

Jaron A. M. Mercer

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Employment

2024– Assistant Professor of Chemistry and Biochemistry, University of California Santa Cruz

Education and training

2018–2024 Postdoctoral Fellow, Broad Institute of Harvard and MIT (Mentor: David R. Liu)

2013–2018 PhD Chemistry, Stanford University (Mentor: Noah Z. Burns)

2009–2013 AB/AM Chemistry, Harvard University (Mentor: Andrew G. Myers)

Awards

2019 NIH NRSA Postdoctoral Fellowship

2018 Centennial Teaching Award, Stanford University

2013 NSF Graduate Research Fellowship

2012 Derek Bok Certificate of Distinction in Teaching, Harvard University

2012 ACS Division of Organic Chemistry Summer Undergraduate Research Fellowship

Publications

- (12) **Mercer, J. A. M.***; DeCarlo, S. J.*; Roy Burman, S. S.*; Sreekanth, V.; Nelson, A. T.; Hunkeler, M.; Chen, P. J.; Donovan, K. A.; Kokkonda, P.; Tiwari, P. K.; Shoba, V. M.; Deb, A.; Choudhary, A.; Fischer, E. S.; Liu, D. R. Continuous evolution of compact protein degradation tags regulated by selective cereblon molecular glues. *Science* **2024**, 383, eadk4422. 10.1126/science.adk4422
- (11) Lee, G. R.; Pellock, S. J.; Norn, C.; Tischer, D.; Dauparas, J.; Anischenko, I.; **Mercer, J. A. M.**; Kang, A.; Bera, A.; Nguyen, H.; Goreshnik, I.; Vafeados, D.; Roullier, N; Han, H. L.; Coventry, B.; Haddox, H. K.; Liu, D. R.; Yeh, A. H.-W.; Baker, D. Small-molecule binding and sensing with a designed protein family. Preprint 10.1101/2023.11.01.565201
- (10) Nguyen, T. M.; Sreekanth, V.; Deb, A.; Kokkonda, P.; Tiwari, P. K.; Donovan, K. A.; Shoba, V.; Chaudhary, S. K.; **Mercer, J. A. M.**; Lai, S.; Sadagopan, A.; Jan, M.; Fischer, E. S.; Liu, D. R.; Ebert, B. L.; Choudhary, A. Proteolysis Targeting Chimeras With Reduced Off-Targets. *Nat. Chem.* **2024**, 16, 218–228. 10.1038/s41557-023-01379-8
- (9) Anzalone, A. V.; Gao, X. D.; Podracky, C. J.; Nelson, A. T.; Koblan, L. W.; Raguram, A.; Levy, J. M.; **Mercer, J. A. M.**; Liu, D. R. Programmable Deletion, Replacement, Integration and Inversion of Large DNA Sequences with Twin Prime Editing. *Nat. Biotechnol.* **2022**, 40 (5), 731–740. 10.1038/s41587-021-01133-w
- (8) Patel, S. C.; Smith, M. W.; **Mercer, J. A. M.**; Suzuki, K.; Burns, N. Z. Enantioselective Cyclobutenylation of Olefins Using *N*-Sulfonyl-1,2,3-Triazoles as Vicinal Dicarbene Equivalents. *Org. Lett.* **2021**, 23 (16), 6530–6535. 10.1021/acs.orglett.1c02331
- (7) Chen, Z.; Zhu, X.; Yang, J.; **Mercer, J. A. M.**; Burns, N. Z.; Martinez, T. J.; Xia, Y. The Cascade Unzipping of Ladderane Reveals Dynamic Effects in Mechanochemistry. *Nat. Chem.* **2020**, 12 (3), 302–309. 10.1038/s41557-019-0396-5
- (6) Su, J. K.; Feist, J. D.; Yang, J.; **Mercer, J. A. M.**; Romaniuk, J. A. H.; Chen, Z.; Cegelski, L.; Burns, N. Z.; Xia, Y. Synthesis and Mechanochemical Activation of Ladderene–Norbornene Block Copolymers. *J. Am. Chem. Soc.* **2018**, 140 (39), 12388–12391. 10.1021/jacs.8b08908

- (5) Moss, F. R.; Shuken, S. R.; **Mercer, J. A. M.**; Cohen, C. M.; Weiss, T. M.; Boxer, S. G.; Burns, N. Z. Ladderane Phospholipids Form a Densely Packed Membrane with Normal Hydrazine and Anomalously Low Proton/Hydroxide Permeability. *Proc. Natl. Acad. Sci.* **2018**, *115* (37), 9098–9103. 10.1073/pnas.1810706115
- (4) Chen, Z.; **Mercer, J. A. M.**; Zhu, X.; Romaniuk, J. A. H.; Pfattner, R.; Cegelski, L.; Martinez, T. J.; Burns, N. Z.; Xia, Y. Mechanochemical Unzipping of Insulating Polyladderene to Semiconducting Polyacetylene. *Science* **2017**, *357* (6350), 475–479. 10.1126/science.aan2797
- (3) **Mercer, J. A. M.**; Cohen, C. M.; Shuken, S. R.; Wagner, A. M.; Smith, M. W.; Moss, F. R.; Smith, M. D.; Vahala, R.; Gonzalez-Martinez, A.; Boxer, S. G.; Burns, N. Z. Chemical Synthesis and Self-Assembly of a Ladderane Phospholipid. *J. Am. Chem. Soc.* **2016**, *138* (49), 15845–15848. 10.1021/jacs.6b10706
- (2) Seiple, I. B.; **Mercer, J. A. M.**; Sussman, R. J.; Zhang, Z.; Myers, A. G. Stereocontrolled Synthesis of *Syn* - β -Hydroxy- α -Amino Acids by Direct Aldolization of Pseudoephedrine Glycinamide. *Angew. Chem. Int. Ed.* **2014**, *53* (18), 4642–4647. 10.1002/anie.201400928
- (1) Lajoie, M. J.; Rovner, A. J.; Goodman, D. B.; Aerni, H.-R.; Haimovich, A. D.; Kuznetsov, G.; **Mercer, J. A. M.**; Wang, H. H.; Carr, P. A.; Mosberg, J. A.; Rohland, N.; Schultz, P. G.; Jacobson, J. M.; Rinehart, J.; Church, G. M.; Isaacs, F. J. Genomically Recoded Organisms Expand Biological Functions. *Science* **2013**, *342* (6156), 357–360. 10.1126/science.1241459

Teaching

- 2017 Head teaching assistant, Chem 35: Synthetic and Physical Organic Chemistry (Stanford)
- 2014 Advanced teaching assistant, Chem 223: Advanced Organic Chemistry (Stanford)
- 2013 Laboratory teaching fellow, Chem S-20ab: Organic Chemistry (Harvard Summer School)
- 2012 Teaching fellow, Chem 17: Principles of Organic Chemistry (Harvard College)
- 2011 Teaching fellow, Chem E-2ab: Organic Chemistry (Harvard Extension School)
- 2011 Laboratory teaching fellow, Chem S-20ab: Organic Chemistry (Harvard Summer School)
- 2011 Laboratory teaching fellow, Chem E-2ab: Organic Chemistry (Harvard Extension School)

Patents

- (5) Liu, D. R.; Choudhary, A.; Mercer, J. A. M.; DeCarlo, S. J. Evolved protein degrons. WO2023245005 (2023).
- (4) Choudhary, A.; Nguyen, T.; Sreekanth, V.; Shoba, V.; Deb, A.; Tiwari, P.; Kokkonda, P.; Mercer, J. A. M. Directed degron molecules and applications thereof. WO2023081400 (2023).
- (3) Liu, D. R.; Mercer, J. A. M. Base editing by transglycosylation. WO2021030666A1 (2021).
- (2) Liu, D. R.; Doman, J. L.; Mercer, J. A. M. A:T to C:G base editors and uses thereof. WO2020181180A1 (2020).
- (1) Burns, N. A.; Shuken, S. R.; Mercer, J. A. M.; Cohen, C. M. Ladderane lipid compounds and liposomes and methods of preparing and using the same. WO2018045094A1 (2018).