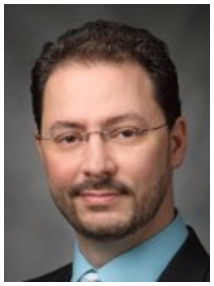

Biomedical Informatics Grand Rounds

Wednesday, Feb 10, 2021 3 pm - 4 pm

Going Beyond Sight

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Remote Access

Join Zoom Meeting https://stonybrook.zoom.us/j/95617197636?pwd=KytzZ2pVRG9SZGpKZUtpNXJISjNjZz09
Meeting ID: 956 1719 7636 Passcode: 924293

Bio: I started my career in science as a research assistant in Dr. Max D. Summers' laboratory. We studied protein trafficking in baculovirus-infected cells where I became familiar with, and interested in, spinning-disk confocal imaging. This led to my enrollment in several imaging courses, and ultimately my entry into graduate school and back to Dr. Summers' laboratory. During my PhD training, Dr. Summers placed me in charge of the confocal microscope, where I trained every user and developed imaging assays as a basic core service. Ultimately, I ended up identifying importin-alpha-16, which is a shuttling protein involved in moving integral membrane proteins through the lateral channel of the nuclear pore complex. This was based in large part on my previous imaging experiments with BV/ODV E26, which was identified as a viral homolog to the eukaryotic importin-alpha-16. After completing my PhD, I joined Dr. Xing Li Wang's group at Baylor, where I continued to study viral protein trafficking in infected cells. In doing so, I also learned how to interact with people from other cultures and how to collaborate on a larger scale. I also mastered extensive problem-solving skills that allowed me to determine where technical errors were made in our research efforts, which facilitated in my resolving them quickly and efficiently. I found that I enjoyed this type of technical problem solving, albeit I was not able to perform as much imaging work as I had anticipated. Therefore, after my postdoctoral work, I sought employment in a shared resource facility that specialized in imaging. I secured a position with the Flow Cytometry and Cellular Imaging Core Facility at MD Anderson Cancer Center where I have flourished. In fact, I am now an Associate Professor and Co-Director of the facility. I have brought eight color imaging to the Institution through the use of FFPE sampling and multispectral microscopy. I have also introduced and established mass cytometry, CyTOF, (imaging and suspension) to our Institution. The latest iteration of CyTOF technology is imaging-based. It uses laser ablation to free material from the slide for analysis through the CyTOF. My other focus is on live cell spinning disk confocal imaging. This has been a need for some time among MD Anderson Cancer Center researchers. Through these technologies I am focusing my efforts on spatial distribution of cells in tissues and understanding the functional interactions that occur in unique spatial niche. My strengths have always been, and continue to be, that I am technically trained to identify, adapt, and utilize emerging technologies to answer critical questions in cutting-edge research here at MD Anderson Cancer Center and elsewhere in the scientific community. We tackle these problems every day at the Flow Cytometry and Cellular Imaging Core Facility at MD Anderson, and we jointly develop solutions with our research collaborators to produce outstanding scientific discoveries.

Abstract: Multiplexed tissue imaging supporting a comprehensive understanding of the cellular organization is the new normal revealing the biology of the tissue ecosystem, opportunistic disease progression, and can explain successful or failed drug treatments in creating and supporting personalized medicine. Digital pathology is a required component for these applications and opens the door to standardized quantitative methods of these tissues. This is a massive expansion to the field of pathology, the science of the causes and effects of diseases. This expansion is modernizing pathology and incorporating immunology, spatial and higher order mathematics all while being rooted in the world of histotechnology. Why is any of this important and is it worth the promise? What are the multiplexed options and how do they compare to the non-imaging alternatives? What can really be accomplished with these technologies and how complicated are they?

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

- Introduction to Multiplexed Imaging Technologies
- Introduction into Tissue Analytics
- Explanation of a model system explaining why multiplexed imaging is required

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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