Facultad de Óptica y Optometría
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V CICLO SEMINARIOS
"Novedades que el Óptico-Optometrista debe conocer sobre...": Curso 2015/2016

"Chronic Inflammatory Processes Have a Crucial Role in the Pathogenesis of Retinal Degenerative Diseases"

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RESUMEN

Diabetic retinopathy and glaucoma are leading causes of vision loss and blindness worldwide, affecting more than 120 million people. These retinal degenerative diseases have no cure, the treatments available are not always very effective, and in the case of diabetic retinopathy the treatments are mainly targeted for the later stages of the disease. In the last two decades, increasing evidence has shown that inflammatory processes have an important role in the pathogenesis of both diseases, but the inflammatory mechanisms underlying blood-retinal barrier dysfunction and retinal ganglion cell death are still not very well understood.

In my Research Group, we have been interested in clarifying the role of pro-inflammatory mediators in blood-retinal barrier breakdown and retinal ganglion cell death, giving a particular attention to nitric oxide, tumor necrosis factor (TNF) and also to the immune cells of the central nervous system, microglial cells. We have also been interested in identifying new therapeutic targets that might be useful to develop new therapies for the treatment of diabetic retinopathy and glaucoma.

Using in vitro and animal models we demonstrated that nitric oxide and TNF are key determinants of blood-retinal barrier breakdown and that excessive activation of microglial cells contribute to ganglion cell death. Moreover, we found that adenosine A2A receptors subtype expressed in retinal microglia can be targeted to attenuate retinal inflammation and prevent the demise of retinal ganglion cells.