

## Pete A Williams, PhD

*Dept. of Clinical Neuroscience, Division of Eye and Vision*

*S:t Eriks Ögonsjukhus, Karolinska Institutet, Eugeniavägen 12, 171 64 Solna, Sweden*

Email: pete [dot] williams [at] ki.se | Web: petewilliamslab.com, staff.ki.se/people/pete-williams

### Current Appointments

---

2022-Present *Dept. of Clinical Neuroscience, Division of Eye and Vision, Karolinska Institutet*  
**Lektor (eq. Associate Professor) in Neurobiology**  
**Research Group Leader - Glaucoma**

2019-Present *S:t Eriks Ögonsjukhus (St. Erik Eye Hospital)*  
**Research Group Leader**

### Other Appointments

---

2022-Present *Karolinska Institutet*  
**Academic Coordinator for KI's Collaborations with the United Kingdom**

2021-Present *Mim Neurosciences AB*  
**Founder, CEO**

2021-Present *Duke-NUS, Singapore*  
**Distinguished Visiting Scholar**

2019-Present *School of Optometry and Vision Sciences, Cardiff University, U.K.*  
**Honorary Research Fellow**

### Career History

---

2018-2022 *Dept. of Clinical Neuroscience, Division of Eye and Vision, Karolinska Institutet*  
**Assistant Professor in Medical Sciences**  
**Research Group Leader – Glaucoma**

2012-2018 *HHMI / The Jackson Laboratory, Bar Harbor, ME, U.S.A.*  
**Postdoctoral Fellow (HHMI Simon John Lab)**

2011 *The Jackson Laboratory, Bar Harbor, ME, U.S.A.*  
**Collaborative Researcher**

2009 *School of Optometry and Vision Sciences; Cardiff University, Cardiff, U.K.*  
**Summer Research Student**

### Education

---

2021 *Karolinska Institutet*  
**Docent in Neuroscience**

2012 *School of Optometry and Vision Sciences, Cardiff University, Cardiff, U.K.*  
**PhD in Vision Science (Visual Neuroscience and Molecular Biology)**  
Supervisors: Prof. M Votruba and Prof. JE Morgan

2009 *School of Biosciences; Cardiff University, Cardiff, U.K.*  
**BSc. (Hons) Biomedical Sciences – Neuroscience**

### Professional Training

---

2021 Teaching in the Global University, Karolinska Institutet

2020 Teaching and Learning in Higher Education (GHPD), Karolinska Institutet

2020 Pedagogy for Doctoral Supervisors, Karolinska Institutet

2019 Doctoral Supervision Course, Karolinska Institutet

2015 Software Carpentry: R for Data Analysis, The Jackson Laboratory

2012 Applied Bioinformatics, Mount Desert Island Biological Laboratory

## Funding as Lead Applicant

---

2022	Ögonfonden / Stiftelsen Synfrämjandets Forskningsfond (2022-2023; 225,000 SEK)
2022	Hedlunds Stiftelsen (2022-2023; 400,000 SEK)
2022	Stiftelsen Tornspiran (2022; 100,000 SEK)
2021	KI Foundation Grant for Eye Research (2022; 140,000 SEK)
2021	Faculty Funded Career Position (Senior Researcher), Karolinska Institutet (2022-2023; 2,000,000 SEK)
2021	Stiftelsen Kronprinsessan Margaretas Arbetsnämnd för synskadade (2022; 150,000 SEK)
2021	KID-funding (2022-2025; 1,400,000 SEK, PhD Studentship)
2021	ALF Medicine 2022 (2022-2024; 1,850,000 SEK)
2021	The Glaucoma Foundation 2021 Research Award (2021-2022; 51,500 USD)
2021	ARI Young Investigator Grant (2021-2022; 75,000 USD)
2021	Hedlunds Stiftelsen (2021-2022; 250,000 SEK)
2021	Ögonfonden / Stiftelsen Synfrämjandets Forskningsfond (2021-2022; 200,000 SEK)
2021	Stiftelsen Tornspiran (2021; 100,000 SEK)
2021	Synoptik Fonden (2021; 50,000 DKK)
2020	KI Foundation Grant for Eye Research (2021; 110,000 SEK)
2020	Stiftelsen Kronprinsessan Margaretas Arbetsnämnd för synskadade (2021; 100,000 SEK)
2020	KI Research Foundation Grants (2021-2022; 96,300 SEK)
2020	STINT Initiation Grant (2021-2022; 150,000 SEK + 345,000 SEK matched funding)
2020	Ögonfonden (Glaukomförbundet) (2020-2021; 200,000 SEK)
2019	KI Foundation Grant for Eye Research (2020; 122,000 SEK)
2019	Åke Wilberg Stiftelse (2020; 200,000 SEK)
2019	Stiftelsen Kronprinsessan Margaretas Arbetsnämnd för synskadade (2020; 180,000 SEK)
2019	Ögonfonden (Glaukomförbundet) (2019-2020; 100,000 SEK)
2019	Glaucoma Research Foundation Shaffer Grant (2019-2020; 50,000 USD)
2018	KI Foundation Grant for Eye Research (2019; 106,000 SEK)
2018	Stiftelsen Lars Hiertas Minne (2019-2020; 40,000 SEK)
2018	Stiftelsen Kronprinsessan Margaretas Arbetsnämnd för synskadade (2019; 90,000 SEK)
2018	Vetenskapsrådet Medicine and Health Starting Grant (2019-2022; 6,000,000 SEK)
2018	KI Research Foundation Grants (2019-2020; 215,800 SEK)
2018	StratNeuro Start-up Programme (2018-2020; 1,000,000 SEK)
2017	Faculty Funded Career Position (Assistant Professor), Karolinska Institutet (2018-2021; 4,750,000 SEK)
2013	TJL Fellowship Grant (2 years full salary funding)

## Funding as Co-Applicant

---

2022	Hedlunds Stiftelsen (2022-2023; 500,000 SEK, lead applicant James Tribble [KI])
2022	BrightFocus Foundation National Glaucoma Research award [as consultant] (2022-2024; 200,000 USD, lead applicant A Komaromy [Michigan State University])
2021	Spjutspetsprojekt FoU Region Västerbotten (2022-2024; 3,000,000 SEK, lead applicant G Jóhannesson [Umeå Universitet])
2021	KID-funding (2022-2025; 1,400,000 SEK, PhD Studentship, lead applicant J Tribble [Karolinska Institutet])
2021	Svenska Läkaresällskapet (2021-2022; 80,000 SEK, lead applicant M Karlsson [Tranås Ögonklinik])
2020	Centrala ALF-projektmedel (2021-2023; 1,500,000 SEK, lead applicant G Jóhannesson [Umeå Universitet])
2020	Stiftelsen Kronprinsessan Margaretas Arbetsnämnd för synskadade (2021; 90,000 SEK, lead applicant G Jóhannesson [Umeå Universitet])
2020	Cronqvists Stiftelse (2020-2021; 290,000 SEK, lead applicant G Jóhannesson [Umeå Universitet])
2019	RPB International Research Collaborators Award (2020; 75,000 USD with B Jones [U Utah])
2019	Vetenskapsrådet Research Project Grant Clinical Therapy Research (2020; 1,084,500 SEK, lead applicant G Jóhannesson [Umeå Universitet])
2019	Fight For Sight UK (2019-2022; 98,335 GBP, PhD Studentship with J Morgan, M Votruba [Cardiff University])

## Awards

---

2021	Alcon Research Institute Young Investigator Award
2021	Axel Hirsch Prize 2021
2021	2021 Shaffer Prize for Innovation
2019	Swedish Ophthalmologic Society Most Promising Researcher 2020 / SOE-lecturer 2020
2019	Excellence in Neuroscience Research award (Karolinska Institutet)
2013	The Barbara and Joseph Cohen Young Investigator Award
2011	European Association for Vision and Eye Research Travel Grant Winner for Best Paper in Category (Genetics)

## Professional and Academic Service

---

Associate Editor: Neurodegeneration (*Frontiers in Neurology*, *Frontiers in Neuroscience*, *Frontiers in Psychiatry*)

Editorial Board Member: *Frontiers in Ophthalmology*, *Translational Vision Science & Technology*

Reviewer: *BMC Ophthalmology*, *British Journal of Ophthalmology*, *Cell Reports*, *Cellular and Molecular Life Sciences*, *Clinical & Experimental Ophthalmology*, *eLife*, *Experimental Eye Research*, *The FASEB Journal*, *Frontiers in Neuroscience*, *International Journal of Tryptophan Research*, *Investigative Ophthalmology & Visual Science*, *Journal of Glaucoma*, *Journal of Molecular Biology*, *Journal of Neurochemistry*, *Journal of Neuroinflammation*, *Journal of Open Research Software*, *Laboratory Investigation*, *Mitochondrion*, *Molecular Neurodegeneration*, *Molecular Pharmaceutics*, *Molecular Vision*, *Ophthalmology*, *Oxidative Medicine and Cellular Longevity*, *Rejuvenation Research*, *Science Advances*

Grant reviewer: *DBT/Wellcome Trust India Alliance*, *Fight For Sight UK*, *KID (Karolinska Institutet Doctoral Education)*, *Moorfields Eye Charity*, *Sight Research UK*, *TFC Frost Charitable Trust*, *The Ophthalmic Research Institute of Australia (ORIA)*

Active society memberships:

*The Association for Research in Vision and Ophthalmology (ARVO)*, *European Association for Vision and Eye Research (EVER)*, *International Society for Eye Research (ISER)*, *Society for Redox Biology and Medicine (SfRBM)*

Session chair / moderator:

2022	Nordic Congress of Ophthalmology, Reykjavik, Iceland
2022	ISER/BrightFocus Glaucoma Symposium, Atlanta, GA, U.S.A.
2020	International Society for Eye Research, Buenos Aires, Argentina (delayed due to COVID-19)
2020	Optic Nerve Meeting, Obergurgl, Austria (delayed due to COVID-19)
2019	Optic Nerve Meeting – Bioenergetics and Neuro-Glial Interactions, Obergurgl, Austria
2018	Optic Nerve Meeting – Bioenergetics, Obergurgl, Austria
2017	Optic Nerve Meeting – Bioenergetics, Obergurgl, Austria
2016	Optic Nerve Meeting – Neuroinflammation and Glia, Obergurgl, Austria

Think tanks and initiatives:

2021-Present	RGC Repopulation, Stem Cell Transplantation, and Optic Nerve Regeneration (RReSTORe)
2021	The Glaucoma Foundation 27 <sup>th</sup> Annual Think Tank
2015	Lasker/IRRF Initiative on Astrocytes and Glaucomatous Neurodegeneration (session scribe)

Academic service:

2019-Present	FoUU-kommittén S:t Eriks Ögonsjukhus (Research, Development, and Education committee)
2016-2017	Co-chair - The Jackson Laboratory Postdoctoral Association (JPA)
2006-2009	STEMNET Ambassador for Cardiff University
2007-2008	Student Representative for Neuroscience and Pharmacology
2006-2008	Student Chairman of Biological Sciences
2006-2007	Student Representative for Neuroscience
2006-2007	Vice President – Cardiff University Neuroscience Society
2006-2007	Student and Residential Representative

Formal mentorship programs:

2019-2020	Karolinska Institutet Junior Faculty Mentorship Program (mentee)
2014-2016	JAX SSP (The Jackson Laboratory Summer Student Program) (mentor)

## Teaching Portfolio and Expertise

---

**Competency:** Basic neuroscience, physiology and anatomy, and biochemistry. Advanced visual neuroscience, neuro-anatomy, and molecular biology.

**Form of instruction:** Formal lecturing, small team/group based learning, lab instruction, demonstration, journal club / student-lead learning, e-learning, electronic course content creation (Blackboard / Canvas) and consultation, 1-on-1 supervision and project supervision.

## Teaching Experience

---

2019-Present *Dept. of Clinical Neuroscience, Division of Eye and Vision, Karolinska Institutet*

**Lecturer, Demonstrator**

Anatomy, Physiology, and Disease 2

2019-2021 *Dept. of Clinical Neuroscience, Division of Eye and Vision, Karolinska Institutet*

**Lecturer**

Master's Program in Clinical Optometry (Neuro-optometry)

2016 *The Jackson Laboratory, Bar Harbor, ME, U.S.A.*

**Online Education Consultant**

2015-2016 *The Jackson Laboratory, Bar Harbor, ME, U.S.A.*

**Teacher, Mentor**

JAX SSP (The Jackson Laboratory Summer Student Program)

2015 *College of the Atlantic, Bar Harbor, ME, U.S.A.*

**Lecturer**

Topics in Biomedical Research lecture series

2009-2012 *School of Optometry and Vision Sciences, Cardiff University, U.K.*

**Postgraduate Demonstrator and Teacher**

Cells to Systems

## Completed Supervision

---

2 postdocs, 1 visiting PhD student, 2 Masters students, 1 medical school student, 1 midwifery student, 2 ERASMUS+ trainees, 1 clinical ophthalmologist

*Dept. of Clinical Neuroscience, Karolinska Institutet, Stockholm, Sweden*

## Current Supervision

---

1 assistant professor, 5 PhD students (3 as primary supervisor, 1 as co-supervisor, 1 visiting), 3 clinical ophthalmologists

*Dept. of Clinical Neuroscience, Karolinska Institutet, Stockholm, Sweden*

1 PhD student (co-primary supervisor)

*School of Optometry and Vision Sciences, Cardiff University, Cardiff, U.K.*

1 PhD student (co-supervisor)

*Umeå Universitet, Umeå, Sweden*

1 PhD student (primary co-supervisor)

*Dept. of Drug Design and Pharmacology, University of Copenhagen, Copenhagen, Denmark*

## Formal Pedagogic Training

---

2021 Teaching in the Global University, Karolinska Institutet

2020 Teaching and Learning in Higher Education (GHPD), Karolinska Institutet

2020 Pedagogy for Doctoral Supervisors, Karolinska Institutet

2019 Doctoral Supervision Course, Karolinska Institutet

## Publications

---

### Preprints

- Yousefi S, Chen H, Ingels JF, McCarty MS, Centeno AG, Chintalapudi S, Mulligan MK, **Williams PA**, John SWM, Jones BW, Jablonski MM, Hollingsworth TJ, Geisert EE, Lu L, Williams RW. "Computational approaches towards reducing contamination in single-cell RNA-seq data". *bioRxiv*. 2020 (doi: 10.1101/2020.07.15.205062).

### 2022

- Rutigliani C\*, Tribble JR\*, Hagström A, Lardner E, Jóhannesson G, Stålhammar G, **Williams PA**. "Widespread retina and optic nerve neuroinflammation in enucleated eyes from glaucoma patients". *Acta Neuropathologica Communications*. 2022 (doi: 10.1186/s40478-022-01427-3), \* co-first author,
- Enz TJ\*, Maloca PM\*, Tschopp M, Menke MN, Tribble JR, **Williams PA**, Inglin N, Steitz U, Scholl HPN, Jöe M, Papazoglou A. "Volume-rendered optical coherence tomography angiography during ocular interventions: advocating for non-invasive intraoperative retinal perfusion monitoring". *Journal of Biophotonics*. 2022 (doi: 10.1002/jbio.202200169), \* co-first author,
- Tribble JR\*, Kastanaki E\*, Uslular AB, Rutigliani C, Enz TJ, **Williams PA**. "Valproic acid reduces neuroinflammation to provide retinal ganglion cell neuroprotection in the retina axotomy model". *Frontiers in Cell and Developmental Biology*. 2022 (doi: 10.3389/fcell.2022.903436), \* co-first author,
- Hagström A, Kal Omar R, **Williams PA**, Stålhammar G. "The rationale for treating uveal melanoma with adjuvant melatonin: a review of the literature". *BMC Cancer*. 2022 (doi: 10.1186/s12885-022-09464-w),
- Mouhammad ZA, Vohra R, Horwitz A, Thein AS, Rovelt J, Cvenkel B, **Williams PA**, Azuara-Blanco A, Kolko M. "Glucagon-like peptide 1 receptor agonists - potential game changers in the treatment of glaucoma?". *Frontiers in Neuroscience*. 2022 (doi: 10.3389/fnins.2022.824054),
- Enz TJ, Bittner M, Tribble JR, **Williams PA**, Thiel MA, Schmid MK, Bachmann LM, Bochmann F. "Comparative assessment of retinal blood flow velocity changes following brimonidine and brinzolamide administration using retinal function imaging". *Translational Vision Science & Technology*. 2022 (doi: 10.1167/tvst.11.2.1),
- De Moraes CG, John SWM, **Williams PA**, Blumberg DM, Cioffi GA, Liebmann JM. "Nicotinamide and pyruvate for neuroenhancement in open-angle glaucoma: a randomized, phase 2, double-blind, placebo-controlled clinical trial using clustered perimetry". *JAMA Ophthalmology*. 2022 (doi: 10.1001/jamaophthalmol.2021.4576).

### 2021

- Enz TJ\*, Tribble JR\*, **Williams PA**. "Comparison of glaucoma-relevant transcriptomic datasets identifies novel drug targets for retinal ganglion cell neuroprotection". *Journal of Clinical Medicine*. 2021 (doi: 10.3390/jcm10173938), \* co-first author,
- Petriti B, **Williams PA**, Lascaratos G, Chau K-Y, Garway-Heath DF. "Neuroprotection in glaucoma: NAD<sup>+</sup>/NADH redox state as a potential biomarker and therapeutic target". *Cells*. 2021 (doi: 10.3390/cells10061402),
- Tribble JR, Otmani A, Sun S, Ellis S, Cimaglia G, Vohra R, Jöe M, Lardner E, Venkataraman AP, Domínguez-Vicent A, Kokkali E, Rho S, G Jóhannesson, Burgess RW, Fuerst PG, Brautaset R, Kolko M, Morgan JE, Crowston JG, Votruba M, **Williams PA**. "Nicotinamide provides neuroprotection in glaucoma by protecting against mitochondrial and metabolic dysfunction". *Redox Biology*. 2021 (doi: 10.1016/j.redox.2021.101988),
- Tribble JR, Hui F, Jöe M, Bell K, Chrysostomou V, Crowston JG, **Williams PA**. "Targeting diet and exercise for neuroprotection and neurorecovery in glaucoma". *Cells*. 2021 (doi: 10.3390/cells10020295),
- Tribble JR\*, Kokkali E\*, Otmani A, Plastino F, Lardner E, Vohra R, Kolko M, Andre H, Morgan JE, **Williams PA**. "When is a control not a control? Reactive microglia occur throughout the control contralateral pathway of retinal ganglion cell projections in experimental glaucoma". *Translational Vision Science & Technology*. 2021 (doi: 10.1167/tvst.10.1.22), \* co-first author,
- Tribble JR, Otmani A, Kokkali E, Lardner E, Morgan JE, **Williams PA**. "Retinal ganglion cell degeneration in a rat magnetic bead model of ocular hypertensive glaucoma". *Translational Vision Science & Technology*. 2021 (doi: 10.1167/tvst.10.1.21).

### 2020

- Harder JM, Guymer C, Wood JPM, Daskalakis E, Chidlow G, Zhang C, Balasubramanian R, Cardozo BH, Foxworth NE, Deering KE, Ouellette TB, Montgomery C, Wheelock CE, Casson RJ, **Williams**

- PA**<sup>†</sup>, John **SWM**<sup>†</sup>. “Disturbed glucose and pyruvate metabolism in glaucoma with neuroprotection by pyruvate or rapamycin”. *PNAS*. 2020 (doi: 10.1073/pnas.2014213117), <sup>†</sup> corresponding authors,
- Bevan RJ, Hughes TR, **Williams PA**, Good MA, Morgan BP, Morgan JE. “Retinal ganglion cell degeneration correlates with hippocampal spine loss in experimental Alzheimer’s disease”. *Acta Neuropathologica Communications*. 2020 (doi: 10.1186/s40478-020-01094-2),
  - Harder JM, **Williams PA**, Braine CE, Yang H, Thomas J, Foxworth NE, John SWM, Howell GR. “Anaphylatoxin receptor C3AR1 promotes optic nerve degeneration in DBA/2J mice”. *Journal of Neuroinflammation*. 2020 (doi: 10.1186/s12974-020-02011-z),
  - Petrova V, Pearson CS, Ching J, Tribble JR, Solano AG, Yang Y, Love FM, Watt RJ, Osborne A, Reid E, **Williams PA**, Martin KR, Geller HM, Eva R, Fawcett JW. “Protrudin functions from the endoplasmic reticulum to support axon regeneration in the adult CNS”. *Nature Communications*. 2020 (doi: 10.1038/s41467-020-19436-y),
  - Cimaglia G, Votruba M, Morgan JE, André H, **Williams PA**. “Potential therapeutic benefit of NAD<sup>+</sup> supplementation for glaucoma and age-related macular degeneration”. *Nutrients*. 2020 (doi: 10.3390/nu12092871),
  - Casson RJ, Chidlow G, Crowston JG, **Williams PA**, Wood JPM. “Retinal energy metabolism in health and glaucoma”. *Progress in Retinal and Eye Research*. 2020 (doi: 10.1016/j.preteyeres.2020.100881),
  - Bevan RJ, **Williams PA**, Waters CT, Thirgood R, Mui A, Seto S, Good MA, Morgan JE, Votruba M, Erchova I. “OPA1 deficiency accelerates hippocampal synaptic remodelling and age-related deficits in learning and memory”. *Brain Communications*. 2020 (doi: 10.1093/braincomms/fcaa101),
  - Hui F, Tang J, **Williams PA**, McGuinness MB, Hadoux X, Casson RJ, Coote M, Trounce IA, Martin KR, van Wijngaarden P, Crowston JG. “Improvement in inner retinal function in glaucoma in response to nicotinamide (vitamin B<sub>3</sub>) supplementation: A crossover randomized clinical trial”. *Clinical & Experimental Ophthalmology*. 2020 (doi: 10.1111/ceo.13818),
  - Tribble JR<sup>\*</sup>, Harder JM<sup>\*</sup>, **Williams PA**<sup>†</sup>, John SWM<sup>†</sup>. “Ocular hypertension suppresses homeostatic gene expression in optic nerve head microglia of DBA/2J mice”. *Molecular Brain*. 2020 (doi: 10.1101/856427), <sup>\*</sup> co-first author. <sup>†</sup> corresponding authors.

## 2019

- Tribble JR, Vasalauskaite A, Redmond T, Young RD, Hassan S, Fautsch MP, Sengpiel F, **Williams PA**, Morgan JE. “Midget retinal ganglion cell dendritic and mitochondrial degeneration is an early feature of human glaucoma”. *Brain Communications*. 2019 (doi: 10.1093/braincomms/fcz035),
- **Williams PA**, Crowston JG. “Targeting metabolic vulnerabilities for neuroprotection in glaucoma: B<sub>3</sub> or not B<sub>3</sub>? That is the question”. *Glaucoma Today*. 2019 (<http://glaucomatoday.com/2019/10/targeting-metabolic-vulnerabilities-for-neuroprotection-in-glaucoma/>),
- **Williams PA**, Braine CE, Kizhatil K, Foxworth NE, Tolman NG, Harder JM, Scott RA, Sousa GL, Panitch A, Howell GR, John SWM. “Inhibition of monocyte-like cell extravasation protects from neurodegeneration in DBA/2J glaucoma”. *Molecular Neurodegeneration*. 2019 (doi: 10.1186/s13024-018-0303-3).

## 2018

- Tribble JR, **Williams PA**, Caterson B, Sengpiel F, Morgan JE. “Digestion of the glycosaminoglycan extracellular matrix by chondroitinase ABC supports retinal ganglion cell dendritic preservation in a rodent model of experimental glaucoma”. *Molecular Brain*. 2018 (doi: 10.1186/s13041-018-0412-5),
- Harder JM, **Williams PA**, Soto I, Foxworth NE, Fernandes KA, Freeburg NF, Howell GR, Libby R, John SWM. “*Jnk2* deficiency increases the rate of glaucomatous neurodegeneration in ocular hypertensive DBA/2J mice”. *Cell Death & Disease*. 2018 (doi: 10.1038/s41419-018-0705-8),
- Choquet H, Paylakhi S, Kneeland SC, Thai KK, Hoffmann TJ, Yin J, Kvale MN, Banda Y, Tolman NG, **Williams PA**, Schaefer C, Melles R, Risch N, John SWM, Nair KS, Jorgenson E. “A multiethnic genome-wide association study of primary open-angle glaucoma identifies novel risk loci”. *Nature Communications*. 2018 (doi: 10.1038/s41467-018-04555-4),
- **Williams PA**, Harder JM, Cardozo BH, Foxworth NE, John SWM. “Nicotinamide treatment robustly protects from inherited mouse glaucoma”. *Communicative & Integrative Biology*. 2018 (doi: 10.1080/19420889.2017.1356956).

## 2017

- **Williams PA**, Harder JM, John SWM. “Glaucoma as a metabolic optic neuropathy: making the case for nicotinamide treatment in glaucoma”. *Journal of Glaucoma*. 2017 (doi: 10.1097/IJG.0000000000000767),

- **Williams PA**, John SWM. “Glaucoma dialogue – 71509. Vitamin B<sub>3</sub> modulates mitochondrial vulnerability and prevents glaucoma in aged mice”. *International Glaucoma Review*. 2017 (<http://www.e-igr.com/GD/index.php?issue=183>),
- **Williams PA**, Braine CE, Foxworth NE, Cochran KE, John SWM. “GlyCAM1 negatively modulates monocyte entry into the optic nerve head and contributes to radiation-based protection in glaucoma”. *Journal of Neuroinflammation*. 2017 (doi: 10.1186/s12974-017-0868-8),
- Harder JM, Braine CE, **Williams PA**, Zhu X, MacNicoll KH, Sousa GL, Buchanan RA, Smith RS, Libby RT, Howell GR, John SWM. “Early immune responses are independent of RGC dysfunction in glaucoma with complement component C3 being protective”. *PNAS*. 2017 (doi: 10.1073/pnas.1608769114),
- **Williams PA**, Harder JM, Foxworth NE, Cardozo BH, John SWM. “Nicotinamide and WLD<sup>S</sup> act together to prevent neurodegeneration in glaucoma”. *Frontiers in Neuroscience*. 2017 (doi: 10.3389/fnins.2017.00232),
- **Williams PA**, Harder JM, Foxworth NE, Cochran KE, Philip VM, Porciatti V, Smithies O, John SWM. “Vitamin B<sub>3</sub> modulates mitochondrial vulnerability and prevents glaucoma in aged mice”. *Science*. 2017 (doi: 10.1126/science.aal0092),
- **Williams PA**, Marsh-Armstrong N, Howell GR. “Neuroinflammation in glaucoma: A new opportunity”. *Experimental Eye Research*. 2017 (doi: 10.1016/j.exer.2017.02.014).

## 2016

- **Williams PA\***, Tribble JR\*, Pepper KW, Cross SD, Morgan BP, Morgan JE, John SWM, Howell GR. “Inhibition of the classical pathway of the complement cascade prevents early dendritic and synaptic degeneration in glaucoma”. *Molecular Neurodegeneration*. 2016 (doi: 10.1186/s13024-016-0091-6), \* co-first author.

## 2015

- Fernandes KA, Harder JM, **Williams PA**, Rausch RL, Kiernan AE, Nair KS, Anderson MG, John SWM, Howell GR, Libby RT. “Using genetic mouse models to gain insight into glaucoma: Past results and future possibilities”. *Experimental Eye Research*. 2015 (doi: 10.1016/j.exer.2015.06.019),
- Lee ST, **Williams PA**, Braine CE, Lin DT, John SWM, Irazoqui PP. “A miniature, fiber-coupled, wireless, deep-brain optogenetic stimulator”. *Transactions on Neural Systems and Rehabilitation Engineering*. 2015 (doi: 10.1109/TNSRE.2015.2391282).

## 2013

- **Williams PA**, Howell GR, Barbay JM, Braine CE, Sousa GL, John SWM, Morgan JE. “Retinal ganglion cell dendritic atrophy in DBA/2J glaucoma”. *PLoS One*. 2013 (doi: 10.1371/journal.pone.0072282),
- **Williams PA**, Thirgood RA, Littlewood E, Votruba M, Oliphant H, Good MA, Williams J, Morgan JE. “Retinal ganglion cell dendritic degeneration in a mouse model of Alzheimer’s disease”. *Neurobiology of Aging*. 2013 (doi: 10.1016/j.neurobiolaging.2013.01.006).

## 2012

- **Williams PA**, Piechota M, Von Ruhland C, Taylor E, Morgan JE, Votruba M. “Opa1 is essential for retinal ganglion cell synaptic architecture and connectivity”. *Brain*. 2012 (doi: 10.1093/brain/awr330).

## 2011

- Barnard AR, Issa PC, Perganta G, **Williams PA**, Davies V, Sekaran S, Votruba M, MacLaren RE. “Specific deficits in visual electrophysiology in a mouse model of dominant optic atrophy”. *Experimental Eye Research*. 2011 (doi: 10.1016/j.exer.2011.07.004),
- **Williams PA**, Morgan JE, Votruba M. “Mouse models of dominant optic atrophy: What do they tell us about the pathophysiology of visual loss?”. *Vision Research*. 2011 (doi: 10.1016/j.visres.2010.08.031).

## 2010

- **Williams PA**, Morgan JE, Votruba M. “Opa1 deficiency in a mouse model of dominant optic atrophy leads to retinal ganglion cell dendropathy”. *Brain*. 2010 (doi: 10.1093/brain/awq218).

## Patents and Patents Submitted

- Mim Neurosciences AB (inventors: **Williams PA**, Brancale A, Varricchio C). “New compounds, uses, and compositions”. GB (2204379.8),
- The Jackson Laboratory (inventors: John SWM, **Williams PA**). “Fat droplets in retina as a diagnostic marker for neurodegeneration and glaucoma in humans”. US (US20200197539A1), WO (WO2018106594A8), EU (EP3547899A2),

- The Jackson Laboratory (inventors: John SWM, **Williams PA**). “Treatment and prevention of ocular neurodegenerative disorder”. US (US20180344719A1), WO (WO2017070647A1), EU (EP3364973A1).

## Recent Invited Talks

---

- **Williams PA**. “Targeting NAD for neuroprotection in glaucoma”. 2022 DOG International Experts Day, Berlin, Germany,
- **Williams PA**. “Vitamin B<sub>3</sub> and neuroprotection in glaucoma”. 2022 iRounds/Danish Glaucoma Society,
- **Williams PA**. “Keynote: Targeting NAD in glaucoma”. 2022 Svenska Glaukomsällskapetets Årsmöte, Båstad, Sweden,
- **Williams PA**. “Targeting NAD and NMNAT2 for neuroprotection in glaucoma and other age-related neurodegenerations”. 2022 StratNeuro Retreat,
- **Williams PA**. “Targeting NMNAT2 for neuroprotection in glaucoma”. 2022 ISER/BrightFocus Glaucoma Symposium, Atlanta, GA, USA,
- **Williams PA**. “Can nicotinamide be a future neuroprotective treatment for glaucoma?”. 2022 NOK, Reykjavik, Iceland,
- **Williams PA**. “Targeting NMNAT2 for neuroprotection in glaucoma”. 2022 ARVO, Denver, CO, USA,
- **Williams PA**. “Targeting NAD<sup>+</sup> for neuroprotection in glaucoma”. 2022 Karolinska Institutet BioNut Seminar Series,
- **Williams PA**. “Targeting NAD<sup>+</sup> for neuroprotection in glaucoma”. 2021 Wayne State Pharmacology Seminar,
- **Williams PA**. “Targeting NAD<sup>+</sup> for neuroprotection in glaucoma”. 2021 Swedish Ophthalmological Society,
- **Williams PA**. “Targeting NAD<sup>+</sup> for neuroprotection in glaucoma”. 2021 The Hamilton Eye Institute, UTHSC, Memphis – Vision Research Seminar Series,
- **Williams PA**. “Targeting NAD<sup>+</sup> for neuroprotection in glaucoma”. 2021 NTERI/UNTHSC – Vision Sciences Seminar Series,
- **Williams PA**. “Nicotinamide (vitamin B<sub>3</sub>) as a potential treatment for glaucoma”. 2021 Knowledge Webinar for Svenska Glaukomsförbundet and 1,6 & 2,6 miljonerklubben,
- **Williams PA**. “Targeting NAD<sup>+</sup> for neuroprotection in glaucoma”. 2020 University of Cambridge - Clinical Neurosciences Virtual Seminar,
- **Williams PA**. “Targeting NAD<sup>+</sup> for neuroprotection in glaucoma”. 2020 Umeå Universitet,
- **Williams PA**, “The Nicotinamide Story”. Moorfields UCL Glaucoma Seminar 2020, Moorfields Eye Hospital, U.K.,
- **Williams PA**, “The Nicotinamide Story”. MIGS 2020, Moorfields Eye Hospital, U.K.,
- **Williams PA**. “From form to function: the effect of nicotinamide on retinal ganglion cell metabolism and mitochondria”. 2019 Optic Nerve Meeting, Obergurgl, Austria,
- **Williams PA**. “Targeting neuronal mitochondria and metabolism for neuroprotection in glaucoma”. 2019 CERA, Melbourne, Australia,
- **Williams PA**. “Targeting neuronal mitochondria and metabolism for neuroprotection in glaucoma”. 2019 Adelaide University, Adelaide, Australia,
- **Williams PA**. “Targeting neuronal mitochondria and metabolism for neuroprotection in glaucoma”. 2019 SERI / Duke-NUS, Singapore,
- **Williams PA**. “Hur ser möjliga behandlingsformer för glaukom ut i framtiden?”. 2019 Klinisk Optometri, Stockholm, Sweden,
- **Williams PA**. “Targeting neuronal mitochondria and metabolism for neuroprotection in glaucoma”. 2019 Cardiff University – Cornea to Cortex, Cardiff, U.K.,
- **Williams PA**. “Targeting neuronal mitochondria and metabolism for neuroprotection in glaucoma”. 2019 Nordic Glaucoma Meeting, Bergen, Norway,
- **Williams PA**. “Targeting neuronal metabolism and mitochondria for neuroprotection”. 2019 Helsinki University, Finland,
- **Williams PA**. “Targeting neuronal mitochondria for neuroprotection in glaucoma”. 2018 Optic Nerve Meeting, Obergurgl, Austria,
- **Williams PA**. “Ageing, neuronal metabolism, and mitochondria in glaucoma”. 2018 EVER Meeting, Nice, France,
- **Williams PA**. “Targeting neuronal mitochondria for neuroprotection in glaucoma”. 2018 ISER Meeting, Belfast, U.K.,



- **Williams PA.** “NAD supply critically modulates mitochondrial vulnerability in glaucoma”. 2017 St Erik Eye Hospital / Karolinska Institutet, Stockholm, Sweden,
- **Williams PA.** “Ageing, neuronal metabolism, and mitochondria in glaucoma”. 2017 Optic Nerve Meeting, Obergurgl, Austria,
- **Williams PA.** “NAD supply critically modulates mitochondrial vulnerability and neurodegeneration in aged mice”. 2017 UK Dementia Research Institute, Cardiff University, Cardiff, U.K.,
- **Williams PA.** “Mitochondrial dysfunction in glaucoma”. 2017 World Glaucoma Congress – Neuroprotection – The Future of Glaucoma, Helsinki, Finland,
- **Williams PA.** “NAD supply critically modulates mitochondrial vulnerability and neurodegeneration in aged mice”. 2017 UTHSC, Memphis, U.S.A.,
- **Williams PA.** “NAD supply critically modulates mitochondrial vulnerability and neurodegeneration in aged mice”. 2016 Optic Nerve Meeting, Obergurgl, Austria.