

William A. Mills III (Tré)

Postdoctoral Research Associate
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EDUCATION

Ph.D. in Translational Biology, Medicine, & Health 2015-2021
Neuroscience Focus
Virginia Tech

B.S. Biological Sciences 2010- 2014
Virginia Tech

FUNDING

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- | | |
|--|-----------------|
| 1. National Institutes on Aging K99/R00 1K99AG093062 | 2026-2031 |
| 2. American Heart Association Career Development Award- Awarded but declined | March 2025 |
| 3. American Heart Association Postdoctoral Fellowship 25POST1376070 | 01/2025-12/2026 |
| 4. UVA Brain Institute Postdoctoral Research Fellowship | 06/2023-06/2025 |
| 5. UVA Cardiovascular Research Center Training Grant 5T32HL007284-48 | 06/2021-06/2024 |

POSITIONS

Postdoctoral Research Fellow, Eyo Lab, University of Virginia June 2021-Present
Project: The role of microglial cyclooxygenase-1 in mediating capillary basal tone in health and demise in Alzheimer's Disease

Graduate Research Assistant, Sontheimer Lab, Virginia Tech August 2015-May 2021
Project: The effects of aging on EGFR/pSTAT3-dependent gliovascular structural plasticity

Zhu lab Research Volunteer, Suzhou University, Suzhou, China January-May 2015
Project: The role of semaphorins in atherosclerosis

PUBLICATIONS

Selected Publications

1. **Mills III WA**, Savory NA, Lopez-Ortiz AO *et al.* Microglial cyclooxygenase-1 modulates cerebral capillary basal tone in vivo in mice. **Nat Commun** **16**, 5704 (2025). <https://doi.org/10.1038/s41467-025-60753-x>. PMID: 40595608
2. El-Ghazawi K*, **Mills III W***, Peirce SM, Eyo UB. Two-Photon Microscopy Functional Assays for Serial Imaging of Brain Microvessels and the Neurovascular Unit Through Disease Progression. **Curr Protoc.** 2025 Jun;5(6):e70167. doi: 10.1002/cpz1.70167. PMID: 40557760; PMCID: PMC12188631.*denotes co-first authorship. PMID: 40557760
3. **Mills III W**, Woo AM, Jiang S, Martin J, Surendran M, Bergstresser M, Kimbrough IF, Eyo UB, Sofroniew MV, Sontheimer H. Astrocyte plasticity in mice ensures continued endfoot coverage of cerebral blood vessels following injury and declines with age. **Nat Commun** **13**, 1794 (2022). doi:10.1038/s41467-022-29475-2. PMID: 35379828
4. **Mills III W**, Coburn MA, Eyo UB. The Emergence of the Calvarial Hematopoietic Niche in

5. **Mills III W** & Eyo UB. TREMble before TREM2: The Mighty Microglial Receptor Conferring Neuroprotective Properties in TDP-43 Mediated Neurodegeneration. **Neurosci. Bull.** **39**, 163–166 (2023). <https://doi.org/10.1007/s12264-022-00944-4>. PMID: 35978262
6. Okyre B, **Mills III W**, Kowalski E, Amanda H, Qian Y, Wang X, Matson J, Theus M. A novel suppressive role for endothelial cell-specific EphA4 in leptomeningeal collateral remodeling. **J Clin Invest.** 2020;130(2):1024–1035.<https://doi.org/10.1172/JCI131493>. PMID: 31689239

Additional Publications

7. Dunaway LS, **Mills III W**, Eyo UB, Isakson BE. Advances in the regulation of cerebral and peripheral vascular tone. **Basic Clin Pharmacol Toxicol.** 2025 May; 136(5):e70023. doi: 10.1111/bcpt.70023. PMID: 40143606
8. Bisht K, Okojie KA, Sharma K, Lentferink DH, Sun YY, Chen HR, Uweru JO, Amancherla S, Calcuttawala Z, Campos-Salazar AB, Corliss B, Jabbour L, Benderoth J, Friestad B, **Mills III WA**, Isakson BE, Tremblay ME, Kuan CY, Eyo UB. Capillary-associated microglia regulate vascular structure and function through PANX1-P2RY12 coupling in mice. **Nat Commun** **12**, 5289 (2021). <https://doi.org/10.1038/s41467-021-25590-8>. PMID: 34489419
9. Fremuth LE, Gibbs-Shelton S, Doceti M, Lopez-Ortiz AO, Duffy A, **Mills III WA**, Gaykema RP, Singh K, Nguyen A, Cheng S, Perez-Reyes E, Eyo UB. Microglia and its P2RY12 Receptors Regulate Seizure Severity. Accepted **iScience** June 2026. PMID: 42491696
10. Jiang S, Kadlec K, Marcano AL, Song J, **Mills III W**, Kimbrough I, Sontheimer H, Jia X. Nano-optoelectrodes integrated with flexible multifunctional fiber probes by high-throughput scalable fabrication. **ACS Appl. Mater. Interfaces.** 2021, 13, 7, 9156-9165. PMID: 33566572
11. Umans R, Pollock C, **Mills III W**, Clark KC, Pan YA, Sontheimer H. Using zebrafish to elucidate glial-vascular interactions during CNS development. **Front Cell Dev Biol.** 2021 Jun 29;9:654338. doi:10.3389/fcell.2021.654338. PMID: 34268301
12. Campbell S, Muñoz-Ballester C, Chaunsali L, **Mills III W**, Yang J, Sontheimer H, Robel S. Potassium and glutamate transport is impaired in scar-forming tumor-associated astrocytes. **Neurochemistry International.** 2020; 133. <https://doi.org/10.1016/j.neuint.2019.104268>. PMID: 31825815
13. Jiang S, Patel DC, Jongwoon K, Yang S, **Mills III W**, Zhang Y, Feng Z, Wang A, Guo Y, Kimbrough I, Sontheimer H, Jia X. Spatially expandable fiber-based probes as a multifunctional deep brain interface. **Nat Commun** **11**, 6115 (2020). <https://doi.org/10.1038/s41457-020-19946-9>. PMID: 33257708
14. Lebovitz Y, Kowalski EA, Wang X, Kelly C, Lee M, McDonald V, Ward R, Creasey M, **Mills W**, Basso EKG, Hazy A, Hrubec T, & Theus MH (2019). *Lactobacillus* rescues postnatal neurobehavioral and microglial dysfunction in a model of maternal microbiome dysbiosis. **Brain, Behavior, and Immun.** 81, 617-629. doi: 10.1016/j.bbi.2019.07.025. PMID: 31351186
15. Monavarfeshani A, Stanton G, Van Name J, Su K, **Mills III W**, Swilling K, Kerr A, Huebschman N, Su J, Fox M. LRRTM1 underlies synaptic convergence in visual thalamus. **eLife** 2018 Feb 9;7:e33498. PMID: 29424692

In Revision

1. Walsh AE, Samuels JD, Davis BA, **Mills III WA**, Johnson AM, Moore KA, Puchalski MA, Wendell BW, Thanos JM, Shimpi AA, Eyo UB, Lukens JR. **Loss of the Alzheimer’s disease genetic risk factor CASS4 disrupts neuroprotective microglial responses and promotes amyloid beta-driven pathology.** Journal of Experimental Medicine.

2. El-Ghazawi K, Veeramasu Y, Largoza G, **Mills III WA**, Skalak S, Peachey C, Eluvathingal Muuttikkal T, Tang B, Wythe J, Eyo UB, & Peirce-Cottler S. Brain pericytes bridge and constrict capillaries in a streptozotocin diabetes mouse model. Journal of Cerebral Blood Flow & Metablism.

HONORS AND AWARDS

AHA Career Development Award (declined)	2025
AHA Postdoctoral Fellowship	2025
UVA Department of Neuroscience Retreat One Slide Challenge	2024
UVA Brain Institute Postdoctoral Research Fellowship	2023-2025
UVA Cardiovascular Research T32 Training Grant	2021-2024
3 rd place poster, year 1 TBMH student research symposium	2016
Dr. Steven D. Lutz Scholarship, Virginia Tech College of Science	2011
Rockbridge Republican Committee Scholarship	2011
John and Gladys Lawrence Scholarship	2011
Stonewall Jackson Hospital Scholarship	2011
Country Cookin’ Scholarship	2011
Kiwanis Club of Buena Vista Scholarship	2011
Lexington-Rockbridge Jaycees Scholarship	2011

PRESENTATIONS

Invited Talks

1. Translational Biology, Medicine, & Health 10 year reunion. August 2024. Roanoke, VA.

2. Neuroscience Graduate Program Seminar Series. May 2024.

3. Brain Energetics and Neurovascular Physiology Session, American Physiological Society. April 2024.

4. Glial Mechanism and Neurodegeneration Session, American Society of Neurochemistry. March 2023.

Oral Presentations

1. Gordon Glial Biology Conference. March 2025. Ventura, CA

2. UVA Immunology Research Day. November 2024. Charlottesville, VA

3. Microglia, Oxidative Stress, and Blood-Brain Barrier, Society for Neuroscience. November 2023.
4. Cold Spring Harbor Glia in Health & Disease. July 2022.
5. Research in Progress Seminar Series at Fralin Biomedical Research Institute. April 2021
6. Research in Practice Class Lecture- 2020
7. Panel member. Virginia Tech Neuroscience Club Meeting. 2017

Poster Presentations (7/20 total listed)

1. The role of microglial cyclo-oxygenase-1 in modulating basal capillary tone in health and Alzheimer's Disease. **Mills III W**, Savory NA, Lopez-Ortiz AO, Lentferink DH, Ibáñez FG, Agochi P, Rastegar E, Gupta A, Gupta D, Suram A, Bandam A, Isakson BE, Tremblay ME, Eyo UB. Neurobiology of Brain Disorders GRC. August 2026. Barcelona, ES.
2. The role of microglial cyclo-oxygenase-1 in modulating basal capillary tone in health and Alzheimer's Disease. **Mills III W**, Savory NA, Lopez-Ortiz AO, Lentferink DH, Ibáñez FG, Agochi P, Rastegar E, Gupta A, Gupta D, Suram A, Bandam A, Isakson BE, Tremblay ME, Eyo UB. ReThink Neuroimmunology. October 2025. Boston, MA.
3. Microglial cyclooxygenase-1 modulates cerebral basal capillary tone *in vivo* in mice. **Mills III W**, Savory NA, Coburn MA, Lentferink DH, Ibáñez FG, Agochi P, Owens GK, Isakson BE, Tremblay ME, Eyo UB. Southeastern Immunology Symposium. June 2025. Charlottesville, VA.
4. Microglial cyclooxygenase-1 modulates cerebral basal capillary tone *in vivo* in mice. **Mills III W**, Savory NA, Coburn MA, Lentferink DH, Ibáñez FG, Agochi P, Owens GK, Isakson BE, Tremblay ME, Eyo UB. Gordon Glial Biology Conference. March 2025. Ventura, CA.
5. Microglial Modulation of Cerebral Basal Capillary Tone in Health and Alzheimer's Disease. **William A. Mills III**, Niesha A. Savory, Morgan A. Coburn, Dennis H. Lentferink, Fernando González Ibáñez, Praise Agochi, Brant E. Isakson, Marie- Ève Tremblay, & Ukpong B. Eyo. North American Vascular Biology Organization Annual Meeting. October 2024. Monterey, CA.
6. Microglial Modulation of Cerebral Basal Capillary Tone in Health and Alzheimer's Disease. **William A. Mills III**, Niesha A. Savory, Morgan A. Coburn, Dennis H. Lentferink, Fernando González Ibáñez, Praise Agochi, Brant E. Isakson, Marie- Ève Tremblay, & Ukpong B. Eyo. RETHink Neuroimmunology Annual Research Symposium. September 2024. St. Louis, Missouri.
7. Astrocyte plasticity in mice ensures continued endfoot coverage of cerebral blood vessels following injury and declines with age. **William A. Mills III**, AnnaLin M Woo, Shan Jiang, Joelle Martin, Matthew Bergstresser, Ian Kimbrough, Harald Sontheimer. Brain, Immunology, Glia Research Symposium. April 2022. St. Louis, Missouri.

SCIENTIFIC COMMUNITY SUPPORT

Organization Memberships

Society for Neuroscience	2017-2023
NAVBO	2024-Present
American Heart Association.	2024-Present

Conference and Seminar Planning

Glia GRS Conference Co-Chair

UVA CVRC Career Development Seminar Series Organizer

Peer Review

Served as reviewer on submitted manuscripts for journals: *Journal of Vascular Research*, *Journal of Neuroinflammation*

Assisted in reviewing manuscripts for journals: *Nature Communications*

American Heart Association grant reviewer (in training) **July 2026**

MENTORING EXPERIENCE

Maya Yaghi 2026-(planning to start lab with me)
University of Virginia Undergraduate Researcher

Arnav Bandam 2024-Current
University of Virginia Undergraduate Researcher

Deetya Gupta 2024-Current
University of Virginia Undergraduate Researcher
UVA Harrison Undergraduate Research Award (2025)

Arnav Gupta 2024-Current
University of Virginia Undergraduate Researcher

Arya Suram 2024-Current
University of Virginia Undergraduate Researcher

Sahar Zeiaei 2025
University of Virginia Undergraduate Researcher

Elina Rastegar 2024-2025
University of Virginia Undergraduate Researcher

Niesha Savory 2022
University of Virginia, Research Scientist
Currently a year 2 MSTP student at Penn State

Praise Agochi 2021-2024
University of Virginia Undergraduate Researcher
Harvard Amgen Scholar Program Awardee (2021)
Currently working for Science Friday as a Program Associate

Ian Ghasemian 2021-2023
University of Virginia Summer Undergraduate Researcher
Currently a Medical Scribe at OrthoVirginia

Matthew Bergstresser 2020-2021
Virginia Tech
Currently Senior Associate Scientist at Sanofi

Michaela Bono 2020-2021
Virginia Tech
Currently a PhD study at the University of Pennsylvania

Margaret Bushman 2020-2021
Virginia Tech
Currently a clinical project manager at Vanda Pharmaceuticals

TEACHING EXPERIENCE

The Neurovascular Unit, UVA Neuroscience Graduate Program First Year Course February 2026
Basics of microscopy lecture, UVA Neuroscience Graduate Program First Year Course August 2022
NEURO 2035: Intro to Neuroscience Laboratory Graduate TA, Virginia Tech 2016-2017
Helped develop, edit, and teach content for this new pilot course
Classical Guitar Instructor 2013-2014

SERVICE & OUTREACH

Brain Awareness Week UVA Youth Outreach 2023
Secretary of the Neuroscience Postdoctoral Graduate Student Association October 2019-July 2020
Education Outreach Planning Committee, FBRI Student Outreach Program 2015-2016
Bridges Language Partners September 2010-May 2014
Freshman Student Mentor August 2011-May 2012
Hokie Camp Counselor Summer 2011

MENTOR REFERENCES

<i>Postdoctoral Mentor</i> Ukpong B. Eyo, PhD Associate Professor Dep. Of Neuroscience Medical Research Building 4 409 Lane Road Charlottesville, VA 22908 E: ube9q@virginia.edu P: 319-290-7714	<i>Postdoctoral Co-Mentor</i> Brant E. Isakson, PhD Professor Dept. of Molecular Phys Medical Research Building 4 409 Lane Road Charlottesville, VA 22908 E: bei6n@virginia.edu P: 434.924.2093	<i>PhD Advisor</i> Harald Sontheimer, PhD Professor and Chair Dept. of Neuroscience Medical Research Building 4 409 Lane Road Charlottesville, VA 22908 E: nkn7mv@virginia.edu P: 540-728-5966
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MENTEE REFERENCES

Praise Agochi Program Associate, Science Friday Undergraduate Researcher E: praisegod223@gmail.com	Elina Rastegar Post-bac Researcher, Ferrucci Lab, NIA Undergraduate Researcher E: qzk7fp@virginia.edu
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Complete list of articles: <https://orcid.org/0000-0001-6585-6860>