

Table SI. The sequences of primers used in the present study.

Primers	Sequences (5'-3')
H-GPR176-F	TCTTCATAGGCTCGCTGCTC
H-GPR176-R	AATGAACTTAATCCCAGGCAGT
H-E-cad-F	TACCCTGGTGGTTCAAGCTG
H-E-cad-R	CAAATCCAAGCCCGTGGTG
H-N-cad-F	ATGGGAAATGGAACTTGATGGC
H-N-cad-R	AGCTTCTCACGGCATAACACC
H-vimentin-F	GGACCAGCTAACCAACGACA
H-vimentin-R	AAGGTCAAGACGTGCCAGAG
H-snail-F	TAGAGTCTGAGATGCCCCGA
H-snail-R	ACAGCCATTACTCACAGTCCC
H-ACTB-F	AGTCATTCCAAATATGAGATGCGTT
H-ACTB-R	TGCTATCACCTCCCCTGTGT
H-PIP5K1A -F	AAGATTCCCTGCGTTCACCT
H-PIP5K1A -R	AGGCTTTGCGCTTAATGGGT

F, forward; R, reverse; H, Human.

Table SII. The functional sequence of the shRNA lentiviral vector.

	Sequence (5'-3')
NC	Sense UUCUCCGAACGUFUCACGUTT
	Antisense ACGUGACACGUUCGGAGAATT
sh-Gpr176-1	Sense UUUAAUCCUAAAGUUUGCAU
	Antisense GCAAACUUUAGGAAUUAAAAG
sh-Gpr176-2	Sense AAUGAUUGUGAAAGCUUUGAA
	Antisense CAAAGCUUUCACAAUCAUUAC
sh-Gpr176-3	Sense AAUGAUUGUGAAAGCUUUGAA
	Antisense CAAAGCUUUCACAAUCAUUAC
sh-PIP5K1A-1	Sense UGAAAAAAAAUCAAUAGUGGA
	Antisense CACUAUUGAAUUUUUUUCAGA
sh-PIP5K1A-2	Sense AGUAAUAAUUACUAUAGCCUG
	Antisense GGCUAUAGUAAUUAUUACUAU
sh-PIP5K1A-3	Sense AAUAGCAAGAAUUCUUUCCUU
	Antisense GGAAAGAAUUCUUGCUAUUUU

sh, short hairpin; NC, negative control.

Table SIII. Antibody information and usage concentrations for the present study.

Antibody	Manufacturer	Cat. no.	Dilution
B-Actin	Beijing Solarbio Science & Technology Co., Ltd.	K006153P	1:2,000
E-cadherin	Proteintech Group, Inc.	20874-1-AP	1:1,000
Vimentin	Proteintech Group, Inc. Proteintech Group, Inc.	10366-1-AP	1:5,000
N-cadherin	Proteintech Group, Inc.	22018-1-AP	1:6,000
GPR176	Abcam	ab184558	1:2,000
AKT	Proteintech Group, Inc.	10176-2-AP	1:12,000
p-AKT	Proteintech Group, Inc.	28731-1-AP	1:6,000
PIP5K1A	Proteintech Group, Inc.	15713-1-AP	1:50,000
mTOR	Proteintech Group, Inc.	28273-1- AP	1:10,000
p-mTOR	Proteintech Group, Inc.	80596-1-RR	1:50,000

Table SIV. Cox regression analysis of GPR176 expression as survival predictor.

Variables	Univariate Cox regression analysis		Multivariate Cox regression analysis	
	RR (95% CI)	P-value	RR (95% CI)	P-value
Age (years): ≥60 vs. <60	1.486(1.036 to 2.130)	0.031	1.781 (1.214 to 2.613)	0.003
Men vs. women	1.280 (0.912 to 1.798)	0.154	1.384 (0.959 to 1.997)	0.083
Pathological stage: III/IV vs. I/II	1.915 (1.362 to 2.692)	<0.001	1.218 (1.218 to 2.690)	0.447
T stage: T3+T4 vs. T1+T2	1.813 (1.215 to 2.707)	0.004	1.234 (0.761 to 2.002)	0.394
N staging: Positive vs. negative	1.947 (1.312 to 2.888)	0.001	1.514 (0.880 to 2.604)	0.134
M stage: Positive vs. Negative	2.447 (1.408 to 4.250)	0.001	2.291 (1.258 to 4.172)	0.007
Histological grade: G3 vs. G1+G2	1.419 (1.017 to 1.980)	0.040	1.399 (0.973 to 2.012)	0.070
GPR176 expression: High vs. low	1.371 (1.001 to 1.883)	0.048	1.281(0.912 to 1.800)	0.036

NA, not analyzed; RR, Risk Ratio.