

Advancing Vision Science: NTERI's Latest Milestones

In our recent efforts, the North Texas Eye Research Institute (NTERI) continues to lead with impactful discoveries and initiatives. Our dedicated team, consisting of scientists, PhD students, and postdoctoral fellows, is engaged in pioneering research, ranging from innovative testing methods to the development of therapeutics poised for clinical trials. Faculty members regularly publish their findings in leading ophthalmology journals, affirming NTERI's leadership in the field.

Education remains a priority, with NTERI committed to training the next generation of scientists and clinicians through specialized programs, including a PhD in Visual Sciences. As we expand and innovate, NTERI remains devoted to addressing disparities in eye health and contributing to global advancements in eye research.

In this newsletter, you will find our latest achievements and publications, providing insights into our ongoing dedication to advancing the frontiers of visual sciences.

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EXECUTIVE DIRECTOR'S MESSAGE



I hope this message finds you all well and filled with the same sense of pride and accomplishment that I am feeling as I reflect on our recent achievements. Over the past few months, you have played a significant role in elevating the North Texas Eye Research Institute and increasing its visibility nationwide.

From our FY24 Interdisciplinary Seminar Series with locally and nationally recognized speakers, to a successful Inaugural Whole Eye Health Symposium, to an incredible ARVO Social networking dinner and a fascinating WEAVR luncheon, each event has not only met but exceeded our expectations.

These events illustrate NTERI's excellence in education and transformational scientific discoveries and raise our profile across the globe. The outstanding contributions of our students and faculty strengthen NTERI and HSC and help improve the health and quality of life of our community. Every member of our team makes a meaningful impact and that is what makes NTERI a special place to work.

I want to extend my heartfelt thanks for all that you do, and I look forward to continuing to work alongside you as we build on our success and pursue even greater achievements in the future.

Dimitrios Karamichos, BEng, MSc, Ph.D.

Whole Health Eye Symposium

Earlier this year, NTERI hosted the first Whole Health Eye Symposium. Thank you to our special guests and all the attendees for your invaluable contributions to making this event successful!

SEMINAR: Reconceiving Fundamentals of Knowledge and Science in the 21st Century



KEYNOTE SPEAKER

**Eve J.
Higginbotham, SM, MD, ML**

Vice Dean, Penn Medicine
Office of Inclusion, Diversity and Equity
Senior Fellow, Leonard Davis Institute for Health Economics
Professor of Ophthalmology



GUEST SPEAKER

Sid O'Bryant, PhD

Brain Aging Among Diverse Communities –
Challenging the Status Quo and Opportunities
for Advancement



NTERI INTERDISCIPLINARY SEMINAR SERIES (ISS)

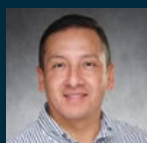
FY2024 Summary



September 28th, 2023

Dr. Cintia De Paiva

“Epithelial CD25/IL-2 signaling in the cornea is important for corneal barrier function”



October 26th, 2023

Dr. Sterling Ortega

“Understanding the Role of the Adaptive Immune System in Brain Health and Disease”



November 16th, 2023

Dr. Steve Fliesler

“Cholesterol Pathway Defects: Impact on the Structure and Function of the Retina”



December 7th, 2023

Dr. Sid O'Bryant

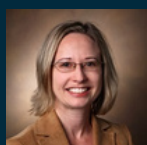
“Examining Biomarkers of Alzheimer’s Disease Across Diverse Populations”



January 18th, 2024

Dr. Winston Kao

“Matricellular Functions of Lumican in Corneal Homeostasis And Wound Healing”



January 25th, 2024

Dr. Tonia Rex

“Oxidative stress: a common mechanism and therapeutic target in optic neuropathies”



February 29th, 2024

Dr. Susmit Suvas

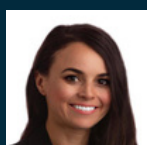
“Impact of inflammatory hypoxia and immune cell localization on the development of herpes stromal keratitis”



March 28th, 2024

Dr. Joshua Dunaief

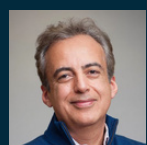
“Heavy metal-induced retinopathy protected by heavy lipids”



April 25th, 2024

Cynthia Carrol

“Effective Teams in Ineffective Systems – the Rationale Interprofessionalism”



May 30th, 2024

Dr. Reza Dana

“Novel developments in Corneal Transplantation, Corneal Regenerative Medicine and Angiogenesis”

NTERI INTERDISCIPLINARY SEMINAR SERIES (ISS)

Upcoming speakers FY2025



Dr. Waridibo Allison
September 26th, 2024



Dr. Tom Cunningham
October 31th, 2024

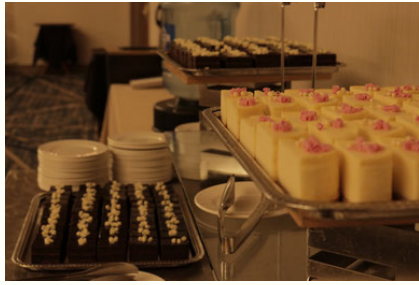


Dr. Rebecca Sappington
November 14th, 2024

For more information, check our website:

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





ARVO
2024
May 5 – 9 | Seattle
Vision for the Future

The NTERI Social Event last month at ARVO was a great success, with many distinguished guests in attendance.

Dr. Karamichos welcomed everyone and highlighted the numerous successes and achievements of NTERI. We look forward to next year's event at ARVO.





ARVO Foundation for Eye Research®



All proceeds from the WEAVR Luncheon support women in the visual sciences.

Funds raised support travel grants and Developing Country Eye Researcher Travel Fellowships for female scientists to attend the ARVO Annual Meeting. Proceeds also underwrite the Women's Leadership Development Program.

NTERI was one of the champion sponsors, providing for this cause.

TRAINEE SPOTLIGHT

Rajiv Rangan

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

1. Rajiv was the runner-up recipient of the James W. Simpkins Award, given in recognition of his excellent presentation at the 2024 Neurobiology of Aging and Alzheimer's Disease Symposium.
2. Presented his research poster at ARVO 2024 in Seattle.



Alexander Choi

M.S. student in Dr. Dimitrios Karamichos' Lab

1. Alex was awarded a travel grant from the National Eye Institute.
2. Presented his research poster at ARVO.

Nina Donkor

Ph.D. student in Dr. Denise Inman's Lab

1. Awards:
 - 1st place (College of Pharmacy Poster Forum) in the research-pharmaceutical basic science category.
 - 3rd Place - RAD Poster for HSCCP - Pharmaceutical Science Research Award.
 - Outstanding Graduate Student of the Year for the discipline of Pharmaceutical Sciences & Pharmacotherapy.
2. Presented her research poster at ARVO.



Purnima Sharma postdoctoral fellow in Dr. Dimitrios Karamichos' Lab

- Publication:
 - 1st author: PMID 38224848

TRAINEE SPOTLIGHT

R. Max Petty
Ph.D. candidate in
Dr. Raghu Krishnamoorthy's Lab

1. Max was awarded an F31 fellowship grant from the NIH/NEI.
2. Received travel award from Knights Templar Foundation to attend ARVO.
3. Presented his research poster at ARVO.



Autumn Morgan
Ph.D. student in Dr. Denise Inman's Lab

- Autumn passed her oral qualifying exam, completing a major milestone in her Ph.D. journey.
- Publication:
 - 1st author: PMID 38841201



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

- Brenna is serving as the 24-25 Travel Awards Rep for the Student Association of Biomedical Sciences.
- Presented her research poster at ARVO.



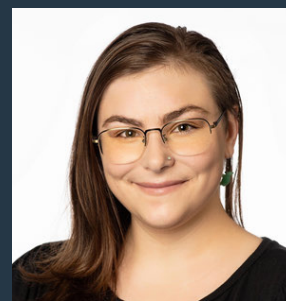
Calvin Brooks
Ph.D. student in
Dr. Raghu Krishnamoorthy's Lab

- Presented his research poster at ARVO.



Gretchen Johnson
Ph.D. candidate in
Dr. Dorota Stankowska's Lab

1. Gretchen received 1st place for NTERI at RAD 2024 for her poster presentation.
2. Presented her research poster at ARVO.
3. One paper was accepted for publication in *Cell Death Discovery*.



TRAINEE SPOTLIGHT



Pinkal Patel
postdoctoral fellow in Dr. Abe Clark's Lab

- Presented his research poster at ARVO.
- Publication:
 - 1st author: pre-print 10.21203/rs.3.rs-3864201/v1



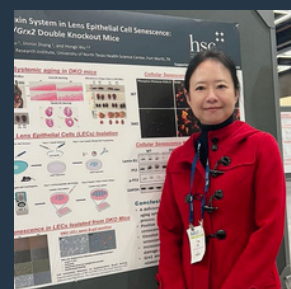
Pawan Shrestha
Ph.D. student in
Dr. Dimitrios Karamichos' Lab

- Presented his research poster at ARVO.



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

- Presented his research poster at ARVO.



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

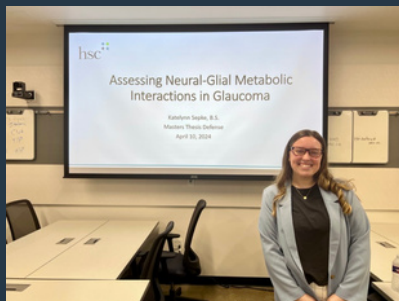
- Dr. Ying Qin (PharmD) passed her oral qualifying exam, completing a major milestone in her Ph.D. journey.
- Presented her research poster at ARVO.



Peter Nsiah
Ph.D. student in
Dr. Dimitrios Karamichos' Lab

- Peter passed his oral qualifying exam, completing a major milestone in his Ph.D. journey.

GRADUATION SPOTLIGHT



Katelynn Sepke

M.S. student in Dr. Denise Inman's Lab

1. Katelynn has successfully defended her M.S. thesis, passing with distinction.
2. Presented her work at the HSC College of Pharmacy Poster Forum as well as RAD.

Charles Amankwa

Ph.D. in Dr. Suchismita Acharya's Lab

1. Dr. Amankwa has successfully defended his dissertation, passing with distinction.
2. Presented his research poster at ARVO.
3. Publication:
 - a. 1st author: PMID 38474360



Jinmin Zhang

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

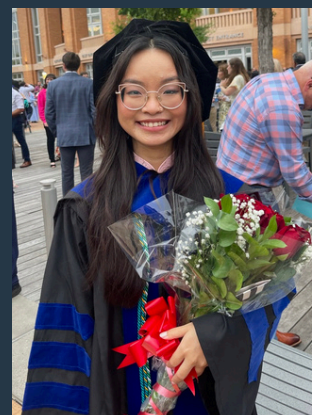
1. Dr. Zhang has successfully defended her dissertation, passing with distinction.
2. Awarded 2nd Place Poster for HSCCP - Pharmaceutical Science Research Award.
3. Publication:
 - a. Co-author: PMID 38561079



Jennifer Pham

Ph.D. in Dr. Dorota Stankowska's Lab

1. Dr. Pham has successfully defended her dissertation, passing with distinction.
2. **Awards:**
 - First Place award in Oral Presentation, Research Appreciation Day (RAD) 2024.
 - Edward E. Elko Award for Distinguished Service to the Student Association of Biomedical Sciences.
 - 2023-24 Outstanding Student in the Discipline of Visual Sciences.



FACULTY SPOTLIGHT & LAB HAPPENINGS



»»» SUCHISMITA ACHARYA, PH.D.

- Dr. Charles Amankwa passed his dissertation defense with distinction.
- Publication: PMID 38474360

ABE CLARK, PH.D. «««

- NEI R21 (Clark & Siderovski Multi-PI): Impact score of 20, which is likely to be funded.
- Chair of NEI K08/K23/K99 review meeting (2024/10 ZEY1 VSN (03) 2), July 24, 2024
- ARVO Meeting abstracts presented by: Rajiv Rangan, Sam Yacoub, Pinkal Patel, Prabhavathi Maddineni.
- Publications:
 - Pre-print: PMID 38196579,
 - Pre-print: doi: 10.21203/rs.3.rs-3864201/v1



»»» DENISE INMAN, PH.D.

- Nina Donkor received multiple awards, including Pharmaceutical Sciences-Pharmacotherapy Graduate Student of the Year and Outstanding Graduate Student of the Year for Pharmaceutical Sciences (SBS).
- Dr. Inman received the HSC College of Pharmacy 2024 Faculty Achievement Award for recognition of excellence in teaching, scholarship, service, and leadership.
- Katelynn Sepke successfully defended her Master's thesis, and she achieved "with distinction."
- Autumn Morgan passed her oral qualifying exam, completing a milestone in her academic journey.
- ARVO Meeting abstract presented by: Nina Donkor.
- Publication: Autumn Morgan published her first first-author manuscript in the Frontiers in Cellular Neuroscience, PMID 38841201.



DIMITRIOS KARAMICHOS, PH.D. <<<

- ARVO Meeting abstracts presented by: Alexander Choi, Brenna Hefley, Pawan Shrestha, Brenda Vasini, Sarah Nicholas, and Purnima Sharma.
- Peter Nsiah passed his oral qualifying exam, completing a milestone in his academic journey.
- Publication: PMID 38224848



>>> RAGHU KRISHNAMOORTHY, PH.D.

- ARVO Meeting abstracts presented by: Calvin Brooks, Max Petty, and Bindu Kodati.
- Max Petty received a travel award for ARVO from the Knights Templar Foundation and was awarded an F31 fellowship from the NIH/NEI.
- Dr. Krishnamoorthy received the Golden Apple Award for Teaching at the School of Biomedical Sciences Awards Celebration.

DOROTA STANKOWSKA, PH.D. <<<

- Gretchen Johnson won 1st place for her poster presentation at RAD 2024 for NTERI.
- Dr. Jennifer Pham received multiple awards, including Outstanding Visual Science Student, and passed her doctoral defense with distinction. She graduated with her sister, Kim-Tuyen Le, who passed her Master's defense with distinction.
- ARVO Meeting abstracts presented by: Gretchen Johnson and Jennifer Pham.
- Publication: 1 accepted for publication (Cell Death Discovery)
- Dr. Stankowska received the Outstanding Traditional Faculty Member award at the SBS Awards Celebration.
- The UNT System Board of Regents approved Dr. Stankowska's tenure in May, and she will be formally recognized at a special faculty assembly lunch in September.



>>> HONGLI WU, PH.D.

- We are thrilled to announce that Dr. Jinmin Zhang, a graduate student from Dr. Wu's lab, successfully earned her PhD this May! Dr. Zhang has worked incredibly hard and has published four papers, three of which she was the first author. Dr. Wu feels fortunate to have had Dr. Zhang as her student, and her dedication and perseverance have been truly inspiring. We are immensely proud of Dr. Zhang's achievements and wish her all the best as she embarks on her postdoctoral journey. Congratulations, Dr. Zhang!
- Dr. Ying Qin (PharmD) passed her oral qualifying exam, completing a milestone in her academic journey.
- Publication: PMID 38561079.

HIGHLIGHTS



DR. ABE CLARK HONORED WITH INTERNATIONAL RESEARCH AWARD

Abbot "Abe" Clark, PhD, FARVO, FAAO, Regents Professor of Pharmacology and Neuroscience in the School of Biomedical Sciences at The University of North Texas Health Science Center at Fort Worth and a member of the North Texas Eye Research Institute, has been honored with the International Society for Eye Research 2024 Ernst H. Bérány Prize.

This award recognizes Dr. Clark's exceptional contributions to research that has significantly advanced the understanding of ocular pharmacology.



DR. ELLIS RECEIVED AN R21 NIH AWARD

Dr. Ellis has been awarded an R21 NIH grant for her groundbreaking research titled "Targeting FMNL2/Rho-GTPase Pathway for IOP Regulation in Glaucoma." This prestigious award, providing \$222,000 per year, supports her innovative work on understanding and manipulating the FMNL2/Rho-GTPase pathway to regulate intraocular pressure (IOP) in glaucoma patients. Dr. Ellis's research holds significant promise for developing new therapeutic strategies to manage and potentially prevent glaucoma, a leading cause of blindness worldwide.



DR. KARAMICHOS RECEIVED AN R21 NIH AWARD

Drs. Karamichos and Kyle Emmitte (College of Pharmacy) have secured an R21 NIH grant for their pioneering research entitled "Discovery of Synthetic Flavonoids for Corneal Injury Treatment." This substantial grant, funding their work with \$222,000 annually, bolsters their exploration into using new synthetic flavonoids to address corneal scarring. Their research represents a promising avenue for developing innovative therapies to combat corneal fibrosis, a major global cause of blindness, potentially offering methods to both manage and potentially reverse or prevent this condition.

HIGHLIGHTS

»»» DR. WU AWARDED A COLLABORATIVE ROI NIH AWARD



Dr. Wu has recently been awarded a collaborative R01 grant from the National Eye Institute (NEI) for the project "Racial disparities of open-angle glaucoma: A study of mitochondria and oxidative stress in human trabecular meshwork" which will run from September 30, 2023, to June 30, 2028. This project is an example of the collaboration between Dr. Wu from NTERI, a basic scientist, and Dr. Carla Siegfried at Washington University in St. Louis, a clinician. The focus of the study is to investigate the disproportionate impact of glaucoma on African American communities, aiming to uncover how mitochondrial dysfunction and oxidative stress contribute to racial disparities in glaucoma paving the way for precision medicine and preventative strategies specifically for glaucoma.

»»» CONGRATULATION ON THE NEW NTERI FAMILY MEMBER

- BIDITA DEBNATH



We are delighted to announce the arrival of Bidita Debnath, the newest member of Biddut Deb Nath's family. Biddut, a Research Fellow in Dr. Acharya's lab at NTERI, has welcomed this joyful addition. We extend our heartfelt wishes to the Debnath family for enduring joy and an abundance of cherished moments. May their time together be filled with love, laughter, and lasting memories.

»»» CONGRATULATION ON THE NEW NTERI FAMILY MEMBER

- MUKUNDA MWALIMU NGOMA



We are delighted to announce the arrival of Mukunda Mwalimu Ngoma, whose name Mukunda means "daughter" in Shona, and Mwalimu means "teacher" in Swahili. She is the newest member of Kudakwashe Murinda's family. Kuda, a Ph.D. candidate in Dr. Inman's lab at NTERI, has welcomed this joyful addition. We wish the Murinda-Ngoma family endless happiness and many precious moments together.

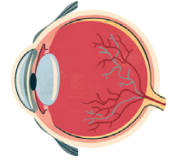


ENTERI SNAPSOTS: CAPTURING MOMENTS AND MEMORIES





EYESIGHT PUBLICATIONS, 2024



Amankwa, C. E., Acha, L. G., Dibas, A., Chavala, S. H., Roth, S., Mathew, B., & Acharya, S. (2024). Neuroprotective and Anti-Inflammatory Activities of Hybrid Small-Molecule SA-10 in Ischemia/Reperfusion-Induced Retinal Neuronal Injury Models. *Cells*, 13(5), 396. <https://doi.org/10.3390/cells13050396>

Johnson, G. A., Kodati, B., Nahomi, R. B., Pham, J. H., Krishnamoorthy, V. R., Phillips, N. R., Krishnamoorthy, R. R., Nagaraj, R. H., Stankowska, D. L. (2024) Mechanisms contributing to inhibition of Retinal Ganglion Cell Death by Cell Permeable Peptain-1 under Glaucomatous Stress. *Cell Death Discovery*. Accepted for publication.

Liu, X., Yu, Y., Garcia, L. A., Au, M. L., Tran, M., Zhang, J., Lou, A., Liu, Y., & Wu, H. (2024). A grape-supplemented diet prevented ultraviolet (UV) radiation-induced cataract by regulating Nrf2 and XIAP pathways. *The Journal of nutritional biochemistry*, 129, 109636. <https://doi.org/10.1016/j.jnutbio.2024.109636>

Morgan, A. B., Fan, Y., & Inman, D. M. (2024). The ketogenic diet and hypoxia promote mitophagy in the context of glaucoma. *Frontiers in cellular neuroscience*, 18, 1409717. <https://doi.org/10.3389/fncel.2024.1409717>

Patel P, CLARK AF. Evaluation of cross-linked actin networks (CLANs) in trabecular meshwork cells and tissues. *The Glaucoma Methods Book, Chapter 1 2024, In Press*

Patil, S. V., Kaipa, B. R., Ranshing, S., Sundaresan, Y., Millar, J. C., Nagarajan, B., Kiehlbauch, C., Zhang, Q., Jain, A., Searby, C. C., Scheetz, T. E., Clark, A. F., Sheffield, V. C., & Zode, G. S. (2023). Lentiviral mediated delivery of CRISPR/Cas9 reduces intraocular pressure in a mouse model of myocilin glaucoma. *Research square*, rs.3.rs-3740880. <https://doi.org/10.21203/rs.3.rs-3740880/v1>

Sharif, N. A., Millar, J. C., Zode, G., & Ota, T. (2024). Steroid-Induced Ocular Hypertension in Mice Is Differentially Reduced by Selective EP2, EP3, EP4, and IP Prostanoid Receptor Agonists. *International journal of molecular sciences*, 25(6), 3328. <https://doi.org/10.3390/ijms25063328>

Sharma, P., Ma, J. X., & Karamichos, D. (2024). Effects of hypoxia in the diabetic corneal stroma microenvironment. *Experimental eye research*, 240, 109790. <https://doi.org/10.1016/j.exer.2024.109790>