UNIVERSITY OF OKLAHOMA
COLLEGE OF MEDICINE

CURRICULUM VITAE

Raju VS Rajala, PhD

Professor, Department of Ophthalmology
Division of Vision Research
Edith Kinney Gaylord Presidential Professor
M.G. McCool Chair in Ophthalmology
Director of Research, Department of Physiology
Dean A. McGee Eye Institute 418
608 Stanton L. Young Blvd.
Oklahoma City, OK 73104
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Appointment Type: Tenured
Pathway: Basic Science Faculty

EDUCATION AND TRAINING

Postgraduate Education and Training

1992 - 1998 Postdoctoral Training, Molecular Biology, Molecular Biology, University of Saskatchewan, Saskatoon, Canada
Mentor: R K Sharma, PhD

Education

1985 - 1992 Doctor of Philosophy, Biochemistry
Biochemistry, Andhra University, India
Advisor: U Satyanarayana, PhD, D Siva Prasad, PhD

1982 - 1985 Master of Science, Biochemistry
Andhra University, India

1979 - 1982 Bachelor of Science, Chemistry, Botany, Zoology
SV University, India

PROFESSIONAL EXPERIENCE

Academic

2019 - Present Edith Kinney Gaylord Presidential Professor, Department of Ophthalmology, College of Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, OK

2014 - Present M.G. McCool Endowed Chair in Ophthalmology, Department of Ophthalmology, College of Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, OK, United States

2014 - Present Member, Harold Hamm Diabetes Center, Medicine, University of Oklahoma Health Sciences Center, Oklahoma City

2013 - Present Adjunct Professor, Department of Cell Biology, College of Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, OK

2013 - Present Professor, Department of Ophthalmology, College of Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, OK

2013 - Present Professor, Department of Physiology, College of Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, OK

2008 - Present Mentoring Faculty, Oklahoma Center for Neurosciences, Graduate College, University of Oklahoma Health Sciences Center, Oklahoma City, OK

2008 - 2013 Adjunct Associate Professor, Department of Cell Biology, College of Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, OK

2008 - 2013 Associate Professor, Department of Ophthalmology, College of Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, OK

2008 - 2013 Associate Professor, Department of Physiology, College of Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, OK

2003 - 2008 Adjunct Assistant Professor, Department of Cell Biology, College of Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, OK

2003 - 2008 Assistant Professor, Department of Ophthalmology, College of Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, OK

2000 - 2003 Assistant Professor of Research, Department of Ophthalmology, College of Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, OK

1998 - 2000 Professional Research Associate, Department of Pathology, University of Saskatchewan, Saskatoon, Canada

1996 - 2000 Guest Researcher, Department of Pathology, Plant Biotechnology Institute - National Research Council, Saskatoon, Canada

1989 - 1992 Research Scientist, Department of Gastroenterology, All India Institute of Medical Sciences, New Delhi, India

Administrative

2020 - Present Director of Research, Department of Physiology, College of Medicine, University of Oklahoma Health Sciences Center, Oklahoma City, OK

HONORS AND AWARDS

National/International

Finalist for the Thomas Maciag Award, Center for Biomedical Excellence (Nominated), 2007

Special Poster Presentation at 1t Biennial National IDeA Symposium of Biomedical Research Excellence, Washington, DC, 2006

Career Development Award, Research to Prevent Blindness, 2004

Local/Regional

Amalia M. Miranda, MD Special Recognition Award, Dean McGee Eye Institute/University of Oklahoma Health Sciences Center, June 7, 2020

Institutional

Edith Kinney Gaylord Presidential Professor, University of Oklahoma Health Sciences Center, April 22, 2019 - Present

M.G. McCool Chair in Ophthalmology, University of Oklahoma Health Sciences Center, September 1, 2014 - Present

The Elizabeth Anderson Award for Macular Degeneration, BrightFocus Foundation, April 29, 2019

Tenure, University of Oklahoma Health Sciences Center, July 1, 2010 - 2010

Travel Fellowship Award, National Eye Institute, 2002

Postdoctoral Fellowship Award, Health Services Utilization and Research Commission of Saskatchewan, Canada, 1997

Postdoctoral Fellowship Award, Health Services Utilization and Research Commission of Saskatchewan, Canada, 1994

National Overseas Scholarship for Higher Studies Abroad, Government of India, 1989

Senior Research Fellowship Award, Council of Scientific and Industrial Research - India, 1989

Research Fellowship Award, Indian Council of Medical Research - India, 1985

SCHOLARSHIP

Contracts, Grants, and Other Research

* indicates mentee

Current Grants

Rajala, R. V. (Principal Investigator), "Regulators of Photoreceptor Aerobic Glycolysis in Retinal Health and Disease," Extramural Research Grant, Sponsored by National Institutes of Health/National Eye Institute, Federal
Grant/Contract Number: R01EY035282
Total Direct Costs: $1,730,338.00
Additional Information: Retinal cells are non-dividing cells, yet they need the machinery to synthesize complex molecules from simpler molecules to support retina structure and function. Our studies will investigate how this molecular machinery works in retinal cells in health and disease. Our long-term goal is to understand these mechanisms to design novel therapies to protect retinal structure and function in patients who suffer from retinal degeneration.
September 1, 2023 - June 30, 2027

Gupta, V. (Primary Chief Investigator), **Rajala, R. V.** (Chief Investigator), 0.1% Effort, Rajala, A. (Chief Investigator), Graham, S. (Chief Investigator), Gupta, V. B. (Chief Investigator), Komaromy, A. (Chief Investigator), Mirzaei, M. (Chief Investigator), Chitranshi, N. (Associate Investigator), "Let There Be Light - Modified Serpin as a Dual Function Therapeutic Agent in Glaucoma," Extramural Research, Sponsored by National Health and Medical Research Council (NHMRC),

Non-Corporate Commonwealth Entity
Grant/Contract Number: APP2020010
Total Direct Costs: $1,186,771.00
Additional Information: Australian Dollar
March 1, 2023 - February 28, 2027

Callegan, M. C. (Principal Investigator), **Rajala, R. V.** (Module Director), "P30 NEI Core Grant for Vision Research," Extramural Research Grant, Sponsored by National Institute of Health/National Eye Institute, Federal
Grant/Contract Number: P30EY021725-09
Total Direct Costs: $5,610.00
Additional Information: This P30 grant supports three core modules (Live Animal Imaging and Functional Analysis, Cellular Imaging and Morphometric Analysis, and Molecular Biology), which will create state-of-the-art facilities for clinically relevant analysis of ocular structure and visual function.
August 1, 2021 - July 31, 2025

Rajala, R. V. (Principal Investigator), "Regulators of Photoreceptor Aerobic Glycolysis in Retinal Health and Disease," Bridge Grant, Sponsored by Presbyterian Health Foundation, Foundation
Total Direct Costs: $99,770.00
Additional Information: Retinal cells are non-dividing cells, yet they need the machinery to synthesize complex molecules from simpler molecules to support retina structure and function. Our studies will investigate how this molecular machinery works in retinal cells in health and disease. Our long-term goal is to understand these mechanisms to design novel therapies to protect retinal structure and function in patients who suffer from retinal degeneration.
July 3, 2023 - July 1, 2024

Rajala, R. V. (Principal Investigator), "Neuroprotection Mechanism for Photoreceptors," Extramural Research Grant, Sponsored by National Institute of Health/National Eye Institute, Federal
Grant/Contract Number: R01EY030024
Current Funding (Total Cost per Year): $291,483.00
Total Direct Costs: $1,690,600.00
Additional Information: The long-term goal is to understand the role of IGF-IR in the retina and elucidate the intracellular signaling pathways they generate. The overall goal of this proposal is to gain a new understanding of the control of photoreceptor function
September 30, 2019 - June 30, 2024

Rajala, R. V. (Principal Investigator), "Targeting Cell Cycle Regulators in the Retina as Therapeutic for Neuroregeneration," Extramural Research Grant, Sponsored by Oklahoma Center for Adult Stem Cell Research (OCASCR), Local
Total Direct Costs: $168,000.00
Additional Information: Vision loss affects millions of people each year. Current treatments only delay vision loss: they do not prevent it. The proposed studies help to preserve vision by promoting non-photoreceptor cells to convert to replace dying photoreceptor cells in retinal diseases
January 1, 2023 - December 31, 2023

Pending Grants

Rajala RV (Principal Investigator), "Roles of Phosphoinositides in Retinal Health and Disease," Research Grant, Sponsored by National Institutes of Health/National Eye Institute, Federal
Grant/Contract Number: R01EY034896-01
Total Direct Costs: $2,522,785.00
July 1, 2024 – June 30, 2029

Completed Grants

Rajala, R. V. (Principal Investigator), "Second Messengers in Retina," Extramural Research Grant, Sponsored by National Institute of Health/National Eye Institute, Federal
Grant/Contract Number: R01EY00871
Current Funding (Total Cost per Year): $373,073.00
Total Direct Costs: $1,865,365.00
Additional Information: The specific objective of this application is to investigate the role of phosphoinositide 3-kinase (P13K) in the metabolic regulation of the retina, specifically the glycolytic pathways that activate the pentose phosphate pathway to generate NADPH, which is required for anabolic and antioxidant pathways that are essential for cone survival. We hypothesize that P13K signaling provides neuroprotection and regulates cellular processes required for promoting and sustaining photoreceptor functionality and viability.
April 1, 2016 - March 31, 2022

Rajala, R. V. (Principal Investigator), 5% Effort, "PKM2 Promotes Stemness of Muller Glial Cells in the Retina," Extramural Research Grant, Sponsored by Oklahoma Center for Adult Stem Cell Research, Non-Profit
Current Funding (Total Cost per Year): $120,000.00
Total Direct Costs: $120,000.00
Additional Information: Vision loss affects millions of people each year. Current treatments only delay vision loss: they do not prevent it. Our long-term goal is to understand the mechanisms that cause vision loss as a foundation to develop drug therapies that allow patients to keep their vision.
January 1, 2021 - December 31, 2021

Rajala, R. V. (Principal Investigator), "M2- Isoform of Pyruvate Kinase is a Biomarker for Age-Related Macular Degeneration," Extramural Research Grant, Sponsored by BrightFocus Foundation, Foundation
Grant/Contract Number: M2019168
Current Funding (Total Cost per Year): $100,000.00
Total Direct Costs: $200,000.00
July 1, 2019 - December 31, 2021

Callegan, M. C. (Principal Investigator), **Rajala, R. V.** (Module Director), "P30 NEI Core Grant for Vision Research," Extramural Research Grant, Sponsored by National Institute of Health/National Eye Institute, Federal
Grant/Contract Number: P30EY021725-09
Total Direct Costs: $5,610.00
Additional Information: This P30 grant supports three core modules (Live Animal Imaging and Functional Analysis, Cellular Imaging and Morphometric Analysis, and Molecular Biology), which will create state-of-the-art facilities for clinically relevant analysis of ocular structure and visual function.
July 1, 2019 - June 30, 2021

Le, Y. (Principal Investigator), **Rajala, R. V.** (Collaborator), "Muller Glia in Disease and Stress," Extramural Research Grant, Sponsored by National Institute of Health/National Eye Institute, Federal
Grant/Contract Number: 1R01EY026970-01A1
Current Funding (Total Cost per Year): $5,610.00
Total Direct Costs: $28,050.00
Additional Information: The major goal of this grant is to study Muller glia in diabetic retinopathy and stress.
September 1, 2017 - May 31, 2021

Plafker, S. (Principal Investigator), **Rajala, R. V.** (Collaborator), 2% Effort, "Mitochondrial Dynamics in RPE Homeostasis and Disease," Extramural Research Grant, Sponsored by National

Institute of Health/National Eye Institute, Federal
Grant/Contract Number: R01 EY024944
Total Direct Costs: $20,432.00
Additional Information: The major goal of this project is to study mitochondrial dynamics in AMD.
March 1, 2018 - February 28, 2021

Rajala, R. V. (Principal Investigator), "Application of 3D Bioprinting to study the Mechanisms of Age-Related Macular Degeneration," Seed Grant, Sponsored by Presbyterian Health Foundation, Foundation
Total Direct Costs: $40,000.00
Additional Information: We are attempting preliminary recreation of the structure on the retina in vitro through the usage of 3D-Bioprinting, and observing its comparability to one found in nature.
December 1, 2018 - November 30, 2019

Rajala, R. V. (Principal Investigator), 5% Effort, "Neuroprotection Mechanism for Photoreceptors," Bridge Grant, Sponsored by Presbyterian Health Foundation, Foundation
Current Funding (Total Cost per Year): $75,000.00
Total Direct Costs: $75,000.00
July 1, 2019 - September 29, 2019

Gardner, T. W. (Principal Investigator), Abcouwer, S. F. (Principal Investigator), **Rajala, R. V.** (Consortium PI), "Regulation of Retinal Cell Death in Diabetes," Extramural Research Grant, Sponsored by National Institute of Health/National Eye Institute, Federal
Grant/Contract Number: 2R01 EY020582
Current Funding (Total Cost per Year): $51,800.00
Total Direct Costs: $207,200.00
Additional Information: The major goal of this grant is to study the mechanism of retinal ganglion cell death in diabetes.
September 1, 2015 - August 31, 2019

Anderson, R. E. (Principal Investigator), **Rajala, R. V.** (Module Director (Molecular Biology)), "Core Grant for Vision Research," Extramural Research Grant, Sponsored by National Institute of Health/National Eye Institute, Federal
Grant/Contract Number: 1P30EY021725-02
Total Direct Costs: $400,000.00
Additional Information: This project consists of three core modules (Live Animal Imaging and Functional Analysis, Cellular Imaging and Morphometric Analysis, and Molecular Biology), which will create state-of-the-art facilities for clinically relevant analysis of ocular structure and visual function. The core modules will increase productivity of current investigators, facilitate recruitment of new investigators and stimulate the development of collaborative translational research projects.
September 1, 2011 - August 31, 2016

Rajala, R. V. (Interim PI), 15% Effort, "Mechanistic studies on obesity-deteriorated glucose and lipid metabolism.," Extramural Research Grant, Sponsored by NIH-NIDDK, Federal
Grant/Contract Number: 5R01DK097092-04
Total Direct Costs: $250,000.00
Additional Information: The major goal of this project is to determine the functional role of phosphoinositide 3-kinase enhancer-A (PIKE-A) in the pathogenies of obesity induced metabolic dysfunction
April 1, 2016 - June 30, 2016

Anderson, R. E. (Principal Investigator), **Rajala, R. V.** (Co-Principal Investigator), "Second Messengers in Retina," Bridge Grant, Sponsored by Presbyterian Health Foundation, Foundation
Grant/Contract Number: Bridge Funding
Total Direct Costs: $75,000.00
Additional Information: The major goal of this project is to study the role of P13K-generated

second messengers in the regulation photoreceptor survival
July 1, 2015 - June 30, 2016

Rajala, R. V. (Principal Investigator), 20% Effort, "Second Messengers in Retina," Extramural Research Grant, Sponsored by National Institute of Health/National Eye Institute, Federal
Grant/Contract Number: R01 EY00871
Total Direct Costs: $370,000.00
Additional Information: The major goal of this project is to study the role of P13K generated second messengers in the regulation photoreceptor survival
April 1, 2014 - March 31, 2016

Rajala, R. V. (Principal Investigator), "Light Activation of Retinal insulin Receptor Signaling," Bridge Grant, Sponsored by Presbyterian Health Foundation, Foundation
Grant/Contract Number: Bridge Funding
Total Direct Costs: $75,000.00
Additional Information: The long term goal is to understand the role of insulin receptors (IR) in the retina and elucidate the intracellular signaling pathways they generate. The overall goal of this proposal is to gain new understanding of the control of photoreceptor function.
October 1, 2014 - September 30, 2015

Rajala, R. V. (Principal Investigator), 40% Effort, "Light Activation of Retinal Insulin Receptor Signaling," Extramural Research Grant, Sponsored by National Institute of Health/National Eye Institute, Federal
Grant/Contract Number: R01 EY016507
Total Direct Costs: $1,480,000.00
Additional Information: The major goal of this project is to study the functional role of the newly identified light-activatable insulin receptor pathway in photoreceptor functions.
September 1, 2010 - August 31, 2015

Rajala, R. V. (Principal Investigator), 20% Effort, "Second Messengers in Retina," Extramural Research Grant, Sponsored by National Institute of Health/National Eye Institute, Federal
Grant/Contract Number: R01EY00871
Total Direct Costs: $370,000.00
Additional Information: The major goal of this project is to study the role of P13K generated second messengers in the regulation photoreceptor survival
September 1, 2012 - August 31, 2013

Anderson, R. E. (Principal Investigator), **Rajala, R. V.** (Early Career Investigator-20%, Mentor-10%, Module Director (Molecular Biology Core)-10%), 20% Effort, "Mentoring Vision Research in Oklahoma," Extramural Research Grant, Sponsored by NIH/NCRR (COBRE), Federal
Grant/Contract Number: RR017703
Total Direct Costs: $10,920,989.00
Additional Information: The long-term goal is to develop a new generation of NIH-funded independent principal investigators who will continue to expand cutting-edge cell biology, microbiology, immunology, biochemistry, neuroscience, molecular biology, and genetics research in the vision sciences at participating Oklahoma institutions
July 1, 2007 - June 30, 2013

Rajala, R. V. (Principal Investigator), 40% Effort, "Second Messengers in Retina," Extramural Research Grant, Sponsored by National Institute of Health/National Eye Institute, Federal
Grant/Contract Number: R01EY00871
Total Direct Costs: $1,831,250.00
Additional Information: The major goal of this project is to study the role of P13K generated second messengers in the regulation photoreceptor survival
December 1, 2007 - August 31, 2012

Rajala, R. V. (Principal Investigator), 40% Effort, "Light Activation of Retinal Insulin Receptor Signaling," Extramural Research Grant, Sponsored by National Institute of Health/National Eye Institute, Federal
Grant/Contract Number: R01 EY016507
Total Direct Costs: $1,318,000.00
Additional Information: The major goal of this project is to study the functional role of the newly identified light-activatable insulin receptor pathway in photoreceptor functions.
August 1, 2006 - June 30, 2010

Chodosh, J. (Principal Investigator), **Rajala, R. V.** (Co-Principal Investigator), 10% Effort, "Immunopathogenesis of Adenovirus Keratitis," Extramural Research Grant, Sponsored by National Institute of Health/National Eye Institute, Federal
Grant/Contract Number: R01 EY013124
Total Direct Costs: $2,282,986.00
Additional Information: The major goal of this project is to study the adenovirus induced signaling pathway in the cornea.
July 1, 2006 - July 31, 2008

Rajala, R. V. (Principal Investigator), 10% Effort, "Biochemical Characterization of Retinal Insulin Receptors," Career Development Award/Extramural Research Grant, Sponsored by Research to Prevent Blindness (RPB), Non-Profit
Total Direct Costs: $200,000.00
Additional Information: The major goal of this project is to study the biochemical characterization of retinal insulin receptors.
January 1, 2004 - December 31, 2007

Anderson, R. E. (Principal Investigator), **Rajala, R. V.** (Co-Principal Investigator), 35% Effort, "Second Messengers in Retina," Extramural Research Grant, Sponsored by National Institute of Health/National Eye Institute, Federal
Grant/Contract Number: R01EY00871
Total Direct Costs: $1,810,767.00
Additional Information: The major goal of this project is to study the role of P13K generated second messengers in the regulation photoreceptor survival

Dr. Rajala started at 100% effort at the beginning of the award and by the end of the award, he was at 35% due to effort committed on other projects.
December 1, 2001 - November 30, 2007

Anderson, R. E. (Principal Investigator), **Rajala, R. V.** (Promising Junior Investigator (PJI)), 50% Effort, "Insulin Receptor Signaling in the Retina," Extramural Research Grant, Sponsored by NIH/NCRR, Federal
Grant/Contract Number: RR017703
Total Direct Costs: $11,389,397.00
Additional Information: The major goal of this project is to study the identification of regulators to the retinal insulin receptor.
July 1, 2002 - June 30, 2007

Rajala, R. V. (Principal Investigator), 20% Effort, "Protein Myristoylation: a novel molecular target for colon cancer," Extramural Research Grant, Sponsored by Health Services Utilization and Research Commission of Saskatchewan, Canada, Local
Total Direct Costs: $70,000.00
Additional Information: The major goal of this project is to determine the regulation and control of N-myristoyltransferase activity in colon cancer.
1998 - 2000

Publications - Peer-Reviewed/Refereed

* indicates Mentee
+ indicates Co-First Author
# indicates Contributing Author/Corresponding Author

Scientific/Scholarly Journals

1. **Rajala, R. V.**, Rajala, A. (2023). Unlocking the Role of Lactate: Metabolic Pathways, Signaling, and Gene Regulation in Postmitotic Retinal Cells. *Frontiers in Ophthalmology*, 1296624. DOI: 10.3389/fopht.2023.1296624

2. Rajala, A., **Rajala, R. V.**, Gopinadhan Nair, G. K., Rajala RVS (2023). Atlas of phosphoinositide signatures in the retina identifies heterogeneity between cell types. *PNAS nexus, 2*(3), pgad063. PMID: 37007713. DOI: 10.1093/pnasnexus/pgad063

3. Rajala, A., Bhat, M. A., Teel, K., Gopinadhan Nair, G. K., Purcell, L., **Rajala, R. V.** (2023). The function of lactate dehydrogenase A in retinal neurons: implications to retinal degenerative diseases. *PNAS nexus, 2*(3), pgad038. PMID: 36896135. DOI: 10.1093/pnasnexus/pgad038

4. Rajala, A., **Rajala, R. V.**, Teel, K., Rajala RVS (2022). Ribosomal targeting strategy and nuclear labeling to analyze photoreceptor phosphoinositide signatures. *Biochimica et biophysica acta. Molecular and cell biology of lipids, 1867*(8), 159161. PMID: 35427794. DOI: 10.1016/j.bbalip.2022.159161

5. Rajala, A., Teel, K., Bhat, M. A., Batushansky, A., Griffin, T. M., Purcell, L., Rajala RVS (2022). Insulin-like growth factor 1 receptor mediates photoreceptor neuroprotection. *Cell death & disease, 13*(7), 613. PMID: 35840554. DOI: 10.1038/s41419-022-05074-3

6. Fort, P. E., Losiewicz, M. K., Elghazi, L., Kong, D., Cras-Méneur, C., Fingar, D. C., Kimball, S. R., **Rajala, R. V.**, Smith, A. J., Ali, R. R., Abcouwer, S. F., Gardner, T. (2022). mTORC1 regulates high levels of protein synthesis in retinal ganglion cells of adult mice. *The Journal of biological chemistry, 298*(6), 101944. PMID: 35447116. DOI: 10.1016/j.jbc.2022.101944

7. Shang, P., Stepicheva, N., Teel, K., McCauley, A., Fitting, C. S., Hose, S., Grebe, R., Yazdankhah, M., Ghosh, S., Liu, H., Strizhakova, A., Weiss, J., Bhutto, I. A., Lutty, G. A., Jayagopal, A., Qian, J., Sahel, J. A., Samuel Zigler, Jr, J., Handa, J. T., Sergeev, Y., **Rajala, R. V.**, Watkins, S., Sinha, D. (2021). βA3/A1-crystallin regulates apical polarity and EGFR endocytosis in retinal pigmented epithelial cells. *Communications biology, 4*(1), 850. PMID: 34239035. DOI: 10.1038/s42003-021-02386-6

8. Rajala RVS, McCauley, A., **Rajala, R. V.**, Teel, K., Rajala, A. (2021). Regulation of Phosphoinositide Levels in the Retina by Protein Tyrosine Phosphatase 1B and Growth Factor Receptor-Bound Protein 14. *Biomolecules, 11*(4). PMID: 33921658. DOI: 10.3390/biom11040602

9. **Rajala, R. V.** (2021). Signaling roles of phosphoinositides in the retina. *Journal of lipid research*. PMID: 32540927. DOI: 10.1194/jlr.TR120000806

10. Rajala, A., He, F., Anderson, R. E., Wensel, T. G., **Rajala, R. V.** (2020). Loss of class III phosphoinositide 3-Kinase Vps34 results in cone degeneration. *Biology, 9*(11), 384. PMID: 33171845. DOI: doi: 10.3390/biology9110384.

11. Rajala, A., McCauley, A., Brush, R. S., Khuong Nguyen, **Rajala, R. V.** (2020). Phosphoinositide Lipids in Ocular Tissues. *Biology, 9*(6), 125. PMID: 32545642. DOI: 10.3390/biology9060125

12. Losiewicz, M. K., Elghazi, L., Fingar, D. C., **Rajala, R. V.**, Lentz, S. I., Fort, P. E., Abcouwer, S. F., Gardner, T. W. (2020). mTORC1 and mTORC2 expression in inner retinal neurons and glial cells.

Experimental Eye Research, 197. DOI: 10.1016/j.exer.2020.108131

13. Lee, S. Y., Surbeck, J. W., Drake, M., Saunders, A., Jin, H. D., Shah, V. A., **Rajala, R. V.** (2020). Increased glial fibrillary acid protein and vimentin in vitreous fluid as a biomarker for proliferative vitreoretinopathy. *Investigative Ophthalmology and Visual Science, 61*(5), 22. PMID: 32413125. DOI: 10.1167/IOVS.61.5.22

14. Rajala, A., Soni, K., **Rajala, R. V.** (2020). Metabolic and Non-metabolic Roles of Pyruvate Kinase M2 Isoform in Diabetic Retinopathy. *Scientific Reports, 10*(1), 7456. PMID: 32366925. DOI: 10.1038/s41598-020-64487-2

15. **Rajala, R. V.** (2020). Aerobic Glycolysis in the Retina: Functional Roles of Pyruvate Kinase Isoforms. *Frontiers in Cell and Developmental Biology, 8*, 266. PMID: 32426353. DOI: 10.3389/fcell.2020.00266

16. Rajala, A., **Rajala, R. V.** (2020). A non-canonical rhodopsin-mediated insulin receptor signaling pathway in retinal photoreceptor neurons. *Cell Biology International, 44*(4), 1020-1027. PMID: 31889373. DOI: 10.1002/cbin.11299

17. **Rajala, R. V.** (2019). Therapeutic benefits from nanoparticles: The potential significance of nanoscience in retinal degenerative diseases. *Journal of Molecular Biology and Therapeutics, 1*, 44-55.

18. Rajala, A., Wang, Y., Soni, K., **Rajala, R. V.** (2018). Pyruvate kinase M2 isoform deletion in cone photoreceptors results in age-related cone degeneration. *Cell Death & Disease, 9*(7), 737. PMID: 29970877. DOI: 10.1038/s41419-018-0712-9

19. Rajala, A., Wang, Y., Brush, R. S., Tsantilas, K., Jankowski CSR, Lindsay, K. J., Linton, J. D., Hurley, J. B., Anderson, R. E., Rajala RVS (2018). Pyruvate kinase M2 regulates photoreceptor structure, function, and viability. *Cell death & disease, 9*(2), 240. PMID: 29445082. DOI: 10.1038/s41419-018-0296-4

20. Rajala, A., Wang, Y., **Rajala, R. V.** (2018). Constitutive Activation Mutant mTOR Promote Cone Survival in Retinitis Pigmentosa Mice. *Advances in experimental medicine and biology, 1074*, 491-497. PMID: 29721981. DOI: 10.1007/978-3-319-75402-4_61

21. Wang, Y., Rajala, A., Rajala RVS (2018). Nanoparticles as Delivery Vehicles for the Treatment of Retinal Degenerative Diseases. *Advances in experimental medicine and biology, 1074*, 117-123. PMID: 29721935. DOI: 10.1007/978-3-319-75402-4_15

22. Rajala RVS, Rajala, A. (2018). Redundant and Nonredundant Functions of Akt Isoforms in the Retina. *Advances in experimental medicine and biology, 1074*, 585-591. PMID: 29721991. DOI: 10.1007/978-3-319-75402-4_71

23. Rajala, A., Wang, Y., Abcouwer, S. F., Gardner, T., Rajala RVS (2017). Developmental and light regulation of tumor suppressor protein PP2A in the retina. *Oncotarget, 9*(2), 1505-1523. PMID: 29416710. DOI: 10.18632/oncotarget.23351

24. Chen, Q., Qiu, F., Zhou, K., Matlock, H. G., Takahashi, Y., Rajala RVS, Yang, Y., Moran, E., Ma, J.-X. (2017). Pathogenic Role of *microRNA-21* in Diabetic Retinopathy Through Downregulation of PPARα. *Diabetes, 66*(6), 1671-1682. PMID: 28270521. DOI: 10.2337/db16-1246

25. **Rajala, R. V.**, Rajala, A., Kooker, C., Wang, Y., Anderson, R. E. (2016). The Warburg Effect Mediator Pyruvate Kinase M2 Expression and Regulation in the Retina. *Scientific reports, 6*, 37727. PMID: 27883057. DOI: 10.1038/srep37727

26. Rajala, A., Wang, Y., **Rajala, R. V.** (2016). Activation of oncogenic tyrosine kinase signaling promotes insulin receptor-mediated cone photoreceptor survival. *Oncotarget, 7*(30), 46924-46942. PMID: 27391439. DOI: 10.18632/oncotarget.10447

27. Wang, Y., Rajala, A., Cao, B., Ranjo-Bishop, M., Agbaga, M.-P., Mao, C., **Rajala, R. V.** (2016). Cell-Specific Promoters Enable Lipid-Based Nanoparticles to Deliver Genes to Specific Cells of the Retina In Vivo. *Theranostics, 6*(10), 1514-27. PMID: 27446487. DOI: 10.7150/thno.15230

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Book Chapters

1. **Rajala, R. V.**, Rajala, A., Wang, Y. (2018). *Application of Lipid Nanoparticles of Retinal Degenerative Diseases*. Therapies for Retinal Degeneration, Royal Society of Chemists.

2. **Rajala, R. V.** (2017). Rhodopsin-regulated Grb14 trafficking to rod outer segments: Functional role of Grb14 in photoreceptors. In Khanna, H. (Ed.), *Molecular Basis of Neurodegenerative Disorder of the Retina* (pp. 101-108). Betham e books.

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Commentary

1. **Rajala, R. V.**[#] (2019). *Metabolic and non-metabolic roles of pyruvate kinase M2 isoform in retinal rod photoreceptor cells*. Atlas of Science.

Innovative Teaching Materials - Peer-Reviewed/Refereed

1. **Rajala, R. V.** (2019). Organized the lectures for the OCNS 5411 Neuroscience Methods and Experimental Strategies in Neuroscience. OUHSC/SCM, Reviewed/Refereed: 2019.

PRESENTATIONS

Invited

* indicates mentee

National/International

1. **Rajala, R. V.**, "Regulating the enzymes of aerobic glycolysis promotes photoreceptor survival", XXth International Symposium on Retinal Degeneration, European Vision Institute, Torremolinos, Andalusia, Spain, Lecture. October 2023.

2. **Rajala, R. V.**, "Who Makes Lactate in the Retina? The Function of Lactate Dehydrogenase A in Retina Cells", The Biology and Chemistry of Vision, Federation of American Societies for Experimental Biology (FASEB), Tucson, AZ, Lecture. June 2023.

3. **Rajala, R. V.**, "The Application of Lipid Nanoparticles for Retinal Degenerative Diseases", Taneja College of Pharmacy, University of South Florida, Tampa, FL, Lecture. November 18, 2020.

4. **Rajala, R. V.**, "Metabolic and non-metabolic roles of pyruvate kinase M2 isoform in the retina", The Biology and Chemistry Vision Conference, Federation of American Societies of Experimental Biology, Steamboat Springs, CO, Lecture. June 2019.

5. **Rajala, R. V.**, "Pyruvate Kinase M2 Regulate Photoreceptor Structure, Function and Viability", University of Massachusetts, Boston, MA, Lecture. March 21, 2019.

6. **Rajala, R. V.**, "Application of Lipid Nanoparticles for Retinal Degenerative Diseases", ARVO-India, Association for Research in Vision and Ophthalmology (ARVO), Hyderabad, India, Keynote/Plenary Address. July 2018.

7. **Rajala, R. V.**, "Pyruvate Kinase in Photoreceptor Functions: Middle of the Journey", West Virginia University, Morgantown, West Virginia, Lecture. December 5, 2017.

8. **Rajala, R. V.**, "Deletion of the class III phosphoinositide 3-kinase in cone photoreceptor cells results in an early onset of cone photoreceptor degeneration", XVII International Symposium on Retinal Degeneration, European Vision Institute, Kyoto, Japan, Oral Presentation. September 2016.

9. **Rajala, R. V.**, "Photoreceptor Neuroprotection: Balancing Kinase and Phosphatase Activities in Insulin Receptor Signaling", XVI International Symposium on Retinal Degeneration, European Vision Institute, Pacific Grove, CA, Lecture. July 2014.

10. **Rajala, R. V.**, "Implication of Insulin Receptor Signaling in Cone Degeneration", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Orlando, FL, Lecture. May 4, 2014.

11. **Rajala, R. V.**, "Dynamic Signaling thought Adapter Proteins and their Role in Photoreceptor Neuroprotection", University of Michigan, Ann Arbor, MI, Lecture. March 13, 2014.

12. **Rajala, R. V.**, "Insulin receptor signaling and pathway and retinal neuroprotection", 64th Annual Conference, Delhi Ophthalmological Society, New Delhi, India, Oral Presentation. April 2013.

13. **Rajala, R. V.**, "Photoreceptor Neuroprotection is negatively regulated by Protein Tyrosine Phosphatase-1B", Minisymposium on Neuroprotection: Mechanisms and Promise of Future therapies, Association for Research in Vision and Ophthalmology (ARVO), Ft. Lauderdale, FL, Lecture. May 2010.

14. **Rajala, R. V.**, "Outer segment signaling via insulin receptor-P13K pathway", Research Conference - The Biology and Chemistry of Vision, Federation of American Societies for Experimental Biology (FASEB), Snowmass Village, CO, Lecture. June 2009.

15. **Rajala, R. V.**, Tanito, M., Ma, J., Lem, J., Rajala, A., "Light-dependent trafficking of growth factor receptor-bound protein 14 requires the photobleaching of rhodpsin but not transducin signaling", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Ft. Lauderdale, FL, Lecture. 2006.

16. **Rajala, R. V.**, "Regulation of N-myristoultransferase in human colon cancer", Frontiers in Pharmacology and Therapeutics in 21st Century, International Congress, New Delhi, India, Lecture. 1999.

17. **Rajala, R. V.**, "Enzymology of protein myristoulation", Second International Conference on Atherosclerosis and Thrombosis, South Asian Society, Bangalore, India, Lecture. 1996.

Local/Regional

1. **Rajala, R. V.**, "PTP1B Deficiency: The Promise of a Treatment for Retinal Degenerative Diseases?", Department of Physiology, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Lecture. January 13, 2013.

2. **Rajala, R. V.**, "Dynamic signaling through adapter proteins and their role in photoreceptor neuroprotection", Seminar Series, Oklahoma Center for Neuroscience (OCNS), Oklahoma City, OK, Lecture. March 2, 2012.

3. **Rajala, R. V.**, "Protein Tyrosine Phosphatise-1B is a Novel Molecular Target for Retinal Degenerative Diseases", Department of Ophthalmology , Louisiana State University (LSU) Health Sciences Center, New Orleans, LA, Lecture. December 9, 2011.

4. **Rajala, R. V.**, "Protein tyrosine phosphatase-1B is a novel molecular target for retinal degenerative diseases", Hot Topics, Oklahoma Center for Neuroscience (OCNS), Oklahoma City, OK, Lecture. October 14, 2011.

5. **Rajala, R. V.**, "Hyperglycemia decreases the actin-regulated retinal insulin receptor kinase activity", Diabetes Research Retreat, Oklahoma University Diabetes Center, Oklahoma City, OK, Lecture. 2007.

6. **Rajala, R. V.**, "Light Regulation of Retinal Insulin Receptor Signaling", Penn State College of Medicine, Hershey, PA, Lecture. 2004.

Accepted

* indicates mentee

National/International

1. Rajala, A., Rajala, R., Bhat, M., **Rajala, R. V.**, "Identifying Shp2 as a novel regulator for retinal health and survival", XXth International Symposium on Retinal Degeneration, European Vision Institute, Torremolinos, Andalusia, Spain, Oral Presentation. October 2023.

2. **Rajala, R. V.**, Rajala, R., Gopinadhan Nair, G. K., Rajala, A., "Atlas of phosphoinositide signatures in retina identifies heterogeneity between cell types.", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), New Orleans, LA, Oral Presentation. April 2023.

3. Gupta, M., **Rajala, R. V.**, Pazour, G. J., "Role of phosphoinositide modulator inositol polyphosphate-5-phosphatase-E (Inpp5e) in photoreceptor maintenance.", The Biology of Cilia and Flagella Conference, Federation of American Societies for Experimental Biology (FASEB), Tucson, AZ, Oral Presentation. June 2022.

4. **Rajala, R. V.**, Bhat, M. A., Teel, K., Rajala, A., "Phosphatidylinositol 5-kinase PIKfyve negatively regulate photoreceptor neuroprotein.", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Denver, CO, Oral Presentation. May 2022.

5. Mahally, E., Daley, R., Teel, K., McCauley, A., Stepicheva, N. A., Ghosh, S., Liu, H., Chowdhury, O., Strizhakova, A., Koontz, V., Hose, S., Zigler, J. S., **Rajala, R. V.**, Sinha, D., Shang, P., "PITPB/BA3/A1-crystallin complex is critical for PIP metabolism in retinal pigment epithelium (RPE).", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Denver, CO, Oral Presentation. May 2022.

6. Lee, S. Y., Drake, M. B., Jin, H., Shah, V. A., **Rajala, R. V.**, "Increased Glial Fibrillary Acid Protein (GFAP) and Vimentin in Vitreous Fluid as a Biomarker for Proliferative Vitreoretinopathy", Annual Meeting, Association of Research in Vision and Ophthalmology (ARVO), Virtual, Oral Presentation. June 2020.

7. Sahu, B., Leon, L. M., Li, L., Zhang, W., Anand, M., Brodsky, M., **Rajala, R. V.**, Khanna, H., "The alternative RPGR isoform RPGRCONST, not implicated in X-linked RP, plays a crucial role in the mammalian retina.", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Virtual, Poster. June 2020.

8. Puel, G., Cordonnier, M., Saint-Charles, A., Clerin, E., Blond, F., Achiedo, S., Ait-Ali, N., Corchia, O., Klipfel, L., Yang, Y., **Rajala, R. V.**, Camacho, E., Leveillard, T., "6-phosphofructo-2-kinase/fructose-2,6-bisphosphatse 2 governs the metabolic flux between rod and cone photoreceptors", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Vancouver, Canada, Poster. April 2019.

9. Losiewicz, M., Elghazi, L., Kong, D., Fingar, D., **Rajala, R. V.**, Fort, P., Abcouwer, S., Gardner, T., "Retinal ganglion cell protein synthesis is regulated by glycolysis, mTORC1 signaling and diabetes", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Vancouver, Canada, Poster. April 2019.

10. **Rajala, R. V.**, Wang, Y., Soni, K., Rajala, A., "Pyruvate kinase M2 isoform deletion in cone photoreceptors results in age-related cone degeneration", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Vancouver, Canada, Poster. April 28, 2019.

11. Gardner, T. W., Losiewicz, M. K., Elghazi-Cras, L., Fingar, D. C., **Rajala, R. V.**, Fort, P. E., Abcouwer, S. F., "Retinal mTORC expression and ganglion cell protein synthesis", XXIII Biennial Meeting, International Society for Eye Research, Belfast, Northern Ireland, Oral Presentation. September 2018.

12. **Rajala, R. V.**, "The Absence of phosphatidylinositol 3-phosphate-mediated cone photoreceptor degeneration is rescued by phosphatidylinositol 5-phosphate", XXIII Biennial Meeting, International Society for Eye Research, Belfast, Northern Ireland, Oral Presentation. September 2018.

13. **Rajala, R. V.**, Wang, Y., Rajala, A., "Insulin-like growth factor 1 Receptor is Necessary for Rod

Photoreceptor Structure and Function", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Honolulu, HI, Poster. May 2018.

14. Takahashi, Y., Chen, Q., Qiu, F., Matlock, G. H., Moran, E., **Rajala, R. V.**, Ma, J., "Down-Regulation of PPARα through MicroRNA-Associated Mechanism in Diabetic Retinopathy", Annual Meeting, Association for Research and Vision in Ophthalmology (ARVO), Baltimore, MA, Poster. May 2017.

15. **Rajala, R. V.**, Kooker, C., Wang, Y., Rajala, A., "Pyruvate Kinase M2: Function, Regulation and Role in Rod Photoreceptor cells", Annual Meeting, Association for Research and Vision in Ophthalmology (ARVO), Baltimore, MA, Poster. May 2017.

16. Wang, Y., Rajala, A., **Rajala, R. V.**, "Lipid nanoparticles as delivery vehicles for the treatment of retinal degenerative diseases", XVII International Symposium on Retinal Degeneration, European Vision Institute, Kyoto, Japan, Oral Presentation. September 2016.

17. Rajala, A., Wang, Y., **Rajala, R. V.**, "Activation of oncogenic tyrosine kinase signaling promotes insulin receptor-mediated cone photoreceptor survival", XVII International Symposium on Retinal Degeneration, European Vision Institute, Kyoto, Japan, Oral Presentation. September 24, 2016.

18. **Rajala, R. V.**, Wang, Y., Ranjo-Bishop, M., Rajala, A., "Characterization of Src-homology phosphotyrosyl phosphatase 2 in the retina", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Seattle, WA, Oral Presentation. May 2016.

19. Takahashi, Y., Chen, Q., Qin, F., Matlock, G. H., Moran, E., Zhou, K., **Rajala, R. V.**, Ma, J., "MicroRNA-21 Implicated in Down-Regulation of PPAR-α in Diabetic Retinopathy", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Seattle, WA, Oral Presentation. May 2016.

20. **Rajala, R. V.**, Rajala, A., Wang, Y., Anderson, R. E., "Phosphoinositide 3-kinase regulates pyruvate kinase M2 phosphorylation in the retina", Summer Conference, Federation of American Societies for Experimental Biology (FASEB), Big Sky, MT, Oral Presentation. June 2015.

21. **Rajala, R. V.**, Rajala, A., Wang, Y., Anderson, R. E., "Characterization of Pyruvate Kinase M2 in the Retina", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Denver, CO, Oral Presentation. May 2015.

22. Takahashi, Y., Chen, Q., **Rajala, R. V.**, Ma, J., "Functional role of microRNA-184 in diabetic retinopathy", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Denver, CO, Oral Presentation. May 2015.

23. Wang, Y., Ranjo-Bishop, M., Mx, J., **Rajala, R. V.**, "Targeting lipid-based nanoparticles promotes cell-specific gene delivery to eyes and improves vision in vivo", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Denver, CO, Oral Presentation. May 2015.

24. Azadi, A., Anderson, R. E., **Rajala, R. V.**, "Isolation and characterization of autophagossomes in retina, the possible role of autophagy in cone degeneration", XVI International Symposium on Retinal Degeneration, European Vision Institute, Pacific Grove, CA, Oral Presentation. July 2014.

25. Wang, Y., Rajala, A., Bishop-Ranjo, M., Anderson, R. E., **Rajala, R. V.**, "Characterization of Autophagy0inked FYVE (Alfy) Protein in the Retina", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Orlando, FL, Oral Presentation. May 2014.

26. Azadi, S., Brush, R. S., Anderson, R. E., **Rajala, R. V.**, "Isolation and Characterization of Autophagosomes from the Retina", Annual Meeting, Association for Research in Vision and

Ophthalmology (ARVO), Orlando, FL, Oral Presentation. May 2014.

27. **Rajala, R. V.**, Basavarajappa, D. K., Rajala, A., "The Spatial and Temporal Activation of the Retinal Insulin Resptor: Role of Grb 14 and PTP1B", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Orlando, FL, Oral Presentation. May 2014.

28. **Rajala, R. V.**, Woodruff, M. L., Fain, G. L., "Modulation of cGMP-gated channels by Grb14", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Seattle, WA, Poster. May 2013.

29. Anderson, R. E., **Rajala, R. V.**, "Neuroprotection of the retina through light activation of the insulin receptor", The International Symposium on Ocular Pharmacology and Therapeutics-Asia, ISOPT Clinical, Macau, Asia, Poster. December 2012.

30. **Rajala, R. V.**, "PTP1B is a novel molecular therapy target for retinitis pigmentose", Annual Meeting, Association for Research in Vision and Ophthalmology (ARVO), Poster. 2012.

31. **Rajala, R. V.**, Gupta, V. K., Rajala, A., Dighe, R., Basavarajappa, D. K., "Loss of Grb14 leads to photoreceptor degeneration due to increased protein tyrosine phosphatase-1B activity", Association for Research in Vision and Ophthalmology, Poster. 2011.

32. Anderson, R. E., Ivanovic, I., Rajala, A., Gupta, V. K., **Rajala, R. V.**, "Delayed Phototransduction Recovery Kinetics in Mice with Deletion of p85α Regulatory Subunit of Phosphoinositide 3-Kinase in Rod Photoreceptor Cells", Association for Research in Vision and Ophthalmology, Platform Presentation. 2010.

33. **Rajala, R. V.**, Rajala, A., Gupta, V. K., "Insulin Receptor Signaling Regulates Mitochondrial Integrity", Association for Research in Vision and Ophthalmology, Poster. 2010.

34. Gupta, V. K., Rajala, A., **Rajala, R. V.**, "Unexpected Binding and Modulation of Photoreceptor Specific Cyclic Nucleotide Gated Channel Function by Grb14 thought its Ras-Associating Domain", Association for Research in Vision and Ophthalmology, Poster. 2010.

35. **Rajala, R. V.**, Gupta, K., Basavarajappa, D. K., "Grb14 inhibits the PTP1B activity in vivo", Protein Phosphorylation and Cell Signaling: 30 Years of Tyrosine Phosphorylation, Salk Institute, La Jolla, CA, Poster. August 2010.

36. Gupta, V. K., Raja, A., **Rajala, R. V.**, "Growth factor receptor bound protein 14: A novel modulator of photoreceptor specific cyclic nucleotide gated channel", XIV International Symposium on Retinal Degeneration, Poster. July 2010.

37. Basavarajappa, D. K., Rajala, A., **Rajala, R. V.**, "Mechanism of protein tyrosine phosphatease-1B inhibition by molecular adapter Grb14", XIV International Symposium on Retinal Degeneration, Poster. July 2010.

38. **Rajala, R. V.**, "Photoreceptor Neuroprotection is negatively regulated by Protein Tyrosine Phosphatase-1B", Association for Research in Vision and Ophthalmology, Ft. Lauderdale, FL, Lecture. May 2010.

39. Kanan, Y., Song, H., Sokolov, M., Anderson, R. E., **Rajala, R. V.**, "Characterization of serine/threonine phosphataes, PHLPP and PHLPPL in the rat retina and its regulation for Akt", Association for Research in Vision and Ophthalmology, Poster. 2009.

40. Ivanovic, I., Le, Y. Z., Anderson, R. E., **Rajala, R. V.**, "Deletion of the p85 regulatory subunit of phosphoinositide 3-kinase in cone photoreceptor cells results in cone photoreceptor

degeneration", a, Association for Research in Vision and Ophthalmology, Poster. 2009.

41. **Rajala, R. V.**, Tanito, M., Le, Y. Z., Allen, D. T., Kahn, R. C., Neel, B. G., Rajala, A., "Insulin receptor survival signaling in rod photoreceptors is regulated through rhodopsin-controlled protein tyrosine phosphatase 1B activity", Association for Research in Vision and Ophthalmology, Poster. 2009.

42. Anderson, R. E., **Rajala, R. V.**, "Role of the insulin receptor neuroprotection of photoreceptor cells from stress-induced degeneration", Current Opinion in Cell Death Signaling, Edinburgh, UK, Poster. July 2009.

43. Rajayya, J., Astley, R. A., Shariati, F., **Rajala, R. V.**, Chodosh, J., "Hps27-mediated p38/NFkB-p65 association: Effect on interleukin-8 expression in adenovirus infected keratocytes", Association for Research in Vision and Ophthalmology, Oral Presentation. 2008.

44. **Rajala, R. V.**, Rajala, A., Le, Y. Z., Neel, B. G., Tanito, M., "Enhanced Insulin Receptor Activated Neuroprotective Survival Signal in Mice Lacking the Protein Tyrosine Phosphatase-1B Gene in Rod Photoreceptor Cells", Association for Research in Vision and Ophthalmology, Poster. 2008.

45. **Rajala, R. V.**, Le, Y. Z., Lee, Y. L., Rajala, A., Kahn, R. C., Tanito, M., "Deletion of the insulin receptor in rod photoreceptor cells results in light-induced retinal degeneration", Association for Research in Vision and Ophthalmology, Poster. 2007.

46. Dilly, A., Rajala, A., Li, G., Tanito, M., Anderson, R. E., **Rajala, R. V.**, "Localization and stress-induced activation of retinal Akt isoforms", Association for Research in Vision and Ophthalmology, Poster. 2007.

47. **Rajala, R. V.**, "Light-Dependent Trafficking of Growth Factor-Receptor Bound Protein 14 requires the phototbleaching of rhodopsin but not transducin signaling", Association for Research in Vision and Ophthalmology, ARVO, Ft. Lauderdale, FL, Lecture. 2006.

48. Huang, Z., **Rajala, R. V.**, Anderson, R. E., "Light regulation of type II phosphatidylinositol phosphate kinase in mouse retina and rat rod outer segment", Association for Research in Vision and Ophthalmology, Poster. 2006.

49. **Rajala, R. V.**, Chan, M. D., Hiroshi, T., McClellan, M. E., "Adapter Grb14 in retinal insulin receptor signaling", Association for Research in Vision and Ophthalmology, Poster. 2005.

50. **Rajala, R. V.**, Tomita, H., Ma, J., Lem, J., Chen, J., McClellan, M. E., "Light-Dependent Trafficking of Growth Factor-Receptor Bound Protein 14 in the Absence of Transducin Signaling and Rhodospin Phosphorylation", Federation of American Societies for Experimental Biology Summer Conference, Tuscon, AZ, Oral Presentation. June 2005.

51. Elliott, M. H., Ghalayini, A. J., **Rajala, R. V.**, Martin, R. E., Barkus, K., Dobrowsky, R. T., Anderson, R. E., "Lipid domains in vertebrate photoreceptors: elucidation of a functional interaction between caveolin-1 and the alpha subunit of transducin", Keystone Symposium, Vancouver, British Columbia, Oral Presentation. 2004.

52. Elliott, M. H., Ghalayini, A. J., **Rajala, R. V.**, Barkus, K., Dobrowsky, R. T., Anderson, R. E., "Direct interaction of caveolin-1 regulates the activity of the alpha subunit of transducin", Annual Association for Research in Vision and Ophthalmology, Association for Research in Vision and Ophthalmology, Poster. 2004.

53. **Rajala, R. V.**, Chan, M. D., McClellen, M., "Interaction of GRB14 with retinal insulin receptor", Association for Research in Vision and Ophthalmology, Poster. 2004.

54. **Rajala, R. V.**, Chan, M. D., Hiroshi, T., McClellan, M., "Growth factor receptor bound protein-14 in insulin receptor signaling", XI International Symposium on Retinal Degeneration, Perth, Australia, Poster. October 2004.

55. **Rajala, R. V.**, McClellan, M. E., Tsiokas, L., Anderson, R. E., "Direct interaction of insulin receptor β-subunit with p85 subunit of phosphoinositide 3-kinase in vivo", Federation of American Societies for Experimental Biology, Federation of American Societies for Experimental Biology, Oral Presentation. 2003.

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Local/Regional

1. Gopinadhan Nair, G. K., Rajala, A., Bhat, M. A., **Rajala, R. V.**, "Functional role of Shp2 in photoreceptors.", Annual OU Vision Workshop, Department of Ophthalmology, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Oral Presentation. September 2022.

2. Rajala, R., Marsh, H., Patel, R., Gonzalez, V., Teel, K., Agbaga, M. P., **Rajala, R. V.**, "Bioengineering the Retina: Applications of 3D Bioprinting and Bioreactors to Vision Science", 13th Annual Graduate Student and Postdoctoral Fellow Vision Workshop, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Workshop. September 20, 2019.

3. Tresp, D., Rajala, A., **Rajala, R. V.**, "Orphan G-protein coupled receptor-81 in the inhibition of lipolysis", Summer Undergraduate Research Experience, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Workshop. July 12, 2019.

4. Landrith, W. M., Rajala, A., **Rajala, R. V.**, "Summer Undergraduate Research Experience", University of Oklahoma Health Sciences Center, Oral Presentation. July 2018.

5. **Rajala, R. V.**, Rajala, A., Wang, Y., "The Role of Pyruvate Kinase M2 in Diabetic Retinopathy", 14th Annual Research Symposium, Harold Hamm Diabetes Center, Oklahoma City, OK, Oral Presentation. November 2017.

6. Kooker, C., Rajala, A., **Rajala, R. V.**, "FGFR1 phosphorylates pyruvate kinase M2", 11th Annual Graduate Student and Postdoctoral Fellow Vision Workshop, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Workshop. September 2017.

7. Rogers, T., Rajala, A., **Rajala, R. V.**, "Characterization of mechanistic target of rapamycin complexes in the retina", Summer Undergraduate Research Experience, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Oral Presentation. July 2017.

8. Kooker, C., Rajala, A., Wang, Y., **Rajala, R. V.**, "Pyruvate kinase M2 is Dispensable for Rod Photoreceptor Neurons", 25th Anniversary Symposium, Oklahoma Center for Neuroscience, Oklahoma City, OK, Oral Presentation. November 2016.

9. Kooker, C., Rajala, A., Wang, Y., **Rajala, R. V.**, "Regulation and Function of Pyruvate Kinase M2 in Rod Photoreceptor Cells", 10th Annual OU Vision Workshop, Department of Ophthalmology, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Workshop. October 2016.

10. Engel, K., Rajala, A., Chan, C. B., **Rajala, R. V.**, "Characterization of Phosphoinositide 3-Kinase Enhancer Protein in the Retina", 2016 Summer Undergraduate Research Experience Workshop, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Workshop. July 2016.

11. Smith, B., **Rajala, R. V.**, "Insulin sensitivity towards type A and type B insulin receptors", Summer Undergraduate Research Experience Symposium, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Oral Presentation. 2013.

12. Ranjit, R., Dighe, R., **Rajala, R. V.**, "Light-dependent generation of Phosphoinisitides though the activation of phosphoinositide 3-kinase", Summer Undergraduate Research Experience, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Oral Presentation. 2012.

13. Cheng, L., Rajala, A., Anderson, R. E., **Rajala, R. V.**, "Phosphoinositide 3-kinase regulates the pyruvate kinase-M2 isoform in the retina", 37th Annual Graduate Research Education and Technology Symposium, Oklahoma City, OK, Paper. April 2012.

14. Thapa, G., **Rajala, R. V.**, "Regulation of protein tyrosine phosphatase-1B inthe retina", Summer Undergraduate Research Experience, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Oral Presentation. 2011.

15. Franklin, S., Basavarajappa, D. K., Gupta, V. K., **Rajala, R. V.**, "PTP1B activity is regulated through state of Grb14 phosphorylation in vitro", Summer Undergraduate Research Experience, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Oral Presentation. 2010.

16. Gupta, V. K., **Rajala, R. V.**, "Grb14 regulates the light adaptation through the inhibition of photoreceptor specific cyclic nucleotide gated channel", 35th Annual Graduate Research Education and Technology Symposium, Poster. April 2010.

17. Basasarajappa, D. K., **Rajala, R. V.**, "Mechanism of protein tyrosine phosphate-1B inhibition by molecular adapter Grb14", 35th Annual Graduate Research Education and Technology Symposium, Poster. April 2010.

18. Steinmeyer, A., **Rajala, R. V.**, "A genetic mutant trap technique to study the interaction between protein tyrosine phosphatase-1B and its protein substrates", Summer Undergraduate Research Experience Symposium, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Oral Presentation. 2009.

19. Ferguson, H., **Rajala, R. V.**, "Insulin Receptor Signaling in Cone Photoreceptor Cells", Summer Undergraduate Research Experience Symposium, University of Oklahoma Health Sciences Center, Oklahoma City, OK, Oral Presentation. 2009.

20. **Rajala, R. V.**, "Molecular adapter Grb14 in photoreceptor functions", IDeA Central Regional Conference, Oklahoma City, OK, Poster. May 2009.

21. **Rajala, R. V.**, "Mechanism of activation of PI-3 kinase in the retina", The Foundation Fighting Blindness, Southwest Regional Research Center 1st Annual Meeting, Dallas, TX, Oral Presentation. November 2000.

TEACHING AND INSTRUCTION

Teaching and Course Instruction – OUHSC/SCM

Year(s) of Instruction	Course ID	Course/Lecture Title	Role	Avg. Contact Hrs/Year	Primary Learner Audience
Fall 2021 - Present	GPiBS CSI-25	Cellular Systems 1: G-protein coupled receptor signaling (receptors, G protein classes) and regulation	Instructor	1.5	Graduate
Fall 2021 - Present	GPiBS CSI-26	Cellular Systems 1: Phosphotidylinositol Phosphate signaling - PIP2 and PIP3	Instructor	1.5	Graduate
Fall 2019 - Present	GPiBS CSI-23	Cellular System I: G-protein coupled receptor signaling	Instructor	1.1	Graduate
Fall 2019 - Present	GPiBS CSI-24	Cellular Systems 1	Instructor	1.1	Graduate
Fall 2017 - Present	Cell Biology 6503	Neurobiology of disease	Instructor	1.5	Graduate
Fall 2004 - Present	CELL/OCNS 6321	Molecular and Cellular Aspects of Vision	Instructor	1.5	Graduate
2009 - 2021	OCNS 5411	Neuroscience Methods and Experimental Strategies in Neuroscience: Organized and delivered lectures to graduate students	Instructor	3	Graduate
Fall 2016 - Fall 2017	GPIBS CSI-29	CSI-29-Cellular System	Instructor	1.5	Graduate
Fall 2015 - Fall 2017	GPIBS CSI-28	CSI-28-Cellular System	Instructor	1.5	Graduate
Fall 2015	GPIBS CS11-29	CSII-29 Cellular Systems	Instructor	1.5	Graduate
Fall 2010 - Fall 2014	MSC 7-1	Cellular Systems II	Instructor	1	Graduate
Fall 2010 - Fall 2011	MCS 7-9	Cellular Systems 1	Instructor	2	Graduate

Year(s) of Instruction	Course ID	Course/Lecture Title	Role	Avg. Contact Hrs/Year	Primary Learner Audience
Fall 2007	CSI 15-24	Cellular Systems I Test 2	Instructor	1.5	Graduate
Spring 2006 - Fall 2007	CELL 6341	Cell Signaling and Regulation	Instructor	3	Graduate

Teaching and Course Instruction – Institutions Outside of OUHSC/SCM

Year(s) of Instruction	Institution / Location	Course/Lecture Title	Role	Avg. Contact Hrs/Year	Primary Learner Audience
1994 - 1999	University of Saskatchewan, Canada	Protein Purification and Methods	Instructor	12	Graduate

Graduate Medical Education (GME) Instruction Delivered

Date	Course Name or Session Topic	Role	Number of Instruction Hours	Primary Learner Audience	Sponsoring Department or Organization
2013 - 2018	Lecture: Basic Laboratory Techniques	Instructor	1 hr(s) Annually	Residents	Department of Ophthalmology

Graduate or Research Oversight Committee Membership

Date	Mentee Name	Mentee Level/Program	Role/Involvement Type	Mentorship Outcomes
2019 - 2023	Eric Enyong, Mr	Graduate Student, Department of Physiology, University of Oklahoma Health Sciences Center	Doctoral Advisory Committee Member	Clinical Trial Management Irving, Texas
2018 - 2021	Greg Matlock	Graduate Student, Department of Physiology, University of Oklahoma Health Sciences Center	Doctoral Advisory Committee Member - Examination for Physiology	Postdoctoral Fellow in Jing-xing Ma, Wake Forest University
2018 - 2021	Lily Wenjing Wu	Graduate Student, Department of Physiology, University of Oklahoma Health Sciences Center	Doctoral Advisory Committee Member - Examination for Physiology	Post-doctoral Fellow in Martin-Paul Agbaga, DMEI
2020	Wentao Liang, Mr	Graduate Student, Department of Physiology, University of Oklahoma Health Sciences Center	Committee Member/Oral Examiner	Postdoctoral Fellow in Jing-xing Ma, Wake Forest University
2019	Eric Enyong, Mr	Graduate Student, Department of Physiology, University of Oklahoma Health Sciences Center	Oral Examiner	Clinical Trial Management Irving, Texas
2017 - 2018	Dustin Masser	Doctoral Student, University of Oklahoma Health Sciences Center	Doctoral Advisory Committee Member - Physiology doctoral thesis	Received PhD degree Senior FAS at Roche Sequencing and Life Science, Indianapolis, Indiana
2017	John Wood	University of Oklahoma Health Sciences Center	Committee Member - Physiology examination	Research Integrity Office, OUHSC
2016 - 2017	Young-Hwa Shin	Doctoral Student, University of Oklahoma Health Sciences Center	Doctoral Advisory Committee Member - Physiology doctoral thesis	Received PhD degree
2013 - 2017	Angelica Harper	Doctoral Student, University of Oklahoma Health Sciences Center	Doctoral Advisory Committee Member - Cell Biology Doctoral Thesis	Received PhD degree

Date	Mentee Name	Mentee Level/Program	Role/Involvement Type	Mentorship Outcomes
2016	Sandhya	MD/PhD Student, Dr. NTR University of Health Sciences	Foreign Examiner - PhD Thesis	Received PhD degree
2016	Niran Hadad	University of Oklahoma Health Sciences Center	Oral Examiner - Qualifying examination for Oklahoma Center for Neuroscience	Received PhD degree
2015	Erik Hodges	University of Oklahoma Health Sciences Center	Doctoral Advisory Committee Member - Cell Biology Doctoral Thesis	Received non-thesis Master's degree
2015	Yue Li	Doctoral Student, University of Oklahoma Health Sciences Center	Doctoral Advisory Committee Member - Physiology doctoral thesis	Received PhD degree
2015	Ashley Martin	University of Oklahoma Health Sciences Center	General and Oral Examiner - Physiology Examination	Received PhD degree
2015	Greg Matlock	University of Oklahoma Health Sciences Center	General and Oral Examiner - Examination for Physiology	Graduate student in Dr. Ma's lab
2014	Albert Orock	University of Oklahoma Health Sciences Center, Oklahoma Center for Neurosciences	Oral Examiner - Qualifying examination and retake	Received PhD degree
2013	Alaina Reagan	University of Oklahoma Health Sciences Center	Oral Examiner - Oklahoma Center for Neuroscience qualifying exam	Received PhD degree
2013	Angelica Harper	University of Oklahoma Health Sciences Center	Oral Examiner - Cell Biology Student	Received PhD degree
2012 - 2013	Kelu Zhou	Doctoral Student, University of Oklahoma Health Sciences Center	Doctoral Advisory Committee Member - Medicine/Endocrinology doctoral thesis	Employed in Dr. Ma's lab
2011	Andy Xiaowu	University of Oklahoma Health Sciences Center	Oral Examiner - Oklahoma Center for Neurosciences qualifying exam	Received PhD degree
2009	Aaron Chaloner	University of Oklahoma Health Sciences Center	Oral Examiner - Oklahoma Center for Neuroscience qualifying exam	Received PhD degree
2005 - 2008	Ashish Chinakuntlawar	Doctoral Student, University of Oklahoma Health Sciences Center	Doctoral Advisory Committee Member - Cell Biology doctoral thesis	Received PhD degree
2005	Adam Hoffines	University of Oklahoma Health Sciences Center	Oral Examiner - Cell biology qualifying exam	Received PhD degree
2005	Julie Scott	University of Oklahoma Health Sciences Center	Oral Examiner - Cell biology qualifying exam	Received PhD degree
2005	Lilian Shelton	University of Oklahoma Health Sciences Center	Oral Examiner - Cell biology qualifying exam	Received PhD degree

Mentoring and Advising

Date	Mentee Name	Mentee Level/Program	Role/Involvement Type	Mentorship Outcomes
2021 - Present	Fatemeh Shariati	Systems Manager, Department of Ophthalmology, Live Imaging and Analysis Core	Mentor	Presently working in Ophthalmology
2021 - Present	Feng Li, MD, MPH, MS	Systems Manager, Department of Ophthalmology, University of Oklahoma Health Sciences Center	Mentor	Presently working in Ophthalmology
2020 - Present	Kenneth Teel	Research Technician	Mentor	Presently working in Dr. Rajala's lab

Date	Mentee Name	Mentee Level/Program	Role/Involvement Type	Mentorship Outcomes
2015 - Present	Christopher Kooker	Graduate Student, Oklahoma Center for Neuroscience	Mentor	Received Master's degree December 2017, awarded pre-doctoral fellowship from NIH-T32 vision training grant.
2021 - 2023	Gopa Kumar Gopinadhan Nair, M.Sc., M.Phil., Ph.D.	Postgraduate Research, University of Oklahoma Health Sciences Center	Mentor	Presently working in Ophthalmology
2022	Macey Blakley	Medical Student	Mentor	
2020 - 2022	Mod Akbar Bhat	Research Technician	Mentor	Presently working in Dr. Rajala's lab
2018 - 2022	Sun Young Lee, MD, PhD	Assistant Professor	Mentor	Mentor on Dr. Lee's submitted K08 award
2020 - 2021	John Ledesma	Research Technician	Mentor	Presently working in Dr. Rajala's lab
2020 - 2021	Lindsey Purcell	Research Technician	Mentor	Presently working in Dr. Rajala's lab
2019 - 2021	Fatemeh Shariati	Research Technician, Molecular Biology Core, NEI P30 Core	Mentor	Presently working in Ophthalmology
2020	Jessica Abram	Research Technician	Mentor	Currently working in Dr. Jed Friedman's lab (Diabetes Center)
2020	Rajeswari Raguraman	Postgraduate Research, OUHSC	Mentor	Presently working in Dr. Ramesh's Lab (cancer center)
2019 - 2020	Austin McCauley	Research Technician	Mentor	Medical school
2019 - 2020	Khuong Nguyen	Research Technician	Mentor	Medical school
2019	David Tresp	Undergraduate Student, Southwestern Oklahoma State University	Mentor	Graduate Student, Rutgers University
2019	Henry Marsh	Medical Student	Mentor	MS3 OUHSC
2019	Josh Hardage	Medical Student	Mentor	MS3 OUHSC
2019	Nancy Wilkinson	Undergraduate Student	Mentor	College
2019	Raj Patel	Medical Student	Mentor	MS3 OUHSC
2019	Victoria Gonzalez	Medical Student	Mentor	MS3 OUHSC
2017 - 2019	Krutik Soni	Research Technician	Mentor	PhD student in Biomedical Engineering, OHSU, Portland
2017 - 2019	Yuhong Wang, PhD	Junior Faculty	Mentor	Currently working with Dr. Ma
2018	Wyatt Landrith	Undergraduate Student, University of Central Oklahoma	Mentor	Employed at OMRF
2017	Chinwe Okere	High School Student, Oklahoma School of Science and Mathematics	Mentor	College
2017	Trent Rogers	Undergraduate Student, Oklahoma City Community College, IDeA Network of Biomedical Research Excellence	Mentor	College
2016 - 2017	Michael Lee	High School Student, Oklahoma School of Science and Mathematics	Mentor	College

Date	Mentee Name	Mentee Level/Program	Role/Involvement Type	Mentorship Outcomes
2014 - 2017	Yuhong Wang	Research Associate, University of Oklahoma Health Sciences Center, Department of Ophthalmology	Mentor	Currently working with Dr. Ma
2016	Lyrics Goins	Undergraduate Student, Cameron University, IDeA Network of Biomedical Research Excellence	Mentor	College
2015 - 2016	Katherine Engel	Undergraduate Student, Oklahoma City Community College, IDeA Network of Biomedical Research Excellence	Mentor	College
2012 - 2016	Michelle Ranjo-Bishop	Research Technician	Mentor	Research Assistant in Dr. Arlan Richardson, ROCA
2011 - 2016	Fatemeh Shariati	Research Technician, Molecular Biology Core	Mentor	Research Assistant, Ophthalmology
2013 - 2015	Seifollah Azadi	Research Assistant Professor, University of Oklahoma Health Sciences Center, Department of Ophthalmology	Mentor	CEO, Purmabiologics, LLC, Oklahoma City
2014	Garima Thapa	Undergraduate Student, East Central University, IDeA Network of Biomedical Research Excellence	Mentor	Currently working in a biotech company
2013	Billy Smith	Undergraduate Student, Cameron University, IDeA Network of Biomedical Research Excellence	Mentor	College
2012 - 2013	Eric Chou	High School Student, Oklahoma School of Science and Mathematics	Mentor	College
2012	Kunal Dhume	Graduate Student, Oklahoma Center for Neuroscience, Graduate Program in Biomedical Sciences	Mentor	PhD student, University of Florida
2012	Rojina Ranjit	Undergraduate Student, Oklahoma City Community College, IDeA Network of Biomedical Research Excellence	Mentor	Employed at OMRF
2011 - 2012	Kanthesh Basalingappa	Postgraduate Research, University of Oklahoma Health Sciences Center	Mentor	Assistant Professor, JSS University, Karnataka, India
2011 - 2012	Lina Cheng	Postgraduate Research, University of Oklahoma Health Sciences Center	Mentor	Lina chose to pursue her second postdoc
2009 - 2012	Radhika Dighe	Research Technician	Mentor	Pharmacist at Benzer Pharmacy, Lady Lake, Florida
2007 - 2012	Dustin Allen	Research Technician	Mentor	Currently employed in a biotech company
2011	Ananya Rudra	High School Student, Norman North High School	Mentor	College - USC

Date	Mentee Name	Mentee Level/Program	Role/Involvement Type	Mentorship Outcomes
2011	Garima Thapa	Undergraduate Student, Oklahoma City Community College, IDeA Network of Biomedical Research Excellence	Mentor	Currently working in a biotech company
2009 - 2011	Devaraj Bsavarajappa	Postgraduate Research, Research Associate, Sweden, University of Oklahoma Health Sciences Center	Mentor	Senior Lecturer, Department of Clinical Medicine, Macquarie University, Australia
2008 - 2011	Yogita Kanan	Research Instructor, University of Oklahoma Health Sciences Center, Department of Ophthalmology	Mentor	Research Associate, Johns Hopkins University
2010	Osman Sheikh	Graduate Student, University of Oklahoma Health Sciences Center, Graduate Program in Biomedical Sciences	Mentor	Received PhD
2010	Shane Franklin	Undergraduate Student, IDeA Network of Biomedical Research Excellence	Mentor	College
2008 - 2010	Vivek Gupta	Postgraduate Research, Research Associate at Macquarie University, Australia, University of Oklahoma Health Sciences Center	Mentor	Postdoctoral award for best poster presentation at GREAT, 2010. Received Travel Grant from NEI to attend RD meeting in Canada Currently employed as Senior Lecturer, Department of Clinical Medicine, Macquarie University, Australia
2007 - 2010	Michael Elliott	Promising Junior Investigator, Center for Biomedical Research Excellence Project	Mentor	Associate Professor, Department of Ophthalmology
2009	Halie Ferguson	Undergraduate Student, University of Central Oklahoma, IDeA Network of Biomedical Research Excellence	Mentor	College
2008 - 2009	Xiaorui Yu	Visiting Professor from China	Mentor	Employed in a biotech company
2008	Allison Steinmeyer	Undergraduate Student, Comache Nation College, IDeA Network of Biomedical Research Excellence	Mentor	Best Poster Presentation Award plus cash prize ($2,000) at the Summer Undergraduate Research Program, 2008
2008	Deepika Ganta	High School Student, Casady School	Mentor	Medical School
2008	Srimathi Logan	Graduate Student, University of Oklahoma Health Sciences Center, Graduate Program in Biomedical Sciences	Mentor	Assistant Professor, Department of Rehabilitation Sciences, College of Allied Health, University of Oklahoma

Date	Mentee Name	Mentee Level/Program	Role/Involvement Type	Mentorship Outcomes
2008	Sushama Sivakumar	Graduate Student, University of Oklahoma Health Sciences Center, Graduate Program in Biomedical Sciences	Mentor	Received PhD
2006 - 2008	Ashok Kumar Dilly	Postgraduate Research, Research Associate at Wayne State University, University of Oklahoma Health Sciences Center	Mentor	Received Robert E. Anderson Award for Best Paper presentation at the OUHSC Vision Research Workshop, 2008 Research Assistant Professor, University of Pittsburgh School of Medicine
2007	Ivana Ivanovic	Graduate Student, University of Oklahoma Health Sciences Center, Department of Cell Biology	Mentor	AFER/Retina Research Foundation Travel Grant, 2009
2007	Lei Chen	Graduate Student, University of Oklahoma Health Sciences Center, Graduate Program in Biomedical Sciences	Mentor	College
2006 - 2007	Yu Lee	Research Technician	Mentor	OBGYN at Plano Health Care Women, Plano, TX
2005 - 2007	Guiyuan Li	Graduate Student, University of Oklahoma Health Sciences Center, Department of Cell Biology	Mentor	Outstanding Doctoral Dissertation Award, 2008
2005 - 2007	Huang Zhong	Research Instructor, University of Oklahoma Health Sciences Center, Department of Ophthalmology	Mentor	Employed in a biotech company
2006	Afsana Tahi	High School Student, Oklahoma School of Science and Mathematics	Mentor	College
2006	Justin Roussean	Undergraduate Student, Central University, Summer Student Project	Mentor	Completed Residency
2006	Tamara Hunt	Research Technician	Mentor	Research Assistant I, OUHSC
2005 - 2006	Aniq Rahman	High School Student, Oklahoma School of Science and Mathematics	Mentor	CEO of Moat, a New York-based SaaS company which makes marketing analytics and intelligence software
2000 - 2006	Mark McClellan	Research Technician	Mentor	Research Assistant III in Dr. Michael Elliott's lab, Department of Ophthalmology, OUHSC
2003 - 2005	Michael Chan	Research Technician	Mentor	Employed at OMRF
2004	Nicket Muni	High School Student, Oklahoma School of Science and Mathematics	Mentor	Medical School, OUHSC

Date	Mentee Name	Mentee Level/Program	Role/Involvement Type	Mentorship Outcomes
2004	Stacie Brown	Graduate Student, University of Oklahoma Health Sciences Center, Graduate Program in Biomedical Sciences	Mentor	Graduated
2003	Ivana Ivanovic	Graduate Student, University of Oklahoma Health Sciences Center, Graduate Program in Biomedical Sciences	Mentor - Thesis Adviser	Graduated
2001	Geeta Seetharaman	Research Technician	Mentor	Geeta chose to pursue a technician career.
2000 - 2001	Dana Rundle	Graduate Student, University of Oklahoma Health Sciences Center, Department of Biochemistry and Molecular Biology	Mentor	Professor - Department of Chemistry University of Central Oklahoma
1998 - 2000	Xuguang Bi	Research Technician	Mentor	Xuguang chose to pursue a technician career.
1994 - 1999	Rakesh Kumar Kakkar	Postgraduate Research, University of Saskatchewan, Canada	Mentor	Vice President/Head Manufacturing & Supply-Vaccine US at Sanofi, Swiftwater, Pennsylvania
1998	Mohit Bhutani	Undergraduate Student, University of Saskatchewan, Canada, Summer Student Project	Mentor	Medical School
1998	Xiubin Gi	Research Technician	Mentor	Employed in a biotech company
1997	Lavanya Raju	Undergraduate Student, University of Saskatchewan, Canada, Summer Student Project	Mentor	Medical School
1996 - 1997	K Gokulan	Postgraduate Research, University of Saskatchewan, Canada	Mentor	Staff Fellow at FDA, Little Rock, AR
1995 - 1997	Sumer Lal	Master's Student, University of Saskatchewan, Canada, Neurosurgery	Mentor	Neurosurgeon, Saskatoon, SK Canada
1995 - 1996	Subbu Raju Kannan	Postgraduate Research, University of Saskatchewan, Canada	Mentor	Biotech company, India

ORGANIZATIONAL SERVICE

Organizational Administration and Leadership

Campus/University

Member, Harold Hamm Diabetes Center, November 5, 2014 - October 5, 2017

Module Director, Molecular Biology Module, Vision COBRE, University of Oklahoma Health Sciences Center, December 1, 2011 - June 30, 2013

Assistant Director, Animal Module, Vision COBRE, University of Oklahoma Health Sciences Center, 2008 - 2010

College

Module Director, Molecular Biology Module, NIH/NEI Core Grant, University of Oklahoma Health Sciences Center, July 1, 2019 - June 30, 2021

Judge, Graduate Research Education and Technology Day, University of Oklahoma Health Sciences Center, April 3, 2019

Judge, Graduate Research Education and Technology Day, University of Oklahoma Health Sciences Center, April 2018

Module Director, Molecular Biology Module, P30 NIH/NEI Core Grant, University of Oklahoma Health Sciences Center, July 1, 2013 - August 31, 2016

Judge, Graduate Research Education and Technology Day, University of Oklahoma Health Sciences Center, 2012

Department

Director, Research Activity, Department of Physiology, 2020 - Present

Chair, Faculty Tenure and Promotion Committee, Department of Physiology, 2019 - Present

Chair, Research Committee, Department of Physiology, 2018 - Present

Director, P30 Module Core Director, Department of Ophthalmology, August 1, 2021 - July 31, 2025

Co-Chair, 16th Annual OU Vision Workshop, Department of Ophthalmology, 2023

Chair, Faculty Search Committee, Department of Ophthalmology, 2018

Co-Chair, Research Retreat, Department of Physiology, 2016

Chair, Research Retreat, Department of Physiology, 2015

Co-Director, Vision Journal Club, Department of Ophthalmology, 2011

Co-Director, Current Topics in Cell Biology, Department of Cell Biology, 2006 - 2007

Division/Section

Course Director, Neuroscience Methods: Experimental Strategies in Neuroscience, Oklahoma Center for Neuroscience, 2008 - 2021

Organizational Committee Service

Campus/University

Member, Inquiry Committee - Ethics in Research, University of Oklahoma Health Sciences Center, October 14, 2022 - Present

Member, Student and Postdoc Paper of the Year Section Committee, GREAT, 2022

Grant Reviewer, Seed Grants, Harold Hamm Diabetes Center, 2019

Grant Reviewer, Seed Grants, Presbyterian Health Foundation, 2019

Grant Reviewer, Established investigator grants, Presbyterian Health Foundation, 2017

Member, Institutional Animal Care and Use Committee, Dean McGee Eye Institute, 2007 - 2014

Grant Reviewer, Bridge, Seed and Equipment Grants, Presbyterian Health Foundation, 2010

Judge, Graduate Research Education and Technology Day, University of Oklahoma Health Sciences Center, 2008 - 2010

Coordinator, Vision Club and Center of Biomedical Research Excellence Distinguished Scientist Lecture Seminar Series, 2008 - 2010

Grant Reviewer, Bridge, Seed and Equipment Grants, Presbyterian Health Foundation, 2008

Grant Reviewer, Bridge, Seed and Equipment Grants, Presbyterian Health Foundation, 2005

Department

Member, Outstanding Dissertation Nomination Committee, Department of Physiology, 2021 - Present

Interviewer, Retina Fellowship Interviews, Department of Ophthalmology, 2021 - Present

Member, Doctoral Thesis Committee for Eric Enyong, Department of Physiology, 2019 - Present

Member, Examiner for Physiology Graduate Student Eric Enyong, Department of Physiology, 2019 - Present

Member, Research Committee, Department of Physiology, 2014 - Present

Member, Doctoral Thesis Committee, Department of Medicine/Endocrinology, 2012 - Present

Member, Doctoral thesis committee for Wnjing Wu, Lily, Department of Physiology, 2018 - 2021

Member, Doctoral thesis committee member for Greg Matlock, Department of Physiology, 2018 - 2021

Interviewer, Vitreoretinal Faculty Candidate, Department of Ophthalmology, February 14, 2020

Member, Doctoral dissertation committee for Yue LI, Department of Physiology, 2015 - 2019

Interviewer, Retina Fellowship Interviews, Department of Ophthalmology, September 4, 2019

Member, Doctoral Thesis Committee for Dustin Masser, Department of Physiology, 2017 - 2018

Member, Faculty Search Committee, Department of Physiology, 2017 - 2018

Member, Physiology Examination Committee, Department of Physiology, 2017

Member, Physiology Examination Committee for John Wood, Department of Physiology, 2017

Member, Doctoral Thesis Committee for Young-Hwa Shin, Department of Physiology, 2016 - 2017

Member, Doctoral Thesis Committee for Angelica Harper, Department of Cell Biology, 2013 - 2017

Member, Doctoral Thesis Committee for Erick Hodges, Department of Cell biology, 2015 - 2016

Member, Faculty Search Committee, Department of Physiology, 2015

Member, General and Oral Examination for Ashley Martin, Department of Physiology, 2015

Member, General and Oral Examination for Greg Matlock, Department of Physiology, 2015

Judge, Vision Workshop, Department of Ophthalmology, 2014

Oral Examiner, Cell Biology Student - Angelica Harper, Department of Cell Biology, 2013

Member, Faculty Search Committee, Department of Physiology, 2013

Member, Doctoral thesis committee for Kelu Zhou, Department of Physiology, 2012 - 2013

Judge, Vision Workshop Graduate Student and Post-Doctoral Presentations, Department of Ophthalmology, 2012

Member, Faculty Recruitment (Tenure Track) Committee, Department of Ophthalmology, 2010

Judge, Vision Workshop Graduate Student and Post-Doctoral Presentations, Department of Ophthalmology, 2010

Judge, Vision Workshop Graduate Student and Post-Doctoral Presentations, Department of Ophthalmology, 2009

Member, Institutional Animal Care and Use Committee, Dean McGee Eye Institute/Department of Ophthalmology, 2007 - 2009

Member, Doctoral Dissertation Committee for Ashish Chintakuntlawar, Department of Cell Biology, 2005 - 2008

Member, Doctoral Thesis Committee, Department of Cell Biology, 2005 - 2008

Chair, Faculty Evaluations Guidelines Committee, Department of Ophthalmology, 2007

Judge, Vision Workshop Graduate Student and Post-Doctoral Presentations, Department of Ophthalmology, 2007

Member, Oral examiner for Adam Hoffhines, Department of Cell Biology, 2005

Member, Oral examiner for qualifying examination for Julie Scott, Department of Cell Biology, 2005

Member, Oral examiner for qualifying examination for Lilian Shelton, Department of Cell Biology, 2005

Division/Section

Member, Oklahoma Center for Neuroscience Board, Oklahoma Center for Neuroscience, 2013 - Present

Member, Oklahoma Center for Neuroscience Executive Committee, Oklahoma Center for Neuroscience, 2013 - Present

Member, Admission Committee, Oklahoma Center for Neuroscience, 2010 - Present

Member, Graduate Education Committee, Oklahoma Center for Neuroscience, 2009 - Present

Oral examiner, Qualifying Examination for Niran Hadad, Oklahoma Center for Neuroscience, 2016

Proctor, Human Physiology Exam, 2015

Oral Examiner, Qualifying Examination for Albert Orack, Oklahoma Center for Neuroscience, 2014

Oral examiner, Qualifying Examination for Albert Orock (retake), Oklahoma Center for Neuroscience, 2014

Oral examiner, Qualifying Examination - Alaina Regan, Oklahoma Center for Neuroscience, 2013

Member, General Exam Committee, Oklahoma Center for Neuroscience, 2011

Member, Oral examiner for OCNS qualifying examination for Xiaowu (Andy), Oklahoma Center for Neuroscience, 2011

Member, Oral examiner for OCNS qualifying examination for Aaron Chaloner, Oklahoma Center for Neuroscience, 2009

PROFESSIONAL SERVICE

National/International

Member, Biology, 2020 - Present

Member, Journal of Molecular Biology and Therapeutics, 2019 - Present

Member, Scientific Reports, 2015 - Present

Advisor, American Journal of Current Biology, 2013 - Present

Reviewer, BMC Ophthalmology, BMC Ophthalmology, United Kingdoms, 2012 - Present

Member, Members-in-Training Committee (MIT), Association for Research in Vision and Ophthalmology (ARVO), 2021 - 2024

Scientific Reviewer, Grant Review, Israeli Ministry of Science and Technology, Jerusalem, Israel, 2023

Scientific Reviewer, Synergy Grants, European Research Council, 2023

Scientific Reviewer, Department of Medical and Biological Sciences, Czech Science Foundation (GACR), Prague, Czech Republic, 2022

Reviewer, NEI Center Core Grant for Vision Research (P30) Special Emphasis Panel, ZEY1 VSN (07), National Eye Institute, 2022

Grant Reviewer, Special Emphasis Panel, ZEY1 VSN (07), National Eye Institute (NEI) Center Core Grant for Vision Research (P30), March 2022

Reviewer, eLife Journal, eLife, 2021

Reviewer, Proceedings of the National Academy of Sciences, National Academy of Sciences, 2021

Reviewer, Scientific Reports, Nature Publishing Journals, 2021

Scientific Reviewer, Springboard Awards, Moorfields Eye Charity, United Kingdom, 2021

Member, Biology of the Visual System Study Section, National Institute of Health, Bethesda, MD, 2017 - 2021

Reviewer, Diabetes, UK, 2019 - 2020

Reviewer, The Paul Lichter Discovery Award, University of Michigan, 2019

Scientific Reviewer, Vision Research Program (VRP) Peer Review Panel of the 2019 Peer-Reviewed Medical Research Program (PRMRP), Department of Defense Congressionally Directed Medical Research Programs (CDMRP), 2019

Internet Assisted Reviewer, Neurobiology of Learning and Memory Study Section, National Institute of Health, Bethesda, MD, 2016

Scientist Reviewer, Vision Research Program Peer Review Panel of the 2016 Peer Reviewed Medical Research Program(PRMRP), Department of Defense Congressionally Directed Medical Research Programs (CDMRP), 2016

Reviewer, Ad-Hoc, Biology of the Visual System Study System, National Institute of Health, Bethesda, MD, 2015 - 2016

Member, Assisted Peer Reviewers for Multiple Sclerosis Research Grant, Australia, 2012

Advisory Board Member, National Seminar on Future Challenges in Biochemical Education and Colloquim on Protease Inhibitors: Noble Role in Physiology and Medicine, Visakhapatnam, India, 2010

Scientific Reviewer, Welcome Trust, United Kingdom, 2010

Scientific Reviewer, Special Emphasis Panel: National Institute of Health Nanotechnology ZRG1 NANO-M (01), National Institute of Health, Bethesda, MD, 2008

Scientific Review, National Science Foundation, 2007

Editor, Editorial Board, Journal Reviewer

Editor, Associate, Frontiers in Cell and Developmental Biology, 2021 - Present

Editorial Board Member, Biology (Cell Biology Section), 2020 - Present

Editorial Board Member, Journal of Molecular Biology and Therapeutics, 2019 - Present

Reviewer, PNAS, 2019 - Present

Editorial Board Member, Scientific Reports - Nature Publishing Group, 2015 - Present

Advisory Editorial Board Member, American Journal of Current Biology, 2013 - Present

Editor, Associate, BMC Ophthalmology, 2012 - Present

Reviewer, Science Translational Medicine, Reproductive Toxicology, Cell Communication and Signaling, International Journal of Molecular Sciences, BMC Cell Biology, Journal of Lipid Research, Archives of Ophthalmology, Journal of Neuroscience, Diabetes, Journal of Neurochemistry, IOVS, FEBS Letters, Vision Research, American Journal of Physiology, Molecular Vision, Current Eye Research, Experimental Eye Research, Molecular and Cellular Endocrinology, Lipids, US Ophthalmic Review, PLos One, IUBMB LIfe, Disease Models and Mechanisms, Oncotarget, Steroid Biochemistry, and Molecular Biology, Immunologic Research, Human Molecular Genetics, eLife, PNAS, 2010 - Present

Editorial Board Member, Nature Cell and Science, 2023 - 2024

PERSONAL COMMUNITY SERVICE

Greeter, Voluntary work every Sunday at Henderson Hills Baptist Church, Henderson Hills Baptist Chruch, Edmond, OK, 2006 - Present

PROFESSIONAL MEMBERSHIPS

International Society for Eye Research (ISER)	2018 - Present
American Society for Microbiology (ASM)	2011 - Present
Society for Neuroscience (SfN)	2007 - Present
Association for Research in Vision and Ophthalmology (ARVO)	2000 - Present
American Society for Biochemistry and Molecular Biology (ASBMB)	1994 - Present

PROFESSIONAL GROWTH AND DEVELOPMENT

Other Professional Development

Graduate Faculty Appointment (full-time), University of Oklahoma Health Sciences Center, Oklahoma City, OK, 2014 - Present

Graduate, University of Oklahoma Health Sciences Center Faculty Leadership Program, Oklahoma City, OK, 2005