

Table S1: Oligonucleotide primers used for gene inactivation and allele replacement.

description of target	nucleotide sequence (5' to 3') *
3' end of upstream flank	CTATATT <u>CCTAGGTGAATG</u> TAAACAGCGTTAAAACAATAAACACCTG
5' end of downstream flank	CTATT <u>CTACTCGAGACAGTGC</u> GGTGAGGGATTCCACATCACCAATC
forward primer for aphA3	CGAGGTATGAAA <u>ACGAGAATTGGAC</u> CTTACAG
reverse primer for aphA3	TCCGGATCTAGGT ACTAAA <u>ACAATT</u> CATCCAG
fusion of 5' end of aphA3 to the upstream flank	<u>CTGTAAAGGTCCAATTCTGTTTC</u> ATACCTCGTAATAGCTCTCCTAA <u>ACTCTAGTCTAC</u>
fusion of 3' end of aphA3 to the downstream flank	<u>CTGGATGAATTGTTTAGTAC</u> CTAG <u>ATCCGGACTTAAAGAGATG</u> ATCTATCAA <u>ATTCCAAG</u>
forward primer for aad9	ATCGATTTCGTT <u>CGTAATACATGTT</u> AATAAC
reverse primer for aad9	GTAGAAG <u>TCCGGACGGT</u> TATA <u>ATTTTTAATCTGTTATTAA</u> ATAG
fusion of 5' end of aad9 to the 3' end of nra	<u>CATGTATT</u> CACGAAC <u>GAAAATCGA</u> TTACTTAT <u>CCAGTA</u> CTGAGAA <u>ATGTAGAAG</u>
fusion of 3' of aad9 to the downstream flank	<u>CTATTTAAATAACAGATTA</u> AAAAAA <u>ATTATAACCGTCCGGACAAAC</u> ATTTCC <u>TTATGCTATAATCTAAG</u>
fusion of 5' end of aad9 to the 3' end of rofA	CATGTATT <u>CACGAACGAAAATCGATG</u> TATTGACAGGATTGCT <u>GAAAAATCA</u> ATACAG
fusion of 5' end of rofA promoter region to the upstream flank	CTCATAT <u>ATGTTTGAGAGGAGAGAA</u> ATT <u>CACTATTAGAATAGCTATT</u> CAGTG

* For the primers that link via fusion the aphA3 or aad9 genes to the flanking Alab49 regions, the sequence is underlined. Sequences in ***bold italics*** indicate restriction sites introduced for potential cloning purposes. A BspE1 site (in **bold**) was also introduced.