

Supplemental table 1. Sequences of PCR primers used for generation of mutated mMbSerRS genes. Changes introduced with primers are shown in bold.

Mutant	Location in N-terminal domain of mMbSerRS	Primer sequence
R38A	between helix H1 and β -sheet A2	5'-GCCCTTCAGGCGCCCT G CGGTGAGAAGGGTACTGTTTGC 5'-GCAAACAGTACCCTTCTCACCGCAGGGGGCGCCTGAAGGGC
R76A	helix H2	5'-GCCGAGTGCCTCAGCAAGCTGTTTTCTAAGCG C GAAAAATTGC 5'-GCAATTTT C CGCTTAGAAAACAGCTTGCTGAGGCACTCGGC
R78A	helix H2	5'-GCCTCAGCAAGCTGTTTT G CAAGCCGAAAAATTGCATCGTGC 5'-GCACGATGCAATTTTCCGGCTT G C AAAACAGCTTGCTGAGGC
K79A	helix H2	5'-GCCGAGTGCCTCAGCAAGCTGT G CTCTAAGCCGAAAAATTGC 5'-GCAATTTTCCGGCTTAGAG C ACAGCTTGCTGAGGCACTCGGC
K87A	between helix H2 and β -sheet A4	5'-CCGATCTTGTATTT C CGCCGAGTGCCTCAGCAAGCTG 5'-CAGCTTGCTGAGGCACTCGGC G CGAAATACAAGATCGG
K88A	between helix H2 and β -sheet A4	5'-GAATACCGATCTTGTAT G CCTTGCCGAGTGCCTCAG 5'-CTGAGGCACTCGGCAAG G CATACAAGATCGGTATTC
Y89A	between helix H2 and β -sheet A4	5'-CCGGAATACCGATCTT G GCTTCTTGCCGAGTGCCTCAGC 5'-GCTGAGGCACTCGGCAAGAA G CCAAGATCGGTATTCGCGG
K90A	between helix H2 and β -sheet A4	5'-CCGGAATACCGAT C GCGTATTTCTTGCCGAGTGCCTCAGC 5'-GCTGAGGCACTCGGCAAGAA T AC G CGATCGGTATTCGCGG
R94A	between helix H2 and β -sheet A4	5'-GAAATACAAGATCGGTATT G CCGGAATCGAGGTTGAGTC 5'-GACTCAACCTCGATTCC G GCAATACCGATCTTGTATTT
K141A	helix H3	5'-CCTGTCCGGAACCCGGTTC G CCATCTCAGCTTCTCCGACC 5'-GGTCGGAGAAGCTGAGAT G GCGAACCCGGTTCGGACAGG
N142A	helix H3	5'-CCTGTCCGGAACCCGG C CTTCATCTCAGCTTCTCCGACC 5'-GGTCGGAGAAGCTGAGATGAAG G CCCGGGTTCGGACAGG
R143A	between helices H3 and H4	5'-GAGAATCCTGTCCGGAAC C GCTTCTTCATCTCAGCTTC 5'-GAAGCTGAGATGAAGA A C G CGGTTCGGACAGGATTCTC