



Advancing Vision Science: Recent Achievements of NTERI

At the North Texas Eye Research Institute (NTERI), education and research go hand in hand, driving progress in visual sciences. Through specialized programs like the PhD in Visual Sciences, we are dedicated to preparing future scientists and clinicians to lead advancements in eye health. Our team—accomplished faculty, postdoctoral fellows, and PhD students—actively engages in innovative research ranging from novel testing methods to therapeutic development for clinical applications. Faculty members consistently contribute to leading ophthalmology journals, reflecting NTERI's prominent role in the field. In this newsletter, we are excited to share recent milestones, key publications, and the strides we've made in advancing the understanding and treatment of visual disorders.

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EXECUTIVE DIRECTOR'S MESSAGE



Dear NTERI Family,

As we near the end of the year, I want to take a moment to reflect on the remarkable achievements we've accomplished together and express my heartfelt gratitude to each one of you. To our students, this year has been one of growth and success. Congratulations to all those who have graduated or are about to!

Your perseverance, hard work, and determination have paid off, and I couldn't be prouder of your accomplishments. For those continuing their studies, I'm excited to see the new heights you will reach in the year ahead. Keep pushing forward — the best is yet to come!

To our faculty, your contributions to science continue to inspire and elevate our Institute. This year, many of you secured significant research grants and were recognized globally for your groundbreaking work. Your dedication to advancing knowledge and mentoring the next generation is truly unparalleled. I look forward to the continued success and impact of your research in the coming year.

To our staff, your commitment to our organization has been nothing short of exceptional. The work you do behind the scenes is vital to the success of NTERI, and we couldn't achieve what we do without your unwavering support. Thank you for your dedication and passion — you are the backbone of this institution.

Together, we've made this year a resounding success, and I'm confident that the coming year will bring even more achievements, growth, and milestones.

Wishing you all a joyous holiday season and a prosperous New Year!

Warmest regards,

Dimitrios Karamichos, BEng, MSc, Ph.D.

ENTERI INTERDISCIPLINARY SEMINAR SERIES (ISS)

The North Texas Eye Research Institute (ENTERI) proudly hosted the Interdisciplinary Seminar Series (ISS), featuring esteemed researchers sharing their expertise in cutting-edge advancements in vision science and related fields. Below are the highlights from our recent seminars:



Oliver Gramlich, PhD

Seminar Title: Advancements and Drawbacks in Preclinical Optic Neuropathy Treatments: From Mesenchymal Stem Cells to Small Molecule Drugs

Date: September 26, 2024

Location: IREB 260

Time: 12:30 – 1:30 pm



Tom Cunningham, PhD

Seminar Title: Sex Differences in Blood Pressure Regulation to Intermittent Hypoxia: A Preclinical Model of Sleep Apnea

Date: October 31, 2024

Location: IREB 440

Time: 12:30 – 1:30 pm



Rebecca M. Sappington, PhD

Seminar Title: Restoration of homeostasis as a therapeutic strategy in chronic retinal disease

Date: November 14, 2024

Location: IREB 440

Time: 12:30 – 1:30 pm

Thank you to all our speakers and attendees for making these seminars a success! We look forward to continuing this enriching series with more engaging discussions and collaborations in the future.

NTERI INTERDISCIPLINARY SEMINAR SERIES (ISS)

Upcoming speakers FY2025

The North Texas Eye Research Institute (NTERI) invites you to attend the upcoming Interdisciplinary Seminar Series (ISS), featuring leading researchers presenting their latest findings and insights in vision science and related fields. Mark your calendars for these exciting sessions:



Ashok Kumar, PhD

Date: January 30, 2025, Time: 12:30 – 1:30 pm



David Siderovski, PhD

Date: February 27, 2025, Time: 12:30 – 1:30 pm



Caroline Rickards, PhD

Date: March 27, 2025, Time: 12:30 – 1:30 pm



Gerhard Garhöfer, PhD

Date: May 1, 2025, Time: 12:30 – 1:30 pm

For more information, check our website:

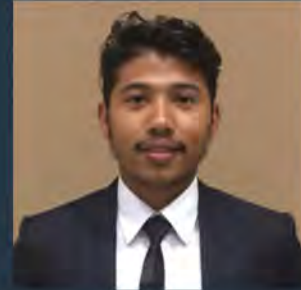
<https://www.unthsc.edu/north-texas-eye-research-institute/nteri-seminar-series/>



TRAINEE SPOTLIGHT

Pawan Shrestha a Ph.D. candidate in Dr. Dimitrios Karamichos' Lab

- Pawan successfully passed the Oral Qualifying Examination (OQE).
- Held the first committee meeting to kickstart the next phase of research.



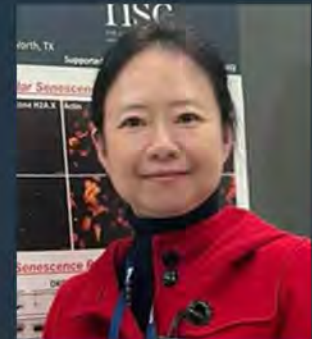
Sam Yacoub Ph.D. candidate in Dr. Abe Clark's Lab

- Published (PMID: 39345520)

Ying Qin

Ph.D. student in Dr. Hongli Wu's Lab

- Dr. Qin Ying, a student from Dr. Wu's lab, delivered an invited talk at the MetroCon 2025 Biotechnology Session, showcasing her aging-related research.



Peter Nsiah a Ph.D. candidate in Dr. Dimitrios Karamichos' Lab

- Peter received SABS Travel Award for an upcoming conference in February

TRAINEE SPOTLIGHT

Brenna Hefley
Ph.D. candidate in
Dr. Dimitrios Karamichos' Lab

- Brenna was appointed treasurer of SACNAS
- Published: PMID: 39494085 and PMID: 39299675
- Received SABS Travel Award for an upcoming conference in February



Calvin Brooks
Ph.D. student in
Dr. Raghu Krishnamoorthy's Lab

- Publications: PMID: 37965225, PMID: 39490619 and PMID: 39684751

Gretchen Johnson, Ph.D.
Dr. Dorota Stankowska's Lab

- 1st author publication - PMID: 38942762
- Dr. Gretchen A. Johnson, a former UNT Health Science Center student, is now a Postdoctoral Research Fellow at the University of Michigan's Kellogg Eye Center in Dr. Patrice Fort's lab. We are proud of Dr. Johnson's accomplishments and her contributions to vision science!



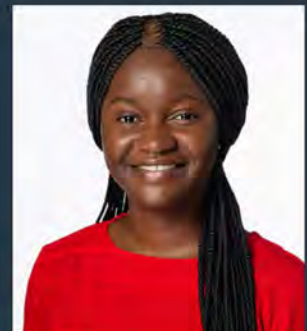
TRAINEE SPOTLIGHT

Rajiv Rangan
Ph.D. candidate in Dr. Abe Clark's Lab
• Published - PMID: 37511316



Alexander Choi
M.S. student in Dr. Dimitrios Karamichos' Lab
• Graduated with Master's degree

Nina Donkor
Ph.D. student in Dr. Denise Inman's Lab
• Published a first-author paper (PMID: 39481675)



Autumn Morgan
Ph.D. student in Dr. Denise Inman's Lab
• Publication: PMID: 39481675

TRAINEE SPOTLIGHT

Charles Amankwa, Ph.D. Dr. Suchismita Acharya's Lab

- Dr. Charles Amankwa has joined Memsel as a postdoctoral researcher.



Olivia Joung, Ph.D. candidate in Dr. Inman's Lab

- Olivia completed her proposal defense and advanced to candidacy

Jennifer Pham, Ph.D. Dr. Dorota Stankowska's Lab

- Dr. Jennifer Pham will join Dr. Adriana Di Polo's lab at the CRCHUM as a postdoctoral fellow.



FACULTY SPOTLIGHT & LAB HAPPENINGS



>>> SUCHISMITA ACHARYA, PH.D.

- Dr. Charles Amankwa, a former PhD student from Acharya's lab, has joined Memsel, a biotechnology research and development company, as a postdoctoral researcher. His work addresses pressing healthcare challenges, including traumatic brain injury (TBI), antibiotic resistance, and wound healing, with a focus on creating impactful solutions through cutting-edge technologies and translational research.
- Publications: PMID: 39195259, PMID: 38474360

ABE CLARK, PH.D. <<<

- Mentor Recognition Award: Honored by the Institute of Health Disparities.
- Ernst Bárány Prize: Awarded at the ISER Meeting in Buenos Aires for excellence in ocular pharmacology, highlighting research on novel glaucoma pathogenic pathways and therapeutic targets.
- ISER Meeting Leadership: Chaired the Glaucoma Pathogenesis Session and presented research on glaucomatous molecular signaling pathways in the trabecular meshwork and optic nerve head.
- R21 Funding: Co-PI with Dr. David Siderovski on an R21 grant to discover novel disease-modifying therapies for glaucoma prevention and treatment.
- Key Presentations:
 - P&N Departmental Seminar: Discovery of Novel Glaucoma Pathogenic Pathways and Therapeutic Targets (December 3, 2024).
 - Baylor College of Medicine Vision Symposium: Aberrant Wnt Signaling in the Pathogenesis of Glaucoma (December 7, 2024).
 - Meshwork Society Meeting: TM Transcriptomes in Dexamethasone-Induced Ocular Hypertension (December 13, 2024).
- Publication: Contributed to Glaucoma Methods and Protocols (Methods in Molecular Biology, 2858), Chapter 1: Evaluation of Cross-Linked Actin Networks (CLANs) in Human Trabecular Meshwork Cells and Tissues (2024).



DIMITRIOS KARAMICHOS, PH.D. <<<

The Karamichos Lab has had an eventful and successful year filled with achievements and milestones:

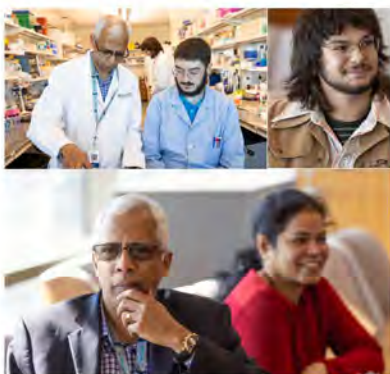
- Student Success: Pawan and Peter successfully passed their Oral Qualifying Exams, and Alex graduated with a Master's degree.
- New Lab Members: Yasmin Moradi and Steve joined the lab. Steve also serves as the post-doc representative on the Early Career Development Council.

Honors and Recognitions:

- Dr. Karamichos was named to the top 2% of the scientists list.
- Dr. Karamichos was also honored as an ARVO Silver Fellow (Class of 2025).
- Brenna was appointed treasurer of SACNAS.
- Brenda welcomed a new baby, Ellie, and serves as a Staff Senator.

Publications:

- Brenna co-authored two papers:
- "Corneal Epithelial-Stromal Constructs to Study Differences Associated with Diabetes Mellitus" (Experimental Eye Research, Nov 2024).
- "Systemic and Ocular Associations of Keratoconus" (Expert Review of Ophthalmology, 2024).



>>> RAGHU KRISHNAMOORTHY, PH.D.

- Published a review article on exercise treatments for Alzheimer's disease in collaboration with Dr. Sumien from the Department of Pharmacology and Neuroscience.
- Published a research article on mitochondrial function and mitophagy in endothelin-1 mediated retinal degeneration, featured in the special issue Unraveling the Molecular Mechanisms of Neurodegeneration in the International Journal of Molecular Sciences.

DOROTA STANKOWSKA, PH.D. <<<

- Dr. Gretchen Johnson is now making significant strides as a Postdoctoral Research Fellow at the University of Michigan Medical School's Kellogg Eye Center in the lab of Dr. Patrice Fort.
- Dr. Jennifer Pham will be joining the lab of Dr. Adriana Di Polo at the Université de Montréal's affiliated hospital research center, the CRCHUM, as a postdoctoral fellow. Dr. Pham is excited to enhance her training and contribute to cutting-edge research focused on developing neuroprotective therapies for glaucoma.
- Dr. Stankowska was promoted to Associate Professor in September 2024.
- Co-authored a publication: "A Reduction in Mitophagy Is Associated with Glaucomatous Neurodegeneration in Rodent Models of Glaucoma" in the International Journal of Molecular Sciences (2024, 25(23), 13040).
- Co-authored a publication: CSP7 Protects Alveolar Epithelial Cells by Targeting p53-Fibrinolytic Pathways During Lung Injuries
- Dr. Stankowska delivered an invited oral presentation at the ISER Meeting on October 23, 2024, titled "AlphaB-crystallin-derived Peptide for Neuroprotection in Glaucoma."



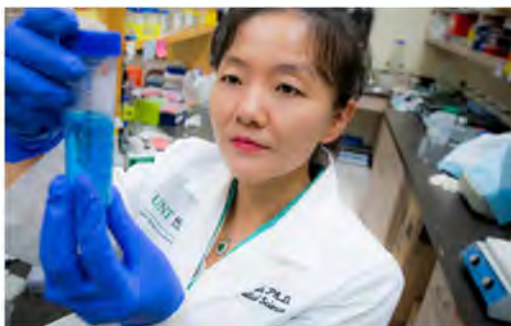
CAMERON MILLAR, PH.D. <<<

- Cameron Millar, Ph.D., of the Department of Pharmacology & Neuroscience (P&N) and the North Texas Eye Research Institute (NTERI), has an R21 grant from the NIH entitled "Targeting FMNL2/Rho-GTPase Pathway for IOP Regulation in Glaucoma." This study will help to further clarify the genetics of Primary Open-Angle Glaucoma (POAG) and the reasons why this disease is up to five times more prevalent in African-Americans than in other populations.
- Dr. Millar has been a faculty member with NTERI since May 2013 and has been actively engaged in glaucoma research in academia and the pharmaceutical industry since 1989. During this time, he has worked on the research and development of 5 drug classes intended for the treatment of POAG, which is still one of the most common causes of irreversible blindness in the world today, especially among older adults. At present, he has co-authored a total of 55 peer-reviewed papers and 5 book chapters in the field of glaucoma research.



>>> DENISE INMAN, PH.D.

- Dr. Inman chaired the scientific session Mitochondria and Metabolism in Glaucoma at the ISER Meeting on October 21, 2024.
- Dr. Inman delivered an invited talk during the session titled "Fibrosis and Nutrient Availability at the Optic Nerve Head in Glaucoma."
- Published a research article: "Neuroprotective Effect of Sigma-2 Modulator CT2074 in a Mouse Model of Ocular Hypertension" in Experimental Eye Research (2024 Dec;249:110143).



>>> HONGLI WU, PH.D.

- Outstanding Peer Review Recognition: Dr. Wu was acknowledged for her exceptional peer-review contributions, receiving the Exceptionally Good Review certificate twice from Investigative Ophthalmology & Visual Science (IOVS).
- Grant Progress: Dr. Wu's collaborative R15 grant, in partnership with Dr. Kayla Green from Texas Christian University (TCU), has achieved Just-in-Time (JIT) status.

>>> DR. ABE CLARK HONORED WITH ISER 2024 ERNST H. BÁRÁNY PRIZE

We are thrilled to celebrate Dr. Abbot “Abe” Clark, PhD, FARVO, FFAO, Regents Professor of Pharmacology and Neuroscience in the School of Biomedical Sciences and a dedicated member of the North Texas Eye Research Institute (NTERI).

Dr. Clark has been awarded the prestigious Ernst H. Bárány Prize by the International Society for Eye Research (ISER) for his exceptional contributions to advancing our understanding of ocular pharmacology. This honor highlights Dr. Clark’s groundbreaking research, which has significantly shaped the field of vision science.

The award will be presented during the Prize Ceremony and Lecture at the ISER meeting on October 22, 2024, in Argentina. Dr. Clark also delivered a plenary lecture titled “Discovery of Novel Glaucoma Pathogenic Pathways and Therapeutic Targets,” where he shared insights from his pioneering work.

Please join us in congratulating Dr. Clark on this well-deserved recognition and for his ongoing contributions to vision research excellence!

>>> DR. KARAMICHOS: ARVO SILVER FELLOW HONOR

Congratulations to Dr. Karamichos for being named an ARVO Silver Fellow by the Association for Research in Vision and Ophthalmology (ARVO) Board of Trustees!

This prestigious recognition celebrates Dr. Karamichos’ exemplary contributions and dedication to advancing vision research. As a member of the ARVO Silver Fellows Class of 2025, Dr. Karamichos is now entitled to use the honorary credential, FARVO (Fellow of ARVO).

Dr. Karamichos will be formally recognized at the ARVO 2025 Opening Keynote session in Salt Lake City, Utah, where they will receive a Silver Fellow Medal, lapel pin, and certificate. Their outstanding achievements will also be featured on the ARVO website and in ARVO publications.

Join us in celebrating this remarkable milestone and Dr. Karamichos’ invaluable contributions to the field of vision research!

>>> A NEW ADDITION TO THE NTERI FAMILY

We are delighted to share the joyful news that Ellie Jurich was welcomed into the world on November 18th by her loving family — Vasini Rosell (Mom), Mariano (Dad), and big sister Emma. The new family of four is thriving, and their happiness is contagious!

Join us in congratulating them on this beautiful milestone and celebrating the arrival of little Ellie.



DORETTE ELLIS PH.D. RETIREMENT PARTY

Dr. Dorette Z. Ellis, a valued member of the North Texas Eye Research Institute, has retired after an exceptional career in research, education, and mentorship. With a PhD in Biology from the University of South Florida and postdoctoral training at Massachusetts General Hospital, Dr. Ellis has made significant contributions to the fields of pharmaceutical sciences and vision research, particularly in glaucoma and ocular physiology.

Her dedication extended beyond research, as she was deeply committed to teaching and mentoring students at all levels, inspiring the next generation of scientists. Her passion for understanding ocular mechanisms, such as aqueous humor regulation and retinal ganglion cell survival, has been a cornerstone of her scholarly pursuits.

On December 2, 2024, the NTERI community gathered to celebrate her illustrious career at a retirement party held in IREB 230. While we bid farewell to her active role, Dr. Ellis' contributions and legacy will continue to impact the field for years to come. We wish her all the best in her retirement!



ENTERI SNAPSNOTS: CAPTURING MOMENTS AND MEMORIES

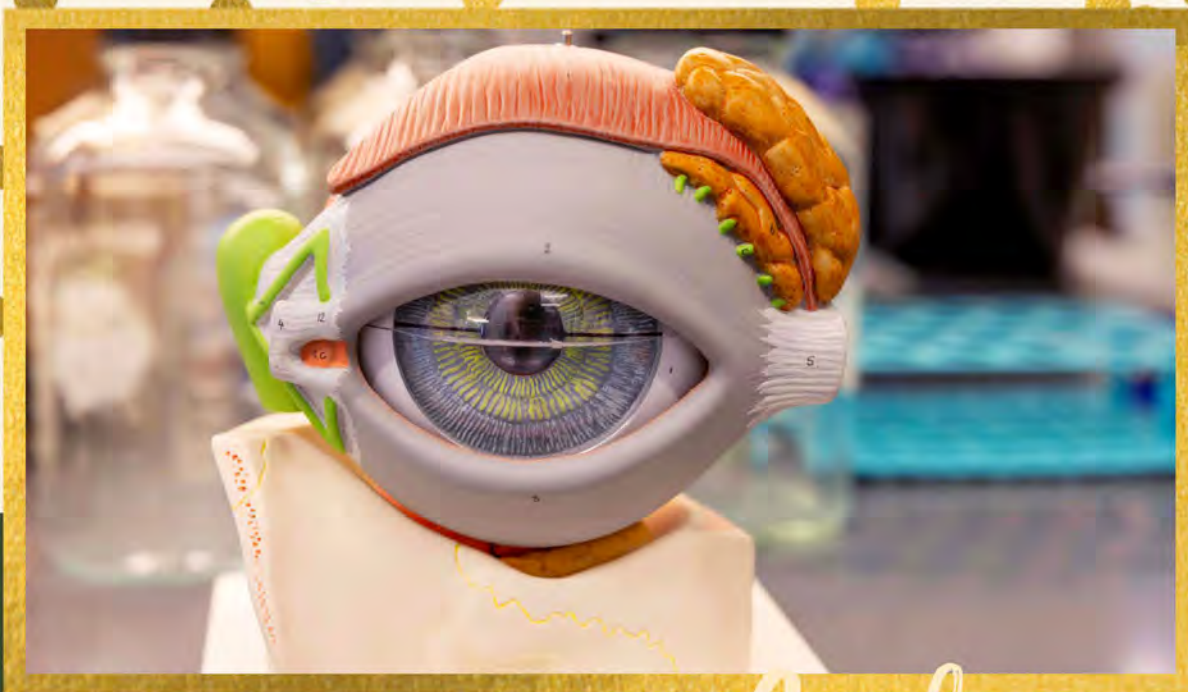




EYESIGHT PUBLICATIONS, 2024



1. Brooks CD, Krishnamoorthy RR, Sumien N. The role of exercise in the prevention and treatment of Alzheimer's disease and mild cognitive impairments. *Ageing Res Rev.* 2024 Dec;102:102555. doi: 10.1016/j.arr.2024.102555. Epub 2024 Oct 28. PMID: 39490619.
2. Chaphalkar RM, Kodati B, Maddineni P, He S, Brooks CD, Stankowska DL, Yang S, Zode G, Krishnamoorthy RR. A Reduction in Mitophagy Is Associated with Glaucomatous Neurodegeneration in Rodent Models of Glaucoma. *Int J Mol Sci.* 2024 Dec 4;25(23):13040. doi: 10.3390/ijms252313040. PMID: 39684751; PMCID: PMC11642561.
3. Curreri AM, Dunne M, Bibbey MG, Kapate N, Kim J, Mitragotri S. Localization of Intramuscular mRNA Delivery Using Deep Eutectic-Lipid Nanocomposites. *Adv Healthc Mater.* 2024 Aug;13(20):e2400327. doi: 10.1002/adhm.202400327. Epub 2024 May 14. PMID: 38693774.
4. Dayoub AS, Acharya E, Dibas A, Jones HP, Acharya S. Novel Small Molecules with Anti-Inflammatory and Anti-Angiogenic Activity in a Mouse Model of Oxygen-Induced Retinopathy. *Cells.* 2024 Aug 17;13(16):1371. doi: 10.3390/cells13161371. PMID: 39195259; PMCID: PMC11353024.
5. Donkor N, Gardner JJ, Bradshaw JL, Cunningham RL, Inman DM. Ocular Inflammation and Oxidative Stress as a Result of Chronic Intermittent Hypoxia: A Rat Model of Sleep Apnea. *Antioxidants (Basel).* 2024 Jul 22;13(7):878. doi: 10.3390/antiox13070878. PMID: 39061946; PMCID: PMC11273423.
6. Donkor N, Kiehlbauch CC, Pappenhagen N, Look GC, Morgan AB, Shin R, Hamby ME, Inman DM. Neuroprotective effect of Sigma-2 modulator CT2074 in a mouse model of ocular hypertension. *Exp Eye Res.* 2024 Dec;249:110143. doi: 10.1016/j.exer.2024.110143. Epub 2024 Oct 29. PMID: 39481675.
7. Escandon P, Choi AJ, Mabry S, Nicholas SE, Cunningham RL, Redden L, Murphy DA, Riaz KM, McKay TB, Karamichos D. Decreased Circulating Gonadotropin-Releasing Hormone Associated with Keratoconus. *Cells.* 2024 Oct 15;13(20):1704. doi: 10.3390/cells13201704. PMID: 39451222; PMCID: PMC11506063.
8. Hefley BS, Ali AA, Bhattacharya P, Hjortdal J, Walker MK, Karamichos D. Systemic and Ocular Associations of Keratoconus. *Expert Rev Ophthalmol.* 2024;19(5):379-391. doi: 10.1080/17469899.2024.2368801. Epub 2024 Jul 3. PMID: 39494085; PMCID: PMC11526800.
9. Hefley BS, McKay TB, Hutcheon AEK, Ciolino JB, Karamichos D. Corneal epithelial-stromal constructs to study differences associated with diabetes mellitus. *Exp Eye Res.* 2024 Nov;248:110100. doi: 10.1016/j.exer.2024.110100. Epub 2024 Sep 17. PMID: 39299675.
10. Izuagbe S, Roy J, Chatila A, Hoang LQ, Ea V, Vaish B, Co CM, Ly A, Wu H, Tang L. A 3D in vitro model for assessing the influence of intraocular lens: Posterior lens capsule interactions on lens epithelial cell responses. *Exp Eye Res.* 2024 Jul;244:109940. doi: 10.1016/j.exer.2024.109940. Epub 2024 May 22. PMID: 38782178; PMCID: PMC11246700.
11. Janes ME, Park KS, Gottlieb AP, Curreri A, Adebowale K, Kim J, Mitragotri S. Dendritic Cell Immune Modulation via Polyphenol Membrane Coatings. *ACS Appl Mater Interfaces.* 2024 Jun 5;16(22):28070-28079. doi: 10.1021/acsami.4c01575. Epub 2024 May 23. PMID: 38779939.
12. Johnson GA, Kodati B, Nahomi RB, Pham JH, Krishnamoorthy VR, Phillips NR, Krishnamoorthy RR, Nagaraj RH, Stankowska DL. Mechanisms contributing to inhibition of retinal ganglion cell death by cell permeable peptain-1 under glaucomatous stress. *Cell Death Discov.* 2024 Jun 28;10(1):305. doi: 10.1038/s41420-024-02070-8. PMID: 38942762; PMCID: PMC11213865.
13. Liu X, Yu Y, Garcia LA, Au ML, Tran M, Zhang J, Lou A, Liu Y, Wu H. A grape-supplemented diet prevented ultraviolet (UV) radiation-induced cataract by regulating Nrf2 and XIAP pathways. *J Nutr Biochem.* 2024 Jul;129:109636. doi: 10.1016/j.jnutbio.2024.109636. Epub 2024 Mar 30. PMID: 38561079; PMCID: PMC11107911.
14. Nicholas SE, Basu SK, Mandal N, Karamichos D. Amelioration of Fibrosis via S1P Inhibition Is Regulated by Inactivation of TGF- β and SPL Pathways in the Human Cornea. *Int J Mol Sci.* 2024 Jun 14;25(12):6560. doi: 10.3390/ijms25126560. PMID: 38928268; PMCID: PMC11203819.
15. Patel PD, Clark AF. Evaluation of Cross-Linked Actin Networks (CLANs) in Human Trabecular Meshwork Cells and Tissues. *Methods Mol Biol.* 2025;2858:1-15. doi: 10.1007/978-1-0716-4140-8_1. PMID: 39433662.
16. Puthusseri B, Bhagavath AK, Korir D, Shetty R, Johnson GA, Stankowska DL, Konduru NV, Tang H, Bolla S, Criner GJ, Marchetti N, Das DN, Shetty S. CSP7 Protects Alveolar Epithelial Cells by Targeting p53-Fibrinolytic Pathways During Lung Injuries. *Am J Respir Cell Mol Biol.* 2024 Sep 13. doi: 10.1165/rcmb.2023-0453OC. Online ahead of print. PMID: 39269467.
17. Yu Y, Zhang J, Wu H. Optimizing Mouse Primary Lens Epithelial Cell Culture: A Comprehensive Guide to Trypsinization. *J Vis Exp.* 2024 Jun 21;(208):10.3791/65912. doi: 10.3791/65912. PMID: 38975789; PMCID: PMC11259111.



Joyeux Noël

Warm Winter Holiday Wishes from the NTERI Team

Dear HSC Community,

As the year comes to a close and the holiday season surrounds us with joy and reflection, the North Texas Eye Research Institute team sends you our warmest wishes.

May this season bring peace, happiness, and time to cherish with loved ones. We are grateful for the incredible dedication and achievements of our HSC community, and we look forward to continuing our shared journey of innovation, collaboration, and discovery in the new year.

Here's to a bright and successful 2025!

Happy Holidays and a Wonderful New Year!

— The NTERI Team