

Akanksha Thawani

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EDUCATION	Princeton University , Princeton NJ Ph.D., Chemical and Biological Engineering Thesis: Design principles of microtubule nucleation and mitotic spindle assembly Advisors: Sabine Petry, Howard A Stone, Joshua W Shaevitz 2020
	Princeton University , Princeton NJ M.A. in Chemical and Biological Engineering, GPA 4.0/4.0 2016
	Indian Institute of Technology Bombay , Mumbai, India B. Tech. (Honors), Chemical Engineering and Computer Science, CGPA 9.96/10 Thesis: Biophysics of bacterial locomotion 2014
RESEARCH POSITIONS	Merck Fellow of Damon Runyon Cancer Research Foundation UC Berkeley, Berkeley CA Mentors: Eva Nogales, Kathleen Collins Topic: Mechanisms of human genome transposition and development into next-gen genome engineering tools 2021 - Present
	American Heart Association Graduate Research Fellow Charlotte Elizabeth Procter Fellow Princeton University, Princeton NJ Mentors: Sabine Petry, Howard A Stone, Joshua W Shaevitz Topic: Molecular mechanisms of microtubule nucleation and mitotic spindle assembly 2014 - 2020
	Visiting Research Fellow, Bio-Engineering Department, UC Berkeley CA Topic: Biophysics of membrane fusion by viral proteins, Mentor: Daniel A Fletcher 2019
ADVANCED RESEARCH COURSES	Physiology: Modern Cell Biology Using Microscopic, Biochemical and Computational Approaches, 7 weeks Marine Biological Laboratory, Woods Hole MA Summer 2018
	Computational Image Analysis in Cellular and Developmental Biology, 2 weeks Marine Biological Laboratory, Woods Hole MA Fall 2015
	Optical Microscopy and Imaging in Biomedical Sciences, 2 weeks Marine Biological Laboratory, Woods Hole MA Fall 2015
FUNDING & AWARDS	Post-doctoral
	Rockefeller Exceptional Scholar, The Rockefeller University 2024
	Eddie Méndez Award, Fred Hutchinson Cancer Center 2024
	Rising Star Postdoctoral Fellow, Salk Institute for Biological Sciences 2024
	Genetics Society of America-NSF Rising Scientist Award 2024
	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 2023
	Damon Runyon Cancer Research Postdoctoral Fellowship [272,000\$] [press] 2021 - 2025
	Life Sciences Research Foundation Postdoctoral Fellowship (<i>withdrawn</i>)
Graduate	
Harold M Weintraub Graduate Student Award, Fred Hutch Center [press] [news] [1,000\$] 2020	
Charlotte E Procter Honorific Fellowship, Princeton University [42,000\$] [press] 2019 - 2020	
American Heart Association Predoctoral Fellowship [53,668\$] [press] 2017 - 2019	

Francis Upton Graduate Fellowship, Princeton University [20,000\$ supplement]	2014 - 2019
William Schowalter Travel Award, Princeton University [500\$]	2017, 2019
Physiology Post-course Research Grant, Marine Biological Laboratory [2,500\$]	2018
Kristine M. Layn Award, Princeton University	2017
Excellence in Teaching Award, Princeton University [press]	2017
Honorable Mention, Nikon Small World in Motion contest [video]	2017
Art of Science Exhibition Awardee, Princeton University [video]	2017
EMBO Travel Grant [800\$]	2017
SABIC Graduate Student Award, Princeton University [3,000\$] [press]	2016
Air Products Teaching Award, Princeton University	2016

Undergraduate

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

PUBLICATIONS Total # citations = 554. Total publications = 11. First-author publications = 7.

Thawani A[#], Florez-Ariza AJ, Nogales E[#], Collins KC[#]. Template and target site recognition by human LINE-1 in retrotransposition. *Nature*, 2024. [link] ([#]corresponding authors)
[News and Views](#) in Nature
[Spotlight](#) in Trends in Cancer
[Press Release](#) by UC Berkeley

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

PATENTS **Thawani A**, Florez-Ariza AJ, McIntyre JM, Nogales E, Collins KC. Manipulation of LINE-1 ORF2p and template RNA for addition of DNA to a genome. *Provisional, filed 10/28/2023*

INVITED TALKS

Gordon Conference on 3D Electron Microscopy, Barcelona, Spain (scheduled)	2024
Eddie Méndez Award Symposium, Fred Hutch, Seattle WA (scheduled)	2024
International Congress of Transposable Elements, Saint-Malo, France	2024
RNA Microsymposium, IMBA 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	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 Genetics and Cell Biology, University of Chicago, Chicago IL	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
ICAhN Think and Drink series, Princeton University, Princeton NJ	2017
Chemical and Biological Engineering Annual Symposium, Princeton University	2017
American Physical Society - Annual Fluid Dynamics Meeting. San Francisco CA	2014

POSTER PRESENTATIONS

The Vallee Foundation Scholars Symposium, Stresa, Italy (scheduled)	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
 Biophysical Society Annual Meeting, New Orleans LA 2017
 EMBO Symposium on Microtubules, Heidelberg, Germany 2016
 Chemical and Biological Engineering Annual Symposium, Princeton University 2016
 Bio-Engineering Day, Princeton University, Princeton NJ 2015

MENTORING &
TEACHING

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.

Mentor, Undergraduate Research Apprentice Program, UC Berkeley 2021 - 2023
 I have mentored two molecular biology undergraduate researchers from underrepresented communities, Letian (Jane) Li and Nidhi Shanmugam, with their research to co-develop new projects from ground-up in the last year.

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 CBE 246 Thermodynamics course for sophomore and juniors in Chemical Engineering program taught by Prof. Ilhan A Aksay. I was awarded a graduate teaching award for this course by the student body.

SERVICE &
OUTREACH

Co-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.

College Application Interviewer, Princeton University, NJ 2021 - present
 Reviewed college applications for biology and chemical engineering fields. Hosted virtual discussions with the applicants to provide information on the courses and research programs offered on Princeton's campus.

Panelist, Damon Runyon Foundation Fundraiser 2022 - 2023
 Served in scientific panels for fundraising events with the Damon Runyon Cancer Research Foundation.

Reviewer 2018 - present
 Served as a co-reviewer for PNAS, Science and Journal of Cell Biology, and primary reviewer

for Journal of Visualized Experiments and Int Journal of Molecular Sciences

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.

Outreach for MBL Research Courses

2019

Served in an outreach event at the annual ASCB conference toward increasing participation in the Marine Biological Laboratory's summer research courses such as the Physiology course.

Session Chair

2019

Gordon Research Seminar on Motile and Contractile Systems, NH