

Additional data file 3. List of primers used for knockout mutagenesis.

Primer name*	Sequence (5' to 3')**	Restriction site
SP1758_gtf_J1	GGG GCT TGA TTG TTA TTG GGA C	
SP1758_gtf_J2	CAG GTA CCA GTC ACG ATT TCA CCT TTT GGA GTG	KpnI
SP1758_gtf_J3	CAG AGC TCG CAG ATA GCG AGC CGA TTA TGA C	SacI
SP1758_gtf_J4	TCA ACC AAA GCA GCA ACT TCA CTA C	
SP0737_Na_J1	TAG CCT CGT CTT CGT GAC CT	
SP0737_Na_J2	CAG GTA CCC CCA TTG TGA TTT TTC TG	KpnI
SP0737_Na_J3	CAG AGC TCT TAA CAG TTA CAG GAC GGC TA	SacI
SP0737_Na_J4	TTT GCT ATA ATG AGG GGA GA	
SP1294_Na_J1	TCT GGT TTC ATA TGA CGA TG	
SP1294_Na_J2	CAG GTA CCA CAG TCT CCT CCT TTA TTT GA	KpnI
SP1294_Na_J3	CAG AGC TCA AAT TTG GTA AAC TAT ATC TTG TGT G	SacI
SP1294_Na_J4	CTC AAT TTT ATC TGA TGA TTG C	
SP0423-427_J1	TTCATCAAATGATGCGATT	
SP0423-427_J2	CAG GTA CCA ACG TTT GAA AGC AAG AAC T	KpnI
SP0423-427_J3	CAG AGC TCT GAG ACT AGA AAG GTC TCA TTT T	SacI
SP0423-427_J4	AAAGGTTGGTTGTCCATTT	
SP1855_adh_J1	GAG CGA TTG GAC AAT GTG G	
SP1855_adh_J2	CAG GTA CCC GAT TTA AAG CTG TCT GTA GCT GA	KpnI
SP1855_adh_J3	CAG AGC TCG GTC AGG CTA GGG ATT TTC C	SacI
SP1855_adh_J4	CTG AAG AGC TGG GCT ACA CC	
SP0783_bioY_J1	CGAGAAAGAACTGACTCCAG	
SP0783_bioY_J2	CAG GTA CCG AGTCGATGTCAACCATTTT	KpnI
SP0783_bioY_J3	CAG AGC TCC AAAGAGCAAAGTAGGAAGC	SacI
SP0783_bioY_J4	CAGGTTGGTCATATCCATTT	
SP1270_orf3_J1	AGGTGATCGACCTATTTTGA	
SP1270_orf3_J2	CAG GTA CC ATGCATCTGTCAAGATTTCC	KpnI
SP1270_orf3_J3	CAG AGC TCG TACTGGAGGTTAATTGTGGA	SacI
SP1270_orf3_J4	TTTTCTCTAAGGAGAAGACTGC	
SP1922_hypo_J1	AATGTTTTAGAAGTGCCAGTGT	
SP1922_hypo_J2	CAG GTA CC AGGAAATGGATTTTATTAGCAA	KpnI
SP1922_hypo_J3	CAG AGC TCG TGCAGCCTTTGGTAAAA	SacI
SP1922_hypo_J4	TCTCCCCCTTCTAAATAAAAA	
SP0462-0468_rlr_J1	TCAAAAAGGTTGTGGAATTT	
SP0462-0468_rlr_J2	CAG GTA CC ATCGAAGAAAAAGCTGTCAA	KpnI
SP0462-0468_rlr_J3	CAG AGC TCG GACACAGAGATTATTTTACCGTCG	SacI
SP0462-0468_rlr_J4	TTTATCGCCCTACTTTTCGTATGC	

*The primer name is based on the concatenation of the gene locus ID, our own brief gene name and the Janus primer ID

**Restriction sites added to the primers are in bold and underlined