Scientific Abstract

SU2C Convergence 3.1416 Research Team: Intra-Team Collaboration:

"The Multi-organ Organoid Chemostat Group"

This collaborative team seeks to build and populate a new device to culture gut organoids with stem cells, lymphoid tissue, and a microbiome. The Team will apply molecular, biochemical, and biophysical technologies to address additional fundamental questions in tumor-host interactions: tumor evolution, the effects of the immune system and the microbiome, and determinants of regenerative plasticity. The Team will use the chemostat platform developed to study various organoid types and explore their interactions with immune cells. Using the blood exchange method, the Team plans to uncover soluble and cellular mediators of immune response.

Specific Aims:

Aim 1: Build and populate a new device to culture gut organoids with stem cells, lymphoid tissue, and a microbiome.
Aim 2: Apply molecular, biochemical, and biophysical technologies to address additional fundamental questions in tumor-host interactions: tumor evolution, the effects of the immune system and the microbiome, and determinants of regenerative plasticity.
Aim 3: Use the chemostat platform to be developed to study various organoid types and explore their interactions with immune cells.
Aim 4: Using the blood exchange method to uncover soluble and cellular mediators of immune response.