**5. CURRICULUM VITAE, PUBLICATIONS AND OTHER PUBLISHED WORKS**

**PART 1**

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| **1a. Personal details** |
| **Full name** | *Title*Dr | *First name**Odunayo* | *Second name(s)**Omolola* | *Family name*Mugisho |
| **Present position** | Senior Research Fellow |
| **Organisation/Employer** | The University of Auckland |
| **Contact Address** | Department of Ophthalmology |
| The University of Auckland |
| Private Bag 92019, Auckland | **Post code** | 1010 |
| **Work telephone** | +64 9 923 8274 | **Mobile** | +64 21 0274 6383 |
| **Email** | lola.mugisho@auckland.ac.nz |
| **Personal website (if applicable)** | <https://profiles.auckland.ac.nz/lola-mugisho>  |

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| **1b. Academic qualifications** |

2015 – 2018 PhD in Biomedical Science, University of Auckland

2013 – 2014 MSc in Biomedical Science, University of Auckland

2010 – 2012 PGDipSci in Biomedical Science, University of Auckland

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| **1c. Professional positions held** |

Oct ’23 – Principal Investigator, Centre for Brain Research, University of Auckland (UoA), New Zealand

Jan ‘23 – Senior Research Fellow, Department of Ophthalmology, UoA

Dec ‘20 – Deputy Director, Buchanan Ocular Therapeutics Unit (BOTU), UoA

Jun ‘18 – Aug ‘20 Postdoctoral Research Fellow, Department of Ophthalmology, UoA

Mar – May ‘18 Research Assistant, Department of Ophthalmology, UoA

Apr – Sep ‘14 Research Technician, Centre for Brain Research, UoA

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| **1d. Present research/professional speciality** |

Dr Mugisho heads the Inflammasome Biology Research Group at UoA. Her research expertise involves targeting the inflammasome pathway in chronic neuroinflammatory diseases affecting the eye and brain. She completed her PhD in 2018 for which she was placed on the Dean’s List for PhD Excellence and was a Faculty of Medical and Health Sciences (FMHS) nominee for the Vice Chancellor’s Best Thesis Award. She currently holds a prestigious Auckland Medical Research Foundation (AMRF) Postdoctoral Fellowship and is the Deputy BOTU Director. She has accrued 34 publications, 6 patents and over 880 citations with an H index of 15 (Google Scholar).

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| **1e. Total years research experience** | 5 years |

Jan – May 2019: Parental leave; Jan – May 2022: Parental leave

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| **1f. Professional distinctions and memberships (including honours, prizes, scholarships, boards or governance roles, etc)** |

Research grants (>$10,000 shown below; **Career total: $1.76M; PI: >$1.34M)**

2024: University of Auckland Early Career Research Excellence Award $25,000

 **Mugisho OO**

2024: Save Sight Society Project Grant $17,135

 Rupenthal ID, **Mugisho OO**, Shome A

2023: UniServices Investor’s Fund $250,000

 **Mugisho OO**

2023: Maurice and Phyllis Paykel Trust (MPPT) Grant $10,000

 Rupenthal ID, **Mugisho OO**, Shome A

2023: AMRF Postdoctoral Senior Fellowship $282,194

 **Mugisho OO**

2022: Research Development Fund (RDF)-Return to work grant $10,000

 **Mugisho OO**

2022: FMHS Covid19 Relief Fund $20,000

 **Mugisho OO**, Kwakowsky A

2022: Health Research Council (HRC) Emerging Research First Grant $249,660

 **Mugisho OO**, Murphy R, Rupenthal ID

2021: AMRF Project Grant $155,995

 **Mugisho OO**, Murphy R, Rupenthal ID

2021: Save Sight Society Project Grant $12,965

**Mugisho OO**, Kuo CYJ, Rupenthal ID

2021: New Zealand Optometric Vision Research Foundation (NZOVRF) $10,000

**Mugisho OO**, Kuo CYJ, Rupenthal ID

2021: NZOVRF Research Grant $15,000

Acosta M, Suzuki-Kerr H, **Mugisho OO**, Shivashankar G

2020: Faculty RDF New Staff Grant $24,800

**Mugisho OO**, Kwakowsky A

2020: NZ Society for the Study of Diabetes Sanofi Project Grant $15,610

**Mugisho OO**

2020: Neurological Foundation First fellowship $212,604

**Mugisho OO**

2020: FY2020 IMSUT International Joint Research Project $25,000

Acosta MA, Watanabe S, Suzuki-Kerr H, …, **Mugisho OO**

2020: HRC COVID-19 grant $161,977

Phillips A, Green CR, Taylor J, Stewart K, **Mugisho OO**

2020: NZAO Education and Research Fund $15,000

Kuo C, **Mugisho OO**, Rupenthal ID

Awards and scholarships (selected)

2024: University of Auckland Early Career Research Excellence Award

2022: Auckland Medical Research Foundation (AMRF) Best Research Presentation Award at the SUMMIT conference, University of Auckland

2020: New Horizon for Women Margaret L Bailey Science Award

2019: FMHS Nominee, **Vice Chancellor’s Best Doctoral Thesis Award**

2018: School of Graduate Studies **Dean’s List for PhD Excellence**

Sir John Logan Campbell Medical Trust Travel Award

Professional affiliations/service (selected)

Nominated **board member**, Scientific and Medical Advisory Board, Retina NZ; Appointed **Department Graduate Advisor**, Department of Ophthalmology, UoA; Associate Guest Editor, Frontiers in Physiology [IF: 4.755]; Appointed **Affiliate Investigator**, Maurice Wilkins Centre; **Elected Executive Committee Member/Scientific Advisor**, Retina NZ; **Member**, International Society for Eye Research (ISER) Association for Research in Vision and Ophthalmology (ARVO) and NZSSD; **Co-chair**, Abstract Review Committee for SUMMIT conference (FMHS postdoctoral society annual conference, Auckland, New Zealand, July 2021); Elected **Scientific Committee Lead**, FMHS postdoctoral society, UoA (2020-2022).

National and international invited talks (selected)

Fully funded invited speaker at World Retina International Congress, Dublin, Ireland. (Jun 2024). Neurological Foundation Brain Awareness Month Speaker. Auckland, NZ (Mar 2023). Millennium Science New Zealand Extravaganza. Auckland, NZ (Dec 2021). Neurological Foundation Women in Science Event. Auckland, NZ (Feb 2021). Fully funded invited speaker at School of Life Sciences, University of Lincoln, UK (Sep 2017).

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| **1g. Total number of *peer reviewed* publications and patents** | Journal articles | Books | Book chapters, books edited | Conference proceedings | Patents |
| 34 | 0 | 0 | 25 | 6 |

**PART 2**

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| **2a. Research publications and dissemination**  |
| Peer-reviewed journal articles |
| \*Indicates corresponding author/senior authorship (16/34 articles)1. Kuo CYJ, Rupenthal ID, Murphy R, **Mugisho OO\* (2024)**. Future Therapeutics: Targeting the NLRP3 inflammasome pathway to manage Diabetic Retinopathy Development and Progression. International Journal of Translational Medicine (accepted) [no IF]
2. Okolo CA, Martinez A, Maran JJ, Watt A, Maripillan J, Jadhav A, Martin P, Green CR, Harkiolaki M, **Mugisho OO\* (2024)**. Correlative light and X-ray tomography jointly unveil the critical role of connexin43 hemichannels on inflammation-induced cellular ultrastructural alterations. Heliyon. 10 (7) [IF: 4]
3. Maran JJ, **Mugisho OO\* (2023).** The NLRP3 inflammasome plays a vital role in the pathogenesis of age-related diseases in the eye and brain. Neural Regeneration Research.19 (7), 1425-1426. [IF: 6.1]
4. Kuo CYJ, Rupenthal ID, Booth M, Murphy R, **Mugisho OO\* (2023)**. Systemic inflammasome biomarkers as predictors of diabetic retinopathy progression: evidence from a pilot study. Future Pharmacology 3 (3), 612-624 [no IF]
5. Shome A, **Mugisho OO**, Niederer RL, Rupenthal ID **(2023).** Comprehensive grading system for experimental autoimmune uveitis in mice. Biomedicines 11 (7), 2022 [IF: 4.7]
6. Zhuang D, Misra SL, **Mugisho OO**, Rupenthal ID, Craig JP **(2023)**. NLRP3 inflammasome as a potential therapeutic target for dry eye disease. International Journal of Molecular Sciences. 24 (13), 10866 [IF: 5.6]
7. Maran JJ, Adesina MM, Green CR, Kwakowsky A, **Mugisho OO**\* **(2023).** Retinal inner nuclear layer thickness in the diagnosis of cognitive impairment explored using a C57BL/6j mouse model. Scientific Reports.13 (1), 8150 [IF: 5.0]
8. Maran JJ, Adesina MM, Green CR, Kwakowsky A, **Mugisho OO**\* **(2023)**. The central role of the NLRP3 inflammasome pathway in the pathogenesis of age-related diseases in the eye and the brain. Ageing Research Reviews. 101954. [IF: 13.1]
9. **Mugisho OO\***, Aryal J, Shome A, Lyon H, Acosta ML, Green CR, Rupenthal ID **(2023)**. Orally delivered connexin43 hemichannel blocker, tonabersat, inhibits vascular breakdown and inflammasome activation in a mouse model of diabetic retinopathy. International Journal of Molecular Sciences. 24 (4), 3876. [IF: 5.6]
10. Kuo CYJ, Maran JJ, Jamieson EG, Rupenthal ID, Murphy R, **Mugisho OO\*** **(2022).** Characterization of NLRP3 inflammasome activation in the onset of diabetic retinopathy. International Journal of Molecular Sciences. 23 (22), 14471. [IF: 5.6]
11. Louie HH, **Mugisho OO**, Chamley CW, Rupenthal ID **(2022).** Extracellular vesicles as biomarkers and therapeutics for inflammatory eye diseases. Molecular Pharmaceutics. 20 (1), 23-40. [IF: 4.9]
12. Kuo CYJ, Murphy R, Rupenthal ID, **Mugisho OO\* (2022).** Correlation between the progression of diabetic retinopathy and inflammasome biomarkers in the vitreous and serum – A systematic review. BMC Ophthalmology. 22 (1), 1-13. [IF: 2.0]
13. **Mugisho OO\***, Green CR **(2022).** The NLRP3 inflammasome in age-related eye disease: evidence-based connexin hemichannel therapeutics. Experimental Eye Research. 215, 108911. [IF: 3.4]
14. Lyon H, Yin N, Rupenthal ID, Green CR, **Mugisho OO\* (2022).** Blocking connexin43 hemichannels prevents epithelial-mesenchymal transition and TGF-β2 upregulation in retinal pigment epithelial cells. Cell Biology International. 46 (2), 323-330. [IF: 3.9]
15. Zhang J, Green CR, **Mugisho OO (2021).** Cell transdifferentiation in ocular disease: potential role for connexin channels. Experimental Cell Research. 407 (2), 112823. [IF: 3.7]
16. Shome A, **Mugisho OO**, Rupenthal ID **(2021).** The role of the inflammasome pathway in uveitis: towards potential new treatments. Drug Discovery Today. 26 (12), 2839-2857. [IF: 7.4]
17. Marasini S, **Mugisho OO**, Swift S, Rupenthal ID, Dean SJ, Craig JP **(2021)**. Effect of therapeutic UVC on corneal DNA: safety assessment for potential keratitis treatment. The Ocular Surface. 20, 130-138. [IF: 6.4]
18. Kuo CYJ, Louie HH, Rupenthal ID, **Mugisho OO\* (2021).** Characterization of a novel human organotypic retinal culture technique. Journal of Visualized Experiments. e62046. [IF: 1.4]
19. Lyon H, Shome A, Rupenthal ID, Green CR, **Mugisho OO\* (2021).** Tonabersat inhibits connexin43 hemichannel opening and inflammasome activation in an *in vitro* retinal epithelial cell model of diabetic retinopathy. International Journal of Molecular Sciences. 22(1), 298. [IF: 5.6]
20. Louie HH, Shome A, Kuo CYJ, Rupenthal ID, Green CR, **Mugisho OO\* (2021)**. Connexin43 hemichannel block inhibits NLRP3 inflammasome activation in a human retinal explant model of diabetic retinopathy. Experimental Eye Research. 202, 108384. [IF: 3.4]
21. Acosta ML, Nor MNM, Guo CX, **Mugisho OO**, Coutinho FP, Rupenthal ID, Green CR **(2021).** Connexin therapeutics: blocking connexin hemichannel pores is distinct from blocking pannexin channels or gap junctions. Neural regeneration research. 16 (3) 482. [IF: 6.1]
22. Kang H, Yin N, Lyon H, Rupenthal ID, Thakur SS, **Mugisho OO\* (2021)**. The influence of hyperglycaemia on the safety of ultrasound in retinal pigment epithelial cells. Cell biology international. 45 (3), 558-568. [IF: 3.9]
23. Agban Y, **Mugisho OO**, Thakur SS, Rupenthal ID **(2020)**. Characterization of Zinc Nanoparticle Cross-Linked Collagen Hydrogels. Gels. 6 (37). [IF: 4.6]
24. **Mugisho OO**, Rupenthal ID, Paquet-Durand F, Acosta ML, Green CR **(2019).** Targeting connexin hemichannels to control the inflammasome: the correlation between connexin43 and NLRP3 expression in chronic eye disease. Expert Opinion on Therapeutic Targets. 23 (10), 855-863. [IF: 6.8]
25. **Mugisho OO\***, Robilliard LD, Nicholson LFB, Graham ES, O'Carroll SJ **(2019).** Bradykinin receptor-1 activation induces inflammation and increases the permeability of human brain microvascular endothelial cells. Cell Biology International. 44 (1), 343-351. [IF: 3.9]
26. Agban Y, Thakur S, **Mugisho OO**, Rupenthal ID **(2019).** Depot formulations to sustain periocular drug delivery to the posterior eye segment. Drug Discovery Today 10.1016/j.drudis.2019.03.023. [IF: 7.4]
27. Kuo C, Green CR, Rupenthal ID, **Mugisho OO\* (2019).** Connexin43 hemichannel block protects against retinal pigment epithelial cell barrier breakdown. Acta Diabetologica 10.1007/s00592-019-01352-3. [IF: 3.8]
28. **Mugisho OO**, Green CR, Zhang J, Acosta ML, Rupenthal ID **(2019).** Connexin43 hemichannels: A potential drug target for the treatment of diabetic retinopathy. Drug Discovery Today 10.1016/j.drudis.2019.01.011. [IF: 7.4]
29. **Mugisho OO,** Green CR, Squirrell DM, Bould SJ, Zhang J, Acosta M, Rupenthal ID **(2019)**. Connexin43 hemichannel block protects against signs of diabetic retinopathy in a mouse model of the disease. Journal of Molecular Medicine, <https://doi.org/10.1007/s00109-018-1727-5>. [IF: 4.7]
30. **Mugisho OO,** Rupenthal ID, Squirrell DM, Bould SJ, Zhang J, Green CR, Acosta M **(2018)**. Intravitreal pro-inflammatory cytokines in non-obese diabetic mice: Modelling signs of diabetic retinopathy. Plos One, 13(8). [IF: 3.8]
31. **Mugisho OO,** Green CR, Kho DT, Zhang J, Graham ES, Acosta ML, Rupenthal I D **(2018)**. The inflammasome pathway is amplified and perpetuated in an autocrine manner through connexin43 hemichannel mediated ATP release. Biochimica et Biophysica Acta (BBA)-General Subjects, 1862(3), 385-393. [IF: 3.0]
32. **Mugisho OO,** Green CR, Zhang J, Binz N, Acosta ML, Rakoczy E, Rupenthal ID **(2017)**. Immunohistochemical Characterization of Connexin43 Expression in a Mouse Model of Diabetic Retinopathy and in Human Donor Retinas. International Journal of Molecular Sciences, 18(12), 2567.[IF: 5.6]
33. Choi JM, **Rotimi OO,** O'Carroll SJ, Nicholson, LFB **(2016)**. IL-6 stimulates a concentration-dependent increase in MCP-1 in immortalised human brain endothelial cells. F1000Research, 5. [IF: 0.9]
34. O'Carroll SJ, Kho DT, Wiltshire R, Nelson V, **Rotimi OO,** Johnson R, Graham ES **(2015)**. Pro-inflammatory TNFα and IL-1β differentially regulate the inflammatory phenotype of brain microvascular endothelial cells. Journal of Neuroinflammation,12(1), 131.[IF: 9.3]
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| Refereed conference proceedings |
| 1. Mills AR, O’Connell A, Acosta MA, Green CR, Danesh-Meyer H, Kwakowsky A, **Mugisho OO.** Targeting connexin hemichannels and the inflammasome pathway in an acute mouse model of Alzheimer’s disease, (Federation of European Neuroscience Societies (FENS) Annual Meeting, Vienna, Austria, June 2024; poster)
2. Chawdhary B, Maran JJ, Adesina MM, Green CR, Kwakowsky A, **Mugisho OO**. Retinal Inner Nuclear Layer Thickness in the Diagnosis of Cognitive Impairment explored using a Mouse Model, (Federation of European Neuroscience Societies (FENS) Annual Meeting, Vienna, Austria, June 2024; poster)
3. Louie HH, **Mugisho OO**, Chamley LW, Rupenthal ID. Small extracellular vesicles inhibit NLRP3 inflammasome activation in diabetic retinopathy. (The Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Seattle, USA, May 2024; poster)
4. Louie HH, **Mugisho OO**, Chamley LW, Rupenthal ID. Small extracellular vesicles inhibit NLRP3 inflammasome activation in diabetic retinopathy. (International Society for Extracellular Vesicles (ISEV) Annual Meeting, Melbourne, Australia, May 2024; poster)
5. Shome A, Rupenthal ID, Niederer RL, **Mugisho OO.** The inflammasome pathway is activated in experimental autoimmune uveitis. (The Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Seattle, USA, May 2024; poster).
6. Kuo CYJ, Patel A, De Souza A, **Mugisho OO**. Development and characterization of a novel 3D neovascularization model using human donor choroids. (The Association for Research in Vision and Ophthalmology (ARVO) Annual Meeting, Seattle, USA, May 2024; poster)
7. **Mugisho OO**, Aryal J, Shome A, Lyon H, Acosta ML, Green CR, Rupenthal ID. Orally delivered connexin43 hemichannel blocker prevents vascular breakdown in a mouse model of diabetic retinopathy. (International Society for Eye Research (ISER) Biennial Meeting, Gold Coast, Australia, Feb 2023; poster).
8. Kuo CYJ, Maran JJ, Jamieson EG, Rupenthal ID, Murphy R, **Mugisho OO**. Characterisation of NLRP3 inflammasome activation in the onset of diabetic retinopathy. (International Society for Eye Research (ISER) Biennial Meeting, Gold Coast, Australia. Feb 2023; oral) – **recipient of the ISER travel award.**
9. Adesina MM, Kwakowsky A, **Mugisho OO**. Inhibiting the NLRP3 inflammasome pathway prevents age-related cognitive and retinal decline in C57BL/6j mice. (FHMS Postdoctoral Society SUMMIT conference, Auckland, NZ, Nov 2022; oral) – **winner of the AMRF Best Research Presentation award.**
10. Adesina MM, Kwakowsky A, **Mugisho OO**. Inhibiting the NLRP3 inflammasome pathway prevents age-related cognitive and retinal decline in C57BL/6j mice. (New Zealand Association of Gerontology (NZAG) Annual Conference, Nov 2022; poster)
11. Kuo CYJ, Murphy R, Rupenthal ID, **Mugisho OO**. Correlation between the progression of DR and inflammasome biomarkers in vitreous and serum – a systematic literature review. (New Zealand Save Sight Society Annual Symposium, Hamilton, New Zealand, Sep 2022; oral)​
12. Kuo CYJ, Maran JJ, Ulyatt CM, Rupenthal ID, Mugisho OO. NLRP3 inflammasome activity in retinal and choroidal tissues from diabetic donors with and without retinopathy. (New Zealand Medical Sciences Congress, Queenstown, New Zealand, Dec 2021; oral)
13. Kuo CYJ, Maran JJ, Ulyatt CM, Rupenthal ID, Mugisho OO. NLRP3 inflammasome activity in retinal and choroidal tissues from diabetic donors with and without retinopathy. (New Zealand Society for the Study of Diabetes Annual Scientific Meeting, Wellington, New Zealand, May 2021; poster)
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| Patents |
| 1. **Mugisho OO.** Modulators for Treatment and Prevention of Diseases, Disorders and Conditions. New Zealand Provisional Patent application number 810287, Filed 19/04/2024
2. **Mugisho OO.** Compounds for Treatment and Prevention of Diseases, Disorders and Conditions. New Zealand Provisional Patent application number 810288, Filed 19/04/2024
3. **Mugisho OO,** Green CR. *Compositions and methods for modulating epithelial-mesenchymal transition.* New Zealand Provisional application number 773493, Filed 02/03/2021
4. **Mugisho OO**, Green CR, Duft BJ. *Compositions and methods for protecting epithelial and barrier integrity.* US Non-Provisional Application No.62/837,697. (Filed April 23, 2019)
5. Green CR, **Mugisho OO**, Duft BJ (2019). *Cytokine Modulation.* US Patent App. 16/040,412.
6. Green CR. *Methods of Treatment (Tonabersat).* US application No: 14/833,041, **August 21 2015.** (Although not an inventor, I am a scientist contributing to the patent with income sharing).
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