Table S4: Sequences of all genes of interest (GOIs), promoters, poly (A) tail, *lox* sites, primers and probes used in this study.

Genes of interest	sequence
mCherry	ATGGTGAGCAAGGGCGAGGAGGATAACATGGCCATCATCAAGGAGTTCATGCGCTTCAAGGT GCACATGGAGGGCTCCGTGAACGGCCACGAGTTCGAGATCGAGGGCGAGGGCGAGGGCCG CCCCTACGAGGGCACCCAGACCGCCAAGCTGAAGGTGACCAAGGGTGGCCCCCTGCCCTTC GCCTGGGACATCCTGTCCCCTCAGTTCATGTACGGCTCCAAGGCCTACGTGAAGCACCCCGC CGACATCCCCGACTACTTGAAGCTGTCCTTCCCCGAGGGCTTCAAGTGGGAGCGCGTGATGA ACTTCGAGGACGGCGGCGTGGTGACCGTGACCCAGGACTCCTCCCTGCAGGACGGCGAGTT CATCTACAAGGTGAAGCTGCGCGGCACCAACTTCCCCTCCGACGGCCCCGTAATGCAGAAGA AGACCATGGGCTGGGAGGCCTCCTCCGAGCGGATGTACCCCGAGGACGGCGCCCTGAAGGG CGAGATCAAGCAGAGGCTGAAGCTGAAGGACGGCGGCCACTACGACGCTGAGGTCAAGACC ACCTACAAGGCCAAGAAGCCCGTGCAGCTGCCCGGCGCCTACAACGTCAACATCAAGTTGGA CATCACCTCCCACAACGAGGACTACACCATCGTGGAACAGTACGAACGCGCCGAGGGCCGCC ACTCCACCGGCGGCATGGACGAGCTGTACAAGTAG
PuroR	ATGACCGAGTACAAGCCCACGGTGCGCCTCGCCACCCGCGACGACGTCCCCAGGGCCGTAC GCACCCTCGCCGCCGCGTTCGCCGACTACCCCGCCACGCGCCACACCGTCGATCCGGACCG CCACATCGAGCGGGTCACCGAGCTGCAAGAACTCTTCCTCACGCGCGTCGGGCTCGACATCG GCAAGGTGTGGGTCGCGGACGACGGCGCCGCGGTGGCGGTCTGGACCACGCCGGAGAGCG TCGAAGCGGGGGCGGTGTTCGCCGAGATCGGCCCGCGCATGGCCGAGTTGAGCGGTTCCCG GCTGGCCGCGCAGCAACAGATGGAAGGCCTCCTGGCGCCGCACCGGCCCAAGGAGCCCGC GTGGTTCCTGGCCACCGTCGGCGTCTCGCCCGACCACCAGGGCAAGGGTCTGGGCAGCGC CGTCGTGCTCCCCGGAGTGGAGGCGGCCGAGCGCGCCGGGGTGCCCGCCTTCCTGGAGAC CTCCGCGCCCCGCAACCTCCCCTTCTACGAGCGGCTCGGCTTCACCGTCACCGCCGACGTC GAGGTGCCCGAAGGACCGCGCACCTGGTGCATGACCCGCAAGCCCGGTGCCTGA
msAb LC	ATGTCTGTGCCTACACAGGTTCTGGGACTGCTGCTGCTGTGGCTGACAGACGCCAGATGCGA CATCGTGATGACACAGAGCCCTAGCAGCCTGGCTGTGTCTGTGGGAGAGAGAGTGACCATCA GCTGCAAGAGCAGCCAGAGCCTGCTGTACTCCACCAACCAGAAGAACTACCTGGCCTGGTAT CAGCAGAAGCCCGGCCAGTCTCCTAAGCTGCTGATCTACTGGGCCAGCACCAGAGAAAGCGG CGTGCCAGATAGATTCAGCGGCAGCGGCTCTGGAACCGACTTCACCCTGACAATCAGCTCCC TGCAGGCCGAGGATGTGGCCGTGTACTACTGCCAGCAGTACTACAGCTACCTGAGAACCTTCG GCGGAGGCACCAAGCTGGAAATCAAGAGAACAGTGGCCGCTCCTAGCGTGTTCATCTTCCCA CCATCTGACGAGCAGCTGAAGTCTGGCACAGCCAGCGTTGTGTGCCTGCTGAACAACTTCTA CCCCAGAGAAGCCAAGGTGCAGTGGAAGGTGGACAACGCTCTGCAGTCCGGCAACAGCCAA GAGAGCGTGACAGAGCAGGACAGCAAGGACTCCACCTACAGCCTGAGCAGCACACTGACAC TGAGCAAGGCCGACTACGAAAAGCACAAGGTGTACGCCTGCGAAGTGACCCACCAGGGACTG TCTAGCCCTGTGACCAAGAGCTTCAACAGAGGCGAGTGCTGA
msAb HC	ATGGAATGGTCCTGGGTGTTCCTGTTCTTCCTGAGCGTGACCACAGGCGTGCACTCTGAGGT GCAGCTGGTTGAATCTGGCGGAGGACTGGTTCAGCCTGGCGGATCTCTGAGACTGTCTTGTG CCGCCAGCGGCTTCACCTTCAGCAGCTACGCTATGAGCTGGGTCCGACAGGCTCCTGGCAAA GGACTTGAGTGGGTCGCCTACATCAGCAGCGGCGGCAGCACATATTACCCCGACTCTGTGAA GGGCAGATTCACCATCTCCAGAGACAACGCCAAGAACAGCCTGTACCTGCAGATGAACTCCCT GAGAGCCGAGGACACCGCCGTGTACTACTGTGCCAGAGAAGGCTACGGCACCTACGGCGATT ATTGGGGCCAGGGCACAACCCTGACAGTGTCTAGCGCTTCCACAAAGGGCCCCAGCGTTTTC CCACTGGCTCCTAGCAGCAAGAGCACAAGCGGAGGAACAGCTGCTCTGGGCTGTCTGGTCAA GGACTACTTCCCTGAGCCTGTGACCGTGTCCTGGAACTCTGGCGCTCTGACTTCTGGCGTGC ACACATTCCCTGCCGTGCTGCAATCTAGCGGCCTGTACTCTCTGAGCAGCGTGGTCACAGTGC CAAGCTCTAGCCTGGGCACCCAGACCTACATCTGCAATGTGAACCACAAGCCTAGCAACACCA AGGTGGACAAGAAGGTGGAACCCAAGAGCTGCGACAAGACCCACACCTGTCCTCCATGTCCT GCTCCAGAACTGCTCGGCGGACCTTCCGTGTTTCTGTTCCCTCCAAAGCCTAAGGACACCCT GATGATCAGCAGAACCCCTGAAGTGACCTGCGTGGTGGTGGATGTGTCTCACGAGGACCCCG AAGTGAAGTTCAATTGGTACGTGGACGGCGTGGAAGTGCACAACGCTAAGACCAAGCCTAGA GAGGAACAGTACAACAGCACCTATAGAGTGGTGTCCGTGCTGACAGTGCTGCACCAGGATTG GCTGAACGGCAAAGAGTACAAGTGCAAGGTGTCCAACAAGGCCCTGCCTGCTCCTATCGAAA AGACCATCAGCAAGGCCAAGGGCCAGCCTAGGGAACCCCAGGTTTACACACTGCCACCAAGC AGGGACGAGCTGACCAAGAATCAGGTGTCCCTGACCTGCCTCGTGAAGGGCTTCTACCCTTC CGATATCGCCGTGGAATGGGAGAGCAACGGCCAGCCTGAGAACAACTACAAGACAACCCCTC CTGTGCTGGACAGCGACGGCTCATTCTTCCTGTACAGCAAGCTGACCGTGGACAAGTCCAGA TGGCAGCAGGGCAACGTGTTCAGCTGCAGCGTGATGCACGAGGCCCTGCACAACCACTACAC CCAGAAGTCCCTGTCTCTGAGCCCCGGCAAATGA
bsAb LC1	ATGGTCCTGGGTGTTCCTGTTCTTCCTGTCTCTGACCGGGGTGCACGCCGACATCCAGATGAC ACAGTCCCCATCTTCTCTGTCCGCCTCTGTGGGCGACAGAGTGACCATCACCTGTAGAGCCA GCCAGGACATCTCCAACTACCTGAACTGGTATCAGCAGAAGCCCGACGGCACCATCAAGCTG CTGATCTACTACACCTCCAGACTGCACTCTGGCGTGCCCTCCAGATTTTCTGGCTCTGGATCT GGCACCGACTACACCTTCACCATCTCTAGCCTGCAGCCTGAGGATATCGCCACCTACTACTGC

	CAGCAGGGCAATACCCTGCCTTGGACCTTTGGCGGCGGAACAAAGGTGGAAATCAAAGGCGG CGGAGGAAGCTCTGGCGCCCCTAGATTTCTGACCAGACCTAAGGCTTCCGTGGTGTCCGTGG GCAAAGACGCTACCCTGTCTTGTCAGATCGTGGGCAACCCATTTCCTCAGGTGTCCTGGGAGA AAGACAAGCAGCCTGTGACAGCCGGCGTGCGGTTTAGATTGGCTCAGGATGGCGACCTGTAC CGGCTGAAGATCCTCGACCTGCAGCTGTCTGATTCCGGCCAGTACGTGTGCAGAGCTAGAAAT GCCCACGGCGAGGCTTTTGCTTGTCTGGGACTGCAAGTGGATGCCGAGGCTTGA
bsAb HC1	ATGGAATGGTCCTGGGTGTTCCTGTTCTTCCTGTCTCTGACTGGGGTGCACGCTGAAGTGCAG TTGGTTCAGAGCGGAGCCGAAGTGAAGAAACCTGGCGCTTCTGTGAAGGTGTCCTGCAAGGC TTCTGGCTACACCCTGACCAGCTACTGGATCACCTGGGTCCGACAAGCTCCTGGACAGGGAC TTGAGTGGATGGGCGATATCTATCCTGGCAGCGGCCGGACCAACTACAACGAGATGTTCAAGA ACAGAGTGACCATGACCGTGGACACCTCCACCAGCACCGCTTACATGGAACTGTCCAGCCTG AGATCTGAGGACACCGCCGTGTACTACTGCGCTAGAAGGCACTATGGCACCGGCTACGAGTCT TTCGATGTGTGGGGACAGGGCACCACCGTGACAGTTTCTAGCGGAGGCGGAGGATCTGGCAT CCCTCCTAAGATCGAGTGCCTGCCTATCGACATCTCCATCGACGAAGGCAAGGTGCTGACCGT GGCTTCTGCTTTTACTGGCGAGCCCACACCTGAAGTGACCTGGTCTACCGGCGGCAGAAAGA TCCACTCTCAAGAGCAGGGCAGATTCCACATCGAGAACACCGACGACTCCACCACACTGACC ATCAAGGACGTGCAGAAACAGGACGGCGGCCTGTACACTCTGACCCTGAGAAACGAGTTCGG CTCTGACTCCGCCACCGTGAACATCCACATCCGGTCCATCGACAAGACCCACACATGCCCTCC ATGTCCTGCTCCAGAAGCTGCTGGCGGACCCTCTGTGTTTCTGTTCCCTCCAAAGCCTAAGGA CACCCTGATGATCTCTCGGACTCCCGAAGTGACATGCGTGGTGGTGGATGTGTCTCATGAGGA CCCAGAAGTGAAGTTCAATTGGTACGTGGACGGCGTGGAAGTGCACAACGCCAAGACCAAGC CTAGAGAGGAACAGTACAACTCCACCTACAGAGTGGTGTCCGTGCTGACAGTGCTGCACCAG GATTGGCTGAACGGCAAAGAGTACAAGTGCAAGGTGTCCAACAAGGCCCTGCCTGCTCCTAT CGAAAAGACCATCTCCAAGGCTAAGGGCCAGCCTCGGGAACCTCAGGTTTACACACTGCCTC CATGCCGGGACGAGCTGACCAAAAATCAGGTGTCCCTGTGGTGCCTGGTCAAGGGCTTCTAC CCTTCCGATATCGCCGTGGAATGGGAGTCTAACGGCCAGCCAGAGAACAACTACAAGACCACA CCTCCTGTGCTGGACTCCGACGGCTCATTCTTTCTGTACTCCAAGCTGACTGTGGACAAGTCC AGATGGCAGCAGGGCAACGTGTTCTCCTGCTCTGTGATGCACGAGGCCCTGCACAACCACTA CACACAGAAATCCCTGAGCCTGTCTCCTGGCAAATGA
bsAb LC2	ATGGTCCTGGGTGTTCCTGTTCTTCCTGTCTCTGACCGGGGTGCACGCCGATATCCAGCTGAC ACAGTCCCCATCTTCTCTGTCTGCCTCTGTGGGCGACAGAGTGACCATCACCTGTAGAGCCAG CCAGGACATCTCTAGCGCCCTCGTGTGGTATCAGCAGAAGCCTGGAAAGGCCCCTAAGCTGC TGATCTACGACGCCTCCTCTCTGGAATCTGGCGTGCCATCCAGATTCTCCGGCTCTGAGTCTG GCACCGACTTCACCCTGACAATCTCTAGCCTGCAGCCTGAGGACTTCGCCACCTACTACTGCC AGCAGTTCAACAGCTACCCTCTGACCTTTGGCGGAGGCACCAAGGTGGAAATCAAGAGAACC GTGGCCGCTCCTTCCGTGTTCATCTTCCCACCATCTGACGAGCAGCTGAAGTCCGGCACAGC TTCTGTCGTGTGCCTGCTGAACAACTTCTACCCTCGGGAAGCCAAGGTGCAGTGGAAGGTGG ACAATGCCCTGCAGTCCGGCAACTCCCAAGAGTCTGTGACCGAGCAGGACTCCAAGGACTCT ACCTACAGCCTGTCCTCCACACTGACCCTGTCTAAGGCCGACTACGAGAAGCACAAGGTGTAC GCCTGTGAAGTGACCCACCAGGGACTGTCTAGCCCCGTGACCAAGTCTTTCAACAGAGGCGA GTGCTGA
bsAb HC2	ATGGTCCTGGGTGTTCCTGTTCTTCCTGTCTCTGACTGGGGTGCACGCTCAGGTGCAGTTGG TTGAATCTGGTGGCGGAGTGGTGCAGCCTGGCAGATCTCTGAGACTGTCTTGTGCCGCCTCC GGCTTCACCTTCTCTACCTATGGCATGCACTGGGTCCGACAGGCCCCTGGAAAAGGACTGGA ATGGGTTGCCGTGATCTGGGACGACGGCTCCTACAAGTACTACGGCGACTCCGTGAAGGGCA GATTCACCATCTCTCGGGACAACTCCAAGAACACCCTGTACCTGCAGATGAACTCCCTGAGAG CCGAGGACACCGCCGTGTACTATTGTGCCAGAGATGGCATCACCATGGTCCGAGGCGTGATG AAGGACTACTTCGATTATTGGGGCCAGGGCACCCTGGTCACCGTGTCCTCTGCTTCTACAAAG GGCCCCTCTGTGTTCCCTCTGGCTCCTTCCTCTAAATCCACCTCTGGCGGAACCGCTGCTCTG GGCTGTCTGGTCAAGGATTACTTCCCTGAGCCTGTGACCGTGTCTTGGAACTCTGGTGCTCTG ACATCCGGCGTGCACACCTTTCCAGCTGTGCTGCAGTCCTCTGGCCTGTACTCTCTGTCCTCT GTCGTGACCGTGCCTTCTAGCTCTCTGGGCACCCAGACCTACATCTGCAACGTGAACCACAAG CCTTCCAACACCAAGGTGGACAAGAAGGTGGAACCCAAGTCCTGCGACAAGACCCACACCTG TCCTCCATGTCCTGCTCCAGAAGCTGCTGGCGGACCCTCCGTTTTCCTGTTTCCACCTAAGCC TAAGGACACCCTGATGATCTCTCGGACCCCTGAAGTGACCTGCGTGGTGGTGGATGTGTCTCA CGAGGATCCCGAAGTGAAGTTCAATTGGTACGTGGACGGCGTGGAAGTGCACAACGCCAAGA CCAAGCCTAGAGAGGAACAGTACAACTCCACCTACAGAGTGGTGTCCGTGCTGACCGTGCTG CACCAGGATTGGCTGAACGGCAAAGAGTACAAGTGCAAGGTGTCCAACAAGGCCCTGCCTGC TCCTATCGAAAAGACCATCTCCAAGGCTAAGGGCCAGCCTCGGGAACCTCAAGTCTGTACACT GCCTCCTAGCCGGGACGAGCTGACCAAAAATCAGGTGTCCCTGTCCTGCGCTGTGAAGGGCT TCTACCCTTCCGATATCGCCGTGGAATGGGAGTCCAATGGCCAGCCTGAGAACAACTACAAGA CAACCCCTCCTGTGCTGGACTCCGACGGCTCATTCTTCCTGGTGTCCAAGCTGACAGTGGAC AAGTCCAGATGGCAGCAGGGCAACGTGTTCTCCTGCTCTGTGATGCACGAGGCCCTGCACAA CCACTACACCCAGAAGAGTCTGTCTCTGTCCCCTGGCAAATGA

Promoters and poly(A) tail	sequence
Proprietary CMV [2]	TGAGGCGCGCCTACTGAGTCATTAGGGACTTTCCAATGGGTTTTGCCCAGTACATAAGGTCAAT AGGGGTGAATCAACAGGAAAGTCCCATTGGAGCCAAGTACACTGAGTCAATAGGGACTTTCCA TTGGGTTTTGCCCAGTACAAAAGGTCAATAGGGGGTGAGTCAATGGGTTTTTCCCATTATTGGC ACGTACATAAGGTCAATAGGGGTGAGTCATTGGGTTTTTCCAGCCAATTTAATTAAAACGCCATG TACTTTCCCACCATTGACGTCAATGGGCTATTGAAACTAATGCAACGTGACCTTTAAACGGTACT TTCCCATAGCTGATTAATGGGAAAGTACCGTTCTCGAGCCAATACACGTCAATGGGAAGTGAAA GGGCAGCCAAAACGTAACACCGCCCCGGTTTTCCCCTGGAAATTCCATATTGGCACGCATTCT ATTGGCTGAGCTGCGTTCTACGTGGGTATAAGAGGCGCGACCAGCGTCGGTACCGTCGCAGT CTTCGGTCTGACCACCGTAGAACGCAGCCTCAGGACCTCCATAGAAGACACCGGGACCGATC CAGCCTCCGCGGCCGGGAACGGTGCATTGGAACGCGGATTCCCCGTGCCAAGAGTGACGTA AGTACCGCCTATAGAGTCTATAGGCCCACCCCCTTGGCTTCTTATGCATGCTATACTGTTTTTGG CTTGGGGTCTATACACCCCCGCTTCCTCATGTTATAGGTGATGGTATAGCTTAGCCTATAGGTGT GGGTTATTGACCATTATTGACCACTCCCCTATTGGTGACGATACTTTCCATTACTAATCCATAACA TGGCTCTTTGCCACAACTCTCTTTATTGGCTATATGCCAATACACTGTCCTTCAGAGACTGACAC GGACTCTGTATTTTTACAGGATGGGGTCTCATTTATTATTTACAAATTCACATATACAACACCACC GTCCCCAGTGCCCGCAGTTTTTATTAAACATAACGTGGGATCTCCACGCGAATCTCGGGTACGT GTTCCGGACATGGGCTCTTCTCCGGTAGCGGCGGAGCTTCTACATCCGAGCCCTGCTCCCAT GCCTCCAGCGACTCATGGTCGCTCGGCAGCTCCTTGCTCCTAACAGTGGAGGCCAGACTTAG GCACAGCACGATGCCCACCACCACCAGTGTGCCGCACAAGGCCGTGGCGGTAGGGTATGTG TCTGAAAATGAGCTCGGGGAGCGGGCTTGCACCGCTGACGCATTTGGAAGACTTAAGGCAGC GGCAGAAGAAGATGCAGGCAGCTGAGTTGTTGTGTTCTGATAAGAGTCAGAGGTAACTCCCGT TGCGGTGCTGTTAACGGTGGAGGGCAGTGTAGTCTGAGCAGTACTCGTTGCTGCCGCGCGCG CCACCAGACATAATAGCTGACAGACTAACAGACTGTTCCTTTCCATGGGTCTTTTCTGCAGTCA CCGTCCTTGACACG
100 RPU.2 [3]	TGGGACTTTCCACCTTAGATGACACAGCAATCAGATTTGCTTGCGTGAGAAGATATAGGATGAC ACAGCAATCTAGACTGGGACTTTCCACTGATATTTTGCGCAATTGACCTAATGACACAGCAATAG TATGTGGGGCGGGGATCTAACTGGGACTTTCCAAAGGTCTTACCGGAAGTTGTTAGAATGACA CAGCAATGGATTCATATCCTGGGACTTTCCAGTATACTGCTTGCGTGAGAAG ATGATCATGGGACTTTCCA
CMV core promoter	AGGTCTATATAAGCAGAGCTCGTTTAGTGAACCGTCAGATCGCCTAGATACGCCATCCACGCT GTTTTGACCTCCATAGAAGAC
EF1α	GGCTCCGGTGCCCGTCAGTGGGCAGAGCGCACATCGCCCACAGTCCCCGAGAAGTTGGGG GGAGGGGTCGGCAATTGAACCGGTGCCTAGAGAAGGTGGCGCGGGGTAAACTGGGAAAGTG ATGTCGTGTACTGGCTCCGCCTTTTTCCCGAGGGTGGGGGAGAACCGTATATAAGTGCAGTA GTCGCCGTGAACGTTCTTTTTCGCAACGGGTTTGCCGCCAGAACACAGGTAAGTGCCGTGTG TGGTTCCCGCGGGCCTGGCCTCTTTACGGGTTATGGCCCTTGCGTGCCTTGAATTACTTCCA CCTGGCTCCAGTACGTGATTCTTGATCCCGAGCTGGAGCCAGGGGCGGGCCTTGCGCTTTAG GAGCCCCTTCGCCTCGTGCTTGAGTTGAGGCCTGGCCTGGGCGCTGGGGCCGCCGCGTGC GAATCTGGTGGCACCTTCGCGCCTGTCTCGCTGCTTTCGATAAGTCTCTAGCCATTTAAAATTT TTGATGACCTGCTGCGACGCTTTTTTTCTGGCAAGATAGTCTTGTAAATGCGGGCCAGGATCT GCACACTGGTATTTCGGTTTTTGGGGCCGCGGGCGGCGACGGGGCCCGTGCGTCCCAGCGC ACATGTTCGGCGAGGCGGGGCCTGCGAGCGCGGCCACCGAGAATCGGACGGGGGTAGTCT CAAGCTGGCCGGCCTGCTCTGGTGCCTGGCCTCGCGCCGCCGTGTATCGCCCCGCCCTGGG CGGCAAGGCTGGCCCGGTCGGCACCAGTTGCGTGAGCGGAAAGATGGCCGCTTCCCGGCC CTGCTCCAGGGGGCTCAAAATGGAGGACGCGGCGCTCGGGAGAGCGGGCGGGTGAGTCAC CCACACAAAGGAAAGGGGCCTTTCCGTCCTCAGCCGTCGCTTCATGTGACTCCACGGAGTAC CGGGCGCCGTCCAGGCACCTCGATTAGTTCTGGAGCTTTTGGAGTACGTCGTCTTTAGGTTG GGGGGAGGGGTTTTATGCGATGGAGTTTCCCCACACTGAGTGGGTGGAGACTGAAGTTAGG CCAGCTTGGCACTTGATGTAATTCTCCTTGGAATTTGCCCTTTTTGAGTTTGGATCTTGGTTCA TTCTCAAGCCTCAGACAGTGGTTCAAAGTTTTTTTCTTCCATTTCAGGTGTCGTGA
SV40	GTGTGTCAGTTAGGGTGTGGAAAGTCCCCAGGCTCCCCAGCAGGCAGAAGTATGCAAAGCAT GCATCTCAATTAGTCAGCAACCAGGTGTGGAAAGTCCCCAGGCTCCCCAGCAGGCAGAAGTAT GCAAAGCATGCATCTCAATTAGTCAGCAACCATAGTCCCGCCCCTAACTCCGCCCATCCCGCC CCTAACTCCGCCCAGTTCCGCCCATTCTCCGCCCCATGGCTGACTAATTTTTTTTATTTATGCAG AGGCCGAGGCCGCCTCTGCCTCTGAGCTATTCCAGAAGTAGTGAGGAGGCTTTTTTGGAGGC CTAGGCTTTTGCAAA

Enhancer sequence	Sequence (CMV core promoter not included)

28F6	CATAGGGGCGGGGTCATGGAAAGTCCCCATGACCCGGATGTAGCATCC CCGGAAGTGACCATGGAAAGTCCCCATGGAAAGTCCCCATGGAAAGTC CCCATGTTGCGTGCGAACATGACCCGGATGTAGCATGGAAAGTCCCCA TGACCCGGATGTAGCATGTTGCGTGCGAACATTGGGACTTTCCACATGG AAAGTCCCCATTGGGACTTTCCACATTGGGACTTTCCACATCCCCGGAA GTGACCATGTTGCGTGCGAACATAGGGGCGGGGTCATTGGGACTTTCC ACATGGAAAGTCCCCATGTTGCGTGCGAACATTGGGACTTTCCACATGA CCCGGATGTAGCATTGGGACTTTCCACATGGAAAGTCCCCATTGGGACT TTCCACATTGGGACTTTCCACAT
28E7	CATGTTGCGTGCGAACATTGGGACTTTCCACATGACCCGGATGTAGCAT TGGGACTTTCCACATTGGGACTTTCCACATTGGGACTTTCCACATAGGG GCGGGGTCATTGGGACTTTCCACATGGAAAGTCCCCATGTTGCGTGCGA ACATGTTGCGTGCGAACATTGGGACTTTCCACATGGAAAGTCCCCATCC CCGGAAGTGACCATGGAAAGTCCCCATGGAAAGTCCCCATGACCCGGA TGTAGCATCCCCGGAAGTGACCATTGGGACTTTCCACATGGAAAGTCCC CATGGAAAGTCCCCATTGGGACTTTCCACATGGAAAGTCCCCATAGGG GCGGGGTCATGGAAAGTCCCCATGACCCGGATGTAGCATGTTGCGTGC GAACATGACCCGGATGTAGCAT
28F7	CATGTTGCGTGCGAACATTGGGACTTTCCACATTGGGACTTTC CACATTGGGACTTTCCACATGGAAAGTCCCCATGGAAAGTCCC CATGTTGCGTGCGAACATAGGGGCGGGGTCATTGGGACTTTCC ACATGACCCGGATGTAGCATCCCCGGAAGTGACCATGTTGCGT GCGAACATCCCCGGAAGTGACCATTGGGACTTTCCACATAGGG GCGGGGTCATGGAAAGTCCCCATTGGGACTTTCCACATGGAAA GTCCCCATGACCCGGATGTAGCATGGAAAGTCCCCATGTTGCG TGCGAACATGGAAAGTCCCCATGACCCGGATGTAGCATTGGGA CTTTCCACATGGAAAGTCCCCATTGGGACTTTCCACATGGAAA GTCCCCATGACCCGGATGTAGCAT
28G7	CATGGAAAGTCCCCATGACCCGGATGTAGCATAGGGGCGGGGT CATGGAAAGTCCCCATTGGGACTTTCCACATAGGGGCGGGGTC ATCCCCGGAAGTGACCATCCCCGGAAGTGACCATGGAAAGTC CCCATGTTGCGTGCGAACATGACCCGGATGTAGCATGGAAAGT CCCCATGGAAAGTCCCCATTGGGACTTTCCACATGGAAAGTCC CCATTGGGACTTTCCACATGTTGCGTGCGAACATGGAAAGTCC CCATGACCCGGATGTAGCATTGGGACTTTCCACATTGGGACTTT CCACATGACCCGGATGTAGCATTGGGACTTTCCACATTGGGAC TTTCCACATGTTGCGTGCGAACATGTTGCGTGCGAACATGGAA AGTCCCCATTGGGACTTTCCACAT
28B8	CATCCCCGGAAGTGACCATGACCCGGATGTAGCATGGAAAGTCCCCAT GTTGCGTGCGAACATGGAAAGTCCCCATAGGGGCGGGGTCATCCCCGG AAGTGACCATGGAAAGTCCCCATGGAAAGTCCCCATTGGGACTTTCCA CATGTTGCGTGCGAACATGGAAAGTCCCCATGACCCGGATGTAGCATT GGGACTTTCCACATTGGGACTTTCCACATTGGGACTTTCCACATTGGGA CTTTCCACATAGGGGCGGGGTCATTGGGACTTTCCACATGGAAAGTCCC CATGACCCGGATGTAGCATGTTGCGTGCGAACATGTTGCGTGCGAACA TGACCCGGATGTAGCATGGAAAGTCCCCATGGAAAGTCCCCATTGGGA CTTTCCACATTGGGACTTTCCACAT
30E8	CATCCCCGGAAGTGACCATTGGGACTTTCCACATGTTGCGTGCGAACAT GACCCGGATGTAGCATGGAAAGTCCCCATTGGGACTTTCCACATGTTGC GTGCGAACATAGGGGCGGGGTCATGGAAAGTCCCCATGGAAAGTCCCC ATGACCCGGATGTAGCATGACCCGGATGTAGCATGGAAAGTCCCCATG TTGCGTGCGAACATTGGGACTTTCCACATGGAAAGTCCCCATGGAAAG TCCCCATAGAACGAGGCACATTGGGACTTTCCACATGGAAAGTCCCCA TGTTGCGTGCGAACATAGGGGCGGGGTCATTGGGACTTTCCACATCCCC GGAAGTGACCATGGAAAGTCCCCATTGGGACTTTCCACATGACCCGGA TGTAGCATTGGGACTTTCCACATAGAACGAGGCACATTGGGACTTTCCA CAT
30F8	CATTGGGACTTTCCACATTGGGACTTTCCACATCCCCGGAAGTGACCAT TGGGACTTTCCACATTGGGACTTTCCACATGGAAAGTCCCCATGACCCG GATGTAGCATTGGGACTTTCCACATAGAACGAGGCACATGACCCGGAT GTAGCATGACCCGGATGTAGCATGACCCGGATGTAGCATGGAAAGTCC CCATGTTGCGTGCGAACATGGAAAGTCCCCATAGAACGAGGCACATGG AAAGTCCCCATGTTGCGTGCGAACATCCCCGGAAGTGACCATGTTGCGT GCGAACATGTTGCGTGCGAACATAGGGGCGGGGTCATTGGGACTTTCC ACATGGAAAGTCCCCATGGAAAGTCCCCATAGGGGCGGGGTCATGGAA AGTCCCCATTGGGACTTTCCACATGGAAAGTCCCCATTGGGACTTTCCA CAT

30G8	CATGACCCGGATGTAGCATGGAAAGTCCCCATAGGGGCGGGGTCATGG AAAGTCCCCATGACCCGGATGTAGCATGGAAAGTCCCCATGGAAAGTC CCCATGGAAAGTCCCCATGTTGCGTGCGAACATTGGGACTTTCCACATT GGGACTTTCCACATTGGGACTTTCCACATTGGGACTTTCCACATGGAAA GTCCCCATGACCCGGATGTAGCATGTTGCGTGCGAACATAGAACGAGG CACATCCCCGGAAGTGACCATAGGGGCGGGGTCATTGGGACTTTCCAC ATCCCCGGAAGTGACCATTGGGACTTTCCACATGTTGCGTGCGAACATG ACCCGGATGTAGCATGGAAAGTCCCCATAGAACGAGGCACATTGGGAC TTTCCACATTGGGACTTTCCACATGGAAAGTCCCCATGTTGCGTGCGAA CAT
28G6	CATTGGGACTTTCCACATTGGGACTTTCCACATGTTGCGTGCGAACATT GGGACTTTCCACATGGAAAGTCCCCATTGGGACTTTCCACATGGAAAGT CCCCATGGAAAGTCCCCATGACCCGGATGTAGCATTGGGACTTTCCACA TCCCCGGAAGTGACCATGTTGCGTGCGAACATGGAAAGTCCCCATTGG GACTTTCCACATGACCCGGATGTAGCATGACCCGGATGTAGCATGACC CGGATGTAGCATGGAAAGTCCCCATAGGGGCGGGGTCATGGAAAGTCC CCATGTTGCGTGCGAACATTGGGACTTTCCACATGTTGCGTGCGAACAT CCCCGGAAGTGACCATGGAAAGTCCCCATGGAAAGTCCCCATTGGGAC TTTCCACATAGGGGCGGGGTCAT
30D8	CATGGAAAGTCCCCATGTTGCGTGCGAACATTGGGACTTTCCACATAGA ACGAGGCACATTGGGACTTTCCACATGACCCGGATGTAGCATGACCCG GATGTAGCATCCCCGGAAGTGACCATTGGGACTTTCCACATGGAAAGT CCCCATGGAAAGTCCCCATAGAACGAGGCACATGACCCGGATGTAGCA TTGGGACTTTCCACATGGAAAGTCCCCATTGGGACTTTCCACATAGGGG CGGGGTCATGGAAAGTCCCCATTGGGACTTTCCACATGGAAAGTCCCC ATGTTGCGTGCGAACATAGGGGCGGGGTCATGACCCGGATGTAGCATT GGGACTTTCCACATGTTGCGTGCGAACATGGAAAGTCCCCATGGAAAG TCCCCATTGGGACTTTCCACATCCCCGGAAGTGACCATGTTGCGTGCGA ACAT
28B7	CATGACCCGGATGTAGCATGGAAAGTCCCCATTGGGACTTTCCACATGA CCCGGATGTAGCATGGAAAGTCCCCATTGGGACTTTCCACATTGGGACT TTCCACATGTTGCGTGCGAACATGTTGCGTGCGAACATTGGGACTTTCC ACATGTTGCGTGCGAACATCCCCGGAAGTGACCATTGGGACTTTCCACA TTGGGACTTTCCACATTGGGACTTTCCACATGGAAAGTCCCCATGGAAA GTCCCCATAGGGGCGGGGTCATTGGGACTTTCCACATCCCCGGAAGTGA CCATAGGGGCGGGGTCATGACCCGGATGTAGCATGGAAAGTCCCCATGG AAAGTCCCCATGTTGCGTGCGAACATGGAAAGTCCCCATGGAAAGTCCC CATGACCCGGATGTAGCAT
28D7	CATGGAAAGTCCCCATAGGGGCGGGGTCATGGAAAGTCCCCATGGAAA GTCCCCATGACCCGGATGTAGCATGGAAAGTCCCCATGGAAAGTCCCCA TGTTGCGTGCGAACATGGAAAGTCCCCATGACCCGGATGTAGCATGACC CGGATGTAGCATTGGGACTTTCCACATGGAAAGTCCCCATTGGGACTTTC CACATTGGGACTTTCCACATGGAAAGTCCCCATTGGGACTTTCCACATGT TGCGTGCGAACATTGGGACTTTCCACATTGGGACTTTCCACATCCCCGG AAGTGACCATAGGGGCGGGGTCATGTTGCGTGCGAACATGACCCGGATG TAGCATCCCCGGAAGTGACCATTGGGACTTTCCACATTGGGACTTTCCA CATGTTGCGTGCGAACAT
28C7	CATGACCCGGATGTAGCATGGAAAGTCCCCATTGGGACTTTCCACATGA CCCGGATGTAGCATGGAAAGTCCCCATTGGGACTTTCCACATTGGGACT TTCCACATGTTGCGTGCGAACATGTTGCGTGCGAACATTGGGACTTTCC ACATGTTGCGTGCGAACATCCCCGGAAGTGACCATTGGGACTTTCCACA TTGGGACTTTCCACATTGGGACTTTCCACATGGAAAGTCCCCATGGAAA GTCCCCATAGGGGCGGGGTCATTGGGACTTTCCACATCCCCGGAAGTGA CCATAGGGGCGGGGTCATGACCCGGATGTAGCATGGAAAGTCCCCATGG AAAGTCCCCATGTTGCGTGCGAACATGGAAAGTCCCCATGGAAAGTCCC CATGACCCGGATGTAGCAT
28C8	CATAGGGGCGGGGTCATTGGGACTTTCCACATGTTGCGTGCGAACATTG GGACTTTCCACATGACCCGGATGTAGCATCCCCGGAAGTGACCATGGAA AGTCCCCATGGAAAGTCCCCATTGGGACTTTCCACATGACCCGGATGTA GCATGGAAAGTCCCCATTGGGACTTTCCACATGGAAAGTCCCCATGTTG CGTGCGAACATTGGGACTTTCCACATAGGGGCGGGGTCATTGGGACTTT CCACATTGGGACTTTCCACATGGAAAGTCCCCATGTTGCGTGCGAACAT TGGGACTTTCCACATCCCCGGAAGTGACCATGGAAAGTCCCCATGACCC GGATGTAGCATGTTGCGTGCGAACATGGAAAGTCCCCATGGAAAGTCCC CATGACCCGGATGTAGCAT

30B9	CATGGAAAGTCCCCATAGGGGCGGGGTCATGTTGCGTGCGAACATTGGG ACTTTCCACATGGAAAGTCCCCATTGGGACTTTCCACATCCCCGGAAGT GACCATGTTGCGTGCGAACATGTTGCGTGCGAACATGACCCGGATGTAG CATGGAAAGTCCCCATGACCCGGATGTAGCATGACCCGGATGTAGCATT GGGACTTTCCACATTGGGACTTTCCACATGACCCGGATGTAGCATTGGG ACTTTCCACATGTTGCGTGCGAACATGGAAAGTCCCCATGGAAAGTCCC CATTGGGACTTTCCACATAGGGGCGGGGTCATGGAAAGTCCCCATAGAA CGAGGCACATGGAAAGTCCCCATCCCCGGAAGTGACCA7TTGGGACTTT CCACATAGAACGAGGCACATGGAAAGTCCCCATTGGGACTTTCCACAT

Poly (A) tail	sequence
bGH poly(A)	CTGTGCCTTCTAGTTGCCAGCCATCTGTTGTTTGCCCCTCCCCCGTGCCTTCCTTGACCCT GGAAGGTGCCACTCCCACTGTCCTTTCCTAATAAAATGAGGAAATTGCATCGCATTGTCTGA GTAGGTGTCATTCTATTCTGGGGGGTGGGGTGGGGCAGGACAGCAAGGGGGAGGATTGG GAAGACAATAGCAGGCATGCTGGGGATGCGGTGGGCTCTATGG

Lox sites	sequence
LoxP	ATAACTTCGTATAGCATACATTATACGAAGTTAT
Lox2272	ATAACTTCGTATAGGATACTTTATACGAAGTTAT

Primers	sequence	purpose
SSI5_fwd	ACACAGGAGATCTACGCCTCT	5’ junction PCR to verify correct integration of mCherry gene
mCherry_rev	TTGGTCACCTTCAGCTTGGC	
Puro_fwd	AGCAACAGATGGAAGGCCTCCT	3’ junction PCR to verify correct integration of mCherry gene
SSI5-rev	AGGAGGCAGAGTCAGGTGAAT	
SSI5_out_fwd	TGGACTGCCCTGGAACTCTCTCCATA	Insert PCR to verify correct integration of either msAb or bsAb gene cassettes.
SSI5_out_rev	CTGCCTCATGCACTACATGCATGCGA	

Gene	Forward Primer	Reverse Primer	TaqMan Probe	Dye	Primer Efficiency
mCherry	GCCACTACGACG CTGAGGT	GGTGTAGTCCTC GTTGTGGG	CCAAGAAG CCCGTGC	FAM-MGB	100.2%
msAb_LC	GTGTGCCTGCTG AACAACTTC	ACGCTCTCTTGG CTGTTGC	TTCCACTG CACCTTG	FAM-MGB	107.2%
msAb_HC	ACCTGCGTGGT GGTGGAT	ACTCTTTGCCGTT CAGCCA	CGTACCAA TTGAAC	FAM-MGB	102.7%
bsAb_LC1	ACAAAGGTGGAA ATCAAAGGC	ATCTGACAAGACA GGGTAGCGT	CCCCTAGA TTTCTGAC C	FAM-MGB	101.9%
bsAb_HC1	AAGAGCAGGGC AGATTCCA	CGTTTCTCAGGGT CAGAGTGTA	ACGACTCC ACCACACT	FAM-MGB	97.2%
bsAb_LC2	CTTCCGTGTTCA TCTTCCCA	ATTGTCCACCTTC CACTGCA	CTTCTGTC GTGTGCCT	FAM-MGB	93.4%
bsAb_HC2	CGAGGCGTGAT GAAGGACTA	AGAGGTGGATTTA GAGGAAGGAG	TCACCGTG TCCTCT	FAM-MGB	100.6%
COSMC (internal control gene in ddPCR)	ACCCGAACCAG GTAGTAGAA	ACATGTCCAAAGG CCCTAAG	AGTGACAG CCATATTG GAACAGCA TCC	VIC-BHQ1	99.1%
Fkbp1a (internal control gene in qPCR)	CTCTCGGGACA GAAACAAGC	GACCTACACTCAT CTGGGCTAC	ATGCTAGG CAAGCAGG AGGTGATC	VIC-MGB	100.9%

Supplemental References:

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[3] Brown, A. J., Gibson, S. J., Hatton, D., & James, D. C. (2017). In silico design of context-responsive mammalian promoters with user-defined functionality. *Nucleic acids research*, *45*(18), 10906–10919.