

LAURA M. K. DASSAMA

Department of Chemistry
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Professional Appointments

Stanford University, Assistant Professor of Chemistry, 2018-present
Stanford University, ChEM-H Institute Scholar, 2018-present

Academic Training

Boston Children's Hospital, Research Associate, 2017-2018
Advisor: Dr. Stuart H. Orkin. Research: Fetal hemoglobin induction in sickle cell disease

Northwestern University, Postdoctoral Fellow, 2013-2017
Advisor: Prof. Amy C. Rosenzweig. Research: Copper acquisition by methanotrophs

Pennsylvania State University, Ph.D. in Biochemistry, Microbiology, and Molecular Biology
Advisors: Profs. J. Martin Bollinger, Jr. and Carsten Krebs. Thesis: Mechanistic investigations of class I ribonucleotide reductases and related oxygen-utilizing metalloenzymes

Temple University, B.S. in Biochemistry
Advisor: Prof. Robert J. Stanley. Research: Mechanism of base flipping during repair of the 6-4 photolesion by the DNA photolyase from *Xenopus laevis*

Awards

12. Hellman Faculty Scholar Fund, Stanford University (2019-2020)
11. Pennsylvania State University Alumni Achievement Award (2019)
10. Terman Fellowship, Stanford University (2018-2021)
9. Gabilan Junior Faculty Fellowship, Stanford University (2018-2021)
8. Burroughs Wellcome Fund Postdoctoral Enrichment Program Grant (2015-2018)
7. Ruth L. Kirschstein National Research Service Award, National Institutes of Health (2014-2017)
6. Pennsylvania State University Alumni Association Dissertation Award (2013)
5. Alfred P. Sloan Minority Ph.D. Scholar (2009-2013)
4. Carl Storm Underrepresented Minority Fellowship, Gordon Research Conference (2011)
3. Travel Award, Department of Biochemistry, Microbiology, and Molecular Biology, Pennsylvania State University (2011)
2. Homer F. Braddock and Nellie H. and Oscar L. Roberts Fellowships, Pennsylvania State University (2007-2009)
1. Bunton-Waller Graduate Awards Program, Pennsylvania State University (2008)

Publications (pre-Stanford)

15. Martin Srnc^{*}, Shyam R. Iyer^{*}, **Laura M. K. Dassama**, Kiyong Park, Shaun D. Wong, Kyle D. Sutherlin, Yoshitaka Yoda, Yasuhiro Kobayashi, Masayuki Kurokuzu, Makina Saito, Makoto Seto, Carsten Krebs, J. Martin Bollinger, Jr., and Edward I. Solomon. Nuclear resonance vibrational spectroscopy definition of the facial triad Fe^{IV}=O intermediate in taurine dioxygenase: evaluation of structural contributions to hydrogen atom abstraction. *J. Am. Chem. Soc.* **2020**, 42, 18886-18896.

14. Grace E. Kenney*, **Laura M. K. Dassama***, Anastasia C. Manesis, Matthew O. Ross, Siyu Chen, Brian M. Hoffman, and Amy C. Rosenzweig. MbnH is a diheme MauG-like protein associated with microbial copper homeostasis. *J. Biol. Chem.* **2019**, *294*, 16141-16151.
13. Falak Sher*, Mir Hossain*, Davide Seruggia*, Vivien Schoonenberg, Qiuming Yao, Paolo Cifani, **Laura M. K. Dassama**, Mitchel Cole, Claudio Macias-Trevino, Kevin Luk, Connor McGuckin, Patrick Schupp, Matthew Canver, Ryo Kurita, Yukio Nakamura, Yuko Fujiwara, Scot Wolfe, Luca Pinello, Takahiro Maeda, Alex Kentsis, Stuart Orkin, and Daniel Bauer. Rational targeting of a NuRD subcomplex guided by comprehensive in situ mutagenesis. *Nature Genetics* **2019**, *51*, 1149-1159.
12. Grace E. Kenney, **Laura M. K. Dassama**, Maria-Eirini Pandelia, Anthony S. Gizzi, Ryan J. Martinie, Peng Gao, Caroline J. DeHart, Luis F. Schachner, Owen S. Skinner, Soo Y. Ro, Xiao Zhu, Monica Sadek, Paul M. Thomas, Steven C. Almo, J. Martin Bollinger Jr., Carsten Krebs, Neil L. Kelleher, Amy C. Rosenzweig. The Biosynthesis of Methanobactin. *Science* **2018**, *359*, 1411-1416.
11. Spencer C. Peck, Chen Wang, **Laura M. K. Dassama**, Bo Zhang, Yisong Guo, Lauren J. Rajakovich, J. Martin Bollinger, Jr., Carsten Krebs, and Wilfred A. van der Donk. O-H Activation by an Unexpected Ferryl Intermediate during Catalysis by 2-Hydroxyethylphosphonate Dioxygenase. *J. Am. Chem. Soc.* **2017**, *139*, 20145-2052.
10. **Laura M. K. Dassama***, Grace E. Kenney*, and Amy C. Rosenzweig. Methanobactins: From Genome to Function. *Metallomics* **2017**, *9*, 7-20.
9. **Laura M. K. Dassama**, Grace E. Kenney, Soo Y. Ro, Eliza L. Zielanzinski, and Amy C. Rosenzweig. The Methanobactin Transport Machinery. *Proc. Natl. Acad. Sci. USA* **2016**, *113*, 13027-13032.
8. Jovan Livada*, Ryan J. Martinie*, **Laura M. K. Dassama**, Carsten Krebs, J. Martin Bollinger, Jr., Alexey Silakov. Direct Measurement of the Radical Translocation Distance in the Class I Ribonucleotide Reductase from *Chlamydia trachomatis*. *J. Phys. Chem. B.* **2015**, *119*, 13777-13784.
7. Yeonju Kwak, Wei Jiang, **Laura M. K. Dassama**, Kiyong Park, Caleb B. Bell, Lei V. Liu, Shaun D. Wong, Makina Saito, Yasuhiro Kobayashi, Shinji Kitao, Makoto Seto, Yoshitaka Yoda, Esen E. Alp, Jiyong Zhao, J. Martin Bollinger, Jr., Carsten Krebs, and Edward I. Solomon. Geometric and Electronic Structure of the Mn(IV)/Fe(III) Cofactor in Class Ic Ribonucleotide Reductase: Correlation to the Class Ia Binuclear Non-Heme Iron Enzyme. *J. Am. Chem. Soc.* **2013**, *135*, 17573-17584.
6. **Laura M. K. Dassama**, Alexey Silakov, Courtney M. Krest, Julio C. Calixto, Carsten Krebs, J. Martin Bollinger, Jr., and Michael T. Green. A 2.8 Å Fe-Fe Separation in the Fe₂^{III/IV} Intermediate (**X**) from *Escherichia coli* Ribonucleotide Reductase. *J. Am. Chem. Soc.* **2013**, *135*, 16758-16761.
5. **Laura M. K. Dassama**, Carsten Krebs, Amy C. Rosenzweig, J. Martin Bollinger, Jr., and Amie K. Boal. Structural Basis for Assembly of the Mn^{IV}/Fe^{III} Cofactor in the Class Ic Ribonucleotide Reductase from *Chlamydia trachomatis*. *Biochemistry* **2013**, *52*, 6424-6436.
4. Carsten Krebs, **Laura M. K. Dassama**, Megan L. Matthews, Wei Jiang, John C. Price, Victoria Korboukh, Ning Li, and J. Martin Bollinger, Jr. Novel Approaches for the Accumulation of Oxygenated Intermediates to Multi-Millimolar Concentrations. *Coord. Chem. Rev.* **2013**, *257*, 234-253.
3. **Laura M. K. Dassama***, Wei Jiang*, Paul T. Varano, Maria-Eirini Pandelia, Denise A. Conner, Jiajia Xie, J. Martin Bollinger, Jr., and Carsten Krebs. Radical-Translocation Intermediates and Hurdling of

Pathway Defects in “Super-oxidized” ($\text{Mn}^{\text{IV}}/\text{Fe}^{\text{IV}}$) *Chlamydia trachomatis* Ribonucleotide Reductase. *J. Am. Chem. Soc.* **2012**, *134*, 20498-20506.

2. **Laura M. K. Dassama**, Timothy H. Yosca, Denise A. Conner, Michael H. Lee, Béatrice Blanc, Bennett R. Streit, Michael T. Green, Jennifer L. DuBois, Carsten Krebs, and J. Martin Bollinger, Jr. O_2 -Evolving Chlorite Dismutase as a Tool for Studying O_2 -Utilizing Enzymes. *Biochemistry* **2012**, *51*, 1607-1616.

1. **Laura M. K. Dassama***, Amie K. Boal*, Carsten Krebs, Amy C. Rosenzweig, and J. Martin Bollinger, Jr. Evidence That the β Subunit of *Chlamydia trachomatis* Ribonucleotide Reductase Is Active with the Manganese Ion of Its Manganese(IV)/Iron(III) Cofactor in Site 1. *J. Am. Chem. Soc.* **2012**, *134*, 2520-2523.

*: Equal contribution

Oral Presentations (invited)

21. University of Pennsylvania, Department of Chemistry, 2021
20. University of California-San Francisco, Department of Chemistry, 2021
19. University of Rochester, ADSE Lecture, Department of Chemistry, March 2020[#]
18. University of Illinois at Urbana-Champaign, Krug Lecture, February 2020
17. San Francisco State University, Department of Chemistry, February 2020
16. San Jose State University, Department of Chemistry, November 2019
15. Stanford University, Center for Molecular Analysis and Design Annual Symposium, September 2019
14. Stanford University, ChEM-H Chemical Biology Interface Trainee Lunch, December 2018
13. Stanford University, Prokaryotic Data and Journal Club, October 2018
12. Stanford University, Department of Biochemistry, October 2018
11. University of Maryland – Baltimore County, Department of Chemistry and Biochemistry, May 2018
10. American Society for Biochemistry and Molecular Biology Annual Meeting, April 2018
9. Temple University, Department of Chemistry, March 2018
8. Stanford University, Department of Chemistry, February 2017
7. New York University, Department of Chemistry, January 2017
6. Johns Hopkins University, Department of Chemistry, January 2017
5. University of Pennsylvania, Department of Chemistry, January 2017
4. University of Texas at Austin, Departments of Chemistry and of Molecular Biosciences, December 2017
3. University of Alabama, Department of Chemistry, December 2016
2. University of Minnesota, Department of Chemistry, December 2016
1. University of Michigan, Department of Chemistry, November 2016

[#]: Canceled due to the COVID-19 pandemic

Oral Presentations (contributed)

5. Bioinorganic Chemistry Gordon Research Seminar, January 2013
4. Penn State Bioinorganic Workshop, May 2012
3. Enzyme Ribonucleotide Reductase Symposium, November 2011
2. International Conference on Biological Inorganic Chemistry, August 2011
1. Alfred P. Sloan Scholars Brown Bag Lecture Series, Pennsylvania State University, February 2010

Teaching

3. Instructor, CHEM181/CHEMENG181/CHEMENG281: Biochemistry I, Autumn 2019
2. Instructor, CHEM184: Biochemistry I Laboratory, Spring 2019, 2020

1. Instructor, CHEM111: Exploring Chemical Research at Stanford, Winter 2019

University Service

7. Faculty resource advisor, DARE
6. Faculty advisor, NOBCChe @ Stanford
5. Department of Chemistry graduate admissions committee, 2019
4. Discussion leader, Microbiome Bioinformatics Symposium, 2019
3. Discussion leader, Johnson Symposium, 2019
2. ChEM-H/Neuroscience building dedication symposium speaker selection committee, 2019
1. Department of Chemistry faculty search committee, 2018

Other Service

5. Editorial Advisory Board, *JACS*
4. Early Career Editorial Advisory Board, *ACS Chemical Biology*
3. Board of Reviewing Editors, *eLife*
2. Early Career Editorial Advisory Board, *Chemical Reviews*
1. ACS Division of Biological Chemistry, nominations committee member, 2020-2023