

Table SI. shRNA sequences.

Name	Target sequence	RNA oligo sequences guide (5'→3')	RNA oligo sequences passenger (5'→3')
USP4	ctgcaaagtcgaggtgtatttc	AAAUACACCUCGACUUUGCAG	GCAAAGUCGAGGUGUAUUUGC
USP4 scrambled shRNA	cagtgtatcgtgcattagcaat	AUUGCUGAAUGCACGAUACACUG	GUGCUGAAUGCACGAUACACUGA
AL445238.2	cagaatcatctgtctcattaaca	UUAAUGAGACAGAUGAUUCUG	GAAUCAUCUGUCUCAUUAACA
AL445238.2 scrambled shRNA	caatcacatgactattcagaact	AGUUCUGAAUAGUCAUGUUGC	AAUCUGAAUAGUCAUGUUGA

sh, short hairpin; USP4, ubiquitin specific peptidase 4.

Table SII. Primer sequences.

Gene	Forward primer (5'→3')	Reverse primer (5'→3')
AL445238.2	ACCGATAGCATCTTTTATTAATGTGAG	AAGGTGGTGGGTTTGAAGGA
USP4	GGACCCTTAATGAGGACCACA	TTCCACTGCTTGAACCACCG
GAPDH	GGAGCGAGATCCCTCCAAAAT	GGCTGTTGTCATACTTCTCATGG

USP4, ubiquitin specific peptidase 4.

Table SIII. Antibody information.

Cat. no.	Product name	Supplier
ab181105	Anti-USP4	Abcam
ab32124	Anti-Bcl-2	Abcam
ab32503	Anti-Bax	Abcam
ab32351	Anti-Caspase-3	Abcam
6964T	Bmi1 (D20B7)	CST Biological Reagents Co., Ltd.
12035T	ALDH1A1 (D4R9V)	CST Biological Reagents Co., Ltd.
2929T	EpCAM (VU1D9)	CST Biological Reagents Co., Ltd.
4970T	β -Actin (13E5)	CST Biological Reagents Co., Ltd.
5174S	GAPDH (D16H11) XP [®] Rabbit mAb	CST Biological Reagents Co., Ltd.
31800	Goat anti-mouse IgG (H+L) Secondary Antibody, Biotin	Invitrogen; Thermo Fisher Scientific, Inc.
65-6140	Goat anti-rabbit IgG (H+L) Secondary Antibody, Biotin	Invitrogen; Thermo Fisher Scientific, Inc.
7074S	Anti-rabbit IgG, HRP-linked Antibody	CST Biological Reagents Co., Ltd.
7076S	Anti-mouse IgG, HRP-linked Antibody	CST Biological Reagents Co., Ltd.

USP4, ubiquitin specific peptidase 4; Bmi1, B lymphoma Mo-MLV insertion region 1; EpCAM, epithelial cell adhesion molecule.