

Alexis Thomas Weiner Ph.D.

Postdoctoral Fellow
Stanford School of Medicine
Pathology Department
The Leland Stanford Junior University

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Education

INSTITUTION AND LOCATION	DEGREE (if applicable)	YEAR	FIELD OF STUDY
The Pennsylvania State University University Park, PA	B.S.	2013	Biology
The Pennsylvania State University University Park, PA	Ph.D.	2020	Molecular, Cellular and Integrative Biosciences
Stanford University, Stanford, CA	Postdoctoral	Present	Cellular and Developmental Biology

Research Experience

Huck Institutes of the Life Sciences

Advisor: Dr. Melissa Rolls

Undergraduate Researcher 2011 - 2013

- Identified reporters of axon injury following laser microsurgery in *Drosophila* da neurons
- Screened and identified regulators of microtubule polarity in *Drosophila* dendrites

Research Technician 2014 - 2015

- Elucidated the location of the Kinesin-2 microtubule steering complex at *Drosophila* dendrite branch points
- Investigated the function of γ Tub at dendrite branch points as a microtubule nucleator

PhD Graduate Student 2015 - 2020

- Uncovered nmnat is sufficient to upregulate microtubule dynamics in dendrites
- Identified regulators of the localization of the steering mechanism component Apc2 to branch points
- Described dendritic morphology phenotypes caused by genes affected in the autism-associated 16p11.2 deletion
- Characterized growing microtubule minus-ends *in vivo* in *Drosophila* dendrites
- Discovered a Wnt signaling pathway acts on early endosomes to recruit and organize nucleation sites at dendrite branch points

Stanford School of Medicine Pathology Department

Advisor: Dr. Jeffrey Axelrod

Postdoctoral Fellow 2020 - Present

- Deciphering the positive and negative feedback embedded in the Planar Cell Polarity Pathway
- Investigating if cells of a multicellular tissue retain the ancient ability of single cell systems to polarize

Publications

Students or technicians I supervised are underlined>.

Kunimoto K, Weiner AT, Axelrod JD, Vladar EK. Distinct overlapping functions for Prickle1 and Prickle2 in the polarization of the airway epithelium. *Front Cell Dev Biol.* 2022 Sep 13;10:976182. doi: 10.3389/fcell.2022.976182. PMID: 36176272; PMCID: PMC9513604.

Feng C, Cleary JM, Kothe GO, Stone MC, **Weiner AT**, Hertzler JI, Hancock WO, Rolls MM. Trim9 and Klp61F promote polymerization of new dendritic microtubules along parallel microtubules. *J Cell Sci.* 2021 Jun

Pizzo L, Lasser M, Yusuff T, Jensen M, Ingraham P, Huber E, Singh MD, Monahan C, Iyer J, Desai I, Karthikeyan S, Gould DJ, Yennawar S, **Weiner AT**, Pounraja VK, Krishnan A, Rolls MM, Lowery LA, Girirajan S. Functional assessment of the "two-hit" model for neurodevelopmental defects in *Drosophila* and *X. laevis*. *PLoS Genet*. 2021 Apr 5;17(4):e1009112. doi: 10.1371/journal.pgen.1009112. PMID: 33819264; PMCID: PMC8049494.

Weiner AT, Thyagarajan P, Shen Y, Rolls MM. To nucleate or not, that is the question in neurons. *Neurosci Lett*. 2021 Apr 23;751:135806. doi: 10.1016/j.neulet.2021.135806. Epub 2021 Mar 8. PMID: 33705928; PMCID: PMC8058292.

Hertzler JI, Simonovitch SI, Albertson RM, **Weiner AT**, Nye DMR, Rolls MM. Kinetochore proteins suppress neuronal microtubule dynamics and promote dendrite regeneration. *Mol Biol Cell*. 2020 Sep 1;31(19):2125-2138. doi: 10.1091/mbc.E20-04-0237-T. Epub 2020 Jul 16. PMID: 32673176; PMCID: PMC7530905.

Nye DMR, Albertson RM, **Weiner AT**, Hertzler JI, Shorey M, Goberdhan DCI, Wilson C, Janes KA, Rolls MM. The receptor tyrosine kinase Ror is required for dendrite regeneration in *Drosophila* neurons. *PLoS Biol*. 2020 Mar 12;18(3):e3000657. doi: 10.1371/journal.pbio.3000657. PMID: 32163406; PMCID: PMC7067388.

Weiner AT, Seebold DY, Torres-Gutierrez P, Folker C, Swope RD, Kothe GO, Stoltz JG, Zalenski MK, Kozlowski C, Barbera DJ, Patel MA, Thyagarajan P, Shorey M, Nye DMR, Keegan M, Behari K, Song S, Axelrod JD, Rolls MM. Endosomal Wnt signaling proteins control microtubule nucleation in dendrites. *PLoS Biol*. 2020 Mar 12;18(3):e3000647. doi: 10.1371/journal.pbio.3000647. PMID: 32163403; PMCID: PMC7067398.

Feng C, Thyagarajan P, Shorey M, Seebold DY, **Weiner AT**, Albertson RM, Rao KS, Sagasti A, Goetschius DJ, Rolls MM. (2019) Patronin-mediated minus end growth is required for dendritic microtubule polarity. *Journal of Cell Biology*. (7):2309-2328

Iyer, J., Singh, M. D., Jensen, M., Patel, P., Pizzo, L., Huber, E., Koerselman, H., **Weiner, A. T.**, Lepanto, P., Vadodaria, K., Kubina, A., Wang, Q., Talbert, A., Yennawar, S., Badano, J., Manak, J. R., Rolls, M. M., Krishnan, A., Girirajan, S. (2018) Pervasive genetic interactions modulate neurodevelopmental defects of the autism-associated 16p11.2 deletion in *Drosophila melanogaster*. *Nature Communications* 9:2548.

Weiner, A.T., Seebold, D. Y., Michael, N. L., Guignet, M. L., Feng, C., Follick, B., Yusko, B. A., Wasilko, N. P., Torres-Gutierrez, P., Rolls, M. M. (2018) Identification of proteins required for precise positioning of Apc2 in dendrites. *G3* 8:1841-533.

Chen, L., Nye, D. M., Stone, M. C., **Weiner, A. T.**, Gheres, K. W., Xiong, X., Collins, C. A., Rolls, M. M. (2016) Mitochondria and caspases tune Nmnat-mediated stabilization to promote axon regeneration. *PLOS Genetics* 12:e1006503.

Rao, K., Stone, M. C. **Weiner, A. T.**, Gheres, K. W., Zhou, C., Deitcher, D. L., Levitan, E. S., Rolls, M. M. (2016) Spastin, atlastin, and ER relocalization are involved in axon but not dendrite regeneration. *Molecular Biology of the Cell* 27: 3245-56.

Weiner, A. T., Lanz, M. C., Goetschius, D. J., Hancock, W. O., Rolls, M. M. (2016) Kinesin-2 and Apc function at dendrite branch points to resolve microtubule collisions. *Cytoskeleton* 73: 35-44.

Nguyen, M. M., McCracken, C. J., Milner, E. S., Goetschius, D. J., **Weiner, A. T.**, Long, M. K., Michael, N.

L., Munro, S., Rolls, M. M. (2014) γ -tubulin controls neuronal microtubule polarity independently of Golgi outposts. *Molecular Biology of the Cell* 25: 2039-2050.

Positions and Honors

Positions and Employment

2014 - 2015 Research Technologist 1
2015 - 2020 PhD Graduate Candidate, Penn State University
2020 - Postdoctoral Fellow, Stanford University

Teaching

2016 - 2019 Teaching Assistant
BMB 448 - Methods in Cell Biology. Upper level independent lab course incorporating a Drosophila RNAi screen. Supervised by Dr. Melissa Rolls

Professional Memberships

2016 - Member, American Society for Cell Biology

Talks and Posters

2013 - 2015 Pittsburgh Local Traffic Meeting poster presentation
2016 Pittsburgh Local Traffic Meeting student talk and poster
2016 American Society for Cell Biology poster presentation
2017 Pittsburgh Local Traffic Meeting poster presentation
2017 American Society for Cell Biology minisymposium talk and poster
2018 2018 EMBO Mechanisms of Neuronal Remodeling poster presentation (Israel)
2019 Molecular Motors Transport and Trafficking (India)

Honors and Awards

- The EMBO Journal first place poster prize – 2018 EMBO Mechanisms of Neuronal Remodeling (2018)
- Graduate Student Excellence in Mentoring Award – Penn State University (2018)
- Certificate of Recognition – The dean's climate and diversity award Penn State University (2018)
- Article Endosomal Wnt signaling proteins control microtubule nucleation in dendrites recommended by Faculty Opinions (formerly F1000) (2020)
- The Stanford School of Medicine Dean's Fellowship – Stanford University (2021)

Science Outreach

Pennsylvania Junior Academy of Science (PJAS) 2009-2020

For PJAS I helped facilitate a state-run program to award academic scholarships to prospective high school juniors who want to attend Penn State.

Research Experience for Teachers (RET) 2016-2020

In RET I worked closely with a middle school teacher, Lori Piper who is a science teacher in the Altoona School District. I helped her class develop an experimental plan to test hypotheses about flies expressing neurodegeneration proteins while subjected to traumatic brain injury.

Higher Achievement 2015-2017

My involvement with higher achievement has been to invite underrepresented students in STEM to learn and explore some of the ins and outs of a research lab.

Undergraduates, Technicians, and MCIBS Graduate Program Students Mentored

<i>Student</i>	<i>degree</i>	<i>program</i>	<i>grad date</i>
Undergraduate students- Honors			
Mit Patel	BS	BMB	05/2017
Jessica Stoltz	BS	BME	05/2019
Emily Yanoshak	BS	Biol	05/2020
Rachel Swope		BMB	
Lauren Onweller		BMB	
Melissa Long		Bio Tech	
Undergraduate students- independent study			
Hillary Kelly	BS	BMB	05/2013
Gary Teeters	BS	BMB	05/2014
Crystal Bennetch	BS	Science	05/2014
Dylan Seebold	BS	Biol	12/2014
Nathan Lisbin	BS	BMB	05/2018
Karina Cuevas Mora	BS	BMB	12/2018
Joseph Kim	BS	BME	12/2016
Madeleine Zalenski	BS	BMB	05/2019
Nathan Chacclas	BS	BME	05/2019
Pedro Torres	BS	Biol	05/2018
Katelyn Rudisill		Biol	
Mikala Shaffer	BS	BMB	05/2019
Daniel Ferriss		BMB	
Phillip Ratnasamy		BMB	
Christian Jakob		BMB	
Sameer Chettri		BMB	
HoGyu Choi		Biol	
Catherine Smith	BS	Biol	05/2019
Destiny Wright		BMB	
Krupa Bhavsar	BS	BMB	05/2018
Thomas Derby	BS	BME	05/2018
Alice Liu		Biol/MBA	
Matthew Keegan	BS	BMB	05/2019
Sophia Landaeta		BMB	
Nicole Song	BS	BMB	05/2018
Kana Behari	BS	BMB	05/2020
Emma Price	BS	Biol	05/2017
Caitlyn Gaffney	BS	Biol	05/2018
Abigail Mauger		Biol	
Technicians			
Michael Lanz	BS	BMB	
Daniel Goetschius	BS		

Graduate student mentor for the following students:

Brandon Yusko

Christian Herrera

John Gardiner

References:

Jeffrey Axelrod
Professor of Pathology
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Melissa Rolls
Paul Berg Professor of Biochemistry
mur22@psu.edu

Timothy Jegla
Associate Professor of Biology
tjj3@psu.edu

William Hancock
Professor of Bioengineering
woh1@psu.edu