

supplementary table 1:

N O.	gender	age	Symptom/Physical signs	Left/right kidney	size	nuclear grade	TNM (clinical)stage	Lymphatic Metastasis
1	male	73	None	left	4.2cm×4.3cm	G2	T _{1b} N ₀ M ₀ (I)	NO
2	female	74	Hematuria/abdominal palpable mass	right	12cm×8.6cm	G4	T _{3a} N ₁ M ₀ (III)	YES
3	male	67	None	right	7.5cm×5.2cm	G3	T ₂ N ₁ M ₀ (III)	YES
4	male	61	None	left	3.6cm×2.9cm	G1-2	T _{1a} N ₀ M ₀ (I)	NO
5	male	64	None	left	3.0cm×2.8cm	G2	T _{1a} N ₀ M ₀ (I)	NO
6	male	62	None	right	4.9cm×4.5cm	G3	T _{1a} N ₀ M ₀ (I)	NO
7	male	73	None	right	2.7cm×2.4cm	G2	T _{1a} N ₀ M ₀ (I)	NO
8	male	51	Fever	left	10cm×7.2cm	G3	T _{3a} N ₁ M ₀ (III)	YES
9	male	70	None	left	1.6cm×1.6cm	G2	T _{1a} N ₀ M ₀ (I)	NO
10	male	73	None	right	4.0cm×3.5cm	G2	T _{1a} N ₀ M ₀ (I)	NO
11	male	63	None	left	5.6cm×5.0cm	G3	T _{1b} N ₀ M ₀ (I)	NO
12	male	70	Hematuria&Fever	right	9.5cm×9.0cm	G3-4	T ₂ N ₀ M ₁ (IV)	NO
13	male	78	Hematuria/abdominal palpable mass	left	4.5cm×4.6cm	G3	T _{1b} N ₀ M ₀ (I)	NO
14	male	47	None	right	3.6cm×3.1cm	G2	T _{1a} N ₀ M ₀ (I)	NO
15	male	73	None	right	4 cm×3.6cm	G2	T _{1a} N ₁ M ₀ (III)	YES
16	female	52	None	right	3cm×3cm	G2	T _{1a} N ₀ M ₀ (I)	NO
17	male	57	Macroscopic hematuria	left	9.5cm×8.6cm	G2	T ₂ N ₀ M ₁ (IV)	NO
18	female	49	None	left	2.6cm×2.5cm	G1	T _{1a} N ₀ M ₀ (I)	NO
19	male	48	None	right	3.2cm×2.7cm	G1-2	T _{1a} N ₀ M ₀ (I)	NO

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20	female	46	None	right	3.7cm×3.1cm	G1	T _{1a} N ₁ M ₀ (III)	YES
21	male	52	None	left	2.8cm×2.2cm	G1-2	T _{1a} N ₀ M ₀ (I)	NO
22	male	63	Back pain	left	6.7cm×5.1cm	G2	T _{1b} N ₁ M ₀ (III)	YES
23	male	63	Hematuria/abdominal palpable mass	right	9.6cm×7.5cm	G3	T ₂ N ₁ M ₁ (IV)	YES
24	female	59	None	left	2.1cm×1.8cm	G1-2	T _{1a} N ₀ M ₀ (I)	NO
25	male	73	None	right	5.9cm×5.7cm	G3	T _{1a} N ₀ M ₀ (I)	NO
26	male	45	Hematuria	right	4.9cm×4.7cm	G1	T _{1b} N ₁ M ₀ (III)	YES
27	male	65	Back pain	right	9.5cm×7cm	G3	T ₂ N ₁ M ₀ (III)	YES
28	female	47	None	right	5.1cm×5.7cm	G3	T _{1a} N ₀ M ₀ (I)	NO
29	female	74	Macroscopic hematuria	left	11cm×10cm	G2	T ₂ N ₁ M ₀ (III)	YES
30	female	52	None	right	3.0cm×2.7cm	G1	T _{1a} N ₀ M ₀ (I)	NO
31	female	72	None	right	8 cm×7.5cm	G3	T ₂ N ₁ M ₀ (III)	YES
32	male	58	None	right	6.5cm×5.9cm	G3	T _{1b} N ₀ M ₀ (I)	NO
33	female	70	Back pain&Fever	right	7 cm×6.5cm	G4	T ₁ N ₀ M ₁ (IV)	NO
34	male	59	None	left	6.3cm×5.1cm	G1-2	T _{1a} N ₀ M ₀ (I)	NO
35	female	80	None	right	2.5cm×2.0cm	G1-2	T _{1a} N ₀ M ₀ (I)	YES
36	male	42	None	right	4.7cm×4.5cm	G3-4	T _{1a} N ₀ M ₀ (I)	NO
37	female	60	None	right	1.5cm×1.5cm	G1	T _{1a} N ₀ M ₀ (I)	NO
38	female	38	None	left	6.5cm×5.5cm	G1-2	T _{1b} N ₀ M ₁ (IV)	NO
39	female	65	None	right	1.8cm×1.6cm	G1-2	T _{1a} N ₀ M ₀ (I)	NO
40	male	55	None	left	2.7cm×2.3cm	G1-2	T _{1a} N ₀ M ₀ (I)	NO

41	fema le	69	Hematuria/back pain	right	8.5cm×8.2c m	G1-2	T _{2a} N ₁ M ₀ (III)	YES
42	fema le	64	None	left	6.2cm×5cm	G2	T _{1b} N ₁ M ₀ (III)	YES
43	fema le	57	None	right	8.6cm×8cm	G3-4	T _{2a} N ₁ M ₀ (III)	YES
44	male	76	None	left	3.1cm×2.5c m	G1-2	T _{1a} N ₀ M ₀ (I)	NO
45	fema le	58	None	left	1.2cm×1.0c m	G1	T _{1a} N ₀ M ₀ (I)	NO
46	fema le	63	None	left	2.6cm×2.6c m	G3	T _{1a} N ₀ M ₀ (I)	NO
47	fema le	74	None	right	4.6cm×4.5c m	G3	T _{1b} N ₀ M ₀ (I)	NO
48	male	52	None	left	3.2cm×2.7c m	G2	T _{1a} N ₀ M ₀ (I)	NO
49	fema le	73	None	right	4.7cm×4.1c m	G3	T _{1a} N ₀ M ₀ (I)	NO
50	fema le	61	None	right	2.8cm×2.2c m	G1-2	T _{1a} N ₀ M ₀ (I)	NO
51	fema le	78	None	left	1.6cm×1.5c m	G1	T _{1a} N ₀ M ₀ (I)	NO
52	fema le	47	Back pain	right	8.9cm×8.5c m	G3	T _{2a} N ₁ M ₀ (III)	YES
53	fema le	53	None	left	1.8cm×1.6c m	G1	T _{1a} N ₀ M ₀ (I)	NO
54	male	57	None	right	2.5cm×1.8c m	G1-2	T _{1a} N ₀ M ₀ (I)	NO
55	male	42	None	left	2.6cm×2.0 cm	G1-2	T _{1a} N ₀ M ₀ (I)	NO
56	male	48	Cough	right	7.5cm×6.8c m	G3	T _{2a} N ₀ M ₁ (IV)	NO
57	male	56	Back pain	left	8.6cm×8.3c m	G3-4	T _{2a} N ₀ M ₀ (II)	NO
58	fema le	78	None	right	2.1cm×1.8c m	G1	T _{1a} N ₀ M ₀ (I)	NO
59	fema le	64	None	left	3.7cm×2.8 cm	G2	T _{1a} N ₀ M ₀ (I)	NO
60	fema le	64	Macroscopic hematuria	right	4.8cm×4.7c m	G3-4	T _{1b} N ₁ M ₀ (III)	YES
61	fema le	51	None	right	2.8cm×2.5c m	G2	T _{1a} N ₀ M ₀ (I)	NO
62	fema	65	None	left	4.5cm×4.8c	G3-4	T _{1b} N ₁ M ₀ (YES

	le				m		III)	
63	male	49	None	right	2.1cm×2.0c m	G1-2	T _{1a} N ₀ M ₀ (I)	NO
64	male	70	None	right	5.8cm×4.8c m	G3	T _{1b} N ₁ M ₀ (III)	YES

*By AJCC 2017 8th TNM staging edition

The information of last four samples is for microarray analysis.