

Hannah J. Richter, Ph.D.

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WORK

University of Colorado, Colorado Springs, Colorado Springs, CO Aug. 2026–Present
Assistant Professor, Dept. of Chemistry & Biochemistry

The Gladstone Institutes, San Francisco, CA Sept. 2022–Aug. 2026
Bioinformatics Postdoctoral Fellow with Dr. Vijay Ramani

- Working on multiple collaborative projects utilizing cutting-edge footprinting techniques to investigate chromatin organization across multiple diseases, cell types, and *in vitro* systems

University of San Francisco, San Francisco, CA Fall 2024
Part-time Faculty in Chemistry

- Instructor of record for Fundamentals of Biochemistry (CHEM 356/BIOL 357), a lecture course of eighteen students, primarily junior and senior biology majors
- Re-worked existing course materials with a focus on active learning and modern methods in biochemistry research, and introduced guest lectures from local scientists for each unit
- From course evaluation*: “[Dr. Richter] expanded my knowledge of what is included in the field of biochemistry, as well as the practical applications of the subject in the lab and medical fields.”

EDUCATION

University of Pennsylvania Philadelphia, PA August 2022
Ph.D. in Biochemistry & Molecular Biophysics with Dr. Mitch Lazar

- Certificate in College and University Teaching

Beloit College Beloit, WI May 2015
B.S. in Biochemistry and Philosophy, *magna cum laude*

- Research internship, summer 2014, with Dr. Gareth Howell at The Jackson Laboratory
- Research internship, summer 2012, with Dr. John Disterhoft at Northwestern University

MANUSCRIPTS

*These authors contributed equally to this work

In revision

- *Eckhardt, B., ***Richter, H.J.**, Rondeel, I., Renduchintala, K., Mattioli, F., Ramani, V. (submitted Sept. 2025) The eukaryotic replisome intrinsically generates asymmetric daughter chromatin fibers. **bioRxiv**, <https://www.biorxiv.org/content/10.1101/2025.09.18.677126v1>
- Frater, R.C.M.K., Jensen, R.R., López, J.O., Flury, V., van den Berg, J., Bournonville, A., Alcaraz, N., Wang, S., **Richter, H.J.**, [...] Ramani, V., Krietenstein, N., Groth, A. (submitted Oct. 2025) Unified function of FACT in mammalian chromatin replication and transcription, dissolving and restoring nucleosomes to counteract genome aggregation. <https://www.biorxiv.org/content/10.64898/2026.02.25.707725v1>
- Karavaeva, I., Linde Basse, A., Trammell, S.A.J., Faiz Hussain, M., Kruse Markussen, L., Havelund, J.F., Isidor, M.S., **Richter, H.J.**, [...] Lazar, M.A., Gerhart-Hines, Z. (submitted June 2025) Mitochondrial carrier SLC25a34 links clock, diet, and temperature control of interorganellar lipid cycling. <https://www.biorxiv.org/content/10.64898/2026.05.30.724257v1>

PUBLICATIONS

Postdoctoral work

- *Yang, M.G., ***Richter, H.J.**, *Wang, S., [...] Goodarzi, H., Ramani, V. (2026) Pervasive and programmed nucleosome distortion on single chromatin fibres. **Nature** 654, 513–522.

Graduate work

- Inoue, S., Emmett, M.J., Lim H.-W., Midha, M., **Richter, H.J.**, Celwyn, I.J., Mehmood, R., Chondronikola, M., Klein, S., Hauck, A.K., Lazar, M.A. (2024) Short-term cold exposure induces persistent epigenomic memory in brown fat. **Cell Metabolism** 36, 1–15.
- **Richter, H.J.**, Hauck, A.K., Batmanov, K., Inoue, S., So, B.N., Kim, M., Emmett, M.J., Cohen, R.N., and Lazar, M.A. (2022). Balanced control of thermogenesis by nuclear receptor corepressors in brown adipose tissue. **PNAS** 119, e2205276119.
- *Hu, W., *Jiang, C., Kim, M., Xiao, Y., **Richter, H.J.**, Guan, D., Zhu, K., Krusen, B.M., Roberts, A.N., Miller, J., et al. (2022). Isoform-specific functions of PPAR γ in gene regulation and metabolism. **Genes & Devel** 36, 300–312.
- Adlanmerini, M., Carpenter, B.J., Remsberg, J.R., Aubert, Y., Peed, L.C., **Richter, H.J.**, and Lazar, M.A. (2019). Circadian lipid synthesis in brown fat maintains murine body temperature during chronic cold. **PNAS** 116, 18691–18699.
- *Emmett, M.J., *Lim, H.-W., Jager, J., **Richter, H.J.**, Adlanmerini, M., Peed, L.C., Briggs, E.R., Steger, D.J., Ma, T., Sims, C.A., et al. (2017). Histone Deacetylase 3 Prepares Brown Adipose Tissue For Acute Thermogenic Challenge. **Nature** 546, 544–548.

Undergraduate work

- Soto, I., Graham, L.C., **Richter, H.J.**, Simeone, S.N., Radell, J.E., Grabowska, W., Funkhouser, W.K., Howell, M.C., and Howell, G.R. (2015). APOE Stabilization by Exercise Prevents Aging Neurovascular Dysfunction and Complement Induction. **PLOS Biology** 13, e1002279.
- Simkin, D., Hattori, S., Ybarra, N., Musial, T.F., Buss, E.W., **Richter, H.**, Oh, M.M., Nicholson, D.A., and Disterhoft, J.F. (2015). Aging-Related Hyperexcitability in CA3 Pyramidal Neurons Is Mediated by Enhanced A-Type K⁺ Channel Function and Expression. **J. Neuroscience** 35, 13206–13218.

Beloit College internal peer-reviewed publications

- **Richter, H.J.** "Mechanism by which Statin Use Lowers Alzheimer's Disease Risk Still Unknown." (2015) *Beloit Biologist*. Vol. 34: 30-34.
- **Richter, H.J.** "Panprotopsyism: A Theory of Consciousness Worth Consideration." (2015) *Beloit Undergraduate Research Journal*. Vol. 2: 49-54.
- **Richter, H.J.** "Chloroform and Queen Victoria: A Tale of Two Men and Their Methods." (2014) *Beloit Undergraduate Research Journal*. Vol. 1: 44-50.

ADDITIONAL TEACHING EXPERIENCE

University of San Francisco, San Francisco, CA

Guest Lecturer & Course Developer

Spring 2024

- Molecular Mechanisms behind Health and Disease (CHEM 386/BIOL 420): helped design a multi-unit upper division course with a small group of postdocs, graduate students, and faculty
- Prepared learning goals, exam questions, lecture slides, active learning activities, and a primary literature worksheet and discussion for three class sessions centered on protein folding
- Led a small group of students to read and understand multiple primary scientific articles
- *From course evaluation*: "The paper discussions in conjunction with the lecture material made for a new level of understanding along with connection to the scientific world."

University of Pennsylvania, Philadelphia, PA

Teaching Assistant

Fall 2021

- Cell Biology (BIOL 205): Prepared and held weekly recitation sessions to review lecture material, ran a weekly office hour, collaboratively designed exam questions, and graded exams

Teaching Assistant

Fall 2018

- Epigenetics (BIOL 483): Facilitated active learning activities in class, helped develop assessments for active learning, graded assignments and exams, gave lecture on histone modifications, ran weekly office hours, and presented two review sessions

Beloit College, Beloit, WI

Course Assistant

Fall 2014

- Introduction to Genetics (BIOL 289): Helped students learn genetics concepts, assisted student lab groups in performing experiments, and graded weekly quizzes
Teaching Assistant Fall 2014
- Logic (PHIL 100): Helped students develop better logical skills in philosophy, gave lecture on fallacies, graded homework, assisted in test writing and grading, and helped plan class activities
Peer Tutor January 2013–May 2015
- Organic Chemistry I & II (CHEM 230/5) and Analytical Chemistry (CHEM 220): Helped students learn chemistry concepts and develop good study & test skills by practicing problems together on the whiteboard and re-explaining course material in new ways

MENTORING EXPERIENCE

UCSF Graduate Rotation Student: N. Gupta Spring 2025

- Project: Improving pipeline workflow across multiple processing steps and neural networks
 - Skills: Python and bash for bioinformatic processing of long-read sequencing data
- Current position:* Graduate student at UCSF

Beloit College Undergraduate Summer Intern: S. Ulaszek Summer 2024

- Project: Understanding cell death induced by loss of a chromatin remodeler in differentiation
 - Skills: Cell culture, cell differentiation, RT-qPCR, Western blot, plate-based vitality assay
- Current position:* Beloit College, Class of 2026, Major in biochemistry

Gladstone PUMAS Intern: W. Contreras Summer 2024

- Project: Investigating chromatin states at transcription factor binding sites across differentiation
 - Skills: Python, R, and bash for bioinformatic integration of short and long-read sequencing data
- Current position:* UC Santa Barbara, Class of 2027, Major in computer science

CCSF Biotechnology Program Intern: B. Mendoza Spring 2024

- Project: Exploring the functions of two transcription factors in *in vitro* chromatin organization
 - Skills: PCR, bacterial cloning, assisted in protein purification
- Current position:* Completing Associate degree in biotechnology

CIRM-UCSF High School Intern: Y. Chouadra Summer 2023

- Project: Testing the role of a major chromatin remodeler in development of brown adipocytes
 - Skills: Cell culture, cell differentiation, assisted with Western blot and RT-qPCR
- Current position:* UC Berkeley Class of 2029, Majors in neuroscience and business

USF Undergraduate Summer Intern: S.D. Caoile January & Summer 2023

- Project: Using CRISPR in cell culture to introduce an endogenous protein tag
 - Skills: CRISPR design, immortalized cell culture, PCR, and cloning
- Current position:* Completing Master's degree in biotechnology

CCSF Biotechnology Program Intern: M. Weinans Spring 2023

- Project: Performing multi-stage iPSC differentiation towards dermomyotome
 - Skills: iPSC culture, iPSC differentiation, design and execution of RT-qPCR
- Current position:* Completed Associate degree in biotechnology

Penn Undergraduate Student: B.N. So May 2019–August 2021

- Project: Determining the effect of genetic knockouts on lipogenesis in brown adipose tissue
 - Skills: RNA extraction from tissue, RT-qPCR, analysis of RNA-sequencing data
 - Co-author on publication for experimental and analysis contributions
- Current position:* Student at Harvard Medical School

Penn Graduate Rotation Student: C.D. Holman Winter 2019

- Project: Using siRNA in cell culture to replicate key data from genetic mouse models
 - Skills: Mouse handling, primary and immortalized cell culture, siRNA, RT-qPCR, Western blot
- Current position:* Technical Director of the Penn Rodent Metabolic Phenotyping Center

PEDOGOGICAL TRAINING

University of San Francisco, San Francisco, CA

SEPAL Scientific Teaching Summer Institute

August 2024

- Attended a three-day workshop on strategies surrounding assessment, inclusion, active learning, and lesson planning to support innovative undergraduate STEM teaching and learning

University of California, San Francisco, San Francisco, CA

Classroom Management Workshop

December 2023

- Participated in a four-hour workshop focused on classroom engagement and management

Inclusive Research Mentor-Manager Training

Fall 2022

- Completed an eight-module course covering DEI-aware communication and hiring practices

University of Pennsylvania, Philadelphia, PA

Certificate in College and University Teaching

Spring 2022

- Certification included attending over ten short workshops on inclusive and evidence-based teaching, receiving an in-person teaching evaluation, and writing a teaching statement

Teaching Assistant Training in Active Learning

Fall 2018

- Attended a two-day pre-course workshop to practice active learning techniques with fellow TAs

SELECTED PRESENTATIONS

American Society for Biochemistry & Molecular Biology Annual Meeting, Chicago, IL

April 2025

- Emerging investigator talk & spotlight talk: "Symmetry breaking in chromatin fiber replication revealed by single-molecule footprinting of reconstituted reactions"

The Gladstone Institutes, San Francisco, CA

National Student Leadership Conference, three visits

2023–2025

- Talk: "Untangling a Bowl of Spaghetti: How DNA Sequencing Reveals Genome Organization"

Tools & Techs RIPS, Institute of Data Science and Biotechnology

November 2023

- Talk: "SAMOSA *in vitro*: new insights into transcription"

Galileo Academy of Science and Technology, San Francisco, CA

High School Science Club Guest Speaker

January 2024

- Presentation: "Answering fundamental questions in biology at the bench and on my laptop"

Genome Architecture in Cell Fate and Disease, Ventura, CA

June 2023

- GRS short talk, poster preview talk, & poster: "Visualizing the chromatin landscape of differentiation at single-fiber resolution"

UCSF-USF Seminar Series, San Francisco, CA

October 2022

- Seminar: "Regulation of metabolism and development by nuclear hormone receptors"

University of Pennsylvania, Philadelphia, PA

Dr. George W. Raiziss 37th Annual Retreat

December 2021

- Short talk: "Going to BAT for nuclear receptor corepressors"

FEBS Epigenomics, Nuclear Receptors and Disease, Spetses, Greece

August 2019

- Short talk & poster: "Deciphering the roles of nuclear receptor corepressors in thermogenic adipose tissue"

AWARDS & GRANTS

Gladstone Institutes Career Advancement Award (\$1500)

January 2025

3rd Best Biochemistry Poster Award, Dr. George W. Raiziss Annual Retreat

December 2019

FEBS Youth Travel Fund (\$1200)

August 2019

Barbara & Jeffrey Bartlett Prize in Philosophy

May 2015

John H. Nair Award in Chemistry

May 2015

Mortar Board Senior Honor Society

2014–2015

Swimming & Diving Coach's Award

April 2013

Chapin Presidential Scholar

2011–2015

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COMMUNITY OUTREACH

UCSF PROPEL Scholars Program, San Francisco, CA

MCAT Bootcamp Instructor

February 2025

- Prepared and led two 1hr Zoom review sessions for 10-12 post-baccalaureate research fellows on the essentials of carbohydrate metabolism to prepare for success on the MCAT

UCSF High School Intern Program, San Francisco, CA

Scientific Communication Workshop Volunteer

Summer 2024

- Designed and led two 1.5hr interactive sessions for 28 local high school interns on reading scientific papers and making and giving a scientific presentation

City College of San Francisco, San Francisco, CA

Biotechnology Program Career Advisor

Fall 2022–Spring 2024

- Provided mock interviews, resume feedback, and networking advice to >20 students

Upward Bound Math & Science, Philadelphia, PA

Lab Instructor

July 2017-2019

- Ran lab sections on either dissection or biochemistry for 10-20 local high school students

PGWISE & Refugee Health Partners Science Carnival, Philadelphia, PA

Food Science Lab Instructor

July 2016-2018

- Ran one day of slime or ice cream-making labs for immigrant elementary school students

Girls and Women in Science, Beloit, WI

Lab Assistant and Lab Lead

April 2012-2014

- Assisted with and then led a day of lab activities, including chemical sparklers, strawberry DNA extraction, and microscopy, for local fifth grade girls interested in science

SERVICE & EXTRACURRICULARS

American Society for Biochemistry and Molecular Biology (ASBMB)

Member

2019–current

The Gladstone Institutes, San Francisco, CA

Mentoring Committee, member

Dec. 2023–Feb. 2026

Postdoc Association, leading member

Feb. 2023–Sept. 2025

- Co-organized National Postdoc Appreciation Week events, Sept. 2024

PUMAS Internship Program, app. reviewer and interviewer

April 2023–2024

University of Pennsylvania, Philadelphia, PA

BMB New Student Mentor & Student Representative

Aug. 2016–May 2022

- Mentored first year students for two years and served as representative for cohort to the graduate group administration until graduation

Penn Immunology Graduate Group Review Committee

Sept. 2018–Feb. 2019

- Sole student member on team, performed holistic review of graduate program performance

Women's Club Rugby Team, member

Sept. 2016–Dec. 2017

Beloit College, Beloit, WI

Academic Senate: Class of '15 Student Representative

Sept. 2014–May 2015

- Curriculum Oversight and Administration Committee, member

Swimming & Diving Team (NCAA Division III)

Oct. 2011–Feb. 2015

Orientation Leader for Incoming Students

Fall 2012, Fall 2014

Student Congress: Treasurer, Funding Board Director

Aug. 2012–Dec. 2014

ADDITIONAL INTERESTS

Research Ethics, Philosophy of Science, Personal Finance, Spanish (beginner), Swimming, Reading