



## Laura M.K. Dassama

Assistant Professor of Chemistry

### Bio

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#### BIO

Laura Dassama is a chemical biologist who uses principles from chemistry and physics to understand complex biological phenomena, and to leverage that understanding for the modulation of biological processes. Her current research focuses on deciphering the molecular recognition mechanisms of multidrug transporters implicated in drug resistance, rational engineering and repurposing of natural products, and control of transcription factors relevant to sickle cell disease.

#### ACADEMIC APPOINTMENTS

- Assistant Professor, Chemistry
- Member, Bio-X
- Institute Scholar, Sarafan ChEM-H

#### HONORS AND AWARDS

- Hellman Faculty Scholar, Stanford University (2019-2020)
- Alumni Achievement Award, Pennsylvania State University (2019)
- Gabilan Junior Faculty Fellowship, Stanford University (2018-2021)
- Terman Faculty Fellowship, Stanford University (2018-2021)
- Postdoctoral Enrichment Program Grant, Burroughs Wellcome Fund (2015-2018)
- Ruth L. Kirschstein National Research Service Award, National Institutes of Health (2014-2017)
- Alumni Association Dissertation, Pennsylvania State University (2013)
- Carl Storm Underrepresented Minority Fellowship, Gordon Research Conference (2011)
- Minority Ph.D. Scholar, Alfred P. Sloan Foundation (2009-2013)

#### PROFESSIONAL EDUCATION

- B.S., Temple University, Biochemistry (2007)
- Ph.D., Pennsylvania State University, Biochemistry and Molecular Biology (2013)
- Postdoctoral fellow, Northwestern University, Molecular Biosciences (2017)
- Research Associate, Boston Children's Hospital, Harvard Medical School, and Dana-Farber Cancer Institute, Hematology/Oncology (2018)

#### LINKS

- Lab Website: <https://www.dassamalab.org/>

## Teaching

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### COURSES

#### 2021-22

- Biochemistry I: CHEM 181, CHEMENG 181, CHEMENG 281 (Aut)
- Biological Chemistry Laboratory: CHEM 184 (Spr)

#### 2020-21

- Biological Chemistry Laboratory: CHEM 184 (Spr)

#### 2019-20

- Biochemistry I: CHEM 181, CHEMENG 181, CHEMENG 281 (Aut)
- Biological Chemistry Laboratory: CHEM 184 (Spr)

#### 2018-19

- Biological Chemistry Laboratory: CHEM 184 (Spr)
- Exploring Chemical Research at Stanford: CHEM 111 (Win)

### STANFORD ADVISEES

#### Doctoral Dissertation Reader (AC)

Augustin Braun, Madeline Chosy, Alex Heyer, Taylor Jones, Rachel Mardjuki, Wilson Sinclair

#### Postdoctoral Faculty Sponsor

Paul Ludford, Fangfang Shen, Liting Zhai

#### Doctoral Dissertation Advisor (AC)

Chiu-Chun Chou, Lisha Ou, Makedlawit Setegne

## Publications

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### PUBLICATIONS

- **The enzymology of oxazolone and thioamide synthesis in methanobactin.** *Methods in enzymology*  
Chou, J. C., Stafford, V. E., Kenney, G. E., Dassama, L. M.  
2021; 656: 341-373
- **Nuclear Resonance Vibrational Spectroscopic Definition of the Facial Triad FeIV#O Intermediate in Taurine Dioxxygenase: Evaluation of Structural Contributions to Hydrogen Atom Abstraction.** *Journal of the American Chemical Society*  
Srncic, M., Iyer, S. R., Dassama, L. M., Park, K., Wong, S. D., Sutherlin, K. D., Yoda, Y., Kobayashi, Y., Kurokuzu, M., Saito, M., Seto, M., Krebs, C., Bollinger, et al  
2020
- **Rational targeting of a NuRD subcomplex guided by comprehensive in situ mutagenesis.** *Nature genetics*  
Sher, F. n., Hossain, M. n., Seruggia, D. n., Schoonenberg, V. A., Yao, Q. n., Cifani, P. n., Dassama, L. M., Cole, M. A., Ren, C. n., Vinjamur, D. S., Macias-Trevino, C. n., Luk, K. n., McGuckin, et al  
2019
- **MbnH is a diheme MauG-like protein associated with microbial copper homeostasis.** *The Journal of biological chemistry*  
Kenney, G. E., Dassama, L. M., Manesis, A. C., Ross, M. O., Chen, S. n., Hoffman, B. M., Rosenzweig, A. C.  
2019
- **The biosynthesis of methanobactin** *SCIENCE*  
Kenney, G. E., Dassama, L. K., Pandelia, M., Gizzi, A. S., Martinie, R. J., Gao, P., DeHart, C. J., Schachner, L. F., Skinner, O. S., Ro, S. Y., Zhu, X., Sadek, M., Thomas, et al

2018; 359 (6382): 1411-+

- **Copper transport in methanotrophic bacteria**  
Kenney, G., Dassama, L., Ro, S., Rosenzweig, A.  
AMER CHEMICAL SOC.2017
- **Bacterial copper acquisition**  
Rosenzweig, A. C., Kenney, G. E., Dassama, L. K., Ro, S. Y.  
FEDERATION AMER SOC EXP BIOL.2017
- **O-H Activation by an Unexpected Ferryl Intermediate during Catalysis by 2-Hydroxyethylphosphonate Dioxygenase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Peck, S. C., Wang, C., Dassama, L. K., Zhang, B., Guo, Y., Rajakovich, L. J., Bollinger, J., Krebs, C., van der Donk, W. A.  
2017; 139 (5): 2045–52
- **Methanobactins: from genome to function** *METALLOMICS*  
Dassama, L. K., Kenney, G. E., Rosenzweig, A. C.  
2017; 9 (1): 7–20
- **Methanobactin transport machinery** *PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES OF THE UNITED STATES OF AMERICA*  
Dassama, L. K., Kenney, G. E., Ro, S. Y., Zielazinski, E. L., Rosenzweig, A. C.  
2016; 113 (46): 13027–32
- **Direct Measurement of the Radical Translocation Distance in the Class I Ribonucleotide Reductase from Chlamydia trachomatis** *JOURNAL OF PHYSICAL CHEMISTRY B*  
Livada, J., Martinie, R. J., Dassama, L. K., Krebs, C., Bollinger, J., Silakov, A.  
2015; 119 (43): 13777–84
- **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.** *Journal of the American Chemical Society*  
Kwak, Y., Jiang, W., Dassama, L. M., Park, K., Bell, C. B., Liu, L. V., Wong, S. D., Saito, M., Kobayashi, Y., Kitao, S., Seto, M., Yoda, Y., Alp, et al  
2013; 135 (46): 17573-17584
- **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.** *Journal of the American Chemical Society*  
Kwak, Y., Jiang, W., Dassama, L. M., Park, K., Bell, C. B., Liu, L. V., Wong, S. D., Saito, M., Kobayashi, Y., Kitao, S., Seto, M., Yoda, Y., Alp, et al  
2013; 135 (46): 17573-17584
- **A 2.8 angstrom Fe-Fe Separation in the Fe-2(III/IV) Intermediate, X, from Escherichia coli Ribonucleotide Reductase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Dassama, L. K., Silakov, A., Krest, C. M., Calixto, J. C., Krebs, C., Bollinger, J., Green, M. T.  
2013; 135 (45): 16758–61
- **Structural Basis for Assembly of the Mn-IV/Fe-III Cofactor in the Class Ic Ribonucleotide Reductase from Chlamydia trachomatis** *BIOCHEMISTRY*  
Dassama, L. K., Krebs, C., Bollinger, J., Rosenzweig, A. C., Boal, A. K.  
2013; 52 (37): 6424–36
- **Novel approaches for the accumulation of oxygenated intermediates to multi-millimolar concentrations** *COORDINATION CHEMISTRY REVIEWS*  
Krebs, C., Dassama, L. K., Matthews, M. L., Jiang, W., Price, J. C., Korboukh, V., Li, N., Bollinger, J.  
2013; 257 (1): 234–43
- **Radical-Translocation Intermediates and Hurdling of Pathway Defects in "Super-oxidized" (Mn-IV/Fe-IV) Chlamydia trachomatis Ribonucleotide Reductase** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*  
Dassama, L. M., Jiang, W., Varano, P. T., Pandelia, M., Conner, D. A., Xie, J., Bollinger, J. M., Krebs, C.  
2012; 134 (50): 20498-20506
- **O-2-Evolving Chlorite Dismutase as a Tool for Studying O-2-Utilizing Enzymes** *BIOCHEMISTRY*  
Dassama, L. K., Yosca, T. H., Conner, D. A., Lee, M. H., Blanc, B., Streit, B. R., Green, M. T., DuBois, J. L., Krebs, C., Bollinger, J.  
2012; 51 (8): 1607–16
- **Evidence That the beta Subunit of Chlamydia trachomatis Ribonucleotide Reductase Is Active with the Manganese Ion of Its Manganese(IV)/Iron(III) Cofactor in Site 1** *JOURNAL OF THE AMERICAN CHEMICAL SOCIETY*

Dassama, L. K., Boal, A. K., Krebs, C., Rosenzweig, A. C., Bollinger, J.  
2012; 134 (5): 2520–23