

**Table S3.** Primers used in this study.

Name	5' to 3' sequence
LA_sgRNA_LCoffT2-LD_offT3_F	CATCGGGATATGTCTTACTCTCC
LA_sgRNAR	GAGCTTATAATCATCAACGAGGTG
LB_sgRNAF	GTAACATTGCGCACCTTGTG
LB_sgRNAR	GCAAGAACCACCAGCTCTTC
LC_sgRNAF	GGAAACACGTCATTCTCATC
LC_sgRNAR	ACCTCCAGTTCGTCCAAAAT
LD_sgRNA_LCoffT1_LEoffT3F	ATGGAGGAAGGACCAACACTCT
LD_sgRNA_LCoffT1_LEoffT3R	AGAAGCGGGTTGGAATAGT
LE_sgRNAF	CTCGAGATACTCTACCCTTCACG
LE_sgRNA_LD_offT2_R	GTACCTTGGAGAAGCCGAGA
LAoffT1_F	CTGCAGCACCACTAATGAA
LAoffT1_R	CTTTGATGCTGTATGTTACCAACC
LAoffT2_F	TGCAGTCCCACAATGTGATAAT
LAoffT2_R_LK_s	TCATGATGCAAAACATCGCAAGAG
LAoffT3_F_LK_sgRNAF	ATCTCGCGGTTTTCTGTGAT
LAoffT3_R_LK_sgRNAR	GCAGTGCGAACTGAGTGATG
LAoffT4_F	GCTACCGCTTGCCAGAATAG
LAoffT4_R	TTCTGGAGTGCTTTGACGAA
LBoffT3_F	GGTTCGGGAGAAGAAGTGGT
LBoffT3_R	CATGTGGACGTGGTGATAGC
LBoffT4_F	GTGAGGTTTTGGGATCGAGTG
LBoffT4_R	CTTCCAGTCTTGCGACCAT
LCoffT2-LD_offT3_R	GTAACACGCTGCGCAAATC
LCoffT3_F	AGTGGCGCTAGTGGTGCTAT
LCoffT3_R	CCGAGCTGGGCTAATAATCA
LD_offT1-LEoffT4_F	ATGGATGAGTACCATCACTC
LD_offT1-LEoffT4_R	TCAACAAGACTCCAGATTCCCAG
LD_offT2_F	GTGAGTGAGTTGGCGATGTC
LEoffT1_F	TACTTTGCCCTGCGTACGTT
LEoffT1_R	TACGCCTCAACCACACGTTA
LEoffT2_F	GGGTCCGGCATACTTAGCTT
LEoffT2_R	ATCGTTTTCAAAAACGGCAAG
LF_sgRNAF	GGAGATAGAACCATGCAGTCCCACAATGTGATAAT
LF_sgRNAR	TCCACCTCCGGATCCTGATGCAAAACATCGCAAGAG
LF_qR293_seq	CAACCGATCATTCCAGACAC
LJ_sgRNAF	GGAGATAGAACCATGATTCAGAAATTGACACCACCTGAGAC
LJ_sgRNAR	TCCACCTCCGGATCCGGCAGCCCAGAGCAAGGC
LJ_qR538_seq	CCATCGCCTTAGGTACAAAACC
LF_OffT1F	GGCCTGCTAGGAAAGTAACAA
LF_OffT1R	CATGTGACACAAGAATGTGTGG
LF_OffT2F	GGCAGGTCTTTCCCTTGAAT
LF_OffT2R	ATGGTTCGGAGACGATCAAAA
LJ_OffT2F	TAACCATTGCGCAAGTAGCC
LJ_OffT2R	CGCAAATTCATATGTATCGTAAGC
LJ_OffT5F	TCCACGTATTGCCGCTTAT
LJ_OffT5R	AATGATTCAAACCATGCAACC
LK_OffT1F	ATCCTACGGCAGTCTGAACG
LK_OffT1R	ATTGTCGCACAATGCTCCAT
LK_OffT2F	AAGTTCCCATCCTCCTACATGA
LK_OffT2R	AACCATATCCATCATCTTTGACA
LK_OffT3F	AATTGCGACCTCGGTATCAG
LK_OffT3R	GAACCATGCATCAATCTTGC
Pp003G122800_1	GGATCCAATCAGCCCCTTGTGT
Pp003G122800_lw	ACGAAGGCGATGAGTGAAGT
Pp003G122900_1	GGATCCTACAAAGGCCAGCCATC
Pp003G122900_lw	ATACGCTCTTGACGCCATCT
Pp004G095800_7	CCGAACCTTCACTTGGTGT
Pp004G095800_lw	CGATTGATTGATGTGCAACG
Pp008G027400_1	AAGCTTGGCAAGTGTGATGAGATT
Pp008G027400_lw	AAGCTTGGCAAGTGTGATGAGATT