

Gibson Assembly primers for cloning gRNAs	
gRNA Gibson fw	TAACTTGAAAGTATTTTCGATTTCTTGGCTTTATATATCTTGTGGAAAGGACGAAACACC G
gRNA Gibson rv	GTTGATAACGGACTAGCCTTATTTAACTTGTCTATGCTGTTTCCAGCATAGCTCTTAA C
Specific gRNA protospacers in Gibson Assembly amplification format	
sgGFP1	GGAAAGGACGAAACACC GCCCATCTGGTCGAGCTGGA GTTTAAGAGCTATGCTGGAAAC
sgGFP2	GGAAAGGACGAAACACC GTCGCCCTCGAACTTCACCT GTTTAAGAGCTATGCTGGAAAC
sgGFP3	GGAAAGGACGAAACACC GTGAACCGCATCGAGCTGAA GTTTAAGAGCTATGCTGGAAAC
sgMsh2cis1	GGAAAGGACGAAACACC GGTGGGTGGGTAGGTGTGCT GTTTAAGAGCTATGCTGGAAAC
sgMsh2cis2	GGAAAGGACGAAACACC GCAAAATGTACACCAAGTCTG GTTTAAGAGCTATGCTGGAAAC
sgMsh2cis3	GGAAAGGACGAAACACC GAAACTCAGGGAAGGAGGCTG GTTTAAGAGCTATGCTGGAAAC
sgTdgflcis1	GGAAAGGACGAAACACC GATTCAATACTTAGAAAACATT GTTTAAGAGCTATGCTGGAAAC
sgTdgflcis2	GGAAAGGACGAAACACC GTTACTGGCTTCGGTTTCTTG GTTTAAGAGCTATGCTGGAAAC
sgTdgflcis3	GGAAAGGACGAAACACC GCCTTTCCATGATCACTTG GTTTAAGAGCTATGCTGGAAAC
sgZfp42cis1	GGAAAGGACGAAACACC GTGTTGAACTGCAACGCAAA GTTTAAGAGCTATGCTGGAAAC
sgZfp42cis2	GGAAAGGACGAAACACC GTGTCTCTCATTCCTCTGAA GTTTAAGAGCTATGCTGGAAAC
sgZfp42cis3	GGAAAGGACGAAACACC GGACGGATATGGCTTTGCGC GTTTAAGAGCTATGCTGGAAAC
sgMsh2ORF1	GGAAAGGACGAAACACC GAGGCGTCTAAGGAGAATGAG GTTTAAGAGCTATGCTGGAAAC
sgMsh2ORF2	GGAAAGGACGAAACACC GGTTAATACCCTGATACAGT GTTTAAGAGCTATGCTGGAAAC
Msh2 GFP/mCherry knock-in	GGAAAGGACGAAACACCCGACAGTGGGTGGGCGTGCAGTTTAAGAGCTATGCTGGAAAC
Tdgfl GFP/mCherry knock-in	GGAAAGGACGAAACACC GAGATGGGGTACTTCTCATCC GTTTAAGAGCTATGCTGGAAAC
sgMsh2cis1 deletion 5'	GGAAAGGACGAAACACC GGTCTACCAATCGAGTTCCA GTTTAAGAGCTATGCTGGAAAC
sgMsh2cis1 deletion 3'	GGAAAGGACGAAACACC GCACCATGCAGCGCTGCGCCC GTTTAAGAGCTATGCTGGAAAC
sgMsh2cis2 deletion 5'	GGAAAGGACGAAACACC GCCAGCCTATTTGGCTATTTG GTTTAAGAGCTATGCTGGAAAC
sgMsh2cis2 deletion 3'	GGAAAGGACGAAACACC GCACTTCTGCTAGTGATACCC GTTTAAGAGCTATGCTGGAAAC
sgMsh2cis3 deletion 5'	GGAAAGGACGAAACACC GCTCCAAGGGTTTCAGACTC GTTTAAGAGCTATGCTGGAAAC
sgMsh2cis3 deletion 3'	GGAAAGGACGAAACACC GTAGAGCACTGCCCTCCCTGC GTTTAAGAGCTATGCTGGAAAC
sgGFP deletion 5'	GGAAAGGACGAAACACC GGCATCGCCCTCGCCCTCGC GTTTAAGAGCTATGCTGGAAAC
sgGFP deletion 3'	GGAAAGGACGAAACACC GCTGAAGCACTGCACGCCGT GTTTAAGAGCTATGCTGGAAAC
Primers to PCR amplify genomic regions surrounding cis-gRNA mutated sites	
Msh2cis1 upstream fw	TGTATAACGCACACTCAAGGCTGGG
Msh2cis1 downstream rv	CCAATCATAAGCGAGCAAGGTCCCA
Msh2cis2 upstream fw	TCT GAA GGG CAA AAC TGG AAT CTC A
Msh2cis2 downstream rv	GAA GGA AAC GAG AGA GGG GTT GGG
Msh2cis3 upstream fw	CCC ACG CCG AAC AGT CAC TAT ACA C
Msh2cis3 downstream rv	TTG ATG TCA AGG GGT CTG TGG GC
Tdgflcis1 upstream fw	GGC CCC ACC CTT ACA CAC ACA ATT T
Tdgflcis1 downstream rv	CTC GTC CCA TCA GTC ATG TCG GTG
Tdgflcis2 upstream fw	TCA CTC AGG GAT GTG TTT CTC AGC G
Tdgflcis2 downstream rv	GGA GGG ATT TGA GTC TGG GTT TGG G
Tdgflcis3 upstream fw	CAG GGG TGG GAT TCT GGG AAA ACA T
Tdgflcis3 downstream rv	GCT GGG CCT CCT TCA TTA ACA AGC T
Zfp42cis1 upstream fw	AAA AGT TGG TCG GTA GTA TGG CGG C
Zfp42cis1 downstream rv	TCA CTC CAT TTT CCA ATC AAG CAT CCA
Zfp42cis2 upstream fw	TGG AAA CCT GGA GTA AAG CAG TTC C
Zfp42cis2 downstream rv	GTT CAC CAC TGA CTA CAA ACG GTC

Zfp42cis3 upstream fw	CTG CTC AAC ACC ACA CCC CTG A
Zfp42cis3 downstream rv	TGG TAG CTC ACA AGA CCA GGT AG
Msh2cis1 deep sequencing tailed primer fw	CTTCCCTACACGACGCTCTCCGATCTCGTTCCGGTCACTTGATAAAACAAA
Msh2cis1 deep sequencing tailed primer rv	GGAGTTCAGACGTGTGCTCTCCGATCTCCCGGAACTCTAGGACTCT
Msh2cis2 deep sequencing tailed primer fw	CTTCCCTACACGACGCTCTCCGATCTGGGGCCAGGCAAAGGAGGC
Msh2cis2 deep sequencing tailed primer rv	GGAGTTCAGACGTGTGCTCTCCGATCTGAAGGAAACGAGAGAGGGGTTGG
Msh2cis3 deep sequencing tailed primer fw	CTTCCCTACACGACGCTCTCCGATCTCGGTGCCCTACCCTCTCTAA
Msh2cis3 deep sequencing tailed primer rv	GGAGTTCAGACGTGTGCTCTCCGATCTAGGCTGTGGTAGTTAATGGAGAATGC
Sequencing adapter-tailed reverse transcription primer	
Adapter-oligo(dT)	CGATGACG TAATACGACTCACTATAGGG ATACCACCATGG CTCTTCCCTACACGACGCTCTCCGATCT TTTTTTTTTTTTTTTTTT
RT-qPCR primers	
Gapdh fw	TTGATGGCAACAATCTCCAC
Gapdh rv	CGTCCCGTAGACAAAATGGT
Actb fw	ATGGAGGGGAATACAGCCC
Actb rv	TTCTTTGCAGCTCCTTCGTT
Msh2-1 fw	AAGCTAGGCTTGTGTGAGTTC
Msh2-1 rv	CTCCTGGTAAAACGCATTCCTT
Msh2-2 fw	TGGCAGTTTTTGTGACTCCT
Msh2-2 rv	AAGGAACTCGTGGTTTTCCA
Tdgf1-1 fw	CCTCCAACGTTTTTACGAGC
Tdgf1-1 rv	GGTCCAAATTCAAACGCACT
Tdgf1-2 fw	TTTACGAGCCGTCGAAGAT
Tdgf1-2 rv	TCTGATGGCAAGGTCTCTCC
gRNA hairpin fw	ACAGCATAGCAAGTTTAAATAAGGCT
gRNA hairpin rv	CGACTCGGTGCCACTTTT
GFP/mCherry double knock-in HDR primers	
Msh2 GFP HDR primer fw	CGTAAACGAGATCATTTACGGATAAAGGCTCCGGCTCCGGTGAGCAAGGGCGAGGAGC T
Msh2 mCherry HDR primer fw	CGTAAACGAGATCATTTACGGATAAAGGCTCCGGCTCCG GTGAGCAAGGGCGAGGAGGA
Msh2 GFP/mCherry HDR primer rv	GAGCACTACCCAGAACAGCACACAGTAAAGGTGAGCTCTA CTTGACAGCTCGTCCATGC
Msh2 HDR Extension primer fw	AAGCCGAGGTGGTCGAAAGAACAACAGCTTCGTAAACGAGATCATTTACGGATAAAG G
Msh2 HDR Extension primer rv	CTAAACACTTCCGGATGCTGCTAGGCCAGGTTCCAGTGGGGAGCACTACCCAGAACAGC A
Msh2 knock-in validation fw	GCGAAGCTGAAGCAACTGA
Msh2 knock-in validation rv	CGTCCCCATTTAAACAGCAC
Tdgf1 GFP HDR primer fw	TTGTCTTTTCTCCAACGTTTTTACGAGCCGTCGAAGATG GTGAGCAAGGGCGAGGAGCT
Tdgf1 mCherry HDR primer fw	TTGTCTTTTCTCCAACGTTTTTACGAGCCGTCGAAGATG GTGAGCAAGGGCGAGGAGGA
Tdgf1 GFP/mCherry HDR primer rv	TCCGAAGTGGCTATCTCCAGCAACAAAAAGTCAAGGTTA CTTGACAGCTCGTCCATGC
Tdgf1 HDR Extension primer fw	TGGCTTTATGAACTAAAGCCATCTGCTAATATTGTGTTTTCTGTCTTTTCTCCAACGT T
Tdgf1 HDR Extension primer rv	GCAAGACAAAAATCAGAGCGTCATAGAACGTGATTTTCCGAAGTGGCTATCTCCAGCAA C
Tdgf1 knock-in validation fw	TTGGGTGTTTTGAGAATGGC
Tdgf1 knock-in validation rv	GTTACTGACAAGGTTCAAGCAA
10X Chromium custom library prep primers	
For Msh2/Tdgf1/Zfp42 gene-specific library prep	
Msh2 gene-specific primer with read 2 adapter half-tail	GTGACTGGAGTTCAGACGTGTGCTCTCCGATCT NNN tgtgctgttctgggtagtgtc
Tdgf1 gene-specific primer with read 2 adapter half-tail	GTGACTGGAGTTCAGACGTGTGCTCTCCGATCT NNN aCACCCGAGTCTCTTTTCTGCAA
Zfp42 gene-specific primer with read 2 adapter half-tail	GTGACTGGAGTTCAGACGTGTGCTCTCCGATCT agttcctaattgcttagcttttacct
Read 1 adapter half-tail primer to pair with above mix	GAGATCTACTCTTTCC CTACACGACGCTCTCCGATCT
Read 2 adapter full-tail with index N701	CAAGCAGAAGACGGCATAACGAGAT TCGCCTTA GTGACTGGAGTTCAGACGTGTGCT
Read 2 adapter full-tail with index N702	CAAGCAGAAGACGGCATAACGAGAT CTAGTACG GTGACTGGAGTTCAGACGTGTGCT
Read 2 adapter full-tail with index N703	CAAGCAGAAGACGGCATAACGAGAT TTCTGCCT GTGACTGGAGTTCAGACGTGTGCT
Read 2 adapter full-tail with index N704	CAAGCAGAAGACGGCATAACGAGAT GCTCAGGA GTGACTGGAGTTCAGACGTGTGCT

Read 1 adapter full-tail	AATGATACGGCGACCACC GAGATCTACTCTTTCCCTACACGACGCTCTTCC
For gRNA-specific library prep	
gRNA sequence capture probe	/5Biosg/GTTTAAGAGCTATGCTGGAAACAGCATAGCAAGTTTAAATAAGGCTAGTCC GTTATCAACTTGAAAAAGTGGCACCGAGTCGGTGCAAAA
Sequence capture blocking oligo 1	CTACACGACGCTCTTCCGATCT/3SpC3/
Sequence capture blocking oligo 2	AAGCAGTGGTATCAACGCAGAGTACATGGG/3SpC3/
cDNA-specific primer with read 2 adapter half-tail, version 1 for pool	GTGACTGGAGTTCAGACGTGTGCTCTTCCGATC T GGTATCAACGCAGAGTACATGGG
cDNA-specific primer with read 2 adapter half-tail, version 2 for pool	GTGACTGGAGTTCAGACGTGTGCTCTTCCGATCT N GGTATCAACGCAGAGTACATGGG
cDNA-specific primer with read 2 adapter half-tail, version 3 for pool	GTGACTGGAGTTCAGACGTGTGCTCTTCCGATCT NN GGTATCAACGCAGAGTACATGGG
cDNA-specific primer with read 2 adapter half-tail, version 4 for pool	GTGACTGGAGTTCAGACGTGTGCTCTTCCGATCT NNN GGTATCAACGCAGAGTACATGGG
cDNA-specific primer with read 2 adapter half-tail, version 5 for pool	GTGACTGGAGTTCAGACGTGTGCTCTTCCGATCT NNNN GGTATCAACGCAGAGTACATGG
Read 1 adapter half-tail primer to pair with above mix	GAGATCTACTCTTTCC CTACACGACGCTCTTCCGATCT
Read 2 adapter full-tail with index N701	CAAGCAGAAGACGGCATAACGAGAT TCGCCTTA GTGACTGGAGTTCAGACGTGTGCT
Read 2 adapter full-tail with index N702	CAAGCAGAAGACGGCATAACGAGAT CTAGTACG GTGACTGGAGTTCAGACGTGTGCT
Read 2 adapter full-tail with index N703	CAAGCAGAAGACGGCATAACGAGAT TTCTGCCT GTGACTGGAGTTCAGACGTGTGCT
Read 2 adapter full-tail with index N704	CAAGCAGAAGACGGCATAACGAGAT GCTCAGGA GTGACTGGAGTTCAGACGTGTGCT
Read 1 adapter full-tail	AATGATACGGCGACCACCGAGATCTACA CTCTTTCCCTACACGACGCTCTTCC