

Biomedical Informatics Grand Rounds
Wednesday, Nov. 17, 2021, 3:00 pm – 4:00 pm

Characterizing Tumor-Infiltrating Lymphocytes in Cancer with Computational Pathology/Pathomics



Rajarsi Gupta, M.D., Ph.D
Assistant Professor, Biomedical Informatics,
Stony Brook University,
Stony Brook, NY

Remote Access

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Meeting ID: 956 1719 7636 Passcode: 924293

Bio: Dr. Gupta is an Assistant Professor in the Department of Biomedical Informatics with a research focus on the development of scalable Pathomics image analysis methodology to quantitatively characterize tumor-immune interactions and other histopathologic features in digital whole slide images (WSIs) of cancer. The goal of this work is to further our collective understanding of cancer pathobiology and identify Pathomics biomarkers to help guide patient care and treatment. Dr. Gupta obtained a BA in Molecular Biophysics from the University of Pennsylvania and MD/PhD from a combined degree Medical Scholars Program at the University of Illinois at Urbana-Champaign. Dr. Gupta completed residency training in Anatomic and Clinical Pathology (AP/CP) residency and fellowships in Hematopathology and Pathology Informatics (focus on Digital and Computational Pathology with training in Experimental Pathology) at Stony Brook University.

Abstract: Virtual microscopy of digital WSIs of tissue samples has attracted a wide audience of scientists, engineers, and clinicians from academia and industry to cancer research and laboratory medicine. This presentation will introduce pioneering image analysis methodology in computational pathology/Pathomics that leverages advances in deep learning and computer vision to analyze tumor-infiltrating lymphocytes (TILs) in cancer tissue samples. I will highlight ongoing efforts to characterize the abundance and spatial distribution of TILs as a biomarker in breast, pancreatic, lung, and colorectal cancer by using Pathomics. Due to rapidly growing interest in the role of TILs alongside recent advances in immunotherapy, correlative studies in breast cancer with Pathomics-derived TILs, clinicopathologic, and molecular genomic data have confirmed the value of TILs in predicting survival and stratifying patients. We will also explore how quantifying TILs and generating spatial maps may be useful in cohort discovery, characterizing tumor heterogeneity, predicting disease progression, and guiding treatment selection en route to the development of translational clinical applications for precision medicine.

Educational Objects: Upon completion, participants should be able to:

- Learning about digital WSIs, virtual microscopy, and image analysis in computational pathology/Pathomics
- Learning about the use of specialized Pathomics to computationally identify, map, and quantify TILs in cancer
- Understanding the potential role of TILs as a cancer biomarker to predict survival, characterize tumor heterogeneity, predict tumor progression, and help select treatment

Disclosure Statement: In compliance with the ACCME Standards for Commercial Support, everyone who is in a position to control the content of an educational activity provided by the School of Medicine is expected to disclose to the audience any relevant financial relationships with any commercial interest that relates to the content of his/her presentation.

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