AMY D. PLATENKAMP

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EDUCATION

2020–present University of Washington, Seattle, WA
Ph.D. Student in the Department of Biology

2016 Reed College, Portland, OR
B.A. in Biology

PUBLICATIONS

2020 **Platenkamp A**, Detmar E, Sepulveda L, Ritz A, Rogers SL, and Applewhite DA. The Drosophila melanogaster Rab GAP RN-tre cross-talks with the Rho1 signaling pathway to regulate nonmuscle myosin II localization and function. MBoC 31: 21. https://doi.org/10.1091/mbc.E20-03-0181

2018 **Platenkamp A,** Mellies JL. Enviornment Controls LEE Regulation in Enteropathogenic *Escherichia coli.* Front. Microbiol. 9: 1694. DOI: 10.3389/fmicb.2018.01694. (Review)

2017 **Platenkamp A,** Mellies JL. Pathovar Transcriptomes. mSystems 2:e00049-17. https://doi.org/10.1128/mSystems.00049-17. (Commentary)

2017 Mellies JL, **Platenkamp A,** Osborn J, Ben-Avi L. PerC Manipulates Metabolism and Surface antigens in Enteropathogenic *Escherichia coli.* Front. Cell. Infect. Microbiol. 7: 32. https://doi.org/10.3389/fcimb.2017.00032

Internal Publications (not peer-reviewed)

2016 **Platenkamp A.** Regulation of anaerobic respiration by PerC in Enteropathogenic *Escherichia coli*. Reed College E Theses. (Undergraduate Senior Thesis)

Peer-Reviewed Abstracts

2019 **Platenkamp A**, Detmar E, Sepulveda L, Ritz A, Rogers SL, and Applewhite DA. American Society for Cell Biology / European Molecular Biology Organization Annual Meeting (Washington D.C.). Poster.

2018 **Platenkamp A**, Detmar E, Sepulveda L, Ritz A, Rogers SL, and Applewhite DA. American Society for Cell Biology / European Molecular Biology Organization Annual Meeting (San Diego, CA). Poster.

2015 Mellies JL, **Platenkamp A,** Osborn J, Ben-Avi L. American Society for Microbiology NW Chapter Annual Meeting (Seattle, WA). Poster.

AWARDS

2015-16 Presidential Award for Excellence in Scholarship (Reed College)
2020-21 Robin M. Harris Award (UW Biology)

RESEARCH EXPERIENCE

Educational Positions

2021-22 Graduate Student, advisor: Jay Z. Parrish, Ph.D.

Nociceptive somatosensory neurons are crucial for proper sensing and response to harmful stimuli. The class IV dendritic arborization nociceptors that project from the ventral nerve cord of the brain in *Drosophila* larvae are wrapped along their axons and cell bodies by glia and at the epidermal layer where their afferents terminate, they are ensheathed by epidermal cells. Despite their proximity and some characterization of the development of sheaths and their molecular markers, our understanding of the molecular players involved is likely incomplete. What parallels can be drawn from the mechanisms and molecular moieties of glial wrapping to epidermal ensheathment? Further, epidermal topography (sheaths, epidermal cellular diversity, and patterning) provides structural features that have important influence on the morphology of C4da arborization. What unknown epidermal molecules important to these structures regulate C4da neuron arborization?

2021 Rotation Student, advisor: Clemens C. Cabernard, Ph.D.

At the end of embryogenesis and into early larval development, the neural stem cells that differentiate into neurons and glia, known as "neuroblasts" in *Drosophila,* enter a quiescent state in which they are not dividing. Neuroblasts undergo dramatic structural changes when they enter quiescence in which they generate a primary protrusion that is then lost again in reactivation, however the mechanism of the structural changes is largely unknown. To start asking questions about the structural remodeling of the cell, I dissected larval brains and performed immunostaining in an attempt to reliably identify quiescent populations of neuroblasts. Funds from the Robin M. Harris award facilitated this research and were used to be trained and operate a confocal microscope at the UW Biology Imaging Facility.

2021 Rotation Student, advisor: Leo Pallanck, Ph.D.

In an investigation of epistatic effects of effectors of the innate immune system on aging in the Parkinson's model Glucocerebrosidase deficiency in *Drosophila*. In this work, I studied the extent of aging markers on whole brain protein samples by evaluating the ubiquitination levels. Because Parkinson's disease affects normal motor neuron function and has been shown to be similarly affected in the fly Parkinson's model, it is helpful to have a robust behavioral assay on which to evaluate the fly's motor capabilities. I performed two behavioral assays and found a new measure to evaluate the fly's movement that can be developed further and used in epigenetic experiments in the future to tease out the molecular regulators of the progression of disease.

2020 Rotation Student, advisor: Jay Z. Parrish, Ph.D.

As a rotation student in the lab of Dr. Parrish, I investigated the spatial organization of class IV dendrite arborization neurons and epithelial cells in *Drosophila* larvae. In this project, I developed an

analysis technique for determining the distribution of dendrite branch points with relation to epithelial cell-cell junction apices in developing larvae. I imaged *Drosophila* class IV da neuron dendrite fields and their adjacent epithelium layer. I then used the ImageJ program Skeleton3D to find the XY coordinates of the dendrites and the vertices of the epithelium and wrote a R program that takes those XY coordinate pairs to determine the distances between them using the package Spatstat. This project allowed me to exercise experimental skills in confocal microscopy, work on gaining knowledge of image capture and analysis software including Leica software and ImageJ, and practice writing R code. Additionally, I took part in a weekly *Drosophila* genetics discussion group.

Academic Staff Positions

2018-20 Lab Manager, Reed College, Portland, OR, Employer/PI: Derek A. Applewhite, Ph.D.

For two years I worked closely with Dr. Applewhite and undergraduate researchers to investigate novel regulators of non-muscle myosin II in *Drosophila* cells by way of visualizing cytoskeletal and putative regulatory proteins by confocal and TIRF microscopy, utilizing ImageJ analysis pipelines, and employing a host of additional techniques such as RNAi knockdown, pulldowns, western blot analysis, and RT-qPCR. I introduced Gibson Assembly cloning to the lab and generated tens of constructs to facilitate research across multiple projects while managing lab resources.

2016-18 Research Associate, Reed College, Portland, OR, Employer/PI: Jay L. Mellies, Ph.D.

With Dr. Mellies and undergraduates, I researched the molecular mechanism of a virulence regulator in enteropathogenic *Escherichia coli* and provided technical and managerial support.

2015 Research Assistant, Reed College, Portland, OR, PI: Jay L. Mellies, Ph.D.

I investigated the genetic regulation of a virulence factor by RT-qPCR and phenotypes by growth assays in enteropathogenic *E. coli.*

TEACHING ASSISTANT EXPERIENCE

Teaching Assistant (UW Biology in Seattle, unless indicated)

2021 Molecular Genetics of Development (BIOL 413) Winter Quarter, Instructor: Dr. Jay Z. Parrish

2021 Introductory Biology (BIOL 180) Summer Quarter, Instructor: Dr. Jacob Cooper, Course Coordinator: John Parks

2020 Introductory Biology (BIOL 200) Fall Quarter, Instructors: Dr. Brian Buchwitz and Dr. Alison Crowe, Course Coordinator: Liz Warfield

2016 Microbiology (BIO 358) Reed College, Portland, OR, Instructor: Dr. Jay L. Mellies

Mentorship

2021 **Bryan Hariadi**, Undergraduate student, Current advisee (Continued co-work on mutant fly screen. Mentorship includes teaching about fly genetics and husbandry and fluorescence microscopy and development of own analyses).

2021 **Yan Ke**, Pharmacy PhD student, Summer quarter (Co-worked on a mutant fly screen for mutations that interrupt normal epidermal or C4da neuron dendrite morphogenesis where we established 460 mutant fly lines and imaged over 1000 larvae together over the summer quarter. Mentorship included teaching about fly genetics, fly husbandry, fluorescence microscopy, and molecular techniques).

2020 **Jordan Martel**, Post-bac volunteer, Fall quarter (Image analysis development for measuring the distribution of C4da dendrites in relation to epidermal cell-cell junctions).

INVITED LECTURES

2020 **Reed College**, Department of Biology (invited by Dr. Sarah Schaack): The *Drosophila melanogaster* Rab GAP RN-tre crosstalks with the Rho1 signaling pathway to regulate non-muscle myosin II localization and function.

RESEARCH

Primary Topics of Interest

- Neurobiology
- Cell and Molecular Biology

PROFESSIONAL SERVICE

Peer Review Assistance

2015-19 *Ad hoc*
Molecular Microbiology, PNAS USA, mBio, PLoS Pathogens, Cellular Microbiology, Journal of Bacteriology, Infection and Immunity, Applied and Environmental Microbiology, Journal of Microbiology & Biology Education, Journal of Clinical Microbiology, Zoonoses and Public Health, FEMS Microbiology Letters, BMC Microbiology

Professional Affiliations

2018-20 American Society for Cell Biology

DEPARTMENTAL SERVICE

2021-22 University of Washington Undergraduate Program Committee

2021 University of Washington Diversity and Equity Committee Member (Spring Quarter)
Mentoring, Networking, & Training - Portfolio of Trainings Subcommittee

2020 Reed College COVID Care Response (Staff Volunteer)

2019 Reed College Biology Journal Club (Staff Facilitator)

OUTREACH

2021 UW Science Explorers STEM tutor to Seattle Public Schools 4th and 5th graders

REFERENCES

Jay Z. Parrish (Advisor), Ph.D., Professor, Department of Biology, University of Washington, Seattle, WA 98195; jzp2@uw.edu

Clemens C. Cabernard (Spring 2021 rotation advisor), Ph.D., Associate Professor, Department of Biology, University of Washington, Seattle, WA 98195; ccabern@uw.edu

Leo Pallanck (Winter 2021 rotation advisor), Ph.D., Professor, Department of Genome Sciences, University of Washington, Seattle, WA 98195; pallanck@uw.edu

Derek A. Applewhite (Previous employer/PI), Ph.D., Associate Professor, Biology Department, Reed College, Portland, OR, 97202; applewhd@reed.edu

Jay L. Mellies (Previous employer/PI and undergraduate advisor), Ph.D., Professor, Biology Department, Reed College, Portland, OR, 97202; melliesj@reed.edu