Table SI. Clinical characteristics of patients with colorectal cancer with quantifications of organoids, spheres and PDXs forming efficiency derived from corresponding primary adenocarcinoma specimens.

Case no.	Age, years	Sex	Tumor location	Pathological TNM stage	Differentiation level	Dukes' sage	Organoid-forming efficiency (‰)	Sphere-forming efficiency (‰)	PDX counterpart
CRC1	58	F	R	T3N2bM1	Low	D	10.33±2.08	5±3.61	2/4
CRC2	43	F	R	T4aN0M0	Moderate	B	34.33±3.51	28±6.08	1/4
CRC3	66	M	R	T3N1M0	Low	C	27.33±8.50	0	0/4
CRC4	80	F	A	T3N0M0	Moderate	B	6.67±3.21	0	0/4
CRC5	68	M	R	T2N0M0	Moderate	A	41.33±4.16	25.67±3.21	1/4
CRC6	45	M	R	T3N0M0	Moderate	B	35.67±14.7	22±3.61	2/4
CRC7	70	M	S	T4aN0M1	Moderate	D	12.67±5.5	-	0/4
CRC8	69	F	R	T2N0M0	High	A	16±3.61	0	0/4
CRC9	58	F	R	T2N0M0	High	A	20.33±0.58	12.3±2.52	0/4
CRC10	53	M	R	T3N0M0	Moderate	B	10±4.36	0	0/4
CRC11	68	M	R	T3N0M0	Moderate	B	20.33±0.58	-	0/4
CRC12	25	M	S	T3N0M0	Moderate	B	19±8.89	0	0/4
CRC13	53	F	A	T3N1M0	Moderate	C	11.67±1.53	0	0/4

CRC14	72	F	A	T4aNxM1	Moderate	D	4.33±3.51	-	0/4
CRC15	60	F	R	T3NxM0	Moderate	B	1.33±0.58	0	0/4
CRC16	59	M	S	T3N0M0	Moderate	B	0	0	0/4
CRC17	46	M	R	T4NxM0	Moderate	B	0	0	--
CRC18	54	M	A	T3NxM0	Moderate	C	0	-	--
CRC19	48	F	A	T3N0M0	Moderate	B	0	0	--
CRC20	65	M	R + S	T3N0M0+ T2N0M0	Moderate	B	0	0	--

Sex: M, male; f, female. Location: R, rectum; A, ascending; S, sigmoid. Tumor specimens (n=20) were surgically obtained from colorectal cancer patients with adenocarcinoma and processed into single cell suspensions. To calculate forming efficiency of organoids or spheres, 1,000 single primary cells were then seeded in 3D culture conditions to generate organoids or spheres *in vitro*; following incubation for 7 days, organoids or spheres with diameters >100 µm were scored to detect forming efficiency (‰). Data are presented as the means ± SD; the symbol - represents the contamination of samples. For the PDX model, 500,000 cells were mixed with 600 µl PBS/Matrigel mixture (1:1 volume). The cells were then subcutaneously injected into the flanks of NOD/SCID mice at dose of 125,000 cells/point, and the results of PDX generating were detected on day 30 post-implantation. To calculate the success rate of PDX generation, 40 mice in total were used, and 2 mice for each case (n=20) were used in generating PDXs. The cases with 1 or >1 xenograft generating were defined as success (n=4). The cases in which mice exhibited humane endpoints post-injection were excluded from the study and are indicated by the symbol -- (n=4). The humane endpoints included: Excessive weight loss, excessive emaciation and self induced trauma. The other cases were defined as failed (n=16). The final success rate of PDX generation is shown in Table I. For PDX establishment, the detailed information of mice excluded due to humane endpoints (assigned according to the corresponding patient number) is: one CRC17-Mouse at day 27, one CRC18-Mouse at day 21, one CRC19-Mouse at day 26, one CRC20-Mouse at day 25 post-implantation. The mice with humane endpoints were then anesthetized and sacrificed according to the AVMA guidelines.