

Leslie M. Hicks

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EDUCATION AND TRAINING

Marshall University	Chemistry	B.S., 2001	<i>summa cum laude</i>
University of Illinois	Analytical Chemistry	Ph.D., 2005	

RESEARCH AND PROFESSIONAL EXPERIENCE

2019-current Associate Professor, Department of Chemistry, University of North Carolina, Chapel Hill, NC
Associate Member, UNC Lineberger Comprehensive Cancer Center

2013-2019 Assistant Professor, Department of Chemistry, University of North Carolina, Chapel Hill, NC

2012-2013 Assistant Member and Principal Investigator, Donald Danforth Plant Science, St. Louis, MO

2006-2012 Director, Proteomics & Mass Spectrometry, Donald Danforth Plant Science Center, St. Louis, MO

AWARDS & FELLOWSHIPS

- SfRBM Mentoring Excellence Award, 2020
- William C. Friday/Class of 1986 Award for Excellence in Teaching, 2020
- WCC Rising Star Award, American Chemical Society, 2020
- Agnes Fay Morgan Research Award, Iota Sigma Pi, 2019
- Marshall University College of Science Distinguished Alumni Award, 2019
- Eli Lilly Young Investigator Award in Analytical Chemistry, 2018
- Robert J. Cotter New Investigator Award, US Human Proteome Organization (HUPO), 2018
- NSF CAREER Award, 2015
- Arthur C. Neish Young Investigator Award, Phytochemical Society of North America, 2014
- NSF Graduate Research Fellowship, 2002-2005
- NRPS/PKS Meeting – Outstanding Oral Presentation Award, 2005
- The Protein Society – Finn Wold Travel Award, 2004
- University of Illinois Chemistry Department Travel Grant, 2004
- Marshall University Outstanding Graduating Chemistry Major, 2001
- Marshall University Analytical Chemistry Student of the Year, 1999-2000
- NASA Undergraduate Research Scholarship, 1997-1998, 1998-1999, 1999-2000

PUBLICATIONS

Citations 4422; h-index 34; i10-index 50

Google Scholar: <https://scholar.google.com/citations?user=TmtLz58AAAAJ&hl=en>

1. Moyer, T. B., Parsley, N. C., Sadecki, P. W., Schug, W. J., Hicks, L. M. (2020). Leveraging orthogonal mass spectrometry-based strategies for comprehensive characterization of antimicrobial peptides. Natural Product Reports, <https://doi.org/10.1039/D0NP00046A>.
2. Parsley, N. C., Smythers, A. L & Hicks, L. M. (2020). Implementation of microfluidics for antimicrobial susceptibility assays: issues and optimization requirements. Frontiers Microbiology, <https://doi.org/10.3389/fcimb.2020.547177>.

updated 2020-10-23

3. Parsley, N. C., Williams, O. L. & Hicks, L. M. (2020). Exploring the Diversity of Cysteine-Rich Natural Product Peptides via MS/MS Fingerprint Ions. *Journal of the American Society for Mass Spectrometry*, 31, 1833–1843.
4. Smythers, A. L., McConnell, E. W., Lewis, H. C., Mubarek, S. N. & Hicks, L. M. (2020). Photosynthetic Metabolism and Nitrogen Reshuffling Are Regulated by Reversible Cysteine Thiol Oxidation Following Nitrogen Deprivation in *Chlamydomonas*. *Plants*, 9, 784. doi: 10.3390/plants9060784.
5. McConnell, E. W., Smythers, A. L. & Hicks, L. M. (2020). Maleimide-Based Chemical Proteomics for Quantitative Analysis of Cysteine Reactivity. *Journal of the American Society for Mass Spectrometry*. 31, 1697–1705.
6. Ford, M.M., Lawrence, S.R., Werth, E.G., McConnell, E.W. and Hicks, L.M. (2020) Label-Free Quantitative Phosphoproteomics for Algae. *Methods in molecular biology*, 2139, 197-211.
7. Couso, I., Perez-Perez, M.E., Ford, M.M., Martinez-Force, E., Hicks, L.M., Umen, J.G. and Crespo, J.L. (2020) Phosphorus Availability Regulates TORC1 Signaling via LST8 in *Chlamydomonas*. *Plant Cell*, 32, 69-80.
8. Moyer, T.B., Heil, L.R., Kirkpatrick, C.L., Goldfarb, D., Lefever, W.A., Parsley, N.C., Wommack, A.J. and Hicks, L.M. (2019) PepSAVI-MS Reveals a Proline-rich Antimicrobial Peptide in *Amaranthus tricolor*. *Journal of natural products*, 82, 2744-2753.
9. Ford, M.M., Smythers, A.L., McConnell, E.W., Lowery, S.C., Kolling, D.R.J. and Hicks, L.M. (2019) Inhibition of TOR in *Chlamydomonas reinhardtii* Leads to Rapid Cysteine Oxidation Reflecting Sustained Physiological Changes. *Cells*, 8, 1171. doi:10.3390/cells8101171
10. Jia, H., Song, G., Werth, E.G., Walley, J.W., Hicks, L.M. and Jones, A.M. (2019) Receptor-Like Kinase Phosphorylation of Arabidopsis Heterotrimeric G-Protein Galpha -Subunit AtGPA1. *Proteomics*, 19, e1900265.
11. Foreman, D.J., Parsley, N.C., Lawler, J.T., Aryal, U.K., Hicks, L.M. and McLuckey, S.A. (2019) Gas-Phase Sequencing of Cyclotides: Introduction of Selective Ring Opening at Dehydroalanine via Ion/Ion Reaction. *Analytical chemistry*, 91, 15608-15616.
12. Parsley, N.C., Sadecki, P.W., Hartmann, C.J. and Hicks, L.M. (2019) Viola "inconspicua" No More: An Analysis of Antibacterial Cyclotides. *Journal of natural products*, 82, 2537-2543.
13. Werth, E.G., McConnell, E.W., Lianez, I.C., Perrine, Z., Crespo, J.L., Umen, J.G. and Hicks, L.M. (2019) Investigating the effect of target of rapamycin kinase inhibition on the *Chlamydomonas reinhardtii* phosphoproteome: from known homologs to new targets. *New Phytol*, 221, 247-260.
14. McConnell, E.W., Berg, P., Westlake, T.J., Wilson, K.M., Popescu, G.V., Hicks, L.M. and Popescu, S.C. (2019) Proteome-Wide Analysis of Cysteine Reactivity during Effector-Triggered Immunity. *Plant Physiol*, 179, 1248-1264.
15. Fleming, S.R., Bartges, T.E., Vinogradov, A.A., Kirkpatrick, C.L., Goto, Y., Suga, H., Hicks, L.M. and Bowers, A.A. (2019) Flexizyme-Enabled Benchtop Biosynthesis of Thiopeptides. *J Am Chem Soc*, 141, 758-762.
16. Biswal, A.K., McConnell, E.W., Werth, E.G., Lo, S.F., Yu, S.M., Hicks, L.M. and Jones, A.M. (2019) The Nucleotide-Dependent Interactome of Rice Heterotrimeric G-Protein alpha -Subunit. *Proteomics*, 19, e1800385.
17. Berg, P., McConnell, E.W., Hicks, L.M., Popescu, S.C. and Popescu, G.V. (2019) Evaluation of linear models and missing value imputation for the analysis of peptide-centric proteomics. *BMC bioinformatics*, 20, 102.
18. Parsley, N.C., Kirkpatrick, C.L., Crittenden, C.M., Rad, J.G., Hoskin, D.W., Brodbelt, J.S. and Hicks, L.M. (2018) PepSAVI-MS reveals anticancer and antifungal cycloviolacins in *Viola odorata*. *Phytochemistry*, 152, 61-70.
19. Kirkpatrick, C.L., Parsley, N.C., Bartges, T.E., Wing, C.E., Kommineni, S., Kristich, C.J., Salzman, N.H., Patrie, S.M. and Hicks, L.M. (2018) Exploring bioactive peptides from bacterial secretomes using PepSAVI-MS: identification and characterization of Bac-21 from *Enterococcus faecalis* pPD1. *Microbial Biotechnology*, 11, 943-951.

20. Kirkpatrick, C.L., Parsley, N.C., Bartges, T.E., Cooke, M.E., Evans, W.S., Heil, L.R., Smith, T.J. and Hicks, L.M. (2018) Fungal Secretome Analysis via PepSAVI-MS: Identification of the Bioactive Peptide KP4 from *Ustilago maydis*. *Journal of the American Society for Mass Spectrometry*, 29, 859-865.
21. McConnell, E.W., Werth, E.G., Hicks, L.M. (2018) The phosphorylated redox proteome of *Chlamydomonas reinhardtii*: revealing novel means for regulation of protein structure and function. *Redox Biology*, 17, 35-46.
22. Al-Barakati, H.J., McConnell, E.W., Hicks, L.M., Poole, L.B., Newman, R.H. and Kc, D.B. (2018) SVM-SulfoSite: A support vector machine based predictor for sulfenylation sites. *Scientific reports*, 8, 11288.
23. Li, B., Tunc-Ozdemir, M., Urano, D., Jia, H., Werth, E.G., Mowrey, D.D., Hicks, L.M., Dokholyan, N.V., Torres, M.P. and Jones, A.M. (2018) Tyrosine phosphorylation switching of a G protein. *J Biol Chem*, 293, 4752-4766.
24. Kirkpatrick, C.L., Broberg, C.A., McCool, E.N., Lee, W.J., Chao, A., McConnell, E.W., Pritchard, D.A., Hebert, M., Fleeman, R., Adams, J., Jamil, A., Madera, L., Stromstedt, A.A., Goransson, U., Liu, Y., Hoskin, D.W., Shaw, L.N. and Hicks, L.M. (2017) The "PepSAVI-MS" Pipeline for Natural Product Bioactive Peptide Discovery. *Analytical Chemistry*, 89, 1194-1201.
25. Werth, E.G., McConnell, E.W., Gilbert, T.S., Couso Lianez, I., Perez, C.A., Manley, C.K., Graves, L.M., Umen, J.G. and Hicks, L.M. (2017) Probing the global kinome and phosphoproteome in *Chlamydomonas reinhardtii* via sequential enrichment and quantitative proteomics. *Plant J*, 89, 416-426.
26. Soares, E.A., Werth, E.G., Madronero, L.J., Ventura, J.A., Rodrigues, S.P., Hicks, L.M. and Fernandes, P.M. (2017) Label-free quantitative proteomic analysis of pre-flowering PMeV-infected *Carica papaya* L. *Journal of proteomics*, 151, 275-283.
27. Satoh, R., Teshima, R., Kitta, K., Lang, G. H., Schegg, K., Blumenthal, K., Hicks, L., Labory-Carcenac, B., Rouquie, D., Herman, R. A., Herouet-Guicheney, C., Ladics, G. S., McClain, S., Poulsen, L. K., Privalle, L., Ward, J. M., Doerrer, N., and Rascle, J. B. (2016) Inter-laboratory optimization of protein extraction, separation, and fluorescent detection of endogenous rice allergens. *Biosci Biotechnol Biochem*, 80, 2198–2207.
28. Jaiswal, D. K., Werth, E. G., McConnell, E. W., Hicks, L. M.*, Jones, A. M.* (2016) Time-dependent, glucose-regulated Arabidopsis regulatory of G-Protein signaling 1 network. *Current Plant Biology*, 5, 25-35. *co-corresponding
29. Huang, H., Alvarez, S., Bindbeutel, R. K., Shen, Z., Naldrett, M. J., Evans, B. S., Briggs, S. P., Hicks, L. M., Kay, S. A., and Nusinow, D. A. (2016) Identification of evening complex associated proteins in Arabidopsis by affinity purification and mass spectrometry. *Mol Cell Proteomics* 16, 201-217.
30. Slade, W. O., Werth, E. G., McConnell, E. W., Alvarez, S., and Hicks, L. M. (2015) Quantifying reversible oxidation of protein thiols in photosynthetic organisms. *Journal of the American Society for Mass Spectrometry* 26, 631-640.
31. Rodrigues, S. P., Alvarez, S., Werth, E. G., Slade, W. O., Gau, B., Cahoon, E. B., and Hicks, L. M. (2015) Multiplexing strategy for simultaneous detection of redox-, phospho- and total proteome – understanding TOR regulating pathways in *Chlamydomonas reinhardtii*. *Analytical Methods* 7, 7336-7344.
32. Park, J. J., Wang, H., Gargouri, M., Deshpande, R. R., Skepper, J. N., Holguin, F. O., Juergens, M. T., Shachar-Hill, Y., Hicks, L. M.*, and Gang, D. R.* (2015) The response of *Chlamydomonas reinhardtii* to nitrogen deprivation: a systems biology analysis. *Plant J* 81, 611-624. *co-corresponding
33. Juergens, M. T., Deshpande, R. R., Lucker, B. F., Park, J. J., Wang, H., Gargouri, M., Holguin, F. O., Disbrow, B., Schaub, T., Skepper, J. N., Kramer, D. M., Gang, D. R., Hicks, L. M., and Shachar-Hill, Y. (2015) The regulation of photosynthetic structure and function during nitrogen deprivation in *Chlamydomonas reinhardtii*. *Plant Physiol* 167, 558-573.
34. Gargouri, M., Park, J. J., Holguin, F. O., Kim, M. J., Wang, H., Deshpande, R. R., Shachar-Hill, Y., Hicks, L. M., and Gang, D. R. (2015) Identification of regulatory network hubs that control lipid metabolism in *Chlamydomonas reinhardtii*. *Journal of experimental botany* 66, 4551-4566.
35. Alvarez, S., Roy Choudhury, S., Sivagnanam, K., Hicks, L. M., and Pandey, S. (2015) Quantitative Proteomics Analysis of *Camelina sativa* Seeds Overexpressing the AGG3 Gene to Identify the Proteomic Basis of Increased Yield and Stress Tolerance. *J Proteome Res* 14, 2606-2616.
36. Wang, H. X., Gau, B., Slade, W. O., Juergens, M., Li, P., and Hicks, L. M. (2014) The Global Phosphoproteome of *Chlamydomonas reinhardtii* Reveals Complex Organellar Phosphorylation in the

- Flagella and Thylakoid Membrane. *Mol Cell Proteomics* 13, 2337-2353.
37. Slade, W. O., Werth, E. G., Chao, A., and Hicks, L. M. (2014) Phosphoproteomics in photosynthetic organisms. *Electrophoresis* 35, 3441-3451.
 38. Deng, X., Weerapana, E., Ulanovskaya, O., Sun, F., Liang, H., Ji, Q., Ye, Y., Fu, Y., Zhou, L., Li, J., Zhang, H., Wang, C., Alvarez, S., Hicks, L. M., Lan, L., Wu, M., Cravatt, B. F., and He, C. (2013) Proteome-wide quantification and characterization of oxidation-sensitive cysteines in pathogenic bacteria. *Cell host & microbe* 13, 358-370.
 39. Alvarez, S., Choudhury, S. R., Hicks, L. M., and Pandey, S. (2013) Quantitative Proteomics-Based Analysis Supports a Significant Role of GTG Proteins in Regulation of ABA Response in Arabidopsis Roots. *J Proteome Res* 12, 1487-1501.
 40. Zhang, M., Ravilious, G. E., Hicks, L. M., Jez, J. M., and McCulla, R. D. (2012) Redox Switching of Adenosine-5'-phosphosulfate Kinase with Photoactivatable Atomic Oxygen Precursors. *J Am Chem Soc* 134, 16979-16982.
 41. Wang, H., Wang, S., Lu, Y., Alvarez, S., Hicks, L. M., Ge, X., and Xia, Y. (2012) Proteomic analysis of early-responsive redox-sensitive proteins in Arabidopsis. *J Proteome Res* 11, 412-424.
 42. Wang, H., Alvarez, S., and Hicks, L. M. (2012) Comprehensive comparison of iTRAQ and label-free LC-based quantitative proteomics approaches using two *Chlamydomonas reinhardtii* strains of interest for biofuels engineering. *J Proteome Res* 11, 487-501.
 43. Sun, F., Liang, H. H., Kong, X. Q., Xie, S., Cho, H., Deng, X., Ji, Q. J., Zhang, H. Y., Alvarez, S., Hicks, L. M., Bae, T., Luo, C., Jiang, H. L., and He, C. (2012) Quorum-sensing agr mediates bacterial oxidation response via an intramolecular disulfide redox switch in the response regulator AgrA. *P Natl Acad Sci USA* 109, 9095-9100.
 44. Sun, F., Ding, Y., Ji, Q. J., Liang, Z. J., Deng, X., Wong, C. C. L., Yi, C. Q., Zhang, L., Xie, S., Alvarez, S., Hicks, L. M., Luo, C., Jiang, H. L., Lan, L. F., and He, C. (2012) Protein cysteine phosphorylation of SarA/MgrA family transcriptional regulators mediates bacterial virulence and antibiotic resistance. *P Natl Acad Sci USA* 109, 15461-15466.
 45. Galant, A., Koester, R. P., Ainsworth, E. A., Hicks, L. M., and Jez, J. M. (2012) From climate change to molecular response: redox proteomics of ozone-induced responses in soybean. *New Phytol* 194, 220-229.
 46. Zhang, Y. Y., Zhang, B. C., Yan, D. W., Dong, W. X., Yang, W. B., Li, Q., Zeng, L. J., Wang, J. J., Wang, L. Y., Hicks, L. M., and He, Z. H. (2011) Two Arabidopsis cytochrome P450 monooxygenases, CYP714A1 and CYP714A2, function redundantly in plant development through gibberellin deactivation. *Plant J* 67, 342-353.
 47. Zhang, B., Watts, K. M., Hodge, D., Kemp, L. M., Hunstad, D. A., Hicks, L. M., and Odom, A. R. (2011) A second target of the antimalarial and antibacterial agent fosmidomycin revealed by cellular metabolic profiling. *Biochemistry-US* 50, 3570-3577.
 48. Song, C. X., Szulwach, K. E., Fu, Y., Dai, Q., Yi, C., Li, X., Li, Y., Chen, C. H., Zhang, W., Jian, X., Wang, J., Zhang, L., Looney, T. J., Zhang, B., Godley, L. A., Hicks, L. M., Lahn, B. T., Jin, P., and He, C. (2011) Selective chemical labeling reveals the genome-wide distribution of 5-hydroxymethylcytosine. *Nat Biotechnol* 29, 68-72.
 49. Chen, H., Zhang, B., Hicks, L. M., and Xiong, L. (2011) A nucleotide metabolite controls stress-responsive gene expression and plant development. *Plos One* 6, e26661.
 50. Alvarez, S., Hicks, L. M., and Pandey, S. (2011) ABA-Dependent and -Independent G-Protein Signaling in Arabidopsis Roots Revealed through an iTRAQ Proteomics Approach. *J Proteome Res* 10, 3107-3122.
 51. Alvarez, S., and Hicks, L. M. (2011) Survey in plant root proteomics: to know the unknown. In: Benkeblia, N., ed. *Sustainable Agriculture and New Biotechnologies*, pp. 215-256, CRC Press, Boca Raton, FL
 52. Alvarez, S., Galant, A., Jez, J. M., and Hicks, L. M. (2011) Redox-regulatory mechanisms induced by oxidative stress in Brassica juncea roots monitored by 2-DE proteomics. *Proteomics* 11, 1346-1350.
 53. Zhang, B., Tolstikov, V., Turnbull, C., Hicks, L. M., and Fiehn, O. (2010) Divergent metabolome and proteome suggest functional independence of dual phloem transport systems in cucurbits. *Proc Natl Acad Sci U S A* 107, 13532-13537.
 54. Wu, B., Zhang, B., Feng, X., Rubens, J. R., Huang, R., Hicks, L. M., Pakrasi, H. B., and Tang, Y. J. (2010) Alternative isoleucine synthesis pathway in cyanobacterial species. *Microbiology* 156, 596-602.

55. Ning, J., Li, X., Hicks, L. M., and Xiong, L. (2010) A Raf-like MAPKKK gene DSM1 mediates drought resistance through reactive oxygen species scavenging in rice. *Plant Physiol* 152, 876-890.
56. Marsh, E., Alvarez, S., Hicks, L. M., Barbazuk, W. B., Qiu, W. P., Kovacs, L., and Schachtman, D. (2010) Changes in protein abundance during powdery mildew infection of leaf tissues of Cabernet Sauvignon grapevine (*Vitis vinifera* L.). *Proteomics* 10, 2057-2064.
57. Chen, Q., Westfall, C. S., Hicks, L. M., Wang, S., and Jez, J. M. (2010) Kinetic basis for the conjugation of auxin by a GH3 family indole acetic acid-amido synthetase. *J Biol Chem* 285, 29780-29786.
58. Feng, X., Mouttaki, H., Lin, L., Huang, R., Wu, B., Hemme, C. L., He, Z., Zhang, B., Hicks, L. M., Xu, J., Zhou, J., and Tang, Y. J. (2009) Characterization of the central metabolic pathways in *Thermoanaerobacter* sp. strain X514 via isotopomer-assisted metabolite analysis. *Appl Environ Microbiol* 75, 5001-5008.
59. Chen, Q., Zhang, B., Hicks, L. M., Wang, S., and Jez, J. M. (2009) A liquid chromatography-tandem mass spectrometry-based assay for indole-3-acetic acid-amido synthetase. *Anal Biochem* 390, 149-154.
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61. Schroeder, A. C., Kumaran, S., Hicks, L. M., Cahoon, R. E., Halls, C., Yu, O., and Jez, J. M. (2008) Contributions of conserved serine and tyrosine residues to catalysis, ligand binding, and cofactor processing in the active site of tyrosine ammonia lyase. *Phytochemistry* 69, 1496-1506.
62. Nagamune, K., Hicks, L. M., Fux, B., Brossier, F., Chini, E. N., and Sibley, L. D. (2008) Abscisic acid controls calcium-dependent egress and development in *Toxoplasma gondii*. *Nature* 451, 207-210.
63. Chen, H., Hu, J., Chen, P. R., Lan, L. F., Li, Z. L., Hicks, L. M., Dinner, A. R., and He, C. (2008) The *Pseudomonas aeruginosa* multidrug efflux regulator MexR uses an oxidation-sensing mechanism. *P Natl Acad Sci USA* 105, 13586-13591.
64. Jez, J. M., Schachtman, D. P., Berg, R. H., Taylor, C. G., Chen, S., Hicks, L. M., Jaworski, J. G., Smith, T. J., Nielsen, E., and Pikaard, C. S. (2007) Developing a new interdisciplinary lab course for undergraduate and graduate students: Plant cells and proteins. *Biochem Mol Biol Edu* 35, 410-415.
65. Hicks, L. M., Cahoon, R. E., Bonner, E. R., Rivard, R. S., Sheffield, J., and Jez, J. M. (2007) Thiol-based regulation of redox-active glutamate-cysteine ligase from *Arabidopsis thaliana*. *Plant Cell* 19, 2653-2661.
66. Earley, K. W., Shook, M. S., Brower-Toland, B., Hicks, L., and Pikaard, C. S. (2007) In vitro specificities of *Arabidopsis* co-activator histone acetyltransferases: implications for histone hyperacetylation in gene activation. *Plant J* 52, 615-626.
67. Brendza, K. M., Haakenson, W., Cahoon, R. E., Hicks, L. M., Palavalli, L. H., Chiapelli, B. J., McLaird, M., McCarter, J. P., Williams, D. J., Hresko, M. C., and Jez, J. M. (2007) Phosphoethanolamine N-methyltransferase (PMT-1) catalyses the first reaction of a new pathway for phosphocholine biosynthesis in *Caenorhabditis elegans*. *Biochem J* 404, 439-448.
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69. Palavalli, L. H., Brendza, K. M., Haakenson, W., Cahoon, R. E., McLaird, M., Hicks, L. M., McCarter, J. P., Williams, D. J., Hresko, M. C., and Jez, J. M. (2006) Defining the role of phosphomethylethanolamine N-methyltransferase from *Caenorhabditis elegans* in phosphocholine biosynthesis by biochemical and kinetic analysis. *Biochemistry-Us* 45, 6056-6065.
70. Hicks, L. M., Moffitt, M. C., Beer, L. L., Moore, B. S., and Kelleher, N. L. (2006) Structural characterization of in vitro and in vivo intermediates on the loading module of microcystin synthetase. *Acs Chem Biol* 1, 93-102.
71. Hicks, L. M., Mazur, M. T., Miller, L. M., Dorrestein, P. C., Schnarr, N. A., Khosla, C., and Kelleher, N. L. (2006) Investigating nonribosomal peptide and polyketide biosynthesis by direct detection of intermediates on >70 kDa polypeptides by using Fourier-transform mass spectrometry. *Chembiochem* 7, 904-907.
72. Hicks, L. M., Balibar, C. J., Walsh, C. T., Kelleher, N. L., and Hillson, N. J. (2006) Probing intra- versus interchain kinetic preferences of L-Thr acylation on dimeric VibF with mass spectrometry. *Biophys J* 91, 2609-2619.
73. Kelleher, N. L., and Hicks, L. M. (2005) Contemporary mass spectrometry for the direct detection of enzyme

- intermediates. *Curr Opin Chem Biol* 9, 424-430.
74. Hicks, L. M., O'Connor, S. E., Mazur, M. T., Walsh, C. T., and Kelleher, N. L. (2004) Mass spectrometric interrogation of thioester-bound intermediates in the initial stages of epothilone biosynthesis. *Chem Biol* 11, 327-335.
75. Hicks, L., Weinreb, P., Konz, D., Marahiel, M. A., Walsh, C. T., and Kelleher, N. L. (2003) Fourier-transform mass spectrometry for detection of thioester-bound intermediates in unfractionated proteolytic mixtures of 80 and 191 kDa portions of Bacitracin A synthetase. *Anal Chim Acta* 496, 217-224.

PROFESSIONAL ACTIVITIES

- Advisory Panels
 - NSF-BIO Advisory Panels: 2009, 2011, 2012, 2013, 2014, 2015, 2016
 - NSF-CHEM Advisory Panel: 2018
 - NIH Panel: 2016 (P41), 2019 (NICIH), 2019 (SBCB), 2020 (EBIT)
 - Ad hoc: Ontario Research Fund, University of MO Research Board, French National Research Agency (ANR), European ERA-Coordinating Action in Plant Sciences (ERA-CAPS), Austrian Science Fund (FWF)
- Teaching
 - UNC
 - Chem 241: Analytical Methods
 - Chem 241H: Honors Analytical Methods
 - Chem 245L: Honors Analytical Methods Laboratory (CURE Course)
 - Chem 448: Mass Spectrometry
 - Washington University: Laboratory in Protein Biochemistry (2010-13), Bio4024: Plant Cells and Proteins (2006, 2008), Bio 572: Plant Biology Journal Club (2011);
 - *Biochem. Mol. Biol. Educ.* publication related to Bio4024 (Jez et al., 2007)
- Journal Reviewer:
 - Editorial Board: *Journal of Biological Chemistry* (2020-)
 - Ad hoc: *Algal Research*, *Analyst*, *Analytical Biochemistry*, *Analytical Chemistry*, *Biotechnology for Biofuels*, *Electrophoresis*, *Journal of the American Society for Mass Spectrometry*, *Journal of Biological Chemistry*, *Journal of Biomedicine and Biotechnology*, *Journal of Experimental Botany*, *Journal of Innate Immunity*, *Journal of Mass Spectrometry*, *Journal of Proteome Research*, *Journal of Proteomics*, *mAbs*, *Molecular & Cellular Proteomics*, *Nature Communications*, *Nature Plants*, *Phytochemistry*, *Plant Cell & Environment*, *Plant Molecular Biology*, *Plant Physiology*, *Plant Science*, *Plant and Soil*, *Proceedings of the National Academy of Sciences of the United States of America*, *Proteome Science*, *Proteomics*, *Scientific Reports*, *The Plant Journal*, *Trends in Biotechnology*
- Professional Organizations
 - American Chemical Society (ACS)
 - American Society of Mass Spectrometry (ASMS)
 - Executive Board (2019-current)
 - Publication Committee 2014-2016
 - ASMS 2015 Session Chair (June 2015)
 - American Society for Biochemistry and Molecular Biology
 - Phytochemical Society of North America
 - Triangle Area Mass Spectrometry (TAMS)
 - Executive Committee (2017-current)
 - President (2020-current)

PRESENTATIONS

- Syngenta, Durham, NC. Invited Seminar. 03/2020
- Eli Lilly & Company, Indianapolis, IN. Invited Seminar. 02/2020
- Washington-Baltimore Mass Spectrometry Discussion Group – Invited Seminar. 10/2019
- HUPO 2019, Adelaide, Australia; Oral Presentation – Invited Plenary. 09/2019
- Roskilde University, Denmark; Oral Presentation – Invited Seminar. 06/2019
- Central Ohio Valley ACS; Oral Presentation – Invited Seminar. 04/2019
- Marshall University, Dept. of Chemistry Seminar Series; Oral Presentation – Invited Seminar. 04/2019
- Gordon Research Conference on Antimicrobial Peptides; Lucca, Italy. Oral Presentation. 02/2019
- University of North Carolina, Wilmington, NC. Oral Presentation – Invited Seminar. 11/2018
- 7th National Plant Protein Research Conference (China) and the 5th Meeting of Asia Oceania Agricultural Proteomics Organization (AOAPO). Jinan, China. Oral Presentation. 11/2018
- SciX 2018. Atlanta, GA. Oral Presentation. 10/2018
- University of Maryland, Baltimore, MD. Oral Presentation – Invited Seminar. 10/2018
- North Carolina Research Campus, Kannapolis, NC. Seminar Series; Oral Presentation – Invited Seminar. 10/2018
- University of Kansas, Lawrence, KS. Department of Chemistry Seminar Series; Oral Presentaiton – Invited Seminar. 09/2018
- AMP 2018 Antimicrobial peptide symposium, Poitiers, France. Oral Presentation. 06/2018
- EMBO Meeting - TOR signaling in photosynthetic organisms, Bischoffsheim, France. Oral Presentation – Invited Seminar. 05/2018
- Georgia Tech, Atlanta, GA. Dept. of Chemistry Seminar Series; Oral Presentation – Invited Seminar. 05/2018
- ASBMB' 18, San Diego, CA. Symposium Chair and Invited Seminar. 04/2018
- University of Wisconsin, Madison, WI. Dept. of Chemistry Seminar Series; Oral Presentation – Invited Seminar. 04/2018
- 255th ACS National Meeting; New Orleans, LA. Symposium Chair and Invited Seminar. 03/2018
- US HUPO, Minneapolis, MN. Award Presentation – Invited Seminar. 03/2018
- University of Oklahoma, Norman, OK. INPART Seminar Series; Oral Presentation – Invited Seminar. 02/2018
- University of North Carolina - Greensboro, Greensboro, NC. Dept. of Chemistry and Biochemistry Seminar Series; Oral Presentation – Invited Seminar. 01/2018
- SERMACS, Charlotte, NC. Oral Presentation – Invited Seminar. 11/2017
- Midwestern Universities Analytical Chemistry Conference (MUACC), Athens, OH. Oral Presentation – Invited Seminar. 10/2017
- SCIX 2017, Reno, NV. ANACHEM Award Symposium; Oral Presentation – Invited Seminar. 10/2017
- Northeastern University, Boston, MA. Chemistry and Chemical Biology Department Colloquium Series; Oral Presentation – Invited Seminar. 09/2017
- Indiana University, Bloomington, IN. Chemistry Department Seminar Series; Oral Presentation – Invited Seminar. 09/2017
- Purdue University, West Lafayette, IN. Chemistry Department Seminar Series; Oral Presentation – Invited Seminar. 09/2017
- Gordon Research Conference on Natural Products and Bioactive Compounds; Andover, NH. Poster. 08/2017
- High Point University, Highpoint, NC. Oral Presentation – Invited Seminar. 07/2017
- Uppsala Conference, Ithaca, NY. Oral Presentation – Invited Seminar. 07/2017
- Gordon Research Conference on Plant Metabolic Engineering; Waterville Valley, NH. Poster. 07/2017

- Catalyst CAREER Panel, UNC Charlotte. 06/2017
- Joint Greater Delaware Chromatography and Mass Spectrometry Discussion Groups; Villanova, PA, Oral Presentation – Invited Seminar. 06/2017
- 65th ASMS Conference on Mass Spectrometry and Allied Topics; Indianapolis, IN. Posters. 06/2017
- Proteomics Forum, Postdam, Germany. Oral Presentation. 04/2017
- Pittcon 2017; Chicago, IL. Royal Society of Chemistry Joseph Black Award Symposium. Oral Presentation – Invited. 03/2017
- Phenome 2017; Tuscon, AZ. Oral Presentation. 02/2017
- ASMS Sanibel; Clearwater, FL. Oral Presentation. 01/2017
- Wake Forest University, Winston-Salem, NC. Chemistry Department Seminar Series; Oral Presentation – Invited Seminar. 11/2016
- Colorado State University, Fort Collins, CO. Chemistry Department Seminar Series; Oral Presentation – Invited Seminar. 10/2016
- Midwestern Universities Analytical Chemistry Conference (MUACC), Champaign, IL. Oral Presentation. 10/2016
- Plant Molecular Biology Retreat, Wilmington, NC. Oral Presentation (student-invited seminar). 09/2016
- 64nd ASMS Conference on Mass Spectrometry and Allied Topics; San Antonio, TX. Posters. 06/2016
- University of Nebraska, Lincoln, NE. Biotechnology / Life Sciences Seminar Series; Oral Presentation – Invited Seminar. 05/2016
- North Carolina State University, Raleigh, NC. Chemistry Department Seminar Series; Oral Presentation – Invited Seminar. 04/2016
- Greater Boston Mass Spectrometry Discussion Group, Boston, MA. Oral Presentation – Invited Seminar. 03/2016
- Plant Molecular Biology Retreat, Asheville, NC. Oral Presentation – Invited Seminar. 10/2015
- AB Sciex User's Meeting, Raleigh, NC. Oral Presentation – Invited Seminar. 10/2015
- Hong Kong Baptist University, Hong Kong, China. Biology Department Seminar Series; Oral Presentation – Invited Seminar. 07/2015
- Gordon Research Conference on PTM Networks; Hong Kong, China. Poster. 07/2015
- 63rd ASMS Conference on Mass Spectrometry and Allied Topics; St. Louis, MO. Posters. 06/2015
- Gordon Research Conference on Antimicrobial Peptides; Lucca, Italy. Poster. 05/2015
- North Carolina State University, Raleigh, NC. Biochemistry Department Seminar Series; Oral Presentation – Invited Seminar. 10/2014
- 53rd Annual Meeting of the Phytochemical Society of North America. Raleigh, NC. Award Presentation – Invited Seminar. 08/2014
- 62nd ASMS Conference on Mass Spectrometry and Allied Topics; Baltimore, MD. Posters. 06/2014
- North Carolina A&T University, Greensboro, NC. Chemistry Department Seminar Series; Oral Presentation – Invited Seminar. 03/2014
- Triangle Area Mass Spectrometry (TAMS) Discussion Group; Research Triangle Park, NC. Plenary Lecture. 12/2013
- Michigan State University, East Lansing, MI. Analytical Seminar Series; Oral Presentation – Invited Seminar. 04/2013
- HEC Workshop on Imparting Practical Training in Molecular and Biochemical Techniques; University of Agriculture Faisalabad, Pakistan. Oral Presentation (via video conference) – Invited Seminar. 11/2012
- University of Nebraska, Lincoln, NE. Biotechnology / Life Sciences Seminar Series; Oral Presentation – Invited Seminar. 10/2012
- 46th Midwest/39th Great Lakes Joint Regional ACS Meeting; St. Louis, MO. Invited Speaker. 10/2011
- 59th ASMS Conference on Mass Spectrometry and Allied Topics; Denver, CO. Poster. 06/2011
- Pakistan-U.S. Science and Technology Conference; Dubai, UAE. Oral Presentation. 03/2011

- ABRF 2011; San Antonio, TX. Poster. 02/2011
- University of Missouri; St. Louis, MO. Oral Presentation - Invited Seminar. 10/2010
- 58th ASMS Conference on Mass Spectrometry and Allied Topics; Salt Lake City, UT. Poster. 05/2010
- Dow Agrosiences; Indianapolis, IN. Oral Presentation – Invited Speaker. 03/2010
- 57th ASMS Conference on Mass Spectrometry and Allied Topics; Philadelphia, PA. Poster. 06/2009
- Midwest MS Meeting; St. Louis, MO. Oral Presentation. 03/2009
- ABRF 2009; Memphis, TN. Poster. 02/2009
- 56th ASMS Conference on Mass Spectrometry and Allied Topics; Denver, CO. Poster. 06/2008
- ABRF 2008; Salt Lake City, UT. Poster. 02/2008
- Heartland Mass Spectrometry Workshop: Biological Applications; Osage Beach, MO. Poster. 10/2007
- Midwest Enzymes Chemistry Conference; Chicago, IL. Poster. 09/2007
- 55th ASMS Conference on Mass Spectrometry and Allied Topics; Indianapolis, IN. Oral presentation. Young Scientists Luncheon. 06/2007
- 55th ASMS Conference on Mass Spectrometry and Allied Topics; Indianapolis, IN. Poster. 06/2007
- 19th Symposium of the Protein Society; Boston, MA. Poster. 08/2005
- NRPS/PKS Meeting; Santa Cruz, CA. Oral presentation. 07/2005
- 18th Symposium of the Protein Society; San Diego, CA. Poster. 08/2004
- Biochemistry Fall Conference; University of Illinois, Urbana, IL. Oral presentation. 09/2003
- Gordon Research Conference on Enzymes, Coenzymes & Metabolic Pathways; Meriden, NH. Poster. 07/2003
- 219th ACS National Meeting; San Francisco, CA. Poster. 03/2000

OUTREACH ACTIVITIES

- NSF Research Experiences for Undergraduates (REU)
 - coPI/co-Director, UNC NSF-REU SUROC Program (2018-)
 - PI/co-Director, Danforth Center NSF-REU Summer Intern Program (2008-2012)
- Clare Booth Luce Fellowship program, mentor, (2018-)
- UNC Science Expo (2018-)
- McNair Scholars Program, mentor (2018-2020)
- Chemistry Women Mentorship Network, mentor (2014-)
- Women in Science and Engineering (WISE) at UNC
 - Discussion Group Lead, 2014; Scientific Speed Networking Event, 2015; Women in Science Symposium, poster judge, 2016
- North Carolina School of Science and Math Mentorship Program, faculty mentor (2015-2016)
- Carolina ADMIRES program - **A**ssisting in **D**evelopment and **M**entoring an **I**nnovative **R**esearch **E**xperience in **S**cience, faculty mentor (2014-2016)
- Missouri Botanical Garden – Power of Plants Contest, volunteer, 2009-2012
- Encouraging Tomorrow's Chemists (ETC), outreach program volunteer, 2002-2005