

BIOENGINEERING

Spring 2019 Seminar

Date: Thursday, April 11, 2019
Time: 12:00 pm - 1:00pm
Location: Krasnow, Room K229



Ethan Cohen, Ph.D.

Biography: Dr. Cohen received his Ph.D. in the lab of Dr. Peter Sterling at the University of Pennsylvania in 1987. After postdoctoral training at the University of Minnesota with Dr. Robert Miller, and at the Jules Stein Eye Inst at UCLA with Gordon Fain, he joined the faculty in the Dept. of Ophthalmology at Yale University Medical School as a retinal physiologist in 1992. In 2000, he became a visiting professor in the Dept. of Molecular and Cellular Biology at Harvard University. Since 2003, he is a research scientist at the CDRH Office of Science and Engineering Labs at FDA.

Title: Development of a Microscope for Simultaneous Optical Coherence Tomography and Confocal Imaging for Use in Neurotoxicology

Abstract: The burden of demonstrating that drugs and devices are safe in the human body is expensive and time consuming. A large portion of these funds are expended on animal tests and histological analysis to show that the product is non-toxic when exposed to body tissue for long periods. We are interested in developing optophysiological devices which will allow simultaneous detection of tissue swelling while imaging morphological changes in a sentinel cell type in the retina termed “microglia” whose job is to respond to tissue injury. To this end, we have developed a confocal microscope which allows simultaneous imaging of swelling in the retinal layers using optical coherence tomography and confocal imaging of GFP-labeled sentinel microglia cells using a transgenic mouse eye-cup preparation. This microscope will speed our evaluation of neurotoxic drugs and device eluates. The optical performance and technical challenges of developing our imaging device will be presented.

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