

Supplementary Table 1. Deidentified clinical information and model details.

Sample ID	Tissue ID	Patient ID	Patient age at collection	Source	Primary Diagnosis	Race	smoking history?	BMI at time of tissue collection	radiation therapy (up to time of sample collection)	Patient information				PDX information																
										Systemic treatment (up to time of sample collection)	Systemic treatment (after sample collection)	documented treatment response and duration (if known)	ER status	PR status	HER2 status	Pathological Features	Clinical metastasis	Vital Status	PDX engraftment date	ER status	PR status	HER2 status	Time to grow to 2 cm in NOD-SCID (and other strains)	PAM50 subtype	Estrogen Dependence	Metastasis				
HCI-001	07-04112	YDAPCS	40	1 st breast tumor collected/implanted 2007	IDC; 2007 (Stage IV)	Caucasian	no	nd	Given after sample collection	paclitaxel 2007	liposomal doxorubicin 2007 (1 dose); doxorubicin 2007 (1 dose)	no responses; progressive disease	neg	neg	neg	Poorly differentiated, papillary architecture, extensive necrosis, Nuclei: 3, tubules: 3, mitoses: 3 (41 per 10 HPF)+Grade II	lung	Died 2007	June 2007	neg	neg	neg	NOD-SCID: 2 months	basal-like	n/a	lung				
HCI-002	09-00570	08R2HE	61	1 st breast tumor collected/implanted 2009	IDC; 2009	Caucasian	1/2 pack a day for 40 years	22.8	Given after sample collection	none	one dose zoledronic acid 2009		neg	neg	neg	Poorly differentiated, "medullary type" (solid with lymphocytic infiltrate, pushing border), no tumor necrosis, Nuclei: 3, tubules: 3, mitoses: 3 (25 per 10 HPF)+Grade II	LN, bone, lung	Died 2009	Feb 2009	neg	neg	neg	NOD-SCID: 1 month	basal-like	n/a	LN, lung				
HCI-003	09-03293	38W6YS	52	1 st breast tumor collected/implanted 2009	IDC; 2009	Caucasian	no	20.2	Given after sample collection	none	Adjuvant chemo: A/C 2009; paclitaxel 2009; tamoxifen 2009-2010; anastrozole 2010 to 7; gemcitabine+carboplatin 2011-2012		pos	pos	neg	Invasive ductal carcinoma and high grade micropapillary DCIS; sclerotic stroma with chronic inflammatory reaction, Nuclei: 3, tubules: 2, mitoses: 3 (34 per 10 HPF)+Grade II	LN, liver	Died 2012	May 2009	pos	pos	neg	NOD-SCID: 4 months (1cm)	Her2-enriched	Yes, no growth in OVX mice.	lung, LN				
HCI-004	09-07177	N12K3Y	55	1 st breast tumor collected/implanted 2009	IDC; 2009	Hispanic	no	36.1	Given after sample collection	none	Docetaxel+cyclophosphamide 2009		neg	neg	neg	Invasive ductal carcinoma, poorly diff, with perineural invasion, possible lymphovascular invasion and sclerotic stroma. DCIS is also present. Tubules: 3, Nuclei: 2, Mitoses: 3 (22 per 10 HPF)+Grade III	not detected	alive as of Nov 2010, no evidence of disease	Sept 2009	neg	neg	neg	NOD-SCID: 4 months (up to 1cm) NSG: 5 months (up to 2cm)	basal-like	n/a	not detected				
HCI-005	10-07496	79M7L6	52	Pleural Effusion collected/implanted 2008	mixed multi-centric disease; IDC and DCIS; 2001	Caucasian	no	22.5	Breast 2001, Spine 2005, Right Hip 2007	doxorubicin+cyclophosphamide 2001; tamoxifen 2001-2005; letrozole 2005-2006; zoledronic acid 2005-2010; fulvestrant 2006; capecitabine 2006-2008; exemestane 2008; trastuzumab 2008; vinorelbine 2008	paclitaxel 2008-2009; 1 dose docetaxel 2009; liposomal doxorubicin 2009-2010; gemcitabine; carboplatin	response to paclitaxel+trastuzumab for 10 months	pos	pos	primary tumor was pos and amplified; PE not tested	Cytosin: Highly atypical cells with large irregular nuclei, which look malignant. There is abundant cytoplasm and intracytoplasmic inclusions are seen. Emperipolesis is present.	lung, bone	Died 2011	December 2008	pos	pos	pos, mixed	NOD-SCID: 5 months (1cm)	luminal B	Yes, no growth in OVX mice.	lung, LN, peritoneum				
HCI-006	09-08097			Pleural Effusion collected/implanted 2009						same as above, plus paclitaxel 2008-2009; 1 dose docetaxel 2009	liposomal doxorubicin 2009-2010; gemcitabine; carboplatin																October 2009	NOD-SCID: 6 months	nd	lung, LN, peritoneum
HCI-007	09-08263			Pleural Effusion collected/implanted 2009																							October 2009	NOD-SCID: 4 months	nd	lung, LN, bone
HCI-008	10-07649	24P5K3	87	Pleural Effusion collected/implanted 2009	Inflammatory breast cancer; 2007	Caucasian	no	nd	chest wall, supraclavicular nodes and axilla	5-Fluorouracil (topical); capecitabine	none	neg	neg	pos	Cell block: Single cells and small clusters of cells with large nuclei, prominent nucleoli, but abundant cytoplasm, some vacuolated	skin, lung	Died 2009	January 2009	neg	neg	pos	NOD-SCID: 5 months (5mm) NSG: 7 months to 2cm	luminal B /basal-like	n/a	lung, LN					
HCI-009	09-00642	779812	66	Asctes collected/implanted 2009	Poorly differentiated adenocarcinoma 1985; Stage IV in 1997	Caucasian	no	32.9	breast 1985; hip 2007	cyclophosphamide; methotrexate; 5-fluorouracil 1985; tamoxifen; anastrozole 1987-2008; paclitaxel 2008; zoledronic acid 2008; fulvestrant 2008; patient started alternative treatments specific type not disclosed	none	neg	neg	neg	Nested cells with large round nuclei and abundant cytoplasm; apocrine features; single cell necrosis and high mitotic rate. Poorly differentiated; Tubules: 3, Nuclei: 2, Mitoses: 3 (17 per 10 HPF) = Grade III.	LN, bone, pancreas, peritoneum	Died 2009	February 2009	neg	neg	neg	NOD-SCID: 4 months	luminal B/HER2-enriched	n/a	lung, LN, peritoneum					
HCI-010	09-03211	SUCWJ9	49	Pleural Effusion collected/implanted 2009	IDC; 2007	Caucasian	Former, 1 pack for 35 years	33.2	chest wall, supraclavicular nodes and axilla 2007	cyclophosphamide; doxorubicin; paclitaxel 2007; liposomal doxorubicin 2008; zoledronic acid 2008; Capecitabine 2008-2009; docetaxel 2008	none	neg	neg	neg	n/a	lung	Died 2011	February 2009	neg	borderline	neg	NOD-SCID: 4 months	basal-like	n/a	lung, LN					
HCI-011	09-07163	Y0TUD1	60	Pleural Effusion collected/implanted 2009	IDC; 2007	Hispanic	no	nd	chest wall, supraclavicular nodes and axilla 2008	doxorubicin; cyclophosphamide; paclitaxel 2007-2008; anastrozole 2008-2009; capecitabine 2009	none	pos	pos	neg	Cytosin: Large nuclei with vesicular chromatin and prominent nucleoli. Abundant eosinophilic cytoplasm. Emperipolesis is present. There are also admixed lymphocytes and mesothelial cells.	LN, pleura	lost to follow up Nov 2009	Sept 2009	pos	pos	neg	NOD-SCID: 4 months	luminal B	no, but estrogen responsive	lung, LN					
HCI-012	09-08104	25F730	51	Pleural Effusion collected/implanted 2009	IDC; 2000; recurrences in 2007 and 2008	Caucasian	Former, 1 pack 14 years	22.1	neck and lung 2009	nab-paclitaxel; 5-fluorouracil; cyclophosphamide; aldesleukin/Proleukin; Interleukin 2 (IL2); epirubicin, leucovorin, methotrexate; letrozole 2006-2009; doxorubicin 2009; capecitabine 2009; trastuzumab, vinorelbine 2009; capecitabine and lapatinib 2009	none	neg	neg	neg	primary tumor was pos and amplified; PE not tested	Cytosin: Malignant cells with large nuclei, coarse chromatin, and prominent nucleoli; mitotic figures seen.	LN, pericardium	Died 2009	October 2009	neg	neg	pos, mixed	NOD-SCID: 4 months NSG: 4 months	luminal B /HER2-enriched	n/a	LN, thymus, lung, ovary, kidney, liver				
HCI-013	10-06909	80WNGG	53	Pleural effusion collected & implanted 2010	ILC; 2003	Caucasian	no	26.6	bone other than spine 2007; Spine 2010	leuprolide 2003-2008; letrozole 2003-2007; zoledronic acid 2003-2010; tamoxifen 2007-2008; exemestane 2008; cyclophosphamide; 2008; 5-fluorouracil, methotrexate 2008; capecitabine 2008-2009; paclitaxel 2009; nab-paclitaxel 2009; doxorubicin 2009-2010; carboplatin, gemcitabine 2010	none	pos	pos	neg	Cytosin: Atypical cells with large, round nucleus and high N:C ratio. Also contains some benign mesothelial cells and histiocytes.	pericardium, lung, liver	Died 2010	December 2010	pos	pos	neg	NOD-SCID: 3-6 months	luminal B	Yes, but one subline is resistant (HC-013E1)	lung					
HCI-013-E1																		December 2012, from HCI-013 grown in ov mice	pos	pos	neg	NOD-SCID: 1-2 months	luminal B	no	lung					
HCI-014	10-05287	173MUS	60	Pleural effusion	ILC; 2009	Caucasian	no	26.5	left hip 2009	zoledronic acid 2009-2010; doxorubicin, paclitaxel 2009; gemcitabine, carboplatin 2010	Letrozole 2010; capecitabine 2010		neg	neg	neg	UIQ right breast; infiltrating adenocarcinoma ILC. Grade 2 (score of 7 of 9 with tubular formation 3, nuclear pleomorphism 3, mitotic rate 3), no lymphovascular invasion, and less than 25% ductal carcinoma in situ. The tumor was ER and PR negative. HER2 IHC was 2+ but FISH was non-amplified.	bone	Died 2010	Nov 2017	neg	neg	neg	NSG(fresh): 12 months	Her2-enriched	n/a	LN, lung				

HC-015	11-03571	FENPVB	49	brain metastasis; collected & implanted 2011	IDC; 2009	Caucasian	no	28.1	none	doxorubicin, cyclophosphamide, paclitaxel 2010	none		neg	neg	neg	Invasive ductal carcinoma, Nottingham grade 3 (tubules: 3, nuclei: 3, mitoses: 3) Abundant necrosis	brain	Died 2011	May 2011	neg	neg	neg	NOD,SCID(fresh): 5 months to 1cm; NRG(fresh): 3 months to 1cm	basal-like	n/a	lung
HC-016	13-02065	AG8G17	93	1 st breast tumor collected & implanted 2013	IDC; 2012; BRCA1 germ line familial mutation 41846d4. (this was her 2nd breast cancer)	Caucasian	no	nd	none	right breast ca 53 years prior, tx unknown			neg	neg	neg	Invasive ductal carcinoma, poorly differentiated, Nottingham grade 3 (T: 3, N: 2, M: 3)	not detected	Died 2017, not due to breast cancer	February 2013	neg	neg	neg	NOD,SCID(fresh): 7+ months to 1cm; NRG(fresh): 4 months to 1cm	basal-like	n/a	nd
HC-017	12-13900	G04XZJ	53	1 st biopsy of breast tumor, collected & implanted 2012	IDC; 2012 (Stage IV)	Caucasian	no	25.1	none	none	tamoxifen 2012; capecitabine 2013		pos	pos	neg	Invasive ductal carcinoma, poorly differentiated, Nottingham grade 3 (T: 2, N: 3, M: 3) Some tubules present	brain bone lung	Died 2015	October 2012	pos	pos	neg	NOD,SCID(fresh): 4 months to 1cm	luminal A / luminal B	Yes	not detected
HC-017 bone met	13-03647		53	bone met collected & implanted 2013			no	nd	brain 2012; femur 2013	tamoxifen 2012	capecitabine 2013				pos	pos	neg	nd			March 2013	pos	nd	neg	calcifications stall growth	nd
HC-018	13-02951	560D84	59	brain met collected & implanted 2013	ILC; 2001	Caucasian	no	30.2	none	doxorubicin, cyclophosphamide, paclitaxel 2001; tamoxifen 2001-2003; letrozole 2003-2013; fulvestrant 2013	exemestane 2013; fulvestrant 2013-2105; zometa 2013-2017; tamoxifen 2015-2016; capecitabine 2016; letrozole-palbociclib 2017; letrozole 2017		pos	neg	neg	Invasive lobular carcinoma, with focal signet ring features, moderately differentiated, Nottingham grade 3 (T: 3, N: 2, M: 3)	brain bone ovaries	Died 2017	March 2013	pos	neg	neg	NSG(fresh): 8 months to 1.5cm	HER2-enriched	Yes	lung, brain
HC-019	13-08395	4X95M6	59	1 st breast tumor collected & implanted 2013	IDC; 2013	Hispanic	Former 0.5 pack/day for 20 years	29.5	none	doxorubicin, cyclophosphamide, paclitaxel 2001; anastrozole 2013-2014			neg (1%)	neg (1%)	neg	Invasive ductal carcinoma, with apocrine features, Nottingham grade 3 (T: 3, N: 3, M: 3) poorly differentiated	not detected	Alive as of Feb 2020, no evidence of disease	July 2013	neg	neg	neg	NSG, NRG(fresh): 3 months	basal-like	n/a	lung
HC-023	14-01395	HPQ6WV	54	1 st breast tumor collected in 2014 & cryopreserved before implantation	IDC; 2014	Caucasian	no	21.68	none	none	doxorubicin, cyclophosphamide, paclitaxel 2014-2015	progressive disease	neg	neg	neg	Invasive ductal carcinoma, Grade 3 poorly differentiated, DGS low nuclear grade	brain, lung, bone	Died 2016	July 2016	neg	neg	neg	NSG, NRG(fresh): 2.5 months	basal-like	n/a	lung
HC-024	16-0017348		54	skin metastasis collected & implanted 2014			no	23	none	doxorubicin, cyclophosphamide, paclitaxel 2014-2015	denosumab 2015-2016; olaparib 2015-2016; carboplatin 2016; anti-PD-1 trial 2016; capecitabine 2016				neg	neg	neg	nd			June 2016	neg	neg	neg	NSG(fresh): 8 months	basal-like
HC-025	16-0009218	P31F72	41	skin metastasis collected & implanted 2016	IDC with squamous and metaplastic features; 2013	Caucasian	no	22.9	breast 2013	doxorubicin, cyclophosphamide, paclitaxel 2013; gemcitabine, carboplatin 2015; capecitabine 2015; taxol 2015-2016	navelbine 2016; liposomal doxorubicin 2016 (1 dose); anti-PD-1 trial 2016		neg	neg	neg	Invasive carcinoma with squamous differentiation (metaplastic), Grade 3 poorly differentiated	LN, neck and chest	Died 2016	March 2016	neg	neg	neg	NSG(fresh): 4 months	basal-like	n/a	lung
HC-026	16-0044745	1L3617	55	spine metastasis collected & implanted 2016	IDC; 2013	not disclosed	no	29.7	breast 2013	cyclophosphamide, paclitaxel 2014; tamoxifen 2014-2016	letrozole 2016; denosumab 2016; palbociclib 2016		pos	pos(3%)	neg	Invasive ductal carcinoma, Grade 3 poorly differentiated	bone, liver	Died 2018	October 2016	pos	neg	neg	difficult to grow from frozen	luminal B	Yes	lung
HC-027	16-0040247	9G1GA1	45	1 st breast tumor collected & implanted 2016	IDC; 2016	Caucasian	no	19.7	none	nab-paclitaxel, doxorubicin, cyclophosphamide 2016	carboplatin 2016	progressive disease on neoadjuvant chemo	neg	neg	neg	Invasive ductal carcinoma, Grade 3 poorly differentiated	LN, bone, liver	Died 2016	Sept 2016	neg	neg	neg	NSG(fresh): 3.5 months	basal-like	n/a	LN
HC-028	16-0045085	3N3YD2	31	pleural effusion collected 2016 & cryopreserved before implantation	IDC; 2010	Caucasian	Former, 1 pack per day for 10 years	nd	breast 2011	doxorubicin, cyclophosphamide, paclitaxel 2011; tamoxifen 2011; metformin trial 2014-2015; letrozole 2015; zoledronic acid 2015 (1 dose); pertuzumab, trastuzumab, trastuzumab 2015; everolimus and exemestane 2015; capecitabine, lapatinib 2015; docetaxel 2016; pertuzumab, trastuzumab 2016; ado-trastuzumab emtansine 2016; methotrexate 2016; lapatinib 2016	thiotepa intrathecal 2017; liposomal cytarabine intrathecal 2017		neg	neg	neg	IDC, micropapillary type with apocrine features, Nottingham grade 2 (T: 2, N: 3, M: 1)	bone, lung, ovary, liver, brain	Died 2017	Nov 2016	neg	neg	neg	NSG, NRG(fresh): 5 months	Her2-enriched		LN, lung, liver
HC-028LV																				May 2018, from HC-028 liver met in mouse	neg	neg	neg	NSG(fresh): 4 months	nd	n/a
HC-030	10-2067	Q1KXWK	57	breast tumor recurrence collected in 2010 & cryopreserved before implantation	Poorly differentiated carcinoma; 1999	Caucasian	0.5 pack/day for 48 yrs	nd	breast 1999	chemotherapy, unknown type 1999-2002	refused		neg	neg	neg	IDC. Too small to grade accurately, but at least grade 2 (T: 3, N: 3, M: x)	not detected	Died 2014 from renal disease	May 2016	neg	neg	neg	NSG, NRG(fresh): 4 months to 1cm	basal-like	n/a	lung
HC-031	16-0015453	03TWT4	55	pleural effusion collected 2016 & cryopreserved before implantation	Invasive lobular carcinoma with LCIS; 2009	Caucasian	no	nd	none	doxorubicin, cyclophosphamide 2009; bisphosphonate adjuvant trial 2009; tamoxifen, zoledronic acid 2009-2011; anastrozole 2011-2013; exemestane, denosumab 2013; PALOMA-3 trial 2014; capecitabine, denosumab 2015	progression on PALOMA-3 trial		neg	neg	neg	2009 path showed invasive lobular carcinoma post mastectomy ER+ (95%), PR+ (100%), Her2- (-). Final path showed 2.5 x 3.2 x 2.1 cm, grade 2, invasive lobular carcinoma with LCIS present. Uninvolved margins. Stage IIA (pT2, N0) breast cancer.	bone, liver, ovary, fallopian tubes, pleural effusion, brain	Died 2016	May 2017	neg	neg	neg	NSG, NRG(fresh): 6 months	nd	n/a	ovary, lung, brain
HC-031OV																				Nov 2017, from HC-031 ovary met in mouse	neg	neg	neg	NSG(fresh): 9 months	nd	n/a

HCI-032	17-0020597	SE3V4G	53	breast tumor recurrence collected & implanted 2017	IDC; 2015	Caucasian	Former	38.6	none	doctetaxel, trastuzumab, pertuzumab 2015-2016; tamoxifen 2016	goserelin, anastrozole, trastuzumab, pertuzumab 2017; ado-trastuzumab 2018			pos	pos	pos	Invasive ductal carcinoma with apocrine and micropapillary features. DCIS is also present cribriform type. DCIS is grade 3 and DCIS is high grade. The tumor invades the skin with ulceration. W/ to present and extensive. The mastectomy had the profile ER 60%, PR neg and HER2 pos (3+).	lung, brain, pelvis	Died 2019	Aug 2017	pos	pos	pos	NSG, NRG(fresh); 2 months to 5cm	nd	no	nd
HCI-032E1																			June 2019, from HCI-032 grown in OVX mice		pos	pos	pos	NSG(fresh); 7 months	nd	no	nd
HCI-033	17-0021202		60	lung met		Caucasian	no	29.8	breast; 2005-2006	tamoxifen 2006; dose dense doxorubicin, cyclophosphamide 2015-2016; taxol low dose 2016; carboplatin 2016; capecitabine 2016				neg	neg	neg	2017: new lung mass. Thoracotomy and resection: 4.5 cm grade 3 adenocarcinoma c/w breast cancer, ER/PR/HER2 negative.			Sept 2017	neg	neg	neg	NSG(fresh)- 5 months, NRG(fresh)- 4 months	nd	n/a	nd
HCI-034	16-0015034	YPOWRL	59	breast tumor recurrence collected in 2016 & cryopreserved before implantation	DCIS; 2005; breast recurrence 2015; lung mets 2017	Caucasian	no	30.5	breast; 2005-2006	tamoxifen 2006; dose dense doxorubicin, cyclophosphamide 2015-2016; taxol low dose 2016; carboplatin 2016	capecitabine 2016 (not tolerated)			neg	neg	neg	2006 Left LUQ 3cm Grade 2 ER+, PR+, HER2-. 2014 Left IOTR DCIS. 2015 Left UOQ 5.1cm Grade 3 ER-, PR-, HER2-. 2016 mastectomy: residual metaplastic (squamous differentiation). 3cm Grade 2 ER+, PR+, HER2-.	lung, chest wall	Died 2018	Nov 2017	neg	neg	neg	NSG(fresh)- 6 months, NRG(fresh)- 4 months	nd	n/a	nd
HCI-036	18-0001887	WS0XG6	61	Phyllodes tumor, 2nd recurrence collected & implanted 2018	cystosarcoma phyllodes tumor; 2012	Caucasian	yes	20.1	breast	none	none; refused			neg	neg	neg	2012 left breast lump, large solid and cystic mass in the upper inner quadrant measuring ~6 cm. Biopsy proven phyllodes tumor; declined surgery; elected to try alternative treatment. 2017 resection of large malignant phyllodes tumor, close but free margins. 2018 recurrence, resect 8 cm malignant phyllodes tumor.	chest wall	Alive as of Sept 2019	Jan 2018	neg	neg	neg	NSG, NRG(fresh); 3 months	nd	n/a	nd
HCI-037	17-0010307a		62	left breast tumor recurrence collected & implanted 2017				24.3	none	tamoxifen 2009-2012; taxol/carboplatin 2016	capecitabine 2017-2018; gabapentin 2018	progressive disease on taxol/carboplatin		neg	neg	neg (1+)				May 2017	neg	neg	neg	nd	nd	n/a	LN
HCI-038	18-0009178	ABCGJ3	63	Femur met collected & implanted 2018	right DCIS; 2005; left IDC; 2016	not disclosed	no	25.7	breast	tamoxifen 2009-2012; taxol/carboplatin 2016; capecitabine 2017-2018; gabapentin 2018	none			neg	neg	neg	2005 Right 2mm Grade 2 Invasive Ductal Carcinoma ER-, PR-, HER2+ (3+). 2016 Left Grade 2 ER-, PR-, HER2+ (3+). Repeat pathology shows HER2- (1+). 2017 left mastectomy 5.5cm tumor Grade 3, repeat HER2- ratio 1.8 copy number 3.2. 2018 Diffuse osseous metastases left intertrochanteric femur. New lesions along her left mastectomy incision biopsy ER/PR/HER2-. 2018 germline CHEK2 VUS: p.G34G5	hip, femur, chest wall, bone	Died 2018	May 2018	neg	neg	neg (1+)	NSG, NRG(fresh); 2 months	nd	n/a	LN
HCI-039	18-0009522		63	pleural effusion collected 2018 & cryopreserved before implantation				25.7	breast	tamoxifen 2009-2012; taxol/carboplatin 2016; capecitabine 2017-2018; gabapentin 2018	none			neg	neg	neg				May 2018	neg	neg	neg	NSG, NRG(fresh); 2 months	nd	n/a	LN
HCI-040	17-0027801	4IX4H1	73	Femur met collected & implanted 2017	IDC; 2006	Caucasian	no	32.3	unknown	tamoxifen 2007; anastrozole 2007; letrozole 2015; tamoxifen 2017; fulvestrant 2017	none	progression on tamoxifen		pos	pos	pos	2006 left T2N0M0 grade 3 ductal cancer, ER+, HER2+ Lumpectomy. 2010 IOTR poorly differentiated invasive ductal carcinoma, ER+ (99%), PR+ (60%), and HER2 positive (3+). 2015 pulmonary NODules and hilar NODes. Biopsy c/w metastatic breast cancer, ER 90% PR 80%, HER2 3+	lung, femur	Died 2017	Nov 2017	pos	pos	pos	NSG, NRG(fresh); 4 months	partial	nd	nd
HCI-040E1																			Sept 2019, from HCI-040 grown in OVX mice		pos	pos	pos	NSG(fresh); 6.5 months	nd	no	nd
HCI-041	18-0012940	PGM0L2	50	1st breast tumor pre-bx biopsy collected & implanted 2018	IDC (Metaplastic); 2018	Caucasian	yes	25	none	none	dose dense doxorubicin, cyclophosphamide 2018; carboplatin, taxol 2018; pembrolizumab 2018	progression on neo-adjuvant doxorubicin, cyclophosphamide, carboplatin, taxol		neg	neg	neg	2018 right ductal carcinoma in situ, G3 poorly differentiated (high grade with extensive necrosis)	lung	Died 2018	Feb 2018	neg	neg	neg	NOD/SCID(fresh); 1.5 months	basal-like	n/a	nd

HC-042	17-0026456	1N7W87	42	1 st breast tumor pre-tx biopsy collected & implanted 2017	IDC, 2017	Caucasian	no	36	none	none	neoadjuvant docetaxel, carboplatin, trastuzumab, pertuzumab 2017-2018	pathological complete response to neoadjuvant therapy	neg	pos (1%)	pos	poorly differentiated (high grade); TNM0M0	not detected	Alive as of June 2020	Nov 2017	neg	neg	neg	NSG(fresh): 2.5 months	nd	n/a	nd
HC-043	18-0006649	GMBRW3	43	1 st breast tumor pre-tx biopsy collected & implanted 2018	IDC, 2018	Caucasian	no	50.5	none	none	doxorubicin, cyclophosphamide, taxol 2018; apixaban 2019; capecitabine 2019; atezolizumab + carbocictrab 2019; enoxaparin 2019; embelin 2019-2020; carboplatin 2020	pathological complete response to neoadjuvant therapy; liver recurrence 2019; bone progression 2020	neg	neg	neg	IDC of right breast, G3 poorly differentiated (high grade); Total Nottingham score: grade III (8-9 points); tubule formation minimal less than 10% (score=3); nuclear pleomorphism moderate increase in size (score=2); greater than 20 mitoses per 10 HPF (score=3)	Liver, bone	Died 2020	March 2018	neg	neg	neg	NSG(fresh): 1 month	basal-like	n/a	nd
HC-044	18-0016224	H1XHG6	43	brain met collected & implanted 2018	IDC, 2014 (Stage IV with bone mets only)	Caucasian	no	20.7	hip 2014; skull and mandible 2015; sacrum and 2 2018	denosumab 2014; add tamoxifen 2015; taxol 2015; exemestane 2015-2017; tamoxifen 2017; letrozole, palbociclib 2017-2018; doxorubicin 2018	capecitabine 2018	pos	pos	neg	Nottingham grade 3 out of 3 (Tubules: 3; Nuclei: 4; Mitoses: 2); no DCIS is present. Lymphovascular invasion is not identified. E-cadherin is positive in the tumor cells. ER 50%, PR 2%, HER2 neg (1+)	Pleura, bone, skull	Died Dec 2018	July 2018	pos	pos	neg	NSG(fresh): 5 months	nd	partial	nd	
HC-044E1																		June 2019, from HC-044 grown in OVX mice	pos	pos	neg	NSG(fresh): 5 months	nd	no	brain, liver	
HC-045	18-0022183	DBAYF1	36	1 st breast tumor pre-tx biopsy collected & implanted 2018	IDC with DCIS, 2018	Caucasian	no	nd	none	none	dose dense (4d) doxorubicin, cyclophosphamide, dd taxol 2018; then dd taxol + carboplatin 2018-2019; capecitabine 2019; vinorelbine, trastuzumab, pertuzumab 2019; fam-trastuzumab deruxetan-nxii 2020	residual multifocal IDC, grade 3, dermis involved after neoadjuvant AC-Tx; progression to chest wall and lungs	neg	neg	neg	IDC (primary) and DCIS (secondary) of right breast, G3 poorly differentiated (high grade); total Nottingham score: Grade III (8-9 points), minimal less than 10% tubular formation, greater than 20 mitosis per 10 HPF (score=3); ER -, PR - HER 2-	LN, chest wall, lung	Alive as of June 2020	Oct 2018	neg	neg	neg	NOD/SCID(fresh): 5 months	nd	n/a	nd
HC-046	18-0014931	7TG17K	69	1 st breast tumor pre-tx biopsy collected & implanted 2018	DCIS; 2001, IDC with DCIS, 2018	Caucasian	no	23.53	none	none	dose dense doxorubicin, cyclophosphamide 2018 (discontinued for taxol); 08/18: change to cyclophosphamide; methotrexate; 5-fluorouracil	Near pathological complete response to neoadjuvant CMF tx	neg	neg	neg (2+)	IDC (primary) G3 poorly differentiated (high grade); total Nottingham score: Grade III (8-9 points), minimal less than 10% tubular formation, 10 to 20 mitosis per 10 HPF	none known	Alive as of June 2020	July 2018	neg	neg	neg	NOD/SCID(fresh): 6 months	nd	n/a	nd
HC-047	17-0017498	ZUVVHK	82	malignant ascites collected & implanted 2017	IDC, 2005	Caucasian	no	25.46	breast 2005, 2010	none	Anastrozole 2010-2102; zoledronic acid 2010-7; exemestane 2012-2013; tamoxifen 2013; letrozole 2013-2014; tamoxifen 2014-2015; fulvestrant 2015; megestrol 2015-2016; capecitabine 2016; taxol 2016; trastuzumab 2016; s00-trastuzumab emtansine 2016-2017; trastuzumab, taxol 2017; lapatinib, capecitabine 2017	none	pos (98%)	pos (80%)	neg	June 2017: Peritoneal fluid: malignant cells present derived from adenocarcinoma. ER 5%, PR 0%, HER2 3+	LN, liver, bone, peritoneum, pleura	Died 2017	Dec 2018	neg	neg	neg	NRG(fresh): 4 months	nd	n/a	nd

HC-048	19-0009326	Z3257U	69	1 st breast tumor pre-tx biopsy collected & implanted 2019	IDC; 2019	Caucasian	no	28.54	none	none	dose dense doxorubicin, cyclophosphamide, taxol 2019	Complete pathological response to neoadjuvant AC T	ER 10%	neg	neg	IDC (primary) G3 poorly differentiated (high grade); total Nottingham score: Grade III (8-9 points), minimal less than 10% tubular formation; nuclear pleomorphism: marked variation in size, nucleoli, chromatin clumping, etc (score=3); greater than 20 mitoses per 10 HPF (score=3)	brain	Alive as of Aug 2020	April 2019	neg	neg	neg	NOD/SCD(fresh): 2 months	nd	n/a	nd
HC-049	19-0002158	F0A118	33	1 st breast tumor collected in 2018 & cryopreserved before implantation	IDC; 2018	Caucasian	Yes	34.26	none	none	none		pos	pos	neg	IDC (primary) G3 poorly differentiated (high grade); total Nottingham score: Grade III (8-9 points); minimal less than 10% tubular formation; nuclear pleomorphism: marked variation in size, nucleoli, chromatin clumping, etc (score=3); greater than 20 mitoses per 10 HPF (score=3)	none known	Alive as of April 2019	Sept 2019	pos	pos	neg	NSG(fresh): 5 months	nd	yes	nd
HC-050	19-0002056	6YQ761	55	Lymph node recurrence collected & implanted in 2019	IDC; 2017	Caucasian	no	32.13	unknown	dose dense doxorubicin, paclitaxel 2017; letrozole 2018; capecitabine 2018	low dose doxorubicin 2019; eribulin 2019	Residual primary tumor after neoadjuvant chemo. This LN metastasis recurred while on capecitabine.	pos (5%)	neg	neg	IDC (papillary) Primary histologic grade: G3 (poorly differentiated - high grade); Total Nottingham Score: Grade III (8-9 points); Nuclear Pleomorphism: score = 3; Tubule formation: score = 3; Mitotic count: score = 2 (10-20 mitoses per 10 HPF)	Axillary lymph node	Died 2019	Jan 2019	neg	neg	neg	NOD/SCD, NRG(fresh): 3 months	nd	n/a	nd
HC-051	19-0023653	GMRW3	45	malignant ascites collected & implanted 2019	IDC; 2018	Caucasian	no	50	breast 2018	doxorubicin, cyclophosphamide, taxol 2018; apixaban 2019	capecitabine 2019; atezolizumab + cabozantinib 2019	pathological complete response to neoadjuvant therapy; liver recurrence 2019; bone progression 2020	neg	neg	neg	IDC of right breast, G3 poorly differentiated (high grade); Total Nottingham score: grade III (8-9 points); tubule formation: minimal less than 10% (score=3); nuclear pleomorphism: moderate increase in size (score=2); greater than 20 mitoses per 10 HPF (score=3)	liver, bone	Died 2020	Sept 2019	neg	neg	neg	NOD/SCD(fresh): 2 months	nd	n/a	nd
HC-052	19-0014727	M9U9G	38	1 st breast tumor pre-tx biopsy collected & implanted 2019	IDC; 2019	Caucasian	no	23.92	none	none	dose dense doxorubicin, cyclophosphamide, paclitaxel 2019	residual disease after neoadjuvant tx	neg	neg	neg	Stage II, T3N1M0; IDC with papillary features, Nottingham grade 3 (tubules: 3, nuclei: 2, mitoses: 3); associated with abundant necrosis, DCIS not identified, lymphovascular invasion is not identified. Right axillary lymph node negative for tumor.	LN	Alive as of June 2020	June 2019	neg	neg	neg	NOD/SCD(fresh): 5 months	nd	n/a	nd
HC-053	19-0014294	3HW5TM	53	1 st breast tumor pre-tx biopsy collected & implanted 2019	IDC; 2019	American Indian or Alaska Native	nd	nd	none	none	dose dense doxorubicin, paclitaxel 2019	residual disease after neoadjuvant tx	neg	neg	neg	invasive ductal carcinoma, high grade DCIS solid and comedo	none known	Alive as of June 2020	June 2019	neg	neg	neg	NOD/SCD(fresh): 4.5 months	nd	n/a	nd
HC-054	19-0028022		53	Breast tumor residual disease collected & implanted 2019			nd	nd	none	dose dense doxorubicin, paclitaxel 2019	carboplatin 2019-2020; capecitabine 2020		residual disease after neoadjuvant tx	neg	neg	neg	multifocal invasive ductal carcinoma grade 3, focus #1: 2.6 cm, #2: 1.1 cm, #3: 0.2 cm, minimal treatment effect, cellularity 80%	none known	Alive as of June 2020	Nov 2019	neg	neg	neg	NOD/SCD(fresh): 4.5 months	nd	n/a

Abbreviations:

HPF, high power field; ID, identifier; IDC, infiltrating ductal carcinoma; IHC, immunohistochemistry; ILC, infiltrating lobular carcinoma; LN, lymph node; n/a, not applicable; nd, not determined; NOD/SCD, non-obese/diabetic severe combined immunodeficient mice; NSG, NOD.SID/IL2gamma-/- mice; PE, pleural effusion; tx, treatment; XRT, X-ray therapy