

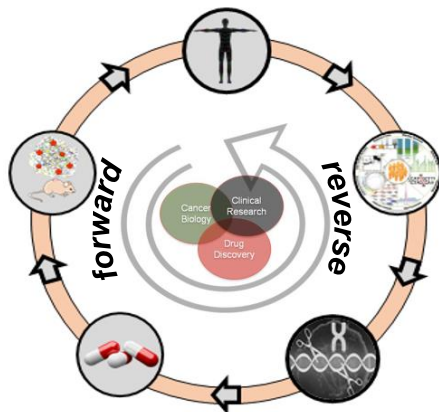
Organoid Imaging Strategies for Accelerating Translational Research

Charles Deckard III, Joseph Daniele, Dmitriy Loza, Vandhana Ramamoorthy, Kuo-Shun Hsu, Mikhila Mahendra, Benjamin Bivona, Ningping Feng, Henry Lyu, Jing Han, Joe Marszalek

Translational Research to AdvanCe Therapeutics and Innovation in ONcology (TRACTION)

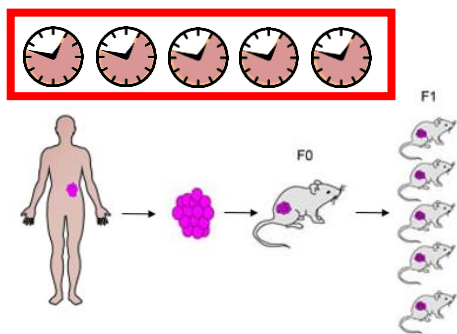
Mission:

- Our mission in the *Technology & Innovation* group at TRACTION is to develop tools that support translational research & drug development.

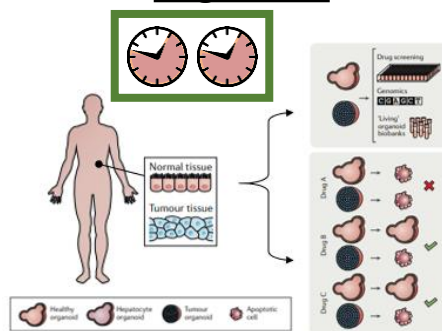


Organoids:

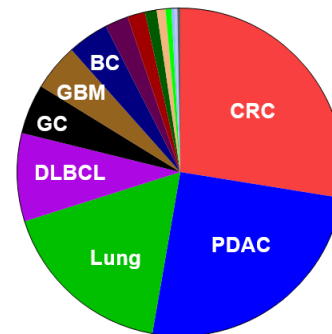
PDX



Organoids



Model Development:

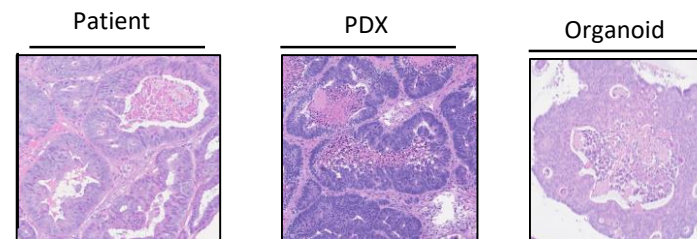


27.53%	Colorectal	2.32%	Acute myeloid leukemia
25.21%	Pancreatic	1.74%	Cholangiocar. - intra/extrahepatic
17.39%	Lung	1.16%	Prostate
8.70%	Diffuse large B-cell lymphoma	0.87%	Osteosarcoma
4.92%	Gastric cancer	0.58%	Soft tissue neoplasm
4.63%	Glioblastoma multiforme	0.29%	Gall bladder carcinoma (adeno)
4.06%	Breast	0.29%	Neuroendocrine
		0.29%	Ovarian epithelial

- TRACTION maintains >300 PDX models across various cancers.

Research Objectives:

- Implement imaging techniques to evaluate drug response in organoids (PDXO/PDO).
- Build imaging workflows to enable biomarker discovery and evaluation.
- Develop better understanding of the relationship between organoid and *in vivo* response.



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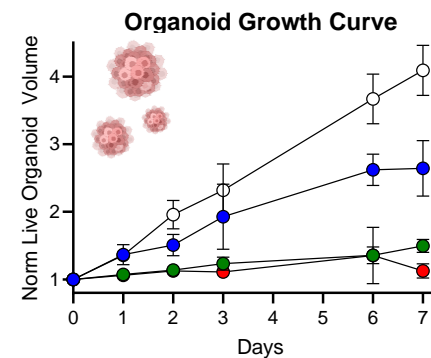
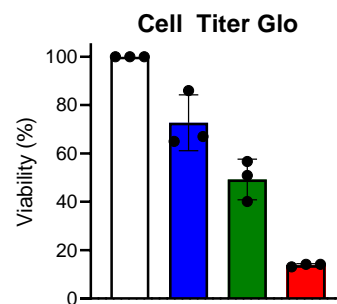
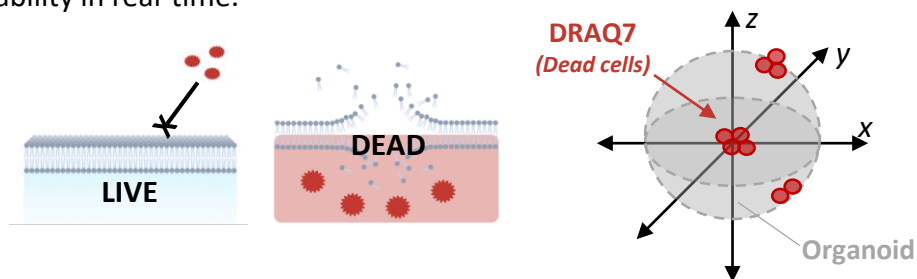
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Live Dead Imaging for Evaluating Drug Efficacy

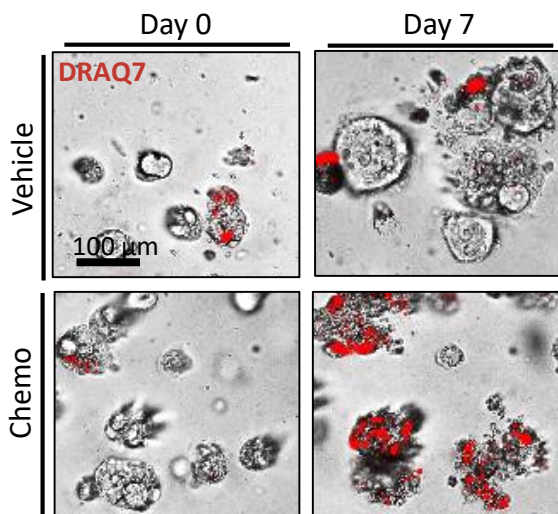
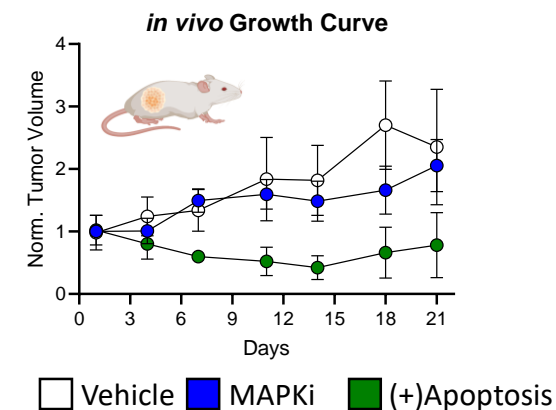
Cancer Model
PDAC

Organoids

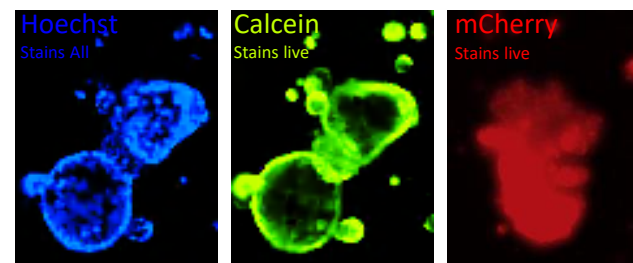
Strategy: Leverage Live/Dead Selective Dyes to quantify organoid viability in real-time.



PDX



Validated Imaging Toolbox:



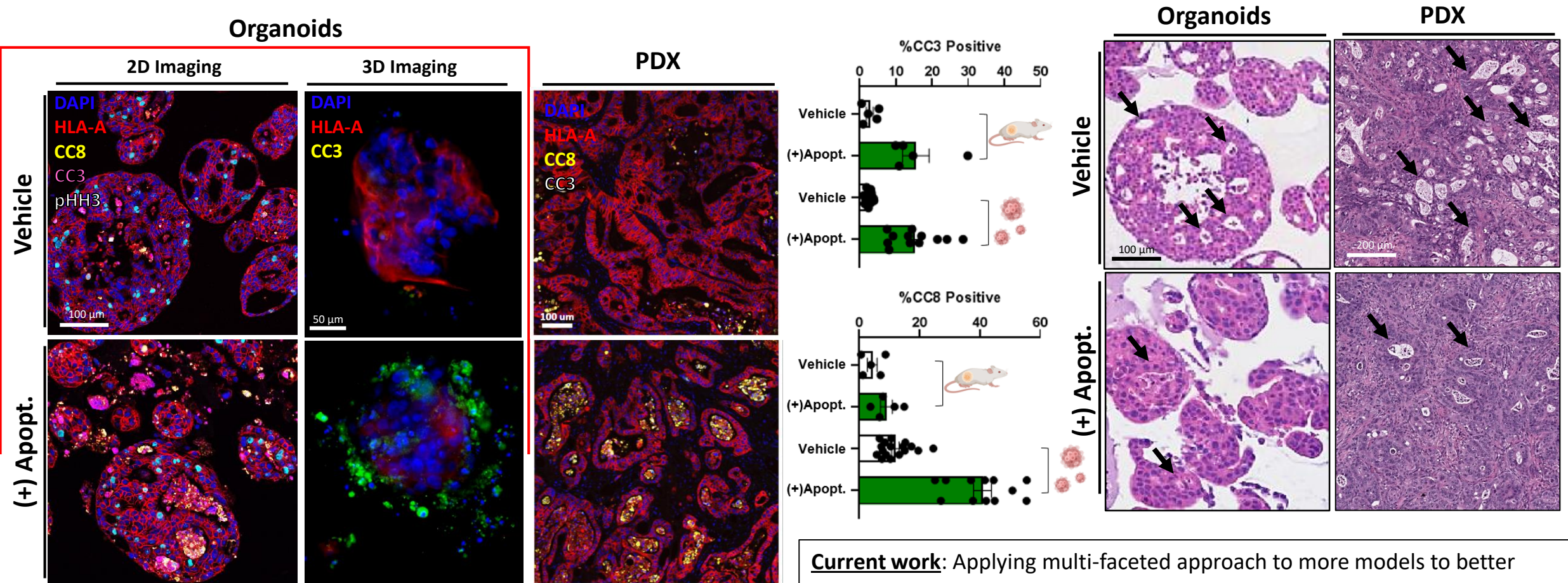
- co-culture/cell tracking
- Drug combination testing
- Detecting resistant clones

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Biomarker Imaging in Organoid and PDX Tissue: mIF & Histology

Cancer Model
PDAC



Current work: Applying multi-faceted approach to more models to better understand how we can apply organoid data to *in vivo* studies and the clinic.