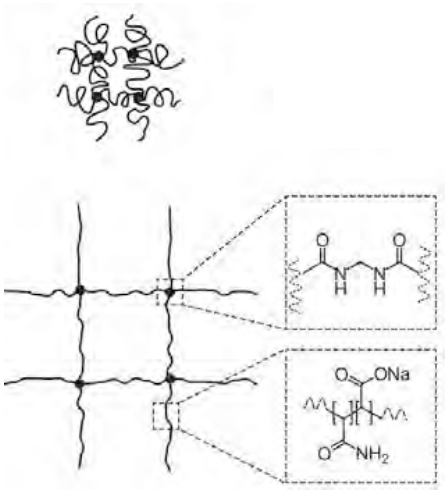
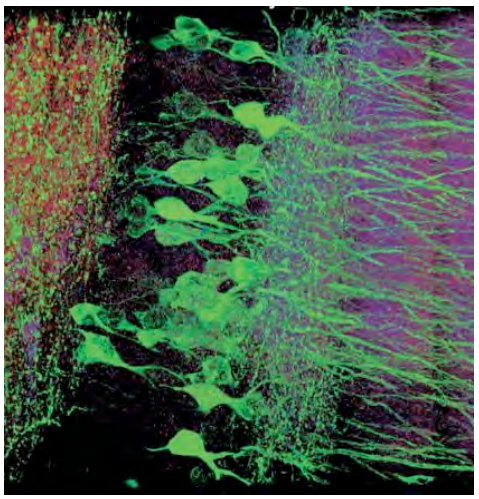
Neuroengineering Seminar

Expansion Microscopy





Paul Tillberg

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http://syntheticneurobiology.org

Monday, June 1, 2015
4:00-5:00pm
Fung Auditorium, Powell-Focht Bioengineering Building
University of California San Diego

Abstract: In optical microscopy, fine structural details are resolved by using refraction to magnify images of a specimen. We discovered that, by synthesizing a swellable polymer network within a specimen, it can be physically expanded, resulting in physical magnification. By covalently anchoring specific molecules located within the specimen directly to the polymer network, molecules spaced closer than the optical diffraction limit can be isotropically separated and optically resolved, a process we call expansion microscopy (ExM). Thus, this process can be used to perform scalable super-resolution microscopy with diffraction limited microscopes. ExM represents a new modality of magnification, and enables scalable, multi-color super-resolution imaging of fixed cells and tissues.

Fei Chen, Paul W. Tillberg, and Edward S. Boyden, "Expansion microscopy," *Science*, vol. 347 (6221), pp. 543-548, Jan. 30, 2015 [DOI:10.1126/science.1260088].

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