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Featured Investigator :: Dr. John S. Penn

[John S. Penn, Ph.D.](#)

Phyllis G. and William B. Snyder Professor

Vice Chairman, Department of Ophthalmology and Visual Sciences

Research Specialty: Retinal Angiogenesis

Research Description:

The Penn lab has a long-standing interest in the molecular basis of ocular angiogenesis. The overarching goal of our research is to characterize the process of retinal angiogenesis, and to begin to develop preventive therapeutic strategies based on understanding gained from in vitro and in vivo studies. During the past decade, we have developed and characterized several experimental models, and we find them particularly well suited for investigations of the cellular and molecular aspects of angiogenesis in blinding diseases. We currently utilize these tools (e.g., retinal microvascular endothelial cells, Muller cells and retinal astrocytes in culture, and rodent models of retinopathy of prematurity and laser-induced choroidal neovascularization) to address a variety of questions related to the regulation of angiogenesis in disease states of the eye.

Relationship of Research to Diabetes:

Our research relates to diabetic complications arising in the retina, namely diabetic retinopathy. Our current funding from the National Eye Institute supports studies of the roles calcium dysregulation and the action of calcium-dependent signaling events in the promotion of vascular inflammation seen in early diabetic retinopathy. Inhibition of this signaling negatively modulates progression of diabetic retinopathy at multiple points along the pathologic cascade, increasing the therapeutic potential of this discrete target.

