Tara Tovar-Vidales, PhD
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Area of Expertise

My research goal is to understand the pathology of the trabecular meshwork (TM) and the optic nerve head (ONH) in glaucoma. The TM is the main dynamic resistor that regulates the aqueous humor outflow and causes elevated intraocular pressure in the anterior chamber of the eye. This elevated pressure is transduced toward the back of the eye and results in a remodeling of the ONH. The ONH is the resident of two types of cells, ONH astrocytes and lamina cribrosa cells (LC). ONA and LC cells have been implicated in the pathophysiology of glaucoma.
I focus primarily on growth factors and their signaling pathways to determine if they alter mRNA and protein expression of the TM and the ONH cells. I wish to understand the roles of these growth factors in normal tissue and in the glaucoma pathophysiology.

Qualifications

PhD in Cell Biology & Genetics, UNT Health Science Center

MS in Cell Biology & Genetics, UNT Health Science Center

BS in Biology, University of The Incarnate Word

Recent Publications

Human trabecular meshwork cells express BMP antagonist mRNAs and proteins
Tovar-Vidales, T., Fitzgerald, A. M. & Clark, A., 1 Jun 2016, In : Experimental Eye Research. 147, p. 156-160 5 p.

Identification and localization of lamina cribrosa cells in the human optic nerve head
Tovar-Vidales, T., Wordinger, R. J. & Clark, A., 1 Jun 2016, In : Experimental Eye Research. 147, p. 94-97 4 p.

Transforming growth factor-β2 induces expression of biologically active bone morphogenetic protein-1 in human trabecular meshwork cells
Tovar-Vidales, T., Fitzgerald, A. M., Clark, A. & Wordinger, R. J., 23 Jul 2013, In : Investigative Ophthalmology and Visual Science. 54, 7, p. 4741-4748 8 p.

Perfusion-cultured bovine anterior segments as an ex vivo model for studying glucocorticoid-induced ocular hypertension and glaucoma
Mao, W., Tovar-Vidales, T., Yorio, T., Wordinger, R. J. & Clark, A., 1 Oct 2011, In : Investigative Ophthalmology and Visual Science. 52, 11, p. 8068-8075 8 p.

Transforming growth factor-beta2 utilizes the canonical Smad-signaling pathway to regulate tissue transglutaminase expression in human trabecular meshwork cells
Tovar-Vidales, T., Clark, A. & Wordinger, R. J., 1 Oct 2011, In : Experimental eye research. 93, 4, p. 442-451 10 p.

Focus on Molecules: Transglutaminase 2
Tovar-Vidales, T., Clark, A. & Wordinger, R. J., 1 Jul 2011, In : Experimental eye research. 93, 1, p. 2-3 2 p.

Tissue transglutaminase expression and activity in normal and glaucomatous human trabecular meshwork cells and tissues
Tovar-Vidales, T., Roque, R., Clark, A. & Wordinger, R. J., 1 Feb 2008, In : Investigative Ophthalmology and Visual Science. 49, 2, p. 622-628 7 p.

Effects of TGF-β2, BMP-4, and gremlin in the trabecular meshwork: Implications for glaucoma
Wordinger, R. J., Fleenor, D. L., Hellberg, P. E., Pang, I-H., Tovar-Vidales, T., Zode, G., Fuller, J. A. & Clark, A., 1 Mar 2007, In : Investigative Ophthalmology and Visual Science. 48, 3, p. 1191-1200 10 p.

Sponsored Projects

Preclinical Evaluation of Graybug Vision Compound
Clark, A., Tovar-Vidales, T., Liu, Y. & Millar, C.
Graybug Vision, Inc.
5/06/17 → 4/06/19

Role of MicroRNAs(miRNAs) in the Pathologic Fibrosis in the Glaucomatous Optic Nerve Head
Tovar-Vidales, T.
Glaucoma Research Foundation
16/02/17 → 15/02/18