Table S1 Clinical characteristics of male renal cell cancer (RCC)

	Study cohort on TMA*	Tumor recurrence
Follow-up (N=769)	-	202 (26.3%)
Mean/median (months)	61.6 / 48.5	-
ISUP histologic classification (International Society of Urological Pathology) (N=1,249)		
ccRCC (Clear cell renal cell carcinoma)	827 (66.2%)	158
pRCC (Papillary renal cell carcinoma)	209 (16.7%)	21
Oncocytoma	87 (7.0%)	1
chRCC (Chromophobe renal cell carcinoma)	66 (5.3%)	7
cctpRCC (Clear cell tubulo papillary RCC)	18 (1.5%)	-
RCC unclassified	16 (1.4%)	7
Nephroblastoma	10 (0.8%)	-
Xp11 translocation RCC	6 (0.5%)	4
Carcinoma of the collecting ducts of Bellini	4 (0.3%)	3
Multilocular cystic renal cell neoplasm	3 (0.3%)	-
Cystic nephroma	1 (0.1%)	-
Renal medullary carcinoma	1 (0.1%)	1
Neuroendocrine carcinoma	1 (0.1%)	-
ISUP grading (N=1,069)		
1	256 (24.0%)	18
2	401 (37.5%)	52
3	340 (31.8%)	83
4	72 (6.7%)	35
Fuhrman grade (N=1,074)		
1	44 (4.1%)	3
2	599 (55.8%)	64
3	358 (33.3%)	87
4	73 (6.8%)	36
Thoenes grade(N=1,074)		
1	321 (29.9%)	25
2	636 (59.2%)	108
3	117 (10.9%)	57
Tumor stage (N=1,150)		
pT1	691 (60.1%)	57
pT2	162 (14.1%)	36
pT3	281 (24.4%)	96
pT4	16 (1.4%)	10
Lymph node stage (N=206)		
pN0	161 (78.2%)	58
pN1	15 (7.3%)	9
pN2	30 (14.5%)	26
Distant metastasis (N=249)		
pM0	145 (58.2%)	40
pM1	104 (41.8%)	85

* TMA (tissue micro array) contained 1,252 samples; N varied due to missing data.
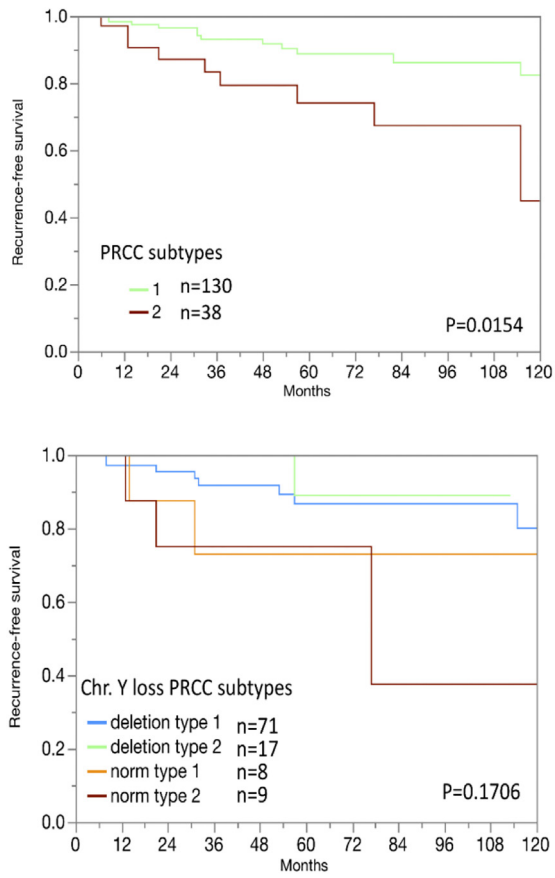
Figure S1 Y-chromosome loss and recurrence-free survival in the subgroup of papillary carcinomas (type 1 n=130, type 2 n=38).

Table S2 Multivariate analysis including tumor grade, tumor stage and Y-loss; renal cell cancer RCC

Parameter		All tumors				Papillary RCC			
		HR	95% CI	P	P (overall)	HR	95% CI	P	P (overall)
Grade (ISUP)	2 *vs.* 1	1.5	0.8-2.8	0.1967	<0.0001	1.9	0.3-35.4	0.5457	0.55
	3 *vs.* 2	1.9	1.3-2.9	0.0014		1.9	0.5-6.9	0.3362	
	4 *vs.* 3	1.8	1.1-2.7	0.0158		0	0-12.3	0.4988	
Stage (pT)	2 *vs.* 1	2.8	1.7-4.5	0.0001	<0.0001	8.2	2.2-33.3	0.0016	0.0067
	3 *vs.* 2	1.9	1.2-3.0	0.0039		1.1	0.3-4.4	0.899	
	4 *vs.* 3	2	0.9-3.8	0.0847		4.1	0.2-36.9	0.2962	
Y-loss	del *vs.* norm	0.9	0.7-1.3	0.6561	0.6561	1.3	0.4-5.3	0.6443	0.6443

Table S3 Age at diagnosis in male renal cell tumors

Subset	Chromosome Y	Analyzable (n)	Mean (years)	SEM*	P
All tumors	Loss	493	64.8	0.5	<0.0001
	Retained	555	59.4	0.6	
ccRCC	Loss	276	65.9	0.6	<0.0001
	Retained	423	60.8	0.5	
pRCC	Loss	131	62.4	1.1	0.1416
	Retained	39	58.9	2.5	
chRCC	Loss	34	58.9	2.2	0.5298
	Retained	23	60.9	2.2	

*Standard error of the mean.

Table S4 Y-chromosome loss and clinical characteristics in papillary renal cell cancer (pRCC-including subgroup type 1 and type 2) with patient subsets defined by similar age

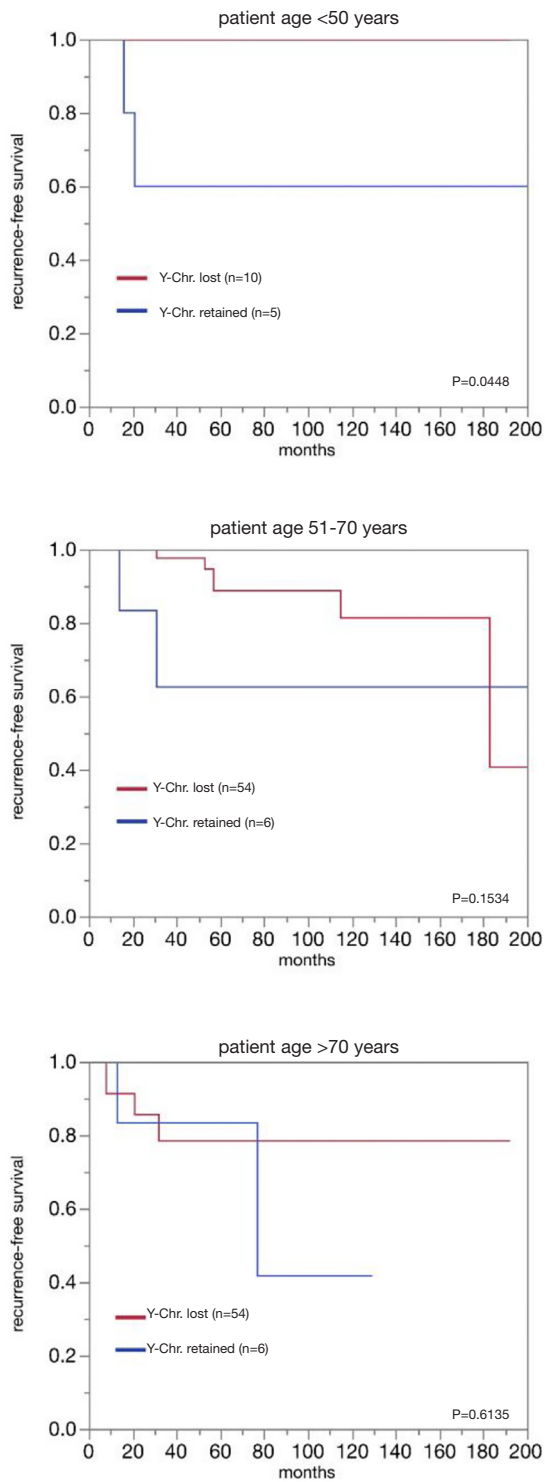|	Age <50 years (n=41)			Age 51–70 years (n=150)			Age >70 years (n=79)		
	pRCC (N)	Y-loss (%)	P	pRCC (N)	Y-loss (%)	P	pRCC (N)	Y-loss (%)	P
ISUP grading									
1	7	85.7	0.0231	10	100	0.0554	9	100	0.0048
2	13	84.6		54	74.1		18	61.1	
3	7	28.6		30	83.3		17	82.4	
4	0			0			2	0	
Fuhrman grade									
1	0		0.0007	2	100	0.6575	0		
2	20	90		63	77.8		25	80	0.0528
3	6	16.7		28	82.1		19	73.7	
4	1	0		1	100		2	0	
Thoenes grade									
1	10	90	0.0271	14	92.9	0.2298	11	90.9	0.1189
2	15	66.7		75	78.7		32	71.8	
3	2	0		5	60		3	33.3	
Tumor stage									
pT1	16	87.5	0.03	70	87.1	0.0128	27	81.5	0.1233
pT2	8	50		18	66.7		11	81.8	
pT3	1	0		6	33.3		7	42.8	
pT4	1	0		1	100		0		
Lymph node stage									
pN0	1	100	0.0507	15	86.7	0.0261	2	50	0.1382
pN1	0			1	100		1	0	
pN2	2	0		2	0		2	100	
Distant metastasis									
pM0	3	100	0.0039	14	85.7	0.0715	7	85.7	0.3124
pM1	3	0		3	33.3		2	50	

Figure S2 Y-chromosome loss and recurrence-free survival in subsets of papillary renal cell cancer patients defined by similar age.

Table S5 Tumor size in male renal cell tumors

Subset	Chromosome Y	Analyzable (n)	Mean (cm)	SEM*	P
All tumors	Loss	482	5.0	0.1	0.0052
	Retained	546	5.5	0.1	
ccRCC	Loss	272	5.0	0.2	0.0075
	Retained	416	5.6	0.1	
pRCC	Loss	127	5.0	0.3	0.0809
	Retained	39	6.2	0.8	
chRCC	Loss	33	6.2	0.5	0.0747
	Retained	23	4.5	0.6	

*Standard error of the mean.