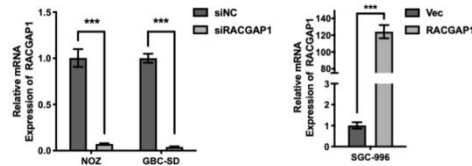


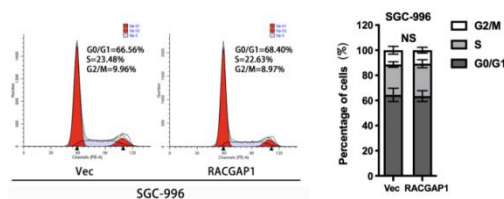
## Supplementary materials

### Supplementary figures:

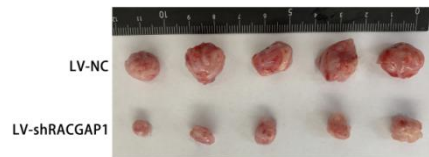
**Figure S1.** qRT-PCR analysis of RACGAP1 mRNA expression in both NOZ and GBC-SD cell lines which were transfected with RACGAP1 siRNA and in SGC-996 cell line with RACGAP1-expression vector. \*\*\* $P < 0.001$ .



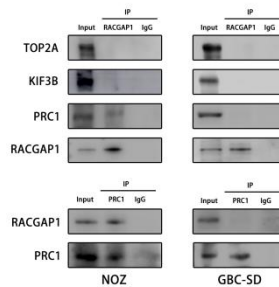
**Figure S2.** Effect of RACGAP1 overexpression on SGC-996 cell cycle were assessed using flow cytometry. NS, no significance.



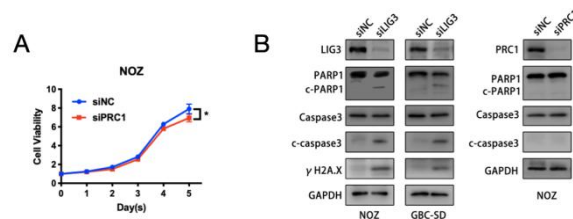
**Figure S3.** RACGAP1 stably silencing and control NOZ cells were injected subcutaneously into nude mice. Images of tumors from both groups were presented.



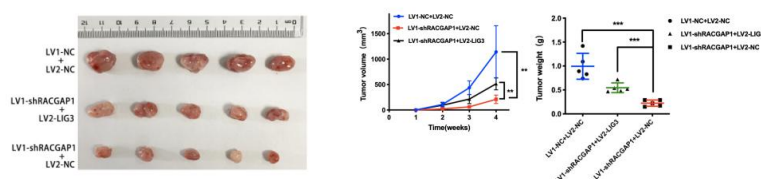
**Figure S4.** Endogenous Co-IP between RACGAP1 and its potential interaction proteins (TOP2A, KIF2B and PRC1).



**Figure S5.** (A) Effects of PRC1 knockdown on NOZ cells viability detected by CCK-8 assays. (B) The levels of apoptosis related proteins (PARP1, c-PARP1, caspase3 and c-caspase3) and  $\gamma$ H2A.X in GBC cells after LIG3 or PRC1 knockdown. \* $P < 0.05$ .



**Figure S6.** Effect of RACGAP1 on the growth of subcutaneous tumors constructed by injecting NOZ cells transfected with lentiviruses as indicated. Tumor growth are depicted in the form of a line chart. Weight of tumors are depicted using scatterplots. \*\* $P < 0.01$ , \*\*\* $P < 0.001$ .



## Supplementary tables:

**Table S1. siRNA sequences**

Gene	siRNA	Sequence
RACGAP1	#1	Sense 5'-GCUGAAGCAUGCACGUAAdTdT-3'
		Antisense 5'-AUUACGUGCAUGCUUCAGdTdT-3'
	#2	Sense 5'-CCCUGGACCUGUAAAGAAAdTdT-3'
		Antisense 5'-UUUCUUUACAGGUCCAGGGdTdT-3'
	#3	Sense 5'-CUCCAUUGUUGGCAUUGUdTdT-3'
		Antisense 5'-ACAAUGCACAACA AUGGAGdTdT-3'
LIG3	#1	Sense 5'-GGGAAGAGCUGGAAGAUAdTdT-3'
		Antisense 5'-UUAUCUCCAGCUCUCCCCdTdT-3'
	#2	Sense 5'-GCAUCAUCAGGUUGAUCAAdTdT-3'
		Antisense 5'-UUGAUCAACCUGAUGAUGCdTdT-3'
	#3	Sense 5'-GCAUGUUCUCUGAGAUAAdTdT-3'
		Antisense 5'-UUGAUCUCAGAGAACAUGCdTdT-3'
PRC1	#1	Sense 5'-GAAGCUACUUCAAGAGCAAdTdT-3'
		Antisense 5'-UUGCUCUUGAAGUAGCUUCdTdT-3'
	#2	Sense 5'-GCUGUUUACUCAUACAGUAdTdT-3'
		Antisense 5'-UACUGUAUGAGUAAACAGCdTdT-3'
	#3	Sense 5'-GGAGAAUUAUGCAACACUACAdTdT-3'
		Antisense 5'-UAGUGUUGCAAUAUUCUCCAAdTdT-3'

**Table S2. Primer sequences used for RT-qPCR**

Gene	Primer	Sequence
GAPDH	Forward	GAAATCCCATCACCATCTTCCAGG
	Reverse	CAGTAGAGGCAGGGATGATGTTC
RACGAP1	Forward	CTATGATGCTGAATGTGCGG
	Reverse	AATCCTCAAAGTCCTTCGCC
LIG3	Forward	GGAGGCAGATAGACACAGTATAGG
	Reverse	GGCACCCACAGCAACTAATTC