Patient Derived Xenografts (PDXs)

LIDE has established 1500+ high quality PDX models in more than 40 cancer types. Pathological analysis will be done using H&E staining from FFPE reserved during each passage of individual PDX models by certified pathologist under the U.S. CAP standard in Shanghai LIWEN, a certified clinical testing lab and subside of Shanghai LIDE, while WES and RNAseq will be done in most of the established models following the highest international standards of PDX Consortium. Each passage of the PDX models were re-evaluated by board certified pathologist at CAP certified clinical testing lab (LIWEN).

ACC	Fallopian Tube Cancer	Lymphoma	Periampullary Cancer
Bladder Cancer	Gallbladder cancer	Mucinous Cancer	Prostate Cancer
Breast Cancer	Gastric Cancer	MGST	Rectal Cancer
Cervical Cancer	GIST	Malignant Mesothelioma	Renal Cancer
Cholangiocarcinoma	Glioblastoma	Melanoma	Sarcomas
Colon Cancer	HCC	Neuroendocrine cancer	SCPF
Pleuroperitoneal fluids	Hepatoblastoma	Osteosarcoma	SPPF
Duodenal Cancer	Head and Neck Cancer	Ovarian Cancer	Hematoma
Endometrial Cancer	Lung Cancer	Paget's Disease	Pancreatic Cancer
Esophageal Cancer			

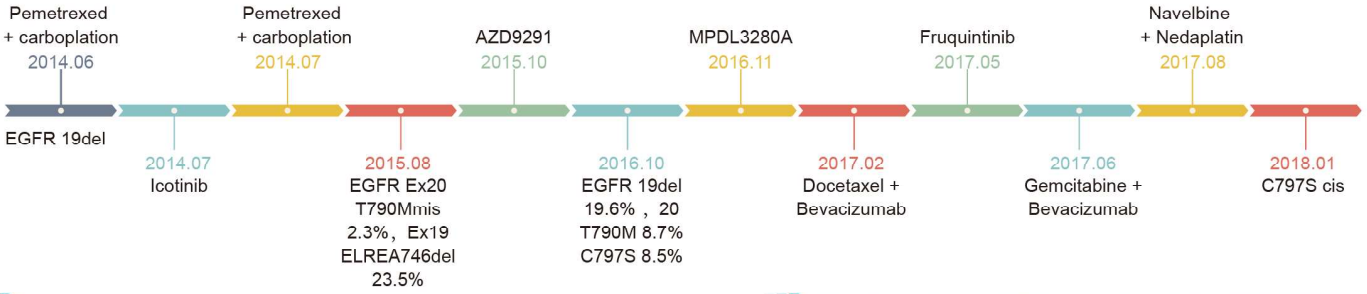
Special models with drug resistance/genetic alteration

Upon established 1500+ PDX models, LIDE has validated 200+ special drug resistant and/or genetic altered PDX models, including EGFR single/double/triple mutations in lung cancer, triple negative breast cancer, and models with KRAS mutation, HER2 amplification, or ALK/ROS1/NTRK fusion, etc .

Cancer Type	Resistant to	Specific Genetic Alteration
NSCLC	Erlotinib Osimertinib Crizotinib Brigatinib anti PD-L1 ab	EGFR: exon19del/T790M/L858R/exon20ins/ C797S ALK: EML4-ALK/L1196M cMET: ampli./exon14ski/CD47-MET RET: KIF5B-RET ROS1: CD74-ROS1/G2032R KRAS: G12C PTEN: Y68X PI3K: E726K
Breast Cancer	CDK4/6i	TNBC/ER+/HER2+
Multiple Myeloma	Bortezomib	CD47+/CD38+
Cholangiocarcinoma	Paclitaxel	KRAS: G12C FGFR: BICC1-FGFR2
Colorectal Cancer	Avastin	KRAS: G12C BRAF: V600E
Hematological Malignancy	Rituximab Imatinib	/
Gastric Cancer	Herceptin	HER2: ampli KRAS: G12C
Brain Cancer	/	EGFR: VIII cMET: PTPRZ1-MET
Melanoma	anti PD-1 ab	BRAF: V600E
Ovarian Cancer	Platinum PARPi	/

Case show: EGFR triple mutant model (#LD1-0025-200717)

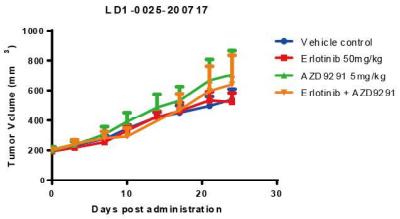
Clinical treatment history: the NSCLC patient was confirmed with EGFR exon19del, and subjected to icotinib/erlotinib treatment. EGFR exon20T790M was detected then, and AZD9291 was applied for targeted therapy accordingly. In the late 2016, the patient was confirmed with EGFR exon20C797S, in which PDX model #LD1-0025-200717 was established.



Genetic mutation: Established PDX at the different passages reserve consistent gene mutation as the parental clinical tumor sample.

Gene_symbol	NGS (Allele_freq%)			PDX at P5 (Sanger sequencing)
	Patient without AZD9291	Patient post-AZD9291 treatment	PDX at P1	
Exon19del	23.5	19.6	45.9	del 746_750
Exon20 T790M	2.3	8.7	17.4	Yes
Exon20 C797S	-	8.5	16.7	Yes

Standard-of-care (SOC) validation: #LD1-0025-200717 at P2 was inoculated subcutaneously into the right flank of female Balb/c nude mice. Erlotinib and/or AZD9291 at 50 mg/kg or 5 mg/kg, respectively, p.o., QD were dosed 24 days after tumor implantation for a consecutive 18 days.



Application of PDX models in drug R&D

PDX models can be used for ① in vitro TCA compounds screening; ② potential indication screening via MiniPDX assay; ③ in vivo efficacy study; and ④ immunotherapy evaluation on huPBMC reconstituted models.