Matthew D. Liptak

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EDUCATION

Ph.D. **University of Wisconsin-Madison** (Madison, WI) 2008
Major: Physical Chemistry
Advisor: Professor Thomas C. Brunold

B.A. **Hamilton College** (Clinton, NY) 2003
Major: Chemistry
Minor: Physics
Advisor: Professor George C. Shields

PROFESSIONAL AND RESEARCH EXPERIENCE

Professor of Chemistry 2022 – current
University of Vermont (Burlington, VT)

Biochemistry B.S. Program Director 2021 – current
University of Vermont (Burlington, VT)

Associate Professor of Chemistry 2018 – 2022
University of Vermont (Burlington, VT)

Chemistry Ph.D. and M.S. Program Coordinator 2017 – 2021
University of Vermont (Burlington, VT)

Assistant Professor of Chemistry 2011 – 2018
University of Vermont (Burlington, VT)

NIH NRSA Postdoctoral Research Fellow 2008 – 2011
University of Rochester (Rochester, NY)
Research Advisor: Professor Kara L. Bren
Grant Title: *NMR and DFT Investigation of Porphyrin Conformation in Cytochromes* c

Graduate Research Assistant 2003 – 2008
University of Wisconsin-Madison (Madison, WI)
Research Advisor: Professor Thomas C. Brunold
Thesis: *Spectroscopic and Computational Insights into the Cofactor Activation Mechanism of Cobalamin-dependent Methionine Synthase*

Undergraduate Research Assistant 2000 – 2003
Hamilton College (Clinton, NY)
Research Advisor: Professor George C. Shields
Thesis: *Modeling the Inhibition of Cdc25B: Incorporating QM/MM into Rational Drug Design*

RESEARCH ACTIVITES

Publications

44. Morris, J.A.; Ayodele-Davis, O.O.E.; Martorelli Di Genova, B.; **Liptak, M.D.** "*Archaeoglobus fulgidus* CbiXS is a Cobalt Chelatase where Co(II) is li-gated by His10 and His74" *ChemRxiv* **2026**.

43. Grover, A.G.; Nabi, A.; Conger, M.A.; **Liptak, M.D.** "The roles of Asn7 and Trp67 in tuning the ferryl haem form of *Staphylococcus aureus* IsdG" *ChemRxiv* **2025**.

42. Taddei, M.; Shao, B.; Lickey, B.S.; Qi, Q.; **Liptak, M.D.**; Aprahamian, I.; Di Donato, M. "Substituent effect on the excited state dynamics of bistable photochromic hydrazones" *Phys. Chem. Chem. Phys.* **2025**, *27*, 17910-17921.

41. Grover, A.G.; Conger, M.A.; **Liptak, M.D.** "Stabilization of the ferryl=oxoheme form of *Staphylococcus aureus* IsdG by electron transfer from a second-sphere tryptophan" *J. Am. Chem. Soc.* **2025**, *147*, 10598-10611.

40. Johnson, K.L.; Graves, A.B.; Eckhert, K.; **Liptak, M.D.** "Second-sphere tuning of analogues for the ferric–hydroperoxoheme form of *Mycobacterium tuberculosis* MhuD" *J. Inorg. Biochem.* **2023**, *246*, 112300.

39. Petrucci, A.N.; Cousins, M.E.; **Liptak, M.D.** "Beyond 'mega': origin of the 'giga' Stokes shift of triazolopyridiniums" *J. Phys. Chem.* **2022**, *126*, 6997-7005.

38. Morris, J.A.; Lickey, B.; **Liptak, M.D.** "Insertion of cobalt into tetrapyrroles" *Vitam. Horm.* **2022**, *119*, 1-22.

37. Schuelke-Sanchez, A.E.; Cornetta, A.R.; Kocian, T.A.J.; Conger, M.A.; **Liptak, M.D.** "Ruffling is essential for *Staphylococcus aureus* IsdG-catalyzed degradation of heme to staphylobilin" *J. Biol. Inorg. Chem.* **2022**, *230*, 111775.

36. Roy, M.D.; Trenerry, M.J.; Thakuri, B.; MacMillan, S.N.; **Liptak, M.D.**; Lancaster, K.M.; Berry, J.F. "Electronic structure of Ru_2^{6+} complexes with electron-rich anilinopyridinate ligands" *Inorg. Chem.* **2022**, *61*, 3443-3457.

35. Novas, B.T.; Morris, J.A.; **Liptak, M.D.**; Waterman, R. "Effect of photolysis on zirconium amino phenoxides for the hydrophosphination of alkenes: improving catalysis" *Photochem* **2022**, *2*, 77-87.

34. Jenny, K.A.; Ruggles, E.L.; **Liptak, M.D.**; Masterson, D.S.; Hondal, R.J. "Ergothioneine in a peptide: substitution of histidine with 2-thiohistidine in bioactive peptides" *J. Pept. Sci.* **2021**, *28*, e3339.

33. Thakuri, B.; O'Rourke, B.D.; Graves, A.B.; **Liptak, M.D.** "A dynamic substrate is required for MhuD-catalyzed degradation of heme to mycobilin" *Biochemistry*, **2021**, *60*, 918-928.

32. Schuelke-Sanchez, A.E.; Stone, A.A.; **Liptak, M.D.** "CfbA promotes insertion of cobalt into ruffled tetrapyrroles" *Dalton Trans.*, **2020**, *49*, 1065-1076.

31. Conger, M.A.; Cornetta, A.R.; **Liptak, M.D.** "Spectroscopic evidence for electronic control of heme hydroxylation by IsdG" *Inorg. Chem.*, **2019**, *58*, 15455-15465.

30. Shao, B.; Stankewitz, N.; Morris, J.A.; **Liptak, M.D.**; Aprahamian, I. "White-light emission from a structurally simple hydrazone" *Chem. Comm.*, **2019**, *55*, 9551-9554.

29. Wu, K; Conger, M.A.; Waterman, R.; **Liptak, M.**; Geiger, W.E. "Electrochemical and structural characterization of a radical cation formed by one-electron oxidation of a cymantrene complex containing an N-heterocyclic carbene ligand" *Polyhedron*, **2019**, *157*, 442-448.

28. Thakuri, B.; Graves, A.B.; Chao, A.; Johansen, S.L.; Goulding, C.W.; **Liptak, M.D.** "The affinity of MhuD for heme is consistent with a heme degrading function *in vivo*" *Metallomics*, **2018**, *10*, 1560-1563.

27. Bange, C.A.; Conger, M.A.; Novas, B.T.; Young, E.R.; **Liptak, M.D.**; Waterman, R. "Light-driven, Zirconium-catalyzed Hydrophosphination with Primary Phosphines" *ACS Catal.*, **2018**, *8*, 6230-6238.

26. Anathy, V.; Lahue, K.G.; Chapman, D.G.; Chia, S.B.; Casey, D.T.; Aboushousha, R.; van der Velden, J.L.J.; Elko, E.; Hoffman, S.M.; McMillan, D.H.; Jones, J.T.; Nolin, J.D.; Abdalla, S.; Schneider, R.; Seward, D.; Roberson, E.C.; **Liptak, M.D.**; Cousins, M.E.; Butnor, K.J.; Taatjes, D.J.; Budd, R.C.; Irvin, C.G.; Ho, Y-S.; Hakem, R.; Brown, K.K.; Matsui, R.; Bachschmid, M.M.; Gomez, J.L.; Kaminski, N.; van der Vliet, A.; Janssen-Heininger, Y.M.W. "Reducing Protein Oxidation Reverses Lung Fibrosis" *Nat. Med.*, **2018**, *24*, 1128-1135.

25. Conger, M.A.; Pokhrel, D.; **Liptak, M.D.** "Tight binding of heme to *Staphylococcus aureus* IsdG and IsdI precludes design of a competitive inhibitor" *Metallomics*, **2017**, *9*, 556-563.
Metallomics 2017 Most Downloaded Articles Collection

24. Qian, H.; Cousins, M.E.; Horak, E.H.; Wakefield, A.; **Liptak, M.D.**; Aprahamian, I. "Suppression of Kasha's Rule (SOKR): A Novel Mechanism to Explain Aggregation Induced Emission" *Nat. Chem.* **2017**, *9*, 83-87.

23. Graves, A.B.; Horak, E.H.; **Liptak, M.D.** "Dynamic Ruffling Distortion of the Heme Substrate in Non-Canonical Heme Oxygenase Enzymes" *Dalton Trans.* **2016**, *45*, 10058-10067.
New Talent: Americas Collection

22. Graves, A.B.; Graves, M.T.; **Liptak, M.D.** "Measurement of Heme Ruffling Changes in MhuD Using UV/Vis Spectroscopy" *J. Phys. Chem. B* **2016**, *120*, 3844-3853.

21. Lockhart, C.L.; Conger, M.A.; Pittman, D.S.; **Liptak, M.D.** "Hydrogen bond donation to the heme distal ligand of *Staphylococcus aureus* IsdG tunes the electronic structure" *J. Biol. Inorg. Chem.* **2015**, *20*, 757-770.

20. Graves, A.B.; Morse, R.P.; Chao, A.; Iniguez, A.; Goulding, C.W.; **Liptak, M.D.** "Crystallographic and Spectroscopic Insights into Heme Degradation by *Mycobacterium tuberculosis* MhuD" *Inorg. Chem.* **2014**, *53*, 5931-5940.

19. Owens, C.P.; Chim, N.; Graves, A.B.; Harmston, C.A.; Contreras, H.; Iniguez, A.; **Liptak, M.D.**; Goulding, C.W. "The *Mycobacterium tuberculosis* Secreted Protein, Rv0203, Transfers Heme to Membrane Proteins, Mycobacterial membrane protein Large 3 (MmpL3) and MmpL11" *J. Biol. Chem.* **2013**, *288*, 21714-21728.

18. Su, X.; **Liptak, M.D.**; Aprahamian, I. "Water-soluble Triazolopyridiniums as Tunable Blue Light Emitters" *Chem. Commun.* **2013**, *49*, 4160-4162.

Supervised Career

17. Josephs, T.M.; **Liptak, M.D.**; Hughes, G.; Lo, A.; Smith, R.M.; Wilbanks, S.M.; Bren, K.L.; Ledgerwood, E.C. "Conformational change and human cytochrome *c* function: mutation of residue 41 modulates caspase activation and destabilizes Met-80 coordination" *J. Biol. Inorg. Chem.* **2013**, *18*, 289-297.

16. **Liptak, M.D.**; Fagerlund, R.D.; Ledgerwood, E.C.; Wilbanks, S.M.; Bren, K.L. "The Proapoptotic G41S Mutation to Human Cytochrome *c* Alters the Heme Electronic Structure and Increases the Electron Self-exchange Rate" *J. Am. Chem. Soc.* **2011**, *133*, 1153-1155.

15. **Liptak, M.D.**; Wen, X.; Bren, K.L. "NMR and DFT Investigation of Heme Ruffling: Functional Implications for Cytochrome *c*" *J. Am. Chem. Soc.* **2010**, *132*, 9753-9763.

14. **Liptak, M.D.**; Fleischhacker, A.S.; Matthews, R.G.; Telser, J.; Brunold, T.C. "Spectroscopic and Computational Characterization of the Base-off Forms of Cob(II)alamin" *J. Phys. Chem. B.* **2009**, *113*, 5245-5254.

13. **Liptak, M.D.**; Van Heuvelen, K.M.; Brunold, T.C. "Computational Studies of Bioorganometallic Enzymes and Cofactors", in Volume 6 of *Metal Ions In Life Sciences* (Sigel, A.; Sigel, H.; Sigel, R.K.O. Eds.), Royal Society of Chemistry, Cambridge, U.K., **2009**, 417-460.

12. Brunold, T.C.; Conrad, K.S.; **Liptak, M.D.**; Park, K. "Spectroscopically-validated Density Functional Theory Studies of the B_{12} Cofactors and their Interactions with Enzyme Active Sites", *Coord. Chem. Rev.* **2008**, *253*, 779-794.

11. **Liptak, M.D.**; Datta, S.; Matthews, R.G.; Brunold, T.C. "Spectroscopic Study of the Cobalamin-dependent Methionine Synthase in the Activation Conformation: Effects of the Y1139

Residue and *S*-adenosylmethionine on the B_{12} Cofactor" *J. Am. Chem. Soc.* **2008**, *130*, 16374-16381.

10. **Liptak, M.D.**; Fleischhacker, A.S.; Matthews, R.G.; Brunold, T.C. "Probing the Role of the Histidine 759 Ligand in Cobalamin-dependent Methionine Synthase" *Biochemistry* **2007**, *46*, 8024-8035.

9. **Liptak, M.D.**; Brunold, T.C. "Spectroscopic and Computational Studies of Co^{1+}Cobalamin: Spectral and Electronic Properties of the "Superreduced" B_{12} Cofactor" *J. Am. Chem. Soc.* **2006**, *128*, 9144-9156.

8. Pickard, F.C.; Griffith, D.R.; Ferrara, S.J.; **Liptak, M.D.**; Kirschner, K.N.; Shields, G.C. "CCSD(T), W1, and Other Model Chemistry Predictions for Gas-phase Deprotonation Reactions" *Int. J. Quantum Chem.* **2006**, *106*, 3122-3128.

7. **Liptak, M.D.**; Shields, G.C. "Comparison of Density Functional Theory Predictions of Gas-phase Deprotonation Data" *Int. J. Quantum Chem.* **2005**, *105*, 580-587.

6. Pickard, F.C.; Pokon, E.K.; **Liptak, M.D.**; Shields, G.C. "Comparison of CBS-QB3, CBS-APNO, G2, and G3 Thermochemical Predictions with Experiment for Formation of Ionic Clusters of Hydronium and Hydroxide Ions Complexed with Water" *J. Chem. Phys.* **2005**, *122*, 024302.

5. **Liptak, M.D.**; Gross, K.C.; Seybold, P.G.; Feldgus, S.; Shields, G.C. "Absolute pK_a Determinations for Substituted Phenols" *J. Am. Chem. Soc.* **2002**, *124*, 6421-6427.

4. Pokon, E.K.; **Liptak, M.D.**; Feldgus, S.; Shields, G.C. "Comparison of CBS-QB3, CBS-APNO, and G3 Predictions of Gas Phase Deprotonation Data" *J. Phys. Chem. A.* **2001**, *105*, 10483-10487.

3. **Liptak, M.D.**; Shields, G.C. "Experimentation with Different Thermodynamic Cycles Used for pK_a Calculations on Carboxylic Acids Using Complete Basis Set and Gaussian-*n* Models Combined with CPCM Continuum Solvation Methods" *Int. J. Quantum Chem.* **2001**, *85*, 727-741.

2. **Liptak, M.D.**; Shields, G.C. "Accurate pK_a Calculations for Carboxylic Acids Using Complete Basis Set and Gaussian-*n* Models Combined with CPCM Continuum Solvation Methods" *J. Am. Chem. Soc.* **2001**, *123*, 7314-7319.

1. Toth, A.M.; **Liptak, M.D.**; Phillips, D.L.; Shields, G.C. "Accurate Relative pK_a Calculations for Carboxylic Acids Using Complete Basis Set and Gaussian-*n* Models Combined with Continuum Solvation Methods" *J. Chem. Phys.* **2001**, *114*, 4595-4606.

Conference Presentations

42. Kocian, T.A.; **Liptak, M.D.** "Parsing the Steric and Electronic Contributions to Isd-catalyzed Heme Degradation" *Gordon Research Conference: Metals in Biology*, **2026**, Ventura, CA.

41. **Liptak, M.D.** "Elucidating the mechanisms of *Staphylococcus aureus* IsdG and *Mycobacterium tuberculosis* MhuD" *CanBIC-9*, **2025**, Parry Sound, ON (Invited Talk).

40. Morris, J.A.; Lickey, B.L.; Lavigne, M.E.; **Liptak, M.D.** "Altering the metal selectivity of chelatases" *Gordon Research Conference: Metals in Biology*, **2025**, Ventura, CA.

39. Grover, A.; **Liptak, M.D.** "Spectroscopic characterization of the ferryl=oxoheme form of IsdG" *Gordon Research Conference: Metallocofactors*, **2024**, Easton, MA.

38. Grover, A.; **Liptak, M.D.** "Spectroscopic characterization of the ferryl=oxoheme form of IsdG" *Gordon Research Conference: Metals in Biology*, **2024**, Ventura, CA.

37. **Liptak, M.D.** "Spectroscopic characterization of the ferryl=oxoheme forms of heme oxygenases" *CanBIC-8*, **2023**, Parry Sound, ON (Invited Talk).

36. Morris, J.A.; **Liptak, M.D.** "The origin of metal selectivity for class II chelatases involved in metal tetrapyrrole biosynthesis" *Gordon Research Conference: Metals in Biology*, **2023**, Ventura, CA.

35. **Liptak, M.D.** "Non-canonical Heme Oxygenase Products: Revisited" *Gordon Research Conference: Tetrapyrroles*, **2022**, Newport, RI (Invited Talk).

34. Thakuri, B.T.; Schuelke-Sanchez, A.E.; Cornetta, A.R.; Kocian, T.A.J.; **Liptak, M.D.** "Product distributions for non-canonical heme oxygenases depend upon enzyme-induced heme ruffling" *Gordon Research Conference: Metallocofactors*, **2022**, Newport, RI.

33. Conger, M.A.; Grover, A.; **Liptak, M.D.** "Characterization of a Ferryl–oxoheme form of *Staphylococcus aureus* IsdG" *Gordon Research Conference: Metals in Biology*, **2020**, Ventura, CA.

32. **Liptak, M.D.** "Spectroscopic Evidence for Electronic Control of Heme Hydroxylation by *Staphylococcus aureus* IsdG" *CanBIC-7*, **2019**, Parry Sound, ON (Invited Talk).

31. Conger, M.A.; Cornetta, A.R.; **Liptak, M.D.** "Spectroscopic evidence for electronic control of heme hydroxylation by IsdG" *Gordon Research Conference: Metals in Biology*, **2019**, Ventura, CA.

30. **Liptak, M.D.** "Spectroscopic Evidence for Electronic Control of Heme Hydroxylation by *Staphylococcus aureus* IsdG" *256th ACS National Meeting*, **2018**, Boston, MA (Contributed Talk).

29. **Liptak, M.D.** "Spectroscopic Evidence for Electronic Control of Heme Hydroxylation by IsdG" *Gordon Research Conference: Tetrapyrroles*, **2018**, Newport, RI (Selected Talk).

28. **Liptak, M.D.**; Conger, M.A.; Thakuri, B. "Heme Binding to Non-Canonical Heme Oxygenases Measured Using Fluorescence" *Gordon Research Conference: Metals in Biology*, **2018**, Ventura, CA.

27. **Liptak, M.D.**; Conger, M.A.; Graves, A.B. "Non-Canonical Heme Oxygenases: A New Chapter of Heme–Oxygen Chemistry" *CanBIC-6*, **2017**, Parry Sound, ON (Invited Talk).

26. **Liptak, M.D.** "Nuclear Magnetic Spectroscopic Elucidation of MhuD Mechanism" *253rd ACS National Meeting*, **2017**, San Francisco, CA (Invited Talk).

25. Conger, M.A.; Graves, A.B.; Pokhrel, D.; Horak, E.H.; **Liptak, M.D.** "Two Substrate Conformations are Required for Non-Canonical Heme Oxygenase Activity" *Gordon Research Conference: Metals in Biology*, **2017**, Ventura, CA.

24. **Liptak, M.D.** "Quantum Mechanical Origins of Hydrazone-Based Emission" *Advanced Next Generation Energy Leadership (ANGEL) Symposium* **2016**, Burlington, VT (Invited Talk).

23. **Liptak, M.D.** "Non-Canonical Heme Oxygenases: A New Chapter of Heme–Oxygen Chemistry" *Gordon Research Conference: Tetrapyrroles*, **2016**, Newport, RI (Invited Talk).

22. Graves, A.B.; **Liptak, M.D.** "Thermally-Accessible Electronic States of Cyanide-Inhibited Ferric Heme" *Gordon Research Conference: Metals in Biology*, **2016**, Ventura, CA.

21. **Liptak, M.D.**, Horak, E.H. "Insight Into Hydrazone-Based Dye Fluorescence from Density Functional Theory" *249th ACS National Meeting*, **2015**, Denver, CO (Invited Talk).

20. **Liptak, M.D.**, Graves, A.B., Lockhart, C.L. "Second-Sphere Tuning of Enzymatic Activity in Non-Canonical Heme Oxygenases" *249th ACS National Meeting*, **2015**, Denver, CO (Contributed Talk).

19. **Liptak, M.D.**, Graves, A.B.; Lockhart, A.B. "Saltman Lecture: Second-Sphere Tuning of Enzymatic Activity in Non-Canonical Heme Oxygenases" *Gordon Research Conference: Metals in Biology,* **2015**, Ventura, CA (Invited Talk).

18. **Liptak, M.D.**, Graves, A.B.; Lockhart, A.B. "Second-Sphere Contributions to the Electronic Structure and Reactivity of Heme Degrading Enzymes" *Gordon Research Conference: Tetrapyrroles*, **2014**, Newport, RI.

17. **Liptak, M.D.** "Heme Iron Acquisition by Pathogenic Organisms: Functional Insights from Spectroscopy and Theory" *Gordon Research Conference: Metals in Biology,* **2014**, Ventura, CA.

16**. Liptak, M.D.** "Heme Iron Acquisition by *Mycobacterium tuberculosis*: Insights from Spectroscopy in Magnetic Fields" *32nd Boston Regional Inorganic Colloquium*, **2013**, Boston, MA (Invited Talk).

15. **Liptak, M.D.**; Roffman, A.B.; Lockhart, C.L. "NMR and MCD Investigation of Heme Oxygenases from Pathogenic Bacteria" *Gordon Research Conference: Metals in Biology*, **2012**, Ventura, CA.

Supervised Career

14. **Liptak, M.D.**; Fagerlund, R.D.; Ledgerwood, E.C.; Wilbanks, S.M.; Bren, K.L. "Electronic Changes in Cytochromes *c* with Functional Consequences" *240th ACS National Meeting*, **2010**, Boston, MA.

13. **Liptak, M.D.**; Bren, K.L. "Paramagnetic NMR and DFT Investigation of Heme Ruffling: Implications for Reduction Potential Tuning in Cytochromes *c*" *Gordon Research Conference:*

Metals in Biology, **2010**, Ventura, CA.

12. **Liptak, M.D.**; Bren, K.L. "DFT-Aided Interpretation of NMR Hyperfine Shifts: Application to Ruffling in Cytochrome *c*" *11th Upstate New York NMR Symposium*, **2009**, Buffalo, NY.

11. **Liptak, M.D.**; Bowman, S.J.; Bren, K.L. "NMR and DFT Investigation of Heme Conformation in Cytochrome *c*" *236th ACS National Meeting*, **2009**, Washington, D.C.

10. **Liptak, M.D.**; Datta, S.; Matthews, R.G.; Brunold, T.C. "Spectroscopic Study of Cobalamin-Dependent Methionine Synthase in the Activation Conformation: Roles of the H759 and Y1139 Residues" *Gordon Research Seminar: Bioinorganic Chemistry*, **2008**, Ventura, CA.

9. **Liptak, M.D.**; Fleishhacker, A.S.; Datta, S.; Matthews, R.G.; Brunold, T.C. "A Combined Spectroscopic and Computational Approach to Investigate the Electronic Structures of Corrinoids: Application to Cobalamin-dependent Methionine Synthase" *Gordon Research Conference: Vitamin B_{12} and Corphins*, **2007**, Biddeford, ME.

8. **Liptak, M.D.**; Fleishhacker, A.S.; Datta, S.; Matthews, R.G.; Brunold, T.C. "Spectroscopic Insights into the Mechanism of Cobalamin-dependent Methionine Synthase" *Gordon Research Seminar: Bioinorganic Chemistry*, **2007**, Ventura, CA.

7. **Liptak, M.D.**; Fleishhacker, A.S.; Matthews, R.G.; Brunold, T.C. "Combined Spectroscopic and Computational Investigation of the Reactivation Cycle of Cobalamin-Dependent Methionine Synthase" *12th International Conference on Bioinorganic Chemistry*, **2005**, Ann Arbor, MI.

6. **Liptak, M.D.**; Shields, G.C. "Modeling the Inhibition of Cdc25B with QM/MM" *43rd Sanibel Symposium*, **2003**, St. Augustine, FL.

5. **Liptak, M.D.**; Feldgus, S.; Shields, G.C. "Absolute pK_a Determinations for Protonated Nitrogen Compounds" *Pfizer Summer Undergraduate Research Fellowship Program*, **2002**, Groton, CT.

4. **Liptak, M.D.** "Absolute pK_a Determinations for Substituted Phenols" *47th Annual Undergraduate Research Symposium: Rochester Section of the ACS*, **2002**, Geneva, NY.

3. **Liptak, M.D.**; Feldgus, S.; Shields, G.C. "Absolute pK_a Determination for Protonated Nitrogen Compounds" *1st MERCURY Conference in Computational Chemistry*, **2002**, Clinton, NY.

2. **Liptak, M.D.**; Gross, K.C.; Seybold, P.G.; Feldgus, S.; Shields, G.C. "Absolute pK_a Determinations for Substituted Phenols" *42nd Sanibel Symposium*, **2002**, St. Augustine, FL.

1. **Liptak, M.D.** "Accurate pK_a Calculations" *41st Sanibel Symposium*, **2001**, St. Augustine, FL.

Invited Lectures

University of Vermont (Redox Biology Program)	May 1, 2024
SUNY-Potsdam	November 5, 2019
St. Michael's College	February 15, 2019
University of New Mexico	October 8, 2018
Hamilton College	September 29, 2017

University of Massachusetts	April 27, 2017
University of Wisconsin	March 1, 2017
University of Utah	October 11, 2016
University of Rochester	September 26, 2016
Kansas University	April 22, 2016
Middlebury College	October 2, 2015
Dartmouth College	April 17, 2014
Syracuse University	October 15, 2013
University of Vermont (Department of Physics)	October 10, 2013
University of Vermont (Department of Immunology)	January 31, 2013
University of New England	September 28, 2012
University of Vermont (Department of Biochemistry)	April 27, 2012
Penn State-Erie	November 1, 2011
University of Minnesota	January 18, 2011
Wayne State University	January 10, 2011
University of Vermont	January 6, 2011
University of Iowa	December 9, 2010
Hamilton College	May 2, 2009

Financial Support

Current Support

Proposal Title: Heme oxygenases: chemically complex enzymes found in diverse biological pathways
Source of support: National Institutes of Health
Project Role: PI
Direct Support: $927,083
Total Award Amount: $1,389,462
Total Award Period Covered: 03/01/2021 – 02/28/2027
Project Location: University of Vermont
Person-months per year to be devoted to the project: 2 summer months

Pending Support

Proposal Title: Divergent heme oxygenases in *P. aeruginosa* reshape iron biology and vulnerabilities
Source of support: National Institutes of Health
Project Role: Co-I
Direct Support: $497,620
Total Award Amount: $724,315
Total Award Period Covered: 07/01/2026 – 06/30/2031
Project Location: University of Vermont
Person-months per year to be devoted to the project: 1 summer month

Proposal Title: Heme oxygenases: chemically complex enzymes found in diverse biological pathways
Source of support: National Institutes of Health
Project Role: PI
Direct Support: $1,000,000
Total Award Amount: $1,457,685
Total Award Period Covered: 04/01/2026 – 03/31/2031

Project Location: University of Vermont
Person-months per year to be devoted to the project: 2 summer months

Completed Support

Proposal Title: Metal Tetrapyrrole Biosynthesis: inserting the correct metal
Source of support: National Science Foundation
Project Role: PI
Direct Support: $269,909
Total Award Amount: $399,000
Total Award Period Covered: 08/15/2020 – 08/31/2024
Project Location: University of Vermont
Person-months per year to be devoted to the project: 1 summer month

Proposal Title: MRI: Acquisition of an EPR Spectrometer at the University of Vermont
Source of support: National Science Foundation
Project Role: Co-PI
Direct Support: $343,800
Total Award Amount: $343,800
Total Award Period Covered: 09/01/2019 – 08/31/2022
Project Location: University of Vermont
Person-months per year to be devoted to the project: 0 months

Proposal Title: Administrative Supplement for Second-Sphere Influences on Oxygen Activation by Non-Canonical Heme Oxygenases
Source of support: National Institutes of Health
Project Role: PI
Direct Support: $174,710
Total Award Amount: $174,710
Total Award Period Covered: 08/01/2019 – 07/31/2022
Project Location: University of Vermont
Person-months per year to be devoted to the project: 0 months

Proposal Title: Second-Sphere Influences on Oxygen Activation by Non-Canonical Heme Oxygenases
Source of support: National Institutes of Health
Project Role: PI
Direct Support: $892,500
Total Award Amount: $1,320,978
Total Award Period Covered: 09/01/2016 – 07/31/2022
Project Location: University of Vermont
Person-months per year to be devoted to the project: 2 summer months

Proposal Title: Spectroscopy-Guided Metalloprotein Design Aided by Electronic Structure Calculations
Source of support: University of Vermont
Project Role: PI
Direct Support: $639,000
Total Award Amount: $639,000

Total Award Period Covered: 09/01/2011 – 12/14/2018
Project Location: University of Vermont
Person-months per year to be devoted to the project: 0 months

Proposal Title: Collaborative Research: Hydrazone-Based Solid-State Light Emitters
Source of support: National Science Foundation
Project Role: PI
Direct Support: $150,626
Total Award Amount: $212,380
Total Award Period Covered: 08/01/2015 – 07/31/2018
Project Location: University of Vermont
Person-months per year to be devoted to the project: 1 summer month

Proposal Title: Pilot Study of Two Putative Metal-binding Proteins from *Clostridium difficile*
Source of support: University of Vermont
Project Role: PI
Direct Support: $12,500
Total Award Amount: $25,000
Total Award Period Covered: 02/28/2014 – 06/30/2016
Project Location: University of Vermont
Person-months per year to be devoted to the project: 0 months

Proposal Title: NMR and DFT Investigation of Porphyrin Conformation in Cytochromes *c*
Source of Support: National Institutes of Health
Project Role: PI
Direct Support: $84,370
Total Award Amount: $103,995
Total Award Period Covered: 06/01/2009 – 07/31/2011
Project Location: University of Rochester
Person-months per year to be devoted to the project: 12 months

Collaborators

Prof. Ivan Aprahamian, Dartmouth	Hydrazone Fluorophores
Prof. John Berry, Wisconsin	Diruthenium complexes
Prof. Liz Boon, SUNY-Stony Brook	*S. oneidensis* NosP
Prof. Celia W. Goulding, UC-Irvine	*M. tuberculosis* MhuD, MmpL
Prof. Kevin Kittilstved, UMass-Amherst	EPR Spectroscopy
Prof. Kyle Lancaster, Cornell	*N. europaea* cyt P_{460}
Prof. William Lanzilotta, Georgia	*E. coli* ChuW
Prof. Steven Mansoorabadi, Auburn	*M. acetivorans* CfbA
Prof. Mark Richards, Wisconsin	Bovine Hemoglobin
Prof. Mario Rivera, Lousiana State University	*S. aureus* IsdG
Prof. Aimee Shen, Tufts	*C. difficile* CotA, SipL
Prof. Eric P. Skaar, Vanderbilt	*S. aureus* IsdG, IsdI
Prof. Gayan Wijerante, Alabama	Heme oxygenase model complexes

Affiliations

American Chemical Society

Phi Beta Kappa
Sigma Xi
Society of Biological Inorganic Chemistry
Vermont Academy of Science and Engineering (VASE)

Honors and Awards

Elected Member, VASE	2024
UVM CAS Dean's Scholar-Teacher Award	2024
NIGMS MIRA Award	2021
New Talent: Americas	2016
Paul Saltman Award	2015
Ruth Kirschstein-NRSA	2009
Vilas Travel Grant	2007
McElvain Travel Grant	2006
Runner-up for NSF Graduate Research Fellowship	2003
Pfizer Undergraduate Summer Research Fellowship	2002
Barry M. Goldwater Scholarship	2002
Merck/AAAS Undergraduate Summer Research Fellowship	2000

TEACHING ACTIVITIES

Teaching Experience

Professor of Chemistry
University of Vermont (Burlington, VT)

CHEM 1460: Exploring Chemistry 2 (2 sections)	Spring 2026
CHEM 2400: Inorganic Chemistry	Spring 2026
CHEM 1410: Exploring Chemistry 1 (2 sections)	Fall 2025
CHEM 3400: Advanced Inorganic Chemistry	Fall 2025
CHEM 5400: Graduate Advanced Inorganic Chemistry	Fall 2025
CHEM 6010: Intro to Graduate Research	Fall 2025
CHEM 6050: Current Topics in Chemistry	Fall 2025
CHEM 1460: Exploring Chemistry 2 (2 sections)	Spring 2025
CHEM 2605: Physical Chemistry Lab	Spring 2025
CHEM 6050: Current Topics in Chemistry	Spring 2025
CHEM 1410: Exploring Chemistry 1 (2 sections)	Fall 2024
CHEM 6010: Intro to Graduate Research	Fall 2024
CHEM 6460: Physical Inorganic Chemistry	Fall 2024
CHEM 2605: Physical Chemistry Lab	Spring 2024
CHEM 2012: 2nd Year Seminar: Presentation	Spring 2024
CHEM 3400: Advanced Inorganic Chemistry	Fall 2023
CHEM 5400: Graduate Advanced Inorganic Chemistry	Fall 2023
CHEM 6050: Current Topics in Chemistry	Fall 2023
CHEM 166: Physical Chemistry Lab	Spring 2023
CHEM 182: 2nd Year Seminar: Presentation	Spring 2023
CHEM 181: 2nd Year Seminar: Writing	Fall 2022
CHEM 231: Advanced Inorganic Chemistry	Fall 2022

Associate Professor of Chemistry
University of Vermont (Burlington, VT)

CHEM 236: Physical Inorganic Chemistry	Spring 2022
CHEM 031: General Chemistry I	Fall 2021
CHEM 318: Current Topics in Chemistry	Fall 2021
CHEM 484: Advanced Topics in Chemistry	Summer 2021
CHEM 231: Advanced Inorganic Chemistry	Fall 2020
CHEM 318: Current Topics in Chemistry	Fall 2020
CHEM 484: Advanced Topics in Chemistry	Summer 2020
CHEM 131: Inorganic Chemistry	Spring 2020
CHEM 231: Advanced Inorganic Chemistry	Fall 2019
CHEM 199: Professional Development	Spring 2019
CHEM 236: Physical Inorganic Chemistry	Spring 2019
CHEM 199: Professional Development	Fall 2018
CHEM 231: Advanced Inorganic Chemistry	Fall 2018

Assistant Professor of Chemistry
University of Vermont (Burlington, VT)

CHEM 131: Inorganic Chemistry	Spring 2018
CHEM 318: Current Topics in Chemistry	Spring 2018
CHEM 231: Advanced Inorganic Chemistry	Fall 2017
CHEM 318: Current Topics in Chemistry	Fall 2017
CHEM 031: General Chemistry I	Spring 2017
CHEM 231: Advanced Inorganic Chemistry	Fall 2016
CHEM 236: Physical Inorganic Chemistry	Spring 2016
CHEM 031: General Chemistry I	Fall 2015
CHEM 231: Advanced Inorganic Chemistry	Fall 2014
CHEM 318: Current Topics in Chemistry	Fall 2014
CHEM 040: Introduction to Research	Spring 2014
CHEM 236: Physical Inorganic Chemistry	Spring 2014
CHEM 231: Advanced Inorganic Chemistry	Fall 2013
CHEM 231: Advanced Inorganic Chemistry	Fall 2012
CHEM 040: Introduction to Research	Spring 2012
CHEM 236: Physical Inorganic Chemistry	Spring 2012
CHEM 318: Current Topics in Chemistry	Spring 2012
CHEM 380: Chemical Investigations	Spring 2012
CHEM 231: Advanced Inorganic Chemistry	Fall 2011

Teaching Assistant
University of Rochester (Rochester, NY)

CHM 414: Bioinorganic Chemistry	Spring 2009

Teaching Assistant
University of Wisconsin-Madison (Madison, WI)

CHEM 511: Inorganic Chemistry	Spring 2007
CHEM 104: General Chemistry II	Spring 2004
CHEM 109H: Honors General Chemistry	Fall 2003

Teaching Assistant
Hamilton College (Clinton, NY)

CHEM 322: Physical Chemistry II	Spring 2003
CHEM 321: Physical Chemistry I	Fall 2002

Teaching Workshops / Professional Development

DEI HHMI STEM Collaborative Workshop	January 2022
Building Social Justice into Teaching and Learning Chemistry	October 2021
CSC New Faculty Workshop (Washington, D.C.)	August 2012
ACS Postdoc to Faculty Workshop (Boston, MA)	August 2010
CIRTL Diversity Workshop (Madison, WI)	August 2007

Mentoring Experience

Graduate Research Advisees

Aiman Nabi	2021 – current
Muyiwa Ayodele	2022 – current
Modupe Omoniyi	2023 – current

Maggie Hanna 2024 – current
Bruce Lickey 2019 – 2025, Ph.D.
Taylor Kocian 2019 – 2025, Ph.D.
Aarzoo Grover 2018 – 2024, Ph.D.
Placement: Postdoctoral Associate at the University of Vermont (Burlington, VT)
Jacob Morris 2017 – 2024, Ph.D.
Kayla Johnson 2016 – 2023, M.S.
Placement: Vermont Department of Health (Colchester, VT)
Biswash Thakuri 2015 – 2020, Ph.D.
Placement: Sterling Pharma (Germantown, WI)
Ariel Schuelke-Sanchez 2014 – 2019, Ph.D.
Placement: Postdoctoral Associate at Penn State University (State College, PA)
Matt Conger 2013 – 2018, Ph.D.
Placement: Postdoctoral Associate at Boston University (Boston, MA)
Morgan Cousins 2012 – 2017, Ph.D.
Placement: Postdoctoral Associate at Ursinus College (Collegeville, PA)
Amanda Graves 2011 – 2016, Ph.D.
Placement: Postdoctoral Associate at Scripps Florida (Jupiter, FL)
Cheryl Lockhart 2011 – 2014, M.S.
Placement: Certifying Scientist at Keystone Laboratories (Asheville, NC)

Post Baccalaureate Research Advisees

Rebeka Mendelsohn 2023 – 2024
Erik Horak 2013 – 2014
Placement: Graduate Student at University of Wisconsin (Madison, WI)

Undergraduate Research Advisees

Alejandro Velazquez de Leon 2025 – current
Cassie Tibbetts 2025 – current
Sarah Kebles 2025 – current
Cole Schaefer 2024 – 2025, B.S.
Julian Tynes 2024 – 2025, B.S.
Bear Paradiso 2023 – 2025, B.S.
Kaitlyn Eckhert 2022 – 2025, B.S.
Luca Andersen 2023
Megan Lavigne 2021 – 2023, B.S.
Placement: Graduate Student at Penn State University (State College, PA)
Rebeka Mendelsohn 2021 – 2023, B.S.
Placement: Graduate Student at UCLA (Los Angeles, CA)
Emma Jones 2023, B.S.
Justin Moyer 2022 – 2023, B.S.
Mirabella Vulikh 2022 – 2023, B.S.
Georgia Babb 2019 – 2021, B.S.
Adam Petrucci 2017 – 2021, B.S.
Claudia Ricatto 2020
Tanner James 2019
Alissa Stone (St. Lawrence University) 2018
Amanda Cornetta 2016 – 2019, B.S.

Placement: Research Assistant at Children's Hospital of Pennsylvania
Adam Weinheimer 2017 – 2018, B.S.
Nick Grubinger 2018
Lexi Haley (St. Lawrence University) 2017
Robert Tuttle 2014 – 2016, B.S.
Placement: Graduate Student at Colorado State University (Fort Collins, CO)
Sommer Johansen 2012 – 2015, B.S.
Placement: Graduate Student at University of California-Davis (Davis, CA)
Aliya Lapp 2013 – 2014, B.S.
Placement: Graduate Student at University of Texas (Austin, TX)
Connor Payne 2014
Placement: Graduate Student at Harvard University (Cambridge, MA)
Erik Horak 2012 – 2013, B.S.
Placement: Graduate Student at University of Wisconsin (Madison, WI)
Cyril Lukianov 2013
Jill Chipman (Hamilton College, Materials Science REU) 2013
Placement: Graduate Student at University of Wisconsin (Madison, WI)

High School Research Advisees
James Steward (Essex High School, STEM Academy) 2024
Jack French (Essex High School, STEM Academy) 2023 – 2024
Sean Shepard (Missisquoi Valley Union H.S., Project SEED) 2023
Hope Petraro (Montpelier H.S., Project SEED) 2018
Deepika Pokhrel (S. Burlington H.S., Project SEED) 2015
Placement: Undergraduate Student at University of Vermont (Burlington, VT)
Dylanger Pittman (Burlington H.S., Project SEED) 2012
Placement: Undergraduate Student at Williams College (Williamstown, MA)

Additional Graduate Thesis Committees
Maddie Hatch (Chemistry) 2021 – current
Lauren Aheran (Chemistry) 2022 – current
Emma Finfer (Chemistry) 2022 – current
Omid Sedighi (Biomedical Engineering) 2023 – current
Adam Budzyn (Chemistry) 2023 – current
Justin Paluba (Cellular, Molecular, and Biomedical Sciences) 2024 – current
Moni Moniruzzaman (Chemistry) 2024 – current
Shakira Iyanda (Chemistry) 2024 – current
Khadga Thakuri (Physics) 2024 – current
Quinn Bennett (Chemistry) 2025 – current
Pinki Pinki (Chemistry) 2025 – current
Lucky Aibor (Chemistry) 2025 – current
Chris Faherty (Chemistry) 2025 – current
Ayesha Nawaz (Chemistry) 2025 – current
Mitch Nelson (Chemistry) 2025 – current
Ben Rose (Chemistry) 2021 – 2025, Ph.D.
Bobby Tracy (Chemistry) 2016 – 2025, Ph.D.
Ray Schireman (Materials Science) 2022 – 2024, Ph.D.
Diego Javier-Jimenez (Chemistry) 2019 – 2024, Ph.D.

Dennis Seth (Chemistry)	2019 – 2024, Ph.D.
Peter Banks (Chemistry)	2019 – 2023, Ph.D.
Matthew Reuter (Chemistry)	2019 – 2023, Ph.D.
David Allemeier (Materials Science, Chair)	2021 – 2023, Ph.D.
Thomas Cleary (Physics, Chair)	2023, M.S.
Lalita Rai (Chemistry)	2023
Srijana Rai (Chemistry)	2023
Dillon McCarthy (Chemistry)	2017 – 2022, Ph.D.
Michelle DiPinto (Chemistry)	2014 – 2022
Bryan Novas (Chemistry)	2018 – 2022, Ph.D.
Alexandria Alveshere (Chemistry)	2017 – 2022
Robin Rice (Materials Science, Chair)	2020 – 2021, M.S.
Lynda Menard (Biology, Chair)	2019 – 2020, Ph.D.
Emma St. Marie (Chemistry)	2016 – 2020, Ph.D.
Ceres Rafiq (Materials Science)	2018 – 2019
Joseph Campbell (Chemistry)	2015 – 2019, Ph.D.
Mike Cibuzar (Chemistry)	2015 – 2019, Ph.D.
Justin Paluba (Materials Science, Chair)	2017 – 2019
Jenna Taft (Chemistry)	2013 – 2018, Ph.D.
Jonathan Hollin (Chemistry)	2014 – 2018, Ph.D.
Sarah Cleary (Chemistry)	2014 – 2018, Ph.D.
Christine Bange (Chemistry)	2014 – 2018, Ph.D.
Daniel Sumy (Chemistry)	2013 – 2017, Ph.D.
Aaron Vrolijk (Chemistry)	2016 – 2017, M.S.
Christina Arcand (Chemistry)	2016
Justin Pagano (Chemistry)	2013 – 2016, Ph.D.
Joel Walker (Chemistry)	2012 – 2016, Ph.D.
Rebecca Harvey (Chemistry)	2012 – 2016, Ph.D.
Naveen Rawat (Materials Science, Chair)	2013 – 2015, Ph.D.
Daniel Burrill (Physics, Chair)	2014 – 2015
Matthew Sheridan (Chemistry)	2012 – 2014, Ph. D.
Nicholas Medeiros (Chemistry)	2012 – 2013
Ishviene Cour (Materials Science, Chair)	2012 – 2013, Ph. D.

Additional Undergraduate Thesis Committees

Sarah Palastra (Biochemistry)	2025 – current
Kyle Kasprzak (Biochemistry, chair)	2025 – current
Maya Rao (Biochemistry, chair)	2025 – current
Eliza Barker (Chemistry)	2024 – 2025, B.S.
Lukas Lipps (Biochemistry, chair)	2024 – 2025, B.S.
Mari Davis (Chemistry)	2024 – 2025, B.S.
Claire Bushey (Chemistry)	2024
Evan Beretta (Chemistry)	2021 – 2022
Nick Minadeo (Chemistry)	2019
Jack Burke (Chemistry)	2018
Adam Weinheimer (Biohemistry)	2018
David Parker (Chemistry)	2016

Student Conference Presentations

42. **Kocian, T.A.J.**; Liptak, M.D. "Parsing structural and electronic influences of a conserved tryptophan on IsdI mediated heme degradation" *Gordon Research Conference: Metals in Biology*, **2025**, Ventura, CA (Poster).

41. **Lickey, B.S.;** Liptak, M.D. "Substrate plasticity in CbiX^{S}: Towards greener metalloporphyrin synthesis" *268th ACS National Meeting*, **2024**, Denver, CO (Talk).

40. **Nabi, A.**; Liptak, M.D. "Re-thinking dynamic heme ruffling: how general is it?" *Gordon Research Conference: Tetrapyrroles*, **2024**, Newport, RI (Poster).

39. **Kocian, T.A.J.**; Liptak, M.D. "The role of a conserved tryptophan in IsdG enzymes: not just sterics?" *Gordon Research Conference: Metallocofactors*, **2024**, Easton, MA (Poster).

38. **Kocian, T.A.J.**; Schuelke-Sanchez, A.E.; Cornetta, A.R.; Liptak, M.D. "Mechanisms of IsdG-family enzymes" *Gordon Research Conference: Cell Biology of Metals*, **2023**, West Dover, VT (Poster).

37. **Grover, A.**, Conger, M.A.; Liptak, M.D. "Insight into the monooxygenation step of heme degradation by IsdG" *265th ACS National Meeting*, **2023**, Indianapolis, IN (Talk).

36. **Morris, J.A.**; Lavigne, M.; Liptak, M.D. "Metal affinity comparison of primordial chelatases CbiX^{S} and CfbA" *265th ACS National Meeting*, **2023**, Indianapolis, IN (Talk).

35. **Lavigne, M.**; Morris, J.; Schuelke-Sanchez, A.; Liptak, M.D. "Identification and spectroscopic characterization of the active sites of two class II chelatases" *UVM Student Research Conference*, **2023**, Burlington, VT (Poster).

34. **Kocian, T.A.J.**; Liptak, M.D. "Examination of the conformation – electronic structure – product relationship in non-canonical heme oxygenase catalyzed reactions" *Gordon Research Seminar: Bioinorganic Chemistry*, **2023**, Ventura, CA (Talk).

33. **Lickey, B.**; Liptak, M.D. "Investigation of product inhibition as an origin for metal selectivity in chelatases" *Gordon Research Seminar: Bioinorganic Chemistry*, **2023**, Ventura, CA (Poster).

32. **Grover, A.;** Conger, M.A.; Liptak, M.D. "Characterization of a ferryl=oxoheme form of staphylococcus aureus IsdG" *Chemistry and Biochemistry Graduate Research Conference*, **2022**, Montreal, PQ (Talk).

31. **Grover, A.;** Conger, M.A.; Liptak, M.D. "Characterization of a ferryl=oxoheme form of staphylococcus aureus IsdG" *Champlain Area Chemistry Symposium*, **2022**, Burlington, VT (Talk).

30. **Grover, A.;** Conger, M.A.; Liptak, M.D. "Characterization of a ferryl-oxoheme form of staphylococcus aureus IsdG" *263rd ACS National Meeting*, **2022**, San Diego, CA (Talk).

29. **Morris, J.A.;** Schuelke-Sanchez, A.E.; Liptak, M.D. "Assessment of the CfbA metal binding site and its affinity for naturally-abundant metals" *263rd ACS National Meeting*, **2022**, San Diego, CA (Talk).

28. **Petrucci, A.N.**; Cousins, M.E.; Liptak, M.D. "Structure-function relations: Modelling mega-Stokes shifts" *UVM Student Research Conference*, **2020**, Burlington, VT (Virtual).

27. **Thakuri, B.**; O'Rourke, B.; Liptak, M.D. "Time-resolved MS Studies Identify the Heme Degradation Products of *Mycobacterium tuberculosis* MhuD" *Gordon Research Seminar: Bioinorganic Chemistry*, **2020**, Ventura, CA (Poster).

26. **Thakuri, B.**; O'Rourke, B.; Liptak, M.D. "Time-resolved MS Studies Identify the Heme Degradation Products of *Mycobacterium tuberculosis* MhuD" *Chemistry and Biochemistry Graduate Research Conference*, **2019**, Montreal, PQ (Poster).

25. **Cornetta, A.C.**; Liptak, M.D. "Measurement of Changes in Heme Ruffling Caused by Heme-Degrading Enzyme, IsdG" *UVM Student Research Conference*, **2019**, Burlington, VT (Talk).

24. **Thakuri, B.**; Graves, A.; Chao, A.; Johansen, S.L.; Goulding, C.W.; Liptak, M.D. "Insights into Binding and Degradation of Heme by *Mycobacterium tuberculosis* MhuD" *257th ACS National Meeting*, **2019**, Orlando, FL (Talk).

23. **Schuelke, A.E.**; Liptak, M.D. "Assessing the Substrate Scope of the Chelatase CfbA" *257th ACS National Meeting*, **2019**, Orlando, FL (Talk).

22. **Cornetta, A.R.** "Measurement of Changes in Ruffling Caused by Heme-Degrading Enzyme, IsdG" *UVM Student Research Conference*, **2018**, Burlington, VT (Poster).

21. **Thakuri, B.**; Johansen, S.L.; Goulding, C.W.; Liptak, M.D. "Spectroscopic Investigation of Heme Binding by MhuD" *UVM Student Research Conference*, **2018**, Burlington, VT (Talk).

20. **Schuelke, A.E.**; Liptak, M.D. "Assessing the Substrate Scope of the Chelatase CfbA" *Gordon Research Seminar: Bioinorganic Chemistry*, **2018**, Ventura, CA (Poster).

19. **Thakuri, B.**; Johansen, S.L.; Goulding, C.W.; Liptak, M.D. "Spectroscopic Investigation of Heme Binding by MhuD" *Gordon Research Seminar: Bioinorganic Chemistry*, **2018**, Ventura, CA (Poster).

18. **Conger, M.A.**; Liptak, M.D. "^{1}H and ^{13}C NMR of Azide-Inhibited IsdG Reveals Spin Density Delocalization" *Gordon Research Conference: Metals in Biology,* **2018**, Ventura, CA (Talk).

17. **Conger, M.A.**; Liptak, M.D. "Tight Binding of Heme to *Staphylococcus aureus* IsdG and IsdI Precludes Design of a Competitive Inhibitor" *UVM Student Research Conference*, **2017**, Burlington, VT (Talk).

16. **Schuelke, A.** "Spectroscopy-guided Design of Synthetic Selective Chelatases from CbiX^{S}" *UVM Student Research Conference*, **2017**, Burlington, VT (Talk).

15. **Cousins, M.**; Qian, H.; Aprahamian, I.; Liptak, M. "Novel Mechanism of Molecular Rotor Fluorescence: Suppression of Kasha's Rule" *253rd ACS National Meeting*, **2017**, San Francisco, CA (Talk).

14. **Schuelke, A.** "Spectroscopy-guided Design of Synthetic Selective Nickel Chelatases from $CbiX^S$" *Gordon Research Seminar: Bioinorganic Chemistry* **2017**, Ventura, CA (Talk).

13. **Conger, M.A.**; Liptak, M.D. "Tight Binding of Heme to *Staphylococcus aureus* IsdG and IsdI Precludes Design of a Competitive Inhibitor" *Gordon Research Seminar: Bioinorganic Chemistry* **2017**, Ventura, CA (Poster).

12. **Cousins, M.E.** "Understanding Aggregation-Induced Emission: Suppression of Kasha's Rule" *Advanced Next Generation Energy Leadership (ANGEL) Symposium* **2016**, Burlington, VT (Poster).

11. **Cousins, M.E.** "Understanding Aggregation-Induced Emission: Suppression of Kasha's Rule" *UVM Student Research Conference*, **2016**, Burlington, VT (Poster).

10. **Graves, A.B.**; Liptak, M.D. "Thermally-Accessible Electronic States of Cyanide-Inhibited Ferric Heme" *251st ACS National Meeting*, **2016**, San Diego, CA (Poster).

9. **Conger, M.A.** "Second-Sphere Perturbation of IsdG Modulates the Spin Density of the Heme Substrate" *Gordon Research Seminar: Bioinorganic Chemistry*, **2016**, Ventura, CA (Talk).

8. **Cousins, M.E.** "Suppression of Kasha's Rule: Understanding Aggregation-Induced Emission" *Gordon Research Seminar: Bioinorganic Chemistry*, **2016**, Ventura, CA (Poster).

7. **Cousins, M.E.** "Advances in Cobalt-59 Solution NMR: Studies of Cobalt Tetrapyrroles" *UVM Student Research Conference*, **2015**, Burlington, VT (Talk).

6. **Johansen, S.** "Spectroscopic Characterization of the A71F Variant of the Mycobacterium Heme Utilization Degrader" *UVM Student Research Conference*, **2015**, Burlington, VT (Talk).

5. **Graves, A.B.** "Second-Sphere Interactions: Fine Tuning the Electronic Structure of MhuD to Achieve Heme Degradation" *Gordon Research Seminar: Bioinorganic Chemistry*, **2015**, Ventura, CA (Poster).

4. **Cousins, M.E.** "Advances in Solution State ^{59}Co NMR: Studies of Cobalt Tetrapyrroles" *Gordon Research Seminar: Bioinorganic Chemistry*, **2015**, Ventura, CA (Poster).

3. **Graves, A.B.** "The *Mycobacterium tuberculosis* MhuD Active Site Stabilizes a Ruffled Heme with an Unusual Electronic Structure" *Gordon Research Seminar: Bioinorganic Chemistry*, **2014**, Ventura, CA (Talk).

2. **Horak, E.H.** "Investigation of Heme Ruffling in IsdI" *UVM Student Research Conference*, **2013**, Burlington, VT (Poster).

1. **Lockhart, C.L.** "Investigating the Role of Hydrogen Bonding in Heme Degradation by the *S. aureus* Enzyme IsdG" *UVM Student Research Conference*, **2013**, Burlington, VT (Talk).

Honors and Awards

GSS Outstanding Faculty Advisor Nomination	2016
Kroepsch-Maurice Teaching Award Nomination	2015
GSS Outstanding Faculty Advisor Nomination	2015
Kroepsch-Maurice Teaching Award Nomination	2014
GSS Outstanding Faculty Advisor Nomination	2014
Kroepsch-Maurice Teaching Award Nomination	2013

SERVICE ACTIVITIES

DEPARTMENT OF CHEMISTRY, UNIVERSITY OF VERMONT

Undergraduate Affairs	2021 – current
Untenured Faculty RPT Committees	2024 – current
Dave Punihaole	2024 – current
Clorice Reinhardt, **Chair**	2025 – current
EPR Oversight Committee	2025 – current
Service Teaching Committee	2025 – current
Chair	2025 – current
Graduate Affairs	2017 – 2024
Chair	2017 – 2021
In addition to my regular duties as a committee member,	
Graduate recruiting trip to SUNY-Potsdam (Potsdam, NY)	Nov. 5, 2019
Admitted graduate student visitation day (Burlington, VT)	Mar. 1, 2019
Graduate recruiting trip to St. Michael's College (Colchester, VT)	Feb. 15, 2019
Admitted graduate student visitation day (Burlington, VT)	Mar. 2, 2018
Graduate recruiting trip to Hamilton College (Clinton, NY)	Sep. 29, 2017
Developed PUI Recruiting List	July 1-August 3, 2017
Tenure-track Chemistry Search, *ad hoc*	2024
Chair	2024
Outcome: Prof. Clorice Reinhardt	
Bridge Funding Review Committee, *ad hoc*	2022 – 2024
Tenure-track Medicinal Chemistry Search, *ad hoc*	2022 – 2023
Outcome: Failed search	
Instrumentation, Safety, and Space	2021 – 2022
Infrastructure	2017 – 2021
In addition to my regular duties as a committee member,	
Safety Sub-committee	2017 – 2021
Space Sub-committee	2018 – 2021
Supervised NMR Facility Power Outage	Aug. 7-8, 2017
Academic Program Review, *ad hoc*	2021
Outcome: Chemistry academic program review document	
Tenure-track Physical Chemistry Search, *ad hoc*	2017 – 2018
Outcome: Prof. Mike Ruggiero	

Graduate Admissions	2011 – 2017
Chair	2013 – 2017
In addition to my regular duties as a committee member,	
Developed PUI Recruiting List	May 31-June 30, 2017
Admitted graduate student visitation day (Burlington, VT)	Mar. 10, 2017
Admitted graduate student visitation day (Burlington, VT)	Mar. 25, 2016
Graduate recruiting trip to Middlebury College (Middlebury, VT)	Oct. 2, 2015
Hosted visit by two admitted Ph.D. students (Burlington, VT)	Mar. 28, 2014
Admitted graduate student visitation day (Burlington, VT)	Mar. 7, 2014
Hosted visit by one admitted Ph.D. student (Burlington, VT)	Mar. 25, 2013
Admitted graduate student visitation day (Burlington, VT)	Mar. 15, 2013
Recruiting trip to University of New England (Biddeford, ME)	Sep. 28, 2012
Hosted visit by two admitted Ph.D. students (Burlington, VT)	Mar. 22, 2012
Admitted graduate student visitation day (Burlington, VT)	Mar. 16, 2012
Graduate recruiting trip to Penn-State Erie (Erie, PA)	Nov. 1, 2011
Academic Planning, *ad hoc*	2016
Outcome: Five-year hiring plan	
Safety	2014 – 2015
Instrumentation	2011 – 2015
In addition to my regular duties as a committee member,	
Temporary NMR Facility Supervisor	2013 – 2014
Varian 500 MHz NMR spectrometer repair (Burlington, VT)	Sep. 11-13, 2012
NMR Spectrometer Demonstration (Billerica, MA)	Oct. 26-27, 2011
Tenure-track Physical Chemistry Search, *ad hoc*	2013 – 2014
Outcome: Profs. Jianing Li and Severin Schneebeli	
NMR Facility Manager Search, *ad hoc*	2013 – 2014
Outcome: Dr. Monika Ivancic	
Departmental Vision, *ad hoc*	2013
Outcome: Department Vision Statement	
Graduate Standards	2011 – 2012

COLLEGE OF ARTS AND SCIENCES, UNIVERSITY OF VERMONT

Biochemistry B.S. Program Director	2021 – current
In addition to my regular duties as a committee member,	
ASBMB Accreditation Application	2024 – 2025
Professional Development Speaker Series	
Brenda Burke (Sanofi)	Mar. 28, 2024
Tamar Abel (Jackson Laboratory)	Feb. 29, 2024
Vahe Bandarian (University of Utah)	Mar. 21, 2023

Andrew Gardner (New England Biolabs) Feb. 1, 2023
Revision of Biochemistry B.S. Curriculum 2022 – 2023

Academic Planning and Budget Committee 2019 – 2022
Chair 2021 – 2022

Academic Planning and Budget Committee Plus 2022
Chair 2022
Outcome: Confidential Report to Dean Bill Falls

Phi Beta Kappa Election/Induction 2019 – 2021

CAS Chair Reviews, *ad hoc* 2018 – 2020
Chair 2020
Outcome: Confidential Reports to Dean Bill Falls

Work/Life Balance Panel, *ad hoc* 2020
Outcome: Open forum with CAS faculty

Seed Grant Awards 2014 – 2017

Small Grant Research Awards 2014 – 2017

Interdisciplinary Experiential Engagement Awards 2014 – 2017

Faculty Research Support Awards (FRSA) 2012 – 2017

Nominations and Elections 2014 – 2015

Research Awards for the Natural and Social Sciences (RANSS) 2012 – 2014

Department of Chemistry Chair Search, *ad hoc* 2013 – 2014
Outcome: Prof. Christopher Landry

UNIVERSITY OF VERMONT

Operations Teams for Federal Response 2025 – current
Research Operations Team 2025 – current

Pre-medical Advisory Committee 2022 – current

Graduate College Executive Committee 2021 – 2024
Ad hoc Policy Committee 2023 – 2024

Professional Development – Grant Writing, *ad hoc*
Lecture at VBRN Workshop (South Burlington, VT) Sep. 29, 2023
Title: "Differences between the NSF and NIH review criteria: Perspective of an NSF PI and reviewer"

Graduate College Dean Search, *ad hoc* 2022 – 2023
Outcome: Dean Holger Hoock

Postdoc Position Updates Committee, *ad hoc* 2021 – 2022
Chair 2021 – 2022
Outcome: Report to Dean Cindy Forehand

ChemCats Faculty Advisor 2018 – 2021

UVM Faculty Senate 2012, 2014 – 2017

STEM Phase I Celebration, *ad hoc* 2017
Outcome: STEM Complex Phase I Completion Celebration

EXTRAMURAL SERVICE

American Chemical Society
Treasurer, ACS-GMLS 2025 – current

Fluorescent Foods Outreach
Integrated Arts Academy (Burlington, VT) May 1, 2025
ECHO, Leahy Center for Lake Champlain (Burlington, VT) Oct. 26, 2024
Integrated Arts Academy (Burlington, VT) May 23, 2024
ECHO, Leahy Center for Lake Champlain (Burlington, VT) Oct. 21, 2023
ECHO, Leahy Center for Lake Champlain (Burlington, VT) Oct. 22-23, 2022

Guest Editor, *ad hoc*
Heme Homeostasis, *Journal of Inorganic Biochemistry* 2023 – current

Grant Application Reviews, *ad hoc*
National Science Foundation, CHE panel 2025
Czech Fulbright Commission 2024
National Science Foundation 2012 – 2021
National Science Foundation, CHE panel 2019
Natural Sciences and Engineering Research Council of Canada 2017 – 2019
Department of Energy 2016

Journal Manuscripts Reviews, *ad hoc*
ACS Bio&Med Chem 2021
ACS Infectious Diseases 2019
ACS Omega 2017
Aggregate 2022
Angewandte Chemie International Edition 2019 – 2022
Applied Organometallic Chemistry 2017
Biochemistry 2017 – 2021
Biochemistry and Biophysics Reports 2021
Bioorganic & Medicinal Chemistry 2013

Biomolecules	2022
Chemical Science	2024
Chemistry (An Asian Journal)	2024
Chemistry (A European Journal)	2021 – 2025
Chemistry of Materials	2018
Communications Biology	2022 – 2023
Comprehensive Coordination Chemistry	2020
Dalton Transactions	2019 – 2025
Inorganic Chemistry	2014 – 2025
Inorganica Chimica Acta	2023
Journal of the American Chemical Society	2014 – 2025
Journal of Biological Inorganic Chemistry	2018 – 2025
Journal of Chemical Education	2017
Journal of Inorganic Biochemistry	2019 – 2025
Journal of Photochemistry and Photobiology	2015
Journal of Physical Chemistry	2008 – 2019
Nature Communications	2019
PLOS ONE	2018
Polyhedron	2014
Proceedings of the National Academy of Sciences	2020 – 2021
Science Advances	2021 – 2022
Theoretical Chemistry Accounts	2013

Session Presider, *ad hoc*

Instrumental Probes of Metal Binding Sites (Parry Sound, ON)	May 25, 2023
Bioinorganic Chemistry: Proteins & Enzymes (Boston, MA)	Aug. 21, 2018

Professional Reviewer, *ad hoc*

RPT Dossier Reviews	2024 – 2025

Professional Development – Women in Science, *ad hoc*

"Power Hour" Discussion Leader (Ventura, CA)	Jan. 22, 2018

Pre-School Outreach

Five Senses Activity (Colchester, VT)	Feb. 15, 2018
Five Senses Activity (Colchester, VT)	Nov. 16, 2016

Curriculum Review, *ad hoc*

Wentworth Institute of Technology, Department of Sciences (Boston, MA)

Proposal for B.S. in Applied Sciences	2013