

# DAVID SCOTT LAWRENCE

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## PROFESSIONAL EXPERIENCE

2011-	Chair, Division of Chemical Biology & Medicinal Chemistry, UNC Eshelman School of Pharmacy, University of North Carolina at Chapel Hill
2007-	Fred Eshelman Distinguished Professor, University of North Carolina; Department of Chemistry (College of Arts & Sciences), Division of Chemical Biology & Medicinal Chemistry (Eshelman School of Pharmacy), Department of Pharmacology (School of Medicine), and the Lineberger Comprehensive Cancer Center
1997-06	Member, Albert Einstein Comprehensive Cancer Center
1996-06	Professor of Biochemistry Albert Einstein College of Medicine of Yeshiva University
1995-96	Professor of Chemistry State University of New York at Buffalo
1992-95	Associate Professor of Chemistry and Medicinal Chemistry; Adjunct Professor of Biological Sciences; Member, Center for Advanced Molecular Biology and Immunology
1991-95	Associate Professor of Chemistry State University of New York at Buffalo
1985-91	Assistant Professor of Chemistry State University of New York at Buffalo
1982-85	Postdoctoral Fellow Research Director: Professor E. Thomas Kaiser The Rockefeller University and The University of Chicago

## EDUCATION

Ph.D.	Organic Synthesis Research Director: Professor Robert V. Stevens University of California, Los Angeles	June 1982
B.S.	Biological Sciences University of California, Irvine	June 1976

## HONORS AND AWARDS

John Gabriel Award (1973), Bank of America Award in Science (1973), Alpha Gamma Sigma (1974), Faculty award (1974), Department of Mathematics Award (1974), Arthur J. Baum Award (1974), Summa cum laude (1976), Phi Beta Kappa (1976), Chancellor's Intern Fellowship (1976), DuPont Teaching Prize (1979), Chancellor's Dissertation Fellowship (1980), NIH Postdoctoral Fellow (1982-1984), Marion Merrell Dow Lecture/Colorado State University (1995), Merck/American Association for the Advancement of Science Lecture/Allegheny College (1996), Sam Rosen Award (2000); Leo M. Davidoff Society (2000); Olympia Dukakis/Richard Zorich Award Grant for A-T Research (2000); AAAS Fellow (2005); UNC Distinguished Teaching Award (2020).

## PROFESSIONAL ACTIVITIES

2022	Member, NIH Special Emphasis Panel on Highly Innovative Technologies for Cancer Research
2021 - present	Consultant, American Chemical Society, online education
2018	External Reviewer, College of Pharmacy, Virginia Commonwealth University
2016	External Reviewer, College of Pharmacy, University of Texas at Austin
2016	Austrian Science Fund, External Reviewer
2015-2021	Council, American Peptide Society
2015-2016	Member, The Protein Society
2015	Scientific Founder, Iris BioMed, LLC
2013	Co-organizer, 23 <sup>rd</sup> American Peptide Symposium and the 6 <sup>th</sup> International Peptide Symposium
2012	Member, du Vigneaud award committee; American Peptide Society
2012	International Advisory Board, The 7th International Conference on Inhibitors of Protein Kinases, Warsaw, Poland
2012-2018	Member, NIH Macromolecular Structure and Function E Study Section, National Institutes of Health
2011	External Reviewer, Purdue University Cancer Center External Reviewer, Department of Medicinal Chemistry, University of Utah
2010	Macromolecular Structure and Function E Study Section, National Institutes of Health
2009	International Advisory Board, The 6th International Conference on Inhibitors of Protein Kinases, Warsaw, Poland
2008	Chemical and Analytical Sciences Study Section, National Institutes of Health
2007	International Advisory Board, The 5th International Conference on Inhibitors of Protein Kinases, Warsaw, Poland
2006-2008	Consultant, Sigma-Aldrich
2006-2008	Member, American Society for Cell Biology
2005-2007	Member, The Harvey Society
2005	International Advisory Board, The 4th International Conference on Inhibitors of Protein Kinases, Warsaw, Poland
2004-	The American Peptide Society
2004-2007	Member, New York Academy of Science
2004	Scientific Cofounder, OnsetThera, Inc.
2004-2016	Editorial Advisory Board, <i>Accounts of Chemical Research</i>
2003-2007	Editorial Advisory Board, <i>Current Organic Synthesis</i>
2003-2007	Scientific Advisory Board, Panomics, Inc.

2003	International Advisory Board, The 3rd International Conference on Inhibitors of Protein Kinases, Warsaw, Poland
2003	Guest Editor, Accounts of Chemical Research, Special Issue on Signal Transduction
2002-2006	Member, American Society for Biochemistry and Molecular Biology
2001	International Advisory Board, The 2nd International Conference on Inhibitors of Protein Kinases, Warsaw, Poland
2000-2002	Scientific Advisory Board, Keyrx Biopharmaceuticals
2000-2004	Bioorganic and Natural Products Chemistry Study Section, National Institutes of Health
1999	Biochemistry Study Section, National Institutes of Health.
1999	Organizer of Symposium on “Biosensors: Visualizing the Chemistry of Living Cells”, American Chemical Society Western Regional Meeting, Ontario, California.
1998	International Advisory Board, The International Conference on Inhibitors of Protein Kinases, Warsaw, Poland
1997	Chemical and Related Sciences Special Emphasis Study Section, National Institutes of Health
1997	Clinical and Experimental Therapeutics Study Section, The USAMRMC Breast Cancer Research Program
1996-1997	Scientific Advisory Committee on Cancer Drug Development, American Cancer Society
1991-1996	Scientific Advisory Committee on Biochemistry and Endocrinology, American Cancer Society
1994	Chemical and Related Sciences Special Emphasis Study Section, National Institutes of Health
1982-	Member, American Association for the Advancement of Science
1977-	Member, American Chemical Society

## PUBLICATIONS

1. Kenneth N. Trueblood, Carolyn B. Knobler, David S. Lawrence, and Robert V. Stevens, "Structures of the 1:1 Complexes of 18-Crown-6 with Hydrazinium Perchlorate, Hydroxylammonium Perchlorate, and Methylammonium Perchlorate". *Journal of the American Chemical Society*, **1982**, 104, 1355 - 1362.
2. Robert V. Stevens, Fred C. Gaeta, and David S. Lawrence, "Camphorae: Chiral Intermediates for the Enantiospecific Total Synthesis of Steroids. Part 1". *Journal of the American Chemical Society*, **1983**, 105, 7713 - 7719.
3. Emil Thomas Kaiser and David Scott Lawrence, "Chemical Mutation of Enzyme Active Sites". *Science*, **1984**, 226, 505 - 511.
4. Catherine A. O'Brian, David S. Lawrence, E. Thomas Kaiser, and I. Bernard Weinstein, "Protein Kinase C Phosphorylates the Synthetic Peptide Arg-Arg-Lys-Ala-Ser-Gly-Pro-Pro-Val in the Presence of Phospholipid Plus Either Ca<sup>2+</sup> or a Phorbol Ester Tumor Promoter". *Biochemical and Biophysical Research Communications*, **1984**, 124, 296 - 302.
5. Robert V. Stevens and David S. Lawrence, "Camphorae: Chiral Intermediates for the Total Synthesis of Steroids". Part 2. An Enantiospecific Approach Toward Vitamin D Metabolites". *Tetrahedron* **1985**, 41, 93 - 100.
6. Michael B. Doughty and David S. Lawrence, "On the Intramolecular Cyclization of a Thiazolium Salt". *Journal of the Chemical Society, Chemical Communications*, **1985**, 454 - 455.
7. Emil Thomas Kaiser, David Scott Lawrence, and Steven Edward Rokita, "The Chemical Modification of Enzymatic Specificity". *Annual Reviews in Biochemistry*, **1985**, 54, 565 - 595.
8. Emil Thomas Kaiser and David S. Lawrence in "Frontiers in the Chemical Sciences", W. Spindel and R. M. Simon, eds., Westview Press, Boulder, Colorado, **1986**, 425 - 439.
9. Mary Prorok and David S. Lawrence, "Intrasubstrate Steric Interactions in the Active Site Control the Substrate Specificity of the cAMP-Dependent Protein Kinase". *Biochemical and Biophysical Research Communications*, **1989**, 158, 136 - 140.
10. Mary Prorok and David S. Lawrence, "Cryopreservation of the Cyclic 3'-5'-Adenosine Monophosphate-Dependent Protein Kinase from Bovine Cardiac Muscle". *Journal of Biochemical and Biophysical Methods*, **1989**, 18, 167 - 176.
11. Mary Prorok, Dinesh Sukumaran, and David S. Lawrence, "The Cyclic AMP-Dependent Protein Kinase from Bovine Cardiac Muscle is a Homoserine Kinase". *Journal of Biological Chemistry*, **1989**, 264, 17727 - 17733.



12. Mary Prorok and David S. Lawrence, "Multiple Arginine Residues Contribute to the Increased Efficacy of Peptide Substrates for the cAMP-Dependent Protein Kinase". *Biochemical and Biophysical Research Communications*, **1989**, 165, 368 - 371.
13. John S. Manka and David S. Lawrence, "High Yield Synthesis of 5,15-Diarylporphyrins". *Tetrahedron Letters*, **1989**, 30, 6989 - 6992.
14. John S. Manka and David S. Lawrence, "Self-Assembly of a Hydrophobic Groove". *Tetrahedron Letters*, **1989**, 30, 7341-7344.
15. John S. Manka and David S. Lawrence, "The Template-Driven Self-Assembly of a Heme-Containing Supramolecular Complex". *Journal of the American Chemical Society*, **1990**, 112, 2440-2442.
16. Tata Venkata S. Rao and David S. Lawrence, "The Template-Driven Self-Assembly of a Threaded-Molecular Loop". *Journal of the American Chemical Society*, **1990**, 112, 3614-3615.
17. Allen Salerno, Marianne Mendelow, Mary Prorok, and David S. Lawrence, "Noncovalent Active Site Interactions Enhance the Affinity and Control the Binding Order of Reversible Inhibitors of the cAMP-Dependent Protein Kinase". *Journal of Biological Chemistry*, **1990**, 265, 18079-18082.
18. John S. Manka, Dennis S. Chugh, and David S. Lawrence, "The Free Base of Tetraphenylporphine Serves as a Host for Alkali Metal Salts". *Tetrahedron Letters* **1990**, 31, 5873-5876.
19. Mary Prorok and David S. Lawrence, "An Affinity Label of Absolute Peptidic Origin", *Journal of the American Chemical Society*, **1990**, 112, 8626-8627.
20. Dinesh K. Sukumaran, Mary Prorok, and David S. Lawrence, "A Molecular Constraint that Generates a Cis Peptide Bond", *Journal of the American Chemical Society*, **1991**, 113, 706-707.
21. Diane Dick, Tata Venkata S. Rao, Dinesh Sukumaran, and David S. Lawrence, "Molecular Encapsulation: Cyclodextrin-Based Analogs of Heme-Containing Proteins", *Journal of the American Chemical Society*, **1992**, 114, 2664-2669.
22. Diane Dick, Scott Pluskey, Dinesh K. Sukumaran, and David S. Lawrence, "NMR Spectral Analysis of Cytotoxic Ether Lipids", *Journal of Lipid Research* **1992**, 33, 605-609.
23. Diane L. Dick and David S. Lawrence, "The Physicochemical Behavior of Cytotoxic Ether Lipids". *Biochemistry* **1992**, 31, 8252-8257.
24. Young-Guen Kwon, Jaya Srinivasan, Marianne Mendelow, Tae Ryong Lee, Scott Pluskey, Allen Salerno, and David S. Lawrence, "The Active Site Substrate Specificity of the cAMP-Dependent Protein Kinase". *Journal of Biological Chemistry*, **1993**, 268, 10713-10716.
25. Marianne Mendelow, Mary Prorok, Allen Salerno, and David S. Lawrence, "ATPase Promoting Dead End Inhibitors of the cAMP-Dependent Protein Kinase". *Journal of Biological Chemistry*, **1993**, 268, 12289-12296.

26. Allen Salerno and David S. Lawrence, "Covalent Modification and Concomitant Inactivation of the cAMP-Dependent Protein Kinase by Affinity Labels Containing only L-Amino Acids". *Journal of Biological Chemistry* **1993**, 268, 13043-13049.
27. Young-Guen Kwon, Jaya Srinivasan, Marianne Mendelow, Scott Pluskey, and David S. Lawrence, "Stereochemistry Specifies the Regiochemistry of Phosphorylation in Two cAMP-Dependent Protein Kinase Substrates". *Journal of Biological Chemistry*, **1993**, 268, 16725-16729.
28. Young-Guen Kwon, Jaya Srinivasan, Marianne Mendelow, Scott Pluskey, and David S. Lawrence, "The cAMP-Dependent Protein Kinase Discriminates Between Prochiral Hydroxyl Groups". *Journal of the American Chemical Society* **1993**, 115, 7527-7528.
29. Tae Ryong Lee, Marianne Mendelow, Jaya Srinivasan, Young-Guen Kwon, and David S. Lawrence, "The Molecular Basis for the Substrate Specificity of a Serine/Threonine-Specific Protein Kinase". *Journal of the American Chemical Society* **1993**, 115, 9888-9891.
30. Young-Guen Kwon, Marianne Mendelow, and David S. Lawrence, "The Active Site Substrate Specificity of Protein Kinase C". *Journal of Biological Chemistry* **1994**, 269, 4839-4844.
31. Tae Ryong Lee, Jinkui Niu, and David S. Lawrence, "The Phenol Kinase Activity of the cAMP-Dependent Protein Kinase: Steric and Electronic Effects". *Biochemistry* **1994**, 33, 4245-4250.
32. Jungsook Cho Lee, Young-Guen Kwon, David S. Lawrence, and Arthur M. Edelman, "Both Basic and Hydrophobic Residues are Important Substrate Recognition Determinants of Ca<sup>2+</sup>-Calmodulin-dependent Protein Kinase Ia". *Proc. Natl. Acad. Sci. USA* **1994**, 91, 6413-6417.
33. Tao Jiang, Dinesh K. Sukumaran, Sunil-Dutta Soni, and David S. Lawrence, "The Synthesis and Characterization of a Pyridine-Linked Cyclodextrin Dimer". *Journal of Organic Chemistry*, **1994**, 59, 5149-5155.
34. Tao Jiang and David S. Lawrence, "Sugar-Coated Metallated-Macrocycles". *Journal of the American Chemical Society*, **1995**, 117, 1857-1858.
35. Tae Ryong Lee, Jinqui Niu, and David S. Lawrence, "The Extraordinary Active Site Substrate Specificity of pp60<sup>c-src</sup>: A Multiple Specificity Protein Kinase". *Journal of Biological Chemistry*, **1995**, 270, 5375-5380.
36. Jaya Srinivasan, Mary Koszelak, Young-Guen Kwon, and David S. Lawrence, "The Design of Peptide-Based Substrates for the CDC2 Protein Kinase". *Biochemistry Journal*, **1995**, 309, 927-931.
37. Tao Jiang, Michael Levett, and David S. Lawrence, "Self-Assembling Supramolecular Complexes". *Chemical Reviews*, **1995**, 95, 2229-2260.
38. Tae Ryong Lee, Jeffrey H. Till, David S. Lawrence, and W. Todd Miller "Precision Substrate Targeting of Protein Kinases: v-Abl and c-Src". *Journal of Biological Chemistry*, **1995**, 270, 27022-27026.

39. Tao Jiang and David S. Lawrence, "The Synthesis and Molecular Recognition Properties of a Cyclodextrin Tetramer". *Journal of Organic Chemistry*, **1995**, 60, 7293-7297.
40. Derek Dunn, Li Chen, David S. Lawrence, and Zhong-Yin Zhang, "The Active Site Specificity of the *Yersinia* Protein Tyrosine Phosphatase". *Journal of Biological Chemistry*, **1996**, 271, 168-173.
41. Douglas S. Werner, Tae Ryong Lee, and David S. Lawrence, "Is Protein Kinase Substrate Efficacy a Reliable Barometer for Successful Inhibitor Design?" *Journal of Biological Chemistry*, **1996**, 271, 180-185.
42. Jason S. Wood, Xiongwei Yan, Marianne Mendelow, Jackie D. Corbin, Sharron H. Francis, and David S. Lawrence, "Precision Substrate Targeting of Protein Kinases: The cGMP- and cAMP-dependent Protein Kinases". *Journal of Biological Chemistry*, **1996**, 271, 174-179.
43. Xiongwei Yan, Jackie D. Corbin, Sharron H. Francis, and David S. Lawrence "Precision Targeting of Protein Kinases: An Affinity Label that Inactivates the cGMP- but not the cAMP-dependent Protein Kinase". *Journal of Biological Chemistry*, **1996**, 271, 1845-1848.
44. Chengqian Wang, Tae Ryong Lee, David S. Lawrence, and Joseph A. Adams, "Rate-Determining Steps for Tyrosine Phosphorylation by the Kinase Domain of v-fps". *Biochemistry*, **1996**, 35, 1533-1539.
45. Javier Montserat, Li Chen, David S. Lawrence, and Zhong-Yin Zhang, "Potent Low Molecular Weight Protein Phosphatase Substrates". *Journal of Biological Chemistry*, **1996**, 271, 7868-7872.
46. Li Chen, Javier Montserrat, David S. Lawrence, and Zhong-Yin Zhang, "The PTP1 and VHR Protein Phosphatases Exhibit Different Preferences for Nonpeptidic Substrates". *Biochemistry*, **1996**, 35, 9349-9354.
47. Xiongwei Yan, David S. Lawrence, Jackie D. Corbin, and Sharron H. Francis, "Distinguishing Between Closely Related Protein Kinases: A Variation on the Bisubstrate Inhibitor Theme", *Journal of the American Chemical Society*, **1996**, 118, 6321-6322.
48. Xiongwei Yan, David S. Lawrence, Jackie D. Corbin, and Sharron H. Francis, "Distinguishing between A Mitogenic and Two Closely Related Nonmitogenic Protein Kinases", *Journal of the American Chemical Society*, **1996**, 118, 11684-11685.
49. Scott Pluskey, Mohammad Mahroof-Tahir, Debbie C. Crans, and David S. Lawrence, "Vanadium Oxoion-Induced Inhibition Of and Cofactor Substitution In the cAMP-Dependent Protein Kinase", *Biochemical Journal*, **1997**, 321, 333-339.
50. Jinkui Niu and David S. Lawrence "Nonphosphorylatable Tyrosine Surrogates: Implications for Protein Kinase Inhibitor Design", *Journal of Biological Chemistry*, **1997**, 272, 1493-1499.
51. Jinkui Niu and David S. Lawrence "L-Dopa: A Potent Nonphosphorylatable Tyrosine Mimetic for pp60<sup>c-src</sup>", *Journal of the American Chemical Society*, **1997**, 119, 3844-3845.

52. Varda Lev-Ram, Tao Jiang, Jason Wood, David S. Lawrence, and Roger Y. Tsien, "Synergies and Coincidence Requirements Between NO, cGMP, and Ca<sup>2+</sup> in the Induction of Cerebellar Long-Term Depression", *Neuron*, **1997**, 18, 1025-1038.
53. Yoram A. Puius, Yu Zhao, Michael Sullivan, David S. Lawrence, Steven C. Almo, and Zhong-Yin Zhang "Identification of a Second Phosphotyrosine-Binding Site in PTP1B: A Paradigm for Inhibitor Design". *Proc. Natl. Acad. Sci. USA*, **1997**, 94: 13420-13425.
54. David S. Lawrence and Jinkui Niu "Protein Kinase Inhibitors: The Tyrosine-Specific Protein Kinases", *Pharmacology & Therapeutics*, **1998**, 77, 81-114.
55. Ronald R. White, Young-Guen Kwon, Meng Taing, David S. Lawrence, and Arthur M. Edelman "Definition of Optimal Substrate Recognition Motifs of Ca<sup>2+</sup>-Calmodulin-Dependent Protein Kinases IV and II Reveals Shared and Distinctive Features", *Journal of Biological Chemistry*, **1998**, 273, 3166-3172.
56. Jason S. Wood, Mary Koszelak, Judy Liu, and David S. Lawrence "A Caged Protein Kinase Inhibitor", *Journal of the American Chemical Society*, **1998**, 120, 7145-7146.
57. Kieran Curley and David S. Lawrence "Photoactivation of a Signal Transduction Pathway in Living Cells", *Journal of the American Chemical Society*, **1998**, 120, 8573-8574.
58. Adam A. Profit, Tae Ryong Lee, and David S. Lawrence "Bivalent Inhibitors of Protein Tyrosine Kinases", *Journal of the American Chemical Society*, **1999**, 121, 280-283.
59. Kieran Curley and David S. Lawrence "Light-Activated Proteins" *Current Opinion Chemical Biology*, **1999**, 3, 84-88.
60. Kieran Curley and David S. Lawrence "Caged Regulators of Signaling Pathways", *Pharmacology & Therapeutics*, **1999**, 82, 347-354.
61. Meng Taing, Yen-Fang Keng, Kui Shen, David S. Lawrence, and Zhong-Yin Zhang "Potent and Highly Selective Inhibitors of the PTP1B Protein Tyrosine Phosphatase", *Biochemistry*, **1999**, 38, 3793-3803.
62. Tae Ryong Lee and David S. Lawrence "Acquisition of Selective High-Affinity, SH2-Targeted Ligands via a Spatially-Focused Library", *Journal of Medicinal Chemistry*, **1999**, 42, 784-787.
63. Stefan W. Vetter, Y.-F. Keng, David S. Lawrence, and Zhong-Yin Zhang "Substrate Specificity of Protein Tyrosine Phosphatase 1B Determined By A Novel Combinatorial Approach", *Journal of Biological Chemistry*, **2000**, 275, 2265-2268.
64. Tae Ryong Lee, and David S. Lawrence "SH2-Directed Ligands of the Lck Tyrosine Kinase", *Journal of Medicinal Chemistry*, **2000**, 43, 1173-1179.
65. Mauro Sarmiento, Yoram A. Puius, Stefan W. Vetter, Yen-Fang Keng, Li Wu, Yu Zhao, David S. Lawrence, Steven C. Almo, and Zhong-Yin Zhang "Structural Basis of Plasticity in Substrate Recognition by Protein Tyrosine Phosphatase 1B", *Biochemistry*, **2000**, 39, 8171-8179.

66. Xiongwei Yan, Kieran Curley, and David S. Lawrence "The Specificity of the PKC  $\alpha$ ,  $\beta$ , and  $\gamma$  isoforms As Assessed By An Unnatural Alcohol-Appended Peptide Library", *Biochemical Journal*, **2000**, 349, 709-715.
67. Nouredine Zebda, Ora Bernard, Susan Welti, Maryse Bailly, David S. Lawrence, and John S. Condeelis "Phosphorylation of ADF/Cofilin Abolishes EGF-Induced Actin Nucleation at the Leading Edge and Subsequent Lamellipod Extension", *Journal of Cell Biology*, **2000**, 151, 1119-1127.
68. Ottavio Arancio, Irina Antonova, Stepan Gambaryan, Suzanne M. Lohmann, Jason S. Wood, David S. Lawrence, and R. D. Hawkins "Presynaptic Role of cGMP-Dependent Protein Kinase During Long-Lasting Potentiation", *Journal of Neuroscience*, **2001**, 21, 143-149.
69. Bo Zhou, Li Wu, Kui Shen, Jialin Zhang, David S. Lawrence, and Zhong-Yin Zhang "Recognition of and Activation by ERK2 Involves Multiple Regions of MKP3", *Journal of Biological Chemistry*, **2001**, 276, 6506-6515.
70. Adam A. Profit, Tae Ryong Lee, Jinkui Niu, and David S. Lawrence "Molecular Rulers: An Assessment of Distance and Spatial Relationships of Src Tyrosine Kinase SH2 and Active Site Regions", *Journal of Biological Chemistry*, **2001**, 276, 9446-9451.
71. Ren-Hwa Yeh, Tae Ryong Lee, and David S. Lawrence "From Consensus Sequence Peptide to High Affinity Ligand: A "Library-Scan" Strategy", *Journal of Biological Chemistry*, **2001**, 276, 12235-12240.
72. David S. Lawrence "Functional Proteomics: Large Scale Analysis of Protein Kinase Activity", *GenomeBiology*, **2001**, 2, 1007.1 - 1007.3.
73. John S. Condeelis, Jeffrey B. Wyckoff, Maryse Bailly, Richard Pestell, David Lawrence, Jonathan S. Backer, and Jeffrey E. Segall "Lamellipodia in Invasion", *Seminars Cancer Biology*, **2001**, 11, 119-128.
74. Kui Shen, Yen-Fang Keng, Li Wu, Xiao-Ling Guo, David S. Lawrence, and Zhong-Yin Zhang "Acquisition of A Specific and Potent PTP1B Inhibitor from a Novel Combinatorial Library and Screening Procedure" *Journal of Biological Chemistry*, **2001**, 276, 47311-47319.
75. Ren-Hwa Yeh, Tae Ryong Lee, and David S. Lawrence "From Consensus Sequence to High-Affinity Ligands: Acquisition of Signaling Protein Modulators" *Pharmacology & Therapeutics*, **2002**, 93, 179-191.
76. Ren-Hwa Yeh, Xionwei Yan, Michael Cammer, Anne R. Bresnick, and David S. Lawrence "Real Time Visualization of Protein Kinase Activity in Living Cells" *Journal of Biological Chemistry*, **2002**, 277, 11527-11532.
77. Mousumi Ghosh, Ilia Ichetovkin, Xiaoyan Song, John S. Condeelis, and David S. Lawrence "A New Strategy for Caging Proteins Regulated by Kinases", *Journal of the American Chemical Society*, **2002**, 124, 2440-2441.

78. Chien-An Chen, Ren-Hwa Yeh, and David S. Lawrence "Design and Synthesis of a Fluorescent Reporter of Protein Kinase Activity", *Journal of the American Chemical Society*, **2002**, 124, 3840-3841.
79. Weiying Lin and David S. Lawrence "A Strategy for the Construction of Caged Diols Using a Photolabile Protecting Group", *Journal of Organic Chemistry*, **2002**, 67, 2723-2726.
80. Xiao-Ling Guo, Kui Shen, Fang Wang, David S. Lawrence, and Zhong-Yin Zhang "Probing the Molecular Basis for Potent and Selective PTP1B Inhibition", *Journal of Biological Chemistry*, **2002**, 277, 41014-41022.
81. Weiying Lin, Chris Albanese, Richard G. Pestell, and David S. Lawrence "Spatially-Discrete Light-Driven Protein Expression", *Chemistry & Biology*, **2002**, 9, 1347-1353.
82. Limin Shang, Young-Guen Kwon, Sandip K. Nandy, David S. Lawrence, and Arthur M. Edelman, "Catalytic and Regulatory Domains of Doublecortin Kinase-1", *Biochemistry*, **2003**, 42, 2185-2194.
83. David S. Lawrence "Chemical Biology of Signal Transduction", *Accounts of Chemical Research*, **2003**, 39, 353-354.
84. David S. Lawrence "Chemical Probes of Signal Transducing Enzymes", *Accounts of Chemical Research*, **2003**, 36, 401-409.
85. Fabo Liang, Zhinghui Huang, Seung-Yub Lee, Jiao Liang, Maya I. Ivanov, Andres Alonso, James B. Bliska, David S. Lawrence, Tomas Mustelin, and Zhong-Yin Zhang "Aurintricarboxylic Acid Blocks *in vitro* and *in vivo* Activity of YopH, an Essential Virulent Factor of *Yersinia Pestis*, the Agent of Plague", *Journal of Biological Chemistry*, **2003**, 278, 41734-41741.
86. Jin-Peng Sun, Alexander A. Federov, Seung-Yub Lee, Xiao-Ling Guo, Kui Shen, David S. Lawrence, Steven C. Almo, and Zhong-Yin Zhang "Crystal Structure of PTP1B Complexed with a Potent and Selective Bidentate Inhibitor", *Journal of Biological Chemistry*, **2003**, 278, 41734-41741.
87. Laiping Xie, Seung-Yun Lee, Jannik N. Andersen, Steve Waters, Kui Shen, Xiao-Ling Guo, Niels Peter H. Moller, Jerrold M. Olefsky, David S. Lawrence, and Zhong-Yin Zhang "Cellular Effects of Small Molecule PTP1B Inhibitors on Insulin Signaling", *Biochemistry*, **2003**, 42, 12792-12804.
88. Willem F. Veldhuyzen, Quan Nguyen, Gary McMaster, and David S. Lawrence "A Light-Activated Probe of Intracellular Protein Kinase Activity", *Journal of the American Chemical Society*, **2003**, 125, 13358-13359.
89. Jung Hwan Lee, Sandip K. Nandy, and David S. Lawrence "A Highly Potent and Selective PKC $\alpha$  Inhibitor Generated Via Combinatorial Modification of a Peptide Scaffold", *Journal of the American Chemical Society*, **2004**, 126, 3394-3395.

90. Biao Xi, Fangxia Guan, and David S. Lawrence “Enhanced Production of Functional Protein From Defective Genes”, *Journal of the American Chemical Society*, **2004**, 126, 5660-5661.
91. Chien-An Chen, Ren-Hwa Yeh, and David S. Lawrence “Biosensors of Protein Kinase Action: From *In Vitro* Assays to Living Cells” *Biochimica Biophysica Acta*, **2004**, 1697, 39-51.
92. Mousumi Ghosh, Xiaoyan Song, Ghassan Mouneimne, Mazen Sidani, David S. Lawrence, and John S Condeelis “Cofilin Promotes Actin Polymerization and Defines the Direction of Cell Motility”, *Science*, **2004**, 303, 743-746.
93. David S. Lawrence “New Design Strategies for Ligands That Target Protein Kinase-Mediated Protein-Protein Interactions” in *Handbook of Experimental Pharmacology: Inhibitors of Protein Kinases and Protein Phosphatases*, editors: Lorenzo A. Pinna and Patricia W. Cohen, Springer-Verlag, **2005**, 167, 11-44.
94. Sanjai Kumar, Fubo Liang, David S. Lawrence, and Zhong-Yin Zhang “Small Molecule Approach to Studying Protein Tyrosine Phosphatase”, *Methods* **2005**, 35, 9-21.
95. Seung-Yub Lee, Fubo Liang, Xiao-Ling Guo, Laiping Xie, David S. Lawrence, and Zhong-Yin Zhang “Cell Penetrating Peptides: An Assessment of Intracellular Release of Active Cargo”, *Angewandte Chemie International Edition*, **2005**, 44, 2-4.
96. John S. Condeelis and David S. Lawrence “The Application of Caged Proteins to Cell-Based Systems” in *Dynamic Studies in Biology: Phototriggers, Photoswitches, and Caged Compounds*, editors: Maurice Goeldner and Richard Givens, **2005**, 325-340.
97. Robert H. Singer, David Lawrence, Ben Ovryn, and John Condeelis “Light-Activated Imaging of Gene Expression in Living Cells”, *Journal of Biomedical Optics*, **2005**, 10, 051406-1 – 051406-9.
98. Haishan Li and David S. Lawrence “Acquisition of Fyn-Selective SH3 Domain Ligands via A Combinatorial Library Strategy”, *Chemistry & Biology*, **2005**, 12, 905-12.
99. Qunzhao Wang and David S. Lawrence “Phosphorylation-Driven Protein-Protein Interactions: A New Protein Kinase Sensing System”, *Journal of the American Chemical Society*, **2005**, 127, 7684-5.
100. Fubo Liang, Seung-Yub Lee, Jiao Liang, David S. Lawrence, and Zhong-Yin Zhang “The Role of Protein Tyrosine Phosphatase 1B in Integrin Signaling”, *Journal of Biological Chemistry*, **2005**, 280, 24857-63.
101. David S. Lawrence “Signaling Protein Inhibitors via the Combinatorial Modification of Peptide Scaffolds”, *Biochimica Biophysica Acta*, **2005**, 1754, 50-57.
102. David S. Lawrence “*In vivo* Applications of Caged Proteins and Peptides”, *Current Opinion Chemical Biology*, **2005**, 9, 570-575.

103. Hyangkyu Lee, Laiping Xie, Yong Luo, Seung-Yub Lee, David S. Lawrence, Xiao Bo Wang, Federica Sotgia, Michael P. Lisanti, and Zhong-Yin Zhang "Identification of Phospho-Caveolin-1 as a Novel PTP1B Substrate" *Biochemistry*, **2006**, *45*, 234-40.
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## CURRENT RESEARCH SUPPORT

**Design and Application of Photoresponsive Modules in Circulating Erythrocytes.** NIH. 1 R01 HL153744. Period: July 1, 2020 – June 30, 2025. P.I.: D. S. Lawrence. The use of light to activate therapeutic agents at diseased sites offers the advantage of aggressive treatment with exquisite spatial and temporal control, thereby reducing potential deleterious side effects at unintended sites. Although photo-activated pro-drugs have been reported, these species require short wavelengths (<450 nm) for activation. However, maximal tissue penetrance by light occurs within the “optical window of tissue” (600 – 900 nm), well beyond the wavelength range of existing photo-cleavable functional groups. We’ve developed a new technology that transforms drugs into light responsive “phototherapeutics” that are conveyed by circulating erythrocytes. The proposed research program seeks to address three fundamental questions associated with light responsive therapeutics: (1) Do phototherapeutics furnish an enhanced therapeutic window relative to the standard of care? (2) What is the relationship between the activation wavelength and the therapeutic window? (3) What is the scope of therapeutic agents that are amenable to photo-technology? Annual Direct: \$340,000

**Spatiotemporal Control of Migratory Cellular Behavior.** NIH, 1R01NS103486. Period: June 15, 2018 – March 31, 2024. P.I.: D. S. Lawrence. There is keen interest in identifying the biochemical pathways that mediate cytoskeletal remodeling, motility, migration, and phenotype switching since members of these pathways serve as potential therapeutic targets. Unfortunately, the spatiotemporal nature of these pathways renders the application of conventional tools (over/under-expression of the proteins of interest, inhibitory compounds, etc.) inadequate for studying dynamic cell behavior. We seek to engineer and evaluate optogenetic analogs of cofilin, cofilin’s upstream activators (slingshot and chronophin), and cofilin’s upstream negative regulators (LIM protein kinase, the cAMP-dependent protein kinase, the p21 activated protein kinase, and rho-associated protein kinase). These species offer a means to correlate spatially-focused biochemical activity with dynamic cellular behavior including F-actin remodeling activity as well as migratory aptitude. Annual Direct: \$218,750.

**Profiling signaling activity and gene expression in single, pancreatic adenocarcinoma cells using CE-RNA-Seq.** NIH, R01CA224763 Period: April 1, 2018 – March 31, 2024. Multi-PI grant with N. Allbritton and J. J. Yeh. Pancreatic ductal adenocarcinoma is a devastating disease in dire need of improved therapies targeted at specific signaling pathways. Strategies to molecularly profile aberrant pancreatic tissue and inform targeted therapeutic decisions would be of immense value in patient treatment. However, molecular profiling is extremely challenging since biopsied patient tissue is a complex mixture of normal and malignant pancreatic cells. Furthermore, there is a growing understanding that mutations and gene expression alone do not tightly correlate with clinical response. In the current application, a multidisciplinary research team proposes to develop a state-of-the-art, single-cell, platform technology to measure the catalytic activity of sentinel kinases within the KRAS pathway and gene expression through RNA sequencing. The investigators will optimize and validate microsampling and microelectrophoresis methods to assay single cells, simultaneously overcoming the challenges of cellular heterogeneity and sample-size limits. Novel reporters of kinase activity within KRAS-outflow signaling pathways will be designed and new methods and instrumentation combining single-cell capillary electrophoresis with efficient RNA capture will be pioneered. Human tumor samples maintained in murine xenografts will be assayed to gain unique insights into tumor properties not currently addressable. The work will directly link mRNA production with the catalytic activity of kinases in individual tumor cells derived from patients. The

technology will enable questions such as which kinase signaling patterns drive the classical vs the basal phenotypes of pancreatic adenocarcinoma and whether a single tumor possesses a mixture of classical and basal-type cells. The data and the insights gained from implementation of this technology will provide a new approach for clinical assays with the potential for a profound impact on therapeutic strategies in the emerging field of precision medicine. Annual Direct: \$408,773.

**Towards Glucose Transporter-Mediated Glucose-Responsive Insulin Delivery with Fast Response.** NIH, 1R01DK112939-01A1 Period: June 15, 2018 – May 31, 2023. P.I.: Z. Gu. Consortium P.I.: J. Buse. Co-I: D. S. Lawrence. Glucose-responsive delivery of insulin mimicking the function of pancreatic  $\beta$ -cells to achieve meticulous control of blood glucose (BG) would revolutionize type 1 and advanced type 2 diabetes care. However, it is extremely challenging to demonstrate a system which would combine fast response, reversible activation, ease of administration and excellent biocompatibility. We aim to establish an innovative glucose-responsive insulin delivery system based on the interaction between the glucose derivative- modified insulin (Glu-insulin) and glucose transporters (GLUTs) on red blood cells (RBCs). This binding interaction is reversible in the setting of hyperglycemia, resulting in fast release of insulin and subsequent drop of blood glucose levels. We will exploit two conjugation formulations of Glu-insulin and glucose transporters (GIGTer): 1) polymeric nanoparticles (NPs;  $\sim$ 100 nm in diameter) coated with the RBC membrane (with GLUTs) and loaded with Glu-insulin; and 2) liposomal NPs integrated with exogenously expressed glucose transporters and Glu-insulin. The proposed goal, when successfully realized, will be a significant upgrade over the current insulin-dependent diabetes therapy options and have a profound impact to improve health and quality of life of diabetic patients. Annual Direct: \$308,595.

**Creation of a Suite of XR Experiences in Laboratory Safety.** The Eshelman Institute for Innovation (RX03912129), Department of Chemistry, and the College of Arts & Sciences. Period: November 2019 – June 2022. P.I.: D. S. Lawrence. We have developed a full-semester safety course (CHEM 701) required of all first-year graduate students in the Division of Chemical Biology and Medicinal Chemistry and the Department of Chemistry (see attachment). Although the students appreciate the case study-based nature of the course, evaluations at the semester's end revealed a desire to introduce practical exercises into the class. However, exposure to authentic laboratory conditions in all fields of the Pharmaceutical and Chemical Sciences for 60+ first-year graduate students is not realistic. With support from the Eshelman Institute for Innovation, we developed a first-in-its-kind, proof-of-concept, virtual laboratory experience for (1) the laptop<sup>9</sup> and (2) the Oculus Go VR (virtual reality) headset. We now seek to dramatically extend this concept by creating a suite of laboratory experiences that provide entering graduate students with virtual, yet practical, exposure to various subdisciplines in the general fields of Pharmaceutical and Chemical Sciences. These modules are designed to provide an immersive lab environment for active learning. Direct Costs Total: \$100,000

**Photothrombolytics: Illuminating a Safe and Efficacious Thrombolytic Therapy.** The Eshelman Institute for Innovation (RX03212101). Period: July 1, 2021 – June 30, 2023. P.I.: D. S. Lawrence. Myocardial infarction and stroke are the first and second leading causes of death in the world, respectively. Stroke is the leading cause of disability. The formation of a thrombolytic clot is responsible for 85% of all stroke episodes. The only pharmacological therapeutics approved as thrombolytic agents are serine proteases (e.g., recombinant versions of tissue plasminogen activator “tPA”). However, tPA has an exceedingly short vascular half-life (minutes). Consequently, massive doses (1 mg/kg or  $\sim$ 80 mg for the average male!) are required for efficacy. Unfortunately, serious side

effects include life threatening cerebral hemorrhages and life altering neurotoxicity due to tPA action at sites other than the thrombus. In short, the drug dose range between efficacy and toxicity (therapeutic window) of these therapeutics is exceptionally narrow, which explains, in part, the limited percentage of stroke patients eligible for this therapy in the United States (~4%). In a recent review, Omid and colleagues emphasized that “The most restricting limitation of thrombolytic therapy by tPA in the clinic is its short therapeutic window. It should be noted that any investigation addressing this limitation is of exceptional importance”. Our technology furnishes the ability to specifically activate tPA at the thrombus site, and with exceptional temporal control so that the thrombolytic is delivered up until the time the clot is dissolved. Direct Costs Total: \$300,000

**A Light Shield for Protecting Sensitive Organs Against Cytotoxic Therapeutics.** LCCC. P.I.: Zibo Li, Co-I: David Lawrence. Period: 12/01/2022 – 11/30/2024. Widely overexpressed on prostate cancer tissues, Prostate Specific Membrane Antigen (PSMA) has become an attractive target for both imaging and radionuclide-based therapy of prostate cancer. Despite exciting progress, PSMA targeted therapeutic agents could pose high radiation exposure towards normal organs that express the receptor. In fact, salivary glands (SGs) are often the dose-limiting organ that determines how much radioactivity can be administered, patient eligibility and the treatment outcome thereafter. Therapeutic isotope labeled PSMA inhibitors often result in high SG uptake and high absorbed doses can lead to irreparable damage, presenting as severe xerostomia. This application addresses critical needs to reduce radiation exposure to normal organs while maintaining tumor uptake. Previously, PSMA-617 has been developed as a unique ligand to efficiently reduce kidney uptake of PSMA targeted radiopharmaceuticals. We therefore focus on using a “light-shield” approach to protect SGs from radiolabeled PSMA-617-B12 ligands. In our preliminary research, we have used HPLC-MS to demonstrate that PSMA-B12-Cy5 can be efficiently cleaved to PSMA + B12-Cy5 upon 650 nm light exposure, thereby separating B12-Cy5 from the targeting ligand. Indeed, initial optical imaging of a prostate cancer mouse model demonstrated the feasibility to selectively reduce SG uptake in a light-dependent fashion with minimal impact on PC3-PSMA tumor uptake. With these promising results in hand, we propose to construct radiolabeled analogs of PSMA-B12-Cy5. Cy5 (and other fluorophores) will serve as an antenna to capture long wavelength photons that trigger the cleavage of the B12-radiopharmaceutical from the PSMA-targeting ligand.

## GRANT APPLICATIONS UNDER REVIEW

**Borrowing From Nature: Targeted Thrombolytic Therapy.** NIH. P.I.: D. S. Lawrence. Co-Is: Z. Li, Y-Y. I. Shih, and W. Lin. Period: July 1, 2023 – June 30, 2028. Pharmacological thrombolysis (re: tissue plasminogen activator; tPA) is limited by efficacy and life-threatening side effects. We’ve developed a photothrombolytic drug delivery system that is more effective than conventional tPA at an order of magnitude lower dose. We seek to determine the dosimetry for our phototherapeutic technology (including a quantitative assessment of the impact of melanin on light transmission), the spatial scope of light-triggered drug release, and the optimal parameters for the treatment of pulmonary embolism (PE) and ischemic stroke. The PE studies employ positron emission tomography imaging as a means to detect embolisms and evaluate photothrombolytic efficacy. The stroke studies take advantage of the technology’s ability to control the delivery of therapeutic combinations that mimic endogenous thrombolysis. Finally, we will evaluate the appearance of the most severe side effect of tPA, hemorrhagic transformation, to assist in the optimization of the PE and stroke constructs.

**A Light Shield for Protecting Sensitive Organs Against Cytotoxic Therapeutics.** NIH. Co-Is: Z. Li and D. S. Lawrence. Period: July 1, 2023 – June 30 2025. Widely overexpressed on prostate cancer tissues, Prostate Specific Membrane Antigen (PSMA) has become an attractive target for both imaging and radionuclide-based therapy of prostate cancer. Despite exciting progress, PSMA targeted therapeutic agents could pose high radiation exposure towards normal organs that express the receptor. In fact, salivary glands (SGs) are often the dose-limiting organ that determines how much radioactivity can be administered, patient eligibility and the treatment outcome thereafter. This application addresses critical needs to reduce radiation exposure to normal organs while maintaining tumor uptake. Previously, PSMA-617 has been developed as a unique ligand to efficiently reduce kidney uptake of PSMA targeted radiopharmaceuticals. We therefore focus on using a “light-shield” approach to protect SGs from radiolabeled PSMA-617-B12 ligands. In our preliminary research, we have used HPLC-MS to demonstrate PSMA-B12-Cy5 can be efficiently cleaved to PSMA + B12-Cy5 upon 650 nm light exposure, thereby separating B12-Cy5 from the targeting ligand. Indeed, initial optical imaging of a prostate cancer mouse model demonstrated the feasibility to selectively reduce SG uptake in a light-dependent fashion with minimal impact on PC3-PSMA tumor uptake. With these promising results in hand, we propose to construct radiolabeled analogs of PSMA-B12-Cy5. Cy5 (and other fluorophores) will serve as an antenna to capture long wavelength photons that trigger the cleavage of the B12-radiopharmaceutical from the PSMA-targeting ligand. The resulting agents will be evaluated for stability, PSMA binding affinity, cleavage efficiency and labeling yield. Initial evaluation in PSMA positive animal model will also be performed. Due to the similarity between  $^{64}\text{Cu}$  imaging agent and future therapy agents (same construct but labeled with therapeutic isotopes), we will select the most promising agents (high and persistent tumor uptake with low uptake in SGs) and define the optimal treatment course (when and how to administer the light) using positron emission tomography (PET). This application reflects a joint effort from a multidisciplinary team composed of experts in chemistry, light triggered drug delivery, radiochemistry and molecular imaging. The success of the proposed approach would solve key issues in PSMA targeted radiotherapeutics (in this case exposure to SGs), which could greatly benefit prostate cancer management. The same strategy could be applied to other therapeutics as well including reducing normal organ toxicity of targeted chemotherapy.

## INVITED LECTURES

- 1986** Department of Medicinal Chemistry, SUNY Buffalo  
Department of Chemistry, State University College at Buffalo  
Department of Chemistry, Canisius College  
Department of Chemistry, Niagara University  
Department of Biochemistry, School of Medicine, SUNY Buffalo
- 1987** Department of Medicinal Chemistry, SUNY Buffalo  
Department of Chemistry, Alfred University
- 1988** Department of Chemistry, St. Bonaventure University  
Undergraduate Biochemistry Club, School of Medicine, SUNY Buffalo
- 1989** Department of Physiology, School of Medicine, SUNY Buffalo  
Department of Chemistry, State University College at Buffalo  
Department of Chemistry, Rensselaer Polytechnic Institute
- 1990** Department of Chemistry, State University of New York at Stony Brook  
Department of Chemistry, University of California at Santa Barbara  
Department of Chemistry, University of California at Irvine  
Department of Chemistry, University of California at Riverside  
Department of Biophysics, Roswell Park  
Department of Biochemistry, McMaster University  
Department of Chemistry, State University of New York at Buffalo  
Department of Biophysics, School of Medicine, State University of New York at Buffalo  
Signal Transduction in Biological Membranes, SUNY Buffalo  
National Science Foundation Workshop on Natural Products, Denver, Colorado
- 1991** Tanabe Research Laboratories, San Diego, Ca  
Department of Chemistry, University of Delaware  
Department of Chemistry, Rutgers University (Newark)  
Department of Biological Sciences, State University of New York at Buffalo  
Department of Biochemical Pharmacology, State University of New York at Buffalo  
American Chemical Society Joint Central - Great Lakes Regional Meeting, Division of Medicinal Chemistry, Indiana University - Purdue University at Indianapolis  
Novel Chemical Probes of Biology Symposium  
Federation of Analytical Chemistry and Spectroscopy Societies and Pacific Conference on Chemistry and Spectroscopy, Anaheim, California
- 1992** Department of Biophysics, State University of New York at Buffalo  
Department of Chemistry, Rensselaer Polytechnic Institute  
Gordon Research Conference; Bioorganic Chemistry  
Signal Transduction, Keystone, Colorado
- 1993** The Buffalo Medical Foundation, Buffalo, NY  
Parke-Davis Pharmaceuticals, Ann Arbor, MI

The Grace Cancer Drug Center, Roswell Park Cancer Institute  
Indiana University of Pennsylvania, Department of Chemistry

- 1994** Department of Chemistry and Biochemistry, Wayne State University  
Department of Biochemistry, Albert Einstein School of Medicine, Yeshiva University  
Department of Chemistry, City University of New York, Queens College  
Abbott Labs, Abbott Park, IL.  
Department of Biochemistry, Albert Einstein College of Medicine  
Department of Chemistry, Canisius College  
Department of Biochemistry, Iowa State University  
American Chemical Society Great Lakes Regional Meeting  
Gordon Research Conference; Enzymes, Coenzymes, and Metabolic Pathways
- 1995** Department of Chemistry and Biochemistry, University of Maryland  
Department of Chemistry, Johns Hopkins University  
Department of Chemistry and Biochemistry, University of Colorado at Boulder  
Department of Chemistry, University of Wyoming  
Department of Chemistry, Colorado State University  
Department of Chemistry, University of Utah  
Department of Chemistry and Biochemistry, University of California at San Diego  
Merck, Inc., West Point, Pa.  
Vth International Symposium on Molecular Aspects of Chemotherapy; Gdansk, Poland  
9th International Conference on Second Messengers and Phosphoproteins (Signal Transduction in Health & Disease); Nashville, Tennessee
- 1996** Department of Medicinal Chemistry, University of Kansas  
Department of Biochemistry, Iowa State University  
Department of Biological Sciences, Allegheny College  
Cellular and Molecular Biodynamics Program, Rutgers University
- 1997** The Department of Chemistry, Furman University  
The Department of Chemistry, University of South Florida  
The Department of Physiology and Biophysics, SUNY at Stony Brook  
Wyeth Ayerst Research, Pearl River, New York  
The Department of Biology, Canisius College  
The Departments of Chemistry and Biology, Reed College
- 1998** Aurora Pharmaceuticals, San Diego, California  
Student Affiliates of the ACS, University of South Florida  
Department of Chemistry, Florida Southern College  
Department of Chemistry, University of Central Florida  
Department of Molecular Pharmacology, University of Vermont  
Department of Chemistry, University of California at San Diego  
Department of Chemistry, Harvey Mudd College  
1st International Conference on Protein Kinase Inhibitors; Warsaw, Poland
- 1999** Department of Chemistry, University of Wisconsin at Oshkosh  
Department of Chemistry, Trinity College

Department of Chemistry, University of Wisconsin at La Crosse  
Department of Chemistry, The University of Wisconsin at Stevens Point  
Department of Chemistry, Wesleyan University  
Department of Chemistry, University of California at Irvine  
Department of Chemistry, University of California at Riverside  
Department of Chemistry, University of California at Los Angeles  
Department of Chemistry, Indiana University  
Department of Medicinal Chemistry, Purdue University  
Department of Chemistry, University of Notre Dame  
Hoechst Marion Roussel Protein Kinase Workshop; Tucson, Arizona  
American Chemical Society Western Regional Meeting and the Pacific Conference on  
Chemistry and Spectroscopy Symposium on Biosensors: Visualizing the Chemistry of Living  
Cells  
The Molecular Neurobiology of ATM, Cold Spring Harbor, New York

- 2000** Department of Chemistry, Hampton University  
Colby College, Maine  
Tripos, Inc., St. Louis, Missouri  
IGEN, Gaithersburg, Maryland  
Department of Chemistry; College of Charleston  
Department of Chemistry, Florida Atlantic University  
PacifiChem 2000; Photoprotecting Groups and Caged Compounds Symposium, Honolulu,  
Hawaii
- 2001** Department of Medicinal Chemistry and Molecular Pharmacology, Purdue University  
Merck, Inc., Rahway, New Jersey  
Department of Medicinal Chemistry, Purdue University  
Department of Biochemistry, Wayne State University  
ArQule, Burlington, MA  
Department of Chemistry, University of Georgia  
2<sup>nd</sup> International Conference on Protein Kinase Inhibitors; Warsaw, Poland
- 2002** New York Blood Center  
Promega Corporation  
Department of Chemistry, University of Wisconsin
- 2003** OSI Corporation  
Department of Molecular Pharmacology, The Johns Hopkins University  
GenoSpectra, Fremont, CA  
Department of Chemistry, University of Michigan  
Department of Chemistry, University of Delaware  
Annual Meeting of the American Society for Biochemistry and Molecular Biology  
3<sup>rd</sup> International Conference on Protein Kinase Inhibitors; Warsaw, Poland
- 2004** Department of Medicinal Chemistry, The University of Michigan  
The Walther Cancer Center, University of Notre Dame  
Department of Chemistry, The University of Illinois at Chicago  
Department of Chemistry, Columbia University  
Department of Chemistry, Emory University

Molecular and Cell Biology Seminar Series, Scripps Research Institute  
New York Academy of Sciences  
Cellular Regulation in Health and Disease, Weizmann Institute of Science

- 2005** Venetian Institute of Molecular Medicine, University of Padova  
Department of Chemistry, Oakland University  
Department of Medicinal and Biological Chemistry, University of Toledo  
American Peptide Society Symposium, San Diego, CA  
4<sup>th</sup> International Conference on Protein Kinase Inhibitors; Warsaw, Poland
- 2006** Sigma-Aldrich  
Department of Chemistry, University of Texas at Dallas  
Biophysics Program, Cornell University  
Department of Medicinal Chemistry, University of Texas at Austin  
University of Texas, Southwestern  
Departments of Biochemistry & Biology, Life Sciences Seminar Series, Brandeis  
Department of Biochemistry, CUNY  
Departments of Chemistry and Medicinal Chemistry & Natural Products, University of North Carolina  
American Society for Cell Biology National Meeting; San Diego, California
- 2007** Department of Biochemistry, Mt. Sinai School of Medicine  
Department of Chemistry, Duke  
Department of Chemistry and Biochemistry, University of Pennsylvania  
Department of Chemistry and Biochemistry, UCLA  
5<sup>th</sup> International Conference on Protein Kinase Inhibitors; Warsaw, Poland  
Howard Hughes Medical Institute, Janelia Farm “Chemistry in Neuroscience”  
Howard Hughes Medical Institute, Janelia Farm “Fluorescent Proteins and Biological Sensors”  
American Society for Cell Biology, Washington DC
- 2008** Department of Chemistry, University of South Florida  
Department of Medicinal Chemistry & Natural Products, University of North Carolina  
Department of Biochemistry, University of North Carolina  
Chinese Chemical Society, Tianjin, China
- 2009** Department of Chemistry, North Carolina State University  
School of Pharmacy, UC San Diego  
6<sup>th</sup> International Conference on Protein Kinase Inhibitors, Warsaw, Poland  
Florida Center of Excellence for Biomolecular Identification & Targeted Therapeutics  
Symposium on Drug Design, Discovery and Delivery, Tampa, FL
- 2010** Department of Chemistry, University of Illinois at Urbana Champaign  
Gordon Research Conference; Chemistry & Biology of Peptides, Ventura California  
BIT’s 8<sup>th</sup> Annual Congress of International Drug Discovery Science and Technology (IDDST),  
Beijing, China
- 2011** Department of Chemistry, Wake Forest University  
Department of Biochemistry and Molecular Biology, Indiana University School of Medicine



Department of Chemistry, Scripps Florida  
Department of Chemistry, Purdue University  
Department of Chemistry, Rose-Hulman Institute of Technology  
Gordon Research Conference; Bioorganic Chemistry  
Southeast Regional Meeting of the American Chemical Society; Chemical Biology Session

- 2012** Department of Pharmaceutical and Biomedical Sciences, University of Georgia  
Drug Discovery Program, National Cancer Institute  
Biophysics Symposium, Academia Sinica, Taiwan  
Bioimaging Symposium, Academia Sinica, Taiwan  
Institute of Chemical Biology & Drug Discovery Symposium, SUNY Stony Brook
- 2013** Department of Medicinal Chemistry, University of Connecticut  
Department of Medicinal Chemistry, University of Minnesota  
Division of Integrative Bioscience and Biotechnology, POSTECH, Pohang, Korea  
AmorePacific Corp., Seoul, Korea  
School of Pharmacy, Hanyang University, Ansan, Korea  
Department of Biomedical Engineering, Duke University  
Department of Chemistry, Wayne State University  
Korean Chemical Society National Meeting, Seoul Korea
- 2014** Department of Chemistry, University of Nebraska  
Department of Chemistry, Appalachian State University  
CNRS, Montpellier, France  
Department of Cell Biology, University of Texas @ Dallas  
Research Triangle Park Chemical Biology Symposium  
4<sup>th</sup> Biosensor Meeting, Bordeaux France  
EMBO Conference Series: Chemical Biology, Heidelberg Germany  
International Chemical Biology Society Symposium, San Francisco
- 2015** Department of Chemistry, Johns Hopkins University  
School of Pharmacy, University of Houston  
Department of Chemistry, Northeastern University
- 2016** Department of Chemistry, University of North Carolina, Asheville  
Institute for Structural Biology, Drug Discovery and Development (ISB3D), Virginia Commonwealth University
- 2017** Department of Medicinal Chemistry, Purdue University  
Department of Chemistry, Lehigh University  
Integrating New Technologies into Entrepreneurial Projects: Gamification, AR, VR and AI, University of North Carolina at Chapel Hill  
Conference on Chemistry & Metabolism, Cold Spring Harbor Laboratory Symposium  
Conference on Chemical Tools for Complex Biological Systems, Janelia Farm Conference  
Holy Grails in Chemistry Symposium, American Chemical Society National Meeting, San Francisco  
Symposium on Light-Responsive Organic Chemistry for Biological Applications, American Chemical Society National Meeting

- 2018** Emil T. Kaiser Memorial Symposium, Boston  
Complex Control with Light Symposium, Goethe University, Lake Konstanz, Germany
- 2019** Department of Pharmacological Sciences, Mt. Sinai School of Medicine  
Department of Chemistry, Elon University  
Photochemistry Gordon Research Conference
- 2020** Photochemically-Activated Molecules to Study Physiology, BIOL Division, ACS National Symposium, Virtual  
Biological Photochemistry and Chemical Biology, ChemistsLive, Virtual
- 2021** International Conference on Porphyrins and Phthalocyanines (2020 ICPP), Virtual  
American Chemical Society National Meeting, Virtual  
International Photodynamic Association, Masterclass Series, Virtual  
Caged Compounds Symposium, PacifiChem 2020, Virtual  
Teaching with Technology Symposium, PacifiChem 2020, Virtual
- 2022** American Society for Photobiology, Albuquerque, NM  
Brown & Williamson Distinguished Speaker, Department of Chemistry, University of Louisville
- 2023** Wellman Center for Photomedicine, Massachusetts General Hospital, Harvard University.

## NATIONAL MEETINGS

- Mary Prorok\* and David S. Lawrence; American Chemical Society National Meeting, Biological Chemistry Division (1998)
- John S. Manka and David S. Lawrence\*; American Chemical Society National Meeting, Organic Chemistry Division (1989)
- John S. Manka and David S. Lawrence\*; Gordon Research Conference: "Metals in Biology" (1990)
- John S. Manka\*, Dennis Chugh, and David S. Lawrence; American Chemical Society National Meeting, Inorganic Chemistry Division (1990)
- John S. Manka and David S. Lawrence\*; American Chemical Society National Meeting, Organic Chemistry Division (1990)
- Mary Prorok, Marianne Mendelow, Allen Salerno, Deborah Hermance, and David S. Lawrence\*; American Chemical Society National Meeting, Biological Chemistry Division (1990)
- Mary Prorok, Marianne Mendelow, Allen Salerno, Deborah Hermance, and David S. Lawrence\*; SUNYAB 31st Annual Medicinal Chemistry Symposium (1990)

Diane Dick\*, Scott Pluskey, and David S. Lawrence; North East Regional Meeting of the American Chemical Society (1990)

Scott Pluskey\*, Diane Dick, and David S. Lawrence; North East Regional Meeting of the American Chemical Society (1990)

Deborah Hermance\*, Mariannne Mendelow, and David S. Lawrence; North East Regional Meeting of the American Chemical Society (1990)

Mary Prorok\* and David S. Lawrence; North East Regional Meeting of the American Chemical Society (1990)

Allen Salerno\*, Marianne Mendelow, Mary Prorok, and David S. Lawrence; North East Regional Meeting of the American Chemical Society (1990)

Mary Prorok and David S. Lawrence\*; 12th Enzyme Mechanisms Conference (1991)

Allen Salerno\* and David S. Lawrence; North East Regional Meeting of the American Chemical Society (1992)

Young-Guen Kwon, Marianne Mendelow, Jaya Srinivasan, Tae Ryong Lee, Scott Pluskey, and David S. Lawrence\*; "Enzymes, Coenzymes, and Metabolic Pathways" Gordon Research Conference (1993)

Scott Pluskey, Debbie Crans\*, and David S. Lawrence; 45th Southwest Regional Meeting of the American Chemical Society (1993)

David S. Lawrence, Tae Ryong Lee, and Jinqui Niu; ASBMB National Meeting (1993)

A. M. Edelman\*, J. C. Lee, Y.-G. Kwon, and D. S. Lawrence; ASBMB National Meeting (1994)

Michelle Sanders\* and David S. Lawrence; American Chemical Society National Meeting (1996)

Mary Koszalek\* and David S. Lawrence; American Chemical Society National Meeting (1996)

Kieran Curley, Jason Wood, and David S. Lawrence; Bioorganic Gordon Research Conference (1998)

Tae Ryong Lee\* and David S. Lawrence; Miami Biotechnology Winter Symposia on Signal Transduction (1999)

Adam Profit and David S. Lawrence; Miami Biotechnology Winter Symposia on Signal Transduction (1999)

Kieran Curley, Jason Wood, and David S. Lawrence; Miami Biotechnology Winter Symposia on Signal Transduction (1999)

Zachary L. Rodgers, Robert M. Hughes, Laura M. Doherty, Jennifer R. Shell, Alexander M. Brugh, Thomas A. Shell, Malcolm D.E. Forbes, and David S. Lawrence, "Red Photo-activation of Hydrogel

Initiators”. *2<sup>nd</sup> Annual Triangle Student Research Competition*, Research Triangle Park, Durham, NC, September 3<sup>rd</sup>, 2014.

Zachary L. Rodgers, Alexander M. Brugh, Laura M. Doherty, Thomas A. Shell, Jennifer R. Shell, and David S. Lawrence, “Red and Near Infrared Photo-activation of Biomolecules and Hydrogel Initiators Using Alkyl Cob(III)alamin-fluorophore Conjugates”. *The RTP Chemical Biology and Biotechnology Symposium*, GlaxoSmithKline, Research Triangle Park, NC, May 28, 2014.

Zachary L. Rodgers, Brian Molesky, Alexander, M. Brugh, Thomas A. Shell, Malcom D. Forbes, and David S. Lawrence, “Detection of Radicals from Photoactivation of Fluorophore Augmented Cob(III)alamins”. *Inter-American Photochemical Society Meeting*, Sarasota, FL, January 2-5, 2014.

Marvin, C., Smith, W., Oien, N., Hughes, R., Rogers, Z., and Lawrence, D. “NIR Mediated Release of Therapeutic Agents from Erythrocyte Drug Carriers” Presented at the 2014 AAPS Annual Meeting and Exposition, San Diego CA, 2014 (November 6, 2014).

## **RESEARCH STUDENTS**

### **Undergraduate Students**

Joseph Accurso	1986
Carol Bezio	1988
Russell Bird	1988
Dennis Chugh	1989
Michael Cristofaro	1986
Laura Doherty	2014-15
Tim Hartman	2017-18
Christopher Kong	2020-present
Tom Kuhlman	1987
Nathan Levy	2010
Meredith Mau	1986
Louise Mahoney	1988
Marianne Mendelow	1988
David Montesanti	1986
Jeffrey Nonemaker	1992-93
Jett Primm	2020
Elizabeth Redding	2021-present
Tammy Russell	1990
Kanishka Shah	2021-present
Alexandra Whicker	2015-16
Mamadi Yilla	1986

### **Graduate Students**

#### **Masters (research) - completed**

Derek Dunn	1994-1995
David Freeman	2015-2016
Marianne Mendelow	1989-1991
Michelle Sanders	1995-1996
Douglas Werner	1994-1996

#### **Doctoral - completed**

Marissa Caan	2012-2017
Diane Dick	1986-1992
Finith Jernigan	2008-2013
Tao Jiang	1991-1995
Mary Koszelak	1993-1998
Young-Guen Kwon	1991-1994
Tae Ryong Lee	1992-1996
John Manka	1986-1990
Christina Marvin	2014-2018
Luong Nguyen	2010-2014
Jinkui Niu	1993-1997
Colin O'Banion	2011-2016
Nathan Oien	2010-2014
Scott Pluskey	1988-1993
Mary Prorok	1986-1990
Zach Rodgers	2012-2015
Al Salerno	1989-1993
Kui Shen	1995-2001
Weston Smith	2009-2015
Tata Venkata	1986-1992
Brianna Vickerman	2017-2021
Jason Wood	1993-1998
Weichen Xu	2008-2012
Xiongwei Yan	1992-1996
Emilia Zywot	2017-2021

#### **Doctoral - current**

Ju-Sung Kim	2019-
Caylie McGlade	2020-
Joshua Welfare	2017-

#### **Postdoctoral Fellows - completed**

Richard Agnes	2003-2007
Angela Brown	1999-2001
Maria Cabal	1995-1996
Chien-an Chen	1998-2001
Kieran Curley	1996-1998
Zhaohua Dai	2004-2006

Song Ding	2015-2019
Mousumi Ghosh	2000-2005
Anwesha Goswami	2016-2019
Fangxia Guan	2001-2003
Jung-Mi Hah	2003-2005
Qing “Sunny” Huang	2007
Sanjai Kumar	2005-2007
Hsienming Lee	2004-2010
Jung-Hwan Lee	2001-2006
Seung-Yub Lee	2001-2004
Tae Ryong Lee	1996-1999
Weiyang Lin	2000-2004
Haishan Li	2002-2008
Fei Lou	2019-2020
Javier Montserat	1995-1996
Sandip Nandy	2002-2006
Jinkui Niu	1998-2001
Colin O’Banion	2017-2018
Natalia Orlova	2018-2019
James Parise	2007-2008
Adam Profit	1997-2000
Huimin Shang	2004-2007
Vyas Sharma	2004-2011
Jaya Srinivasan	1994-1995
Liang Sun	2008-2011
Meng Taing	1995-1998
Willem Veldhuyzen	2002-2004
Stefan Vetter	1997-1998
Xiaodong Wang	2008
Xiongwei Yan	1996-1999
Jiade Yang	2002-2004
Ren-Hwa Yeh	1996-2001
Biao Xi	1999-2006

#### **Former Research Faculty**

Robert Hughes	2015-2016
Melanie Priestman	2011-2017
Vyas Sharma	2008-2011
Jennifer Shell	2008-2014
Thomas Shell	2008-2014
Qunzhao Wang	2007- 2022

#### **Postdoctoral - current**

Jacob Ford	2021-
William Kinney	2019-
Brianna Vickerman	2021-

## Research Faculty – current

Lauren Haar

2018-

### TEACHING (SUNY @ Buffalo)

Fall 1985	Chemistry 301	(Intermediate Organic Chemistry)
	Chemistry 501	(Organic Chemistry, Graduate Level Core Course)
Spring 1986	Chemistry 514	Bioorganic Chemistry (new course)
Fall 1986	Chemistry 301	(Intermediate Organic Chemistry)
	Chemistry 501	(Organic Chemistry, Graduate Level Core Course)
Spring 1987	Chemistry 252	(Honors Organic Chemistry, 2nd Semester)
Fall 1987	Chemistry 301	(Intermediate Organic Chemistry)
	Chemistry 501	(Organic Chemistry, Graduate Level Core Course)
Spring 1988	Chemistry 252	(Honors Organic Chemistry, 2nd Semester)
Fall 1988	Chemistry 501	(Organic Chemistry, Graduate Level Core Course)
Spring 1989	Chemistry 514	(Bioorganic Chemistry, Special Topics Graduate Level)
Fall 1989	Chemistry 301	(Intermediate Organic Chemistry)
Fall 1990	Chemistry 301	(Intermediate Organic Chemistry)
Spring 1991	Chemistry 202	(Introductory Organic Chemistry, 2nd Semester)
Fall 1991	Chemistry 301	(Intermediate Organic Chemistry)
Spring 1992	Chemistry 202	(Introductory Organic Chemistry, 2nd Semester)
Fall 1992	Chemistry 501	(Organic Chemistry, Graduate Level Core Course)
Fall 1993	Chemistry 501	(Organic Chemistry, Graduate Level Core Course)
Spring 1994	Chemistry 202	(Introductory Organic Chemistry, 2nd Semester)
Fall 1994	Chemistry 501	(Organic Chemistry, Graduate Level Core Course)
Spring 1995	Chemistry 252	(Honors Organic Chemistry; 2nd Semester)
Fall 1995	Chemistry 301	(Intermediate Organic Chemistry)

### DEPARTMENTAL ACTIVITIES (SUNY @ Buffalo)

Ad Hoc Faculty Advisement, Policies, and Procedures Committee (1990)  
Admissions Committee (1991-1992)  
Advisor to Student Affiliates of the American Chemical Society (1985-1986)  
Central Construction Fund Planning Committee (1990-1995)  
Chairman and Coordinator: Chemistry Department Open House (November 1985)  
Chairman: 1986 Departmental September Welcome  
Chairman: 1987 Departmental September Welcome  
Chairman, Recruitment for Organic Faculty (1991 and 1992)  
Coeditor, Departmental Brochure 1988  
Convener, Graduate Recruitment Committee (1994-1995)  
Convener, Organic Committee (1994-1995)  
Curriculum, Advisement, and Petitions Committee (1991-1995)  
Editor, Departmental Brochure 1990  
Executive Committee (1993-1995)  
Facilities Committee (1987-1989)  
Graduate Recruitment Committee (1985-1995)

Library Liaison Committee (1985-1995)  
Organic Committee (1985-1995)  
Personnel Committee (1991 and 1992)  
Tenure Committee (1991-1995)

### **UNIVERSITY ACTIVITIES (SUNY @ Buffalo)**

Member, Biomembranes Group  
Member, Faculty of Natural Sciences & Mathematics Graduate Divisional Panel  
Member, Faculty of Natural Sciences & Mathematics Undergraduate Divisional Panel  
Member, Faculty of Natural Sciences & Mathematics Advisory Committee to the Science and Engineering Library  
Mentor, University Honors Program  
Howard Hughes Biological Sciences Undergraduate Educational Initiative  
Member, Structural Biology Committee

### **TEACHING (AECOM)**

Molecular and Cellular Foundations of Medicine (1997; 9 lectures)  
Molecular and Cellular Foundations of Medicine (1998; 10 lectures)  
Molecular and Cellular Foundations of Medicine (1999; 10 lectures)  
Molecular and Cellular Foundations of Medicine (2000; 10 lectures + 4 summer introductory lectures)  
Molecular and Cellular Foundations of Medicine (2001; 10 lectures + 4 summer introductory lectures)  
Molecular and Cellular Foundations of Medicine (2002; 10 lectures + 4 summer introductory lectures)  
Molecular and Cellular Foundations of Medicine (2003; 10 lectures + 4 summer introductory lectures)  
Molecular and Cellular Foundations of Medicine (2004; 10 lectures + 4 summer introductory lectures)  
Molecular and Cellular Foundations of Medicine (2005; 10 lectures + 4 summer introductory lectures)  
Molecular and Cellular Foundations of Medicine (2006; 10 lectures + 4 summer introductory lectures)  
Graduate Biochemistry (2006; 3 lectures)  
Graduate Biophysics (2006; 1 lecture)

### **DEPARTMENTAL ACTIVITIES (AECOM)**

Biochemistry Appointments and Promotion Committee (1996 - present)  
Mass Spectrometry Staff Position Search Committee (Fall 1996)  
Departmental Seminar Coordinator (1998 – present)  
Departmental Faculty Search Committee (2001)

### **COLLEGE ACTIVITIES (AECOM)**

Academic Affairs Committee (2005 – 2007)  
Chemical Hazards Committee (1998 - 2007)  
Co-Chair of Chemical Biology and Chemical Genomics Strategic Planning (2006)  
Committee of Professors (1997- present)  
Committee on Computer-Based Education (1999 - present)  
Committee on Patents (2006 – 2006)



Division of Research (advisory committee to the Dean) (1998 - 2001)  
Faculty Senate (1996 - 1998; 2000 – 2001; 2005-2006)  
Graduate Recruitment Committee (2002 – 2004)  
Head, Graduate Recruitment (1997 - 2000)  
LCME General Facilities Subcommittee (2005 – 2006)  
Promotions Committee (1997- 1998)  
Preclerkship Committee (2001 – present)  
Sue Golding Graduate Division Admissions Committee (1996 – 2000)

### **TEACHING (UNC)**

Chemistry 465. Organic and Inorganic Reaction Mechanisms.  
Fall 2007 – 28 lectures  
Fall 2008 – 28 lectures  
Fall 2009 – 28 lectures  
(note: 50% of full semester course 4 unit course team-taught with Professor Joe Templeton)

Medicinal Chemistry 807/Chemistry 733. Molecular Foundations of Chemical Biology. I. Organic and Medicinal Chemistry (New Course)  
Fall 2010 – 40 lectures  
Fall 2011 – 40 lectures  
Fall 2012 - 40 lectures

Pharmaceutical Science First Year Group  
Fall 2011  
1 lecture

Chemistry 799. Introduction to Laboratory Safety (new course).  
Fall 2013  
Fall 2014  
Fall 2015  
Fall 2016  
Fall 2017  
Fall 2018  
Fall 2019  
Fall 2020  
Fall 2021

Computer Science 585. Serious Games. Role: Facilitator  
Spring 2018

### **STUDENT COMMITTEES**

#### **Pharmaceutical Sciences Student Advisory Committee/Defense**

Kim Barnash  
Jon Bogart

Laura Bonifacio  
Josh Brattlie  
Tanya Burch  
Joyce Chandarajoti  
Adam Friedman  
Tory Haberman  
Courtney Jones  
Nick Klus  
Christina Marvin (Advisor)  
Luong Nguyen (Advisor)  
Colin O'Banion (Advisor)  
Nathan Oien (Advisor)  
Mike Perfetti  
Rima Hajjo  
Wei Sun  
Caleb Vogt  
Jarod Waybright  
Weichen Xu (Advisor)  
Menghan Zhang  
Emilia Zywtot (Advisor)

Current: Caroline Foley, Samantha Ottavi, Dongbo Lu, Alex Woodell

#### **Chemistry Student Advisory Committee/Defense**

Matt Anttila  
Joshua Beaver  
Michael Bertucci  
Michael Corbett  
Anne Marie Dechert  
Zach Dunn  
Samantha Ervin  
Timothy Fazekas  
Leila Flagg  
Ryan Felix  
Ben Giglio  
Isaiah Gober  
Tien Guyen  
Kalulani Houston  
Colin Hughes  
Lindsey Ingerman  
Nick Jenkins  
Finith Jernigan (Advisor)  
Kate Lavoie  
Emilie Mainz  
Justin Malinowski  
Hannah Nowotarski  
Elizabeth O'Bryan

Brendan Peacor  
Brae Peterson  
Nick Pinkin  
Angela Proctor  
Abby Pulsipher  
Gregg Rice  
Zach Rodgers (Advisor)  
Hannah Shenouda  
Weston Smith (Advisor)  
Amanda Stewart  
Abigail Turner  
Chris Turlington  
Brianna Vickerman (Advisor)

Current: Rachel Johnson, Adam Lescallette, Nicholas Tay

#### **Pharmacology Student Advisory Committee/Defense**

Marissa Caan (Advisor)  
Ryan Phillips  
Eric Zimmerman

#### **Undergraduate Honors Thesis Committee**

Lauren Burianek  
Susie Choi  
Spencer Maingi  
Robin Muller

#### **DEPARTMENTAL/DIVISIONAL ACTIVITIES (UNC)**

##### **Previous**

Department of Chemistry Faculty Search Committee (Fall 2007)  
School of Pharmacy Faculty Development/Mentoring Committee (Fall 2007)  
School of Pharmacy Campbell Faculty Mentoring Program (2008 - 2012)  
Divisional Director of Graduate Studies, Division of Medicinal Chemistry & Natural Products, School of Pharmacy (Fall 2009 - 2011)  
Nanomedicine Faculty Search Committee, Department of Chemistry (Fall 2010)  
Division of Medicinal Chemistry & Natural Products Faculty Search, School of Pharmacy (Fall 2010)  
Administrative Review of Leaf Huang, School of Pharmacy (Summer 2010)  
ACPE Self-Study Organizational and Administration Committee, School of Pharmacy (Spring 2010)  
Tenure Committee, Department of Chemistry (Mohammed Yousef; 2010)  
School of Pharmacy Strategic Initiatives Working Group (Spring 2011)  
Interim Chair – Division of Medicinal Chemistry & Natural Products (Spring 2011)  
Co-Chair, Ad hoc Safety Committee, Department of Chemistry (Spring 2012)  
Tenure Committee, Department of Chemistry (Eric Alexanian; 2013)  
Promotion to Full Professor Committee, Department of Chemistry (Chair; David Nicewicz; 2017)

Promotion to Full Professor Committee, Department of Chemistry (Eric Alexanian; 2018)  
School of Pharmacy Dean Search (2018 and 2019)  
Tenure Committee, Department of Chemistry (Bo Li; 2010)  
Morehead Building Committee, Department of Chemistry (2017 - 2020)  
DPET Chair Search Committee, School of Pharmacy (2019- 2020)  
Nominations Committee Chair, School of Pharmacy (2019 – 2020)  
Chair, Safety Committee, Department of Chemistry (Fall 2012 - 2021)

### **Current**

School of Pharmacy Full Professors Committee (2007 - present)  
Department of Chemistry Full Professors Committee (2007 - present)  
Executive Committee, School of Pharmacy (2011 - present)  
Chair, Division of Chemical Biology & Medicinal Chemistry, School of Pharmacy (Summer 2011 - present)  
Member, Joint Safety Team, Department of Chemistry (2022 - present)  
Student and Postdoc Wellness Committee (2019 – present)

### **UNIVERSITY ACTIVITIES (UNC)**

Scientific Advisory Board, Center for Integrative Chemical Biology and Drug Discovery (Fall 2007 - 2012)  
Advisory Group Member, Carolina Counts (2010)  
College of Arts & Sciences Interdisciplinary Initiatives Proposals Committee (2011)  
Eshelman Institute for Innovation Reviewer (student and postdoctoral proposals) (2016)  
Lineberger Comprehensive Cancer Center, UCRF, Reviewer (2015 - 2016)  
Board of Governors Teaching Award Committee (2022)