

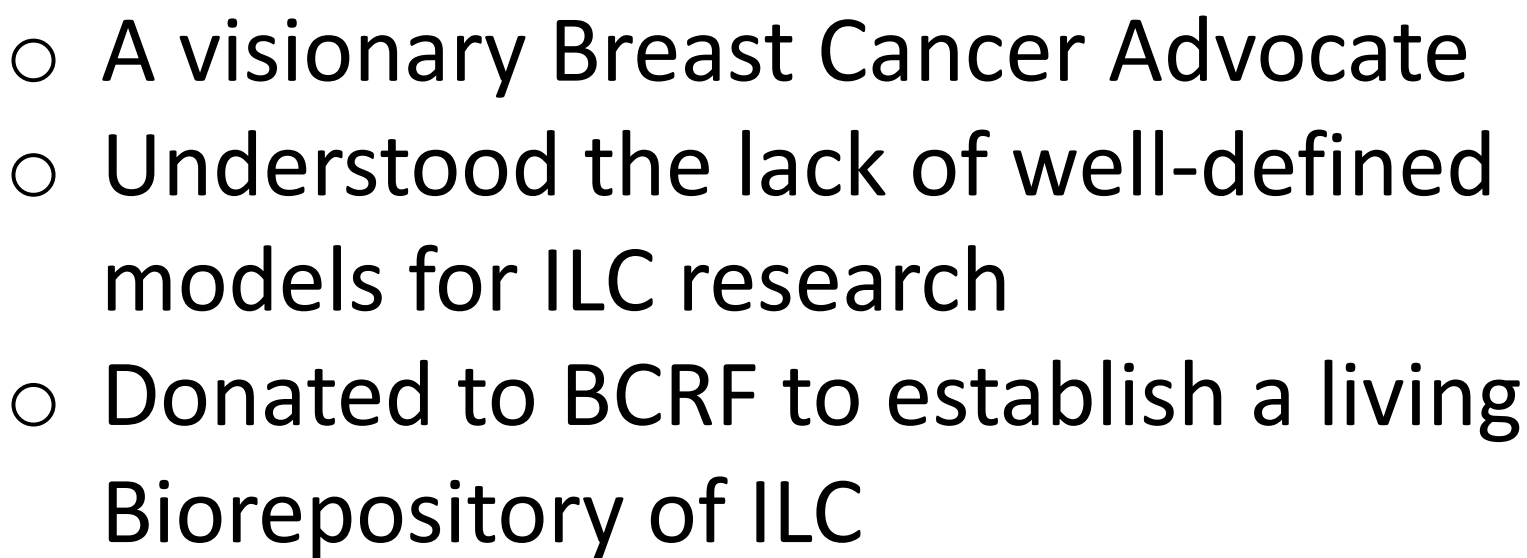
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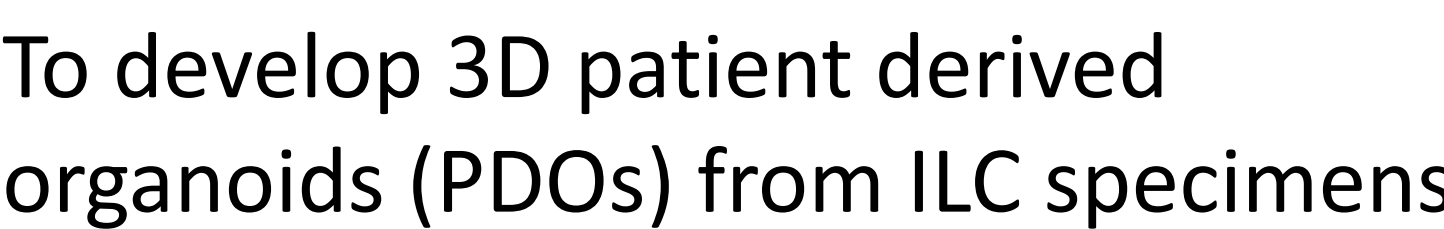
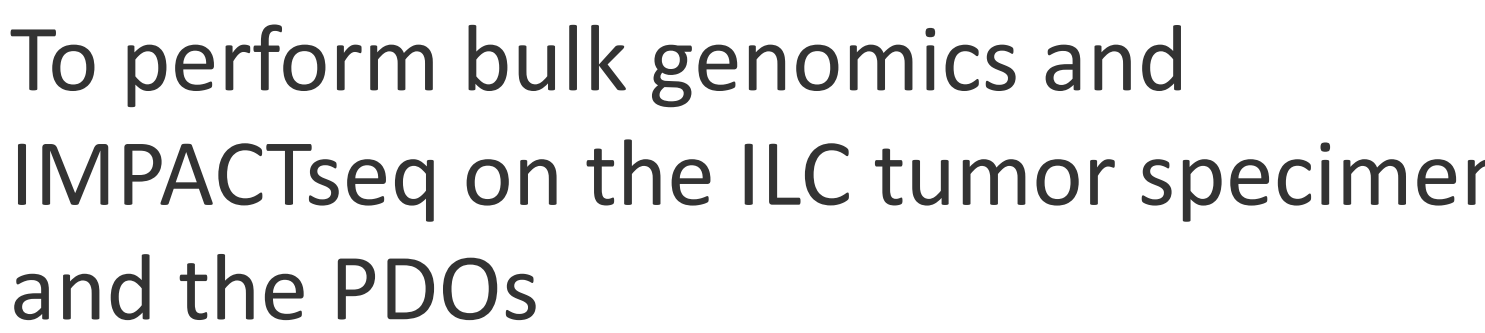
Lay Abstract

Invasive Lobular Carcinoma (ILC) research has been limited by the lack of well-characterized ILC organoid models. To bridge this gap, we aim to create a biobank of ILC organoids generated from ILC tumor specimens, providing a valuable resource for researchers. This project, supported by a donation from the late Leigh Pate to the Breast Cancer Research Foundation (BCRF), involves collaboration between UPMC Hillman Cancer Center, The Institute of Precision Medicine, and Memorial Sloan Kettering Cancer Center. We have successfully established 9 ILC organoid models and are conducting comprehensive genomic analyses to validate and characterize them. This initiative honors Leigh Pate's legacy and aims to accelerate ILC research by making these models and their data available to the research community. Researchers will have access to these resources to make informed decisions in their studies, ultimately advancing ILC research and developing targeted therapies.

Our Goal

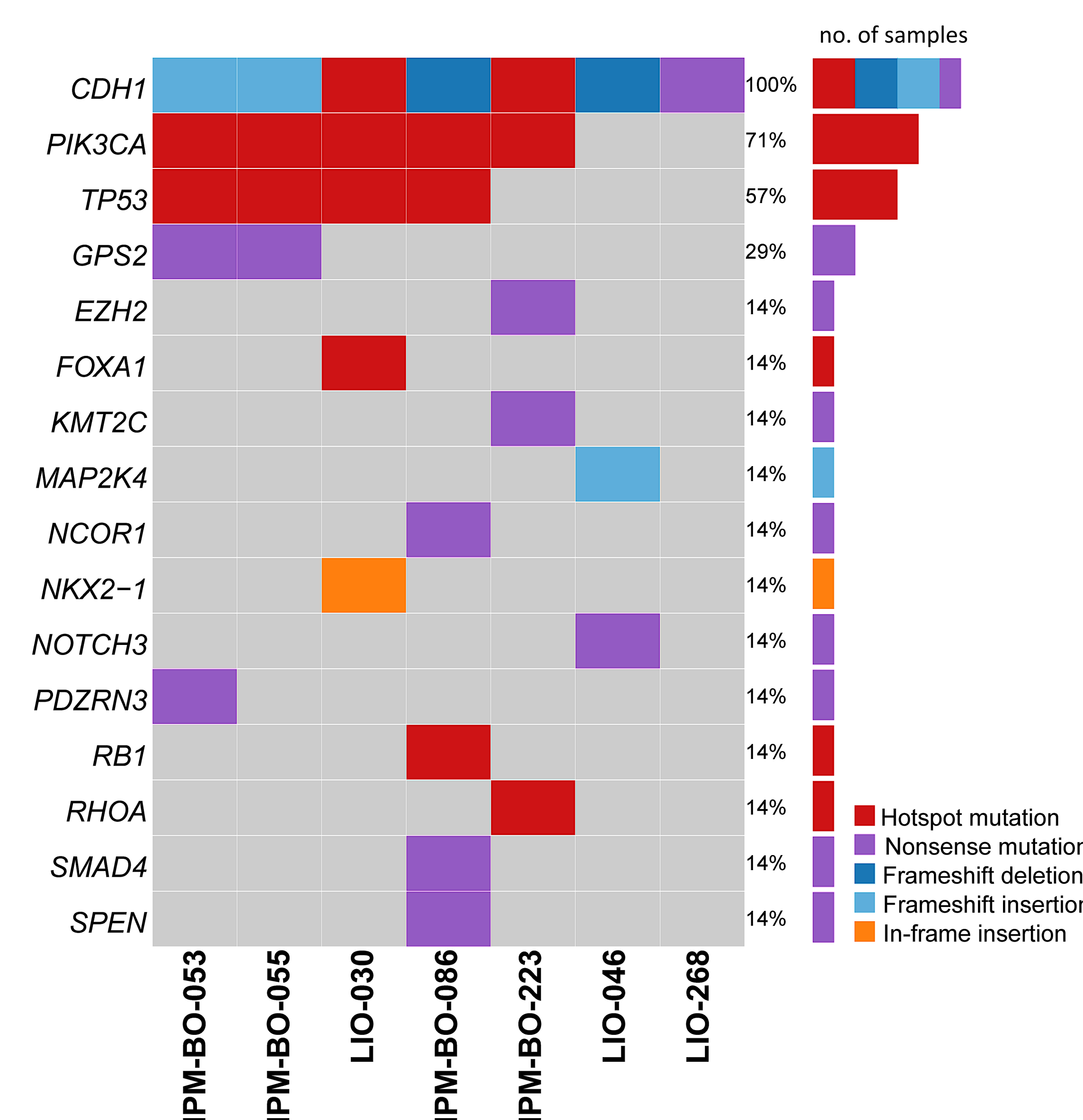


To collect ILC specimen together with clinicopathological data



To perform single-cell sequencing on the PDOs

IMPACTseq: Genomics Snapshot of ILC Organoids



Efforts and Challenges to Establish ILC Organoids

26 Attempts

- 26 prospective collections.
- Prospective collection is concluded.

12 Established

Establish and analyze growth

- 14 failed to established in culture or ceased to grow

8 Consistent growth

ILC characteristics: grape-like, and consistent growth

- 4 showed poor growth

1 validated

Various rounds of IF

- 1 excluded due to E-Cadh +ve
- Rest 7 are undergoing validation

1 Data

Validated Biobank: sequencing and bulking

Biobank: IMPACTseq, WES, scRNAseq, scATACseq, bulk RNAseq

Establish Phase

Validation:
IF (E-cadh/p120),
Phenotype,
Growth

Started in 2022: prospective collection and establishment

Lower rate of successfully established ILC Organoids

Our goal: Biorepository of at least 10 ILC organoids

Included 8 organoids previously established by IPM into Legacy

Path Forward: Advancing the Biorepository and Data Portal

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graph LR; A[Validate 7 organoids] --> B[Finalize Legacy list]; B --> C[Complete sequencing & Staining]; C --> D[Data Analysis]; D --> E[Establish Legacy Portal];
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Validate 7 organoids

Finalize Legacy list

Complete sequencing & Staining

Data Analysis

Establish Legacy Portal



Memorial Sloan
Cancer Center

Memorial Sloan Kettering
Cancer CenterUPMC | HILLMAN
CANCER CENTER