

Table S1. Primer sequence for site-directed mutagenesis

Mutants	Primer	Sequence (5'→3')	No. of Bases	T _m (°C)	% GC
A69W	Forward	5'GACAAATGTTGGAGGAT TGGG TGGTGACG3'	28	60.1	53.6
A69W	Reverse	5'CACCCGTCACCACCCATCCTCCAAC3'	25	59.7	64
A27W	Forward	5'CCAAACAGGGTGTGT TGGA AAGCAGCAGG3'	28	63.7	60.7
A27W	Reverse	5'GTCTTTCCTGCTGCTTCCACACACCCTG3'	29	62.5	58.6
A56W	Forward	5'GGTGTGGCAACAGTGT TGG GAGAAGACC3'	27	58.6	59.3
A56W	Reverse	5'GCTCTTTGGTCTTCTCCACACTGTTGC3'	28	57.6	53.6
A90W	Forward	5'CAGGGAGCATTGCAT TGGG CCACTGGC3'	26	65.2	65.4
A90W	Reverse	5'CAAAGCCAGTGGCCCATGCAATGCTCC3'	27	64.4	59.3
A78W	Forward	5'GGTGTGACAGCAGTAT TGG CAGAAGACAG3'	28	55.3	53.6
A78W	Reverse	5'CTCCACTGTCTTCTGCCATACTGCTGTC3'	28	54.7	53.6
A107W	Forward	5'GCAAGAATGAAGAAGGAT TGG CCACAGGAAG3'	30	61	50
A107W	Reverse	5'CAGAATTCCTTCTGTGGCCATCCTTCTTC3'	30	60.3	50
A124W	Forward	5'GGATCCTGACAATGAG TGG TATGAAATGCC3'	30	58.1	46.7
A124W	Reverse	5'CCTCAGAAGGCATTCATACCACTCATTGTC3'	31	57.8	45.2
Y39W	Forward	5'GACAAAAGAGGGTGTCTCT TGGG TAGGCTCC3'	31	60.6	54.8
Y39W	Reverse	5'GGTTTTGGAGCCTACCCAGAGAACACCC3'	28	59.2	57.1
F4W	Forward	5' CATATGGATGTAT TGG ATGAAAGGAC3'	25	45.4	40
F4W	Reverse	5' GTCCTTTCATCCATACATCCATATG3'	25	45.4	40
A140W	Forward	5'GACTATGAACCTGAAT TGG TAAGAAATATCTTTGC3'	34	55	35.3
A140W	Reverse	5'GAGCAAAGATATTTCTTACCATTTCAGGTTTCATAG3'	34	55.1	35.3