

Supplementary Table 1.

ID	Age (years)	Sex	Source	Histology	Grade	Sarcomatoid	Rhabdoid	Necrosis	Size (cm)	pT stage	Metastatic after diagnosis	Inoculation route	Tumor growth in PDX	Time for tumor growth
1	49	M	Primary	Clear cell	4	No	No	Yes	2.5	pT1a	No	Ectopic	No	-
2	77	M	Primary	Mit family translocation	4	No	No	No	4.5	pT1b	No	Ectopic	No	-
3	66	M	Primary	Papillary 1	2	No	No	No	3.7	pT1a	No	Ectopic	No	-
4	63	M	Primary	Clear cell	2	No	No	No	1.7	pT1a	No	Ectopic	No	-
5	76	F	Primary	Clear cell	2	No	No	No	3.5	pT1a	No	Ectopic	No	-
6	48	F	Primary	Clear cell	3	No	No	No	4.8	pT1b	No	Ectopic	No	-
7	65	M	Primary	Papillary 1	3	No	No	Yes	3.4	pT1a	No	Ectopic	No	-
8	53	M	Primary	Clear cell	3	No	No	No	1.7	pT1a	No	Ectopic	No	-
9	71	F	Primary	Clear cell	3	No	No	No	2.9	pT1a	No	Ectopic	No	-
10	43	F	Metastasis	Clear cell	3	No	No	Yes	7.2	pT3a	Yes	Ectopic	No	-
11	78	M	Primary	Clear cell	2	No	No	No	3.5	pT3a	No	Ectopic	No	-
12	58	F	Primary	Clear cell	3	No	No	Yes	10.4	pT3a	No	Ectopic	No	-
13	63	F	Primary	Clear cell	3	No	No	No	3.7	pT1b	No	Ectopic	No	-
14	48	F	Primary	Clear cell	4	No	No	No	1.6	pT1a	No	Ectopic	No	-
15	55	M	Primary	Clear cell	3	No	No	Yes	2.6	pT1a	No	Ectopic	No	-
16	59	M	Primary	Papillary 1	2	No	No	No	3.1	pT1a	No	Ectopic	No	-
17	68	M	Primary	Clear cell	2	No	No	No	2.7	pT1a	No	Ectopic	No	-
18	54	M	Primary	Clear cell	2	No	No	No	1.0	pT1a	No	Orthotopic	No	-
19	62	F	Primary	Clear cell	3	No	No	No	6.7	pT3a	Yes	Orthotopic	No	-
20	73	M	Primary	Papillary 1	3	No	No	No	4.7	pT1b	No	Orthotopic	No	-
21	28	M	Primary	Clear cell	2	No	No	No	1.7	pT1a	No	Orthotopic	No	-

22	73	M	Primary	Clear cell	3	No	No	Yes	3.7	pT1a	No	Orthotopic	No	-
23	42	F	Primary	Clear cell	2	No	No	No	2.8	pT1a	No	Orthotopic	No	-
24	59	M	Primary	Clear cell	2	No	No	No	3.0	pT1a	No	Orthotopic	No	-
25	52	M	Primary	Mit family translocation	3	No	No	No	5.5	pT1b	No	Orthotopic	No	-
26	51	M	Primary	Clear cell	3	No	No	No	1.5	pT1a	No	Orthotopic	No	-
27	83	F	Primary	Clear cell	3	No	No	No	5.0	pT1b	No	Orthotopic	YES	6 mo
28	34	F	Primary	Clear cell	3	No	No	No	4.6	pT1b	No	Orthotopic	No	-
29	53	M	Primary	Clear cell	3	No	No	Yes	5.5	pT1b	No	Orthotopic	No	-
30	73	M	Primary	Papillary 1	3	No	No	No	4.7	pT1b	No	Orthotopic	No	-
31	60	M	Primary	Clear cell	2	No	No	No	3.0	pT1a	No	Orthotopic	No	-
32	74	M	Primary	Papillary 2	3	No	No	No	5.0	pT3a N1	Yes	Orthotopic	YES	5 mo
33	53	F	Primary	Clear cell	3	No	No	No	4.0	pT1a	No	Orthotopic	No	-
34	61	M	Primary	Clear cell	1	No	No	No	2.0	pT1a	No	Orthotopic	No	-
35	49	M	Primary	Clear cell	4	Yes	Yes	Yes	13.0	pT3a	Yes	Orthotopic	YES	4 mo
36	61	M	Primary	Clear cell	3	No	No	No	3.5	pT1a	No	Orthotopic	No	-
37	54	M	Primary	Papillary I	1	No	No	Yes	3.7	pT1a	No	Orthotopic	No	-
38	61	F	Primary	Clear cell	1	No	No	No	5.0	pT1b	No	Orthotopic	No	-
39	52	F	Primary	Clear cell	2	No	No	No	7.5	pT2a	No	Orthotopic	No	-
40	73	M	Primary	Papillary I	2	No	No	No	2.5	pT1a	No	Orthotopic	No	-
41	54	F	Primary	Clear cell	3	No	No	No	6.0	pT1b	No	Orthotopic	No	-
42	45	M	Primary	Clear cell	3	No	No	No	3.5	pT1a	No	Orthotopic	No	-
43	72	M	Primary	Clear cell	3	No	No	No	2.3	pT1a	No	Orthotopic	YES	6 mo

44	25	M	Primary	Papillary 2	3	No	No	Yes	7.0	pT1a	No	Orthotopic	No	-
45	46	M	Primary	Clear cell	3	No	No	No	5.0	pT1b	No	Orthotopic	No	-
46	73	M	Primary	Clear cell	2	No	No	No	5.0	pT1b	No	Orthotopic	No	-
47	55	F	Primary	Clear cell	2	No	No	No	9.0	pT2a	No	Orthotopic	No	-
48	53	M	Primary	Clear cell	2	No	No	No	3.2	pT1a	No	Orthotopic	YES	13 mo
49	48	M	Primary	Clear cell	2	No	No	Yes	2.3	pT1a	No	Orthotopic	No	-
50	53	M	Primary	Clear cell	2	No	No	No	2.0	pT1a	No	Orthotopic	YES	-
51	54	M	Primary	Clear cell	4	Yes	Yes	Yes	14.5	pT3a	Yes	Orthotopic	YES	3 mo
52	51	M	Primary	Papillary 1	2	No	No	No	1.3	pT1a	No	Orthotopic	YES	8 mo
53	73	M	Primary	Clear cell	3	No	No	No	8.0	pT3b	No	Orthotopic	YES	5 mo
54	41	F	Primary	Clear cell	2	No	No	No	5.5	pT1b	No	Orthotopic	No	-
55	67	F	Primary	Clear cell	4	Yes	Yes	Yes	9.5	pT3a	Yes	Orthotopic	YES	1 mo
56	62	M	Primary	Clear cell	2	No	No	No	5.5	pT3a	Yes	Orthotopic	No	-
57	38	F	Biopsy	Mit family translocation	4	No	Yes	Yes	12.5	pT3a N1	Yes	Orthotopic	No	-
58	66	M	Primary	Clear cell	4	Yes	Yes	Yes	11.0	pT3a	Yes	Orthotopic	No	-
59	51	M	Primary	Papillary 1	2	No	No	No	2.0	pT1a	No	Orthotopic	YES	10 mo
60	75	M	Primary	Clear cell	4	No	No	Yes	9.0	pT3a	Yes	Orthotopic	No	-
61	51	M	Primary	Clear cell	2	No	No	No	6.0	pT1b	No	Orthotopic	No	-
62	72	M	Primary	Clear cell	4	No	Yes	Yes	8.0	pT1b	No	Orthotopic	No	-
63	53	M	Primary	Clear cell	3	No	No	Yes	6.8	pT1b	No	Orthotopic	YES	6 mo
64	69	M	Primary	Clear cell	4	Yes	Yes	Yes	3.5	pT3a	No	Orthotopic	YES	4 mo
65	70	M	Primary	Clear cell	3	No	No	No	6.0	pT1b	No	Orthotopic	No	-

66	66	M	Primary	Papillary 2	3	No	No	Yes	2.5	pT3a	No	Orthotopic	No	-
67	53	M	Primary	Clear cell	4	Yes	Yes	Yes	6.5	pT4	Yes	Orthotopic	No	-
68	42	F	Primary	Clear cell	4	Yes	Yes	Yes	20.5	pT3b	Yes	Orthotopic	YES	4 mo
69	53	M	Primary	Clear cell	4	No	No	No	4.5	pT1b	No	Orthotopic	No	-
70	41	M	Primary	Clear cell	4	Yes	No	Yes	4.8	pT1b	No	Orthotopic	No	-
71	60	F	Primary	Clear cell	2	No	No	No	5.0	pT1b	No	Orthotopic	YES	5 mo
72	55	M	Primary	Clear cell	2	No	No	No	2.8	pT1a	No	Orthotopic	No	-
73	63	M	Primary	Clear cell	3	No	No	No	5.4	pT3a	No	Orthotopic	No	-
74	39	F	Primary	Clear cell	2	No	No	No	5.0	pT3a	Yes	Orthotopic	No	-
75	42	M	Primary	Clear cell	2	No	No	No	1.3	pT1a	No	Orthotopic	No	-
76	60	F	Primary	Clear cell	3	No	No	Yes	7.7	pT3a	Yes	Orthotopic	No	-
77	57	M	Primary	Clear cell	2	No	No	No	6.0	pT1b	No	Orthotopic	No	-
78	60	F	Primary	Clear cell	3	No	No	No	5.5	pT1b	No	Orthotopic	No	-
79	46	F	Primary	Clear cell	2	No	No	Yes	6.0	pT3b	No	Orthotopic	YES	5 mo
80	51	M	Primary	Clear cell	3	No	No	No	3.5	pT3a	No	Orthotopic	No	-
81	43	M	Primary	Clear cell	3	No	No	No	2.4	pT1a	No	Orthotopic	No	-
82	62	M	Primary	Unclassifiable	4	No	Yes	Yes	8.0	pT3a	No	Orthotopic	YES	7 mo
83	47	F	Primary	Unclassifiable	3	No	No	No	4.5	pT1b	No	Orthotopic	No	-
84	34	F	Primary	Unclassifiable	3	No	No	No	3.2	pT1a	No	Orthotopic	No	-
85	75	M	Primary	Papillary 2	2	No	No	Yes	4.0	pT3a	No	Orthotopic	No	-
86	52	F	Primary	Clear cell	4	Yes	Yes	Yes	10.0	pT3	No	Orthotopic	No	-
87	54	F	Primary	Clear cell	3	No	No	No	5.6	pT3a	No	Orthotopic	YES	3 mo