Adrian Henry Kwiatkowski

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EDUCATION

The University of Chicago — Chicago, IL

Bachelor of Arts, Biological Sciences*; Minor in Visual Arts — June 2024

*Specialization in Development, Regeneration, and Stem Cell Biology

GPA: 3.53/3.70 (CUM/Major)

Marine Biological Laboratory – *Spring Quarter in Biological Discovery* (Spring 2024)

Completed an intensive quarter of coursework and research in stem cells & regeneration, and biological imaging.

Mentor: *Karen Echeverri, PhD*

University of Chicago Center in Paris – *European Civilization Study Abroad Program* (Summer 2023)

Completed civilization studies sequence and French language coursework with cultural fieldwork at historic sites.

Awards and Honors:

UChicago Harper Award for Excellence — 2024

U.S. Presidential Scholar — 2019

The Gates Scholarship Recipient

Questbridge National College Match Recipient

National Merit Scholar

National Hispanic Scholar

RESEARCH EXPERIENCE

Icahn School of Medicine at Mount Sinai — New York, NY

Associate Researcher — July 2024 – Present

Advisor: *Michael Rendl, MD*

- Utilize two-photon excitation microscopy (TPEF) to study the cellular dynamics and lineage contributions of hair follicle dermal stem cells (hfDSCs) *in vivo* during physiological hair regeneration in murine skin.
- Present novel findings and updates to a team of research scientists in lab meetings.
- Facilitate an orderly lab environment by regularly restocking lab supplies and managing colonies of mice.
- Engage in weekly journal club meetings and literature reviews.

The University of Chicago — Chicago, IL

Genetics and Genomics Research Fellow — June – August 2021

Advisor: *Urs Schmidt-Ott, PhD*

- Explored the role of the maternal effect gene *Odd-paired* (*Opa)* in establishing anterior/posterior polarity in the developing fly embryo using advanced molecular biology techniques including ChIP-qPCR, in-situ hybridization, and confocal imaging.
- Identified novel targets of *Opa* and their enhancers in the common drain fly *Clogmia albipunctata* and presented findings at UChicago's Undergraduate Research Symposium at the end of the ten-week research experience.

Marine Biological Laboratory — Woods Hole, MA

Summer Undergraduate Research Fellow — June – August 2020

Advisor: *Duygu Özpolat, PhD*

- Identified the optimal conditions for the delivery of oligonucleotide morpholinos via electroporation in the marine annelid *Platynereis dumerilli* remotely using data and image analysis software (R and FIJI).

Arizona State University Biodesign Institute Tempe, AZ
Student Researcher 2018 – 2019
Advisor: *Rizal Hariadi, PhD*

- Designed a low-cost LEGO-based glycerol gradient mixer to purify DNA origami nanostructures from free-floating DNA strands through high-RPM centrifugation as part of the ASU SCENES program for high school students (1st place at the Arizona State Science Fair).

SKILLS AND INTERESTS

Interests: Stem cell biology, stem cell niche, biological imaging, regeneration, basement membrane, cell fate specification

Languages: Native Spanish speaker and conversational French

Wet Lab: DNA gel electrophoresis, next-generation DNA sequencing, western blot/SDS-PAGE, PCR, gateway cloning, primer design, bacterial transformation, micro-injecting, ChIP-qPCR, in-situ hybridization, and experience with multiple model organisms (Mice, Zebrafish, Nematostella, Planaria, Axolotls, *C. Elegans*, *Drosophila melanogaster* and other basal fly species).

Technical Languages: R, Python and JavaScript

Data Skills: High proficiency in supervised and unsupervised machine learning methods including k-nearest neighbor (KNN), linear regression, classification, resampling, principle component analysis (PCA), and multiple hypothesis testing.

LEADERSHIP & ACTIVITIES

Phoenix Biology Chicago, IL
Board Member 2021 – 2023

- Promoted the academic and professional careers of undergraduate students in the life sciences by organizing quarterly lecture series, research symposiums, and 'fireside' chats.
- Helped establish a peer-to-peer mentorship program designed to connect first-year students to experienced upperclassmen.

The Triple Helix @ UChicago Chicago, IL
Events Coordinator 2019 – 2020

- Organized quarterly events around campus aimed at supporting three flagship publications (*Scientia*, *Society in Review*, and *E-pub*) exploring the relationship between science & society.

TEACHING EXPERIENCE

Teaching Assistant, University of Chicago 2021
BIOS 21415 Stem Cells in Development and Diseases
Prof: Akira Imamoto, PhD

Laboratory Teaching Assistant, University of Chicago 2021
BIOS 20242 Principles of Physiology
Prof: John M. Kennedy, PhD

Virtual Teaching Assistant, University of Chicago 2020
CAAP* Biology
Prof: Katie Bailey, PhD
*CAAP is a year-long program that provides early exposure to scholarly life at the University of Chicago to incoming first-year students, many of whom are the first in their family to go to college or from lower-income backgrounds.

PRESENTATIONS

"*Tracing the lineage contributions of hair follicle dermal stem cells (hfDSCs) using intravital imaging*," ISMMS Multiphoton Microscopy Workshop, New York, New York, March 2025.

PUBLICATIONS

Ghuwalewala, S., Cao, J., Rezza, A., Rangl, M., **Kwiatkowski, A**., et al. *Molecular Signatures and Signaling Interactions of the Hair Follicle Stem Cell Niche.*
The Journal of Investigative Dermatology (**under review**, 2025).

Heitman, N., Sunkara, R., Martino, P., Srivastava, D., Adjei, I., **Kwiatkowski, A**., Rangl, M., et al. *Smooth-muscle contraction-triggered TGF-β mechanosignaling regulates tissue regression in the hair follicle stem cell niche.*
Nature Communications (**under review**, 2025).

RELEVANT COURSEWORK

Molecular Biology of the Cell
Biological Systems
Biological Dynamics
Principles of Physiology
Stem Cells in Development and Diseases
Stem Cell Biology, Regeneration, and Disease Modeling
Stem Cells and Regeneration: from aquatic research organisms to mammals
Dynamic Camouflage: Behavior, Visual Perception, and Neural Skin Patterning in Cephalopods
Honors General Chemistry I, II, III
Honors Organic Chemistry I
Organic Chemistry II
General Physics I, II
Bioethics
Introduction to Biochemistry
Statistical Methods and Applications
Introduction to Machine Learning for Biology
Introduction to Imaging for Biological Research

REFERENCES

Dr. Michael Rendl
Associate Professor*, ISMMS*
Cell, Developmental & Regenerative Biology; Dermatology
michael.rendl@mssm.edu
Relationship: Academic

Dr. Karen Echeverri
Associate Scientist*, MBL*
Eugene Bell Center for Regenerative Biology and Tissue Engineering
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Relationship: Academic/Research Mentor

Scott Wolniak
Instructional Professor*, University of Chicago*
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Relationship: Academic/Professional

Dr. Akira Imamoto
Associate Professor*, University of Chicago*
Ben May Department of Cancer Research
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Relationship: Academic