

**Steven Mark Banik, Ph.D.**  
*Assistant Professor of Chemistry and ChEM-H Institute Scholar*  
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## **DISCIPLINARY FIELDS**

Chemistry & chemical biology, synthetic biology, cell biology, drug discovery, protein engineering, protein degradation

## **EDUCATION**

Ph.D., Chemistry & Chemical Biology (March 2017), Harvard University | Cambridge, MA

B. S. with Honors in Chemistry (May 2011), University of Wisconsin-Madison | Madison, WI

## **ACADEMIC TRAINING**

Stanford University, NIH and Burroughs Wellcome Fund CASI Postdoctoral Fellow

Professor Carolyn R. Bertozzi, Stanford, CA 2017–2020

Harvard University, NSF Graduate Research Fellow

Professor Eric N. Jacobsen, Cambridge, MA 2011–2016

University of Wisconsin-Madison

Professor Mahesh K. Mahanthappa, Madison, WI 2008–2011

Stanford University, NSF-REU Fellow

Professor Robert M. Waymouth, Stanford, CA 2010

Columbia University, NSF-REU Fellow

Professor Nicholas J. Turro New York, NY 2009

## **PROFESSIONAL APPOINTMENTS**

Stanford University: Assistant Professor of Chemistry (Jan. 2021-Present), ChEM-H Institute Scholar (Jan. 2021-Present), Wu-Tsai Human Performance Alliance (Nov. 2021-Present), Bio-X Member (Jan. 2022-Present), Wu-Tsai Neuroscience Institute (Aug. 2025-Present)

## **AWARDS, FELLOWSHIPS & HONORS**

*Sloan Research Fellow* | Stanford University, 2026

*Chambers Fellow* | Stanford University, 2025-2027

*Ono Pharma Foundation Breakthrough Award* | Stanford University, 2024-2027

*NIH DP2 New Innovator Award* | Stanford University, 2023-2028

*Moore Inventor Fellow* | Stanford University, 2023-2025

*Beckman Young Investigator* | Stanford University, 2023-2026

*Pew Biomedical Scholar* | Stanford University, 2023-2026  
*Hypothesis Fund Awardee* | Stanford University, 2022-2025  
*Terman Faculty Fellowship* | Stanford University, 2021-2023  
*Career Award, Burroughs Wellcome Fund* | Stanford University, 2021-2026  
*National Institute of Health Postdoctoral Fellowship* | Stanford University, 2017–2020  
*IUPAC-Solvay International Award for Young Chemists Honorable Mention* | Harvard University, 2018  
*ACS-Division of Organic Chemistry Travel Award* | Harvard University, 2015  
*Christiansen Travel Award* | Harvard University, 2013  
*Lindau Nobel Laureate Conference* | Harvard University, 2013  
*Bok Center Certificate of Distinction in Teaching* | Harvard University, 2012–2013  
*Wayland E. Noland Fellowship* | Harvard University, 2012  
*National Science Foundation Predoctoral Fellowship* | Harvard University, 2011–2014  
*National Science Foundation-REU* | Stanford University, 2010  
*Barry M. Goldwater Scholarship* | University of Wisconsin-Madison, 2010  
*Ackerman Award for Excellence in Chemistry* | University of Wisconsin-Madison, 2010  
*Dean's List* | University of Wisconsin-Madison, 2007-2011  
*Phi Beta Kappa* | University of Wisconsin-Madison, 2010  
*Ralph Abrams Scholarship* | University of Wisconsin-Madison, 2010  
*National Science Foundation-REU* | Columbia University, 2009  
*Hilldale Undergraduate/Faculty Research Fellowship* | University of Wisconsin-Madison, 2009  
*American Chemical Society Organic Chemistry Award* | University of Wisconsin-Madison, 2009  
*Richard Fischer Chemistry Scholarship* | University of Wisconsin-Madison, 2009  
*Theodore Herfurth Scholarship* | University of Wisconsin-Madison, 2009  
*Edward Panek Memorial Scholarship* | University of Wisconsin-Madison, 2008

## **PUBLICATIONS**

26. Gray, M. A.; Co, J.A.; Randal, K.R.; Xue, A.Z.; Solow-Cordero, D.E.; Robinson, S.A.; Omran, Q.; Banik, S.M. Ratiometric transcriptional activation by protein degradation. *In revision.*
25. Ng, C.S.C; Liu, A.; Cui, B.; Banik, S.M. “Targeted protein relocalization by protein transport coupling” *Nature*

**2024**, 633, 941–951.

24. Moya-Garzon, M.D.; Wang, M.; Li, V.L.; Lyu, X.; Wei, W.; Tung, A.S.; Raun, S.H.; Zhao, M.; Coassolo, L.; Islam, H.; Oliveira, B.; Dai, Y.; Spaas, J.; Delgado-Gonzalez, A.; Donoso, K.; Alvarez-Buylla, A.; Franco-Montalban, F.; Letian, A.; Ward, C.P.; Liu, L.; Svensson, K.J.; Goldberg, E.L.; Gardner, C.D.; Little, J.P.; Banik, S.M.; Xu, Y.; Long, J.Z. “A  $\beta$ -hydroxybutyrate shunt pathway generates anti-obesity ketone metabolites.” *Cell* **2024**, 188, 175–186.

23. Robinson, S. A.; Co, J. A.; Banik, S.M. “Molecular glues and induced proximity: An evolution of tools and discovery.” *Cell Chem. Biol.* **2024**, DOI: 10.1016/j.chembiol.2024.04.001.

22. Ahn, G.; Riley, N.M.; Kamber, R.; Wisnovsky, S.; Moncayo Von Hase, S.; Bassik, M.C.; Banik, S.M.\*; Bertozzi, C.R.\* “Elucidating the cellular determinants of targeted membrane protein degradation by lysosome-targeting chimeras.” *Science* **2023**, 382, eadf6249. DOI:10.1126/science.adf6249

\*Co-Corresponding Authors.

21. Li, V.L.; He, Y.; Contrepois, K. Liu, H.; Kim, J.T.; Wiggenhorn, A.L.; Tanzo, J.T.; Tung, A.; Lyu, X.; Zushin, P.-J. H.; Jansen, R.S.; Michael, B.; Loh, K. Y.; Yang, A.C.; Carl, C.S.; Voldstedlund, C.T.; Wei, W.; Terrell, S.M.; Moeller, B.C.; Arthur, R.M.; Wallis, G.A.; van de Wetering, K.; Stahl, A.; Kiens, B.; Richter, E.A.; Banik, S.M.; Snyder, M.P.; Xu, Y.; Long, J.Z. “An exercise-inducible signaling metabolite that suppresses obesity.” *Nature* **2022**, 606, 785–790.

20. Robinson, S. A.; Banik, S.M. “CRISPR-Suppressor Scanning Unsticks Molecular Glues.” *ACS Cent. Sci.* **2022**, 8, 408–411.

19. Ng, C.S.C.; Banik, S.M. “Recent Advances in Induced Proximity Modalities.” *Curr. Opin. Chem. Biol.* **2022**, 67, 102107.

18. Ng, C.S.C.; Banik, S.M. “Taming Transcription Factors with TRAFACs.” *Cell Chem. Biol.* **2021**, 28, 588–590.

17. Ahn, G.; Banik, S.M.; Miller, C.L.; Riley, N.; Cochran, J.R.; Bertozzi, C.R. “Lysosome Targeting Chimeras (LYTACs) that Engage a Liver-Specific Asialoglycoprotein Receptor for Targeted Degradation.” *Nat. Chem. Biol.* **2021**, 17, 937–946.

16. Ahn, G.; Banik, S.M.; Bertozzi, C.R. “Degradation from the outside-in: targeting extracellular and membrane proteins for degradation through the endo-lysosomal pathway.” *Cell Chem. Biol.* **2021**, 28, 1072–1080.

15. Cambier, C.J.; Banik, S.M.; Buonomo, J.A.; Bertozzi, C.R. “Spreading of a mycobacterial cell-surface lipid into host epithelial membranes promotes infectivity.” *eLife* **2020**, 9:e60648.

14. Delaveris, C.S.\*; Webster, E.R.\*; Banik, S.M.; Boxer, S.G.; Bertozzi, C.R. “Membrane-tethered mucin-like polypeptides sterically inhibit binding and slow fusion kinetics of influenza A virus.” *Proc. Natl. Acad. Sci USA.* **2020**, 117, 12643–12650.

13. Banik, S.M.; Pedram, K.; Wisnovsky, S.; Ahn, G.; Riley, N.; Bertozzi, C.R. “Lysosome-targeting chimeras for degradation of extracellular proteins.” *Nature* **2020**, 584, 291–297.

12. Kim, J.T.; Jedrychowski, M.P.; Wei, W.; Fernandez, D.; Fischer, C.R.; Banik, S.M.; Spiegelman, B.M.; Long, J.Z. “Aplasma protein network regulates PM20D1 and N-acyl amino acid bioactivity.” *Cell Chem. Biol.* **2020**, 27, 1130–1139.

11. Haj, M.K.; Banik, S.M.; Jacobsen, E.N. “Catalytic, Enantioselective 1,2-Difluorination of Cinnamamides.” *Org. Lett.* **2019**, 21, 4919–5372.

10. Mennie, K.M.; Banik, S.M.; Reichert, E. C.; Jacobsen, E.N. "Catalytic Diastereo- and Enantioselective Fluoroamination of Alkenes." *J. Am. Chem. Soc.* **2018**, *140*, 4797–4802.

9. Banik, S.M.\*; Levina, A.\*; Hyde, A.M.; Jacobsen, E.N. "Lewis acid enhancement by hydrogen-bond donors for asymmetric catalysis." *Science* **2017**, *358*, 761–764.

\*These authors contributed equally

8. Banik, S.M.\*; Mennie, K.M.\*; Jacobsen, E.N. "Catalytic 1,3 Difunctionalization via Oxidative C–C Bond Activation." *J. Am. Chem. Soc.* **2017**, *139*, 9152–9155.

7. Woerly, E.M.; Banik, S.M.; Jacobsen, E.N. "Enantioselective, Catalytic Fluorolactonization Reactions with a Nucleophilic Fluoride Source." *J. Am. Chem. Soc.* **2016**, *138*, 13858–13861.

6. Banik, S.M.; Medley, J.W.; Jacobsen, E.N. "Catalytic, asymmetric difluorination of alkenes to generate difluoromethylated stereocenters." *Science* **2016**, *353*, 51–54.

5. Banik, S.M.\*; Medley, J.W.\*; Jacobsen, E.N. "Catalytic, Diastereoselective 1,2-Difluorination of Alkenes." *J. Am. Chem. Soc.* **2016**, *138*, 5000–5003.

\*These authors contributed equally

4. Chung, K.\*; Banik, S.M.\*; De Crisci, A.G.; Pearson, D.M.; Blake, T.R.; Olsson, J.V.; Ingram, A.J.; Zare, R.N.; Waymouth, R.M. "Chemoselective Pd-Catalyzed Oxidation of Polyols: Synthetic Scope and Mechanistic Studies," *J. Am. Chem. Soc.* **2013**, *135*, 7593–7602.

3. Banik, S.M.; Monnot, B.L.; Weber, R.L.; Mahanthappa, M.K. "ROMP-CT/NMP Synthesis of Multiblock Copolymers Containing Linear Poly(ethylene) Segments." *Macromolecules*, **2011**, *44*, 7141–7148.

2. Weber, R. L.; Ye, Y.; Banik, S. M.; Elabd, Y. A.; Hickner, M. A.; Mahanthappa, M. K. "Thermal and Ion Transport Properties of Hydrophilic and Hydrophobic Polymerized Styrenic Imidazolium Ionic Liquids." *J. Polym. Sci., Part B: Polym. Phys.* **2011**, *49*, 1287–1296.

1. Weber, R.L.; Ye, Y.; Schmitt, A. L.; Banik, S. M.; Elabd, Y. A.; Mahanthappa, M. K. "Effect of Nanoscale Morphology on the Conductivity of Polymerized Ionic Liquid Block Copolymers." *Macromolecules*, **2011**, *44*, 5727–5735.

## PATENTS

1. Banik, S.M.; Ng, C.S.C. Targeted relocalization compounds and methods of use thereof. WO2025076429A1.

2. Long, J.Z.; Li, V.L.; Moya Garzon, M. D.; Banik, S.M. N-beta-hydroxybutyryl-amino acids and related compositions and methods. WO2024192165A1.

3. Long, J.Z.; Li, V.L.; Banik, S.M.; Yong, X.; Yang, H. Lactoyl Amino Acids For The Treatment Of Metabolic Disease. WO2022235557.

4. Ahn, G.; Miller, C.L.; Bertozzi, C.R.; Cochran, J.R.; Banik, S. Lysosomal Targeting Molecules Comprising Knottin Peptides and Related Compositions and Methods. WO2022026906A3

5. Bertozzi, C.R.; Banik, S.; Pedram, K.; Ahn, G. Bifunctional Molecules for Lysosomal Targeting and Related Compositions and Methods. WO2020132100A1. *Licensed to Lycia Therapeutics.*

## INVITED PRESENTATIONS (INDEPENDENT CAREER)

Upcoming: *Harvard University Department of Chemistry and Chemical Biology, May 2026*

Upcoming: *Harvard Medical School, May 2026*

Upcoming: *Dana-Farber Targeted Protein Degradation Webinar Series, March 2026*

“Hijacking and Rewiring Cellular Interactomes”

*Promega 4<sup>th</sup> Targeted Protein Degradation & Induced Proximity Symposium, Sept. 2025, Madison, WI*

“Detecting and Rewiring Cellular Interactomes”

*Stanford Cancer Institute Retreat, March 2025, Stanford, CA*

“Targeted Protein Relocalization”

*Keystone Symposium Targeted Protein Degradation and Induced Proximity Therapeutics, Feb. 2025, Santa Fe, NM*

“Detecting and Rewiring Cellular Interactomes”

*Cell Symposia: Chemical Biology in Drugging the Undrugged, Dec. 2024, San Francisco, CA*

“Detecting and Rewiring Cellular Interactomes”

*CeMM, Nov. 2024, Vienna, Austria*

“Detecting and Rewiring Cellular Interactomes”

*University of Cologne, Nov. 2024, Cologne, Germany*

“Detecting and Rewiring Cellular Interactomes”

*Bay Area Chemical Biology Symposium, Oct. 2024, Stanford, CA*

“Mapping and Hijacking Membrane Transport”

*National Meeting of the American Chemical Society, March 2023, Indianapolis, IN*

“Targeted Protein Degradation from the Extracellular Space”

*NIH Targeted Protein Degradation Workshop, July 2022, Virtual*

“Rewiring the Extracellular Interactome for Targeted Protein Degradation”

*Dana-Farber Targeted Protein Degradation Webinar Series, Nov. 2021, Virtual*

“Reprogramming Glycan Receptors for Targeted Protein Degradation”

*K12 Glyco Seminar Series, Feb. 2021, Virtual*

## **SERVICE AT STANFORD UNIVERSITY**

Department of Chemistry Graduate Studies Committee, 2025-Present

Department of Chemistry Junior Faculty Hiring Committee, 2022-2025

Department of Chemistry Graduate Admissions Committee, 2021-2022, 2025-Present

Natural Sciences Guidebook Review Committee, 2023

## **TEACHING**

Chemistry 143: The Chemical Principles of Life  
*Spring Quarter: 2022, 2023, 2024, 2025*

## **OTHER PROFESSIONAL ACTIVITIES**

Scientific Advisory Board Member, Lycia Therapeutics

AACR Chemistry in Cancer Research Steering Committee

Peer Reviewer: *Nature, Nature Chemical Biology, Nature Biotechnology, Nature Communications, Journal of the American Chemical Society, ACS Chemical Biology, PNAS, Chem, ACS Central Science, Molecular and Cellular Therapeutics, Cell Chemical Biology*