

Figure S1. mRNA expression of CTCF and PIK3CA in RCC cell lines examined by RT-qPCR. (A) mRNA expression of CTCF in RCC cell lines. (B) mRNA expression of PIK3CA in RCC cell lines. RCC, renal cell carcinoma; CTCF, CCCTC-binding factor; PIK3CA, phosphatidylinositol-4,5-bisphosphate 3-kinase catalytic subunit alpha.

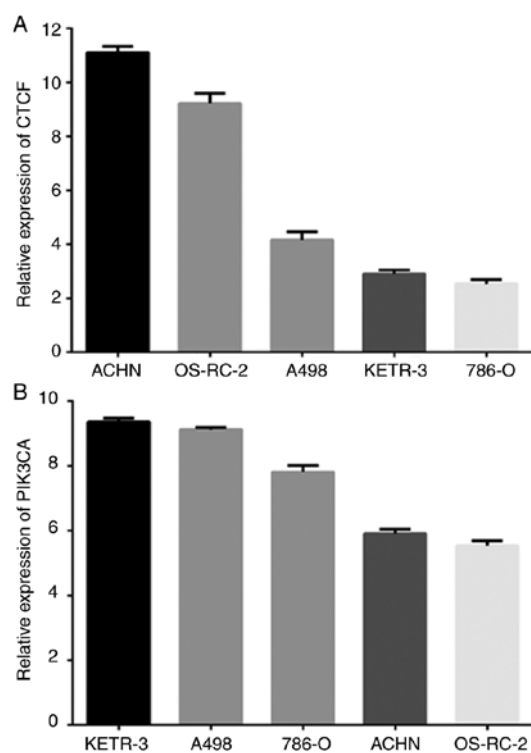


Table SI. Basic information of 20 pairs of sunitinib-responsive and -non-responsive RCC tissues.

Patient ID	Age, years	Sex	Pathological diagnosis	Fuhrman grade	TNM stage	Treatment	Months of treatment	Optimal response
N1	57	Male	ccRCC	II	T2aN0M1	Sunitinib	6	PD
N2	62	Male	ccRCC	II-III	T1bN0M1	Sunitinib	8	PD
N3	55	Male	ccRCC	III	T2bN0M1	Sunitinib	7	PD
N4	59	Female	ccRCC	II	T3aN0M1	Sunitinib	5	PD
N5	70	Male	ccRCC	III	T1bN0M1	Sunitinib	6	PD
N6	51	Male	ccRCC	III-IV	T2aN1M1	Sunitinib	7	PD
N7	69	Male	ccRCC	III	T1bN0M1	Sunitinib	5	PD
N8	70	Female	ccRCC	II	T2bN0M1	Sunitinib	7	PD
N9	65	Male	ccRCC	III	T1bN0M1	Sunitinib	5	PD
N10	67	Female	ccRCC	III	T1bN0M1	Sunitinib	8	PD
N11	51	Male	ccRCC	II-III	T3bN1M1	Sunitinib	9	PD
N12	57	Female	ccRCC	II	T3aN0M1	Sunitinib	4	PD
N13	60	Male	ccRCC	III-IV	T2bN0M1	Sunitinib	6	PD
N14	47	Male	ccRCC	II	T1bN0M1	Sunitinib	7	PD
N15	51	Male	ccRCC	III-IV	T2bN0M1	Sunitinib	8	PD
N16	71	Female	ccRCC	II-III	T1bN0M1	Sunitinib	9	PD
N17	52	Male	ccRCC	III	T2aN0M1	Sunitinib	5	PD
N18	55	Male	ccRCC	II	T3aN0M1	Sunitinib	6	PD
N19	49	Male	ccRCC	II-III	T1bN0M1	Sunitinib	8	PD
N20	67	Female	ccRCC	III	T2bN0M1	Sunitinib	5	PD
R1	41	Male	ccRCC	III	T2aN0M1	Sunitinib	20	PR
R2	57	Male	ccRCC	II	T1bN0M1	Sunitinib	27	PR
R3	67	Female	ccRCC	III	T2bN0M1	Sunitinib	22	PR
R4	47	Male	ccRCC	II-III	T3aN0M1	Sunitinib	29	PR
R5	70	Female	ccRCC	III-IV	T1bN0M1	Sunitinib	20	PR
R6	59	Female	ccRCC	II	T2aN0M1	Sunitinib	17	PR
R7	79	Male	ccRCC	II-III	T1bN0M1	Sunitinib	19	PR
R8	55	Male	ccRCC	II-III	T2bN0M1	Sunitinib	22	PR
R9	68	Male	ccRCC	III-IV	T2aN1M1	Sunitinib	23	PR
R10	60	Male	ccRCC	III	T2bN0M1	Sunitinib	27	PR
R11	59	Male	ccRCC	III	T1aN0M1	Sunitinib	21	PR
R12	53	Female	ccRCC	III-IV	T2bN0M1	Sunitinib	22	PR
R13	42	Male	ccRCC	II	T1bN0M1	Sunitinib	25	PR
R14	62	Female	ccRCC	II-III	T2aN0M1	Sunitinib	18	PR
R15	69	Female	ccRCC	II	T3bN0M1	Sunitinib	20	PR
R16	71	Male	ccRCC	III	T3aN0M1	Sunitinib	21	PR
R17	77	Female	ccRCC	III	T2aN0M1	Sunitinib	19	PR
R18	72	Male	ccRCC	II-III	T3aN0M1	Sunitinib	22	PR
R19	64	Male	ccRCC	III-IV	T2aN1M1	Sunitinib	24	PR
R20	53	Male	ccRCC	II	T1bN0M1	Sunitinib	19	PR

N, sunitinib-non-responsive; R, sunitinib-responsive; RCC, renal cell carcinoma; ccRCC, clear cell renal cell carcinoma; PD, progressive disease; PR, partial response.

Table SII. Basic information of patients with RCC with a low or high QPCT expression.

Variable	Low QPCT expression (n=58)		P-value	High QPCT expression (n=70)		P-value	All patients (n=128)		P-value
	Control (n=24)	Sunitinib (n=34)		Control (n=32)	Sunitinib (n=38)		Control (n=56)	Sunitinib (n=72)	
Sex			0.839			0.810			0.977
Male	20	29		26	30		46	59	
Female	4	5		6	8		10	13	
Age, years			0.104			0.508			0.494
<60	15	20		21	22		36	42	
≥60	9	14		11	16		20	30	
Tumor size			0.922			0.810			0.819
≤4 cm	4	6		6	8		10	14	
>4 cm	20	28		26	30		46	58	
Fuhrman grade			0.792			0.890			0.769
I-II	10	13		14	16		24	29	
III-IV	14	21		18	22		32	43	
TNM stage			N/A			N/A			N/A
I/II	0	0		0	0		0	0	
III/IV	24	34		32	38		56	72	
Tumor thrombus			0.692			0.933			0.747
No	18	27		25	30		43	57	
Yes	6	7		7	8		13	15	
Metastasis			0.525			0.616			0.429
No	4	8		6	9		10	17	
Yes	20	26		26	29		46	55	

Table SIII. Basic information of 32 sunitinib-non-responsive patients and 34 sunitinib-responsive patients with RCC at Jinling Hospital (Nanjing, China).

Patient ID	Age, years	Sex	Pathological diagnosis	Fuhrman grade	TNM stage	Treatment	Months of treatment	Optimal response
N1	57	Male	ccRCC	II	T2aN0M1	Sunitinib	6	PD
N2	62	Male	ccRCC	II-III	T1bN0M1	Sunitinib	8	PD
N3	55	Male	ccRCC	III	T2bN0M1	Sunitinib	7	PD
N4	59	Female	ccRCC	II	T3aN0M1	Sunitinib	5	PD
N5	70	Male	ccRCC	III	T1bN0M1	Sunitinib	6	PD
N6	51	Male	ccRCC	III-IV	T2aN1M1	Sunitinib	7	PD
N7	69	Male	ccRCC	III	T1bN0M1	Sunitinib	5	PD
N8	70	Female	ccRCC	II	T2bN0M1	Sunitinib	7	PD
N9	65	Male	ccRCC	III	T1bN0M1	Sunitinib	5	PD
N10	67	Female	ccRCC	III	T1bN0M1	Sunitinib	8	PD
N11	51	Male	ccRCC	II-III	T3bN1M1	Sunitinib	9	PD
N12	57	Female	ccRCC	II	T3aN0M1	Sunitinib	4	PD
N13	60	Male	ccRCC	III-IV	T2bN0M1	Sunitinib	6	PD
N14	47	Male	ccRCC	II	T1bN0M1	Sunitinib	7	PD
N15	51	Male	ccRCC	III-IV	T2bN0M1	Sunitinib	8	PD
N16	71	Female	ccRCC	II-III	T1bN0M1	Sunitinib	9	PD
N17	52	Male	ccRCC	III	T2aN0M1	Sunitinib	5	PD
N18	55	Male	ccRCC	II	T3aN0M1	Sunitinib	6	PD
N19	49	Male	ccRCC	II-III	T1bN0M1	Sunitinib	8	PD
N20	67	Female	ccRCC	III	T2bN0M1	Sunitinib	5	PD
N21	42	Male	ccRCC	III-IV	T3aN0M1	Sunitinib	4	PD
N22	52	Male	ccRCC	III	T2aN0M1	Sunitinib	6	PD
N23	56	Female	ccRCC	II	T1bN0M1	Sunitinib	5	PD
N24	70	Male	ccRCC	II-III	T1bN0M1	Sunitinib	4	PD
N25	67	Male	ccRCC	III	T3aN0M1	Sunitinib	7	PD
N26	63	Male	ccRCC	III-IV	T3aN0M1	Sunitinib	4	PD
N27	49	Male	ccRCC	II-III	T1bN0M1	Sunitinib	6	PD
N28	45	Female	ccRCC	II-III	T2aN0M1	Sunitinib	8	PD
N29	68	Male	ccRCC	III	T2aN0M1	Sunitinib	4	PD
N30	75	Male	ccRCC	II	T1bN0M1	Sunitinib	6	PD
N31	48	Female	ccRCC	III-IV	T2bN0M1	Sunitinib	5	PD
N32	69	Male	ccRCC	II-III	T1bN0M1	Sunitinib	4	PD
R1	41	Male	ccRCC	III	T2aN0M1	Sunitinib	20	PR
R2	57	Male	ccRCC	II	T1bN0M1	Sunitinib	27	PR
R3	67	Female	ccRCC	III	T2bN0M1	Sunitinib	22	PR
R4	47	Male	ccRCC	II-III	T3aN0M1	Sunitinib	29	PR
R5	70	Female	ccRCC	III-IV	T1bN0M1	Sunitinib	20	PR
R6	59	Female	ccRCC	II	T2aN0M1	Sunitinib	17	PR
R7	79	Male	ccRCC	II-III	T1bN0M1	Sunitinib	19	PR
R8	55	Male	ccRCC	II-III	T2bN0M1	Sunitinib	22	PR
R9	68	Male	ccRCC	III-IV	T2aN1M1	Sunitinib	23	PR
R10	60	Male	ccRCC	III	T2bN0M1	Sunitinib	27	PR
R11	59	Male	ccRCC	III	T1aN0M1	Sunitinib	21	PR
R12	53	Female	ccRCC	III-IV	T2bN0M1	Sunitinib	22	PR
R13	42	Male	ccRCC	II	T1bN0M1	Sunitinib	25	PR
R14	62	Female	ccRCC	II-III	T2aN0M1	Sunitinib	18	PR
R15	69	Female	ccRCC	II	T3bN0M1	Sunitinib	20	PR
R16	71	Male	ccRCC	III	T3aN0M1	Sunitinib	21	PR
R17	77	Female	ccRCC	III	T2aN0M1	Sunitinib	19	PR
R18	72	Male	ccRCC	II-III	T3aN0M1	Sunitinib	22	PR
R19	64	Male	ccRCC	III-IV	T2aN1M1	Sunitinib	24	PR
R20	53	Male	ccRCC	II	T1bN0M1	Sunitinib	19	PR
R21	43	Female	ccRCC	II	T1bN0M1	Sunitinib	16	PR
R22	55	Male	ccRCC	III-IV	T2aN0M1	Sunitinib	19	PR

Table SIII. Continued.

Patient ID	Age, years	Sex	Pathological diagnosis	Fuhrman grade	TNM stage	Treatment	Months of treatment	Optimal response
R23	58	Male	ccRCC	III	T2aN0M1	Sunitinib	22	PR
R24	67	Male	ccRCC	III	T2bN0M1	Sunitinib	20	PR
R25	63	Female	ccRCC	III-IV	T2aN0M1	Sunitinib	18	PR
R26	69	Female	ccRCC	III	T1bN0M1	Sunitinib	19	PR
R27	77	Male	ccRCC	II	T1bN0M1	Sunitinib	21	PR
R28	46	Male	ccRCC	III	T2aN0M1	Sunitinib	23	PR
R29	57	Female	ccRCC	II-III	T3aN0M1	Sunitinib	20	PR
R30	75	Male	ccRCC	II	T1bN0M1	Sunitinib	18	PR
R31	58	Male	ccRCC	III-IV	T3bN0M1	Sunitinib	19	PR
R32	79	Male	ccRCC	III	T2aN0M1	Sunitinib	21	PR
R33	53	Male	ccRCC	II-III	T3aN0M1	Sunitinib	17	PR
R34	52	Female	ccRCC	III	T1bN0M1	Sunitinib	26	PR

N, sunitinib-non-responsive; R, sunitinib-responsive; RCC, renal cell carcinoma; ccRCC, clear cell renal cell carcinoma; PD, progressive disease; PR, partial response.

Table SIV. Proteins that may bind to QPCT in the HuProt microarray.

Name	Name	Name	Name	Name	Name
MAN1B1	NOSIP	NAP1L3	SPRR4	GPR85	PIN4
RUVBL2	SULT1C2	MED1	TSC22D3	ATIC	BC044592.1
TBXAS1	ILF2	ERF	SSBP3	RAB5B	RUVBL1
NME2	CDCA3	ADAMTSL4	SF3B4	ANXA9	C2orf27A
C11orf1	GAPDH	UBE2O	GSTA3	NLN	ZNF876P
MLF2	HNRNPA0	CCT7	TPH1	YPEL2	KDM1A
NAT9	ARF6	STK16	EAF2	SRRT	PXK
CCT3	CASS4	CSNK1G1	GNMT	CPT1A	UBE2D3
PSAT1	DCTN3	CTBP1	C1QTNF5	HTRA4	SPP1
NPM1	TK1	CXCL16	GPT2	ITPKB	IGKC
PRRC2B	AHSA1	SHMT1	KRTAP13-1	NCKIPSD	PRB3
PDCD2L	CKMT1A	NFYC	PIK3CA	BCAT1	DNAJA4
PRDX3	RUNDC3A	SDSL	TKFC	ADSSL1	Lin28a
THAP4	SULT1B1	RPL30	ANXA2	TNIP2	KIAA0895
NABP2	MPST	RPS6KA1	RBMS1	KBTBD6	DCAF8
ANXA3	NFKBIB	PLCD1	VGLL2	HBE1	KIZ
PSMA3	HEMK1	TAF6	GBGT1	ZNF69	KBTBD7
PRMT2	GFM2	GTF2H2	MAGEA9	GAMT	DLG3
SSBP2	DCTPP1	LIMCH1	PNP	NDUFS3	ALOXE3
COL4A3BP	BDH2	SOHLH2	CPNE3	PGP	SYNJ2BP
CAP2	CENPM	DNALI1	BEGAIN	HDAC6	CRYBB3
LSM6	FTL	ACOX1	ABHD16A	UBL7	EZR
FAM53C	PRKAR1A	HSPE1	JMJD6	HRAS	KLHDC9
ZCCHC7	PAPSS1	GSTM5	ALG13	LOC105372481	RRM1
ASS1	PYCR2	FAM49B	GAB1	MED4	PRB1
TRMT12	ASNS	FAM131B	KRTAP4-4	CBL	C5AR2
CKB	FAM131C	PSTPIP1	ADSS	PYCRL	GTF2I
RPL10A	HP	STIP1	TTC27	ZNF207	PPP6R2
NSDHL	RAB34	SPRR1B	CBLN4	SAMHD1	SUCLG2
DOK1	EWSR1	MAPK10	SPRR1A	NANS	IRF2BP2
SULT1A1	ISG20	ABCA8	NRBP2	LOR	ZNF154
ABI1	SULT1A3	YEATS4	DTNBP1	KJ902480.1	KRTAP2-3
METTL1	ANXA11	CLEC10A	F2	DUSP26	KRTAP6-2
ZCCHC10	NDUFS1	ADGRE1	DLG4	TLE4	SH3GLB2
NUP62CL	PDE9A	GALNT3	DCDC2	DNAI2	NAF1
MIF	PRAM1	EEF1G	ATP6V0D1	MGAT4EP	ENO1
HNRNPD	EAF1	HTATIP2	CBY1	MUM1L1	WIPF1
HNRNPC	MAPK8	VWA5B2	NUPL2	RAP1GDS1	METTL16
OLA1	GAD1	SSBP1	RTCA	NAPB	PCCA
ECHDC1	SSBP4	ZNF3	C1orf74	PABPC4	AKAP8
MORN1	TSSK3	RPUSD2	HSCB	BC073937.1	ACSL6
ALDOC	WDR54	PGPEP1	IRF2BP1	RALY	PILRA
DHODH	PTK2	IRS1	KCNAB1	HSP90B1	SMARCE1
ARG1	DNAJB6	FBXO2	ADD1	APIP	UBE2Q1
DDC	EPB41L2	ADAT3	ACSL4	ALKBH3	MBNL3
WBP2NL	IGHG1	KHDRBS3	NAMPT	VWA5A	AVEN
SARS	ALDH4A1	MCCC2	TFAP2D	NME4	EIF4G3
ADSL	PAPSS2	CDK6	SUV420H1	SMARCC1	ACO1
CDC37L1	RUNDC3B	INO80E	BRAT1	DAZ2	ME3
GLUL	MT1X	PRR35	TFAP2A	VGLL3	SHQ1
C11orf16	GSTA1	FAAH2	TFAP2E	DDX6	GMPR
AAR2	GCLM	HNRNPAB	FAM109B	GAS8-AS1	KJ902540
C11orf45	ROBO3	DAB1	ACOT7	SLC25A30	PAK4
CA3	SHCBP1	KJ901215	DTX2	KLC3	IST1
KCNAB2	BC047522.1	ALDH16A1	PKM		