

# Michael James Stevenson

## Assistant Professor

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### EDUCATION

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**Ph.D. Chemistry, Dartmouth College, Hanover, NH (2016)**

Dissertation: "Thermodynamic studies of copper(I) and other  $d^{10}$  metal ions binding to proteins in the copper homeostasis pathway and the organomercurial detoxification pathway"  
Advisor: Dean E. Wilcox

**B.S. Biochemistry, University of Washington, Seattle, WA (2009)**

Advisor: Nancy Maizels

### RESEARCH EXPERIENCE

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2020–present **University of San Francisco, Department of Chemistry**

Principle Investigator

Elucidating the role of metal ions in antimicrobial peptides.

2017–2020 **University of California, Davis, Department of Chemistry**

Postdoctoral Scholar with Prof. Marie Heffern

Characterized metal binding to the peptide hormone C-peptide and their effects of the peptide *in cellulo*.

2016–2017 **Ohio State University, Department of Chemistry and Biochemistry**

Postdoctoral Scholar with Prof. Hannah Shafaat

Developed and characterized a light-activated hydrogenase for future fuel production.

2011–2016 **Dartmouth College, Department of Chemistry**

Graduate Student Researcher with Prof. Dean Wilcox

Quantified the thermodynamics of metal ions binding to the metallochaperone HAH1 to elucidate the driving force of copper transport.

2007–2008 **University of Washington, Department of Biochemistry**

Undergraduate Researcher with Prof. Nancy Maizels

Researched the effects of epigenetic modifications of histone proteins on the rate of mutation.

### TEACHING EXPERIENCE

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2020–present **University of San Francisco**

Instructor, Biochemistry (1 term)

Instructor, General Chemistry I (1 term)

- 2019      **University of California, Davis**  
Instructor, First-Year Seminar, CURE (2 terms)
- 2016      **Penn State Bioinorganic Chemistry Workshop**  
Graduate Student Instructor, Protein Calorimetry
- 2011–2016    **Dartmouth College**  
Teaching Assistant, General Chemistry 1 & 2 Laboratory (3 terms)  
Teaching Assistant, Biological Chemistry (1 term)  
Teaching Assistant, Biophysical Chemistry (2 terms)
- 2014–2015    **Woodstock Union High School**  
NSF GK-12 Teaching Fellow, Biology
- 2010      **University of Washington**  
Teaching Assistant, General Chemistry 1 (2 terms)

#### PUBLISHED TEACHING MODULES

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- [3]      **Stevenson, M.J.**; Croteau, M.L.; Cass, M.E. "Problem set on the electronic spectroscopy of Cu(I) and Cu(II) complexes with stabilizing ligands, a study in bioinorganic chemistry" *VIPeR*, 2016.
- [2]      **Stevenson, M.J.**; Cramer, V. "Candy fly evolution" *Dartmouth Science and Technology Outreach*, 2015.
- [1]      **Stevenson, M.J.**; Pletneva, E.V. "Enthalpy of Unfolding of Oxidized and Reduced Cytochrome *c*" *Biophysical Chemistry Manual, Dartmouth College*, 2013.

#### FELLOWSHIPS, AWARDS, AND AFFILIATIONS

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##### Fellowships

- Graduate STEM Fellowship in K-12 Education (GK-12), National Science Foundation Grant (2014)

##### Honors and Recognitions

- The Dartmouth Graduate Studies Teaching Award, Dartmouth College (2017)
- John H. Wolfenden Teaching Prize, Dartmouth College (2016)
- Arthur Dunham Holmes 1906 Memorial Graduate Fellowship, Dartmouth College (2014)
- GAANN Fellowship, U.S. Department of Education Grant (2013)

##### Current Affiliations

- American Chemical Society

#### OUTREACH

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- Chemistry Peer Mentoring Program (volunteer), University of California, Davis (2018 – current)
- Chemistry Outreach (member), University of California, Davis (2018 – current)
- Breakfast of Science Champions (volunteer), The Ohio State University (November 2016)
- Woodstock Union High School field trip (chaperone), Dartmouth College (2013 – 2015)

## PUBLICATIONS

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(Underlined names denote undergraduate researchers)

- [11] **Stevenson, M.J.**; Janisse, S.E.; Tao, L.; Neil, R.L.; Pham, Q.D.; Britt, R.D.; Heffern, M.C. "Elucidation of a Copper Binding Site in Proinsulin C-peptide and Its Implications for Metal-Modulated Activity" *Inorg. Chem. Accepted*.
- [10] Marguet, S.C.; **Stevenson, M.J.**; Shafaat, H.S. "Intramolecular Electron Transfer Governs Photoinduced Hydrogen Evolution by Nickel-Substituted Rubredoxin: Resolving Elementary Steps in Solar Fuel Generation" *J. Phys. Chem. B*, **2019**, 123, 46, 9792-9800.
- [9] **Stevenson, M.J.**; Farran, I.C.; Uyeda, K.S.; San Juan, J.A.; Heffern, M.C. "Analysis of metal effects on C-peptide structure and internalization" *ChemBioChem*, **2019**, 20, 2447-2453. (Highlighted in Science Daily, PhysOrg, and as a cover feature)
- [8] **Stevenson, M.J.**.\* Uyeda, K.S..\* Harder, N.H.O.; Heffern, M.C. "Metal-dependent hormone function: the emerging interdisciplinary field of metalloendocrinology" *Metallomics*, **2019**, 11, 85-110. \*Equal contribution.
- [7] **Stevenson, M.J.**; Heffern, M.C. "Sounding out dysfunctional oxygen metabolism: a small-molecule probe for photoacoustic imaging of hypoxia" *Biochemistry*, **2018**, 57, 893-894.
- [6] Schneider, C.R.; Manesis, A.C.; **Stevenson, M.J.**; Shafaat, H.S. "A photoactive semisynthetic metalloenzyme exhibits complete selectivity for CO<sub>2</sub> reduction in water" *Chem Commun.*, **2018**, 54, 4681-4684.
- [5] **Stevenson, M.J.**; Marguet, S.C.; Schneider, C.R.; Shafaat, H.S. "Light-driven hydrogen evolution by nickel-substituted rubredoxin" *ChemSusChem*, **2017**, 10, 4424-4429.
- [4] Wahba, H.; **Stevenson, M.J.**; Mansour, A.; Sygusch, J.; Wilcox, D.E.; Omichinski, J.G. "Structural and biochemical characterization of organotin and organolead compounds binding to the organomercurial lyase MerB provide new insights into its mechanism of carbon-metal bond cleavage" *Journal of the American Chemical Society*, **2017**, 139, 910-921.
- [3] Carpenter, M.C.; Shah, A.S.; DeSilva, S.; Gleaton, A.; Su, A.; Goundie, B.; Croteau, M.L.; **Stevenson, M.J.**; Wilcox, D.E.; Austin, R.N. "Thermodynamics of Pb(II) and Zn(II) binding to MT-3, a neurologically important metallothionein" *Metallomics*, **2016**, 8, 605-617.
- [2] Wahba, H.M.; Lecoq, L.; **Stevenson, M.J.**; Mansour, A.; Cappadocia, L.; Lafrance-Vanasse, J.; Wilkinson, K.J.; Sygusch, J.; Wilcox, D.E.; Omichinski, J.G. "Structural and biochemical characterization of a copper-binding mutant of the organomercurial lyase MerB: Insight into the key role of the active site aspartic acid in both Hg-carbon bond cleavage and metal-binding specificity" *Biochemistry*, **2016**, 55, 1070-1081.
- [1] Johnson, D.K.; **Stevenson, M.J.**; Almadidy, Z.A.; Jenkins, S.E.; Wilcox, D.E.; Grosseohme, N.E. "Stabilization of Cu(I) for binding and calorimetric measurements in aqueous solution" *Dalton Transactions*, **2015**, 44, 16494-16505.

## ORAL PRESENTATIONS

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- [2] **Stevenson, M.J.**; Farran, I.C.; Uyeda, K.S.; San Juan, J.A.; Heffern, M.C. "Analysis of metal effects on C-peptide structure and internalization" *Gordon Research Seminar on Bioinorganic Chemistry*, **2019**, Ventura, California.
- [1] **Stevenson, M.J.**; Schuster, J.V.; Wilcox, D.E. "Thermodynamics of Cu(I), Ag(I), and other d<sup>10</sup> metal ions binding to the metallochaperone HAH1, and the effect of glutathione on this binding" *250<sup>th</sup> ACS National Meeting and Exposition*, **2015**, Boston, Massachusetts.

## POSTER PRESENTATIONS

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- [9] **Stevenson, M.J.**; Farran, I.C.; Uyeda, K.S.; San Juan, J.A.; Heffern, M.C. "Analysis of metal effects on C-peptide structure and internalization" *Gordon Research Conference on Metals in Biology*, **2019**, Ventura, California.
- [8] **Stevenson, M.J.**; Farran, I.C.; Uyeda, K.S.; San Juan, J.A.; Heffern, M.C. "Analysis of metal effects on C-peptide structure and internalization" *Southern California Bioinorganic Conference*, **2018**, Pasadena, California.
- [7] **Stevenson, M.J.**; Slater, J.W.; Marguet, S.C.; Shafaat, H.S. "Spectroscopic insight into the mechanism of nickel-substituted rubredoxin, a bioinspired hydrogenase mimic" *American Society for Biochemistry and Molecular Biology (ASBMB) Annual Meeting*, **2017**, Chicago, Illinois.
- [6] **Stevenson, M.J.**; Wilcox, D.E. "Thermodynamics of Cu(I) and surrogate metal ions binding to the metallochaperone HAH1, and the effect of glutathione on this binding" *4<sup>th</sup> Penn State Bioinorganic Workshop*, **2016**, State College, Pennsylvania.
- [5] **Stevenson, M.J.**; Schuster, J.V.; Wilcox, D.E. "Thermodynamic analysis of Cu(I) and Ag(I) binding to the metallochaperone HAH1" *Boston Regional Inorganic Colloquium (BRIC)*, **2015**, Waltham, Massachusetts.
- [4] **Stevenson, M.J.**; Schuster, J.V.; Wilcox, D.E. "Thermodynamics of Cu(I) and Ag(I) binding to the metallochaperone HAH1" *Frontiers in Metallobiochemistry III*, **2014**, State College, Pennsylvania.
- [3] **Stevenson, M.J.**; Schuster, J.V.; Wilcox, D.E. "Thermodynamics of Cu(I) and Ag(I) binding to the metallochaperone HAH1" *Boston Regional Inorganic Colloquium (BRIC)*, **2014**, Hanover, New Hampshire.
- [2] **Stevenson, M.J.**; Schuster, J.V.; Wilcox, D.E. "Thermodynamics of Cu(I) and Ag(I) binding to the metallochaperone HAH1" *Northeastern Regional Meeting (NERM) of the American Chemical Society*, **2013**, New Haven, Connecticut.
- [1] **Stevenson, M.J.**; Wilcox, D.E. "Thermodynamics of Metal-HAH1 Interaction and Structural Stability of Apo-HAH1" *Users Meeting of GE Healthcare*, **2012**, Cambridge, Massachusetts.