



Rensselaer

The HOWARD P. ISERMANN
DEPARTMENT OF CHEMICAL AND
BIOLOGICAL ENGINEERING

CBE Seminar Series – Spring 2022

Dr. Sunitha Nagrath

Professor of Chemical Engineering and Biomedical Engineering
Co-Director, Liquid Biopsy Shared Resource, Rogel Cancer Center
University of Michigan

Seminar: Wednesday, February 16, 2022

9:30 a.m. (ONLINE)

WebEx link: <https://rensselaer.webex.com/rensselaer/onstage/g.php?MTID=e369765c7dcfef13320b8826a4711d874>

Password: CBESeminar

“Engineering Liquid Biopsy for Precision Oncology”

Abstract:

Liquid biopsy refers to the identification of tumor-derived materials in body fluids including in blood circulation. In the age of immunotherapy and targeted therapies in the treatment of advanced malignancies, molecular analysis of the tumor is a crucial step to guiding therapeutic management. Circulating tumor cells (CTCs) that are shed from the primary tumor along with extracellular vesicles (EV) have emerged as a potential avenue for liquid biopsy. The molecular and genetic profiling of CTCs and EVs is a viable alternative to painful, costly, and invasive biopsies. Owing to the recent advances in microfluidics, CTC and EV isolation is becoming increasingly efficient, sensitive, and feasible. We present novel integrated microfluidic technologies that enable both functional and genomic assays beyond isolation and quantification. We demonstrated liquid biopsy using CTCs and EVs as a resource to identify genomic alterations in cancer and present the opportunities for diagnosis, therapy, and surveillance.

Biography:



Dr. Sunitha Nagrath is a Professor of Chemical Engineering and Biomedical Engineering at University of Michigan. She received her Ph.D. in 2004 from Rensselaer Polytechnic Institute, Troy, NY in Mechanical Engineering. She did her postdoctoral work at Harvard Medical/Massachusetts General Hospital, Boston, MA. Dr. Nagrath is the leading scientist who designed the MEMS based technology, “CTC-Chip” for the sensitive isolation of circulating tumor cells (CTCs) from the blood of cancer patients. She joined University of Michigan in 2010, where she established her laboratory focused on engineering innovative microfluidic devices and nanomaterials for implementing personalized precision medicine via liquid biopsy. Dr. Nagrath’s major focus of research is on understanding cell trafficking in cancer through isolation, characterization and study of circulating cells and extracellular vesicles in peripheral blood of cancer patients. Dr. Nagrath is the co-founder and the board member of labyrinth Biotech., a biotechnology company commercializing some of the technologies that are developed in her lab.

Due to COVID-19, no refreshments will be available for this seminar.

For more information, please contact Lisa Martin (swishl@rpi.edu) or Vidhya Chakrapani (chakrv@rpi.edu)