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Hosted by: Andy Marcus

Toward a Google-Earth View of Biological Systems

Biological systems are complex in both the multitude of molecular components and the span of length scales. Understanding how biological processes are organized and regulated across the scales is crucial to managing health and disease. Recent super-resolution microscopy (SRM) techniques permit imaging of cells and tissues at the single-molecule and nanometer scales, but challenges remain in using SRM to study complex and heterogeneous biological systems. In this talk, I will discuss our efforts to overcome the technical limitations of current SRM in terms of imaging speed, multiplexity, and field of view. Using cancer biology applications as examples, I will show how our new SRM platform allows multiplexed biological imaging from molecules (nanometers) to multicellular structures (millimeters) in both model cell lines and clinical, FFPE tissue sections. These advances pave the way to building comprehensive, Google-earth like views of biology.

