

Curriculum Vitae, Stephanie L. Gupton, Ph.D.

Associate Professor

University of North Carolina at Chapel Hill, School of Medicine

Department of Cell Biology and Physiology

Lineberger Comprehensive Cancer Center

UNC Neuroscience Center

UNC Center for Developmental Disabilities

03/02/2022

1) PERSONAL INFORMATION:

Stephanie L. Gupton, Ph.D.
111 Mason Farm Road
Campus Box 7090
Chapel Hill NC 27599
(919) 843-7387

2) EDUCATION:

- Ph.D., The Scripps Research Institute, La Jolla, CA, 2006, Macromolecular, Cellular, and Structural Biology under Clare Waterman, Ph.D.
- Physiology Course, Marine Biological Laboratories, Woods Hole, MA, 2004, directed by Timothy Mitchison, Ph.D. and Ronald Vale, Ph.D.
- B.S., North Carolina State University, Raleigh, NC, 2001, Biological Sciences, research with Nina Strömngren Allen, Ph.D.
- B.S., North Carolina State University, Raleigh, NC, 2001, Botany
- Marine Models in Biological Research, Marine Biological Laboratories, Woods Hole, MA, 2000, directed by Michael Tytell, Ph.D. and Carole Browne, Ph.D.

3) PROFESSIONAL EXPERIENCE:

- Associate Professor, Department of Cell Biology and Physiology, School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC. April 2017-present
- Assistant Faculty Director of Graduate and Training Programs, 2021-present
- Faculty Advisor of Light Microscopy at the Hooker Imaging Core 2019-present
- Assistant Professor, Department of Cell Biology and Physiology, School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC. April 2011-2017 (previously known as the Department of Cell and Developmental Biology)
- Visiting Assistant Professor, Department of Cell and Developmental Biology, School of Medicine, University of North Carolina at Chapel Hill, Chapel Hill, NC. March 2011-April 2011
- Postdoctoral Training at Massachusetts Institute of Technology, September 2006- March 2011, Cellular and Molecular Neuroscience under Frank B. Gertler, Ph.D.
- Graduate Training at Scripps Research Institute, August 2001-August 2006, Macromolecular, Structural and Cellular Biology under Clare M. Waterman, Ph.D.
- Undergraduate training at North Carolina State University in Botany under Nina S. Allen, Ph.D. Jan 1998-July 2001

AFFILIATIONS:

- American Society for Biochemistry and Molecular Biology 2021-present

- International Society for NeuroChemistry 2020-present
- UNC Center for Developmental Disabilities 2019-present
- American Heart Association 2018-present
- Faculty 1000, 2018-present
- Society for Neuroscience, 2013-present
- UNC Neuroscience Center, 2011-present
- UNC Lineberger Comprehensive Cancer Center, 2011-present
- American Society of Cell Biology, 2000-present

4) HONORS AND AWARDS:

- UNC Office of Graduate Education Science Mentoring Award (2022)
- NINDS Landis Award for Outstanding Mentorship (Nominee 2021)
- Scialog Fellow (2018-2021)
- Jefferson-Pilot Fellowship Award in Academic Medicine (2016)
- North Carolina State University, College of Agriculture and Life Sciences Outstanding Young Alumnus (2016)
- ASCB/Gibco Emerging Leader Finalist (2016)
- UNC Outstanding Postdoc Mentor Award (2016)
- Pierre Morell UNC Neurobiology Curriculum Mentor of the Year (2016)
- UNC Jr. Faculty Development Award (2016)
- ASCB/Gibco Emerging Leader Semifinalist (2015)
- MIT Koch Institute Image Award (2011)
- Merck/MIT senior postdoctoral fellowship (2010-2011)
- Postdoctoral travel award for the Annual Meeting of the American Society for Cell Biology (2009)
- Fellow, Jane Coffin Childs Memorial Fund for Medical Research (2006-2009)
- Howard Hughes Medical Institute Predoctoral Fellowship (2001-2006)
- Merton R. Bernfield Memorial Award from the American Society for Cell Biology (2005)
- Keystone Symposia award to attend Symposia on Cell Migration and Invasion (2003)
- Predoctoral travel award for the Annual Meeting of the American Society for Cell Biology (2003)
- Bachelor of Science, *Magna cum laude*, Valedictorian, North Carolina State University (2001)
- Outstanding Plant Biology Major, North Carolina State University (2001)
- Phi Beta Kappa Honorary Society (2001)
- Phi Kappa Phi Honorary Society (2000)
- Sigma Xi Grant-in-Aid for Research (2000)
- Larry A. Whitford Award for Outstanding Botany Undergraduate, North Carolina State University (1999)
- Dean's List, North Carolina State University (1997-2001)

5) Bibliography and Products of Scholarship:

Book Chapters (5)

*Corresponding author

1. Ho, C.T. and **Gupton S.L.***. (2021) Establishing and Maintaining Neuronal Morphology. *Encyclopedia of Biological Chemistry* 3rd edition. Elsevier. August 2021. Edited by Joseph Jez. Vol 5: 345-357.
2. Menon, S. and **Gupton, S. L.*** (2016) The Building Blocks of a Functioning Brain: Cytoskeletal Dynamics in Neuronal Development. *International Review of Cell and Molecular Biology*. Elsevier Academic Press. Vol. 322. Chapter 3:183-246.
3. Winkle, C. C. and **Gupton, S. L.*** (2016) The Ins and Outs of Neural Connectivity Membrane Trafficking in Neuronal Development. *International Review of Cell and Molecular Biology*. Elsevier Academic Press. Vol. 322. Chapter 4:247-280.
4. Dent, E. W., **Gupton, S. L.** & Gertler, F. B. (2011) The Growth Cone Cytoskeleton in Axon Outgrowth and Guidance. *Cold Spring Harbor Perspectives on Biology* 3, a001800–a001800.
5. **Gupton, S. L.** and Waterman, C.M. (2006) “Live-Cell Fluorescent Speckle Microscopy of Actin Cytoskeleton Dynamics and Their Perturbation by Drug Perfusion.” *Cell Biology, a Laboratory Handbook*. Julio E. Celis. 4th Ed. San Diego, CA. 137-151.

Refereed Papers/Articles (41)

***Corresponding author**

1. Plooster, M., Rossi, G. Farrell M., McAfee J., Ye M., Diering, G., Won H., **Gupton S.L.*** and P.Brennwald.* (2021) Schizophrenia-linked protein tSNARE1 regulates endosomal trafficking in cortical neurons. *Journal of Neuroscience* JN-RM-0556-21. doi:10.1523/JNEUROSCI.0556-21.2021.
2. Urbina, F.L. and **Gupton S.L.*** (2021) Automated detection and analysis of exocytosis. *Journal of Visualized Experiments* e62400. doi:10.3791/62400.
3. Mutalik, S. P. & **Gupton, S. L.*** (2021) Molecular Sciences Glycosylation in Axonal Guidance. *Int. J. Mol. Sci* **22**, 5143 (2021).
4. Urbina FL, Menon S, Goldfarb D, Major MB, Patrick B, **Gupton SL***. (2021) TRIM67 Regulates Exocytic Mode and Neuronal Morphogenesis via SNAP47. *Cell Reports*. 34(6): doi:10.1016/j.celrep.2021.108743.
5. Menon S, Goldfarb D, Ho CT, Cloer EW, Boyer NP, Hardie C, Bock AJ, Johnson EC, Anil J, Major MB, **Gupton SL***. (2020) The TRIM9/TRIM67 neuronal interactome reveals novel activators of morphogenesis. *Mol Biol Cell*. Dec 30;:mbcE20100622. doi: 10.1091/mbc.E20-10-0622. **(Cover Image)**
6. Menon S, Goldfarb D, Cousins EM, Major MB, **Gupton SL***. The ubiquitylome of developing cortical neurons. *MicroPubl Biol*. 2020 Nov 28;2020. doi: 10.17912/micropub.biology.000333. PubMed PMID: 33274322.
7. Urbina FL, **Gupton S.L.*** SNARE-Mediated Exocytosis in Neuronal Development. (2020) *Front Mol Neurosci*. 2020;13:133. Published 2020 Aug 7. doi:10.3389/fnmol.2020.00133
8. McCormick L.E. and **Gupton S.L.*** (2020) Mechanistic Advances in Axonal Pathfinding. *Current Opinion in Cell Biology*.63:11-19.
9. Boyer N.P., McCormick L.E., Urbina F.L., **Gupton S.L.*** (2020) A pair of E3 ubiquitin ligases compete to regulate axon guidance and filopodial dynamics. *Journal of Cell Biology* (1): e201902088.
10. Guo, J., Otis, J., Lei Xing, Ptacek, T., **Gupton, S.L.**, Anton E.S. (2019) Effect of neuronal primary cilia on axonal tract development. *Dev Cell* 51:759-774.e5. doi:10.1016/j.devcel.2019.11.005.

11. Lee, H.T., Sharek, L., O'Brien, T., Urbina F.L., **Gupton, S.L.**, Superfine R. Burridge K., Campbell S.L. (2019). Vinculin and metavinculin exhibit distinct effects on focal adhesion properties, cell migration, and mechanotransduction. *PLoS One*. 14(9):e0221962.
12. Zeng, J., Wang, Y., Luo, Z., Chang, L., Yoo, J., Yan H. Choi, Y., Xie, X., Deverman, B.E., Gradinaur, V., **Gupton, S.L.**, Zlokovic, B., Zhao, Z., Jung, J.U. (2019). TRIM9-mediated resolution of neuroinflammation confers neuroprotection against ischemic stroke in mice. *Cell Reports*. 27(2): 549-560.
13. Do, L.D. **Gupton, S.L.**, Tanji, K., Brugiére, S. Coute, Y., Quadrio, I. Rogemond, V., Fabien, N. Desestret, V., & Honnorat, J. (2018). Trim9 and Trim67 are new targets in paraneoplastic cerebellar degeneration. *Cerebellum*. 18(2): 245-254.
14. Menon, S. and **Gupton, S.L.*** Recent advances in branching mechanisms underlying neuronal morphogenesis. (2018). *F1000 Research*. Rev-1779. doi: 10.12688/f1000research.16038.1. eCollection 2018.
15. Boyer, N. P. & **Gupton, S. L.*** (2018). Revisiting Netrin-1: One Who Guides (Axons). *Frontiers in Cellular Neuroscience*, 12:221, 337.
16. Boyer, N. P., Monkiewicz, C., Menon, S., Moy, S. S., & **Gupton, S. L. *** (2018). Mammalian TRIM67 Functions in Brain Development and Behavior. *eNeuro*, 5(3), ENEURO.0186–18.2018.
Highlighted in Spotlight in Developmental Cell by Denise Montell
17. **Gupton, S. L.*** and K. G. Campellone*. (2018) Actin dynamics and function. *Mol Biol Cell*. 29(6):696–697.
18. Urbina, F.L.¹, Gomez, M. S., and **Gupton S.L.***. (2018) Spatiotemporal Organization of Exocytosis Emerges During Neuronal Shape Change. *J Cell Biol*. 217(3):1113-1128.
(Faculty 1000)
19. Plooster, M., Winkle, C. C., Menon, S. Urbina F., Phend, K., Hanlin, C., Monkiewicz, C., Weinberg, R. and **Gupton S.L.*** (2017) TRIM9-dependent ubiquitination of DCC constrains kinase signaling events during axon branching. *Mol Biol Cell*. 28(18):2374-2385.
(featured article, Cover Image)
20. Winkle, C.C., Taylor, K.L. Dent, E.W., Gallo, G., Greif, K. and **Gupton, S. L.*** (2016) The Emerging Role of Membrane Turnover and Organelles in the Regulation of Axon Collateral Branches. *Developmental Neurobiology*. 76(12): 1293-1307.
21. Winkle, C.C., Olsen, R.H.J., Kim, H. Moy S.S., Song J.*, and **Gupton, S.L.*** (2016) *Trim9* deletion alters the morphogenesis of developing and adult-born hippocampal neurons and impairs spatial learning and memory. *Journal of Neuroscience*. 36(18):4940-4958.
(Cover Image, featured Journal Club article)
22. Winkle, C. C., Hanlin, C. C., **Gupton, S. L.*** (2016) Utilizing Combined Methodologies to Define the Role of Plasma Membrane Delivery During Axon Branching and Neuronal Morphogenesis. *J. Vis. Exp.* (109), e53743.
23. Menon S., Boyer N. Winkle C., McClain L., Hanlin C., Dharmendran, P., Rothenfußer S., Taylor, A.M., **Gupton, S. L.*** (2015) TRIM9 is a filopodia off switch during netrin-dependent axon guidance. *Dev Cell*. 35:698–712.
(Cover Image)
Highlighted Developmental Cell by Thomas Pollard
24. **Gupton, S. L.*** and Barzik M. (2015) Seeing past cellular adaptation. *Cell Systems*. 1:16-17.
25. Taylor, A.M.*, S. Menon, and **Gupton, S. L.*** (2015) Passive microfluidic chamber for long-term imaging of axon guidance in response to soluble gradients. *Lab on a chip*. 15:2781–2789.
26. Barzik, M., L.M. McClain, **Gupton, S. L.**, and F.B. Gertler. (2014) Ena/VASP regulates mDia2-initiated filopodial length, dynamics, and function. *Mol Biol Cell*. 25:2604-2619. **(Cover Image)**

27. Winkle, C. C. McClain, L.M. Valtschanoff, J.G., Park C.S., Maglione, C. and **Gupton, S. L.*** (2014) A novel Netrin-1-sensitive mechanism promotes local SNARE-mediated exocytosis during axon branching. *J Cell Biol* 205:217–232. **(featured article, Faculty 1000)**
28. **Gupton, S. L.***, D. Riquelme, S.K. Hughes-Alford, J. Tadros, S.S. Rudina, R.O. Hynes, D. Lauffenburger, and Gertler, F.B.* (2012) Mena binds $\alpha 5$ integrin directly and modulates $\alpha 5\beta 1$ function. *J Cell Biol.* 198:657–676.
29. **Gupton, S. L.**, and Gertler, F.B. (2010) Integrin signaling switches the cytoskeletal and exocytic machinery that drives neuritogenesis. *Developmental Cell.* 18:725–736. **(Faculty 1000)**
30. Dent, E.W., Kwiatkowski, A.V., Mebane, L.M., Philippar, U., Barzik, M., Rubinson, D.A., **Gupton, S.**, Van Veen, J.E., Furman, C., Zhang, J., Alberts, A.S., Mori, S., and Gertler, F.B. (2007) Filopodia are required for cortical neurite initiation. *Nature Cell Biology.* 9:1347-1359.
31. **Gupton, S. L.** and Gertler, F.B. (2007) Filopodia: the fingers that do the walking. *Science STKE* 2007, 400.
32. **Gupton, S. L.**, Eisenmann, K., Alberts, A.S., and Waterman, C.M. (2007) mDia2 regulates actin and focal adhesion dynamics and organization in the lamella for efficient epithelial cell migration. *Journal of Cell Science.* 120:3475-3487.
33. **Gupton, S. L.**, and Waterman, C.M. (2006) Spatiotemporal feedback between actomyosin and focal-adhesion systems optimizes rapid cell migration. *Cell* 125:1361-1374. **(featured article, Faculty 1000)**
34. **Gupton, S. L.**, Collings, D.A., and Allen, N.S. (2006) Endoplasmic reticulum targeted GFP reveals ER organization in tobacco NT-1 cells during cell division. *Plant Physiology and Biochemistry.* 44:95-105.
35. Ponti, A., Matov, A., Adams, M., **Gupton, S.**, Waterman, C.M., and Danuser, G. (2005) Periodic patterns of actin turnover in lamellipodia and lamellae of migrating epithelial cells analyzed by Quantitative Fluorescent Speckle Microscopy. *Biophysics Journal.* 89:3456-3469.
36. **Gupton, S. L.**, Anderson, K. L., Kole, T. P., Fischer, R. S., Ponti, A., Hitchcock-DeGregori, S. E., Danuser, G., Fowler, V. M., Wirtz, D., Hanein, D., and Waterman, C. M. (2005) Cell migration without a lamellipodium: translation of actin dynamics into cell movement mediated by tropomyosin. *Journal of Cell Biology.* 168:619-631. **(featured article, Faculty 1000)**
37. Adams, M.C., Matov, A., D. Yarar, **Gupton, S. L.**, Danuser, G., and Waterman, C.M. (2004) Signal analysis of total internal reflection fluorescent speckle microscopy (TIR-FSM) and wide-field epi-fluorescence FSM of the actin cytoskeleton and focal adhesions in living cells. *Journal of Microscopy.* 216:138-152.
38. Ponti, A., Machacek, M., **Gupton, S. L.**, Waterman, C.M., and Danuser, G. (2004) Two distinct actin networks drive the protrusion of migrating cells. *Science.* 305:1782-1786. **(Faculty 1000)**
39. Vallotton, P., **Gupton, S. L.**, Waterman, C.M., and Danuser, G. (2004) Simultaneous mapping of filamentous actin flow and turnover in migrating cells by quantitative fluorescent speckle microscopy. *Proceedings of the National Academy of Science U S A.* 101:9660-9665.
40. Adams, M.C., Salmon, W.C., **Gupton, S. L.**, Cohan, C.S., Wittmann, T., Prigozhina, N., and Waterman, C.M. (2003) A high-speed multispectral spinning-disk confocal microscope system for fluorescent speckle microscopy of living cells. *Methods.* 29:29-41.

41. **Gupton, S. L.**, Salmon, W.C., and Waterman, C.M. (2002) Converging populations of f-actin promote breakage of associated microtubules to spatially regulate microtubule turnover in migrating cells. *Current Biology*. 12:891-899.

BioRxiv Preprints (9)

1. Ye, M., S.K. Monroe, S.M. Gay, M.L. Armstrong, D.E. Youngstrom, Urbina F.L., **Gupton S.L.**, N. Reisdorph, and G.H. Diering. (2021) Coordinated regulation of CB1 cannabinoid receptors and anandamide metabolism stabilize network activity during homeostatic scaling down
Abbreviated title: Endocannabinoids and Homeostatic Scaling-Down. *bioRxiv*. 2021.05.21.445170. doi:10.1101/2021.05.21.445170.
 2. Plooster, M., M.S. Farrell, G. Rossi, H. Won, **Gupton S.L.***, and P. Brennwald*. (2021). Schizophrenia-linked protein tSNARE1 regulates endolysosomal trafficking in cortical neurons. *bioRxiv*. 2021.02.09.430442. doi:10.1101/2021.02.09.430442.
 3. Menon, S.L., D. Goldfarb, E.M. Cousins M. Ben Major, and **Gupton S.L.***.(2020). The Ubiquitylome of developing cortical neurons. *bioRxiv*. 2020.10.02.337782.
 4. Menon, S.L., D. Goldfarb, C.T. Ho, E.W. Cloer, N.P. Boyer, C. Hardie, A.J. Bock, E.C. Johnson, J. Anil, M. Major, and **Gupton S.L.***. 2020. The TRIM9/TRIM67 neuronal interactome reveals novel activators of morphogenesis. *bioRxiv*. 2020.10.02.323980. doi:10.1101/2020.10.02.323980.
 5. Urbina, F.L., Menon S., Goldfarb, D, Major, M.B., Brennwald, P., and **Gupton S.L.***. (2020) TRIM67 regulates exocytic mode and neuronal morphogenesis via SNAP47. *BioRxiv* 930404; doi: 10.1101/2020.02.01.930404
 6. Boyer N.P., McCormick L.E., Urbina F.L., and **Gupton S.L.***. (2019) A pair of E3 ubiquitin ligases compete to regulate axon guidance and filopodial dynamics. *BioRxiv* 529222; doi: 10.1101/529222
- *Highlighted in Prelight by Angika Basant
7. Boyer, N.P., Monkiewicz, C., Moy, S.L., and **Gupton S.L.***. The Class I E3 Ubiquitin Ligase TRIM67 Modulates Brain Development and Behavior. (2017). *BioRxiv* doi: 10.1101/241331
 8. Urbina, F., Gomez, S. and **Gupton. S. L.*** (2017) Dynamic spatiotemporal organization of exocytosis during cellular shape change. *BioRxiv* doi: 10.1101/185249
 9. Plooster, M., Winkle, C. C., Menon, S. Urbina F., Phend, K., Hanlin, C., Monkiewicz, C., Weinberg, R. and **Gupton. S. L.*** (2017) TRIM9-dependent ubiquitination of DCC constrains kinase signaling events during axon branching. *BioRxiv* doi: 10.1101/154666

Submitted (1)

1. Plooster, M., Brennwald, P., and **Gupton. S. L.*** (submitted). Endosomal Trafficking In Schizophrenia.

Digital and Other Novel Forms of Scholarship (1)

1. Fluorescent speckle microscopy of the cytoskeleton.” *Virtual Text Special Series: Techniques*. Ergito <¹⁻³>.

Patents (1)

1. Gertler, F.B., **S. Gupton**, D. Riquelme, S.K. Hughes-Alford, and M.J. Oudin. 2015. Mena and alpha5 integrin interaction. US Patent App. 14/395,617

Unpublished Oral Presentations (65)

Scheduled (4)

1. Invited Speaker and Session chair ,Cold Spring Harbor Meeting on Molecular Mechanisms of Neuronal Connectivity, September 2022
Host: Kang Shen, Ruediger Klein, Catherine Collins and Yimin Zou
2. Invited Speaker, Gordon Research Conference: *Neural Development*, August 2022
Host: Debby Silver and Claude Desplan
3. Invited Speaker, Gordon Research Conference: Polarity Signaling, June 2022
Host: Jeremy Nance and Yukiko Yamashita
4. Graduate student invited Speaker, Department of Cell, Developmental, and Regenerative Biology, Mount Sinai's School of Medicine, May 2022
Host: Allison Kann

Cancelled/Postponed due to COVID19 (2)

1. Invited Speaker, Gordon Research Conference: Neurotrophic Mechanisms in Health and Disease, August 2021
Host: Rejji Kuruvilla
2. Invited Speaker, Department of Biophysics, University of Denver, April 2020
Host: Michelle Knowles

Delivered (59)

1. Invited Speaker, Molecular and Cell Biology Graduate Program, University of Massachusetts, Amherst, November 2021
Host: Lillian Fritz-Laylin
2. Invited Speaker, Annual Meeting of the American Society of Cell Biology, Subgroup on *Cytoskeletal Dynamics in Health and Disease*.
Host: Jessica Henty-Ridilla, Emily Mace, Patrick Oakes
* passed this opportunity and invitation to graduate student, Laura McCormick
3. Invited speaker, Seminar Series on the Cytoskeleton of Neurons and Glia, July 2021
4. Invited Speaker, German Neuroscience Society Meeting, March 2021, session: "posttranslational modifications of proteins and their role in neuronal development"
Host: Victor Tarabykin and Mateusz Ambrozkiwicz
5. Invited Speaker, Society for Neuroscience, SfN Global Connectome, January 2021. Session: "Cell and molecular biology of the neuronal actin cytoskeleton in health and disease"
Host: Francesca Bartolon
6. Invited Virtual Speaker, Membrane Trafficking Community Virtual Seminar Series November 2020
Hosts: Felix Campelo, Francesca Bottanelli, Ishier Raote
7. Invited Virtual Speaker, Department of Neuroscience, Washington University School of Medicine in St. Lous, November 2020
Host: Michael Nonet
8. Invited Speaker, Annual Meeting of the Indian Academy of Neuroscience, XXXVIII. 2020. Symposium III: Cytoskeletal and Membrane Adaptations in Neurons. Host: Arnab Ghose.
9. Invited Speaker, American Society for Cell Biology Annual Meeting, Minisymposium: *Regulation of Cytoskeletal Dynamics and Transport*, December 2019
10. Invited Speaker, Department of Molecular Biosciences, College of Veterinary Medicine at NC State University, October 2019
Host: Belinda Akpa
11. Invited Speaker and Lecturer, Developing Neural Circuits Course, Okinawa Institute for Science and Technology, August 2019.
12. Invited Speaker, Gordon Research Conference: *Motile and Contractile Systems*, July 2019
13. Invited Speaker MIT, a Symposium honoring Frank Gertler. June 2019

14. Invited Speaker, Watermanfest, a Symposium honoring Clare Waterman and her induction in the National Academy of Sciences. May 2019
15. Invited Speaker, Thematic meeting of the Biophysical Society: *Quantitative aspects of membrane fusion and fission*, May 2019, Padova Italy.
16. Invited Speaker and Session Chair, IUBMB: *Emerging topics in the Neuronal Cytoskeleton*, April 2019
17. Invited Speaker, UNC Cell Biology and Physiology Departmental and Curriculum Retreat, April 2019
18. Invited Speaker, Gordon Research Conference: *Directed Cell Migration*, January 2019
19. Invited Symposium Speaker, Department of Mechanical Engineering, at John Hopkins University, September 2018
Host: Yun Chen
20. Invited Symposium Speaker, Department of Pharmacology and Physiology and Neurosciences, at University of Montreal, April 2018
Host: Louis Eric Trudeau
21. Student Invited Seminar Speaker, Molecular and Cellular Biology, University of Florida, April, 2018
Host: Graduate Students
22. Invited Symposium Speaker, American Society for Cell Biology Annual Meeting, December 2017, Actin Dynamics and Function. **Co-chair**
23. Invited Seminar Speaker, Department of Biology at Drexel University, December 2017
Host: Peter Baas
24. Invited Symposium Speaker, American Society for Cell Biology Local Meeting, Triangle Cytoskeleton Club, September 2017
25. Invited Seminar Speaker, Departments of Biology and Neuroscience at University Madison Wisconsin, September 2017
Host: Tim Gomez
26. Invited Killam Seminar Speaker, Montreal Neurological Institute at McGill University, May 2017
Host: Tim Kennedy
27. Invited Symposium Speaker and Session chair, Emerging Concepts in the Neuronal Cytoskeleton, Puerto Varas, Chile, April 2017
28. Invited Seminar Speaker, Department of Biology at John Hopkins University, March 2017
Host: Rejji Kuruvilla
29. Invited Seminar Speaker, Cell Biology and Physiology Center, National Heart, Lung, and Blood Institute, National Institutes of Health, November 2016
Host: Clare Waterman
30. Invited Seminar Speaker, Cell Biology and Physiology Center, Toledo University, Department of Biological Sciences November 2016
Host: Rafael Garcia Mata
31. Invited Seminar Speaker, Departments of Cell Biology and Neuroscience, University of Virginia, September 2016
Host: Noel Dwyer
32. Invited Seminar Speaker, Center for Neural Repair and Rehabilitation, Temple University School of Medicine, April 2016
Host: Gianluca Gallo
33. Invited Seminar Speaker, Department of Cell Biology, Boston College, March 2016
Host: Laura Ann Lowery
34. Invited Seminar Speaker, Department of Cell Biology and Physiology, UNC School of Medicine, March 2016
35. Invited Seminar Speaker, Department of Pathology & Cell Biology, Columbia, Feb 2016
Hosts: Julie Canman, Ulrich Hengst
36. Invited Seminar Speaker, Department of Biology, UCSD, December 2015
Host: Yimin Zou
37. Speaker, American Society for Cell Biology Annual Meeting, Subgroup Meeting: *Neuronal*

Cytoskeleton 2.0, December 2015, **co-chair**

38. Invited Seminar Speaker, Department of Cell Biology, Yale, November 2015
Host: Tom Pollard
39. Invited Seminar Speaker at the Neuroscience Center, University of North Carolina at Chapel Hill, October 2015
40. Invited Alumnus Speaker at the Scripps Research Graduate Student Retreat, September 2015
41. Invited Speaker, Gordon Research Conference: *Motile and Contractile Systems*, July 2015
42. Invited Seminar Speaker, Duke University Developmental Biology Colloquium, March 2015
Host: David Sherwood
43. Invited Seminar Speaker, University of Minnesota, Department of Cell Biology, November 2014
Host: Gant Luxton
44. Invited Speaker, Workshop on Axonal Transport and Neuronal Mechanics at the Mathematics Bioscience Institute at Ohio State University, October 2014
45. Invited Seminar Speaker in the Allen Distinguished Microscopy Seminar Series, North Carolina State University, May 2014
Host: Nina Allen
46. Invited Seminar Speaker, School of Medicine University of Pittsburgh, Department of Cell Biology, October 2013
Host: Adam Kwiatkowski
47. Invited Symposium Speaker, American Society for Cell Biology Annual Meeting, Minisymposium: *Lipid Dynamics and Membrane Organization*, December 2012
48. Invited Seminar Speaker, East Carolina University, Department of Cell Biology and Anatomy, December 2012
49. Invited Speaker, Cold Spring Harbor Conference: *Axon Guidance, Synapse Formation and Regeneration*, September 2012
50. Invited Seminar Speaker at the Neuroscience Center, University of North Carolina at Chapel Hill, March 2012
51. Invited Seminar Speaker at the Department of Biology, University of North Carolina at Chapel Hill, November 2011
Host: Bob Goldstein
52. Invited Seminar Speaker at the Department of Cell and Developmental Biology University of North Carolina at Chapel Hill, April 2010
Host: Vytas Bankaitis
53. Invited Speaker, Gordon Research Conference: *Integrins, Fibronectins, and Related Molecules*, February 2009
54. Invited Speaker, Cold Spring Harbor Conference: *Axon Guidance, Synaptogenesis and Neural Plasticity*, 2008
55. Invited Symposium Speaker, American Society for Cell Biology Annual Meeting, Minisymposium: *The Cellular Basis of Morphogenesis*, December 2008
56. Invited Speaker, MIT Biophysics Seminar Series, April 2008
Host: Mark Bathe
57. Invited Symposium Speaker, Imaging: Integrating Across Disciplines: A symposium in honor of Nina Strömngren Allen, on the occasion of her 70th birthday, September 2005
58. Invited Symposium Speaker, American Society for Cell Biology Annual Meeting, Minisymposium: *Arp2/3 and Formins, Regulators of Actin*, December 2005
59. Invited Speaker, Gordon Research Conference: *Motile and Contractile Systems*, July 2005

Outreach and other public speaking engagements (1)

1. Interviewed on WUNC *The State of Things* to discuss the Ackland Art Exhibit: The Beautiful Brain, Works of Santiago Ramon y Cajal. <https://www.wunc.org/post/beautiful-brain-science-and-art>

6) GRADUATE TEACHING/TRAINING ACTIVITIES:

Block Director/Lecturer

- CBPH850: Modern Concepts in Cell Biology, Microscopy Block, 2012-2019 (8-13 students/year, 6 lectures)

Lecturer

- CBPH710: Microscopy course, 2020-present, Lecturer (24 students, 1 lecture)
- CBPH850: Advanced Cell Biology- Controversies in Trafficking, 2015-present (~14 graduate students, 5 lectures) (Previously C BIO 893, CBPH893)
- NBIO723: Cytoskeletal dynamics and membrane trafficking during axon guidance, 2015-current (~12 students/ year, 1 lecture)
- CBPH850: Modern Concepts in Cell Biology, Microscopy Block, 2012-present (8-13 students/year, 2-3 lectures)
- PHCO745: 2018-2021, Lecturer (~14 students, 1 lecture)
- Graduate Grant Writing Course: Reviewer Spring 2017-2021(~9 students, 2 meetings)
- CBPH703: Human diseases: 2017-2018 (~8 graduate students, 1 lecture)
- CBPH702: Animal models to study disease: Axon Guidance and Branching in Human Disease 2015-2016 (~15 students, 1 lecture) (Previously Phy702)
- Super Cell: graduate student: Polarized Membrane Trafficking, 2014 (~15 students, 1 lecture Course discontinued)
- C BIO 893, graduate students (Controversies in Trafficking) 2011 (~12 Students) (course now CBPH 850)
- BIOL395, CHEM395, NSCI395: Undergraduate Research for course credit (8 students) Fall 2021, Fall 2019, Fall 2018, Spring 2018, Fall 2017, Spring 2017, Fall 2016, Spring 2016, Fall 2015,
- BIOL692: Undergraduate Honors Thesis Research: 1 student, Fall 2019
- Cell Motility, Mt. Holyoke College, undergraduate students, cell motility during neurodevelopment 2009 (10 students, 1 lecture)

T32 Membership

- CSIP T32GM133364 member (2020-present)
- MiBio T32GM11999 executive committee (2019-present)
- NBIO T32NS007431 member 2017-present
- NBIO T32NS007431 steering committee (2017-2019)

One-on-one laboratory training

Undergraduate research training: (28 students, *Current lab members)

1. ***Jordan Brooks**: Undergraduate Work-study: 2021-present
2. ***Elliot Evans**: Undergraduate Work-study: 2021-present
3. ***Harrison Hockenberry**: Undergraduate Research 2021-present
4. Mayra Correa-Ramirez: Undergraduate Work-study: 2018-present
5. Emily Wolfram: Undergraduate Research: 2017-2020 (now PhD student at UCSF)
6. Enaj Furigay: Undergraduate Work-study: 2016-2017, 2018-2020
7. Chris Hardie: Undergraduate Research: 2018-2019
8. Thomas "TJ" Turner: Undergraduate Work-study: 2018-2019
9. Emma Johnson: Undergraduate Research: 2017-2019
10. Priya Vasan: Undergraduate Research: 2016-2019
11. Vong Thoong: Undergraduate Work-study: 2018

12. Josh Cade SPIRE Undergraduate Research: summer 2018
13. Saamil Patel: Undergraduate Work-study: 2017-2018
14. Andrew Bock: Undergraduate Research: 2016-2018, Project title: "Validation of novel TRIM67 substrates" (currently med student at Duke University)
15. Divya Mahesh: Undergraduate Research: 2016-2017
16. Joel Anil: Undergraduate Summer Research: 2016-2017. Project title: "Validation of novel TRIM9 substrates"
17. Dave Richard: Undergraduate Work-study: 2016-2017.
18. Caroline Monkiewicz: Undergraduate research Bio395, Fall 2015 - Spring 2016. Project titles: "The role of deubiquitinases in axon branching", "Neuroanatomical consequences of *Trim67* deletion."
19. Haejin Song: UNC Undergraduate work study student Fall 2013-Spring 2016 (currently attending a postbaccalaureate program at Meredith College, North Carolina)
20. Jenci Hawthorne: Visiting undergraduate from the University of Richmond, research Summer 2015, Project Title: "Myosin 19 in axon branching"
***U Richmond Summer Research Fellow*
21. Maite Ghazaleh: UNC undergraduate work-study student Fall 2014-Spring 2015 (currently attending graduate school at the University of Georgia)
22. Hieu Nguyen: UNC undergraduate research: Fall 2013-Spring- 2015.
23. David Creasman: Visiting undergraduate from Campbell University, Summer 2014, Project title: "The role of the proteasome and lysosomes in axon branching" (attending a graduate school at University of California, Irvine) ***Sure/REU Program*
24. Carey Hanlin: UNC undergraduate research, Fall 2013-Spring 2014.
25. Christopher Maglione: UNC Undergraduate Research: Fall 2013-Spring 2014. Project title: "TRIM9 controls axon branching in vivo"
26. Naucika Desousa, B.S., Biomedical Engineering, NC State, 2013 (currently attending medical school at Wake Forest University, North Carolina) *** Lucas scholarship recipient*
27. Charles Park: UNC Undergraduate Research, April 2011-May 2013, (currently attending a postbaccalaureate program at UNC-Chapel Hill)
28. Kinnari Buch: UNC undergraduate research, November 2011-August 2012. Project title: "Exploring TRIM67 localization and function in cortical neurons."
***HHMI Future Scientists and Clinicians Fellow*

Graduate student training (7 students, *Current lab members)

1. ***Kimberly Lukasik**: Graduate student Cell Biology & Physiology, 2021-present
***supported by NIH/NIGMS T32 GM119999*
2. ***Tsung-Yu Ho**: Graduate student Cell Biology & Physiology, 2020-present
***supported by AHA906429*
3. ***Laura McCormick**: Graduate student Cell Biology & Physiology, 2018-present
***supported by NIH/NINDS NRSA F31 NS113381*
4. Melissa Plooster (50%): Earned PhD in Cell Biology & Physiology, 2016-2021
Thesis: "Endosomal Trafficking in Schizophrenia: Determining the function of the High-Confidence Gene Candidate *TSNARE1*." Defended Sep 24, 2021, completion date Nov 18, 2021.
***supported by NIH/NIMH F31MH116576, previously by NIH/NIGMS T32 GM119999*
5. Fabio Urbina: Earned PhD in Cell Biology & Physiology, 2015-2020
Thesis: "Novel automated computer vision analysis reveals novel mechanisms regulating exocytosis in developing neurons." Defended Nov 17, 2020, completion date Nov 18, 2020.
***supported by NIH/NINDS NRSA F31 NS103586, previously by NIH/NIGMS Diversity supplement & IMSD R25*
6. Nicholas Boyer: Earned PhD in Neurobiology curriculum, UNC 2014-2018

Thesis: "TRIM9 and TRIM67 differentially control growth cone filopodia and axon guidance downstream of netrin", defended Dec 3, 2018, completion date May 2019

**supported by NIH/NINDS NRSA F31 NS096823, previously NIH/NINDS T32NS007431

7. Cortney Winkle: Earned PhD in neurobiology curriculum, UNC 2012-2016

Thesis: "Staying TRIM: How *Trim9* constrains neuronal cell morphology to regulate connectivity", defended April 22, 2016, completion date May 30, 2016

**supported by NIH/NINDS F31NS087837

First year graduate rotation student training (20 students)

1. Juliet King
2. Kimberly Lukasik
3. Reginald Edwards
4. Shannon Rhoads
5. Tsung-Yu Ho
6. Anna Kim (UNC MSTP)
7. Laura McCormick
8. Shenee' Martin
9. Danielle Berlin
10. Jessie Niehaus
11. Krystal Orlando
12. Tim Cupp
13. Fabio Urbina
14. Reid Olsen
15. Nick Boyer
16. Suzanne Nobles
17. Cortney Winkle
18. Hailey Brighton
19. Jorge Martinez
20. James Shellhammer

Visiting graduate student training (1 student)

1. Lara Albania: 2013 (University of Padua, Italy, lab of Francesco Filipponi)

Postdoctoral research training (4 fellows, ***Current lab members**)

1. ***Sampada Mutalik, PhD**: 2020-present
2. Dustin Revell, PhD: 2020- 2021
3. Shalini Menon, PhD: 2013-2020,

**postdoctoral fellow of the American Heart Association

4. Anthony Mangan, PhD: 2017-2019

**UNC SPIRE fellow

Staff Scientist training and supervision (9 technicians/staff scientists ***Current lab members**)

1. ***Ellen C. O'Shaughnessy**: 2021-present
2. ***Charise White, Phd**: 2020-present
3. Chris Hardie: 2019-2020
4. Vong Thoong: 2018-2019
5. Caroline Monkiewicz: 2016-2018 (Regulatory affairs specialist at Merz Pharmaceuticals)
6. Carey Hanlin: 2014-2016 (currently working for an NGO in New York City)
7. Charles Park: 2013-2014 (currently attending a postbaccalaureate program at UNC)

8. Christopher Bott: 2012-2013 (currently attending graduate school at the University of Virginia)
9. Juli Valtschanoff, M.D.: 2011-2012 (Associate Dean, Professor and Chair of Medical Cell Biology at American University of Antigua)

Teaching Assistant

- CBPH 706: Grants Writing Class, 2018-present (2 x 2 hour classes per year of assisting students in specific aims/grant writing).
- Medical Student Cell Biology Laboratory 2013: Helped with laboratory section of Cell Biology section for med students lead by Keith Burridge. (20 students)
- Physiology Course at MBL in Woods Hole, MA with Clare Waterman, Ph.D. 2006 (15 students)
- Visualizing Cytoskeletal Dynamics course directed by Vic Small, Ph.D. and the Federation of European Biochemical Society, 2002 (10 students)
- Laboratory section of Plant Biology at NCSU with Udo Blu, Ph.D. 2000 (20 students)

First Year Group Co-Mentor 2012-2016:

- Co-Mentor in First Year Group. Participated in class discussions and mentored students in scientific ethics, rotation selection, poster presentations, and writing sections of the course. (~20 students)

Graduate Student Supervision:

Thesis Committees (**36, *18 current, 18 completed**):

1. *Siddhi Shyam Ozarkar (UNC Neurobiology Curriculum, **chair**) 2021-present
2. *Shannon Rhoads (UNC Neurobiology Curriculum, **chair**) 2021-present
3. *Pu Zhang (UNC Cell Biology and Physiology) 2021-present
4. *Pierre-Emmanuel N'Guetta (UNC Cell Biology and Physiology, **chair**) 2020-present
5. *Gabriella Gentile (UNC Genetics, Molecular Biology Curriculum) 2019-present
6. *Nisitha Sengottuvel (UNC MSTB, Genetics, Molecular Biology Curriculum, **chair**) 2019-present
7. *Shenee' Martin (UNC Neurobiology Curriculum) 2018-present
8. *Samuel Honeycutt (UNC Cell Biology and Physiology) 2018-present
9. *Ian Windham (UNC Cell Biology and Physiology, **chair**) 2018-present
10. *Stephen Serafin (UNC Cell Biology and Physiology, **chair**) 2018-present
11. *Abigail Cleveland (UNC Cell Biology and Physiology) 2018-present
12. *Kasey Skinner (UNC Neurobiology Curriculum) 2018-present
13. *Danielle Berlin (UNC Cell Biology and Physiology, **chair**) 2017-present
14. *Zayna King (UNC Cell Biology and Physiology) 2017-present
15. *Carlos Patino Deskovitch (UNC Cell Biology and Physiology) 2017-present
16. *Selena Romero (UNC Cell Biology and Physiology, **chair**) 2017-present
17. Tamara Tomanić (Macquarie University, Sydney Australia, external examiner) 2021
18. Jesse Niehaus (UNC Neurobiology Curriculum, **chair**) 2017-2021
19. Megan Agajanian (UNC Pharmacology) 2017-2021
20. Alicia Tagliatela (UNC Cell Biology and Physiology, **chair**) 2016-2020
21. Kendall Lough (UNC Genetics and Molecular Biology) 2014-2020
22. Amanda Raimer (UNC Genetics and Molecular Biology) 2014-2020
23. Elliot Wyatt (UNC Neurobiology Curriculum, Masters 2019) 2018-2019
24. Katie Veleta (UNC Neurobiology Curriculum) 2015-2019
25. Hyunna (Theresa) Lee (UNC Biophysics and Biochemistry, PhD, 2019) 2019

26. Jennifer Ocasio Adorno (UNC Neurobiology Curriculum, **chair**) 2015-2019
27. Phillippe Duquette (McGill University, Department of Anatomy and Cell Biology) 2018, External examiner
28. Maria Bagonis (Harvard University, Biological and Biomedical Sciences, PhD, 2017) 2016-2017
29. Kaleb Naegeli (Duke Pharmacology and Cancer Biology, PhD, 2017) 2013-2017
30. Timothy Cupp (UNC Cell and Developmental Biology, Masters 2016) 2015-2016
31. Kelly Watson (UNC Cell and Developmental Biology, PhD, 2015) 2012-2015
32. Liz Haynes (UNC Cell and Developmental Biology, PhD 2015) 2012-2015
33. Kathryn Trogden (UNC Biology, PhD 2015) 2012-2015
34. Matty Kutys (UNC Cell and Developmental Biology/NIH, PhD 2014), 2012-2014
35. Scott Huock (UNC Cell and Developmental Biology, PhD 2014) 2011-2014
36. Alex Raines (UNC Neurobiology Curriculum, PhD 2012) 2011-2012

Qualifying Exam Committee (9):

- Cell Biology and Physiology Qualifying Exam Committee (2016)
- Alicia Tagliatela (UNC Cell and Developmental Biology, 2015)
- Kelly Gewain (UNC Cell and Developmental Biology, 2014)
- Jennifer Karin Ocasio Adorno (UNC Neurobiology Curriculum, 2014, **chair**)
- David Graham (UNC Cell and Developmental Biology, 2014)
- Suzanne Nobles (UNC Neurobiology Curriculum, 2013)
- Bomi Oladosu (UNC Neurobiology Curriculum, 2012, **chair**)
- Hailey Brighton (UNC Cell and Developmental Biology, 2012)
- Mai Doan (UNC Cell and Developmental Biology, 2011)

7) GRANTS/FUNDING:

Active Research Support:

R35GM135160 NIH/NIGMS	(Gupton, PI)	01/01/20-12/31/25
<i>Coordinated Cytoskeletal dynamics and membrane remodeling in Cellular Shape Change</i>		
The proposal focuses on how TRIM9 and TRIM67 regulate the membrane trafficking, cytoskeletal dynamics, and cellular shape change and motility of developing neurons and migrating melanoma cells.		
	51% effort	\$1,901,405
R01NS105614 NIH/NINDS	(Gupton, PI)	08/01/19-04/30/23
<i>Exocytosis for plasma membrane expansion in developing neurons</i>		
The major goals of this proposal include defining the mechanisms that regulate the organization, progression, and mode of vesicle fusion with the plasma membrane of developing neurons.		
	40% effort	\$1,920,035
R35GM13516002S2 NIH/NIGMS/NIA	(Gupton, PI)	07/01/21-11/30/21
<i>Administrative Equipment Supplement for GM135160</i>		
This supplement requests funds to repair our TIRF microscope		
	No effort	\$90,000
R01NS10561403S1 NIH/NINDS	(Gupton, PI)	09/01/21-08/30/22
<i>AI/MI Administrative supplement to support collaboration</i>		

0% Effort

\$211,083

28384 2021 SCIALOG: CMC Award (Gupton, PI) 01/01/2022-12/31/2022
Elucidating the polygenic origins of schizophrenia: Linking protein trafficking to synapse function
 This collaborative proposal will model SNPs linked to schizophrenia in iPSC-derived neurons and examine dendritic spine number and synapse function. 1% Effort \$55,000

Pending Research Support:

R21AG077827 NIA (Gupton, PI) 04/01/22-03/31/24
Exploring the Brain Enriched E3 Ubiquitin Ligase TRIM9 in Alzheimer's Disease
 This proposal will examine the function of TRIM9 in neuronal health and degeneration in the context of Alzheimer's Disease. 2% effort \$421,630
 *Impact Score 37, 18%, pending Council Meeting

S10D030300 NIH/NIGMS (Gupton, PI) 02/01/21-1/31/22
Super Resolution STED Microscopy at UNC
 This shared equipment grant requests funds for a Leica Tau STED scope for the Hooker Imaging Core No effort \$600,000
 * Impact Score 24, pending Council Meeting

Completed Research Support:

UNC Core Facilities Pilot Program (McCormick and Gupton, PI) 2020
Optimization and application of TMTpro for multiplexed, quantitative proteomics to study TRIM9 and TRIM67 function in synaptic regulation
 The proposals uses novel quantitative proteomic approaches to compare the proteome of the postsynaptic density between wildtype and knockout littermates. \$10,000 Direct

R35GM135160 01S1 NIH/NIGMS/NIA (Gupton, PI) 06/23/20-12/31/20
Investigation of TRIM9 in Cell Shape Change in the Aging Brain
 The proposal defines whether TRIM9 is involved in Alzheimer's disease in human patients and the PS19 mouse model. 7.6% effort \$199,361

R35GM135160 01S2 NIH/NIGMS/NIA (Gupton, PI) 07/01/20-12/31/20
Administrative Equipment Supplement for GM135160
 This supplement requests funds for Keyence automated microscope No effort \$140,220

R01GM054712 NIH/NIGMS (Brennwald, PI, Gupton co-PI) 09/01/16-08/31/20
Polarized Exocytosis: Rhos, Rabs, Tethers and SNAREs
 My contributions to this proposal are to help determine how mutations and variations in tSNARE1, which are associated with schizophrenia, affect membrane trafficking and morphogenesis in developing neurons 0% effort \$0 for my lab

R21NS104530 NIH/NINDS (Juan Song, PI) 09/01/18-08/31/20
Role of TRIM9 in regulating neurogenesis-associated hippocampal functions

The goal of this study is to unequivocally determine how altered maturation and integration of adult-born neurons mediated by cell-autonomous TRIM9 deletion affects hippocampal microcircuit plasticity and impacts hippocampal-dependent behaviors.

10% effort

\$0 for my lab

19-0017 Mizutani Foundation for Glycoscience (Gupton, PI) 4/1/19-3/31/20

Netrin-1 Glycosylation Distinguishes Chemotaxis and Haptotaxis

The goal of this proposal is to develop a novel mouse harboring netrin glycosylation mutant to test the role of netrin chemotaxis and haptotaxis *in vivo*.

0.6 Calendar Months

\$20,000 Direct

R01GM108970 NIH/NIGMS (Gupton, PI) 01/01/14-12/31/19

Trim9 coordinates membrane trafficking and cytoskeletal dynamics

In this proposal we focus on the spatial and temporal regulation of axonal responses to netrin and how TRIM9 regulates cytoskeletal dynamics and membrane trafficking to affect shape changes of developing neurons *in vitro* and *in vivo*.

30% effort

\$1,436,260

UNC SOM Emerging Challenges in Biomedical Research (Neher, Gupton, PI) 2019

New insights into insulin-responsive LPL trafficking

My role in this proposal is to assist in high resolution TIRF imaging of LPL exocytosis in adipocytes.

0% effort

\$10,000 for my lab

R21MH109653 NIH/NIMH (Gupton, PI) 05/15/16-04/30/19

Identification of ubiquitylated substrates of Trim9 and Trim67

In this proposal we perform unbiased quantitative proteomic screens to identify neuronal proteins in close proximity that are differentially ubiquitylated in the absence of TRIM9 and/or TRIM67.

25% effort

\$421,630

R01GM108970 NIH/NIGMS (Gupton, PI) 09/08/2017

Trim9 coordinates membrane trafficking and cytoskeletal dynamics

This was an administrative supplement from NIGMS to upgrade our TIRF microscope

0% effort

\$23,782 Direct

R01GM108970 NIH/NIGMS (Gupton, PI) 06/15/15-06/14/17

Trim9 coordinates membrane trafficking and cytoskeletal dynamics

This was an administrative diversity supplement from NIGMS to support Mr. Fabio Urbina's graduate studies in my lab. The supplement supports Mr. Urbina under the co-mentorship of myself and Dr. Shawn Gomez (UNC, Biomedical Engineering) 0% effort

\$217,394

UNC Junior Faculty Development Award (Gupton, PI) 01/01/16-12/31/16

Identification of Interacting Partners of Trim9 and Trim67

In this proposal we perform an unbiased quantitative proteomic screen to identify neuronal proteins in close proximity to TRIM9 and TRIM67. 0% effort

\$7,500

Pilot Project UNC University Research Council (Gupton, PI) 05/01/14-04/31/16

Design and Application of a Novel Axon Guidance Microfluidic Device

In this proposal we design and develop a PDMS-based microfluidic device to study axon guidance in a gradient of extracellular guidance cues in dissociated neurons.

0% effort

\$5,000

Mentored Support:

<u>AHA 906429</u>	<u>(Tsung yu Ho)</u>	<u>01/01/2022-12/31/2023</u>
Coronin 1A role in TRIM-regulated Neuronal Morphogenesis		
<u>NSF GFRP</u>	<u>(Emily Wolfgram)</u>	<u>09/01/2020-08/31/2022</u>
*Emily wrote this proposal as an undergraduate in my lab, based on her independent project in my lab, but is now a NSF fellow in a graduate program at UCSF.		
<u>F31NS113381</u>	<u>(Laura McCormick)</u>	<u>08/01/2019-07/31/2022</u>
VASP ubiquitination regulates actin dynamics in dendritic spines		
<u>F31MH116576</u>	<u>(Melissa Plooster)</u>	<u>09/15/2018-09/14/2021</u>
Determining the localization and function of schizophrenia-linked protein tsnare1b		
<u>F31NS103587</u>	<u>(Fabio Urbina)</u>	<u>06/15/2017-06/14/2020</u>
TRIM67 as a novel regulator of exocytosis in developing neurons		
<u>F31NS096823</u>	<u>(Nicholas Boyer)</u>	<u>03/15/2016-12/31/2019</u>
TRIM67 regulates growth cone filopodia during netrin dependent axon guidance		
<u>F31NS087837</u>	<u>(Cortney Winkle)</u>	<u>09/29/2014-09/28/2017</u>
TRIM9 controls signaling downstream of netrin in axon branching and guidance		
<u>14POST20450085 (AHA)</u>	<u>(Shalini Menon, PhD)</u>	<u>07/01/2014-06/30/2016</u>
Tripartite-Motif E3 Ubiquitin Ligase, TRIM67 and its Role in Neural Stem Cell Development		

8) PROFESSIONAL SERVICE:

To discipline:

- NIH study section: Neuronal Communication (NC) (previously known as Synapses, Cytoskeleton and Trafficking (SYN)) Study Section *member*, October 2020-June 2024
- ASCB Council: 2020-2023
 - CEO search committee, 2021
 - Selection Committee for Inclusivity Prize, 2021
 - Chair of ASCB Diversity, Equity, and Inclusion Taskforce, 2020-2021
- Editorial:
 - *Molecular Biology of the Cell* (Associate Editor, 2022-present)
 - *Journal of Neuroscience* (Handling Editor, 2022-present)
 - *PLoS Genetics* (guest editor 2020)
 - *Cytoskeleton* 2019-Present
 - *Open Biology* 2017-Present
 - *Molecular and Cellular Neuroscience* 2018-2021
- Refereeing of manuscripts 2011-ongoing:
eLife, Neuron, Developmental Cell, PNAS, Journal of Cell Biology, Journal of Neuroscience, Molecular Biology of the Cell, PLoS Genetics, PLoS Biology, Journal of Clinical Investigation, Journal of Biological Chemistry, Biophysics, Development, Cell Reports, Scientific Reports, PLoS Biology, Neuroscience, Frontiers in Neuroscience, Frontiers in Molecular Neuroscience, Frontiers in Cell and Developmental Biology, Royal Chemistry Society, ACS Neuro,

Cytoskeleton, JoVE, Cell and Molecular Neuroscience, Developmental Neurobiology, eNeuro, nanomedicine, BMC Cell Biology, iScience, Trends in Biological Sciences, Molecular Neurobiology, Cerebral Cortex,

- Grant Review:
 - NIH study section: Synapses, Cytoskeleton and Trafficking Study Section (SYN) *standing member 2020-2024*
 - NIH study section: Neurodevelopment, Synaptic Plasticity and Neurodegeneration panel (F03A) Nov 2019
 - NIH study section: Bioengineering Sciences and Technologies (ZRG1 BST-R 02) *ad hoc*, Feb 2019
 - NIH study section: Cellular and Molecular Neuroscience (ZRG1 MDCN-T 02) *ad hoc*, Dec 2018
 - NIH study section: Synapses, Cytoskeleton and Trafficking Study Section (SYN) *ad hoc*, Feb 2018
 - NSERC: Discovery Grant Proposal, Natural Sciences and Engineering Research Council of Canada
 - NIH study section: Drug Discovery and Probes for the Nervous System (ZRG1 MDCN-B 04 S) *ad hoc*, Nov 2016
 - NSF *ad hoc*, 2016
 - NIH study section: Synapses, Cytoskeleton and Trafficking Study Section (SYN) *ad hoc*, Feb 2016
 - NIH study section: Neurodifferentiation, Plasticity, Repair and Rhythmicity (NDPR) *ad hoc*, June 2015
 - UK SBS Grants, *ad hoc*, 2013
- Meeting Organization and Chairing:
 - Meeting Co-director/Organizer: “Emerging Concepts in the Neuronal Cytoskeleton” focused meeting of IUBMB/EMBO, Santa Clara, Chile (April 2022)
 - Session Co-chair: “Cytoskeletal Dynamics, Mechanics, and Cell Motility” ASCB/EMBO Annual Meeting (December 2017)
 - Session Chair: “Motile and Contractile Systems” Gordon Research Conference (July 2017)
 - Session Chair: “Emerging Concepts in the Neuronal Cytoskeleton” focused meeting of IUBMB, Puerto Varas, Chile (April 2017)
 - Co-chair “Neuronal Cell Biology: Cytoskeleton and Trafficking” Special Interest Subgroup at the annual meeting of the American Society for Cell Biology (ASCB, 2016)
 - Co-chair “Neuronal Cytoskeleton 2.0: A Complex Interplay of Cytoarchitecture and Dynamics” Special Interest Subgroup at the annual meeting of the American Society for Cell Biology (ASCB, 2015)
- Faculty 1000 (2018-present)

Within the University of North Carolina at Chapel Hill:

- Assistant Director of Graduate and Training Programs: 2021-Present
- Biology Faculty Search Committee 2021-2022
- NeuroSpark Review Committee 2021
- Hooker Imaging Core Light Microscopy Faculty Advisor: 2019-present
- Jr. Faculty Mentoring:
 - Katie Baldwin (2021-present)
 - Robert Downen (2019-present)
 - Sarah Cohen (2018-present)
 - Informal grant review (Jimena Guidice, Graham Diering)

- Admissions Committee for UNC Biological and Biomedical Science Program (BBSP), member: 2011-2015, member, **chair** 2016-2021
- Admissions subcommittee for BBSP, 2011-2014, 2016-2021
- Grading BIO695 honors thesis: 2018- 2020
- Established and **co-chair** a cross-campus “UNC Trafficking Super Group” with Dr. Saskia Neher, Biochemistry and Biophysics 2015-2020.
- Committee to select internal nominee for Rita Allen Foundation: 2019
- Committee to select internal nominee for Brain Research Foundation: 2019
- Hooker Imaging Core Steering Committee: 2018-2019
- NBIO Student Mentoring and Oversight Committee, 2012-2019, 2018-2019 **chair**
- LCME Medical School Accreditation Committee: 2018
- Committee to select internal nominee for Searle, Pew, Mallinckrodt: 2018,
- BBSP poster scoring 2012-2018
- BBSP graduate student grade appeal Committee, 2016
- Integrative Program for Biological and Genome Sciences (iBGs) Faculty Search Committee, 2015-2016
- CBP Seminar Series Committee, 2012-2016, **chair** 2014-2016
- Cell Biology and Physiology (CBP) Faculty Search Committees: Research Assistant Professor, 2014-2015
- Neurobiology Curriculum (NBIO) Taskforce on PI Conduct, 2014
- CBP Faculty Search Committee, 2013-2014
- Cell and Developmental Biology Graduate Studies Committee, 2012-2014