CANSSI ONTARIO **STAGE**

SEMINAR

International Speaker

Elana Fertig, PhD, FAIMBE

Director of the Institute for Genome Sciences
Associate Director of Quantitative Sciences,
UM Greenebaum Comprehensive Cancer Center
Professor of Medicine and Epidemiology
School of Medicine, University of Maryland

Forecasting Tumor-Immune Dynamics in Pancreatic Cancer

Friday
Mar 6, 2026
12–1 pm ET

Online Event I Register Here
by Zoom

Abstract: This talk presents a hybrid computational and experimental strategy to uncover interactions between neoplastic cells and the microenvironment during pancreatic carcinogenesis and immunotherapy response. Pancreatic cancers are notoriously immunosuppressive, with immunosuppression developing with the cancer and requiring combination treatment strategies to sensitize their microenvironment to immune checkpoint inhibitors at the late stage at which they are diagnosed. New single-cell and spatial molecular profiling technologies enable unprecedented characterization of the cellular and molecular composition of the microenvironment. These technologies provide the potential to identify signaling between immune cells, including immune aggregates, and the microenvironment. Further combining these data-driven spatial multi-omics analyses with first-principles, mechanistic mathematical modeling provides a forecast system that can yield computational predictions to model emergent cell behaviors and response to therapeutic selection. This mathematical forecast system will empower a new predictive oncology paradigm, leveraging computational systems to predict the impact of tumor-TME interactions.

Profile: Dr. Fertig advances a new predictive medicine paradigm for oncology by converging systems biology with multi-omics technology development. Her computational cancer biology research is inspired by her background as a NASA fellow in weather prediction. She aims to invent computational techniques that blend multi-platform high-throughput with mechanistic mathematical modeling and artificial intelligence methods to forecast the cellular and molecular pathways of tumor progression and therapeutic response over time. Her combined expertise in computational oncology, chaos theory, nonlinear dynamics, and tumor immunotherapy ensures translational relevance and mechanistic validation of computational findings. Read more.

CANSSI **STAGE** is a Canada-wide training program in molecular epidemiology and statistical -omics funded, in part, by CANSSI Ontario. Seminars are sponsored by Centre for Heart Lung Innovation at UBC and St. Paul's Hospital, the Beatrice Hunter Cancer Research Institute; the Centre for Genomics Enhanced Medicine, The Hospital for Sick Children Genetics and Genome Biology Program; the Lunenfeld-Tanenbaum Research Institute, Sinai Health; the McLaughlin Centre at the University of Toronto, the Princess Margaret Cancer Centre (University Health Network); and CanPath - Canadian Partnership for Tomorrow's Health.

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