

Tara Tovar-Vidales, Ph.D.

Curriculum Vitae

I. NAME, ACADEMIC RANK, TITLE

Tara Tovar-Vidales, Ph.D. Instructor, Department of Physiology & Neuroscience, Center for Anatomical Sciences, University of North Texas Health Science Center, Fort Worth, TX

II. EDUCATION

Ph.D. in Cell Biology and Genetics 2008: University of North Texas Health Science Center at Fort Worth, TX

M.S. in Cell Biology and Genetics 2004: University of North Texas Health Science Center at Fort Worth, TX

B.S. in Biology 2000: University of the Incarnate Word (UIW) at San Antonio, TX

III. PROFESSIONAL EXPERIENCE

Instructor: September 2022 – present; Center for Anatomical Sciences, University of North Texas Health Science Center, Fort Worth, TX

Research Assistant Professor: September 2015 – 2022; North Texas Eye Research Institute, University of North Texas Health Science Center, Fort Worth, TX

Lab Manager: September 2009 – August 2015; North Texas Eye Research Institute, University of North Texas Health Science Center, Fort Worth, TX

IV. TEACHING EXPERIENCE

1. University of North Texas Health Science Center – Fort Worth

a. Lectures or courses – TCOM (Texas College of Osteopathic Medicine)

Musculoskeletal/Skin System 1 MEDE 7811

Content: Histology of epithelium, connective, muscle tissue, integument, cartilage, and bone

Format: Lectures (1hr), DSA (Directed Student Assignment; 4hrs), and MLM (Mechanism-based Learning Module; 2hrs)

Semester: Fall 2015 - present

Nervous System 1 MEDE 7812

Content: Histology of the nervous system

Format: Lecture (1hr)

Semester: Fall 2022

Cardiovascular/Pulmonary 1 MEDE 76115

Content: Histology of respiratory and cardiovascular system

Format: DSA (2hrs) and MLM (1hr)

Semester: Fall 2022

Gastrointestinal/Renal System 1 MEDE 7611

Content: Histology of oral cavity, accessory organs, esophagus, stomach, large and small intestines

Format: Lectures (3hrs), DSA (2hrs), MLM (2hrs), and TLM (2hrs)

Semester: Fall 2016 - present

Endocrine/Reproductive System 1 MEDE 7715

Content: Histology of endocrine and female reproductive system

Format: Lectures (6hrs)

Semester: Fall 2016 - present

Immunology/Hematology System 1 MEDE 7712

Content: Histology of the immune system

Format: DSA (2hrs) and MLM (2hrs)

Semester: Fall 2017 - present

b. Lectures or courses – Graduate School**PHAN 5400 Physiology & Anatomy – In-person (face to face)****Course director**

Content: Histology of the structures of the human body, including a brief overview of gross anatomy

Format: Lectures and TBL (Team-based Learning) exercises, exam reviews

Student contact hours: 31

Semester: Fall 2015 – present

PHAN 5400 Physiology & Anatomy – Online**Course director**

Content: Histology of the structures of the human body, including a brief overview of gross anatomy

Format: Zoom lecture videos

Semester: Fall 2020 – present

c. Lectures or courses – Anatomy Lab**TCU Nurse Practitioner Anatomy Lab**

Content: Musculoskeletal gross anatomy

Format: Lab

Semester: Fall 2022 – present

2. Supervision**a. Ph.D. Graduate students –**

Current - Co-major professor for Rajiv Rangan (Ph.D. student)

Committee member for Calvin Brooks (Ph.D. student)

Past - Co-major professor for Navita Lopez (Ph.D. student)

Committee member for Amanda Roberts (Ph.D. student)

Committee member for Declan Hesson (Ph.D. student)

University member for Justin Sprick (Ph.D. student)

University member for Cassey Buller (Ph.D. student)

b. M.S. Graduate students –

Past – Major professor for Rajiv Rangan (M.S. student)

Committee member for Cooper Stevenson (M.S. student)

Committee member for Jonathan Ferguson (M.S. student)

V. SERVICE

1. UNTHSC, TCOM, SBS committee memberships

UNTHSC:

2021 – 2022 Early Career Development Council (ECDC), Committee Member, early-career faculty mentoring group

2021 – 2022 Working Accountability Group (WAG) leader for early-career faculty

TCOM:

2022 Member of the TCOM Student Performance Committee

2015 Interviewer for Texas College of Osteopathic Medicine (TCOM) applicants

SBS:

2016 – 2019 Interviewer for Medical School Mock Interviews for Master of Medical Science Students

2. Faculty Review Committee

2021 - 2022 Master of Science Scholarship Committee, Robert J. Hardin Heart & Cancer Research Committee

2021 – 2022 North Texas Eye Research Institute, Dr. Wordinger Memorial Scholarship Committee

3. Community service/involvement

2021 Volunteer (UNTHSC sponsored), “North Texas Wellness Fair”, Fort Worth, TX

2019 Volunteer (UNTHSC sponsored), “Hispanic Wellness Fair”, White Settlement, TX

2019 Volunteer (UNTHSC sponsored), “Kids Vision Fest”, Tarrant College County, Trinity campus, Fort Worth, TX

2018 Volunteer (NTERI sponsored), “Back to School Bash”, Tarrant College County, Northwest campus, Fort Worth, TX

2018 Volunteer (UNTHSC sponsored), “Hispanic Wellness Fair”, White Settlement, TX

2018 Volunteer (NTERI sponsored), “Hope Farm screening”, Fort Worth, TX

2017 Volunteer (NTERI sponsored), “FWISD Pre-K vision screening”, Contreras Elementary School. Fort Worth, TX

2017 Volunteer (UNTHSC sponsored), "Health Event", University of North Texas Health Science Center, Fort Worth, TX

2016 Volunteer (TCU sponsored), "Puzzle Scuttle" autism event, Texas Christian University, Fort Worth, TX

2016 Volunteer (UNTHSC sponsored), "African American Health Expo", Tarrant College County South campus, Fort Worth, TX

2015 Volunteer (UNTHSC sponsored), "African American Health Expo", Forest Hill Civic Center, 6901 Wichita St. Fort Worth, TX

2014 Volunteer (NTERI sponsored), "Chemistry" Lab to 6th grade students, Corey Elementary School. Arlington Independent School District, TX

2010 Volunteer (NTERI sponsored), "Micro-world" Lab to 2nd grade students, Corey Elementary School. Arlington Independent School District, TX

VI. SCHOLARLY ACTIVITY

1. Grants and contracts – funded

Current Research Support:

Faculty Seed Grant, 2022 (\$15,000). Roles of TGF β 2, miRNA-29, and ADAMs in human optic nerve head fibrosis.

Tovar-Vidales T (PI)

Completed Research Support:

The Glaucoma Research Foundation. 2017-2019 (\$40,000). To investigate the role of microRNAs (miRNAs) in pathologic fibrosis in the glaucomatous optic nerve head.

Tovar-Vidales T (PI)

Graybug Vision, Inc. Preclinical Evaluation of Graybug Vision Compound. 2017 - 2019
Clark A (PI), **Tovar-Vidales T**, Liu Y, and Millar C.

Faculty Development Grant, 2020 (\$5,000). To investigate the role of biomechanical stretch inducing epigenetic changes in optic nerve head cells.

Tovar-Vidales T (PI)

Faculty Seed Grant, 2021 (\$10,000). Crosstalk between optic nerve head astrocytes and microglia.

Liu Y (Co-PI), **Tovar-Vidales T** (Co-PI)

2. Publications

Full-length papers – published

(*mentored students in the Tovar-Vidales Laboratory)

1. *Rangan R, Sad do Valle R, **Tovar-Vidales T**. Expression of procollagen C-proteinase enhancer 1 in human trabecular meshwork tissues and cells. Exp Eye Res. 2022.

2. *Lopez NN, *Rangan R, Clark AF, **Tovar-Vidales T**. MiRNA expression in glaucomatous and TGFb2 treated lamina cribrosa cells. *Int J Mol Sci*. 2021; 22 (12): 6178.
3. *Lopez NN, Clark AF, **Tovar-Vidales T**. Isolation and characterization of human optic nerve head astrocytes and lamina cribrosa cells. *Exp Eye Res*. 2020; 197:108103.
4. **Tovar-Vidales T**, Wordinger RJ, Clark AF. Identification and localization of lamina cribrosa cells in the human optic nerve head. *Exp Eye Res*. 2016; 147:94-97.
5. **Tovar-Vidales T**, Fitzgerald AM, Clark AF. Human trabecular meshwork cells express BMP antagonist mRNAs and proteins. *Exp Eye Res*. 2016; 147:156-60.
6. **Tovar-Vidales T**, Fitzgerald AM, Clark AF, Wordinger RJ. Transforming growth factor-beta2 induces expression of biologically active bone morphogenetic protein-1 in human trabecular meshwork cells. *IOVS*. 2013; 54 (7): 4741-8.
7. Mao W, **Tovar-Vidales T**, Yorio T, Wordinger RJ, Clark AF. Perfusion-cultured anterior segments as an ex vivo model for studying glucocorticoid-induced ocular hypertension and glaucoma. *IOVS*. 2011; 52(11): 8068-75.
8. **Tovar-Vidales T**, Clark AF, Wordinger RJ. Transforming growth factor-beta2 utilizes the canonical Smad-signaling pathway to regulate tissue transglutaminase expression in human trabecular meshwork cells. *Exp Eye Res*. 2011; 93(4):442-451.
9. **Tovar-Vidales T**, Clark AF, Wordinger RJ. Focus on molecules: transglutaminase 2. *Exp Eye Res*. 2011; 93 (1): 2-3.
10. **Tovar-Vidales T**, Roque R, Clark AF, Wordinger RJ. Tissue transglutaminase expression and activity in normal and glaucomatous human trabecular meshwork cells and tissues. *IOVS*. 2008; 49(2): 622-28.
11. Wordinger RJ, Fleenor DL, Hellberg PE, Pang IH, **Tovar TO**, Zode GS, Fuller JA, Clark AF. Effects of TGF-beta2, BMP-4, and gremlin in the trabecular meshwork: implications for glaucoma. *IOVS*. 2007; 48(3): 1191-200.

3. Abstracts –

(*mentored students in the Tovar-Vidales Laboratory)

1. **Tovar-Vidales T.**, *Lopez N, *Rangan R, and Zhou, Z. Transcriptome profiling of TGFβ2 treated optic nerve head astrocytes and lamina cribrosa cells. The Association for Research in Vision and Ophthalmology. Virtual. May 2022.
2. *Rangan R and **Tovar-Vidales T**. miRNA Profiling of human optic nerve head astrocytes exposed to cyclic stretch. UNTHSC Research Appreciation Day, May 2021.
3. **Tovar-Vidales T**, *Lopez N, *Rangan R, Clark AF. miRNA expression in glaucomatous and TGFb2 treated lamina cribrosa cells. The Association for Research in Vision and Ophthalmology. Virtual. May 2021.
4. **Tovar-Vidales T**, *Lopez N, Clark AF. TGFβ2 regulation of DNMTs in optic nerve head astrocytes. The Association for Research in Vision and Ophthalmology. Canada. May 2019.
5. *Lopez N, Clark AF, and **Tovar-Vidales T**. Epigenetic regulation of optic nerve head fibrosis in glaucoma. The Association for Research in Vision and Ophthalmology. Canada. May 2019.

6. *Lopez N, Clark AF, and **Tovar-Vidales T**. Epigenetic regulation of optic nerve head fibrosis in glaucoma. Neurobiology of Aging Symposium. Fort Worth, Texas. April 2019.
7. *Lopez N, Clark AF, **Tovar-Vidales T**. TGF β 2 regulates the expression of ECM and associated proteins by modulating miRNA expression in human ONH cells. International Society for Eye Research. Belfast, Ireland. September 2018
8. Lopez N, Clark AF, **Tovar-Vidales T**. TGF β 2 regulates the expression of ECM and associated proteins by modulating miRNA expression in human ONH cells. Neurobiology of Aging Symposium. Fort Worth, Texas. May 2018.
9. Lopez N, **Tovar-Vidales T**, Clark AF. TGF β 2 regulates the expression of ECM and associated proteins by modulating miRNA expression in human ONH cells. The Association for Research in Vision and Ophthalmology. Honolulu, Hawaii. April 2018.
10. **Tovar-Vidales T**, Liu Y, Gonzales EB and Clark AF. Expression of Acid-Sensing Ion Channels in Optic Nerve Astrocytes. The Association for Research in Vision and Ophthalmology. Baltimore, Maryland. May 2017.
11. **Tovar-Vidales T**, and Clark AF. Transforming Growth Factor- β 2 Regulated Expression of microRNAs (miRNAs) in Normal and Glaucomatous Human Optic Nerve Head Cells. The Association for Research in Vision and Ophthalmology. Seattle, Washington. May 2016.
12. **Tovar-Vidales T**, Clark AF, and Wordinger RJ. Transforming Growth Factor- β 2 Regulated Expression of Bone Morphogenetic Protein 1 (BMP-1), Tissue Transglutaminase (TGM2), Lysyl Oxidase (LOX), Procollagen C-endopeptidase Enhancer 1 (PCOLCE1), and Periostin (POSTN) in Human Optic Nerve Head Cells. The Association for Research in Vision and Ophthalmology. Denver, Colorado. May 2015.
13. **Tovar-Vidales T**, Clark AF, and Wordinger RJ. Transforming Growth Factor- β 2 Effects Expression of Periostin and Procollagen C-endopeptidase Enhancer 1 in Human Trabecular Meshwork Cells. The Association for Research in Vision and Ophthalmology. Orlando, Florida. May 2014.
14. **Tovar-Vidales T**, Fitzgerald A, Clark AF, and Wordinger RJ. Transforming Growth Factor- β 2 (TGF- β 2) Induces Expression of Biologically Active Bone Morphogenetic Protein-1 (BMP1) in Human Trabecular Meshwork Cells. The Association for Research in Vision and Ophthalmology. Seattle, Washington. May 2013.
15. **Tovar-Vidales T**, Clark AF, and Wordinger RJ. Effects of TGF- β 2, BMPs-2/5/7, and Gremlin on Fibronectin in Human Trabecular Meshwork Cells. The Association for Research in Vision and Ophthalmology. Fort Lauderdale, Florida. May 2011.

4. Professional scholarly activities

a. Journal reviewer for:

Nutritional Neuroscience: Peer reviewer

PLoS One: Peer reviewer

Molecular Vision: Peer reviewer

Experimental Eye Research: Peer reviewer

Eye and Vision: Peer reviewer

Molecular Vision, Biology and Genetics in Vision Research: Peer reviewer

Medicine: Peer reviewer

Journal Metalloproteinases: Peer reviewer

b. Early career grant reviewer (invited)

Biology of the Visual System (BVS) study section. Bethesda, MD. October 4-5, 2018

VII. PROFESSIONAL SOCIETIES

1. Memberships

2020 – present	International Society of Eye Research (ISER)
2003 – present	Association for Research in Vision and Ophthalmology (ARVO)
2007 – 2010	SIGMA XI, The Scientific Research Society