

**Faculty Name:**

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**Lab:**

Laboratory for Stem Cells and Tissue Engineering

**Project Title:**

Bioengineered human tissue models to recapitulate breast cancer dormancy

**Description:**

The recapitulation of metastatic disease with engineered tissues holds promise to advance our understanding of cancer progression and to improve the efficacy of therapies targeting secondary sites of metastasis which are currently poorly responsive to treatment. Bioengineered human tissue models of metastatic sites entail biologically meaningful milieus, where stromal and immune cells support the infiltration and maintenance of disseminated cancer cells within a 3D architecture. In ongoing research, our focus is on the bone marrow niche, engineered to include stromal components along with healthy HSPCs. This tissue model in integrated culture with metastatic breast cancer cells allows for the characterization of changes induced in a key target organ of metastasis during colonization, including changes to healthy hematopoiesis and remodeling of ECM composition and organization. This project is part of a broader effort to establish a fully isogenic breast cancer metastasis platform that can be used to monitor disease progression within controlled, biomimetic microenvironments. In particular, isolated studies of the colonization of the eBM niche will inform subsequent integrated studies to understand the transition of cancer cells into and out of the cell-cycle in a multi-tissue context.

**Location of Research:**

On Site

**# of hrs/week:**

35

**Department/Program:**

Biomedical Engineering

**Eligibility:**

MS

**To apply, please contact:**

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