

Supplementary Table

Oligonucleotides used for cloning in pLKO.1 (shRNA expression vectors)

ShTop1 F: 5' CCGGTGAAGGGCGAGTGAATCTAAGCTCGAGCTTAGATTCACCTCGCCCTTCATTTTTG 3'
ShTop1 R: 5' AATTCAAAAATGAAGGGCGAGTGAATCTAAG CTCGAGCTTAGATTCACCTCGCCCTTCA 3'
ShTop2A F: 5'-CCGGGCCCAAGTGTCTTTAGCTTTCTCGAGAAAGCTAAAGAACAACCTTGGGCTTTTTG-3'
ShTop2A R: 5'-AATTCAAAAGCCCAAGTGTCTTTAGCTTTCTCGAGAAAGCTAAAGAACAACCTTGGGC 3'
ShTop2B F: 5'-CCGGTGATGATGAATTTGACGGTTTCTCGAGAAACCGTCAATTACATCATCATTTTTG-3'
ShTop2B R: 5'-AATTCAAAATGATGATGAATTTGACGGTTTCTCGAGAAACCGTCAATTACATCATCA-3'

Oligonucleotides used for cloning in plentiCRISPRV2

CRISPR Top1 F: 5' CACCGCCTCCGGGCGGACATGAGTG 3'
CRISPR Top1 R: 5' AAACACTCATGTGCGCCCGGAGGC 3'
CRISPR Top2A F: 5' CACCGCCTCCGCCAGACACCTACAT 3'
CRISPR Top2A R: 5' AAACATGTAGGTGTCTGGGCGGAGC 3'
CRISPR Top2B F: 5' CACCGCGGCAACGGGGCACTGACCT 3'
CRISPR Top2B R: 5' AAACAGGTCAGTGCCCGTTGCCG 3'

Oligonucleotides used for RT-qPCR

Luc 3' F: 5' TGGCAGGTCTCCCGACGAT 3'
Luc 3' R: 5' GCGGACGTAATCCACGATCTCT 3'
GAPDH F: 5' TGCACCACCAACTGCTTAGC 3'
GAPDH R: 5' GCATGGACTGTGGTCATGAG 3'
Top1 F: 5'-GATGAACCTGAAGATGATGGC-3'
Top1 R: 5'-CTTCTCCACCATTTCCAC-3'
Top2B F: 5'-CTGCTTCTGTTTTTCCACATC-3'
Top2B R: 5'-GCTTTCCTTTCTTTGCCCC-3'

Oligonucleotides used for ChIP

Nuc0 S: 5'-ACAAGGCTACTTCCCTGAT-3'
Nuc0 AS: 5'-TGGCTCAACTGGTACTAGCT-3'
Enhancer S: 5'-AGAGAGAAGTGTAGAGTGGAGTT-3'
Enhancer AS: 5'-GCTTATATGCAGGATCTGA-3'
Nuc1 S: 5'CAGCTGCTTTTTGCTGACTG 3'
Nuc1 AS: 5'TCCACACTGACTAAAAGGGTCTGA 3'
GFP S: 5'GCATCGACTTCAAGGAGGAC 3'
GFP AS: 5'ACCTTGATGCCGTTCTTCTG 3'
Luc coding S: 5'AAGAGATACGCCCTGGTTCCT-3'
Luc coding AS: 5'CGGTAGGCTGCGAAATGTTC-3'

Primers E3 constructions

Top1-Sal-For: ggcgGTCGACagtggggaccacctccac
Top1-Acc65I-Rev: ggcgGGTACCcctaaaactcatagtcttcatcag
Top1-XbaI-For: catgcttaaccctagtTCTAGAatcaagggtgagaagg
Top1-XbaI-Rev: ccttctcacccttgatTCTAGAAactagggttaagcatg

Oligonucleotides used for pulldown assays

LTR I: 5'-GGGACTTCCGCTGGGGACTTCCAGGGAGGCGTGGCCTGGG Biotin TEG-3'
LTR II: 5'-TGGGGACTTCCAGGGAGGCGTGGCCTGGGCGGG-Biotin TEG-3'
LTR III: 5'-AGGGAGGCGTGGCCTGGGCGGGACTGGGGAGTGGC-Biotin TEG-3'
LTR III Mut1: 5'-AGCGAGACGTGGCCTGAGCGTGACTGGCGAGTGGC-Biotin TEG-3'
LTR III Mut2: 5'-AGCGAGACGTGGCCTGAGCGTGACTGGGGAGTGGC-Biotin TEG-3'
LTR III Mut3: 5'-AGCGAGACGTGGCCTGGGCGGGACTGGCGAGTGGC-Biotin TEG-3'
LTR III Mut4: 5'-AGGGAGGCGTGGCCTGAGCGTGACTGGCGAGTGGC-Biotin TEG-3'
LTR III Mut5: 5'-AGGGAGGCATGGACTGGGTGGGATTGGGGAGTGGC-Biotin TEG-3'
LTR III Mut6: 5'-AGCGAGACATGGACTGGGTGGGATTGGCGAGTGGC-Biotin TEG-3'
LTR III short: 5'-AGGGAGGCGTGGCCTGGGCGGGACTGGGGA-Biotin TEG-3'
LTR IV short: 5'-TGGCCTGGGCGGGACTGGGGAGTGGT-Biotin TEG-3'
c-myc: 5'-AGGGAGGCATGGACTGGGTGGGATTGGGGAGTGGC-Biotin TEG-3'

Oligonucleotides used for topological assays and biophysical studies

Identical sequence as oligonucleotides used for pull down assays, without TEG at the 3' ends