

Supplementary Table 1. sgRNA spacers and primers used in this study (On-target sites)

site#	Gene (or locus)	Spacer sequence	PAM	Forward primer	Reverse primer
site 1	VEGFA	tccctcttagccagagccg	GGG	gggaggtcagaaataggggggt	ggagtgaccctggccttct
site 2	RNF2	ggaatcattagctatgactt	GGG	attatggcaggtggatgtgga	gaatacttcagccagcaacc
site 3	EMX1	gaaatcagaggaggaaaagt	CGG	cccccttagagatacggcct	gatggaatccgtggggagc
site 4	PPP1R12C	ggggctcaacatcggaagag	GGG	agaccagactgagctatggg	ttcgacctactctcttcgca
site 5	COMTD1	gtacacttgtcaacctcac	TGG	actctgtgtgatcaactgcaa	cctggagcctcatacactataaca
site 6	EMX1	gatttcttactgagtatga	AGG	gctctgaacagatcagcaggt	cctcaaaggggaccctagtc
site 7	RNF2	gtcatcttagtcattacctg	AGG	gctgtgcagacaaacggaac	agccaacatacagaagtcaggaa
site 8		gaatacttctcagagtccc	AGG	cagtgtaaattcactccatacaact	tccacaatccaagctcagcc
site 9		tgactccaccctcaaagaga	TGG	gcagaggctggagtcaagt	gcaaagcagtcggtcaaaact
site 10	CCNH	gaacacaaagcatagactgc	GGG	ggaaaaattgtccagccccatc	gacctggctgagctaactgtga
site 11	RAD23B	ggcccagactgagcacgtga	TGG	gctgcaagtaagcatgcatttg	cagcccagccaaacttgtca
site 12	USP46	gaataactaagcatagactcc	AGG	tactgtctcagtcccccagaa	agaaaccagatttctcagcctc
site 13	PSMB2	gtaaacaaagcatagactga	GGG	ttgtggccaagaattgtgt	agaaggaataacagtgccccaa
site 14	PPP1R12C	ggcactcgggggcgagagga	GGG	ccagtagagctcaaagtgtcc	cctggactttgtctccttccc
site 15		gaacacaatgcatagattgc	CGG	tcaaaaaacaacagagaagacaagt	tttcttgtgaaacagaaatgtca
site 16	SFXN5	gctaacttactgtgtaaccc	TGG	ggagagatggttgacagag	gaagggactagggatggggatta
site 17	NIBAN1	gtactcaaatgactttaaga	AGG	tcctacctgtcttctgttga	gtgtctgaagccaaacccct
site 18	CAMKII	ttgctagaaaccaaagac	AGG	tgtcctgggcatggtatcgg	ttcagttttctccgggcattg
site 19		cctcagccgagacatggatg	GGG	ccatttctttcaggtgtgagtc	cagtcacctggcaccactt
site 20	GPRIN3	gactgagaaccggataacca	CGG	ggtaacttaaaagaaaaccagccaa	ccttcacaatgatagccatggc
site 21	ETFDH	tcaggggcttgccctgatcc	AGG	ctctctgcagctgttcgtcta	aaaaacaattttcataccccctt
site 22	CES	cttcgaggtgaagcctgtccc	TGG	ggaagcaactcggacgca	ccctatcatgccatgtcacct
site 23	HBG	gtggggaaggggcccccaag	AGG	gaatcggaacaaggcaaaggc	cccattgggtggagtttagcc
site 24	VEGFA	ggtgagtgagtgtgtcgtg	TGG	cagtactagggggcgct	ggggagagggacacacagat
site 25	PCSK9	ctaggagatacacctccacc	AGG	ttgactttatgctcattccctct	ggcacattctcgaagtcggtg
site 26	LUZP4	agaccagactgagcaagaga	GGG	ctcatottaatctgctcagcca	aaagctatgatgtgatgtgact
site 27	TMEM275	agctcagactgagcaagtga	GGG	cttcagtcagacatcagccag	gaagagggtggcccagatt
site 28	HBB	tcagaaagtgggtgctggtg	TGG	tcttctcccacagctcctg	ttggacagcaagaaagcgag
site 29	VISTA enhancer	ccagcccgtggccctgtaa	AGG	tgtgcgtatgacatcatcagata	aaacaatgataacaagacctggc
site 30	FGF17	ggtggcggagatgcgacgcc	CGG	gatccgcgagtaccaactctacagc	ggtgaggcaggggtgaagtgag
site 31	CHM	gatggcggatactctccctt	CGG	tgttttctttccgccttcac	tccaggaagcaccaggctac