

Abe Clark, PhD
Graduate School of Biomedical Sciences
North Texas Eye Research Institute
Pharmacology & Neuroscience
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Area of Expertise

Dr. Clark's major research focus is to discover the molecular mechanisms involved in ocular diseases, particularly glaucoma, in order to develop disease modifying therapies for better management of ocular diseases. Glaucoma is the leading cause of irreversible vision loss and blindness in the world and is also the leading neurodegenerative disease, affecting both the eye and brain. Dr. Clark's research includes molecular genetics, molecular biology, cell biology, physiology, pathology, and mouse models of glaucoma. A main goal in this lab is to perform translational research that eventually will help patients with glaucoma. In addition to research, he trains and mentors graduate students, postdoctoral fellows, and medical students. He also is very active in community-based vision screening events.

Qualifications

BA in Biology, Thiel College
PhD in Microbiology, Case Western Reserve University

Recent Publications

Mirna expression in glaucomatous and tgfb2 treated lamina cribrosa cells

Lopez, N. N., Rangan, R., Clark, A. F. & Tovar-Vidales, T., 2 Jun 2021, In: International journal of molecular sciences. 22, 12, 6178.

The Canonical Wnt Signaling Pathway Inhibits the Glucocorticoid Receptor Signaling Pathway in the Trabecular Meshwork

Sugali, C. K., Rayana, N. P., Dai, J., Peng, M., Harris, S. L., Webber, H. C., Liu, S., Dixon, S. G., Parekh, P. H., Martin, E. A., Cantor, L. B., Fellman, R. L., Godfrey, D. G., Butler, M. R., Emanuel, M. E., Grover, D. S., Smith, O. U., Clark, A. F., Raghunathan, V. K. & Mao, W., Jun 2021, In: American Journal of Pathology. 191, 6, p. 1020-1035 16 p.

Erratum: Reduced oxidative phosphorylation and increased glycolysis in human glaucoma lamina cribrosa cells ((Invest Ophthalmol Vis Sci. (2020) 61:13 (4) DOI: 10.1167/iops.61.13.4)

Kamel, K., O'Brien, C. J., Zhdanov, A. V., Papkovsky, D. B., Clark, A. F., Stamer, W. D. & Irnaten, M., Jan 2021, In: Investigative Ophthalmology and Visual Science. 62, 1, p. 1 1 p.

Intra-cellular calcium signaling pathways (Pkc, ras/raf/mapk, pi3k) in lamina cribrosa cells in glaucoma

Irnaten, M., Duff, A., Clark, A. & O'Brien, C., Jan 2021, In: Journal of Clinical Medicine. 10, 1, p. 1-14 14 p., 62.

ID1 and ID3 are negative regulators of TGFβ2-induced ocular hypertension and compromised aqueous humor outflow facility in mice

Mody, A. A., Cameron Millar, J. & Clark, A. F., 2021, In: Investigative Ophthalmology and Visual Science. 62, 6, A2.

Reduced oxidative phosphorylation and increased glycolysis in human glaucoma lamina cribrosa cells

Kamel, K., O'Brien, C. J., Zhdanov, A. V., Papkovsky, D. B., Clark, A. F., Stamer, D. & Irnaten, M., 5 Nov 2020, In: Investigative Ophthalmology and Visual Science. 61, 13, 4.

CNS axonal degeneration and transport deficits at the optic nerve head precede structural and functional loss of retinal ganglion cells in a mouse model of glaucoma

Maddineni, P., Kasetti, R. B., Patel, P. D., Millar, J. C., Kiehlbauch, C., Clark, A. F. & Zode, G. S., 27 Aug 2020, In: Molecular Neurodegeneration. 15, 1, 48.

Isolation and characterization of human optic nerve head astrocytes and lamina cribrosa cells

Lopez, N. N., Clark, A. F. & Tovar-Vidales, T., Aug 2020, In: Experimental eye research. 197, 108103.

Glucocorticoid-induced ocular hypertension: origins and new approaches to minimize

Yorio, T., Patel, G. C. & Clark, A. F., 3 May 2020, In: Expert Review of Ophthalmology. 15, 3, p. 145-157 13 p.

Transient receptor potential channels TRPC1/TRPC6 regulate lamina cribrosa cell extracellular matrix gene transcription and proliferation

Irnatén, M., O'Malley, G., Clark, A. F. & O'Brien, C. J., Apr 2020, In: Experimental eye research. 193, 107980.

Sponsored Projects

A New Model of Human Primary Open-Angle Glaucoma

Clark, A. & CLARK, A. F.

National Eye Institute

1/02/10 → 30/09/12

A New Model of Human Primary Open-Angle Glaucoma

Clark, A.

1/02/10 → 30/09/12

A New Mouse Model of Human Primary Open-Angle Glaucoma

Clark, A.

NEI: National Eye Institute

1/02/10 → 30/09/12

Assessment of Changes in the Visual Centers of the Brain in Acute Mouse Models of Retina Injury: The Role of Electrocardiographic and Echocardiographic Screening with TCOM Student Neal Olarte

Clark, A.

Intramural Research(UNTHSC)

1/09/13 → 31/08/14

Assessment of Efficacy of Reata Compound in Retinal Oxidative Injury Models

Clark, A. & Wu, H. (.

Reata Pharmaceuticals, Inc.

12/09/13 → 1/03/17

Assessment of Ocular Disease in the HABLE Cohort

Clark, A.

Intramural Research(UNTHSC)

1/09/14 → 31/08/17

Complement Expression Patterns in the Retina and Superior Colliculus of Mice in a Novel Pressure Dependent Model of Glaucoma - Graduate Student, Sean Silverman

Clark, A.

Sigma Xi

18/05/12 → 18/05/13

Conditionally Immortalized Mouse TM Cell and RGC Lines

Clark, A.

NEI: National Eye Institute

1/02/14 → 31/01/17

Conditionally immortalized TM cell and RGC lines from Animal Model

Clark, A. & CLARK, A. F.

National Eye Institute

1/02/14 → 31/01/17

Conditionally immortalized TM cell and RGC lines from Animal Model

Clark, A.

1/02/14 → 31/01/17

Evaluation of Lung Therapeutics Compound

Clark, A.

Lung Therapeutics Inc

19/04/17 → 18/07/18

Evaluation of NAC, NACA and diNACA in Cultured RPE Cells and in Cultured Corneal Endothelial Cells (CECs) +/- Oxidative Stress

Clark, A. & Wu, H. (.

Nacuity Pharmaceuticals, Inc.

18/02/19 → 4/06/20

Evaluation of SFRP1 and TGFB Signaling Pathways in Glaucoma

Clark, A.

Alcon Research Limited

9/03/12 → 8/03/13

Glucocorticoids, ocular hypertension and glaucoma

Clark, A. & GEISERT, E.

National Eye Institute

30/09/20 → 31/08/21

Glucocorticoids, ocular hypertension and glaucoma

Clark, A. & GEISERT, E.

National Eye Institute

1/09/21 → 31/08/22

Glucocorticoids, Ocular Hypertension and Glaucoma

Yorio, T., Clark, A., Yorio, T., YORIO, T., CLARK, A. F., CLARK, A. F. & YORIO, T.

National Eye Institute

30/09/05 → 31/08/20

Glucocorticoids, Ocular Hypertension, and Glaucoma

Clark, A. & Millar, C.

NEI: National Eye Institute

30/09/18 → 31/08/19

Glucocorticoids, Ocular Hypertension, and Glaucoma

Yorio, T. & Clark, A.

NEI: National Eye Institute

1/03/12 → 28/02/18

Glucocorticoids, Ocular Hypertension, and Glaucoma

Clark, A. & Yorio, T.

NEI: National Eye Institute

1/03/12 → 28/02/17

Glucocorticoids, Ocular Hypertension, and Glaucoma

Yorio, T., Clark, A. & Yorio, T.

30/09/05 → 31/08/20

**ID1 Protein Prevents Deleterious Effect of TGF β 2 in Ocular Hypertension Model: Implication for Novel Glaucoma Therapy
(For: Avani Mody)**

Clark, A.
Sigma Xi
1/01/15 → 31/01/16

MicroRNA-Directed Modulation of Intraocular Pressure

Clark, A.
Duke University
1/04/13 → 31/03/17

Non-Invasive Technique for In Vivo Detection of Retinal Reactive Oxygen Species

Pang, I. & Clark, A.
NEI: National Eye Institute
1/08/14 → 31/07/16

Novel Genome Editing for the Treatment of Glaucoma

Clark, A.
University of Iowa
1/07/19 → 30/04/20

Novel Genome Editing for the Treatment of Glaucoma

Clark, A., Zode, G. & SHEFFIELD, V.
National Eye Institute
1/07/19 → 30/04/22

Novel Genome Editing for the Treatment of Glaucoma

Clark, A., Zode, G. & SHEFFIELD, V.
1/07/19 → 30/04/22

Novel Glaucoma Treatment Using Genome Editing

Clark, A.
University of Iowa
1/04/14 → 31/03/19

Novel Glaucoma Treatment Using Genome Editing

Clark, A., SHEFFIELD, V., Zhang, F., Zhang, F., CLARK, A. F. & Sheffield, V. C.
National Eye Institute
1/04/14 → 31/03/19

Novel Glaucoma Treatment Using Genome Editing

Clark, A., SHEFFIELD, V. & Zhang, F.
1/04/14 → 31/03/19

Preclinical Evaluation of Graybug Vision Compound

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

Research Program to Determine the Effect of Donor Eye Time to Preservation on Ocular Tissue RNA Quality and on Overall Ocular Morphology

Clark, A.
Lions Eye Inst for Transplant & Research
1/10/11 → 31/03/12

Retina Ganglion Cell Subtype Specific Cell Death in a Mouse Model of Human Primary Open Angle Glaucoma (for Colleen McDowell)

Clark, A.

Glaucoma Research Foundation

16/02/13 → 15/02/15

Role of TGFB2-induced OHT in Bovine Perfusion Organ Culture

Clark, A.

Alcon Research Limited

1/04/10 → 30/04/12

Targeting ASICs in Optic Neurodegenerative Diseases is Neuroprotective

Dibas, A. & Clark, A.

BrightFocus Foundation

1/07/15 → 30/06/17

Test Three Nicox Compounds (n=3?) for Glucocorticoid Activity and Potential for Raising IOP Using In Vitro, Ex Vivo, and In Vivo Models

Clark, A.

Nicox Research Institute

2/02/15 → 31/12/16

Unity Biotechnology Compound Testing

Clark, A.

Unity Biotechnology

2/01/17 → 30/09/17

UNTHSC Support for Lockheed Martin in the area of Eye Safety Pertaining to Optical Radiation

Clark, A., Gryczynski, Z. & Gryczynski, I.

Lockheed Martin Missiles & Fire Control

1/10/11 → 31/12/12

Vision Integrating Strategies in Ophthalmology and Neurochemistry (VISION) - Core

Yorio, T. & Clark, A.

Department of the Army

22/01/10 → 27/05/16

Vision Integrating Strategies in Ophthalmology and Neurochemistry (VISION) - Project 1

Yorio, T. & Clark, A.

Department of the Army

22/01/10 → 27/02/15

Vision Integrating Strategies in Ophthalmology and Neurochemistry (VISION) - Project 4

Krishnamoorthy, R., Yorio, T. & Clark, A.

Department of the Army

22/01/10 → 27/02/15

Vision Integrating Strategies in Ophthalmology and Neurochemistry (VISION) - Project 5

Clark, A. & Yorio, T.

Department of the Army

22/01/10 → 27/02/15

Vision Integrating Strategies in Ophthalmology and Neurochemistry (VISION) - Project 6

Clark, A. & Yorio, T.

Department of the Army

22/01/10 → 27/02/15

VisiPlate Pilot: Perfused Human Cadaver Eyes

Clark, A.

Avisi Technologies

24/09/19 → 23/09/20