

Poster #8

S. Scott Whitmore

**PhD Candidate, College of Medicine
Ophthalmology & Visual Sciences**

Title of Research: Bioinformatic Analysis Uncovers Altered Gene Expression in a Cell Culture Model of Age-Related Macular Degeneration

Other Authors: Shemin Zeng, Megan J. Riker, Edwin M. Stone, Budd A. Tucker, Todd E. Scheetz, Robert F. Mullins

Introduction/Purpose:

Age-related macular degeneration (AMD) is the leading cause of irreversible blindness among elderly adults in developed nations. As loss of blood vessels occurs concomitantly with activation of the innate immune system in eyes affected by AMD, we hypothesized that activation of the complement immune system may alter homeostatic gene expression in endothelial cells, abetting AMD pathogenesis.

Experimental Design:

To test this hypothesis, we challenged primate choroidal endothelial cells with complement activators and measured differential gene expression by RNA-Seq.

Results:

Bioinformatic analysis revealed that complement activation alters a wide range of genetic pathways, including robust modulation of vascular development.

Conclusions:

Our findings are consistent with the etiology of AMD, and reveal novel factors in ophthalmic inflammation.