

Current Position

- 2021–Present **Damon Runyon Postdoctoral Fellow, University of California, Berkeley**
Advisors: Eva Nogales, Ph.D. & Kathleen Collins, Ph.D.
Topic: Mechanism of LINE-1 retrotransposon mobility in the human genome and development of programmable gene therapy platforms

Education

- 2014–2020 **Ph.D., Princeton University, Chemical and Biological Engineering**
American Heart Association & Charlotte Elizabeth Procter Graduate Fellow
Advisors: Sabine Petry, Ph.D. & Howard A. Stone, Ph.D.
Thesis: Design principles of microtubule nucleation and mitotic spindle assembly
- 2019 **Visiting Research Scholar**
Department of Bioengineering, UC Berkeley
Mentor: Daniel A. Fletcher, Ph.D., D.Phil
- 2014–2016 **M.A., Princeton University**
Chemical and Biological Engineering, GPA 4.0/4.0
- 2010–2014 **B. Tech., Indian Institute of Technology Bombay, India**
Chemical Engineering and Computer Science, GPA 9.96/10
Institute Silver Medalist

Funding and Awards

Post-doctoral

- 2025–2026 Damon Runyon Dale F. Frey Award [flexible funding of 100,000\$ for my independent lab]
- 2021–2025 Damon Runyon Cancer Research Postdoctoral Fellowship [272,000\$] [[press](#)]
- 2024 MIT Technology Review 35 Under 35 Innovators *Asia Pacific* [[press](#)]
- 2024 STAT Wunderkind [[press](#)]
- 2024 Rockefeller Exceptional Scholar, The Rockefeller University
- 2024 Eddie Méndez Award, Fred Hutchinson Cancer Center
- 2024 Emerging Leader, Memorial Sloan Kettering Cancer Center
- 2024 Rising Star Award, Salk Institute for Biological Sciences
- 2024 MCB Outstanding Postdoc Award, UC Berkeley
- 2023 HHMI Leading Edge Fellow
- 2023 UC President's Fellow, Lindau Nobel Laureate Meeting in Physiology & Medicine [[press](#)]
- 2023 Best Talk Award, Bay Area RNA Club, UCSF
- 2021 Life Sciences Research Foundation Postdoctoral Fellowship (*withdrawn*)

Graduate

- 2020 Harold M Weintraub Graduate Student Award, Fred Hutch Center [[press](#)] [[news](#)]
- 2019–2020 Charlotte E Procter Honorific Fellowship, Princeton University [42,000\$] [[press](#)]
- 2017–2019 American Heart Association Predoctoral Fellowship [54,000\$] [[press](#)]
- 2014–2019 Francis Upton Graduate Fellowship, Princeton University [20,000\$ supplement]
- 2017, 2019 William Schowalter Travel Award, Princeton University
- 2018 Physiology Post-course Research Grant, Marine Biological Laboratory
- 2017 Kristine M Layn Award, Princeton University

- 2017 Art of Science Exhibition Awardee, Princeton University [\[video\]](#)
- 2017 EMBO Travel Grant
- 2016 SABIC Graduate Student Award, Princeton University [\[press\]](#)
- 2016 Teaching Award, Princeton University

Undergraduate

- 2014 Institute Silver Medal, Indian Institute of Technology Bombay, India
- 2014 Chandrashekhar Women Engineer Award, IIT Bombay
- 2014 Industry-Academia Interface Scholarship, Oil and Natural Gas Corporation
- 2013 Shri Rakesh Mathur Excellence Award, IIT Bombay
- 2011 Undergraduate Research Award, IIT Bombay

Publications

Total # citations = 609. Published Work = 13 (8 first-author papers). Upcoming publications = 1.

Thawani A[#], Florez-Ariza AJ, Nogales E, Collins K. Template and target site recognition by human LINE-1 in retrotransposition. *Nature*, 2024. [\[link\]](#) (#co-corresponding author)

[News and Views](#) in *Nature*

[Spotlight](#) in *Trends in Cancer*

[Press Release](#) by UC Berkeley

Thawani A^{#*}, Rodrigues-Vargas AJ^{*}, Treeck BV, Hassan NT, Aledson D, Nogales E, Collins K. Structures of vertebrate R2 retrotransposon complexes during target-primed reverse transcription and after second strand nicking. *Under review*. *bioRxiv*, 2024. [\[link\]](#) (#co-corresponding author, *co-first authors)

Perez-Beroldi JM, Zhao Y, **Thawani A**, Yildiz A, Nogales E. Molecular interplay between HURP and Kif18A in mitotic spindle regulation. *Nature Communications*, 2024. [\[link\]](#)

Cammarata G, Erdogan B, ... **Thawani A**, ... Lowery LA. The TOG5 domain of CKAP5 is required to interact with F-actin and promote microtubule advancement in neurons. *Molecular Biology of the Cell*, 2024. [\[link\]](#)

Thawani A, Petry S. Molecular insight into how the γ -Tubulin Ring Complex makes microtubules. *Journal of Cell Science*, 2021 [Invited Review, [link](#)]

Thawani A, Rale MJ, Coudray N, Bhabha G, Shaevitz JW, Stone HA, Petry S. The transition state and regulation of γ -TuRC-mediated microtubule nucleation revealed by single molecule microscopy. *eLife*, 2020 [\[link\]](#)

Alfaro-Aco R, **Thawani A**, Petry S. Biochemical reconstitution of branching microtubule nucleation. *eLife*, 2020 [\[link\]](#)

Thawani A, Stone HA, Shaevitz JW, Petry S. Spatiotemporal organization of branched microtubule networks. *eLife*, 2019 [\[link\]](#)

[Press Release](#) by Princeton University

[Press article](#) in *Scientific American*

[NSF news](#)

Thawani A^{*}, Kadzik RS^{*}, Petry S. XMAP215 is a microtubule nucleation factor that functions synergistically with the gamma-tubulin ring complex. *Nature Cell Biology*, 2018 [\[link\]](#) (*co-first authors)

[Cover](#) in *Nature Cell Biology*

[News and Views](#) in *Nature Cell Biology*

[Faculty 1000](#) recommendation

[Press Release](#) by Princeton University

Song JG, King MR, Zhang R, Kadzik RS, **Thawani A**, Petry S. Mechanism of how Augmin directly targets the γ -tubulin ring complex to microtubules. Journal of Cell Biology, 2018 [\[link\]](#)

Alfaro-Aco R, **Thawani A**, Petry S. Structural analysis of the role of TPX2 in branching microtubule nucleation. Journal of Cell Biology, 2017 [\[link\]](#)
[Cover](#) in Journal of Cell Biology

Thawani A, Tirumkudulu MS. Trajectory of a Model Bacterium. Journal of Fluid Mechanics, 2018 [\[link\]](#)

Thawani A, Rajeev R, Sunoj RB. On the Mechanism of the Dehydroaromatization of Hexane to Benzene by an Iridium Pincer Catalyst. Chemistry, 2013 [\[link\]](#)

Upcoming Publications

Thawani A[#], Collins K, Nogales E. Structures of human LINE-1 and related non-LTR retrotransposons during mobilization. Current Opinion in Structural Biology, [*Invited Review, expected submission December 2024*] (#corresponding author)

Intellectual Property

Manipulation of LINE-1 ORF2p and template RNA for addition of DNA to a genome. Inventors: Collins K, **Thawani A**, Florez-Ariza AJ, McIntyre JM, Nogales E. *Provisional application filed*

Advanced Research Training

Summer 2018 **Physiology course**
Marine Biological Laboratory, Woods Hole, MA

Fall 2015 **Optical Microscopy and Computational Image Analysis courses**
Marine Biological Laboratory, Woods Hole, MA

Invited Talks

Biochemistry and Molecular Biophysics, Columbia University	2024
Institute of Molecular Pathology (IMP), Vienna, Austria	2024
Damon Runyon Annual Fellows Retreat, Southbridge MA	2024
Eddie Méndez Award Symposium, Fred Hutch, Seattle WA	2024
MERIT Workshop, Memorial Sloan Kettering Cancer Center, New York	2024
Gordon Research Seminar on 3D Electron Microscopy, Barcelona, Spain	2024
Rockefeller University Exceptional Scholars Workshop, New York NY	2024
International Congress of Transposable Elements, Saint-Malo, France	2024
RNA Microsymposium, IMP Vienna, Austria	2024
Rising Star Postdoc Symposium, Salk Institute for Biological Sciences, CA	2024
MCB Postdoc Research Showcase, UC Berkeley, CA	2024
Biophysics Graduate Seminar, UC Davis, CA	2024
Bay Area Chromatin Club meeting, Berkeley, CA	2024
Bay Area RNA Club Annual meeting, UCSF, San Francisco, CA	2023
Department of Molecular Genetics, Ohio State University, Columbus OH	2023
National Center for Biological Sciences, Bangalore, India	2023
Molecular Biophysics Unit, Indian Institute of Sciences Bangalore, India	2023
Biosciences Department, Indian Institute of Technology Bombay, Mumbai, India	2023
Biophysics and Structural Biology Division Retreat, UC Berkeley, Asilomar CA	2023
Leading Edge Fellow Symposium, Ashburn VA	2023
ICAhN Think and Drink series, Princeton University, Princeton NJ	2017, 2020

Bioengineering Colloquium, Princeton University, Princeton NJ	2019
HHMI Janelia Research Campus, Ashburn VA	2019
Department of Systems Biology, Harvard Medical School, Boston MA	2019
Molecular and Cell Biology, UC Berkeley, Berkeley CA	2019
North Atlantic Microscopy Society Inaugural Symposium, Princeton NJ	2018
Annual Meeting of American Society of Cell Biology. Philadelphia PA	2017
EMBO Workshop - Frontiers in cytoskeleton research. Pune, India	2017
BioEngineering Colloquium, Princeton University, Princeton NJ	2017
Molecular Biology Annual Retreat talk, Princeton University, Princeton NJ	2017

Poster Presentations (selected)

Bay Area Chemical Biology Meeting, Stanford University	2024
The Vallee Foundation Scholars Symposium, Stresa, Italy	2024
Genetics Society of America Annual Meeting, Washington D.C.	2024
Annual Meeting of American Society of Cell Biology, Washington D.C.	2019
Gordon Research Conference on Motile and Contractile Systems, New London NH	2019
Biophysical Society Annual Meeting, Baltimore MD	2019
Annual Meeting of American Society of Cell Biology, Philadelphia PA	2017

Teaching & Mentoring Experience

Guest Lecturer, MCB110 Molecular Biology Laboratory Course 2023

Instructed junior and senior undergraduates at UC Berkeley on crystallography, cryo-electron microscopy and cryo-electron tomography techniques for protein structure determination as a guest lecturer.

Laboratory Mentor, UC Berkeley, Berkeley CA 2021 - Present

I have mentored a molecular biology undergraduate researcher, Letian (Jane) Li and biophysics graduate student, Juan Perez-Bertoldi, both from underrepresented backgrounds with their research to develop new projects from ground-up. Juan's PhD project in the Nogales lab related to structural biology of microtubule nucleation proteins is in review for publication.

Research Instructor, Marine Biological Laboratory, Woods Hole MA 2019

Supervised a team of researchers with designing and executing a research project as a part of MBL's historical Physiology course. We isolated tubulin from marine organisms and measuring the microtubule dynamics from these uncharacterized tubulins.

Laboratory Mentor, Princeton University, Princeton NJ 2017 - 2020

Mentored two graduate students, Bernardo Gouveia and Katelyn Cook, during their lab rotations. Bernardo continued his outstanding research in the lab. I also mentored an undergraduate researcher, Sarah Jun, for her junior and senior theses. Sarah's work will be published in an upcoming research article, and she is now pursuing her next career step in the public health.

Instructor, Princeton Prison Teaching Initiative, Princeton NJ 2016 - 2017

As a member of the Prison Teaching Initiative at Princeton University, I co-led classroom instructions for Basic Algebra and Human Physiology courses towards tuition-free, community college degree for incarcerated youths in two of New Jersey's correctional facilities.

Programming Co-Instructor, Princeton Neuroscience Institute, Princeton NJ 2016

Assisted graduate students and postdoctoral fellows from Molecular Biology in learning Python programming language and applied mathematics.

Teaching Assistant, Princeton University, Princeton NJ 2016

Served as a assistant instructor for Thermodynamics course for sophomore and juniors in Chemical Engineering program. I selected for a Graduate Teaching Award for this course by the student body.

Service & Outreach

- Reviewer** 2018 - present
Served as a scientific reviewer for Science, Molecular Cell, PNAS, Journal of Cell Biology, and Journal of Visualized Experiments
- Organizer, MCB Postdoc Research Showcase**, UC Berkeley 2023
Co-organized the second annual symposium where postdoctoral fellows from Molecular and Cell Biology department come together to present their research. Social events include mixers with the department faculty and alumni postdocs.
- Panelist, Damon Runyon Foundation Fundraiser** 2022 - 2023
Served in scientific panels for fundraising events with the Damon Runyon Cancer Research Foundation.
- College Application Reviewer**, Princeton University, NJ 2021 - 2022
Reviewed college applications for biology and chemical engineering fields. Hosted discussions with the applicants to provide information on the courses and research on campus.
- Panelist, Women in STEM series** 2018 - 2019
Invited to serve on the annual Women in STEM panel hosted by the Montgomery High School in New Jersey to encourage women and minority high schoolers toward exciting STEM career opportunities.
- Session Chair** 2019
Gordon Research Seminar on Motile and Contractile Systems, NH

References

- Dr. Eva Nogales** (Postdoc mentor)
Distinguished Professor of Biochemistry, Biophysics and Structural Biology
Department of Molecular and Cell Biology, UC Berkeley and Lawrence Berkeley National Lab
Investigator, Howard Hughes Medical Institute
Email: enogales@lbl.gov
- Dr. Kathleen Collins** (Postdoc co-mentor)
Professor of Biochemistry, Biophysics and Structural Biology
Walter and Ruth Schubert Family Chair
Department of Molecular and Cell Biology, UC Berkeley
Email: kcollins@berkeley.edu
- Dr. Sabine Petry** & **Dr. Howard A. Stone** (Graduate mentors)
Associate Professor Donald R. Dixon '69 and Elizabeth W. Dixon Professor
Department of Molecular Biology Department of Mechanical and Aerospace Engineering
Princeton University Princeton University
Email: spetry@princeton.edu
- Dr. Joanna Wysocka** (Collaborator)
Lorry Lokey Professor and Professor of Developmental Biology
Department of Chemical and Systems Biology, Stanford University
Investigator, Howard Hughes Medical Institute
Email: wysocka@stanford.edu
- Dr. Harmit S. Malik** (Colleague)
Professor and Associate Director of Basic Sciences Division
Fred Hutchinson Cancer Center
Investigator, Howard Hughes Medical Institute
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