

Saumya Saurabh, Ph.D.

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Education

May 2014 Ph.D., Department of Chemistry
Carnegie Mellon University, Pittsburgh, PA
August 2008 B.S. and M.Sc. (5 year Integrated track), Department of Chemistry
Indian Institute of Technology, Bombay, India

Research and Professional Experience

2022-Present **Assistant Professor of Chemical Biology**
Departments of Chemistry and Physics (Affiliate)
New York University

2017-2021 **Postdoctoral Fellow**
Department of Developmental Biology, Stanford University, Stanford, CA
Advisor: **Dr. Lucy Shapiro**
Focus: Mechanisms and functions of compartmentalized signaling reactions

2014-2016 **Postdoctoral Fellow**
Department of Chemistry, Stanford University, Stanford, CA
Advisor: **Dr. W. E. Moerner**
Focus: Application of fluoromodules for super-resolution imaging in bacteria

2009-2014 **Graduate researcher (Astrid and Bruce McWilliams graduate fellow)**
Carnegie Mellon University, Pittsburgh, PA
Advisor: **Dr. Marcel Bruchez**
Focus: Development of photostable fluoromodules for live cell imaging

2008-2009 **Business Analyst**
Grail Research, Monitor Consulting Group
New Delhi, India
Focus: Mergers and acquisitions in the Life Sciences

2005, 2006 **Visiting Summer Researcher**
Technische Universität, Berlin, Germany
Advisor: **Prof. Dr. Martin Schoen**
Focus: Reactive Monte Carlo simulations of catalytic systems

2004-2008 **Undergraduate Researcher**
Department of Chemistry, Indian Institute of Technology, Bombay, India
Advisor: **Dr. Arindam Chowdhury**
Focus: Single Molecule Investigations of Polymer dynamics

Publications

21. Saurabh, S.; Chong, T. N.; Bayas, C.; Dahlberg, P. D.; Cartwright, H. N.; Moerner, W. E.; Shapiro, L., ATP-responsive biomolecular condensates tune bacterial kinase signaling. *Science Advances* 2022, 8, eabm6570.
20. Comerchi, C. J.; Gu, B.; McCarthy, D. G.; Saurabh, S.; Moerner, W.E.; Wysocka, J., Opposing effects of cohesion and transcription on CTCF organization revealed by super-resolution imaging. *Molecular Cell* 2020, 19;80(4):699-711.e7.
19. Dahlberg, P.; Saurabh, S.; Sartor, A. M.; Wang, J.; Mitchell, P. G.; Chiu, W.; Shapiro, L; Moerner, W. E., Cryogenic Single-Molecule Fluorescence Annotations for Electron Tomography Reveal In Situ Organization of Key Proteins in *Caulobacter*. *Proceedings of the National Academy of Science (USA)* 2020, 117 (25) 13937-13944.
18. Lourenco, R.; Saurabh, S.; Herrmann, J.; Wakatsuki, S.; and Shapiro, L. The nucleoid-associated protein GapR uses conserved structural elements to oligomerize and bind DNA. *mBio* 2020, 11: e00448-20.
17. Fujii, K.; Susanto, T. T.; Saurabh, S., Barna, M., Decoding the Function of Expansion Segments in Ribosomes, *Molecular Cell* 2018, 72, 6, 1013-1020.e6.
16. Dahlberg, P.; Sartor, A. M.; Wang, J.; Saurabh, S.; Shapiro, L; Moerner, W. E., Identification of PAmKate as a Red Photoactivatable Fluorescent Protein for Cryogenic Super-Resolution Imaging. *Journal of the American Chemical Society* 2018, 140, 39, 12310-12313.
15. Gotrik, M.; Sekhon, G.; Saurabh, S.; Nakamoto, M.; Eisenstein, M.; Soh, H. T., Direct Selection of Fluorescence-Enhancing RNA Aptamers. *Journal of the American Chemical Society* 2018, 140(10), 3583-3591.
14. Saurabh, S.; Perez, A. M.; Comerchi, C. J.; Shapiro, L.; Moerner, W. E., Super-Resolution Microscopy and Single-Protein Tracking in Live Bacteria Using a Genetically Encoded, Photostable Fluoromodule. *Current Protocols in Cell Biology* 2017, 4.32. 1-4.32. 22.
13. Perkins, L. A.; Yan, Q.; Schmidt, B. F.; Kolodieznyi, D.; Saurabh, S.; Larsen, M. B.; Watkins, S.; Kremer, L.; Bruchez. M. P., Genetically Targeted Ratiometric and Activated pH Indicator Complexes (TRApHIC) for receptor trafficking. *Biochemistry* 2017, 57, 5, 861–871.
12. Saurabh, S.; Perez, A. M.; Comerchi, C. J.; Shapiro, L.; Moerner, W. E., Super-resolution Imaging of Live Bacteria Cells Using a Genetically Directed, Highly Photostable Fluoromodule. *Journal of the American Chemical Society* 2016, 138 (33), 10398–10401.
11. Backlund, M. P.; Arbabi, A.; Petrov, P. N.; Arbabi, E.; Saurabh, S.; Faraon, A.; Moerner, W. E., Removing orientation-induced localization biases in single-molecule microscopy using a broadband metasurface mask. *Nature photonics* 2016, 10, 459–462.
10. Saurabh, S.; Zhang, M.; Mann, V. R.; Costello, A. M.; Bruchez, M. P., Kinetically Tunable Photostability of Fluorogen-Activating Peptide–Fluorogen Complexes. *ChemPhysChem* 2015, 16 (14), 2974-2980.
9. Magenau, A. J.;* Saurabh, S.;* Andreko, S. K.; Telmer, C. A.; Schmidt, B. F.; Waggoner, A. S.; Bruchez, M. P., Genetically targeted fluorogenic macromolecules for subcellular imaging and cellular perturbation. *Biomaterials* 2015, 66, 1-8. (* Equal contribution)
8. Zhang, M.; Chakraborty, S. K.; Sampath, P.; Rojas, J. J.; Hou, W.; Saurabh, S.; Thorne, S. H.; Bruchez, M. P.; Waggoner, A. S., Fluoromodule-based reporter/probes designed for in vivo fluorescence imaging. *The Journal of clinical investigation* 2015, 125 (10), 3915-3927.

7. Yan, Q.; Schmidt, B. F.; Perkins, L. A.; Naganbabu, M.; Saurabh, S.; Andreko, S. K.; Bruchez, M. P., Near-instant surface-selective fluorogenic protein quantification using sulfonated triarylmethane dyes and fluorogen activating proteins. *Organic & biomolecular chemistry* 2015, 13, 2078-2086
6. Tan, C.; Saurabh, S.; Bruchez, M. P.; Schwartz, R.; LeDuc, P., Reply to 'Complexity of molecular crowding in cell-free enzymatic reaction networks'. *Nature nanotechnology* 2014, 9 (6), 407-408.
5. Saurabh, S.; Bruchez, M. P., Targeting Dyes for Biology. In: *Cell Membrane Nanodomains: From Biochemistry to Nanoscopy*, Editors: Cambi, A.; Lidke, D. S. 2014, pp341.
4. Saurabh, S.; Beck, L. E.; Maji, S.; Baty, C. J.; Wang, Y.; Yan, Q.; Watkins, S. C.; Bruchez, M. P., Multiplexed Modular Genetic Targeting of Quantum Dots. *ACS nano* 2014, 8 (11), 11138-11146.
3. Tan, C.; Saurabh, S.; Bruchez, M. P.; Schwartz, R.; LeDuc, P., Molecular crowding shapes gene expression in synthetic cellular nanosystems. *Nature nanotechnology* 2013, 8 (8), 602-608.
2. Bhattacharya, S.; Sharma, D. K.; Saurabh, S.; De, S.; Sain, A.; Nandi, A.; Chowdhury, A., Plasticization of Poly (vinylpyrrolidone) Thin Films under Ambient Humidity: Insight from Single-Molecule Tracer Diffusion Dynamics. *The Journal of Physical Chemistry B* 2013, 117 (25), 7771-7782.
1. Saurabh, S.; Maji, S.; Bruchez, M. P., Evaluation of sCMOS cameras for detection and localization of single Cy5 molecules. *Optics express* 2012, 20 (7), 7338-7349.

Selected Honors and Awards

2019	Outstanding Abstract Award from the American Society for Microbiology
2019-18	Travel awards from the Biophysical society
2018	Burroughs Wellcome Career Awards at the Scientific Interface, Semi-finalist
2013	Best Poster Presentation Award at GRC in Photochemistry, Easton, MA

Research Funding

2017-18	Technology Innovation Funds from Stanford Cell Sciences Imaging Facility
2015-16	Stanford Systems Biology Seed Grant
2013-14	Astrid and Bruce McWilliams Fellowship in the Mellon College of Science

Mentorship and Teaching Experience (Contributions to DEI highlighted)

2017-Present	Supervised research of 3 graduate, 2 community college, and 2 high school students at Department of Developmental Biology, Stanford SoM
Sept. 2021	Received training "Enhancing skills on mentoring across difference"
2021	Mentor , Community College Research Program, Stanford University
2014-2016	Supervised research of two graduate students Department of Chemistry, Stanford University
2012	Project Instructor , Summer Academy for Mathematics and Science (SAMS) Carnegie Mellon University. Instruction: Multicolor fluorescence Microscopy
2010	Lab Teaching Assistant , Molecular Spectroscopy Carnegie Mellon University. Instruction: Molecular spectroscopy instrumentation and analyses
2009	Lab Teaching Assistant , Introduction to Chemical Analyses

Curriculum vitae
Saumya Saurabh, Ph.D.

Carnegie Mellon University.
Instruction: Analytical chemistry techniques and lab safety
2009-2014 **Supervised research** of three undergraduate students
Department of Chemistry, Carnegie Mellon University

Service and Professional Membership

Jun 2021	Organizer, Track hub “Phase separation in microbiology” World microbe forum (Virtual)
Oct 2020	Organizer, second virtual conference on <i>Caulobacter</i> research, CauloCon 2.0
Dec 2020	Chair, Symposium on Bacterial and Archaeal Cell Biology at CellBio meeting from the American Society of Cell Biology (Virtual)
Aug 2020	Chair, Symposium on Bacterial Sub-cellular organization, Microbe meeting organized by the American Society for Microbiology
Review Service	Nature Methods, Nature Communication, Biomedical Optics Express, Journal of the American Chemical Society
2016-Present	Member, American Society for Microbiology
2010-2018	Member, Biophysical Society
2010-2017	Member, American Chemical Society
2010-2012	Department General Secretary, Chemistry, Carnegie Mellon University
2006-2007	Department General Secretary, Chemistry, IIT Bombay

Invited and Selected Research Talks

Oct 2021	Stanford Bug Club
Aug 2021	Condensate colloquium series funded by the German research foundation
March 2021	Guest lecture in microbiology, Carnegie Mellon University
March 2021	Pittsburgh area microbial pathogenesis meeting
Apr 2020	Virtual Caulobacter Conference, World Wide Web
Jan 2020	Gordon Conference on Signal Transduction in Microorganisms, Ventura, CA
Dec 2019	American Society for Cell Biology, Washington, DC
July 2019	American Society for Microbiology, San Francisco, CA
Mar 2019	Biophysical Society Meeting, 2019, Baltimore, MD
Sept 2018	Developmental Biology Departmental Retreat
Apr 2017	American Chemical Society Meeting, 2017, San Francisco, CA
June 2016	Institute lecture, Indian Institute of Technology, Bombay, India
Oct 2013	Northeastern Regional Meeting (NERM) of the American Chemical Society, New Haven, CT