

Supplementary Table 2 | **Nucleic acid sequences used in the study**

RNA sequence	Sequence (5' to 3')
SpCas9_sgRNA	GGAUAAACUCAAUUUGUAAAAAAGUUUU AGAGCUAGAAAUAGCAAGUAAAAUAA GGCUAGUCCGUUAUCAACUUGAAAAAG UGGCACCGAGUCGGUGCUU
dsDNA substrate sequence	
TarDNA_AAG-PAM	CAATACTTTTTTTTACAAATTGAGTTAT
Non-tarDNA_AAG-PAM	AAAAGTATTG
TarDNA_GAT-PAM	CAATAATCTTTTTTTACAAATTGAGTTAT
Non-tarDNA_GAT-PAM	AAAGATTATTG
RNA transcription assay DNA template	
SpCas9_sgRNA_DNA template	ATGTAATACGACTCACTATAGGATAACT CAATTTGTAAAAAAGTTTTAGAGCTAGA AATAGCAAGTTAAAATAAGGCTAGTCCG TTATCAACTTGAAAAAGTGGCACCGAGT CGGTGCTT
In vitro DNA cleavage assay primer	
TGG_BamH1_5	GATCCCAATTCCATTTTTTTACAAATTGAG TTATG
TGG_EcoR1_3	AATTCATAACTCAATTTGTAAAAAATGG AATTGG
AGA_BamH1_5	GATCCCAATTCTTTTTTTACAAATTGAG TTATG
AGA_EcoR1_3	AATTCATAACTCAATTTGTAAAAAAGA AATTGG
GAT_BamH1_5	GATCCCAATTATCTTTTTTTACAAATTGAG TTATG
GAT_EcoR1_3	AATTCATAACTCAATTTGTAAAAAAGAT AATTGG
TGT_BamH1_5	GATCCCAATTACATTTTTTTACAAATTGAG TTATG
TGT_EcoR1_3	AATTCATAACTCAATTTGTAAAAAATGT AATTGG
TGG_13/14_BamH1_5	GATCCCAATTCCATTTTTTTACAAATCAAG TTATG
TGG_13/14_EcoR1_3	AATTCATAACTTGATTTGTAAAAAATGG AATTGG
TGG_15/16_BamH1_5	GATCCCAATTCCATTTTTTTACAAATTGGA TTATG
TGG_15/16_EcoR1_3	AATTCATAATCCAATTTGTAAAAAATGG AATTGG

TGG_17/18_BamH1_5	GATCCCAATTCCATTTTTTACAAATTGAG CCATG
TGG_17/18_EcoR1_3	AATTCATGGCTCAATTGTAAAAAATGG AATTGG
TGG_18/19_BamH1_5	GATCCCAATTCCATTTTTTACAAATTGAG TCGTG
TGG_18/19_EcoR1_3	AATTCACGACTCAATTGTAAAAAATGG AATTGG
TGT_13/14_BamH1_5	GATCCCAATTACATTTTTTACAAATCAA GTTATG
TGT_13/14_EcoR1_3	AATTCATAACTTGATTGTAAAAAATGT AATTGG
TGT_15/16_BamH1_5	GATCCCAATTACATTTTTTACAAATTGGA TTATG
TGT_15/16_EcoR1_3	AATTCATAATCCAATTGTAAAAAATGT AATTGG
TGT_17/18_BamH1_5	GATCCCAATTACATTTTTTACAAATTGAG CCATG
TGT_17/18_EcoR1_3	AATTCATGGCTCAATTGTAAAAAATGT AATTGG
TGT_18/19_BamH1_5	GATCCCAATTACATTTTTTACAAATTGAG TCGTG
TGT_18/19_EcoR1_3	AATTCACGACTCAATTGTAAAAAATGT AATTGG
pUC18_5	CATTCAGGCTGCGCAACTGTTGG
pUC18_3	CCAGGCTTTACACTTTATGCT
<i>In vitro</i> cleavage assay DNA sequence	
pUC18_substrate	CATTCAGGCTGCGCAACTGTTGGGAAGG GCGATCGGTGCGGGCCTCTTCGCTATTA CGCCAGCTGGCGAAAGGGGGATGTGCTG CAAGGCGATTAAGTTGGGTAACGCCAGG GTTTTCCAGTCACGACGTTGTAAAACG ACGGCCAGTGCCAAGCTTGCATGCCTGC AGGTGCACTCTAGAGGATCCCAATTCCA TTTTTTACAAATTGAGTTATGAATTCGTA ATCATGGTCATAGCTGTTTCCTGTGTGAA ATTGTTATCCGCTCACAATCCACACAA CATACGAGCCGGAAGCATAAAGTGTA AGCCTGG
<i>EMX1</i> target site Sequence	GTCACCTCCAATGACTAGGGTGG
<i>EMX1</i> target site mismatched primer	
TGG_15/16_5	caccGTCAGGTCCAATGACTAGGG

TGG_15/16_3	aaacCCCTAGTCATTGGACCTGAC
TGG_17/18_5	caccGTGTCTCCAATGACTAGGG
TGG_17/18_3	aaacCCCTAGTCATTGGAGGACAC
TGG_18/19_5	caccGAGACCTCCAATGACTAGGG
TGG_18/19_3	aaacCCCTAGTCATTGGAGGTCTC
TGG_wt_5	caccGTCACCTCCAATGACTAGGG
TGG_wt_3	aaacCCCTAGTCATTGGAGGTGAC
VEGFA target site Sequence	GGGAAGCTGGGTGAATGGAGCGA
VEGFA target site mismatched primer	
CGA_15/16_5	caccGGGATCCTGGGTGAATGGAG
CGA_15/16_3	aaacCTCCATTCACCCAGGATCCC
CGA_17/18_5	caccGGCTAGCTGGGTGAATGGAG
CGA_17/18_3	aaacCTCCATTCACCCAGCTAGCC
CGA_18/19_5	caccGCCAAGCTGGGTGAATGGAG
CGA_18/19_3	aaacCTCCATTCACCCAGCTTGGC
CGA_wt_5	caccGGGAAGCTGGGTGAATGGAG
CGA_wt_3	aaacCTCCATTCACCCAGCTTCCC
FANCF target site Sequence	GCGGTCTCAAGCACTACCTACGT
FANCF target site mismatched primer	
CGT_15/16_5	caccGCGGAGTCAAGCACTACCTA
CGT_15/16_3	aaacTAGGTAGTGCTTGACTCCGC
CGT_17/18_5	caccGCCCTCTCAAGCACTACCTA
CGT_17/18_3	aaacTAGGTAGTGCTTGAAGAGGGC
CGT_18/19_5	caccGGCGTCTCAAGCACTACCTA
CGT_18/19_3	aaacTAGGTAGTGCTTGAAGACGCC
CGT_wt_5	caccGCGGTCTCAAGCACTACCTA
CGT_wt_3	aaacTAGGTAGTGCTTGAAGACCGC
T7 endonuclease I assay primer	
<i>EMXI</i> test F	CCATCCCCTTCTGTGAATGT
<i>EMXI</i> test R	GGAGATTGGAGACACGGAGA
<i>VEGFA</i> test F	CCCCTTTCCAAAGCCCATTCC
<i>VEGFA</i> test R	TCTGCGGACGCTCAGTGAAG
<i>FANCF</i> test F	GTTGCCAGAGTCAAGGAAC
<i>FANCF</i> test R	CAGGTGGTAACGAGCTGCATC

T7 endonuclease I assay DNA sequence	
<i>EMXI</i> target site flanking sequence	GGAGATTGGAGACACGGAGAGCAGCTG GGAGGCTGCGGTGGCGGGCGGGCCCCGC CCAGGCAGGCAGGCTCTCCGAGGAGAA GGCCAAGTGGTCCCAGGCCTCAGCCAGC CCATTGCTTGTCCTCTGTCAATGGCGGC CCCGGGCTTCAAGCCCTGTGGGGCCATG ACTCCAGGCCTCCCCAAAGCCTGGCCAG GGAGTGGCCAGAGTCCAGCTTGGGCCCA CGCAGGGGCCTGGCCAGCAGCAAGCAG CACTCTGCCCTCGTGGGTTTGTGGTTGCC CACCTAGTCATTGGAGGTGACATCGAT GTCCTCCCCATTGGCCTGCTTCGTGGCAA TGCGCCACCGGTTGATGTGATGGGAGCC CTTCTTCTTCTGCTCGGACTCAGGCCCTT CCTCCTCCAGCTTCTGCCGTTTGTACTTT GTCCTCCGGTTCTGGAACCACACCTTCA CCTGGGCCAGGGAGGGAGGGGCACAGA TGAGAAACTCAGGAGGCCCCAGAGCA GCCACTGGGGCCTCAACTCAGGCTGA GCTGAGAGCCTGATGGGAAGACTGAGG CTACATAGGGTTAGGGGCCCCAGGCCGG GGTCCCCTCTGACCAGCTGCTCCCATGG GTCTAACATTACAGAAGGGGATGG
<i>VEGFA</i> target site flanking sequence	CCCCTTTCCAAAGCCCATTCCCTCTTTAG CCAGAGCCGGGGTGTGCAGACGGCAGTC ACTAGGGGGCGCTCGGCCACCACAGGG AAGCTGGGTGAATGGAGCGAGCAGCGT CTTCGAGAGTGAGGACGTGTGTGTCTGT GTGGGTGAGTGAGTGTGTGCGTGTGGGG TTGAGGGCGTTGGAGCGGGGAGAAGGC CAGGGGTCACTCCAGGATTCCAATAGAT CTGTGTGTCCCTCTCCCCACCCGTCCCTG TCCGGCTCTCCGCCTTCCCCTGCCCCCTT CAATATTCCTAGCAAAGAGGGAACGGCT CTCAGGCCCTGTCCGCACGTAACCTCAC TTTCCTGCTCCCTCCTCGCCAATGCCCCG CGGGCGCGTGTCTCTGGACAGAGTTTCC GGGGCGGATGGGTAATTTTCAGGCTGT GAACCTTGGTGGGGGTGAGCTTCCCCT TCATTGCGGCGGGCTGCGGGCCAGGCTT CACTGAGCGTCCGCAGA
<i>FANCF</i> target site flanking sequence	GTTGCCAGAGTCAAGGAACACGGATAA AGACGCTGGGAGATTGACATGCATTTCC

	ACCAATAGCATTGCAGAGAGGGGTATCA TTTCGCGGATGTTCCAATCAGTACGCAG AGAGTCGCCGTCTCCAAGGTGAAAGCGG AAGTAGGGCCTTCGCGCACCTCATGGAA TCCCTTCTGCAGCACCTGGATCGCTTTTC CGAGCTTCTGGCGGTCTCAAGCACTACC TACGTCAGCACCTGGGACCCCGCCACCG TGCGCCGGGCCTTGCAGTGGGCGCGCTA CCTGCGCCACATCCATCGGCGCTTTGGT CGGCATGGCCCCATTCGCACGGCTCTGG AGCGGCGGCTGCACAACCAGTGGAGGC AAGAGGGCGGCTTTGGGCGGGGTCCAGT TCCGGGATTAGCGAACTTCCAGGCCCTC GGTCACTGTGACGTCCTGCTCTCTGCG CCTGCTGGAGAACCGGGCCCTCGGGGAT GCAGCTCGTTACCACCTG
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