

Supplemental Table S8: Outgrowth rates for established PDX lines

A. Breast PDX (primary tumours only. Tissue fragments engrafted unless otherwise indicated)

Study	Mouse strain	Engraftment site	Donor pathology	Donor treatment	Take rate (%)	N stable lines	Definition of outcome
Fujii 2008	NSG	subcutaneous	100% DC	NR	5	3	>P3
Shirakawa 2001	Balb/c nude, SCID	subcutaneous	High grade invasive DC (100%)	NR	10	1	reached p15
Zhang 2013	SCID/Bg	orthotopic	IDC (89%)	Previous treatment	13.6	23	NR
Bergamaschi 2009	SCID	subcutaneous	IDC (76%); ILC (14%); MUC (10%)	NR	10	3	P1-P2. A diameter of approximately 15 mm.
Charafe-Jauffret 2013*	NSG	orthotopic	IDC (83.2%); ILC (7%); mixed (1.4%); MED (1.4%); other (7%)	CT (76%); IR (80%); HT (55%)	17.5	13	maintained 13 PDXs through serial passages (>P4)
Patsialou 2012	SCID	orthotopic	ILC (13%), IDC (87%)	NR	17	5	>P1
du Manoir 2014	Swiss nude	subcutaneous	NR	NR	15	19	P3
Eyre 2016	NSG	subcutaneous	NR	RT (2%), CT (4%), HT (13%)	9	11	>P2
McAuliffe 2015	Balb/c nude	subcutaneous	NR	Neoadjuvant therapy (50%)	27	13	P3

Engrafted isolated cells. IDC = invasive ductal carcinoma; ILC = invasive lobular carcinoma; DC = ductal carcinoma; mets = metastases; AC = adenocarcinoma; inv= invasive; MUC = mucinous; MED = medullary. Bold = studies with unclear concerns for model validity; grey shade = studies with high risk of concern for model validity.

B. Colon PDX (primary tumours only. Tissue fragments engrafted unless otherwise indicated)

Study	Mouse strain	Engraftment site	Donor pathology	Donor treatment	Take rate (%)	N stable lines	Definition of outcome
Fujii 2008	NSG	subcutaneous	100% AC	NR	35	17	>P3
Chou 2013*	NSG	subrenal / subcutaneous	AC (65%), mAC (23%), AC/NE (5%), NE (5%)	CT (18%)	25	7	>P2
Guan 2016	Balb/c nude	subcutaneous	AC (89%), mAC (11%)		10	9	reached P6
Linnebacher 2010	NOD/SCID	subcutaneous	AC (98%); LNEC (2%)	TN	23	11	>P2
Julien 2012	Swiss nude	subcutaneous	NR	CT (23%)	41	24	late pass
Zhou 2011	Balb/c nude	subcutaneous	AC (100%)	NR	14	3	Reached P10

* isolated cells. AC = adenocarcinoma; mAC=mucinous adenocarcinoma; CaG=carcinoma gingiva; Ca= carcinoid; LNEC = large cell neuroendocrine carcinoma; NE = neuroendocrine ; squamous cell carcinoma =SCC, combined small cell carcinoma =SCC; denosquamous =DS, pleomorphic carcinoma = PC. CT = chemotherapy. TN = treatment naïve. Bold = studies with unclear concerns for model validity.

C. Lung PDX (primary tumours only. Tissue fragments engrafted unless otherwise indicated)

Study	Mouse strain	Engraftment site	Donor pathology	Donor treatment	Take rate (%)	N Stable lines	Definition of outcome
Leong 2014*	NSG	subcutaneous	100% SCLC	NR	83	10	Reached P2
Fujii 2008	NSG	subcutaneous	100% SQCC	NR	50	1	>P3
Stewart 2015	NOD/SCID	subcutaneous	100% AC	CT, EGFR Tyrosine Kinase inhibitors	18	6	P3
Cutz, 2006	NOD/SCID	subrenal	7% squamous metaplasia; 7% carcinoid; 35% SQCC; 14% AC; 21% SCC; 7% carcinosarcoma	21% CT, 14% RT	77	4	>P5
Hao 2015	NOD/SCID	subcutaneous	48% AC, 39% SQCC, 13% NE	NR	9	8	P3
Ma 2016	NOD/SCID	subcutaneous	72.1% AC; 21% SQCC; 2.3% LCC; 4.7% SCC		37	16	>P2
Zhang 2013	SCID, nude	subcutaneous	52% AC; 3% AC/SCC; 45% SCC	Treatment naive	32	10	second generation mice
Zhuang 2017	NCG	subcutaneous	44% AC; 33% SCC; 22% SQCC	NR	22	2	P2
Fichtner 2008	NOD/SCID, NMRI nude	subcutaneous	48% SQCC; 24% AC; 16% carcinoma with pleiomorphic features, 12% LCC/SCC	16% CT or RT	23	25	passagable xenografts
John 2011	NOD/SCID	subcutaneous	48% AC; 46% SQCC; 5% LCC; 1% sarcomatoid	NR	40	63	passaged at least once in vivo

* isolated cells. TF = tissue fragments. Small cell carcinoma (SCC); non-small cell lung cancer (NSCLC); Adenocarcinoma (AC); Large cell carcinoma (LCC); Adenosquamous carcinoma (ASQC); ductal carcinoma (DC); squamous cell carcinoma (SQCC); neuroendocrine (NE). Chemotherapy (CT); radiotherapy (RT). Bold = studies with unclear concerns for model validity; grey shade = studies with high risk of concern for model validity.

D. Prostate PDX (primary tumours only, all tissue fragments)

Study	Mouse strain	Engraftment site	Donor pathology	Take rate (%)	N Stable lines	Definition of outcome
Lin 2013	NOD/SCID	subrenal	100% AC	31	5	Serial transplantation (excludes lymphomas)
Wang 2005	NOD/SCID	subrenal	100% AC	100	1	up to p5
Russell 2015	nude	subcutaneous	66% AC, 33% AC/SCC	10	3	>p2 (includes fibrosarcoma)
Pretlow 1993	nude	subcutaneous	50% G9, 25% G7, 25% G8	20	4	P3
Klein 1997	SCID	subcutaneous	66% T3, 33% T4	33	1	>P4
Yoshikawa 2016	SCID	subcutaneous, subrenal	NR	25	1	Serial transplantation
van Weerden 1996	NMRI nude	subcutaneous	NR	38.5	5	stable lines

van Weerden 1996	BALB/c nude	subcutaneous	NR	0	0	stable lines
Fujii 2008	NSG	subcutaneous	NR	0	0	>P3

AC = Adenocarcinoma; SCC = small cell carcinoma; G = Gleason grade. Bold = studies with unclear concerns for model validity; grey shade = studies with high risk of concern for model validity.