

# VISION SCIENCE RESEARCH SEMINAR 2022-2023

## Spatially-Resolved Analysis of Aging in Ocular Tissues



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Ophthalmology & Visual Sciences

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**Thursday, March 23, 2023 | 4:30 pm**

**Room : OPT 401**

**ABSTRACT** Spatially-resolved proteomics and lipidomics methodology has been developed to analyze aging processes in ocular lens and retina tissues. Both laser capture microdissection coupled with LC-MS/MS analysis as well as imaging mass spectrometry (IMS) have been used to define age-related changes in human lens proteins and to identify lipid constituents of retina deposits. Both age-related and cataract-specific protein modifications have been identified in aged human lenses. In retina tissues, multimodal imaging methods, including high resolution IMS, allowed lipid components of drusen and subretinal drusenoid deposits (SDD) to be characterized. This presentation will discuss the methods developed for these studies, the results obtained, and the biochemical insights generated.

**BIOGRAPHY** Dr. Schey received his Ph.D. in Analytical Chemistry from Purdue University working under the mentorship of Dr. Graham Cooks. After post-doctoral training at the University of Chicago, he began his academic career at the Medical University of South Carolina in Charleston, SC. After 18 years at MUSC, in 2008 he moved to the Mass Spectrometry Research Center and Department of Biochemistry at Vanderbilt University. He has secondary appointments in the Departments of Chemistry and Ophthalmology and Visual Sciences. His research interests lie in the areas of lens biochemistry, proteomics of aging in ocular tissues, exosome proteomics, and imaging mass spectrometry. He has been elected a Fellow of the American Association for the Advancement of Science and of the Association for Research in Vision and Ophthalmology.

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