AMY GILL

I aim to improve understanding of cell signaling networks using mechanistic computational modeling, and integrate insights from single-cell RNA sequencing into mechanistic models of molecular networks, and advance personalized cancer therapy with data-driven systems biology.

🎓 EDUCATION

Ph.D., Biomedical Engineering (in progress)
Johns Hopkins University
📍 Baltimore, MD
present | 2020

M.A.T., Secondary Education – Biology
National-Louis University
📍 Chicago, IL
2016 | 2015

M.S., Cancer Biology
University of Chicago
📍 Chicago, IL
2015 | 2011

B.A., Biological Sciences, Chemistry
University of Chicago
📍 Chicago, IL
2011 | 2007

🧪 RESEARCH EXPERIENCE

Graduate Research Assistant
Johns Hopkins University
📍 Baltimore, MD
present | 2020

- Developing mechanistic computational models of cell signaling networks in heterogeneous tissues in the Mac Gabhann laboratory.
- Modeling protein trafficking and secretion of the soluble VEGF receptor isoform sFLT1 in endothelial cells.

Pathology Research Technician
Dana-Farber Cancer Institute
📍 Boston, MA
2019 | 2017

- Developed and analyzed custom mouse models of chronic lymphocytic leukemia (CLL) in the Wu laboratory.
- Produced high-titer CRISPR-Cas9 lentivirus. Purified and transduced hematopoietic stem cells for transplant into immunodeficient mice.
- Developed and executed flow cytometry protocols to classify B cell lineages, track CLL progression, enrich for HSCs, and distinguish donor and recipient cells va the CD45 system.

Research Technician
University of Chicago
📍 Chicago, IL
2017 | 2016

- Studied zebrafish development to investigate the homology between fish fins and tetrapod digits in the Shubin lab.
- Performed summer and weekend (part-time) zebrafish husbandry and genotyping of CRISPR-generated Hoxa13a/Hoxa13b double mutant fish.

CONTACT

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in linkedin.com/in/amy-gill-29693244/

SKILLS

💻 **Programming**: R, Bioconductor, Matlab, Python, GitHub, HTML

⚗ **Laboratory**: Cell culture, western blot, genotyping, qRT-PCR, primer design, flow cytometry, transfection, lentivirus production, mouse husbandry, zebrafish husbandry

💡 **Other**: Science teaching, science writing, data analysis, data visualization, statistics, machine learning, experimental design

CREDENTIALS

📈 HarvardX Data Science Professional Certificate
📇 Professional Educator License (IL): Secondary Biology, Secondary Chemistry

Made with the R package pagedown.

The source code is available at github.com/gillsignals/cv.

See the full version of this CV with links at amygill.net/cv.

Last updated on 2024-03-10.

2014 | 2011

Graduate Research Assistant

University of Chicago

📍 Chicago, IL

- Investigated the role of Blimp1 (PRDM1) in radiogenic stress response to analyze its role in protection from radiogenic breast cancer in the Onel/Cunningham lab.
- Demonstrated that Blimp1 primary transcript, mRNA and protein expression increase after IR exposure; designed Blimp1 shRNAs and inducible overexpression vectors and transduced cell lines.
- Performed proteomic analysis of cytarabine chemotherapy response in lymphoblastoid cells using microwestern arrays (MWAs) in the Jones lab.

2011 | 2007

Undergraduate Researcher

University of Chicago

📍 Chicago, IL

- Studied the cellular uptake of VO(acac)2 to analyze its application as a contrast agent in PET scans in the Makinen lab. Demonstrated that VO(acac)2 enters the cell via the reduced folate carrier (RFC) protein using Western blots and RFC inhibitors.
- Analyzed epigenetic differences in high-risk versus low-risk neuroblastoma cell lines and tumors with bisulfite sequencing in the Cohn lab.

🖥 TEACHING EXPERIENCE

2022 | 2021

Content Developer and Lead Teaching Assistant

Johns Hopkins University

📍 Baltimore, MD

- Coordinated curriculum design, created all assignments, and built online content for a comprehensive update to the School of Medicine's required graduate ethics course, Introduction to Responsible Conduct of Research.
- Remotely managed student questions and grading for over 100 PhD students and supervised a team of four in-person TAs and graders for the course's initial run in Fall 2022.

2022

Teaching Assistant

Johns Hopkins University

📍 Baltimore, MD

- Helped run the upper-level undergraduate Systems Pharmacology course on computational modeling of drug activity in spring 2022.
- Graded assignments, fielded student questions, held office hours, and tutored struggling students 1:1.
- Was named Distinguished Teaching Assistant in Biomedical Engineering (October 2022).

2020 | 2019

Lead Content Developer, Data Science Professional Program

HarvardX

📍 Cambridge, MA

- Maintained, revised and expanded online content for the Data Science Professional Certificate and Genomics Data Analysis MOOC series from HarvardX on edX, including dozens of new coding exercises based on case studies.
- Added a variety of new data sets to the dslabs package for teaching data science in R, comprehensively edited the Introduction to Data Science textbook, and am co-authoring the textbook solution guide.

Science Lab Coordinator

2017 | 2016

Adlai E. Stevenson High School

📍 Lincolnshire, IL

- Prepared laboratory chemicals and materials, tested and improved protocols, and maintained laboratory equipment for 49 high school science teachers with 4000+ students.
- Updated labs to incorporate modern scientific techniques, probeware, and inquiry-based principles into the high school curriculum.
- Tutored homebound students for biology, chemistry, and anatomy/physiology and offered private science tutoring.

Science REACH Co-sponsor and WYSE/TEAMS Sponsor

2017 | 2016

Adlai E. Stevenson High School

📍 Lincolnshire, IL

- Helped ~80 students design, perform and present research projects for Illinois Junior Academy of Sciences and national science fairs.
- Sponsored ~70 students in training for STEM competitions, guiding students to top 5 WYSE state (WYSE) and top 10 TEAMS national performances.

Biology Student Teacher

2016

Conant High School

📍 Hoffman Estates, IL

- Instructed ~140 grade 9 students in 3 sections of honors biology and 2 sections of general biology.
- Promoted accessible student-centered learning with labs, activities and engaging technology for multiple learning styles.

Teaching Assistant

2014 | 2009

University of Chicago

📍 Chicago, IL

- Assisted with numerous undergraduate and 1st year PhD graduate courses.
- Prepared and taught weekly review sessions and exam preparation sessions, helped write exams, graded assignments and exams, fielded student questions, held office hours, and tutored students 1:1.
- Courses: Endocrinology/Cell Signaling (4x), Biological Systems, Protein Fundamentals, and Cancer Biology Grant Writing

📖 PEER-REVIEWED PUBLICATIONS

2024

A defined clathrin-mediated trafficking pathway regulates sFLT1/VEGFR1 secretion from endothelial cells.

Kinghorn K et al., Angiogenesis 27(1): 67-89. PMID 37695358.

2018

Splicing modulation sensitizes chronic lymphocytic leukemia cells to venetoclax by remodeling mitochondrial apoptotic dependencies

Ten Hacken E et al., JCI Insight 3(19). PMID 30282833.

2017

Identification of Novel Protein Expression Changes Following Cisplatin Treatment and Application to Combination Therapy

Stark AL et al. Journal of Proteome Research, 16(11): 4227-4236. PMID 28902521.

2012

Truncated DNMT3B isoform DNMT3B7 suppresses growth, induces differentiation, and alters DNA methylation in human neuroblastoma.

Ostler KR et al. Cancer Research 72(18): 4714-23.

📊 POSTERS AND PRESENTATIONS

2023 ● **Mechanistic computational modeling of sFLT1 secretion in endothelial cells.**
Poster, Biomedical Engineering Society (BMES) Annual Meeting
📍 Seattle, WA

2014 ● **The role of PRDM1 in protection against radiogenic breast cancer.**
Oral presentation, Dept. Pediatric Hem/Onc.
📍 University of Chicago

2014 ● **The role of Blimp1 in protection against ionizing radiation in breast cells.**
Poster, Biomedical Sciences Retreat
📍 University of Chicago

2013 ● **Systems analysis of cytarabine response and resistance in hematopoietic cells.**
Poster, Biomedical Sciences Retreat
📍 University of Chicago