

Anthony Junker

Ph.D.

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Experience

2021-Present

Gerardo lab- Emory University

I use insect and microbe interactions to study interaction strategies including both mutualism and parasitism.

Skills: Project management, hypothesis testing, microscopy, teaching/mentoring, collaboration, science communication

2015-2021

Pearson lab- University of Colorado

Conducted independent research on the structural organization of ciliary arrays in generating hydrodynamic flow.

Skills: Project management, hypothesis testing, microscopy, teaching/mentoring, collaboration, science communication

2011-2015

Wright lab- Chaminade University

Conducted independent research on the cellular and molecular basis of human pre-term birth.

Skills: Project management, hypothesis testing, cell culture, RT-qPCR, data processing, science communication

Areas of scientific expertise



Cell biology

-fundamental interactions & behaviors



Microscopy

-image analysis & optics



Ecology

-environmental interactions & networks



Problem solving

-hypothesis testing & reasoning



Developmental biology

-individual organism change over time



Molecular biology

-biochemical functions and interactions



Physiology

-physical transmission of information



Quantitative analysis

-observation and data interactions

Education

University of Colorado Denver
2015-2021

Degree: Ph.D.

Stem Cell and Developmental
Biology Program,

Defended thesis July 19th, 2021.

*The communication between the
environment and organisms through
structures and molecules at the
ciliated cell cortex*

<https://doi.org/10.25677/g6nn-aj05>

**Chaminade University of
Honolulu**

2011-2015

Degree: B.S.

Cell and Molecular Biology

GPA 3.9

Magna Cum laude - Outstanding
Student in Biology

**Home schooled, Matsumoto
Japan**

2000-2011

Degree: GED (GPA 3.3)

Additional courses:

Medical microbiology

Business & Marketing

Tourism & Guiding

Experience cont.

2011

Ground penetrating radar technician

-Nidon computers (Oahu, HI)
nidoncomputer.com

2001-2011

On-call assistant coach and Japanese translator

-Northstar Outdoor adventures (Matsumoto, Japan)
ridenorthstar.com

Publications

Junker, A. D., Woodhams, L., Soh, A.W.J., O'toole, E.T., Bayly, P.V., & Pearson, C. G. (2022) Basal bodies bend in response to ciliary beating. (In review)

Soh, A.W.J., Woodhams, L., **Junker, A. D.**, Enole C.M., Harned A., Noren B.E., Westlake C.J., Narayan K., Oakey J.S., Bayly P.V., Pearson C.G. (2022) Basal body connection promotes coordinated motile cilia behavior. *BioRxiv*

Junker, A. D., Jacobs, S., Philippe, H., Legrand, S., & Pearson, C. G. (2021) Plastic cell morphology changes during dispersal. *iScience*

Junker, A.D., Soh A.W.J., O'Toole E.T., Meehl J.B., Guha M., Winey M., Honts J.E., Gaertig J., Pearson C.G. (2019). Microtubule glycylation promotes attachment of basal bodies to the cell cortex. *J Cell Sci*

Sato, B. L., Collier, E. S., Vermudez, S. A., **Junker, A. D.**, & Kendal-Wright, C. E. (2016). Human amnion mesenchymal cells are pro-inflammatory when activated by the Toll-like receptor 2/6 ligand, macrophage-activating lipoprotein-2. *Placenta*

Bayless, B.A., Galati, D.F., **Junker, A.D.**, Backer, C.B., Gaertig, J., and Pearson, C.G. (2016). Asymmetrically localized proteins stabilize basal bodies against ciliary beating forces. *J Cell Bio*

Selected Presentations & Posters

Junker, A. D., Soh, A., O'toole, E.T., Woodhams, L., Bayly, P., & Pearson, C. G. (2020) The Dance of the basal bodies: basal bodies bend in response to ciliary beating. American Society for Cell Biology Conference 2020, Virtual meeting, Oral

Junker, A. D., Soh, A., Meehl, J.B., O'toole, E.T., Winey M., Honts, J., Gaertig, J., & Pearson, C.G. (2019) Microtubule Glycylation promotes attachment of basal bodies to the cell cortex. American Society for Cell Biology 2019, Washington DC, Poster

Junker, A. D., Soh, A., Honts, J., Gaertig, J., & Pearson, C. G. (2018) Microtubule glycylation promotes basal body anchoring. Front Range Cytoskeletal Meeting, Oral

Junker, A. D., Soh, A., Honts, J., Gaertig, J., & Pearson, C. G. (2017) Microtubule glycylation promotes basal body anchoring. American Society for Cell Biology 2017, Philadelphia, Poster

Junker, A. D., Bayless, B.A., and Pearson, C.G. (2016) Basal body resistance to ciliary force, CSD retreat 2016, Poster

Junker, A. D., Collier, E. and Kendal-Wright, C. (2015) Telomerase expression level in human amnion cells correlates with proliferative capacity in culture. Society for Gynecologic Investigation annual conference, Poster

Junker, A. D., Eric Collier, and Kendal-Wright, C. (2013) Human Amnion Epithelial and Mesenchymal Cells Express Telomerase, 2013 Western Regional IDeA Scientific Conference, Poster

Junker, A. D., and Kendal-Wright, C. (2012) Telomerase and Telomere Length as a Read out for Fetal Cell Proliferation, ABRCMS 2012 San Jose. Poster

Grants & awards

National Institutes of Health

NIH/NHLBI [2019 — 2021]

NIH F31: Ruth L. Kirschstein
Predoctoral Individual National
Research Service Award

American Society for Cell Biology
[2017 & 2019]

-COMPASS Outreach Award

Genetics Society of America
[2018]

-First place poster Award

Genetics Society of America [2018]

Ciliate Molecular Biology Conference
-Travel Award

American Chemical Society [2015]

-Chaminade Outstanding
Performance in Biochemistry Award

Chun-Hoon Family Biology
Scholarship [2013-2015]

The Endocrine Society Summer
Research Fellowship [2014]

Chaminade Presidential Scholarship
[2011-2015]

Teaching & mentoring

2022

Emory University — [Biol 342 teaching assistant]

Designed and gave lecture on observation and data analysis, assisted undergraduate students in laboratory work, hypothesis testing and project design for Spring 2022 Biol 342 (microbial ecology).

2016 — 2021

Pearson lab — [Lab research mentor]

Mentored students in research within the Pearson Lab for experimental design, cell & molecular biology, microscopy, data acquisition, and data presentation. Mentored total of 3 students for 3 separate semester periods, including 2 graduate students from the Anschutz Medical Campus and one undergraduate student from CU boulder.

2016 — 2020

University of Colorado, Aurora, CO — [Discussion leader]

Facilitated small group discussions based on primary literature for the cell biology block of the graduate biomedical sciences course.

2020

Rock Canyon High School — [Guest speaker]

Guest lectured virtually for the Science National Honors Society on science careers and research.

2016 — 2019

Cell Biology Day — [Outreach coordinator]

Developed curriculum and coordinated Cell Biology Day for Slaven's Middle School students in 2018 and 2019. Assisted in coordinating for 2016 and 2017.

2016 — 2019

Rock Canyon High School, Lone Tree, CO — [Research mentor]

Mentored high school students in their Biotechnology II course. Facilitated and guided hypothesis development, experimental design, and data analysis.

2019

Fort Lewis College, Durango, CO — [Guest speaker]

Presented on career development, graduate school, and my personal research project.

2018

Chaminade University of Honolulu — [Guest lecturer]

Guest lectured for science writing class using my personal research project as the foundation.

2015 — 2016

Young Hands in Science, Aurora, CO — [Workshop volunteer]

Provided introductory lectures and coordinated workshop experiments & discussions at multiple elementary schools in the Denver area.

2014 — 2015

Chaminade University of Honolulu — [Peer Leader]

Coordinated official study sessions, administered quizzes, and facilitated peerbased discussion for Organic Chemistry 1 & 2 and Cellular and Molecular Biology.

2013 — 2015

I am a Scientist Program, Honolulu, HI — [Workshop volunteer]

Provided introductory lectures and coordinated workshop experiments & discussions at multiple racially and socioeconomically diverse elementary schools across Oahu.

Self education

Online lecture series:

Understanding Complexity

By: Scott E. Page,
The Great Courses
(Economics & Complexity Theory)

Science Wars: What Scientists Know and How They Know It

By: Steven L. Goldman,
The Great Courses
(Science Philosophy)

The Origin and Evolution of Earth: From the Big Bang to the Future of Human Existence

By: Robert M. Hazen,
The Great Courses
(Biochemistry)

Selected readings:

The Second Kind of Impossible: The Extraordinary Quest for a New Form of Matter

By: Paul J. Steinhardt
(Physics & Chemistry)

Limitless Mind: Learn, Lead, and Live Without Barriers

By: Jo Boaler
(Education & Neuroscience)

A Thousand Brains: A New Theory of Intelligence

By: Jeff Hawkins
(Computation & Neuroscience)

Algorithms to Live By: The Computer Science of Human Decisions

By: Brian Christian, Tom Griffiths
(Computation)

What Is Life?: With Mind and Matter

By: Erwin Schrödinger
(Physics, Chemistry & Biology)

On the Origin of Species

By: Charles Darwin
(Biology)

Hobbies

Terrarium & aquarium building
Herpetology & Botany
Rock climbing

Software expertise

Microsoft

Word, PPT, Excel, Outlook, OneNote, OneDrive



Google

Docs, Gmail, Sheets, Calendar, Scholar



Fiji/ImageJ (Image analysis software)

Detailed knowledge of tools and capable of basic coding



Inkscape (vector graphics software)

Scientific figure and schematic building



Imod

Electron microscopy software



Grapad/Prism

Graphing software



BLAST (NCBI)

Online sequence alignment tool



Blender

3D computer graphics software



References

Dr. Nicole Gerardo (Postdoctoral advisor)

Professor, Emory University, Department Biology
scholarblogs.emory.edu/gerardolab/
404-574-3228
nicole.gerardo@emory.edu

Dr. Claire Kendal-Wright (Undergraduate advisor)

Associate Professor of Biology,
Chaminade University of Honolulu
claire.wright@chaminade.edu

Dr. Chad Pearson (Graduate advisor)

Associate Professor, University of Colorado
School of Medicine, Department of Cell and
Developmental Biology
thepearsonlab.com/index.html
303-724-3420
Chad.Pearson@ucdenver.edu