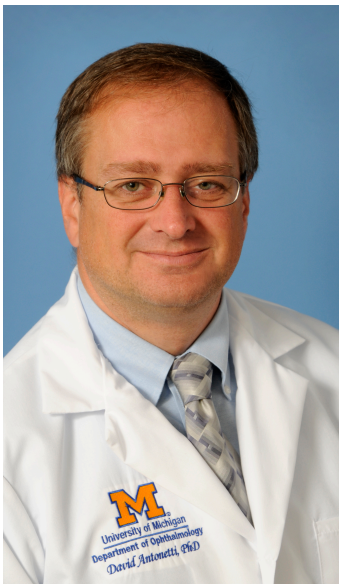
PROGRESS IN NEUROSCIENCE PINS

Seminar Series of the
Brain & Mind Research Institute
Weill Cornell Medical College (WCMC)
&
The Graduate Program in Neuroscience of
WCMC and Sloan Kettering Institute

Thursday, 10/6/16, 4 PM, coffee at 3:45 PM
A-950

"Tight Junction Protein Occludin in Blood-Retinal Barrier Properties and Neovascularization"

David A. Antonetti, Ph.D. Professor of Ophthalmology and Visual Sciences and Molecular and Integrative Physiology, Jules Stein Professorship
University of Michigan Kellogg Eye Center



Abstract

Diabetic retinopathy is the leading cause of blindness in working age adults in the United States. Loss of vision is associated with increased growth factors such as vascular endothelial growth factor (VEGF) that alters retinal permeability and contributes to macular edema. Our laboratory has focused on understanding the mechanisms by which VEGF alters barrier properties and has led to the identification of occludin phosphorylation sites that contribute to regulation of barrier properties. Identification of these phospho-sites has led to the discovery of novel roles of occludin in regulating VEGF driven endothelial cell proliferation and formation of mature epithelial monolayers including control of post-confluence proliferation. This talk will focus on our new understanding of the cell biology of the tight junction protein occludin and how this may relate to the blood retinal barrier in diabetic retinopathy.

Recent Relevant Publications:

1. Murakami T, Frey T, Lin C and Antonetti DA. Protein kinase C β phosphorylates occludin regulating tight junction trafficking in vascular endothelial growth factor-induced permeability *in vivo*. Diabetes, 2012 61(6):1573-83. PMCID:PMC3357276
2. Bolinger MT, Ramshekar A, Waldschmidt HV, Larsen SD, Bewley MC, Flanagan JM, **Antonetti DA**. Occludin S471 phosphorylation contributes to epithelial monolayer maturation. Mol Cell Biol. 2016 May 16. [Epub ahead of print]
3. Antonetti DA, Klein R, Gardner TW. Mechanisms of Disease: Diabetic Retinopathy. New Eng J Med, 2012 366(13):1227-39.

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