

## Erin E. Carlson, Ph.D.

University of Minnesota  
Department of Chemistry  
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### Education:

- Aug. 2000 – Dec. 2005 Ph.D., Organic Chemistry, University of Wisconsin-Madison, Madison, WI  
*Chemical Probes to Explore Carbohydrate Function*  
Advisor: Dr. Laura L. Kiessling
- Sept. 1996 – May 2000 B.A., Saint Olaf College, Northfield, MN (*summa cum laude*, with distinction)  
Major: Chemistry, Concentration: Women's Studies

### Selected Professional Experience:

- 2014 – present Associate Professor of Chemistry, Graduate Faculty Member of the Department of Medicinal Chemistry, the Department of Biochemistry, Molecular Biology and Biophysics and the Bioinformatics and Computational Biology Program  
University of Minnesota – Twin Cities, Minneapolis, MN
- 2008 – 2014 Assistant Professor of Chemistry and of Molecular and Cellular Biochemistry (adjunct)  
Indiana University, Bloomington, IN
- 2006 – 2008 ACS and NIH Postdoctoral Fellow, The Scripps Research Institute, La Jolla, CA  
Advisor: Dr. Benjamin F. Cravatt
- 2000 – 2005 NIH Predoctoral Fellow, University of Wisconsin-Madison, Madison, WI  
Advisor: Dr. Laura L. Kiessling

### Awards, Honors and Affiliations:

- 2017 Outstanding Postdoctoral Mentor Award, University of Minnesota Postdoctoral Association
- 2016 Presidential Early Career Awards for Scientists and Engineers (PECASE) Recipient
- 2016 American Chemical Society Women Chemists Committee (WCC) Rising Star Award
- 2013 – 2018 Sloan Research Fellow
- 2013 – 2014 Indiana University Dean's Fellow
- 2012 – 2018 NSF CAREER Award
- 2012 – 2014 Cottrell Research Scholar – Research Corporation for Science Advancement
- 2012 Indiana University Outstanding Junior Faculty Award
- 2011 – 2016 NIH Director's New Innovator Award (DP2)
- 2010 – 2014 Pew Biomedical Scholar Award
- 2007 – 2011 NIH Pathway to Independence Award (K99/R00)
- 2007 American Chemical Society, Division of Organic Chemistry Travel Grant
- 2006 – 2007 American Cancer Society Postdoctoral Fellow
- 2005 Ruth Dickie Grant-in-Aid Fellowship
- 2005 Ralph F. Hirshmann - Daniel H. Rich Graduate Award in Bio-organic Chemistry
- 2004 American Chemical Society, Division of Biological Chemistry Travel Grant
- 2001 – 2004 NIH Predoctoral Fellow, Biotechnology Training Program

2000	McElvain Scholarship, University of Wisconsin-Madison
2000	American Institute of Chemists Foundation: Outstanding Senior Student
2000	Phi Lambda Upsilon (Honorary Chemical Society)
2000	Phi Beta Kappa (Academic Honor Society)
1996 – 2000	Buntrock Dean's Academic Scholarship

*Affiliations*

2016 – present	Member, Masonic Cancer Center, University of Minnesota
2012 – present	American Society for Mass Spectrometry (ASMS)
2012 – present	American Society for Microbiology (ASM)
2010 – present	American Society of Pharmacognosy (ASP)
1997 – present	American Chemical Society (ACS)

**Independent Publications:** († indicates co-authorship; \* indicates co-corresponding authorship)

65. Sharifzadeh, S.; Dempwolff, F.; Kearns, D. B.; **Carlson, E. E.** Harnessing  $\beta$ -Lactam Antibiotics for Illumination of the Activity of Penicillin-Binding Proteins in *Bacillus subtilis*. *In Review*.

64. Espinasse, A.; Wen, X.; Goodpaster, J. D.; **Carlson, E. E.** Mechanistic Studies of Bioorthogonal ATP Analogs for Assessment of Histidine Kinase Autophosphorylation. *In Review*.

63. Mitchell, S. L.; Hudson-Smith, N. V.; Cahill, M. S.; Reynolds, B. N.; Frand, S. D.; Green, C. M.; Wang, C.; Hang, M. N.; Tapia Hernandez, R.; Hamers, R. J.; Feng, Z. V.; Haynes, C. L.; **Carlson, E. E.** Chronic Exposure to Complex Metal Oxide Nanoparticles Elicits Rapid Resistance in *Shewanella oneidensis* MR-1. *Chem. Sci.* **2019**, *10*, 9768-9781.

\*\* Highlighted in the media:

NSF: [https://www.nsf.gov/discoveries/disc\\_summ.jsp?cntn\\_id=299374&WT.mc\\_id=USNSF\\_1](https://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=299374&WT.mc_id=USNSF_1)

Chemistry World: <https://www.chemistryworld.com/news/chronic-exposure-to-battery-nanomaterial-leads-to-resistant-bacteria/4010593.article>

AAAS: [https://www.eurekalert.org/pub\\_releases/2019-10/uom-rbn100919.php](https://www.eurekalert.org/pub_releases/2019-10/uom-rbn100919.php)

UMN: <https://cse.umn.edu/college/news/nanoparticles-may-have-bigger-impact-environment-previously-thought>

Star Tribune: <http://www.startribune.com/university-of-minnesota-research-finds-potential-environmental-impact-of-nanoparticles/562576962/>

62. Marshall, D. P.; Johnson, A. R.; Vega, M. M.; Thompson, R. J.; **Carlson, E. E.** Ion Mobility Mass Spectrometry as an Efficient Tool for Identification and Structural Characterization of Streptorubin B in *Streptomyces coelicolor* M145. **2019**, *In Revision*.

61. Salehi, S.; Cotner, S.; Azarin, S.; **Carlson, E. E.**; Challou, D.; Driessen, M.; Ferry, V. E.; Goldberg, E. E.; Harcombe, W.; Jensen, S.; McGaugh, S.; Wassenberg, D.; Wynveen, A.; Yonas, A.; Ballen, C. J. Gender Performance Gaps Across Different Assessment Methods and the Underlying Mechanisms. *Front. Educ.* **2019**, doi.org/10.3389/educ.2019.00107.

60. Tollefson, E. J.;† Allen, C.;† Chong, G.; Zhang, X.; Rozanov, N.; Bautista, A.; Cerda, J. J.; Pedersen, J. A.; Murphy, C. J.; **Carlson, E. E.**;\* Hernandez, R.\* Preferential Binding of Cytochrome c to Anionic Ligand-Coated Gold Nanoparticles: A Complementary Computational and Experimental Approach. *ACS Nano*, **2019**, *13*, 6856-6866.

59. Gehrke, E. J.; Zhang, X.; Pimentel-Elardo, S. M.; Johnson, A. J.; Gehrke, S. S.; Rees, C. A.; Jones, S. E.; Turvey, S.; Hindra; Boursalie, S.; Hill, J. S.; **Carlson, E. E.**; Nodwell, J. R.; Elliot, M. A. Repression of specialized metabolism in *Streptomyces* by the xenogeneic silencer Lsr2. *eLife*, **2019**, *8*, e47691. *BioRxiv*, **2019**, 614727.

58. Johnson, A. R. and **Carlson, E. E.** Structure Elucidation of Macrolide Antibiotics Using MS<sup>n</sup> Analysis and Deuterium Labelling. *J. Am. Soc. Mass Spectrom.* **2019**, *30*, 1464-1480.

57. Jones, S. E.; Pham, C. A.; Zambri, M.; McKillip, J.; **Carlson, E. E.**; Elliot, M. A. *Streptomyces* volatile

compounds influence exploration and microbial community dynamics by altering iron availability. *mBio* **2019**, 10:e00171-19. *BioRxiv*, **2018**, 396606.

\*\*Highlighted in: Editor's Choice in *Science*: Funk, M. A. Stinky molecules undermine competitors. *Science* **2019**, 364, 142.

\*\*Malone J: F1000Prime Recommendation of [Jones SE et al., *MBio* 2019 10(2)]. In F1000Prime, 21 Mar 2019; 10.3410/f.735257236.793557749.

56. Tollefson, E. J. and **Carlson, E. E.** Chemoselective Tagging to Promote Natural Product Discovery. Ed. Tao, W. A., Zhang, Y. In: *Mass Spectrometry-Based Chemical Proteomics*, John Wiley & Sons, Inc., **2019**, 187-206. *Invited Book Chapter*.

55. Feng, Z. V.; Miller, B.; Linn, T. G.; Pho, T.; Hoang, K. N. L.; Hang, M. N.; Mitchell, S. L.; Tapia Hernandez, R.; **Carlson, E. E.**; Hamers, R. J. Biological Impact of Lithium Intercalating Complex Metal Oxides to Model Bacterium *Bacillus subtilis*. *Environ. Sci.: Nano* **2019**, 6, 305-314.

54. Goswami, M.; Espinasse, A.; **Carlson, E. E.** Disarming the virulence arsenal of *Pseudomonas aeruginosa* by blocking two-component system signaling. *Chem. Sci.* **2018**, 9, 7332-7337.

\*\* Selected as part of the 2018 Chemical Science HOT Article Collection  
(<https://pubs.rsc.org/en/journals/articlecollectionlanding?sercode=sc&themeid=af929dfa-0882-413a-9013-3057a068eaf6>)

53. Chase, O. M.; Espinasse, A.; Wilke, K. E.; **Carlson, E. E.** Exploration of the effects of  $\gamma$ -phosphate modified ATP analogs on histidine kinase autophosphorylation. *Biochemistry* **2018**, 57, 4368-4373.

52. Mitchell, S. L. and **Carlson, E. E.** Tiny Things with Enormous Impact: Nanotechnology in the Fight Against Infectious Disease. *ACS Infect. Dis.* **2018**, 4, 1432-1435. *Invited View Point*.

51. Wilke, K. E.; Fihn, C. A.; **Carlson, E. E.** Screening Serine/Threonine and Tyrosine Kinase Inhibitors for Histidine Kinase Inhibition. *Bioorg. Med. Chem.* **2018**, 26, 5322-5326.

50. Sharifzadeh, S.; Shirley, J. D.; **Carlson, E. E.** Activity-Based Protein Profiling Methods to Study Bacteria: The Power of Small Molecule Electrophiles. In: *Curr. Top. Microbiol. and Immunol.* Springer, Berlin, Heidelberg. Edited by Cravatt, B. F.; Hsu, K-L.; Weerapana, E. **2018**, 420, 23-48. *Invited Book Chapter*.

49. Heili, J. M.; Gomez-Garcia, J.; Gaut, N. J.; Cash, B. W.; Aufdembrink, L. M.; Heffron, B. A.; Shirley, J. S.; **Carlson, E. E.**; Admala, K. P.; Engelhart, A. E. Real-Time Visualization of In Vitro Transcription of a Fluorescent RNA Aptamer: An Experiment for the Upper-Division Undergraduate or First-Year Graduate Laboratory. *J. Chem. Ed.* **2018**, 95, 1867-1871.

48. Sharifzadeh, S.; Boersma, M. J.; Kocaoglu, O.;<sup>†</sup> Shokri, A.;<sup>†</sup> Brown, C. L.; Shirley, J. D.; Winkler, M. E. and **Carlson, E. E.** Novel Electrophilic Scaffold for Imaging of Essential Penicillin-Binding Proteins in *Streptococcus pneumoniae*. *ACS Chem. Biol.* **2017**, 12, 2849-2857.

47. Goswami, M.; Wilke, K. E. and **Carlson, E. E.** Rational Design of Selective Adenine-Based Scaffolds for Inactivation of Bacterial Histidine Kinases. *J. Med. Chem.* **2017**, 60, 8170-8182.

46. Capehart, S. L. and **Carlson, E. E.** Mass Spectrometry-Based Assay for the Rapid Detection of Thiol-Containing Natural Products. *Chem. Commun.* **2016**, 52, 13229-13232.

45. Kocaoglu, O. and **Carlson, E. E.** Progress and Prospects for Small-Molecule Probes of Bacterial Imaging. *Nat. Chem. Biol.* **2016**, 12, 472-478. *Invited Perspective*.

44. Wilke, K. E. and **Carlson, E. E.** Thiol-ene Enabled Detection of Thiophosphorylation as a Labeling Strategy for Phosphoproteins. *Methods Mol. Biol.* **2016**, 1355, 3-15. *Invited*.

43. Wang, M.; Carver, J. J.; Phelan, V. V.; Sanchez, L. M.; Garg, N.; Peng, Y.; Nguyen, D. D.; Watrous, J.; Kapon, C. A.; Luzzatto-Knaan, T.; Porto, C.; Bouslimani, A.; Melnik, A. V.; Meehan, M. J.; Liu, W.T.; Crüsemann, M.; Boudreau, P. D.; Esquenazi, E.; Sandoval-Calderón, M.; Kersten, R. D.; Pace, L. A.; Quinn, R. A.; Duncan, K. R.; Hsu, C. C.; Floros, D. J.; Gavilan, R. G.; Kleigrew, K.; Northen, T.; Dutton, R. J.; Parrot,

D.; **Carlson, E. E.**; Aigle, B.; Michelsen, C. F.; Jelsbak, L.; Sohlenkamp, C.; Pevzner, P.; Edlund, A.; McLean, J.; Piel, J.; Murphy, B. T.; Gerwick, L.; Liaw, C. C.; Yang, Y. L.; Humpf, H. U.; Maansson, M.; Keyzers, R. A.; Sims, A. C.; Johnson, A. R.; Sidebottom, A. M.; Sedio, B. E.; Klitgaard, A.; Larson, C. B.; Boya, P. C. A.; Torres-Mendoza, D.; Gonzalez, D. J.; Silva, D. B.; Marques, L. M.; Demarque, D. P.; Pociute, E.; O'Neill, E. C.; Briand, E.; Helfrich, E. J.; Granatosky, E. A.; Glukhov, E.; Ryffel, F.; Houson, H.; Mohimani, H.; Kharbush, J. J.; Zeng, Y.; Vorholt, J. A.; Kurita, K. L.; Charusanti, P.; McPhail, K. L.; Nielsen, K. F.; Vuong, L.; Elfeki, M.; Traxler, M. F.; Engene, N.; Koyama, N.; Vining, O. B.; Baric, R.; Silva, R. R.; Mascuch, S. J.; Tomasi, S.; Jenkins, S.; Macherla, V.; Hoffman, T.; Agarwal, V.; Williams, P. G.; Dai, J.; Neupane, R.; Gurr, J.; Rodriguez, A. M.; Lamsa, A.; Zhang, C.; Dorrestein, K.; Duggan, B. M.; Almaliti, J.; Allard, P. M.; Phapale, P.; Nothias, L. F.; Alexandrov, T.; Litaudon, M.; Wolfender, J. L.; Kyle, J. E.; Metz, T. O.; Peryea, T.; Nguyen, D. T.; VanLeer, D.; Shinn, P.; Jadhav, A.; Müller, R.; Waters, K. M.; Shi, W.; Liu, X.; Zhang, L.; Knight, R.; Jensen, P. R.; Palsson, B. Ø.; Pogliano, K.; Linington, R. G.; Gutiérrez, M.; Lopes, N. P.; Gerwick, W. H.; Moore, B. S.; Dorrestein, P. C.; Bandeira, N. Sharing and community curation of mass spectrometry data with Global Natural Products Social Molecular Networking. *Nat. Biotechnol.* **2016**, *34*, 828-837.

42. Kocaoglu, O.;<sup>†</sup> Tsui, H-C. T.;<sup>†</sup> Winkler, M. E.; **Carlson, E. E.** Profiling of  $\beta$ -Lactam Selectivity for Penicillin-Binding Proteins in *Streptococcus pneumoniae* D39. *Antimicrob. Agents Chemother.* **2015**, *59*, 3548-3555.

41. Wilke, K. E.; Francis, S.; **Carlson, E. E.** Inactivation of Multiple Bacterial Histidine Kinases by Targeting the ATP-Binding Domain. *ACS Chem. Biol.* **2015**, *10*, 328-335.

40. Kocaoglu, O. and **Carlson, E. E.** Profiling of  $\beta$ -Lactam Selectivity for Penicillin-Binding Proteins in *Escherichia coli* DC2. *Antimicrob. Agents Chemother.* **2015**, *59*, 2785-2790.

39. Trader, D. J. and **Carlson, E. E.** Chemoselective Enrichment as a Tool to Increase Access to Bioactive Natural Products: Case Study Borrelidin. *Bioorg. Med. Chem. Lett.* **2015**, *25*, 4767-4769. 25th Anniversary Issue Entitled, "Recent Advances in Medicinal Chemistry and Chemical Biology."

38. Sidebottom, A. M.; Karty, J. A.; **Carlson, E. E.** Accurate Mass MS/MS/MS Analysis of Siderophores Ferrioxamine B and E1 by Collision-Induced Dissociation Electrospray Mass Spectrometry. *J. Am. Soc. Mass Spectrom.* **2015**, *26*, 1899-1902.

37. Johnson, A. J. and **Carlson, E. E.** Collision-Induced Dissociation Mass Spectrometry: A Powerful Tool for Natural Product Structure Elucidation. *Anal. Chem.* **2015**, *87*, 10668-10678. *Invited Feature*.

\*\*Selected for virtual issue of *Analytical Chemistry* to "Highlight Selected Women Analytical Chemists." <https://pubs.acs.org/page/ancham/vi/womenanalyticalchemists>

36. Sidebottom, A. M. and **Carlson, E. E.** A Reinvigorated Era of Bacterial Secondary Metabolite Discovery. *Curr. Opin. Chem. Biol.* **2015**, *24*, 104-111. *Invited Review in -Omics Themed Issue*.

35. Murphy, C. J.; Vartanian, A. M.; Geiger, F. M.; Hamers, R. J.; Pedersen, J.; Cui, Q.; Haynes, C. L.; **Carlson, E. E.**; Hernandez, R.; Klaper, R. D.; Orr, G.; Rosenzweig, Z. Biological Responses to Engineered Nanomaterials: Needs for the Next Decade. *ACS Cent. Sci.* **2015**, *1*, 117-123.

34. Wilke, K. E. and **Carlson, E. E.** New Approaches to Understanding Bacterial Histidine Kinase Activity and Inhibition. In *Kinomics: Approaches and Applications*, Kraatz, H.B.; Martic, S., Eds.; WILEY-VCH: Weinheim, **2015**, pp 233-254. *Invited*.

33. Johnson, A. R.; Dilger, J. M.; Glover, M. S.; Clemmer, D. E.; **Carlson, E. E.** Negatively-Charged Helices in the Gas Phase. *Chem. Commun.* **2014**, *50*, 8849-8851. *Invited article in 2015 Emerging Investigators Issue*.

32. Tsui, H-C. T.;<sup>†</sup> Boesma, M.;<sup>†</sup> Vella, S.; Kocaoglu, O.; Kuru, E.; Perceny, J.; **Carlson, E. E.**; VanNieuwenhze, M. S.; Brun, Y. V.; Shaw, S.; Winkler, M. E. Separate Localization of Penicillin-Binding Protein Pbp2x from Pbp2b and Other Peptidoglycan Synthesis Proteins During Later Division Stages of *Streptococcus pneumoniae* D39. *Mol. Microbiol.* **2014**, *94*, 21-40.

\*\*Highlighted in: Cadby, I. T. and Lovering, A. L. Molecular surveillance of the subtle septum: discovering a new mode of peptidoglycan synthesis in streptococci. *Mol. Microbiol.* **2014**, *94*, 1-4.

\*\*Selected for Journal Cover Image

31. Trader, D. J. and **Carlson, E. E.** Towards the Development of Solid Supported Reagents for Separation of Alcohol-Containing Compounds by Steric Environment. *Tetrahedron*, **2014**, *70*, 4191-4196. *Invited article in Special Issue to honor Sarah Reisman for receipt of the Tetrahedron Young Investigator Award.*

30. Tsui, H-C. T.;<sup>†</sup> Land, A. D.;<sup>†</sup> Kocaoglu, O.; Vella, S.; Shaw, S.; Keen, S.; Sham, L.-T.; **Carlson, E. E.**; Winkler, M. E. Requirement of Essential Pbp2x and GpsB for Septal Ring Closure in *Streptococcus pneumoniae* D39. *Mol. Microbiol.* **2013**, *90*, 939-955.

\*\*Selected for Journal Cover Image

29. Sidebottom, A. M.; Johnson, A. R.; Karty, J. A.; Trader, D. J.; **Carlson, E. E.** Integrated Metabolomics Approach Facilitates Discovery of an Unpredicted Natural Product Suite from *Streptomyces coelicolor* M145. *ACS Chem. Biol.* **2013**, *8*, 2009-2016.

28. Trader, D. J. and **Carlson, E. E.** Taming of a Superbase for Selective Phenol Desilylation and Natural Product Isolation. *J. Org. Chem.* **2013**, *78*, 7349-7355.

27. Garber, K. C. A. and **Carlson, E. E.** Thiol-ene Enabled Detection of Thiophosphorylated Kinase Substrates. *ACS Chem. Biol.* **2013**, *8*, 1671-1676.

26. Garber, K. C. A.;<sup>†</sup> Odendaal, A. Y.;<sup>†</sup> **Carlson, E. E.** Plant Pigment Identification: A Classroom and Outreach Activity. *J. Chem. Ed.* **2013**, *90*, 755-759.

25. Francis, S.; Wilke, K. E.; Brown, D. E.; **Carlson, E. E.** Mechanistic Insight into Inhibition of Two-Component System Signaling. *Med. Chem. Commun.* **2013**, *4*, 269-277. *Invited Article in the New Talent Themed Issue.*

24. Kocaoglu, O. and **Carlson, E. E.** Penicillin-Binding Protein Imaging Probes. *Curr. Prot. Chem. Bio.* **2013**, *5*, 239-250. *Invited.*

23. Wilke, K. E. and **Carlson, E. E.** All Signals Lost. *Sci. Transl. Med.* **2013**, *5*, 203ps12. *Invited Perspective.*

22. Trader, D. J. and **Carlson, E. E.** Chemoselective Hydroxyl Group Transformation: An Elusive Target. *Mol. Biosyst.* **2012**, *8*, 2484-2493. *Invited Review in Emerging Investigators Themed Issue.*

\*\*Selected as Molecular BioSystems HOT Article and highlighted on their blog,  
[http://blogs.rsc.org/mb/ \(7/17/2012\)](http://blogs.rsc.org/mb/ (7/17/2012)).

21. Kocaoglu, O.; Calvo, R. A.; Sham, L. T.; Cozy, L. M.;<sup>†</sup> Lanning, B. R.;<sup>†</sup> Francis, S.; Winkler, M. E.; Kearns, D. B.; **Carlson, E. E.** Selective Penicillin-Binding Protein Imaging Probes Reveal Substructure in Bacterial Cell Division. *ACS Chem. Biol.* **2012**, *7*, 1746-1753.

\*\*Highlighted by: Walker, S. and Pasquina, L., *Faculty of 1000*, 05 Nov 2012; DOI:  
10.3410/f.717960899.793463846.

20. Wilke, K. E.; Francis, S.; **Carlson, E. E.** Activity-Based Probe for Histidine Kinase Signaling. *J. Am. Chem. Soc.* **2012**, *134*, 9150-9153.

\*\*Highlighted in: *J. Am. Chem. Soc.* **2012**, *134*, 10715-10716.

19. Trader, D.J. and **Carlson, E. E.** Siloxyl Ether Functionalized Resins for Chemoselective Enrichment of Carboxylic Acids. *Org. Lett.* **2011**, *13*, 5652-5655.

18. Odendaal, A. Y.;<sup>†</sup> Trader, D. J.;<sup>†</sup> **Carlson, E. E.** Chemoselective Enrichment for Natural Products Discovery. *Chem. Sci.* **2011**, *2*, 760-764.

\*\*Highlighted in: *Chem. & Eng. News*, **2011**, *89*, Feb 14, 34-35 and *Chemistry World*  
(<http://www.rsc.org/chemistryworld/News/2011/February/15021101.asp>).

17. **Carlson, E. E.** Mass Spectrometry for Systems-Level Biological Analysis. *Nat. Chem. Biol.* **2010**, DOI: 10.1038/nchembio.490. *Invited*.

16. **Carlson, E. E.** Natural Products as Chemical Probes. *ACS Chem. Biol.* **2010**, *5*, 639-653. *Invited*.

#### Patents:

15. **Carlson, E. E.**; Sharifzadeh, S; Kocaoglu, O.; Shokri, A.; Brown, C. Lactone-based probes and methods of use thereof. U. S. Patent 2018/0339972-A1, *Published November 29, 2018*.

14. **Carlson, E. E.**; Goswami, M. Antibacterial agents including histidine kinase inhibitors. International Patent WO 2018/217884, *Published November 28, 2018*.

13. **Carlson, E. E.**; Sharifzadeh, S. Antibiotic-based conjugates and methods of use thereof. U. S. Patent Number 2018/0292387-A1, *Published October 11, 2018*.

12. **Carlson, E. E.**; Trader, D. J.; Sidebottom, A. M. Design and Application of a Tag for Discovery of Natural Products Containing an Alkyne. U.S. Patent Number 20,150,240,006 A1, *Issued August 27, 2015*.

11. **Carlson, E. E.**; Trader, D. J.; Odendaal, A. Y. Chemoselective Enrichment for Compound Isolation. U.S. Patent Number 9,079,983 B2, *Issued July 14, 2015*.

10. **Carlson, E. E.**; Trader, D. J. Siloxyl Ether Reagents for Chemoselective Reaction with Carboxylic Acids. U.S. Patent Number 20,140,107,328 A1, *Issued April 17, 2014*.

#### Mentored Publications:

9. Garber, K. C. A.; Wangkanont, K.; **Carlson, E. E.**; Kiessling, L. L. A General Glycomimetic Strategy Yields Non-Carbohydrate Inhibitors of DC-SIGN. *Chem. Commun.* **2010**, *46*, 6747-6749.

8. **Carlson, E. E.** and Cravatt, B. F. Enrichment Tags for Enhanced-Resolution Profiling of Hydrophilic Metabolites. *J. Am. Chem. Soc.* **2007**, *129*, 15780-15782.

7. **Carlson, E. E.** and Cravatt, B. F. Chemoselective Probes for Metabolite Enrichment and Profiling. *Nat. Methods*, **2007**, *4*, 429-435.

\*\*Highlighted in: *J. Prot. Res.* **2007**, *6*, 2049 and *Anal. Chem.* **2007**, *79*, 3957.

6. Kiessling, L. L. and **Carlson, E. E.** The Search for Chemical Probes to Illuminate Carbohydrate Function. In *Chemical Biology. From Small Molecules to System Biology and Drug Design*. Schreiber, S. L., Kapoor, T. M., Wess, G., Eds.; WILEY-VCH: Weinheim, **2007**, pp 635-667.

5. **Carlson, E. E.**; May, J. F.; Kiessling, L. L. Chemical Probes of UDP-Galactopyranose Mutase. *Chem. Biol.* **2006**, *13*, 825-837.

4. Grundt, P.; **Carlson, E. E.**; Cao, J.; Bennett, C. J.; Luedtke, R. R.; McElveen, E.; Taylor, M.; Newman, A. H. Novel Heterocyclic *Trans* Olefin Analogues of N-{4-[4-(2,3-Dichlorophenyl)piperazin-1-yl]butyl}arylcarboxamides as Selective Probes with High Affinity for the Dopamine D<sub>3</sub> Receptor. *J. Med. Chem.* **2005**, *48*, 839-848.

3. Soltero-Higgin, M.; **Carlson E. E.**; Phillips, J. H.; Kiessling, L. L. Identification of Inhibitors for UDP-Galactopyranose Mutase. *J. Am. Chem. Soc.* **2004**, *126*, 10532-10533.

2. Soltero-Higgin, M.; **Carlson, E. E.**; Gruber, T. D.; Kiessling, L. L. A Unique Catalytic Mechanism for UDP-Galactopyranose Mutase. *Nat. Struct. Mol. Biol.* **2004**, *11*, 539-543.

\*\*Highlighted in: *Nat. Struct. Mol. Biol.* **2004**, *11*, 497-498.

1. **Carlson, E. E.** and Kiessling, L. L. Improved Chemical Syntheses of 1- and 5-Deazariboflavin. *J. Org. Chem.* **2004**, *69*, 2614-2617.

#### Current and Previous Research Support:

MTRPC Research Grant (Co-PI Carlson)

5/01/19-4/31/20

Minnesota Turkey Research and Promotion Council

*Development of an Alternative Growth Supplement using Bacterial Virulence Inhibitors*

NIH MPI R01 GM128439-01A1 (Carlson) 8/20/18-8/19/20

NIH/NIGMS

*Spaciotemporal Regulation of Specific Penicillin Binding Protein (PBP) Function Determined by New Activity-Based Approaches*

Cottrell Scholar Collaborative: Teacher Scholar Ambassadors for PUI – R1 Partnerships (co-PI Carlson)

Research Corporation for Science Advancement

6/1/17-12/31/18

*Bacterial Signaling Inhibitors To Target Bacterial Virulence*

NSF CCI Award (co-PI Carlson)

9/01/15-8/31/20

National Science Foundation

*Phase II Center for Chemical Innovation, A Molecular Basis for Sustainable Nanotechnology*

Sloan Research Fellowship (Carlson)

9/01/13-8/30/17

Alfred P. Sloan Foundation

NSF CAREER Award (Carlson)

8/15/12-8/14/18

National Science Foundation

*CAREER: Chemoselective Tools for Exploration of Natural Product Chemical Space*

Cottrell Scholar Award (Carlson)

5/1/12-4/30/14

Research Corporation for Science Advancement

*Chemoselective Enrichment Tools for Natural Products Discovery*

NIH Director's New Innovator Award DP2 OD008592-01 (Carlson)

9/30/11-6/31/16

NIH/NIGMS

*Targeted Natural Product Diversification to Identify Novel Antibacterial Agents*

Pew Biomedical Scholar Award (Carlson)

7/1/10-6/30/14

Pew Charitable Trusts

*Innovative Technologies for Natural Product Isolation and Diversification*

Indiana University Dean's Fellow (Carlson)

6/01/13-6/30/14

Indiana University

Indiana University Outstanding Junior Faculty Award (Carlson)

1/01/12-12/31/12

Indiana University

*Development of Technologies for the Discovery of Antibiotic Agents in Nature*

NIH Pathway to Independence Award R00 GM 082983 (Carlson)

7/01/08-6/30/11

NIH/NIGMS

*Innovative Technologies for Metabolite Profiling and Natural Products Discovery*

### **Instrumentation Grant:**

Proposal for Waters Synapt G2-S QToF Instrument Purchase (Carlson)

Funded through the Indiana Metabolomics and Cytomics Initiative (METACyt), Purchased 10/2012

*Waters Synapt G2-S Mass Spectrometer: A Discovery-Enabling Tool*

### **Funding for Education/Outreach/Service Activities:**

Cottrell Scholar Collaboration

8/2012-7/2013

(Senior Personnel; PIs: Mike Hildreth, Physics, University of Notre Dame and Geoff Hutchison, Chemistry, University of Pittsburgh)

Research Corporation for Science Advancement

*Cottrell Repository for Effective Science Teaching (CREST)*

Office for Women's Affairs (co-PI Dr. Maren Pink and Dr. Sara Skrabalak)

9/2011-8/2012

Indiana University

*Women in Chemistry Programming*

Office for Women's Affairs (co-PI Dr. Maren Pink and Dr. Sara Skrabalak) 9/2010-8/2011  
Indiana University

*Women in Chemistry Programming*

Innovative Projects Grant Program (co-PI Dr. Sara Skrabalak) 1/2010-12/2011  
American Chemical Society, Local Section Activities

*Chemistry of Everyday Life Seminar Series*

Office for Women's Affairs (co-PI Dr. Maren Pink and Dr. Sara Skrabalak) 9/2009-8/2010  
Indiana University

*Women in Chemistry Programming*

**General Media:**

- Invited panelist for “Science meets science fiction for humanity’s future in space” panel discussion at TEDWomen 2019: Bold + Brilliant, Palm Springs, CA, Dec 4-6, 2019.
- Publication “Chronic Exposure to Complex Metal Oxide Nanoparticles Elicits Rapid Resistance in *Shewanella oneidensis* MR-1” highlighted in the scientific and popular media: (*Chem. Sci.* **2019**, *10*, 9768-9781)  
NSF: [https://www.nsf.gov/discoveries/disc\\_summ.jsp?cntn\\_id=299374&WT.mc\\_id=USNSF\\_1](https://www.nsf.gov/discoveries/disc_summ.jsp?cntn_id=299374&WT.mc_id=USNSF_1)  
Chemistry World: <https://www.chemistryworld.com/news/chronic-exposure-to-battery-nanomaterial-leads-to-resistant-bacteria/4010593.article>  
AAAS: [https://www.eurekalert.org/pub\\_releases/2019-10/uom-rbn100919.php](https://www.eurekalert.org/pub_releases/2019-10/uom-rbn100919.php)  
UMN: <https://cse.umn.edu/college/news/nanoparticles-may-have-bigger-impact-environment-previously-thought>  
Star Tribune: <http://www.startribune.com/university-of-minnesota-research-finds-potential-environmental-impact-of-nanoparticles/562576962/>
- Guest on Minnesota Public Radio in feature called “Closing the gender gap in STEM” aired March 31, 2017: <http://www.mprnews.org/story/2017/03/31/roundtable-closing-the-stem-gender-gap>
- Featured in a University of Minnesota press release as a Rising Star Awardee from the American Chemical Society Women Chemists Committee: <http://chem.umn.edu/news/professor-carlson-receives-2017-rising-star-award>
- Identified in a White House press release as a Presidential Early Career Awards for Scientists and Engineers (PECASE) Recipient: <https://www.whitehouse.gov/the-press-office/2016/02/18/president-obama-honors-extraordinary-early-career-scientists>
- Identified in a National Science Foundation press release as a Presidential Early Career Awards for Scientists and Engineers (PECASE) Recipient: [http://www.nsf.gov/news/news\\_summ.jsp?cntn\\_id=137709&org=NSF&from=news](http://www.nsf.gov/news/news_summ.jsp?cntn_id=137709&org=NSF&from=news)
- Identified in a White House blog post about Presidential Early Career Awards for Scientists and Engineers (PECASE) recipient visit with President Obama: <https://www.whitehouse.gov/blog/2016/05/05/honoring-federally-funded-scientists-and-engineers-forefront-research-and-discovery>
- Featured in a University of Minnesota press release as a Presidential Early Career Awards for Scientists and Engineers (PECASE) Recipient: <http://discover.umn.edu/news/science-technology/university-minnesota-chemistry-professor-receives-highest-honor-us>
- Featured in a Minnesota Daily press release as a Presidential Early Career Awards for Scientists and Engineers (PECASE) Recipient: <http://www.mndaily.com/news/campus/2016/03/20/innovative-university-chemist-garners-national-award>
- Guest on Minnesota Public Radio in feature called 'Six things I wish I'd known before starting college' aired April 8, 2016: <http://www.mprnews.org/story/2016/04/08/friday-roundtable-things-to-know-before-college>



- Identified in the Herald Times (Bloomington, IN) as a Sloan Research Fellow:  
<http://www.heraldtimesonline.com/stories/2013/03/09/news.qp-3788848.sto>
- Identified in the New York Times as a Sloan Research Fellow:  
[http://www.sloan.org/fileadmin/media/files/press\\_releases/2013\\_SRF\\_Press\\_Release\\_vf.pdf](http://www.sloan.org/fileadmin/media/files/press_releases/2013_SRF_Press_Release_vf.pdf)
- Identified by IU News Room as Sloan Research Fellow and NSF Career Award recipient:  
<http://newsinfo.iu.edu/news/page/normal/23893.html>
- Featured in video produced by NBC in their *Science Behind The News* series, a fast-paced video series supported by the National Science Foundation. This piece was one of five videos highlighting work funded by NSF's Directorate for Mathematical and Physical Sciences: <http://science360.gov/obj/tkn-video/8455aa17-08b0-4ddd-89d6-ddc4a4dab5a3/science-behind-news-drug-resistant-bacteria>
- Featured in a "Brilliant Minds" video produced by Indiana University:  
<http://inside.iub.edu/features/videos/2013-02-07-iniub-video-brilliant-minds.shtml>
- Early Excellence Profile in the Journal of Physical Organic Chemistry: *J. Phys. Org. Chem.* **2013**, 26, 1.
- Identified in Huffington Post article "Leading Scholar-Educators Address Undergraduate Science Education" See [http://www.huffingtonpost.com/james-m-gentile/leading-scholareducators-\\_b\\_1683028.html](http://www.huffingtonpost.com/james-m-gentile/leading-scholareducators-_b_1683028.html)
- Identified by IU News Room as Cottrell Scholar: <http://newsinfo.iu.edu/news/page/normal/23092.html>
- Identified by IU News Room for receipt of the IU Junior Faculty Award:  
<http://homepages.indiana.edu/web/page/normal/21523.html>
- Identified by IU News Room for receipt of the NIH Director's New Innovator Award:  
<http://newsinfo.iu.edu/news/page/normal/19630.html>

**Presentations:** \*Future Invites

**Invited Presentations**

- \*97. Cornell University Chemistry Biology Interface Symposium 2020, Ithaca, NY, April 25, 2020.
- \*96. University of Wisconsin – Stevens Point, Stevens Point, WI, April 3, 2020.
- \*95. Purdue University, West Lafayette, IN, March 31, 2020.
- \*94. Indiana University, Bloomington, IN, March 27, 2020.
- \*93. *Invited Talk*. Metals in Biology Gordon Research Conference, Ventura, CA, Jan 19-14, 2020.
- \*92. *Invited Talk*. Sensory Transduction in Microorganisms Gordon Research Conference, Ventura, CA, Jan 12-17, 2020.
- 91. Technical University of Munich, Munich, Germany, Sept. 30, 2019.
- 90. *Invited Talk for Remsen Award Symposium to Honor Cathy Murphy*. ACS Middle Atlantic Regional Meeting, Baltimore, MD, May 30, 2019.
- 89. *Invited Talk*. University of Minnesota Biofilm Club Symposium, Minneapolis, MN, May 16, 2019.
- 88. University of New Mexico, Department of Chemistry, Albuquerque, NM, April 26, 2019.
- 87. *Invited Talk*. SciSpark, University of Minnesota, Minneapolis, MN, April 10, 2019.
- 86. *Invited Talk for Meet the Speaker Series, organized by the Women in Chemistry Chapter*. Michigan State University, Department of Chemistry, East Lansing, MI, March 20, 2019.
- 85. University of Kansas, Department of Medicinal Chemistry, Lawrence, KS, Nov. 8, 2018.
- 84. Rutgers University, New Brunswick, NJ, Nov. 6, 2018.
- 83. *Invited Talk*. Midwest Microbial Pathogenesis Conference, Iowa City, IA, Sept. 28-30, 2018.
- 82. *Invited Talk*. 256th ACS National Meeting, Boston, MA, Aug. 19-23, 2018. ANYL 443
- 81. *Invited Talk*. R. Bryan Miller Symposium, University of California, Davis, Davis, CA, March, 16, 2018.
- 80. *Invited Talk*. UMN Bioinformatics and Computational Biology Research Symposium, Rochester, MN, Jan. 12, 2018.
- 79. University of Wisconsin – La Crosse, La Crosse, WI, Nov. 17, 2017.
- 78. *Invited Talk*. 7th Chicago Organic Symposium, Chicago, IL, Sept 30, 2017.
- 77. *Invited Talk*. Natural Products & Bioactive Compounds Gordon Research Conference, Proctor, NH, July 30-Aug 4, 2017.

76. *Invited External Feature Presentation*. Boston Scientific Global Technology Expo, St. Paul, MN, June 22, 2017.
75. *Iddles Lecturer*. University of New Hampshire, Durham, NH, April 26-27, 2017.
74. *Invited Talk in Chemical Methods for Bacterial Imaging Session*. 253rd ACS National Meeting, San Diego, CA, April 2-6, 2017.
73. *Invited Talk in ACS WCC Rising Star Session*. 253rd ACS National Meeting, San Diego, CA, April 2-6, 2017.
72. The College of Saint Benedict and Saint John's University, St. Joseph, MN, March 29, 2017.
71. Integrative Biology and Physiology Seminar, University of Minnesota, Feb. 9, 2017.
70. St. Cloud State University, St. Cloud, MN, November 21, 2016.
69. *Invited Talk in Mass Spectrometry-Based Metabolomics Session*, SciX2016, Minneapolis, MN, September 18-23, 2016.
68. *Invited Talk in Integrated OMICS Session*. 21<sup>st</sup> International Mass Spectrometry Conference, Toronto, Canada, August 20-26, 2016.
67. Minnesota Mass Spectrometry Discussion Group, St. Paul, MN, May 19, 2016.
66. University of Minnesota, Center for Drug Design, Minneapolis, MN, May 18, 2016.
65. University of Maryland, College Park, Department of Cell Biology and Molecular Genetics, College Park, MD, April 15, 2016.
64. *Invited Talk in Welcome to the Post-Antibiotic Era Session*. ASBMB Annual Meeting, San Diego, CA, April 2-6, 2016.
63. *Invited Talk in Chemical Methods to Investigate Protein Posttranslational Modifications Session*. 251st ACS National Meeting, San Diego, CA, March 13-17, 2016, ORGN 391.
62. *Invited Talk*. Mona Symposium - Natural Products and Medicinal Chemistry, Kingston, Jamaica, January 4-7, 2016.
61. University of Arkansas, Fayetteville, AR, November 16, 2015.
60. *Invited Talk*. Pew Scholars 30<sup>th</sup> Reunion Meeting, Seven Mile Beach, Grand Cayman, November 2-5, 2015.
59. McMaster University, Department of Biology, Hamilton, Ontario, Canada, October 22, 2015.
58. University of Minnesota, Department of Biochemistry, Molecular Biology and Biophysics, Minneapolis, MN, October 14, 2015.
57. *Invited Talk*. 77<sup>th</sup> Harden Conference: Two Component Signaling in Bacteria: Integrating Approaches and Science, Warwickshire, UK, August 24-27, 2015.
56. Albert Einstein College of Medicine, Bronx, NY, May 19, 2015.
55. LeHigh University, Bethlehem, PA, March 18, 2015.
54. Loyola University Chicago, Infectious Disease and Immunology Research Institute, Chicago, IL, November 20, 2014.
53. University of Minnesota - Duluth, Duluth, MN, October 10, 2014.
52. Boston College, Boston, MA, September 9, 2014.
51. *Session Leader and Speaker*. Indonesian-American Kavli Frontiers of Science Symposium, Medan, Indonesia, June 22-24, 2014.
50. Indiana University School of Medicine, Indianapolis, IN, May 5, 2014.
49. Georgia Institute of Technology, Atlanta, GA, April 10, 2014.
48. *Invited Talk in Alfred Bader Award Symposium to honor Laura L. Kiessling*. 247th ACS National Meeting, Dallas, TX, March 16-20, 2014, ORG 519.
47. *Invited Talk*. New Antibacterial Discovery & Development: Extending the Antibiotic Era Gordon Research Conference, Ventura, CA, March 16-21, 2014.
46. *Invited Talk*. Pew Biomedical Scholars Annual Conference, Costa Rica, Feb 26-March 3, 2014.
45. University of California, Berkeley, Berkeley, CA, Feb 25, 2014.
44. The Ohio State University, Columbus, OH, Jan 21, 2014.
43. *Invited Talk*. Sensory Transduction in Microorganisms Gordon Research Conference, Ventura, CA, Jan 12-17, 2014.
42. Cornell University, Ithaca, NY, Nov 11, 2013.
41. University of California, San Francisco, San Francisco, CA, Oct 31, 2013.
40. University of Washington, Seattle, WA, Oct 30, 2013.

39. *Invited Talk in the Frontiers in Omics Session*. 246th ACS National Meeting, Indianapolis, IN, Sept 8-12, 2013, ANYL.
38. *Invited Talk in the Young Academic Investigators Award Symposium*. 246th ACS National Meeting, Indianapolis, IN, Sept 8-12, 2013. ORGN.
37. *Invited Poster Presentation*. Korean-American Kavli Frontiers of Science Symposium. Irvine, CA, Aug 12-14, 2013.
36. *Invited Talk in Chemical Microbiology: Opening New Doors in Microbiology Using Chemistry Session*. 113<sup>th</sup> American Society for Microbiology Meeting, Denver, CO, May 18-21, 2013, S065.
35. University of Illinois at Urbana-Champaign, Urbana, IL, April 22, 2013.
34. University of Michigan - Ann Arbor, Ann Arbor, MI, April 19, 2013.
33. The Scripps Research Institute, La Jolla, CA, April 11, 2013.
32. University of California, Irvine, Irvine, CA, April 10, 2013.
31. *Invited Talk in ACS Chemical Biology Award Symposium to honor Wilfred van der Donk*. 245th ACS National Meeting, New Orleans, LA, April 8-11, 2013, BIOL 127.
30. University of California, San Diego, La Jolla, CA, April 1, 2013.
29. Massachusetts Institute of Technology, Boston, MA, March 11, 2013.
28. Wayne State University, Detroit, MI, March 6, 2013.
27. University of Minnesota, Minneapolis, MN, March 4, 2013.
26. University of Wisconsin - Madison, Madison, WI, Feb 19, 2013.
25. *Invited Talk*. Winter Conference on Medicinal & Bioorganic Chemistry, Steamboat Springs, CO, Jan 20-24, 2013.
24. California Institute of Technology, Pasadena, CA, Dec 12, 2012.
23. Purdue University, West Lafayette, IN, Nov 6, 2012.
22. St. Olaf College, Northfield, MN, Oct 11, 2012.
21. Butler University, Indianapolis, IN, Sept 28, 2012.
20. *Invited Talk*. Natural Products Gordon Research Conference, Andover, NH, July 22-27, 2012.
19. Olivet Nazarene University, Bourbonnais, IL, April 24, 2012.
18. Yale University, New Haven, CT, April 18, 2012.
17. University of Pennsylvania, Philadelphia, PA, April 16, 2012.
16. Indiana University-Purdue University Indianapolis, Indianapolis, IN, April 11, 2012.
15. Michigan State University, East Lansing, MI, Feb 24, 2012.
14. Macalester College, St. Paul, MN, Feb 8, 2012.
13. Gustavus Adolphus College, St. Peter, MN, Nov 11, 2011.
12. Chicago Mass Spectrometry Discussion Group, Chicago, IL, Oct 11, 2011.
11. *Invited Talk in Young Investigators in Organic Chemistry Symposium*. CERM ACS Regional Meeting, Indianapolis, IN, June 8-10, 2011, CERM433.
10. *Invited Talk in Bioanalytical Chemistry: Approaches to Biomarker Identification Session*. CERM ACS Regional Meeting, Indianapolis, IN, June 8-10, 2011, CERM2.
9. Duquesne University, Pittsburgh, PA, April 8, 2011.
8. *Invited Talk in Ronald Breslow Award for Achievement in Biomimetic Chemistry Session to honor Kevan Shokat*. 241st ACS National Meeting, Anaheim, CA, March 27-30, 2011, BIOL 26.
7. *Invited Talk*. Pew Biomedical Scholars Annual Conference, Cozumel, Mexico, March 12-17, 2011.
6. *Invited Talk*. Watanabe Symposium in Biotechnology, Bloomington, IN, Oct 9, 2010.
5. University of California, Riverside, Riverside, CA, May 14, 2010.
4. *Invited Talk in the ACS New Investigators in Analytical Chemistry Session*. Pittcon, Orlando, FL, Feb 28-Mar 5, 2010, 1140-7.
3. Berea College, Berea, KY, Dec 3, 2009.
2. Gustavus Adolphus College, St. Peter, MN, April 22, 2005.
1. St. Olaf College, Northfield, MN, October 1, 2004.

#### **Contributed Presentations:**

36. *Selected Talk*. Chemical Biology and Physiology 2019. Portland, Oregon, Dec. 12-15, 2019.
35. *Poster Presentation*. The Great Wall. Paris, France, Sept. 25-27, 2019.

34. *Poster Presentation*. Chemical Tools for Complex Biological Systems II. Janelia Research Campus, Ashburn, VA, April 29-May 1, 2019.
33. *Selected Talk*. 256th ACS National Meeting, Boston, MA, Aug. 19-23, 2018. BIOL 261
32. *Poster Presentation*. Sensory Transduction in Microorganisms Gordon Research Conference, Ventura, CA, Jan. 14-18, 2018. P 14.
31. *Poster Presentation*. NIH Common Fund High-Risk High-Reward Symposium, Bethesda, MD, Dec 5-7, 2016.
30. *Poster Presentation*. Bioorganic Gordon Research Conference, Andover, NH, June 5-10, 2016, P 11.
29. *Selected Talk*. NIH Common Fund High-Risk High-Reward Symposium, Bethesda, MD, Dec 7-9, 2015.
28. *Selected Talk*. 239th ACS National Meeting, Denver, CO, March 22-26, 2015, ANYL 34.
27. *Selected Talk*. 239th ACS National Meeting, Denver, CO, March 22-26, 2015, BIOL 2.
26. *Poster Presentation*. NIH Common Fund High-Risk High-Reward Symposium, Bethesda, MD, Dec 15-17, 2014.
25. *Selected Talk*. 61<sup>st</sup> ASMS Conference on Mass Spectrometry. Minneapolis, MN, June 9-13, 2013, TOG.
24. *Poster Presentation*. Pew Biomedical Scholars Annual Conference, Vieques, Puerto Rico, March 17-21, 2013.
23. *Poster Presentation*. NIH Director's Pioneer Award Symposium, Bethesda, MD, Sept 13-14, 2012.
22. *Poster Presentation*. Bacterial Cell Surfaces Gordon Research Conference, West Dover, VT, June 24-29, 2012, P 24.
21. *Poster Presentation*. Pew Biomedical Scholars Annual Conference, Gamboa, Panama, March 18-22, 2012.
20. *Selected Short Talk*. Chemical Biology and Novel Tools in Pharmacology, Keystone Conference, Santa Fe, NM, Feb 12-16, 2012.
19. *Poster Presentation*. 52<sup>nd</sup> Annual Meeting of the American Society of Pharmacognosy, San Diego, CA, July 30-Aug 3, 2011, P 381.
18. *Poster Presentation*. Bioorganic Gordon Conference, Andover, NH, June 12-17, 2011, P 61.
17. *Poster Presentation*. Chemical Insights into Biological Processes Symposium, Frederick, MD, Aug 9-10, 2010.
16. *Poster Presentation*. Bioorganic Gordon Research Conference, Andover, NH, June 13-18, 2010, P 67.
15. *Selected Short Talk*. New Directions in Small Molecule Drug Discovery, Keystone Conference, Whistler, British Columbia, Canada, April 20-25, 2010.
14. *Selected Talk*. 239th ACS National Meeting, San Francisco, CA, March 21-25, 2010, ORGN 45.
13. *Poster Presentation*. 239th ACS National Meeting, San Francisco, CA, March 21-25, 2010, BIOL 36 and SCI-MIX.
12. *Poster Presentation*. Pittcon, Orlando, FL, Feb 28-Mar 5, 2010, 930-35 P.
11. *Poster Presentation*. Pittcon, Orlando, FL, Feb 28-Mar 5, 2010, 930-20 P.
10. *Poster Presentation*. Antibiotics and Resistance: Challenges and Solutions, Keystone Conference, Santa Fe, NM, February 14-19, 2010, P 126.
9. *Poster Presentation*. Natural Products Gordon Research Conference, Tilton, NH, July 26-31, 2009, P 12.
8. *Poster Presentation*. Bioorganic Gordon Research Conference, Andover, New Hampshire, June 15-20, 2008, P 20.
7. *Poster Presentation*. 234th ACS National Meeting, Boston, MA, August 19-23, 2007, ORGN 720.
6. *Poster Presentation*. Federation of the European Biochemical Society: Chemistry Meets Biology, Spetses, Greece, July 17-29, 2005.
5. *Poster Presentation*. Bioorganic Gordon Research Conference, Andover, New Hampshire, June 12-17, 2005, P 4.
4. *Poster Presentation*. 228th ACS National Meeting, Philadelphia, PA, August 22-26, 2004, BIOL 170.
3. *Poster Presentation*. 29th National Medicinal Chemistry Symposium, Madison, WI, June 27-July 1, 2004, P 39.
2. *Poster Presentation*. 226th ACS National Meeting, New York City, NY, Sept 7-11, 2003, BIOL 119.
1. *Poster Presentation*. 29th Steenbock Symposium: Cofactors, Coenzymes and Catalysis, Madison, WI, May 29-June 1, 2003, P 15.

**Service Activities:**

2020	Member, Reunion Conference Organizing Committee, Pew Biomedical Scholars
2019 – 2020	Guest Editor for special issue in <i>ACS Chemical Biology</i> and <i>ACS Infectious Diseases</i> entitled, “Chemical Microbiology”
2019 – present	F1000Prime Faculty Member, Small Molecule Chemistry Section
2018	Panelist, Gender and Culture Change in STEM: A Conversation on Climate, Culture, and Consequences, UMN
2018 – present	Advisory Committee Member, UMN Center for Mass Spectrometry and Proteomics
2018	Mentor, NIH Mentoring Workshop for New Faculty in Organic and Biological Chemistry
2018 – present	Steering Committee Member for UMN Chemistry-Biology Interface Training Grant
2018 – 2020	Editorial Advisory Board Member of <i>ACS Infectious Diseases</i>
2017 – present	Inaugural Editorial Advisory Board Member of <i>iScience</i>
2017 – present	Chair, University of Minnesota Chemistry Diversity & Inclusion Committee
2017 – 2021	Standing Member of NIH Synthetic and Biological Chemistry B (SBCB) Study Section
2017	Member, Department of Chemistry Faculty Search Committee
2017	Organizer, BIO: <i>Chemical Methods for Bacterial Imaging Session</i> , ACS National Meeting, San Francisco, CA, April 2-6, 2017
2016 – 2018	Editorial Advisory Board Member of <i>ACS Chemical Biology</i>
2016 – 2018	ACS National Award Selection Committee
Oct 2016	Ad hoc reviewer for NIH Synthetic and Biological Chemistry B (SBCB) Study Section
2016	Organizer, <i>Mass Spectrometry-Based Metabolomics Session</i> , SciX2016, Minneapolis, MN, September 18-23, 2016
2016	Reviewer for MN Futures Research Grant Program, University of Minnesota
2016	Co-organizer, <i>Chemical Biology Sessions</i> , ASBMB National Meeting, San Diego, CA, April 2-6, 2016
2016	Co-organizer, ORGN: <i>Chemical Methods to Investigate Protein Posttranslational Modifications Session</i> , ACS National Meeting, San Diego, CA, March 13-17, 2016
2015 – 2017	Member, University of Minnesota Chemistry Graduate Admissions Committee
2015	Member, Department of Chemistry Faculty Search Committee
2015 – 2019	Co-organizer, Chemical Biology Discussion Group, University of Minnesota
2015 – 2017	Editorial Advisory Board Member of <i>Molecular BioSystems/Omics</i>
April 2015	Ad hoc reviewer for Grant-in-Aid of Research, Artistry and Scholarship proposals, University of Minnesota
Feb 2015	Ad hoc reviewer for NIH Synthetic and Biological Chemistry B (SBCB) Study Section
2015 – 2017	Councilor, Biological Division of the American Chemical Society
2013 – 2016	Member, American Society for Mass Spectrometry Education Committee
2013 – 2014	Indiana University Department of Chemistry Diversity Affairs Committee
2013, 2014, 2016	Reviewer for the Research Corporation for Science Advancement
2013	Reviewer for NSF, Chemistry of Life Processes Program, Division of Chemistry
June 2013	Panel Member, Chemistry-Biology Interface (CBI) Career Development Conference
2012, 2013	Reviewer for HHMI International Student Research Fellowship Panel
Sept. 2012	Mail-in reviewer for NIH Nanotechnology (NANO) Study Section
May 2012	Reviewer for NIH Special Emphasis Panel, “Technology Development in Metabolomics”
March 2012	Ad hoc reviewer for NIH Synthetic and Biological Chemistry A (SBCA) Study Section
2010 – 2014	Steering Committee Member for the Indiana University Quantitative and Chemical Biology training program
2010, 2012	Section Chair of the Southern Indiana Section of the ACS (SISACS)
2008 – 2014	Co-chair of the Indiana University Women in Chemistry organization
2008 – 2013	Member of the Indiana University Chemistry Graduate Admissions Committee
2008 – 2012	Executive Committee Member of the Indiana University Women in Science Program organization

**Laboratory Members:**

*Current:* Eight Graduate Students (six with dissertator status), One Postdoctoral Associate, Seven Undergraduate Students

*Past Members:* Thirteen Graduate Students (6 Ph.D., 7 M.S.), Eight Postdoctoral Associates, Fourteen Undergraduate Students

<b><i>Past Members - Current Positions</i></b>		
<p><b>Undergraduate Students</b></p> <ul style="list-style-type: none"> <li>• Clayton Brown – <i>Biochemistry PhD program at Stanford University</i></li> <li>• Bryan Lanning – <i>PhD from The Scripps Research Institute, La Jolla</i></li> <li>• Allie Larsen – <i>Attorney at Forresters</i></li> <li>• Danica Maile – <i>Pharmacy Student at the University of Minnesota</i></li> <li>• Nikki Niewold – <i>Medical Student at the University of Wisconsin – Madison</i></li> <li>• Frank Roushar – <i>Chemistry PhD program at Indiana University</i></li> <li>• Joseph Thomas – <i>Law Student at University of Chicago</i></li> <li>• Lan Wang – <i>PhD from Harvard University</i></li> </ul>	<p><b>Graduate Students</b></p> <p><b><i>Doctoral Degree</i></b></p> <ul style="list-style-type: none"> <li>• Andrew R. Johnson, Ph.D. – <i>Field Service Engineer, Agilent Technologies</i></li> <li>• Shabnam Sharifzadeh, Ph.D. – <i>Postdoctoral Associate with Dr. Jarrod Marto, Dana-Farber Cancer Institute</i></li> <li>• Ashley M. Sidebottom, Ph.D. – <i>NIH Postdoctoral Fellow with Dr. Eugene Chang, University of Chicago</i></li> <li>• Darci J. Trader, Ph.D. – <i>Assistant Professor of Medicinal Chemistry and Molecular Pharmacology, Purdue University</i></li> <li>• Kaelyn E. Wilke, Ph.D. – <i>Technical Product Specialist at Millipore-Sigma</i></li> </ul> <p><b><i>Master's Degree</i></b></p> <ul style="list-style-type: none"> <li>• Jennifer Hass, M.S. – <i>Forensic Scientist II, Texas Dept. of Public Safety Crime Lab</i></li> <li>• Kuang He, M.S. – <i>Clinical Research Fellow, U of Michigan</i></li> <li>• Kaitlin Hensal, M.S. – <i>Quality Control Analyst at Miltenyi Biotec</i></li> </ul>	<p><b>Postdoctoral Scholars</b></p> <ul style="list-style-type: none"> <li>• Dr. Stacy Capehart – <i>Scientist at Editas Medicine</i></li> <li>• Dr. Kathleen Garber – <i>Assistant Professor of Chemistry at St. Norbert College</i></li> <li>• Dr. Manibarsha Goswami – <i>Senior Chemist at The Dow Chemical Company</i></li> <li>• Dr. Hiyas Junio – <i>Assistant Professor of Chemistry at the University of the Philippines</i></li> <li>• Dr. Antoinette Odendaal – <i>Assistant Professor of Biology at Southern Arkansas University, Magnolia</i></li> <li>• Dr. Emily Tollefson – <i>Assistant Professor of Biology at University of Puget Sound</i></li> </ul>

**Teaching Experience:**

*Introduction to Chemical Biology* (C8411/4411, 4/3 credits), Graduate and Undergraduate Course  
Fall 2016 (26 enrolled), Fall 2017 (48 enrolled)

*Foundation of Chemical Biology Laboratory* (C4423W, 2 credits), Undergraduate Lab Course  
Spring 2015, Developed, (62 enrolled), Spring 2016 (42 enrolled), Spring 2017 (64 enrolled), Spring 2018 (60 enrolled), Spring 2019 (62 enrolled)

*Biomolecules and Catabolism* (C484, 3 credits), Undergraduate Level Biochemistry  
Spring 2011 (85 enrolled), Fall 2011 (28 enrolled), Fall 2012 (32 enrolled), Fall 2013 (27 enrolled)

*Quantitative and Chemical Biology Journal Club* (C689, 1 credit), Graduate Level  
Spring 2012, Co-developed, (14 enrolled, 23 audited)

*Biological Chemistry Research Seminar Course* (B600/B800, 1 credit), Graduate Level  
Fall 2011 (7 enrolled)

*Biomolecular Catalysis* (C582/B504, 3 credits), Graduate Level  
Spring 2009 (26 enrolled), Spring 2010 (26 enrolled), Fall 2010 (13 enrolled), Spring 2014 (15 enrolled)