678G** | 5'-GAAGCGGTCTACTCC**G**GGGATTGTGTGCACAC-3'<br>5'-GTGTGCACACAATCCC**C**GGAGTAGACCGCTTC-3' |
| **S686A** | 5'-GTGCACACTCTGCAT**G**CCAGGGACACGTGGCTG-3'<br>5'-CAGCCACGTGTCCCTGG**C**ATGCAGAGTGTGCAC-3' |
| **W690G** | 5'-GCATTCCAGGGACACG**G**GGCTGAAGAAAGCAAGAG-3'<br>5'-CTCTTGCTTTCTTCAGCC**C**CGTGTCCCTGGAATGC-3' |
| **W690A** | 5'-GCATTCCAGGGACACG**G**CGCTGAAGAAAGCAAGAG-3'<br>5'-CTCTTGCTTTCTTCAGCG**C**CGTGTCCCTGGAATGC-3' |
| **W690S** | 5'-GCATTCCAGGGACACGT**C**GCTGAAGAAAGCAAGAG-3'<br>5'-CTCTTGCTTTCTTCAGC**G**ACGTGTCCCTGGAATGC-3' |
| **K693G** | 5'-GGACACGTGGCTGAAG**GG**AGCAAGAGTGGTGAGG-3'<br>5'-CCTCACCACTCTTGCT**CC**CTTCAGCCACGTGTCC-3' |
| **R698G** | 5'-GAAAGCAAGAGTGGTG**G**GGCTTGGAGAAGTACC-3'<br>5'-GGTACTTCTCCAAGCC**C**CACCACTCTTGCTTTC-3' |
| **Y704A** | 5'-CTTGGAGAAGTACCC**GC**CAAGATGGTGAAAGGC-3'<br>5'-GCCTTTCACCATCTTG**GC**GGGTACTTCTCCAAG-3' |
| **K705G** | 5'-GCTTGGAGAAGTACCCTAC**GG**GATGGTGAAAGGCTTTTC-3'<br>5'-GAAAAGCCTTTCACCATC**CC**GTAGGGTACTTCTCCAAGC-3' |
| **K708G** | 5'-CCCTACAAGATGGTG**GG**AGGCTTTTCTAACCGTGC-3'<br>5'-GCACGGTTAGAAAAGCCT**CC**CACCATCTTGTAGGG-3' |
| **F733A** | 5'-GAAAATGACCTGGGCCTG**GC**TGGCTACTGGCAGACAGAG-3'<br>5'-CTCTGTCTGCCAGTAGCCA**GC**CAGGCCCAGGTCATTTTC-3' |
| **F733G** | 5'-GAAAATGACCTGGGCCTGG**G**TGGCTACTGGCAGACAGAG-3'<br>5'-CTCTGTCTGCCAGTAGCCA**C**CCAGGCCCAGGTCATTTTC-3' |
| **F733S** | 5'-GAAAATGACCTGGGCCTG**T**CTGGCTACTGGCAGACAGAG-3'<br>5'-CTCTGTCTGCCAGTAGCCAG**A**CAGGCCCAGGTCATTTTC-3' |
| **W736G ?** | 5'-GGCCTGTTTGGCTAC**G**GGCAGACAGAGGAG-3'<br>5'-CTCCTCTGTCTGCC**C**GTAGCCAAACAGGCC-3' |
| **Y741A** | 5'-GGCAGACAGAGGAG**GC**TCAGCCCCCAGTG-3'<br>5'-CACTGGGGGCTGA**GC**CTCCTCTGTCTGCC-3' |
| **F756A** | 5'-GTGCCCCGGAACGAG**GC**TGGGAATGTGTAC-3'<br>5'-GTACACATTCCCA**GC**CTCGTTCCGGGGCAC-3' |
| **F762A** | 5'-GGGAATGTGTACCTC**GC**CCTGCCCAGCATG-3'<br>5'-CATGCTGGGCAGG**GC**GAGGTACACATTCCC-3' |
| **F762G** | 5'-GGGAATGTGTACCTCG**G**CCTGCCCAGCATG-3'<br>5'-CATGCTGGGCAGG**C**CGAGGTACACATTCCC-3' |
| **F762S** | 5'-GGGAATGTGTACCTC**T**CCCTGCCCAGCATG-3'<br>5'-CATGCTGGGCAGGG**A**GAGGTACACATTCCC-3' |

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| **F797A** | 5'-CAGGCCATCACTGGC**GC**TGATTTCCATGGCGG-3'<br>5'-CCGCCATGGAAATCA**GC**GCCAGTGATGGCCTG-3' |
| **F799A** | 5'-CCATCACTGGCTTTGAT**GC**CCATGGCGGCTACTC-3'<br>5'-GAGTAGCCGCCATGG**GC**ATCAAAGCCAGTGATGG-3' |