

PROMOTION RECOMMENDATION  
The University of Michigan  
College of Literature, Science, and the Arts

Alison R.H. Narayan, assistant professor of chemistry, College of Literature, Science, and the Arts, is recommended for promotion to associate professor of chemistry, with tenure, College of Literature, Science, and the Arts [also being promoted to research associate professor, Life Sciences Institute].

Academic Degrees:

Ph.D.	2011	University of California, Berkeley
B.S.	2006	University of Michigan

Professional Record:

2016 – 2019	William R. Roush Assistant Professor of Chemistry, University of Michigan
2015 – present	Assistant Professor of Chemistry and Research Assistant Professor, Life Sciences Institute, University of Michigan
2011 – 2015	Post-doctoral Research Fellow, University of Michigan

Summary of Evaluation:

Teaching: Professor Narayan has a strong teaching record. She has taught CHEM 210, a large gateway course, three times. Her student evaluations have largely been above 4 for Q1/Q2 and within the range of the very successful cohort of teachers in this class. She has developed materials to guide GSIs who assist in the course with positive impact. She is regarded as an enthusiastic and highly participatory teacher, who is reflective about her teaching practices. She also taught an introductory graduate course in chemical biology with similar success. She currently mentors a large research group including 13 graduate students and has another three students who have graduated. Her students have won an unusually high number of fellowships and achieved strong placements, results that can be attributed to her active and encouraging mentoring style.

Research: Professor Narayan uses a blend of chemical biology and organic chemistry to discover enzymes with useful catalytic properties, studies the reactivity of the enzymes, evolves the enzymes to be useful for complex molecule synthesis, and uses the novel biocatalysts for synthetic chemistry. The new biocatalysts are designed to yield selective modifications during the late stages of synthesis of large molecules. A significant accomplishment includes development of enzymatic approaches to oxidative dearomatization, a reaction that has been difficult for ordinary catalysts and yet is valued for its ability to increase complexity of a molecule. Other notable achievements include discovery of several enzymes for natural product synthesis and streamlined synthesis of compounds including potential epilepsy drugs. She has published 17 research papers and four reviews as an assistant professor at UM; she has published six articles in *Journal of the American Chemical Society*, *Nature Chemistry*, and *ACS Central Science*, the top journals in chemistry. Professor Narayan has been recognized with a plethora of awards include Cottrell, Sloan, and Dreyfus awards.

Recent and Significant Publications:

Baker Dockrey, S. A.; Lukowski, A. L.; Becker, M. R.; Narayan, A. R. H. (2018) Biocatalytic site- and enantioselective oxidative dearomatization of phenols. *Nature Chemistry*, 10, 119-125.

Chun, S. W.; Hinze, M. E.; Skiba, M. A.; Narayan, A. R. H. (2018) Chemistry of a unique polyketide-like synthase. *Journal of the American Chemical Society*, 140, 2430-2433.

Baker Dockrey, S. A.; Suh, C.; Wymore, T.; Brooks III, C. L.; Narayan, A. R. H. (2019) Positioning group-enabled biocatalytic oxidative dearomatization, *ACS Central Science*, 5, 1010-1016.

Doyon, T. J.; Perkins, J. C.; Baker Dockrey, S. A.; Skinner, K. C.; Zimmerman, P. M.; Narayan, A. R. H. (2019) Biocatalytic benzylic C–H functionalization of *ortho*-cresols. *Journal of the American Chemical Society*, 141, 20269-20277.

Service: Professor Narayan has been active on a variety of committees for chemistry, LSI, and the university. She has played an important role in helping to improve the safety culture in the LSI. She has been successful in helping to recruit graduate students and served on the admissions committee for the Program in Chemical Biology and Chemistry. She has participated in numerous outreach activities such as judging local science fairs and science demonstrations for young women. Her external service includes reviewing for journals and helping to organize national meetings. Her service is excellent for this rank.

External Reviewers:

Reviewer (A): “It is the courageous scientists like Professor Narayan who are bridging the long-standing gap between the biocatalysis and synthetic chemistry communities. With her deep understanding of enzymes and synthetic chemistry, good taste in choosing interesting problems, she has emerged as a leading player in this vibrant and growing field... The very first publication from Professor Narayan’s group (*Nat. Chem.*, 2018) was a blockbuster.”

Reviewer (B): “The Narayan group has not surprisingly made a big splash with projects that are creatively chosen, thought provoking, and useful to both synthetic chemists and those more interested in enzymology... She is a star.”

Reviewer (C): “In the last few years, she has published high impact papers that have attracted international attention, and she has generated a substantial funding portfolio. In terms of both quality and quantity, this is an excellent level of output for a tenure decision.”

Reviewer (D): “In reading her papers, I am always impressed with the thoroughness of her work, the perfect presentation of data, and her scientific rigor... Alison’s group has performed impactful research in a short amount of time...she is among the top of a new wave of outstanding chemists working in the area of biocatalysis.”

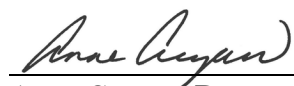
Reviewer (E): “Professor Narayan has done amazingly well since she launched her independent career and has consistently impressed me and the community with her research program. A few

years after the launch of her independent career she is already a leader in the field of Chemical Biology and Natural Products Chemistry.”

Reviewer (F): “Her accomplishments in a short period are impressive and she is on a steep upwards trajectory...I think it is not an exaggeration to say that Dr. Narayan is a rising star.”

Summary of Recommendation:

Professor Narayan has developed a lauded research program at the interface of chemical biology and organic chemistry. She has discovered and characterized enzymes with utility for synthesizing complex molecules. She has harnessed these enzymes through selected modifications to catalyze reactions important in synthesis of natural product derivatives with medicinal potential. She has successfully taught at the graduate and undergraduate level, including a large gateway course, and proven to be a dedicated mentor with an eye on student success. The Executive Committee of the College of Literature, Science, and the Arts and I recommend that Assistant Professor Alison R.H. Narayan be promoted to the rank of associate professor of chemistry, with tenure, College of Literature, Science, and the Arts.



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Anne Curzan, Dean  
Geneva Smitherman Collegiate Professor of  
English Language and Literature, Linguistics,  
and Education  
Arthur F. Thurnau Professor  
College of Literature, Science, and the Arts

May 2021