

Tsai-Yi Lu, Ph.D.

I. Personal Data

Assistant Professor
Department of Neuroscience
Center for Brain Immunology and Glia
University of Virginia School of Medicine
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II. Education

2015	Ph.D.	Neurobiology	University of Massachusetts Medical School, Worcester, MA, USA
2006	M.S.	Microbiology	National Taiwan University, Taipei, Taiwan
2004	B.S.	Biological Sciences & Technology	National Chiao Tung University, Hsinchu, Taiwan

III. Academic Appointments

2023 – present	Assistant Professor	Department of Neuroscience University of Virginia, Charlottesville, VA
2022 – 2023	Research Associate	Solomon H Snyder Department of Neuroscience Johns Hopkins University, Baltimore, MD
2017 – 2022	Research Fellow	Solomon H Snyder Department of Neuroscience Johns Hopkins University, Baltimore, MD
2015 – 2016	Postdoctoral Scholar	Department of Physiology University of California, Los Angeles, Los Angeles, CA

IV. Other Employment Pertaining to Current Professional Appointments

2006 – 2008	Research Assistant	Institute of Molecular Biology Academia Sinica, Taipei, Taiwan
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V. Honors and Awards

2024	Butler-Williams Scholar, National Institute on Aging
2024	Shark Tank Competition, University of Virginia School of Medicine – 3 rd Place
2024	Outstanding New-to-UVA Investigator, University of Virginia School of Medicine
2022	The Solomon H. Snyder Department of Neuroscience Annual Retreat Poster Award
2022	The Myelin Gordon Research Conference Postdoctoral Poster Award
2021	Intersections Science Fellows Symposium Flash Talk Competition – 3 rd Place
2021	Intersections Science Fellow Associate
2012	Early Career Investigator Travel Award, National Institute on Drug Abuse Mini-Convention

VI. Teaching Activities

A. Classroom, Seminar or Teaching Laboratory

2025 NESC 8080: Milestones in Neuroscience Discovery

2025 NESC 8030: Literature in Molecular Neuroscience

B. Conferences and Workshops

2016 The 15th Annual Molecular and Cellular Cognition Society Workshop, San Diego, CA

2016 Imaging the Behaving Brain with Miniscopes Workshop, University of California, Los Angeles, Los Angeles, CA

C. Journal Clubs

2024 UVA Glia Journal Club, University of Virginia, Charlottesville, VA

D. Guest Lectures

2021 SCIE200: Current Approaches and Questions in Health Science Research, Morgan State University, Baltimore, MD (Virtual)

VII. Professional Activities

Grant and Fellowship Review

2025 University of Virginia Brain Institute Transformative Neuroscience Pilot Grants

2025 Early Career Reviewer, Neurogenesis and Cell Fate Study Section, Center for Scientific Review, National Institute of Health

2024 University of Virginia Brain Institute Presidential Fellowship in Collaborative Neuroscience

2023 Florida Department of Health Ed and Ethel Moore Alzheimer's Disease Research Program

Doctoral Thesis Review

2024 Doctoral Thesis Examiner, Thomas Lewis (Advisor: Dr. Kalina Makowiecki, Kaylene Young, and Jessica Fletcher), University of Tasmania, Tasmania, Australia

Journal Article Review

2025 Nature Communications, Science Advances

2024 Brain Behavior and Immunity

Conference Abstract Review

2025 Gerontological Society of American Annual Scientific Meeting

VIII. Committees and Councils

Founder, Chair, or Director

2023 Co-Founder and Co-Chair of Neuroscience Postdoc Seminar Series, Johns Hopkins University, Baltimore, MD

2021 – 2022 Co-Director, Baltimore Brain Series

2020 – 2021	Co-Founder and Chief Producer, “BTBA presents: Moments in Biotech” Podcast
	<u>Committee</u>
2024	Faculty Search Committee, Neuroscience/Schiff Cancer Center, University of Virginia School of Medicine
2023 – 2024	Neurodegenerative Disease Research Coalition Seminar Series, University of Virginia
2022 – 2023	Committee on Diversity and Inclusion, Department of Neuroscience, Johns Hopkins University
2013 – 2015	Boston Taiwanese Biotechnology Association

IX. Personnel Supervised/Mentored

Current Trainees

Graduate Students (Ph.D.)

2024 – present	Yen-Chen Liu	Neuroscience Graduate Program, University of Virginia
2024 – present	Berenice Almaguer	Neuroscience Graduate Program, University of Virginia
2024 – present	Casey Bauchle	Microbiology, Immunology, and Cancer Graduate Program, University of Virginia

Undergraduate Students

2025 – present	Mia Naglieri	University of Virginia ‘28
2024 – present	Yash Gollapudi	2025 Brain Institute Future Leaders Summer Fellow, University of Virginia ’27
2024 – present	Jaeyoung Lee	Distinguished Majors in Neuroscience, University of Virginia ‘27

Ph.D. Thesis Committees

2026 – present	Takesha Foster	Neuroscience Graduate Program, University of Virginia
2026 – present	Gabriel Miller	Neuroscience Graduate Program, University of Virginia
2025 – present	Arthur Huang	Medical Scientist Training Program/ Microbiology, Immunology, and Cancer Graduate Program, University of Virginia
2025 – present	Emily Golden	Medical Scientist Training Program/Neuroscience Graduate Program, University of Virginia
2025 – present	Lizzie Zhang	Neuroscience Graduate Program, University of Virginia
2025 – present	Andrew Perl Thomas	Neuroscience Graduate Program, University of Virginia

2024 – present	Stephanie Moy	Neuroscience Graduate Program, University of Virginia
2024 – present	Veronica Coyle	Neuroscience Graduate Program, University of Virginia
2024 – present	Allison Beachum	Cell & Developmental Biology Program, University of Virginia
2024 – present	Tula Raghavan	Neuroscience Graduate Program, University of Virginia
2024 – present	Alyssa Luz-Ricca	Neuroscience Graduate Program, University of Virginia

Past Trainees

Ph.D. Rotation Students

2025	Talia Marc	BIMS Program, University of Virginia
2024	Julianna King	BIMS Program, University of Virginia

Undergraduate Students

2024 – 2025	Mary Cage Carter	Distinguished Majors in Behavioral Neuroscience, University of Virginia '25
2024 Fall	Brian Flores-Toribio	Biomedical Engineering, University of Virginia '27
2024 Fall	Ryan Poquis	Biomedical Engineering, University of Virginia '26
2023 - 2024	Abdullah Alwash	University of Virginia '24
2023	Marina Wang	University of Virginia '26
2021	Keany Rodriguez	Morgan State University, '24, 2021 ASCEND Scholar
2020 – 2023	Priyanka Hanumaihgari	Johns Hopkins University '23, 2021 Provost's Undergraduate Research Awardee and 2023 Fulbright Scholar

X. Publications

A. Submitted/Under Review/In Revision

B. Peer Reviewed

1. Liu, Y.-C., Eyo, U. and **Lu, T.-Y.** (2025) "Dynamic Glia in the Living Brain: Insights into Glial Physiology and Function from In Vivo Imaging." *J Neurophysiol.* 2025 Nov 19. Invited Review.
2. **Lu, T.-Y.**, Hanumaihgari, P., Hsu, E.T., Agarwal, A., Kawaguchi, R., Calabresi, P.A. and Bergles, D.E. (2023). "Norepinephrine modulates calcium dynamics in cortical oligodendrocyte precursor cells promoting proliferation during arousal in mice." *Nature Neuroscience*, 26: 1739-50.
3. **Lu, T.-Y.**, MacDonald, J.M., Neukomm, L.J., Sheehan, A.E., Bradshaw, R., Logan, M.A. and Freeman, M.R. (2017) "Axon Degeneration Induces Glial Responses through Draper-TRAF4-JNK Signalling." *Nature Communications*, 8:14355.
4. Srinivasan, R. *, **Lu, T.-Y.***, Chai, H. *, Xu, J., Huang, B.S., Golshani, P., Coppola, G. and

- Khakh, B.S. (2016) "New Transgenic Mouse Lines for Selectively Targeting Astrocytes and Studying Calcium Signals in Astrocyte Processes In Situ and In Vivo." *Neuron*, 92: 1181-95.
*: Equal contributions.
5. Doherty, J., Sheehan, A.E., Bradshaw, R., Fox, A.N., **Lu, T.-Y.** and Freeman, M.R. (2014) "PI3K Signaling and Stat92E Converge to Modulate Glial Responsiveness to Axonal Injury." *PLoS Biology*, 12:e1001985.
 6. **Lu, T.-Y.**, Doherty, J. and Freeman, M.R. "DRK/DOS/SOS Converge with Crk/Mbc/dCed-12 to Activate Rac1 during Glial Engulfment of Axonal Debris. (2014) " *Proceedings of the National Academy of Sciences of the United States of America*, 111:12544-9.
 7. Huang, C.-Y., **Lu, T.-Y.**, Bair, C.-H., Chang, Y.-S., Jwo, J.-K. and Chang, W. (2008) "A Novel Cellular Protein, VPEF, Facilitates Vaccinia Virus Penetration into HeLa Cells through Fluid Phase Endocytosis." *Journal of Virology*, 82:7988-99.
 8. Tsai, Y.-H., Kuang, W.-F., **Lu, T.-Y.**, Kao, J.-H., Lai, M.-Y., Liu, C.-J., Chen, P.-J. and Hwang, L.-H. (2008) "The Non-Structural 5A Protein of Hepatitis C Virus Exhibits Genotype Differences in Interferon Antagonism." *Journal of Hepatology*, 49:899-907

C. Abstracts

1. **Lu, T.-Y.***, Hanumaihgari, P., Hsu, E.T., Heo, D., Kim, A.A., Agarwal, A. and Bergles, D.E. (2022) "Norepinephrine regulates calcium dynamics in oligodendrocyte precursor cells in the mouse visual cortex." *Glia in Health and Disease at Cold Spring Harbor Laboratory*, Cold Spring Harbor, NY.
 2. **Lu, T.-Y.***, Hanumaihgari, P., Hsu, E.T., Heo, D., Kim, A.A., Agarwal, A. and Bergles, D.E. (2022) "Norepinephrine regulates calcium dynamics in oligodendrocyte precursor cells in the mouse visual cortex." *Myelin Gordon Research Conference*, Lucca, Italy.
 3. Harrington, E.P.* , Heo, D., **Lu, T.-Y.**, Calabresi, P.A. and Bergles, D.E. (2020) "Generation of MHC class I and MHC class II reporter mice for investigation of antigen presentation by oligodendroglia." *Glia in Health and Disease at Cold Spring Harbor Laboratory* (Virtual)
 4. **Lu, T.-Y.***, Aharoni, D., Shuman, T., Cai, D.J., Silva, A.J., Golshani, P. and Khakh, B.S. (2016) "Using open-source wearable miniature microscopes (Miniscopes) to study astrocytes and astrocyte-neuron interactions in freely behaving mice." *The 15th Molecular and Cellular Cognition Society Symposium*, San Diego, CA.
 5. **Lu, T.-Y.***, Doherty, J., and Freeman, M.R. (2012) "Drosophila glia require DRK/DOS/SOS to activate RAC1 during engulfment of axonal debris." *Frontiers in Addiction Research, National Institute on Drug Abuse Mini-Convention*, New Orleans, LA.
 6. **Lu, T.-Y.***, Doherty, J., and Freeman, M.R. (2012) "The DRK/DOS/SOS complex activates RAC1 downstream of Draper during glial engulfment of axonal debris." *Glia in Health and Disease at Cold Spring Harbor Laboratory*, Cold Spring Harbor, NY.
 7. **Lu, T.-Y.***, Doherty, J., and Freeman, M.R. (2009) "PI3K/Akt/TOR pathway participates in glia-specific clearance of injured axons by controlling the expression of Draper." *Annual Retreat of University of Massachusetts Medical School at Worcester*, Woods Hole, MA.
- *: Abstract Presented

XI. Invited Lectures and Symposiums

- 2024 UVA Brain Institute Symposium, Charlottesville, VA
- 2024 UCSF Neuroimmunology and Glial Biology Seminar, San Francisco, CA
- 2024 Plenary Speaker, Winter Conference on Brain Research, Breckenridge, CO
- 2023 Neuroscience Graduate Program Seminar Series, University of Virginia, Charlottesville, VA

- 2022 Frontiers in Neuropsychiatry Seminars, Weill Cornell Medicine, New York, NY (Virtual)
- 2022 Baltimore Brain Series, Baltimore, MD (Virtual)
- 2022 Neuroscience Program of Academia Sinica Seminar Series, Academia Sinica, Taipei, Taiwan
- 2016 Neuroscience Program of Academia Sinica Seminar Series, Academia Sinica, Taipei, Taiwan
- 2016 Glia in Health and Disease at Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
- 2014 Glia in Health and Disease at Cold Spring Harbor Laboratory, Cold Spring Harbor, NY
- 2014 Boston Interactive Glia Meeting, Boston, MA
- 2013 Boston Taiwanese Biotechnology Symposium, Boston, MA