Kirsten Scarlett Evonuk

Postdoctoral Fellow, Cleveland Clinic Lerner Research Institute

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Dedicated scientist with 8+ years of experience conducting neuroimmunological research on mechanisms underlying autoimmune neuroinflammatory disease. Successful record of grant funding with 4 first-authored, peer-reviewed publications demonstrating dedication to research in neuroinflammation and multiple sclerosis. Expertise in molecular biology techniques, immunohistochemistry and imaging, utilization of *in vivo* models, *ex vivo* and *in vitro* calcium imaging, and rodent behavioral analyses. Teacher and mentor to students of all levels, with ability to teach laboratory techniques and explain complicated subjects in an understandable way. Seeking a career as a tenure track professor and primary investigator to study pathophysiology of multiple sclerosis.

Education

03/2016 **PhD in Neurobiology**
Department of Neurobiology
University of Alabama at Birmingham, Birmingham, AL
Dissertation title: “The role of glutamate in immune cell infiltration and excitotoxic mechanisms in autoimmune demyelination”
PhD mentor: Tara M. DeSilva, PhD

05/2011 **BA in Psychology**
Department of Psychology
University of Portland, Portland, OR
Graduated summa cum laude
Minor: Biology
Thesis title: “Effects of Social and Enriched Environments on Recovery from Medial Frontal Cortex Contusion in a Rat Model”
Thesis supervisor: Jeffrey Smith, PhD

Professional Appointments

2016-present **Postdoctoral Fellow**
Department of Neurosciences
Cleveland Clinic Lerner Research Institute, Cleveland, OH
Advisor: Tara M. DeSilva, PhD
Demonstrated that deletion of a subunit of the AMPA-type glutamate receptor on mature oligodendrocytes confers protection to myelin and axons in an animal model of multiple sclerosis. This work resulted in a peer-reviewed publication in *AAAS Science Advances*. Postdoctoral work was funded through a 1-year Cole Eye Institute Vision Science Training Program T32 and a 3-year NMSS Postdoctoral Fellowship. Mentored 2 undergraduate students and 1 high school student in the DeSilva laboratory.

2012-2016 **Graduate Research Trainee**
Department of Neurobiology
University of Alabama at Birmingham, Birmingham, AL
Advisor: Tara M. DeSilva, PhD
Demonstrated amelioration of an animal model of multiple sclerosis by blocking the system x_c^- glutamate/cystine transporter using pharmacological and genetic methods. Published 3 peer-reviewed, first-author papers resulting from graduate research efforts. Graduate work was funded through a 2-year Immunologic Diseases and Basic Immunology T32. Mentored 4 summer research undergraduate students in the DeSilva laboratory for 10-week laboratory experiences.

Publications

Peer-Reviewed Journal Articles

1. **Evonuk, K. S.**, Doyle, R. E., Moseley, C. E., Thornell, I. M., Adler, K., Bingaman, A. M., Bevensee, M. O., Weaver, C. T., Min, B., DeSilva, T. M. (2020). Reduction of AMPA receptor activity on mature oligodendrocytes attenuates loss of myelinated axons in autoimmune neuroinflammation. *Sci Adv.* 6(2): eaax5936. doi: 10.1126/sciadv.aax5936. PMID: 31934627; PMCID: PMC6949032

2. **Evonuk, K. S.**, Prabhu, S. D., Young, M. E., DeSilva, T. M. (2017). Myocardial Ischemia/Reperfusion impairs neurogenesis and hippocampal-dependent learning and memory. *Brain Behav Immun*. 61: 266-273. doi: 10.1016/j.bbi.2016.09.001. PMID: 27600185; PMCID: PMC5511033

3. **Evonuk, K. S.**, Moseley, C. E., Doyle, R. E., Weaver, C. T., DeSilva, T. M. (2016). Determining immune system suppression versus CNS protection for pharmacological interventions in autoimmune demyelination. *J Vis Exp*. Sep 12;(115). doi: 10.3791/54348. PMID: 27685467; PMCID: PMC5092010

4. **Evonuk, K. S.**, Baker, B. J., Doyle, R. E., Moseley, C. E., Sestero, C. M., Johnston, B. P., De Sarno, P., Tang, A., Gembitsky, I., Hewett, S. J., Weaver, C. T., Raman, C., DeSilva, T. M. (2015). Inhibition of System Xc(-) Transporter Attenuates Autoimmune Inflammatory Demyelination. *J Immunol*. 195: 450-463. doi: 10.4049/jimmunol.1401108. PMID: 26071560; PMCID: PMC4490999

Awards and Honors

2019	**4th Place Poster Presentation Award**, Cleveland Brain Health Initiative (CBHI) 2019 Annual Retreat, Case Western Reserve University, Cleveland, OH
2018	**Alumni Association Career Development Postdoctoral Fellow Award**, Cleveland Clinic, Cleveland, OH
2018	**Travel Award**, European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS)
2018	**Neurosciences Oral Presentation Award**, Cleveland Clinic Neurological Institute Research Day, Cleveland Clinic, OH

2018	**Best Young Investigator Oral Presentation (2nd place)**, Americas Committee for Treatment and Research in Multiple Sclerosis (ACTRIMS)
2018	**Educational Travel Grant**, Americas Committee for Treatment and Research in Multiple Sclerosis (ACTRIMS)
2015	**Data Blitz Presentation Award**, Comprehensive Neuroscience Center Retreat, University of Alabama at Birmingham, Birmingham, AL
2014	**Travel Fellowship**, American Society for Neurochemistry
2014	**Travel Grant**, University of Alabama at Birmingham Graduate Student Association
2014	**2nd Place Poster Presentation Award**, Comprehensive Neuroscience Center Neuroscience Research Day, University of Alabama at Birmingham, Birmingham, AL
2013	**1st Place Data Blitz Presentation**, Comprehensive Neuroscience Center Retreat, University of Alabama at Birmingham, Birmingham, AL

Grants and Fellowships

2019-2022	"Selective deletion of AMPA-type glutamate receptors on oligodendrocytes is neuroprotective in autoimmune demyelination." NMSS Postdoctoral Fellowship, FG-1807-31882 $188,067 **Role:** Principal Investigator
2017-2018	Cole Eye Institute Vision Science Training Program NIH/NEI T32, T32 EY24236-2 Principal Investigators: Bela Anand-Apte and Joe Gilbert Hollyfield $43,692 **Role:** Trainee
2014-2016	Immunologic Diseases and Basic Immunology T32 NIH/NIAID T32, T32 AI7051-38 and T32 AI7051-37 Principal Investigator: Harry William Schroeder $40,812 **Role:** Trainee

Presentations

Contributed Talks

1. **Evonuk, K. S.**, Doyle, R. E., Moseley, C. E., Thornell, I. M., Adler, K., Bingaman, A. M., Bevensee, M. O., Weaver, C. T., Min, B., DeSilva, T. M. "Selective reduction of AMPA receptors on mature oligodendrocytes prevents demyelination and axonal injury in experimental autoimmune encephalomyelitis." ECTRIMS Congress 2018, Berlin, Germany (October 11, 2018).

2. **Evonuk, K. S.**, Doyle, R. E., Moseley, C. E., Monyer, H., DeSilva, T. M. "Selective Deletion of AMPA Receptors on Oligodendrocytes Prevents Demyelination and Axonal Injury in Autoimmune Demyelination." ACTRIMS Forum 2018, San Diego, California (February 1, 2018; Best Young Investigator Oral Presentation – 2nd place).

3. **Evonuk, K. S**, Baker, B. J., Doyle, R. E., Moseley, C. E., Sestero, C. M., Johnston, B. P., De Sarno, P., Tang, A., Gembitsky, I., Hewett, S. J., Weaver, C. T., Raman, C., DeSilva, T. M. "Inhibition of system Xc- transporter attenuates autoimmune inflammatory demyelination." Multiple Sclerosis Research Symposium, University of Alabama at Birmingham, Birmingham, Alabama (June 4, 2015).

Campus Talks

1. **Evonuk, K. S.**, Doyle, R. E., Moseley, C. E., Thornell, I. M., Adler, K., Bingaman, A. M., Bevensee, M. O., Weaver, C. T., Min, B., DeSilva, T. M. "Selective reduction of AMPA receptors on mature oligodendrocytes prevents demyelination and axonal injury in experimental autoimmune encephalomyelitis." Cleveland Clinic Neurological Institute Research Day, Cleveland, Ohio (May 24, 2018; received Neurosciences Oral Presentation Award).

Posters

1. **Evonuk, K. S.**, Doyle, R. E., Moseley, C. E., Monyer, H., DeSilva, T. M. "Selective Reduction of AMPA Receptors on Oligodendrocytes Prevents Demyelination and Axonal Injury in Autoimmune Demyelination." National Multiple Sclerosis Society Tykeson Fellows Conference, Atlanta, Georgia (November 14 and 15, 2019).

2. **Evonuk, K. S.**, Doyle, R. E., Moseley, C. E., Monyer, H., DeSilva, T. M. "Selective Deletion of AMPA Receptors on Oligodendrocytes Prevents Demyelination and Axonal Injury in Autoimmune Demyelination." Case Western University Cleveland Brain Health Initiative (CBHI) 2019 Annual Retreat, Cleveland, Ohio (August 26, 2019; 4th place presentation).

3. **Evonuk, K. S.**, Doyle, R. E., Moseley, C. E., Monyer, H., DeSilva, T. M. “Selective Deletion of AMPA Receptors on Oligodendrocytes Prevents Demyelination and Axonal Injury in Autoimmune Demyelination.” Poster#: P194. ACTRIMS Forum 2018, San Diego, California (February 2, 2018). https://doi.org/10.1177/1352458517750967

4. **Evonuk, K. S.**, Doyle, R. E., Moseley, C. E., Monyer, H., DeSilva, T. M. “Selective deletion of AMPA receptors on oligodendrocytes prevents axonal injury in autoimmune demyelination.” Poster#: T14-110A. XIII European Meeting on Glial Cells in Health and Disease, Edinburgh, United Kingdom (July 10, 2017). https://doi.org/10.1002/glia.23157

5. **Evonuk, K. S.**, Doyle, R. E., Moseley, C. E., Monyer, H., DeSilva, T. M. “Selective deletion of AMPA receptors on oligodendrocytes prevents excitotoxicity in EAE.” Program#/Poster#: 511.06/U18. Society for Neuroscience Poster Session, San Diego, California (November 15, 2016).

6. **Evonuk, K. S.**, Baker, B. J., Doyle, R. E., Moseley, C. E., Sestero, C. M., Johnston, B. P., De Sarno, P., Tang, A., Gembitsky, I., Hewett, S. J., Sontheimer, H., Raman, C., DeSilva, T. M. “System xc- transporter modulates CNS infiltration of immune cells and reactive gliosis in autoimmune inflammatory disease.” 4th Southeastern Immunology Symposium, Atlanta, Georgia (June 13, 2015).

7. **Evonuk, K. S.**, Baker, B. J., Doyle, R. E., Moseley, C. E., Sestero, C. M., Johnston, B. P., De Sarno, P., Tang, A., Gembitsky, I., Hewett, S. J., Sontheimer, H., Raman, C., DeSilva, T. M. “System xc- transporter modulates CNS infiltration of immune cells and reactive gliosis in autoimmune inflammatory disease.” Poster#: PSM03-17. American Society for Neurochemistry 46th Annual Meeting, Atlanta, Georgia (March 16, 2015).

8. **Evonuk, K. S.**, Baker, B. J., Doyle, R. E., Sestero, C. M., Johnston, B. P., De Sarno, P., Tang, A., Gembitsky, I., Hewett, S. J., Sontheimer, H., Raman, C., DeSilva, T. M. “System Xc- transporter modulates CNS infiltration of immune cells in autoimmune inflammatory disease.” Program#/Poster#: 223.11/G12. Society for Neuroscience Poster Session, Washington, D. C. (November 16, 2014).

9. **Evonuk, K. S.**, Baker, J., Sestero, C. M., Doyle, R. E., Timberlake, M. A., Sontheimer, H., Raman, C., DeSilva, T. M. “System xc- inhibition improves histopathological and clinical outcomes in experimental autoimmune encephalomyelitis.” University of Alabama at Birmingham Comprehensive Neuroscience Center Neuroscience Research Day, Birmingham, Alabama (February 7, 2014; 2nd place presentation).

10. **Evonuk, K. S.**, Baker, J., Sestero, C. M., Doyle, R. E., Timberlake, M. A., Sontheimer, H., Raman, C., DeSilva, T. M. “System xc- inhibition improves histopathological and clinical outcomes in experimental autoimmune encephalomyelitis.” Program#/Poster#: 441.09/Z11. Society for Neuroscience Meeting, San Diego, California (November 11, 2013).

11. **Evonuk, K. S.**, Baker, B. J., Sestero, C. M., Doyle, R. E., Timberlake, M. A., Raman, C., DeSilva, T. M. “Inflammatory signaling associated with multiple sclerosis causes excitotoxicity to oligodendrocytes.” University of Alabama at Birmingham Multiple Sclerosis Symposium, Birmingham, Alabama (May 16, 2013).

Teaching Experience

03/25/2019 **Guest Lecturer, Pōmaikaʻi Elementary School, Kahului, HI**
2nd grade class
Developed and delivered a day-long course on cells and neurons, and brain health and safety. Activities included anatomical labeling of neurons and creation of neuron models, creation of a neuronal circuit using neuron models, and a safety-focused egg drop experiment.

06/06/2015 **Guest Lecturer, University of Alabama at Birmingham Center for Pediatric Onset Demyelinating Disease (CPODD) Family Retreat, Birmingham, AL**
Family education session
The CPODD Family Retreat is an annual camp for children with multiple sclerosis/neuromyelitis optica and their families. Delivered an hour-long lecture to adult family members on the role of oligodendrocytes in the central nervous system, and pathophysiology associated with demyelinating diseases. Lecture included modeling of the myelin sheath on axons and a question-and-answer session.

05/07/2015 **Guest Lecturer, Pōmaikaʻi Elementary School, Kahului, HI**
2nd grade class
Developed and delivered a day-long course on brain anatomy, and brain health and safety. Activities included creation of brain models and anatomical labeling of brain regions, and a safety-focused egg drop experiment.

03/04/2015 **Guest Lecturer, National MS Society Alabama-Mississippi Chapter, Town Village-Vestavia Hills, AL**

Course: Mood and Cognition in MS
Delivered a two hour-long lecture on mood and cognition in multiple sclerosis (MS), with emphasis on how mood and cognition change in MS and strategies to manage those changes. Students included patients and family members with MS, and residents of Town Village-Vestavia Hills.

07/18/2014 **Guest Lecturer, University of Alabama at Birmingham Center for Community OutReach Development (CORD) Summer Science Institute, Birmingham, AL**
Course: Advanced Principles of Molecular Biology and Neuroscience
Developed and delivered a one hour lecture to high school students on basics of neuroscience, including neuronal anatomy and function, and roles of glia in health and disease.

Mentoring Experience

***indicates mentee authorship on a publication resulting from mentorship

06/2019-present **Mentor for Sophia Laye, Hathaway Brown high school student**
Current status: High school junior at Hathaway Brown School

06/2019-present **Mentor for Amanda Bingaman, Post-baccalaureate Readiness Instruction for bioMedical Education (PRIME) student**
Current status: Post-baccalaureate student in the Case Western Reserve University PRIME certificate program

06/2016-08/2016 **Mentor for Keith Adler*, Kenyon College undergraduate student**
Current status: Research technician at Dana-Farber Cancer Institute

06/2016-08/2016 **Mentor for Amanda Bingaman*, Vanderbilt University undergraduate student**
Current status: Post-baccalaureate student in the Case Western Reserve University Post-baccalaureate Readiness Instruction for bioMedical Education (PRIME) certificate program

08/2015-11/2015 **Mentor for Karen Balcazar, University of Alabama at Birmingham rotation student**
Current status: Research associate at Xencor

06/2015-08/2015 **Mentor for Keith Adler, University of Alabama at Birmingham's Summer Program in Neuroscience (SPIN) undergraduate student**
Current status: Research technician at Dana-Farber Cancer Institute

06/2014-08/2014 **Mentor for Katie Valin, University of Alabama at Birmingham's Summer Program in Neuroscience (SPIN) undergraduate student**
Current status: Research assistant at the University of Alabama at Birmingham

08/2013-09/2014 **Mentor for Nicole Ogle, University of Alabama at Birmingham undergraduate student**
Current status: Registered nurse (RN) at St. Vincent's Hospital, Birmingham, AL

06/2012-08/2014 **Mentor for Ryan Doyle*, University of Alabama at Birmingham undergraduate student**
Current status: Registered nurse (RN) at St. Vincent's Hospital, Birmingham, AL

06/2012-08/2012 **Mentor for Matthew Timberlake, University of Alabama at Birmingham's Summer Program in Neuroscience (SPIN) undergraduate student**
Current status: Postdoctoral scholar at University of California, Davis

Outreach and Service

04/2014 and 04/2015 **Walk MS Research Educator**
National Multiple Sclerosis Society, Birmingham, AL

2014-2015 **Brain Awareness Week Co-Coordinator**
University of Alabama at Birmingham, Birmingham, AL

2013-2014 **Brain Awareness Week Planning Committee Member**

University of Alabama at Birmingham, Birmingham, AL

03/09/2013 and 03/01/2014 **Poster Judge**
Central Alabama Regional Science and Engineering Fair

08/2012-10/2012 **Art of Giving Charity Art Auction Volunteer**
University of Alabama at Birmingham Research Civitan Club

08/3/2012 **Poster Judge**
University of Alabama at Birmingham Center for Community Outreach Development Summer Science Programs

03/19/2012 **Brain Awareness Week Demonstration Volunteer**
University of Alabama at Birmingham, Birmingham, AL

Professional Service

Ad hoc reviewer for: *Scientific Reports*

02/29/2020 **Young Investigator Co-Chair**
Americas Committee for Treatment and Research in Multiple Sclerosis (ACTRIMS) 2020 Forum “CNS Cellular Networks in MS” session

11/2019-present **Communications Team Member**
Cleveland Clinic Lerner Postdoctoral Association (LPDA)

11/15/2019 **Session Co-Chair**
National Multiple Sclerosis Society Tykeson Fellows Conference “Myelin Repair Vs. Neuroprotection” session

04/2019-11/2019 **Conference Planning Committee Member**
National Multiple Sclerosis Society Tykeson Fellows Conference

08/2016-present **Data on the Table Organizing Committee Member**
Cleveland Clinic Lerner Research Institute, Cleveland, OH

2013-2016 **Scientific Communication and Innovation (SCI) Talks: Science Talks for the Community Organizing Committee Member**

University of Alabama at Birmingham, Birmingham, AL

Professional Development

12/2016	**ExCyte Flow Cytometry Training** Cleveland Clinic, Cleveland, OH
08/2015	**Advanced Course in Immunology** The American Association of Immunologists
Summer 2015	**Teaching and Learning Course** Center for the Integration of Research, Teaching and Learning at University of Alabama at Birmingham, Birmingham, AL

Professional Societies

2014-present	American Society for Neurochemistry
2012-present	Society for Neroscience
2009-present	Psi Chi, The International Honor Society in Psychology