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SENIOR ASSOCIATE DEAN FOR NATURAL AND MATHEMATICAL SCIENCES

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**EDUCATION:**

B.A., with Honors (1976) Hendrix College, Conway, Arkansas

Ph.D., (1980) Duke University, Durham, North Carolina (with Steven W. Baldwin)

Postdoctoral (1980-81) California Institute of Technology, Pasadena, CA (with David A. Evans)

**PROFESSIONAL EXPERIENCE:**

Graduate Assistant, Duke University, Durham, North Carolina (1976-80)

Research Fellow, California Institute of Technology, Pasadena, California (1980-81)

Assistant Professor of Chemistry, UNC, Chapel Hill, North Carolina (1981-88)

Associate Professor of Chemistry, UNC, Chapel Hill, North Carolina (1988-93)

Professor of Chemistry, UNC, Chapel Hill, North Carolina (1993-2003)

Visiting Associate Professor, Duke University, Durham, North Carolina (1991)

Vice Chair, Facilities, Department of Chemistry, UNC, Chapel Hill, North Carolina (1992-93)

Vice Chair, Graduate Studies, Department of Chemistry, UNC, Chapel Hill, NC (1995-2000)

George and Alice Welsh Distinguished Term Professor (2001-2003)

Mary Ann Smith Distinguished Professor of Chemistry UNC, Chapel Hill, NC (2003-)

Professor of Medicinal Chemistry-Natural Products, School of Pharmacy, UNC (2007-)

Chair, Department of Chemistry, University of North Carolina at Chapel Hill, (2007-2009)

Senior Associate Dean for Natural Sciences, University of North Carolina at Chapel Hill, (2009-)

**SELECTED HONORS AND PROFESSIONAL ACTIVITIES:**

M. J. McHenry Chemistry Prize, Hendrix College (1976)

C. R. Hauser Fellow, Duke University (1979-80)

NIH-NCI Postdoctoral Fellow, California Institute of Technology (1980-81)

Alfred P. Sloan Fellow (1986-90)

Research Development Award, University of North Carolina (1988)

UNC-CH Foundation Leave (1991-92)

Invited Expert Analyst *ChemTracts Organic Chemistry* (1993-2005)

Chair, North Carolina Section of the American Chemical Society (1994)

American Cyanamid Faculty Fellow (1994)

Senior Class Favorite Faculty Award (1997)

Tanner Faculty Award for Excellence in Undergraduate Teaching, UNC-CH (1999)

Academy of Distinguished Teaching Scholars, UNC-CH (2000)

Arthur C. Cope Scholar Award, American Chemical Society (2001)

George and Alice Welsh Distinguished Term Professor (2001-2003)

Lineberger Comprehensive Cancer Center, Member (2001-)

Mary Ann Smith Distinguished Professor of Chemistry UNC, Chapel Hill, NC (2003-)

Scientific Advisory Board, Chimerix Inc. (2002-2011)

Editorial Advisory Board, *Journal of Organic Chemistry*, (2004-2007)

Charles Holmes Herty Medal, Georgia Section, American Chemical Society (2004)

NIH Synthetic and Biological Chemistry A Study Section, member (2005-2009)

International Editorial Advisory Board, *Organic & Biomolecular Chemistry* (2007-2012)  
North Carolina ACS Section Distinguished Speaker Award (2008)  
Ernest Guenther Award in the Chemistry of Natural Products, American Chemical Society (2010)

*Lectureships:* Roche Distinguished Lecturer, Colorado State University (2000), Merck Sharpe and Dohme Distinguished Visiting Lecturer, UK (2001), Abbott Labs Student Select Lecturer, U. of Notre Dame (2001), Merck-Frosst Lecturer, U. of Ottawa (2002), Student Select Lecturer, U. of Pennsylvania (2002), Roche Distinguished Lecturer, U. of Colorado (2002), Closs Lecturer, U. of Chicago (2004), Abbott Lecturer, Massachusetts Institute of Technology (2009)

## PUBLICATIONS

1. "A Convenient Preparation of  $\alpha$ -Methylene- $\delta$ -valerolactones," Baldwin, S. W.; Crimmins, M. T.; Cheek, V. I. *Synthesis* **1978**, 210-211.
2. "A Facile Synthesis of  $\delta$ -Valerolactones by Photoannulation," Baldwin, S. W.; Crimmins, M. T. *Tetrahedron Lett.* **1978**, 4197-4200.
3. "Synthesis of the Alleged Genipic Acid by Photoannulation," Baldwin, S. W.; Crimmins, M. T. *J. Am. Chem. Soc.* **1980**, *102*, 1198-1199.
4. "Total Synthesis of ( $\pm$ ) and (-) Sarracenin by Photoannulation," Baldwin, S. W.; Crimmins, M. T. *J. Am. Chem. Soc.* **1982**, *104*, 1132-1133.
5. "Addition of 1-Methoxy-1-butene-3-yne to Lactones: Synthesis of Substituted Spiroketal," Crimmins, M. T.; Bankaitis, D. M. *Tetrahedron Lett.* **1983**, *24*, 4551-4554.
6. "Synthesis of 5-Alkyl-2,3-dihydropyrones from 1-Methoxy-1-butene-3-yne," Crimmins, M. T.; Bankaitis, D. M. *Tetrahedron Lett.* **1983**, *24*, 5303-5304.
7. "Intramolecular Photocycloaddition-Cyclobutane Fragmentation: A Highly Stereoselective Total Synthesis of Pentalenic Acid," Crimmins, M. T.; DeLoach, J. A. *J. Org. Chem.* **1984**, *49*, 2076-2077.
8. "Conjugate Addition-Cycloacylation of Acetylenic Diesters: Synthesis of Highly Functionalized Cyclopentenones," Crimmins, M. T.; Mascarella, S. W.; DeLoach, J. A. *J. Org. Chem.* **1984**, *49*, 3033-3035.
9. "Intramolecular Photocycloadditions: Synthesis of Sterically Congested Substituted [4.5.5.5] Fenestranes.: Models for the Synthesis of Laurenene and Silphinene. Crimmins, M. T.; Mascarella, S. W.; Bredon, L. D. *Tetrahedron Lett.* **1985**, *26*, 997-1000.
10. "Intramolecular Photocycloadditions: Total Synthesis of ( $\pm$ )-Pentalenene, ( $\pm$ )-Pentalenic Acid, and ( $\pm$ )-Deoxypentalenic Acid," Crimmins, M. T.; DeLoach, J. A. *J. Am. Chem. Soc.* **1986**, *108*, 800-806.
11. "Synthesis of the Hexahydrobenzofuran Subunit of the Milbemycins and the Avermectins," Crimmins, M. T.; Lever, J. G. *Tetrahedron Lett.* **1986**, *27*, 291-294.

12. "Intramolecular Photocycloadditions-Cyclobutane Fragmentation: Total Synthesis of ( $\pm$ )-Silphinene," Crimmins, M. T.; Mascarella, S. W. *J. Am. Chem. Soc.* **1986**, *108*, 3435-3438.
13. "Synthesis and Electropolymerization of Distyrylbipyridine and Methylstyrylbipyridine Complexes of Iron, Ruthenium, Osmium, Rhenium, and Cobalt," Leidner, C. R.; Sullivan, B. P.; Reed, R. A.; White, B. A.; Crimmins, M. T.; Murray, R. W.; Meyer, T. J. *Inorganic Chemistry* **1987**, *26*, 882-891.
14. "Intramolecular Photocycloaddition-Cyclobutane Fragmentation: Total Synthesis of the Fenestrane ( $\pm$ )-Laurenene," Crimmins, M. T.; Bredon, L. D. *J. Am. Chem. Soc.* **1987**, *109*, 6199-6200.
15. "Selenium Initiated Cyclization-2, 3-Sigmatropic Rearrangement: Synthesis of the C1 to C10 Fragment of the Milbemycins and the Avermectins," Crimmins, M. T.; Lever, J. G.; Hollis, W. G., Jr.; *Tetrahedron Lett.* **1987**, *28*, 3647-3650.
16. "Studies Directed Toward the Total Synthesis of the Milbemycins: Synthesis of the C11 to C31 Fragment of Milbemycin D," Crimmins, M. T.; Hollis, W. G., Jr.; Bankaitis-Davis, D. M. *Tetrahedron Lett.* **1987**, *28*, 3651-3654.
17. "Radical Cleavage of Cyclobutanes: Alternate Routes to ( $\pm$ )-Silphinene," Crimmins, M. T.; Mascarella, S. W. *Tetrahedron Lett.* **1987**, *28*, 5063-5066.
18. "ChemIntosh and ChemPanion," Software Review, Crimmins, M. T. *J. Am. Chem. Soc.* **1987**, *109*, 6905.
19. "Studies Directed Toward the Total Synthesis of the Milbemycins and Avermectins" in "Studies in Natural Products Chemistry," Crimmins, M. T.; Hollis, W. G., Jr.; O'Mahony, R. Elsevier, 1988; Atta-Ur-Rahman, Ed., p.435-485.
20. "A Total Synthesis of Milbemycin  $\beta_3$ ," Crimmins, M. T.; Bankaitis-Davis, D. M.; Hollis, W. G., Jr. *J. Org. Chem.* **1988**, *53*, 652-657.
21. "Intramolecular [2 + 2] Enone Olefin Photocycloadditions in Natural Product Synthesis," Crimmins, M.T. *Chemical Reviews*, **1988**, *88*, 1453-1473.
22. "A Synthesis of (-)-Talaromycin A," Crimmins, M. T.; O'Mahony, R. *J. Org. Chem.* **1989**, *54*, 1157-1161.
23. "Synthesis of the Spiroketal Fragment of Avermectin B<sub>1b</sub>," Crimmins, M. T.; O'Mahony, R. *Tetrahedron Lett.* **1989**, *30*, 5993-5996.
24. "Enone-Furan Photocycloadditions; A Model for the Synthesis of the Ginkgolides," Crimmins, M. T.; Thomas, J. B. *Tetrahedron Lett.* **1989**, *30*, 5997-6000.

25. "Formal 3+2 Cycloaddition by Addition of Zinc Homo-enolates to Acetylenic Esters," Crimmins, M. T.; Nantermet, P. G. *J. Org. Chem.* **1990**, *55*, 4235-4236.
26. "Synthesis of Spiroketal: A General Approach," Crimmins, M. T.; O'Mahony, R. *J. Org. Chem.* **1990**, *55*, 5894-5900.
27. "Photochemical [2+2] Cycloadditions" in "Comprehensive Organic Synthesis" Vol. 3, Pergamon Press, Oxford, 1991, B.M. Trost, Ed.
28. "Protocols for the Preparation of the Four Possible Stereoisomeric  $\alpha$ -Alkyl- $\beta$ -hydroxy Carboxylic Acids From a Single Chiral Aldol Reagent," Van Draanen, N. A.; Arseniyadis, S.; Crimmins, M. T.; Heathcock, C. H. *J. Org. Chem.* **1991**, *56*, 2499-2506.
29. "Total Synthesis of Bilobalide," Crimmins, M. T.; Jung, D. K.; Gray, J.L. *J. Am. Chem. Soc.* **1992**, *112*, 5445-5447.
30. "An Unusual Radical Fragmentation-Ring Expansion Sequence of Cyclobutyl Carbinyl Radicals," Crimmins, M. T.; Dudek, C. M.; Cheung, A. W.-H *Tetrahedron Lett.* **1992**, *33*, 181-184.
31. "Cerium Chloride Catalyzed Addition of Grignard Reagents to Vinylogous Esters: An Improved Route to 3-Substituted Cyclopentenones," Crimmins, M. T.; Dedopoulou, D. *Synthetic Commun.* **1992**, 1953-1958.
32. "Enone-Alkene Photocycloaddition Reactions," Crimmins, M.T.; Reinhold, T.L. *Organic Reactions*, John Wiley and Sons, Inc. Vol. 44 **1993**, 297-588.
33. "Synthetic Studies on the Ginkgolides: Total Synthesis of ( $\pm$ )-Bilobalide," Crimmins, M. T.; Gray, J. L.; Jung, D. K. *J. Am. Chem. Soc.* **1993**, *115*, 3146-3155.
34. "Homoenolates and Other Functionalized Organometallics. A Review," Crimmins, M. T.; Nantermet, P. G. *Organic Preparations and Procedures International* **1993**, *25*, 41-81.
35. "Formal 3+2 Cycloaddition by Addition of Zinc Homo-enolates to Acetylenic Esters and Amides," Crimmins, M. T.; Nantermet, P. G.; Trotter, B. W.; Vallin, I.M.; Watson, P. S.; McKerlie, L. A.; Reinhold, T. L.; Cheung, A. W. H.; Stetson, K. A.; Dedopoulou, D.; Gray, J. L. *J. Org. Chem.* **1993**, *58*, 1038-1047.
36. "Stereoselective Intramolecular Enone-Olefin Photocycloadditions of 1,7-Dienes: Model Studies on the Synthesis of Lycopodium Alkaloids," Crimmins, M. T.; Watson, P. S. *Tetrahedron Lett.* **1993**, *34*, 199-202.
37. "Siloxanes as Temporary Tethers in [2+2] Photocycloadditions," Crimmins, M. T.; Guise, L. E. *Tetrahedron Lett.* **1994**, *35*, 1657-1660.
38. "Allene" Crimmins, M. T. in *Encyclopedia of Reagents for Organic Synthesis*, Pergamon Press, Oxford, 1994, L.A. Paquette, Ed.

39. "Ketene Diethyl Acetal" Crimmins, M. T. in *Encyclopedia of Reagents for Organic Synthesis*, Pergamon Press, Oxford, 1994, L.A. Paquette, Ed.
40. "Ethylene" Kim-Meade, A.S.; Crimmins, M. T. in *Encyclopedia of Reagents for Organic Synthesis*, Pergamon Press, Oxford, 1994, L.A. Paquette, Ed.
41. "Isobutene" Kim-Meade, A.S.; Crimmins, M. T. in *Encyclopedia of Reagents for Organic Synthesis*, Pergamon Press, Oxford, 1994, L.A. Paquette, Ed.
42. "Asymmetric Synthesis of 3',4'-Di-O-(-)-Camphanoyl-(+)-Cis-Khellactone (DCK), A Potent Anti-HIV Agent," Xie, L.; Crimmins, M. T.; Lee, K. H. *Tetrahedron Lett.* **1995**, *36*, 4529-4532.
43. "Addition of Functionalized Zinc Copper Reagents to Acetylenic Esters: Synthesis of 2-Carboalkoxy Cyclohexenones," Crimmins, M. T.; Guise, L. E.; Lacy, D. B.; Huang, S. J. *Tetrahedron Lett.* **1995**, *36*, 7061-7065.
44. "Trapping of the 1,4-Biradicals with Hydrogen Selenide in the Intermolecular and Intramolecular Photochemical Cycloaddition Reaction," King, B. W., Crimmins, M. T. *ChemTracts Organic* **1995**, *8*, 344-350.
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46. "Asymmetric Total Synthesis of (+)-Milbemycin D," Crimmins, M. T.; Al-awar, R. S.; Vallin, I. M.; O'Mahony, R.; Hollis, W. G., Jr.; Bankaitis-Davis, D. M.; Lever, J. G. *J. Am. Chem. Soc.* **1996**, *119*, 7513-7528.
47. "Regioselective and Stereoselective Reductive Cleavages of Spiroketal Alcohols," Crimmins, M. T.; Rafferty, S. W. *Tetrahedron Lett.* **1996**, *37*, 5649-5652.
48. "Synthesis of Medium Rings by Radical Fragmentation of Cyclobutylcarbinyl Radicals," Crimmins, M. T.; Huang, S. J.; Guise, L. E. *Tetrahedron Lett.* **1996**, *37*, 6519-6522.
49. "A Convenient Synthesis of Unsymmetrical, Substituted  $\gamma$ -Pyrone from Meldrum's Acid," Zawacki, F. J.; Crimmins, M. T. *Tetrahedron Lett.* **1996**, *37*, 6499-6502.
50. "Rearrangement of Cyclobutylcarbinyl Radicals. The Total Synthesis of the Spirovetivane Phytoalexin, ( $\pm$ )-Lubiminol," Crimmins, M. T.; Wang, Z.; McKerlie, L. A. *Tetrahedron Lett.* **1996**, *37*, 8703-8706.
51. "Synthesis and Intramolecular Photocycloadditions of 2-Acyloxy-3-Hexenoyl Cyclohexenones: Diastereoselectivity in the Intramolecular [2+2] Photocycloadditions of Alkenes and Cyclohexenones Tethered by Four Atoms," Crimmins, M. T.; Watson, P. S.; King, B. W.; Guise, L. E. *Tetrahedron* **1997**, *53*, 8963-8974.

52. "Enantioselective Synthesis of Cyclopentenones," U.S. Patent Serial No. 60/017,510 Filed March 10, 1996, Issued July, 1999, Crimmins, Michael T.
53. "A Mechanism of Carbon Monoxide Production from Volatile Anesthetics and Anhydrous Soda Lime in Anesthetic Circuits," Huh, B. K.; Passannante, A. N.; Crimmins M. T. *Anesthesiology* **1997** Suppl. S 87, A1138-A1138.
54. "Effects of Hydrogen Bonding on the Diastereoselectivity in Intramolecular Enone-alkene Photocycloadditions," Crimmins, M. T.; Choy, A. L. *J. Am. Chem. Soc.* **1997**, *119*, 10237-10238.
55. "Asymmetric Aldol Condensations with Titanium Enolates of Acyloxazolidinethiones: Dependence of Selectivity on Amine Base and Lewis Acid Stoichiometry," Crimmins, M. T.; King, B. W.; Tabet, E. A. *J. Am. Chem. Soc.* **1997**, *119*, 7883-7884.
56. "An Asymmetric Aldol - Ring Closing Metathesis Strategy for the Enantioselective Construction of Six to Nine Membered Oxygen Heterocycles," Crimmins, M. T.; Choy, A. L. *J. Org. Chem.* **1997**, *62*, 7548-7549.
57. "The Synthesis of 2-Alkyl-4-Pyrones from Meldrum's Acid," Crimmins, M. T.; Washburn, D. G.; Zawacki, F. J. *Organic Syntheses* 1999.
58. "Double Diastereoselection in Intramolecular Photocycloadditions: A Radical Rearrangement Approach to the Total Synthesis of the Spirovetivane Phytoalexin, ( $\pm$ )-Lubiminol," Crimmins, M. T.; Wang, Z.; McKerlie, L. A. *J. Am. Chem. Soc.* **1998**, *120*, 1747-1756.
59. "Recent Advances in the Asymmetric Synthesis of Carbocyclic Nucleosides," Crimmins, M. T. *Tetrahedron* **1998**, *54*, 9229-9272.
60. "Addition of Metalated Pyrones to  $\beta$ -Alkoxy Aldehydes. Synthesis of Hydroxylated Spiroketal," Crimmins, M. T.; Washburn, D. G.; Katz, J. D.; Zawacki, F. J. *Tetrahedron Lett.* **1998**, *39*, 3439-3442.
61. "A Convenient Synthesis of 3-Butenal," Crimmins, M. T.; Kirincich, S. J.; Wells, A. J.; Choy, A.L. *Synthetic Commun.* **1998**, *28*, 3675-3679.
62. "Synthesis of the AB Spiroketal Subunit of Spongistatin 1 (Altohyrtin A): The Pyrone Approach," Crimmins, M.T.; Washburn, D.G. *Tetrahedron Lett.* **1998**, *39*, 7487-7490.
63. "Asymmetric Total Synthesis of Callystatin A: Asymmetric Aldol Additions with Titanium Enolates of Acyloxazolidinethiones," Crimmins, M. T.; King, B. W. *J. Am. Chem. Soc.* **1998**, *120*, 9084-9085.
64. "Pinacol-Type Rearrangements of Intramolecular Photocycloadducts: Application of the 2,2-Dimethyl-4-Pentenoate Protecting Group," Crimmins, M. T., Carroll, C. A.; Wells, A. J. *Tetrahedron Lett.* **1998**, *39*, 7005-7008.

65. "An Asymmetric Aldol - Ring Closing Metathesis Strategy for the Enantioselective Construction of Six to Nine Membered Oxygen Heterocycles: A Formal Total Synthesis of (+)-Laurencin," Crimmins, M. T.; Choy, A. L. *J. Am. Chem. Soc.* **1999**, *121*, 5663-5660.
66. "Total Synthesis of ( $\pm$ )-Ginkgolide B," Crimmins, M. T.; Pace, J. M.; Nantermet, P. G.; Kim-Meade, A. S.; Thomas, J. B.; Wagman, A. S.; Watterson, S. H. *J. Am. Chem. Soc.* **1999**, *121*, 10249-10250.
67. "Total Synthesis of (+)-Laurencin: An Asymmetric Alkylation - Ring Closing Metathesis Approach to the Synthesis of Medium Ring Ethers," Crimmins, M. T.; Emmitte, K. A. *Organic Lett.* **1999**, *1*, 2029-2032.
68. "A Solution to the Preparation of Crossed Photocycloadducts in Intramolecular [2+2] Photocycloadditions," Crimmins, M. T.; Hauser, E. B. *Organic Lett.* **2000**, *2*, 281-284.
69. "Synthesis of the C1 to C13 Fragment of Leucascandrolide A," Crimmins, M. T.; Carroll, C. A.; King, B. W. *Organic Lett.* **2000**, *2*, 597-599.
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71. "Solid Phase Synthesis of Carbocyclic Nucleosides," Crimmins, M. T.; Zuercher, W. J. *Organic Lett.* **2000**, *2*, 1065-1067.
72. "Synthesis of the CD Spiroketal Subunit of Spongistatin 1 (Altohyrtin A): The Pyrone Approach," Crimmins, M. T.; Katz, J. D. *Organic Lett.* **2000**, *2*, 957-960.
73. "Total Synthesis (+)-Prelaureatin and (+)-Laurallene," Crimmins, M. T.; Tabet, E. A. *J. Am. Chem. Soc.* **2000**, *122*, 5473-5476.
74. "Ring-Closing Metathesis for the Synthesis of Medium Ring Ethers: Conformational Effects on the Rates of Ring Closure," Crimmins, M. T.; Emmitte, K. A. *Synthesis* **2000**, 899-903.
75. "Total Synthesis of ( $\pm$ )-Ginkgolide B," Crimmins, M. T.; Pace, J. M.; Nantermet, P. G.; Kim-Meade, A. S.; Thomas, J. B.; Wagman, A. S.; Watterson, S. H. *J. Am. Chem. Soc.* **2000**, *122*, 8453-8463.
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77. "An Efficient Enantioselective Approach to Nucleoside Analogs," Crimmins, M. T.; King, B. W., Zuercher, W. J.; Choy, A. L. *J. Org. Chem.* **2000**, *64*, 8499-8509.
78. "Asymmetric Aldol Additions: Use of Titanium Tetrachloride and (-)-Sparteine for the Soft Enolization of N-Acyl Oxazolidinones, Oxazolidinethiones and Thiazolidinethiones,"

- Crimmins, M. T.; King, B. W.; Tabet, E. A., Chaudhary, K. *J. Org. Chem.* **2001**, *65*, 894-902.
79. "Asymmetric Total Synthesis of (-)-Isolaurallene," Crimmins, M. T.; Emmitte, K. A. *J. Am. Chem. Soc.* **2001**, *123*, 1533-1534.
80. "An Aldol Approach to the Synthesis of the EF Fragment of Spongistatin 1," Crimmins, M. T.; Katz, J. D.; Captain, L. F.; Tabet, E. A.; Kirincich, S. J. *Organic Lett.* **2001**, *3*, 949-952.
81. "Total Synthesis of (-) - Trehazolin via an Asymmetric Aldol - Ring Closing Metathesis Strategy," Crimmins, M. T.; Tabet, E. A. *J. Org. Chem.* **2001**, *65*, 4012-4108.
82. "Ring Closing Metathesis for the Formation of Medium Ring Ethers: Total Synthesis of Isolaurallene," Crimmins, M. T.; Emmitte, K. A.; Choy, A. L. *Tetrahedron* **2002**, *58* 1817-1834.
83. "Regioselectivity in the Palladium Catalyzed Addition of Carbon Nucleophiles to Carbocyclic Derivatives," Hoke, M. E.; Brescia, M.-R.; Bogaczyk, S; DeShong, P.; King, B. W.; Crimmins, M. T. *J. Org. Chem.* **2002**, *66*, 327-335.
84. "Asymmetric Total Synthesis of (-)-Laulimalide. Exploiting the Asymmetric Glycolate Alkylation," Crimmins, M. T.; Stanton, M. G.; Allwein, S. P. *J. Am. Chem. Soc.* **2002**, *124*, 5958-5959.
85. "Asymmetric Total Synthesis of Spongistatins 1 and 2," Crimmins, M. T.; Katz, J. D.; Washburn, D. G.; Allwein, S. P.; MacAtee, L. F. *J. Am. Chem. Soc.* **2002**, *124*, 5661-5663.
86. "Synthetic Approaches to the Microtubule Stabilizing Agent (-)-Laulimalide," Crimmins, M. T. *Current Opinion in Drug Discovery and Development* **2002**, *5*, 944-959.
87. "Anti Selective Aldol Reactions with Titanium Enolates of *N*-Glycolyloxazolidinethiones," Crimmins, M. T.; McDougall, P. J. *Organic Lett.* **2003**, *5*, 591-594.
88. "Enantioselective Synthesis of (+)-Obtusenyne," Crimmins, M. T.; Powell, M. T. *J. Am. Chem. Soc.* **2003**, *125*, 7592-7595.
89. "Enantioselective Total Synthesis of Rogioloxepane A," Crimmins, M. T.; Debaille, A. *Org. Lett.* **2003**, *5*, 3009-3011.
90. "Enantioselective Total Synthesis of (+)-Leucascandrolide A Macrolactone," Crimmins, M. T.; Siliphivanh, P. *Org. Lett.* **2003**, *5*, 4641-4644.
91. "Enantioselective Synthesis of the G-Ring of Brevetoxin A," Crimmins, M. T.; Cleary, P. A. *Heterocycles* **2003**, *61*, 87-92.
92. "A Unified Approach to the Enantioselective Synthesis of 2,6-*Cis* and *Trans* Disubstituted Tetrahydropyranones," Crimmins, M. T.; Diaz, C. J.; Emmitte, K. A. *Heterocycles* **2004**, *62*, 179-183.



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94. "An Intramolecular Diels-Alder Strategy for the Construction of Eunicellin Diterpenes, Enantioselective Total Synthesis of Ophirin B," Crimmins, M. T.; Brown, B. H. *J. Am. Chem. Soc.* **2004**, *126*, 10264-10266.
95. "Enantioselective Total Synthesis of Gigantecin: Exploiting the Asymmetric Glycolate Aldol Reaction," Crimmins, M. T.; She, J. *J. Am. Chem. Soc.* **2004**, *126*, 12790-12791.
96. "A Convergent Coupling Strategy for the Formation of Polycyclic Ethers: Stereoselective Synthesis of the BCDE fragment of Brevetoxin A," Crimmins, M. T.; McDougall, P. J.; Emmitte, K. A. *Org. Lett.* **2005**, *7*, 4033-4036.
97. "Enantioselective Synthesis of Apoptolidin Sugars," Crimmins, M. T.; Long, A., *Org. Lett.* **2005**, *7*, 4157-4160.
98. "Enantioselective Synthesis of Apoptolidinone: Exploiting the Versatility of Thiazolidinethione Chiral Auxiliaries," Crimmins, M. T.; Christie, H. S.; Chaudhary, K.; Long, A. *J. Am. Chem. Soc.* **2005**, *127*, 13810-13812.
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100. "An Intramolecular Diels-Alder Approach to the Eunicellins: Enantioselective Total Syntheses of Ophirin B and Astrogorgin," Crimmins, M. T.; Brown, B. H.; Plake, H. R. *J. Am. Chem. Soc.* **2006**, *128*, 1371-1378.
101. "Stereoselective Synthesis of the GHIJ fragment of Brevetoxin A," Crimmins, M. T.; Zuccarello, J. L.; Cleary, P. A.; Parrish, J. D. *Org. Lett.* **2006**, *8*, 159-162.
102. "Enantioselective Total Synthesis of FD-891," Crimmins, M. T.; Caussanel, F. *J. Am. Chem. Soc.* **2006**, *129*, 3128-3129.
103. "A Hetero-Diels-Alder Approach to Complex Pyrones: An Improved Synthesis of the Spongistatin AB Spiroketal," Crimmins, M. T.; Smith, A. C. *Org. Lett.* **2006**, *8*, 1003-1006.
104. "Total Synthesis of Bistramide A," Crimmins, M. T.; DeBaillie, A. C. *J. Am. Chem. Soc.*, **2006**, *129*, 4936-4937.
105. "An Iterative Aldol Approach to the Erythromycins: A Formal Synthesis of 6-Deoxyerythronolide B," Crimmins, M. T.; Slade, D. J. *Org. Lett.* **2006**, *8*, 2191-2194.

106. "Selective Olefin Cross-Metathesis; Total Synthesis of Mucocin," Crimmins, M. T.; Zhang, Y.; Diaz, F. *Org. Lett.* **2006**, *8*, 2369-2372.
107. "Total Synthesis of SCH-351448," Crimmins, M. T.; Smalley, G.A. *Org. Lett.* **2006**, *8*, 2887-2890.
108. "An Improved Synthesis of the ABCDE fragment of Brevetoxin A," Crimmins, M. T.; McDougall, P. J.; Ellis, J. M. *Org. Lett.* **2006**, *8*, 4079-4082.
109. "Synthesis of the C29-C37 Bicyclic ether Core of (+)-Sorangicin A," Crimmins, M. T.; Haley, M. W. *Org. Lett.* **2006**, *8*, 4223-4225.
110. Lampe, John W.; Plourde, Robert; She, Jin; Vittitow, Jason L.; Watson, Paul S.; Crimmins, Michael T.; Slade, David J. "Preparation of 2-(2-oxothiazolidin-4-yl)tetrahydropyran-2-ol derivatives related to Latrunculin A or Latrunculin B as cytoskeletal active compounds for use against disorders involving actin polymerization." U.S. Pat. Appl. Publ. (2006), 45pp.
111. "Highly Selective Acetate Aldol Additions Using Mesityl Substituted Chiral Auxiliaries," Crimmins, M. T.; Shamszad, M. *Org. Lett.* **2007**, *9*, 149-152.
112. "Enantioselective Total Synthesis of 11-Acetoxy-4-deoxyasbestinin D and Asbestinin 12" Crimmins, M. T.; Ellis, J. M. *J. Org. Chem.* **2008**, *73*, 1649-1660.
113. "Total Synthesis of C2-C11 Cyclized Cembranoids," Ellis, J. M.; Crimmins, M. T. *Chem. Rev.* **2008**, 5278-5298.
114. "Total Synthesis of Brevetoxin A," Crimmins, M. T.; Zuccarello, J. L.; Ellis, J. M.; McDougall, P. J.; Haile, P. C.; Emmitte, K. A.; Parrish, J. D. *Org. Lett.* **2009**, *11*, 489-492.
115. "Enantioselective Total Synthesis of Apoptolidin A," Crimmins, M. T.; Christie, H. C.; Chaudhary, K.; Long, A. *Org. Lett.* **2009**, *11*, 831-834.
116. "Enantioselective Total Synthesis of (-)-Pironetin: Iterative Aldol Reactions of Thiazolidinethiones," Crimmins, M. T.; Dechert, A.-M. R. *Org. Lett.* **2009**, *11*, 1635-1638.
117. "Enantioselective total Synthesis of (+)-Pyranicin," Crimmins, M. T.; Jacobs, D. L. *Org. Lett.* **2009**, *11*, 2695-2698.
118. "Total Synthesis of Irciniastatin A (Psymberin)," Crimmins, M. T.; Stevens, J. M.; Schaaf, G. M. *Org. Lett.* **2009**, *11*, 3990-3993.
119. "Enantioselective Total Synthesis of Brevetoxin A: Unified Strategy for the B, E, G, and J Subunits," Crimmins, M. T.; Ellis, J. M.; Emmitte, K. A.; Haile, P. A. McDougall, P. J.; Parrish, J. D.; Zucarello, J. L. *Chem. Eur. J.* **2009**, *15*, 9223-9234.

120. "Enantioselective Total Synthesis of Brevetoxin A: Convergent Coupling Strategy and Completion," Crimmins, M. T.; Ellis, J. M.; McDougall, P. J.; Zucarello, J. L. *Chem. Eur. J.* **2009**, *15*, 9235-9244.
121. "A Highly Convergent Approach toward (-)-Brevenal," Crimmins, M. T.; Shamszad, M.; Mattson, A. E. *Org. Lett.* **2010**, *12*, 2614-2617.
122. "Synthesis of the Bis-tetrahydropyran Core of Amphidinol 3," Crimmins, M. T.; Martin, T. J.; Martinot, T. A. *Org. Lett.* **2010**, *12*, 3890-3893.
123. "Enantioselective Total Synthesis of Spirofungins A and B," Crimmins, M. T.; O'Bryan, E. A. *Org. Lett.* **2010**, *12*, 4416-4419.
124. Lampe, John W.; Plourde, Robert; She, Jin; Vittitow, Jason L.; Watson, Paul S.; Crimmins, Michael T.; Slade, David J. "Cytoskeletal active compounds, composition and use" US 2010/0130572 A1 (2010), 42pp.
125. "Synthesis of the Proposed Structure of Briarellin J," Crimmins, M. T.; Mans, Mark C. *Org. Lett.* **2010**, *12*, 5028-5031.
126. "3-Propionyl-4-benzyl-2-thiazolidinethione: Synthesis and Aldol Reactions," Crimmins, M. T.; Christie, H. C. *Org. Syn.* **2011**, *88*, 364-376.
127. "Formal Synthesis of the Bryostatin Northern Hemisphere: Asymmetric Synthesis of the B Ring and C1-C9 Fragment," Nakagawa-Goto, K.; Crimmins, M. T. *Synlett*, **2011**, 1413-1418.
128. "Synthetic Approaches to the Bottom Half Fragment for Bryostatin 11," Nakagawa-Goto, K. Michael T. Crimmins, M.T. *Synthesis*, **2011**, 1555-1558.
129. "Toward the Total Synthesis of Byostatin 11: Stereoselective Construction of the C13-Exocyclic Enoate in the C1-C16 Fragment," Nakagawa-Goto, K.; Crimmins, M. T. *Synthetic Commun.* **2011**, *41*, 3032-3038.
130. "Formal Synthesis of (+)-Sorangicin A," Crimmins, M. T.; Haley, M. W.; O'Bryan, E. A. *Org. Lett.* **2011**, *13*, 4712-4715.
131. "Total Syntheses of (+)-Vigulariol and (-)-Sclerophytin A," Crimmins, M. T.; Stauffer, C. M. *Org. Lett.* **2011**, *13*, 4890-4893.
132. "Amino Acid-Derived Heterocyclic Chiral Auxiliaries: The Use of Oxazolidinones, Oxazolidinethiones, Thiazolidinethiones, and Imidazolidinones," Shamszad, M.; Crimmins, M. T. in *Comprehensive Chirality*, Elsevier, 2012.
133. "Enantioselective Synthesis of the Proposed Structure of Aldingenin B," Crimmins M. T.; Hughes, C. O. *Org. Lett.* **2012**, *14*, 2168-2171.

134. "N-Acyl Oxazolidinthiones and Thiazolidinethiones as Auxiliaries in Aldol Reactions," in "Modern Methods in Stereoselective Aldol Reactions," R. Marhwald, Ed. Wiley. *in press*.
135. "Enantioselective Synthesis of the C1-C6 and C7-C23 Fragments of the Proposed Structure of Iriomoteolide 1a," Crimmins M. T.; Dechert, A.-M. R. *Org. Lett.* **2012**, *14*, 2366-2369.
136. "A Modular, Stereoselective Approach to Spiroketal Synthesis," Crimmins, M. T.; Azman, A. M. *Synlett*, **2012**, *23*, 1489-1492.
137. "Dianionic Claisen Rearrangements for the Construction of Quaternary Carbon Centers: Synthesis of the Briarane Skeleton," Crimmins, M. T.; Zhang, Y. Williams, P. *in preparation*.

## INVITED RESEARCH SEMINARS

125. Givaudan Flavors, Corp., Cincinnati, OH	9/21/2010
124. Gordon Research Conference on Reactions and Processes	7/21/2010
124. Ernest Guenther Award Address, ACS National Meeting, SF	3/23/2010
123. Massachusetts Institute of Technology, Cambridge, MA	3/12/2009
122. NC ACS Distinguished Speaker Lecture, RTP, NC	10/25/2008
121. Belgian Organic Synthesis Symposium, Ghent, Belgium	7/14/2008
120. UNC School of Pharmacy, Chapel Hill, NC	4/9/2008
119. Tenth International Conference on Chemistry of Antibiotics	8/13/2007
118. Glaxo-Smith Kline, Research Triangle Park, NC	3/28/2007
117. Vanderbilt University, Nashville, TN	12/11/2006
116. University of Richmond, Richmond, VA	12/8/2006
115. Loughborough Synthesis Symposium, University of Loughborough	11/8/2006
114. AstraZeneca Pharmaceuticals, Charnwood, England	11/7/2006
113. Philadelphia Organic Chemists Club Symposium, Philadelphia, PA	10/16/2006
112. Gordon Research Conference on Heterocyclic Chemistry, Newport, RI	7/5/2006
111. Polyethers Synthesis Symposium Pacificchem, Honolulu	12/15/2005
110. Princeton Fall Organic Symposium, Princeton, NJ	9/30/2005
109. Proctor and Gamble Pharmaceutical Colloquium	8/19/2005
108. Bristol-Myers-Squibb, New Brunswick, NJ	5/19/2005
107. Rhodia-Chirex Symposium, Amelia Island, FL	4/17/2005
106. University of Chicago, Chicago, IL	12/3/2004
105. Purdue University, West Lafayette, IN	11/2/2004
104. Gulf Coast Chemistry Conference, Pensacola, FL	9/10/2004
103. Gordon Research Conference on Natural Products, Tilton, NH	7/25/2004
102. Glaxo-Smith Kline, Philadelphia, PA	7/9/2004
101. French American Chemical Society X, Charleston, SC	6/9/2004
100. Herty Medal Address, Atlanta, GA	5/24/2004
99. Bristol-Myers-Squibb, Wallingford, CT	5/20/2004
98. University of Georgia, Athens, GA	3/25/2004
97. Pfizer Ann Arbor, Ann Arbor, MI	2/25/2004
96. SERMACS, Atlanta GA	11/18/2003
95. PPD Discovery, RTP, NC	10/8/2003
94. IUPAC Meeting Ottawa, Ontario	8/12/2003
93. Bayer Pharmaceuticals, West Haven, CT	6/26/2003
92. Pfizer, Inc., Groton, CT	6/25/2003
91. University of Michigan, Ann Arbor, MI	5/6/2003
90. Polyethers Synthesis Symposium ACS Meeting New Orleans, LA	3/23/2003
89. Schering Corporation, Bloomfield, NJ	3/11/2003
88. University of Delaware, Newark, DE	2/21/2003
87. SUGEN Pharmaceuticals, San Francisco, CA	11/14/2002
86. University of Colorado, Boulder, CO	10/22/2002
85. Gordon Research Conference on Reactions and Processes	7/26/2002
84. University of Minnesota, Minneapolis, St-Paul, MN	6/14,15/2002
83. Abbott Labs, Abbott Park, IL	5/08/2002
82. University of Illinois at Chicago, Chicago, IL	5/07/2002
81. University of Pennsylvania, Philadelphia, PA	4/15/2002

80. University of Ottawa, Ottawa, Ontario, Canada	3/2/2002
79. Merck Frost, Montreal, Quebec, Canada	3/1/2002
78. Indiana University, Bloomington, IN	1/14/2002
77. University of Notre Dame, South Bend, IN	12/05/2001
76. University College London, London, UK	11/14/2001
75. Merck, Terlings Park, UK	11/13/2001
74. University of Leeds, Leeds, UK	11/12/2001
73. University of Southampton, Southampton, UK	11/09/2001
72. Oxford University, Oxford, UK	11/08/2001
71. Schering Corporation, Bloomfield, NJ	9/26/2001
70. Arthur C. Cope Scholar Award Address, Chicago, IL	8/28/2001
69. Bristol-Myers-Squibb Company, Princeton, NJ	6/4/2001
68. R.W. Johnson Pharmaceutical Research Institute, Raritan, NJ	4/18/2001
67. AstraZeneca Pharmaceuticals, Wilmington, DE	2/06/2001
66. University of Texas at Austin, Austin TX	1/19/2001
65. Texas A and M University, College Station, TX	1/18/2001
64. University of Missouri, Columbia, MO	11/17/2000
63. Pennsylvania State University, State College, PA	11/6/2000
62. Colorado State University, Fort Collins, CO	10/23/2000
61. Gulf Coast Chemistry Conference, Pensacola, FL	9/15/2000
60. Wyeth-Ayerst, Pearl River, NY	3/3/2000
59. University of California at Irvine, Irvine, CA	12/11/99
58. Chiron Corporation, Emeryville, CA	10/11/99
57. Merck, Sharp, and Dohme Co., Raway, NJ	5/12/99
56. Merck, Sharp, and Dohme Co., West Point, PA	5/11/99
55. Dupont, Wilmington DE	9/30/98
54. Eli Lilly and Co., Indianapolis, IN	9/15/98
53. Ohio State University, Columbus, OH	12/11/97
52. Hendrix College, Conway, AR	11/17/97
51. University of Maryland, College Park, MD	11/4/97
50. Sepracor, Inc; Marlborough, MA	10/16/97
49. International Symposium on Olefin Metathesis, St. Augustine, FL	7/16/97
48. Wayne State University, Detroit, MI	1/17/97
47. Research Triangle Institute, Research Triangle Park, NC	1/10/97
46. SUNY Stony Brook, Stony Brook, NY	11/14/96
45. Wake Forest University, Winston-Salem, NC	4/17/96
44. Indiana University, Bloomington, IN	2/19/96
43. Ciba Geigy, Inc., Summitt, NJ	11/15/95
42. University of Richmond, Richmond, VA	9/22/95
41. Ohio University, Athens, OH	4/21/95
40. California Institute of Technology, Pasadena, CA	3/16/95
39. University of California at Berkeley, Berkeley, CA	3/15/95
38. Stanford University, Stanford, CA	3/14/95
37. Emory University, Atlanta, GA	11/30/94
36. Burroughs-Wellcome Company, Research Triangle Park, NC	5/20/94
35. Pfizer Inc., Groton, CT	5/12/94
34. Bristol-Myers-Squibb Company, New Brunswick, NJ	1/20/94
33. Glaxo, Inc., Research Triangle Park, NC	9/23/93

32. Gordon Research Conference on Heterocycles, New Hampton, NH 7/8/93
31. R.W. Johnson Pharmaceutical Research Institute, Raritan, NJ 12/5/91
30. Clemson University, Clemson, S.C. 11/21/91
29. Merck, Sharp, and Dohme Co., West Point, PA 11/9/90
28. University of Florida, Gainesville, FL 2/15/90
27. Duke University, Durham, NC 12/1/89
26. American Cyanamid Company, Princeton, NJ 5/12/89
25. University of Virginia, Charlottesville, VA 3/17/89
24. Rhone-Poulenc, Research Triangle Park, NC 2/7/89
23. University of Texas, Austin, TX 1/27/89
22. Texas A and M University, College Station, TX 1/26/89
21. University of Colorado, Boulder, CO 11/30/88
20. Ohio State University, Columbus, OH 11/10/88
19. Proctor and Gamble Laboratories, Miami Valley, OH 5/22/88
18. Smith-Kline and French Laboratories, Philadelphia, PA 1/29/88
17. Gordon Research Conference on Photochemistry, East Hanover, NH 7/12/87
16. Merck, Sharp, and Dohme Company, Rahway, NJ 5/15/87
15. Sandoz Research Institute, East Hanover, NJ 3/13/87
14. Florida State University, Tallahassee, FL 3/5/87
13. Wake Forest University, Winston-Salem, NC 2/4/87
12. Stuart Pharmaceuticals, Wilmington, DE 2/3/87
11. University of Akron, Akron, OH 1/27/87
10. Swarthmore College, Swarthmore, PA 9/26/86
9. North Carolina State University, Raleigh, NC 2/24/86
8. Upjohn Company, Kalamazoo, MI 9/27/85
7. Gulf Coast Chemistry Conference, Pensacola, FL 9/20/85
6. Schering Corporation, Bloomfield, NJ 6/6/85
5. E.I. Squibb and Sons Company, Lawrenceville, NJ 9/16/84
4. E.I. Squibb and Sons Company, New Brunswick, NJ 9/17/84
3. Burroughs-Wellcome Company, Research Triangle Park, NC 2/10/84
2. Union Carbide Company, Research Triangle Park, NC 4/19/83
1. University of North Carolina, Department of Pharmacy 10/15/81

## DEPARTMENTAL COMMITTEES

Secretary to Faculty (1981-82)  
Undergraduate Studies Committee (1982-85)  
    Ad Hoc Curriculum Study Committee (1983-84)  
Departmental A.B. Advisor (1982-86)  
Fall Picnic Committee (1982-86)  
Co-organizer NSF 400 MHz NMR Proposal (1984 with M.S. Brookhart)  
Safety Committee (1985-87)  
Organic Search Committee (1984, 1985, 1989)  
Faculty Supervisor R-24B and EM360 NMR Spectrometers (1984-86)  
Organizer, NSF 200 MHz NMR Proposal (1986)  
Undergraduate Studies Committee (1987-89)  
Graduate Studies Committee (1987-90)  
Kenan Foundation Committee (1988)  
Grievance Committee (1987-88)  
Secretary, Organic Division (1987-91)  
Faculty Search Committee (1989-90)  
Five Year Planning Committee (1989-90)  
UNC-Glaxo Symposium Committee (1989-)  
Continuing Education Committee (1989-91)  
Visiting Professors Committee (1990-92)  
Vice-Chairman for Facilities and Space (1992-93)  
Departmental Short Course Program (1982, 1992)  
Colloquium Committee (1992-1995)  
Buildings and Beautification Committee (1992-95)  
Ad Hoc Committee on Tenure and Promotions Procedures (1993)  
Ad Hoc Committee on Organizing Response to External Review (1994)  
Ad Hoc Committee on Tenure and Promotions (1994-95)  
Biological Chemistry Search Committee (1994-95)  
Vice Chairman for Graduate Studies (1995-2000)  
Organizer, NSF Three Year NMR Development Proposal (1995)  
Planning Committee (1996)  
Chair, Organic Search Committee (1996)  
NMR Committee (1997-2000)  
Organic Search Committee (1998)  
Development Committee (1999-)  
Visiting Lecturers Committee (2000-2005)  
Chair, Organic Search Committee (2000)  
Ad Hoc Committee on Tenure and Promotions (2001)  
Ad Hoc Committee on External Review (2001)  
Ad Hoc Committee on Building Planning (2001)  
Ad Hoc Committee on Tenure and Promotions (2002)  
Ad Hoc Committee on Tenure and Promotions (2003)  
Ad Hoc Committee on Tenure and Promotions (2005)  
Post Tenure Review Committee (2004-2007)  
Slayton A. Evans Lecture Committee (2004-2005)  
Chair, Strategic Planning Committee (2005-2007)



## DEPARTMENTAL TEACHING

Chemistry 61, Organic Chemistry I: Fall '82, '83, '88, '89, '92, '95, '98, '99, '01, '02, '03, '05  
Chemistry 65H, Organic Chemistry I, Honors: Fall '90, '96  
Chemistry 66H, Organic Chemistry II, Honors: Spring '01, '02  
Chemistry 62, Organic Chemistry II: Spring '85, '86, '93, '96, '05, '06  
Chemistry 160, Intermediate Organic Chemistry: Fall '87  
Chemistry 166, Advanced Organic Chemistry I: Fall '84, '85, '93, '94, '00  
Chemistry 168, Synthetic Aspects of Organic Chemistry: Spring '83, '84, '88, '89, '90, '91, '94, '97, '98, '99, '00, '03, '04, '07  
Chemistry 41L, Organic and Analytical Chemistry Laboratory: Fall '81  
Chemistry 42L, Organic and Analytical Chemistry Laboratory: Fall '81  
Chemistry 62L, Organic Chemistry Laboratory: Spring '88, '95  
Chemistry 99, Undergraduate Research in Chemistry: Fall '81-'95, Spring '82 - '96  
Chemistry 261, Seminar in Organic Chemistry: Fall, '83, '92, '04  
Chemistry 262, Seminar in Organic Chemistry: Spring '87, '95  
Chemistry 265, Special Topics in Organic Chemistry: Heterocyclic Chemistry: Spring '91  
Chemistry 265, Special Topics in Organic Chemistry: Photochemistry: Spring '93  
Chemistry 265, Special Topics in Organic Chemistry: Advanced Topics in Synthesis, Spring '97  
Chemistry 361, Research in Organic Chemistry: Fall '82 - '11. Spring '82 - '12  
Chemistry 394, Dissertation: Fall '82 - '11. Spring '82 - '12

## UNIVERSITY SERVICE

Faculty Council, elected Member (1986-89; 1995-1998), Agenda Committee (1997-98)  
Faculty Advisor, Alpha Epsilon Delta Pre-Medical Fraternity (1986-91)  
University Committee on Research (1993-96), Chair (1995-96)  
Member-Administrative Board of the General College (1991-94)  
Member-Institute for Natural Products Chemistry with the School of Pharmacy and  
Department of Medicinal Chemistry (1984 -)  
Vice Chancellor's Research Advisory Committee (1995-96)  
Chair, Associate Dean's Oversight Committee on Conflict of Interest for Startup  
Companies (1996-97)  
Member-Administrative Board of the Graduate School (1997-2000)  
University Teaching Awards Committee, Chair, Tanner-Friday Subcommittee (1999-00)  
Freshman Reading Selection Committee (2000)  
Member Lineberger Comprehensive Cancer Center (2001-)  
Provost's Committee to Evaluate Facilities and Administrative Funds (2002)  
Dean, School of Pharmacy Search Committee (2002)  
Provost's Teaching Assistant Advisory Task Force (2002-2003)  
Chair, Salary Equity Committee (2003)  
Chair, Associate Dean's Oversight Committee on Conflict of Interest (2005)  
Search Committee for Joint Appointment in Chemistry-Medicinal Chemistry (2006)  
OASIS Advisory Committee (2007-2009)  
Science Admissions Advisory Committee (2007-2009)  
Science Complex Core Committee (2007-2011)  
Genomic Science Building Core Committee (2007-2012)  
Office of Technology and Development Advisory Committee (2008-)

UNC Best Board of Directors, UNC School of Education (2009-)  
 Science Advisory Board, Carolina Center Integrative Chemical Biology Drug Discovery  
 Board of Directors, Carolina Center Integrative Chemical Biology Drug Discovery  
 (2009-)  
 Central Steering Committee, Carolina Center Cancer for Nanotechnology Excellence  
 (2009-)  
 Board of Governors, Statistical and Applied Mathematical Sciences Institute (2009-)  
 IT Computing Governance Committee (2009-)  
 Facilities Planning Committee (2009-)  
 Facilities Use Committee (2009-)  
 Space Use Committee (2009-)  
 Facilities Work Group (2009-)  
 Classroom Policy Steering Committee (2010-)  
 Office of Sponsored Research Advisory Committee (2010-)  
 Carolina Cancer Center Nanotechnology Excellence (CCCNE) Board of Governors  
 (2009-)  
 Sustainability Advisory Committee (2010-)  
 Review Committee, Dean, School of Medicine (2011)  
 Executive Council, Triangle Materials Science Research and Engineering Center (2011-)  
 College of Arts and Sciences Conflict of Interest Committee (2011-)  
 College of Arts and Sciences Applied Sciences Task Force (2011-12)  
 UNC Biomedical Research Imaging Center Advisory Board (2011-)

#### REGIONAL-NATIONAL SERVICE

Membership Committee of NC Section of American Chemical Society (1983-1990)  
 Nominations Committee of NC Section of American Chemical Society (1987, 1996)  
 Secretary, NC Section of American Chemical Society (1988-90)  
 Canvassing Committee for ACS Award for Creativity in Organic Synthesis (1989-91), Chair (91)  
 Invited Observer, IUPAC Commission on Nomenclature, IUPAC Congress, Boston MA (1987)  
 Chairman-Elect, NC Section of American Chemical Society (1993)  
 Chairman, NC Section of American Chemical Society (1994)  
 Invited Expert Analyst: *ChemTracts Organic Chemistry* (1993-)  
 NIH Biorganic and Natural Products Study Section Special Emphasis Panel (November, 1995)  
 NIH Grantsmanship Workshop Panel, ACS National Meeting, Washington, DC, 2000  
 NIH Medicinal Chemistry A Study Section, ad hoc member (Feb. 1996, Oct. 2000, Mar. 2003)  
 NIH SSSB Study Section, March 2002, November 2002, November 2003, July 2004  
 Organizer, IUPAC Symposium on Stereoselective Synthesis, IUPAC Meeting, August 11-14, 2003  
 Co-Chair, Symposium Honoring Ernest Eliel, SERMACS, 2004  
 Editorial Advisory Board, *Journal of Organic Chemistry* (2004-2008)  
 Editorial Board, *Organic and Biomolecular Chemistry* (2008-)  
 NIH Synthetic and Biological Chemistry A Study Section, member (2005-2009)

Referee-	Journal of the American Chemical Society	Organic Letters
	Journal of Organic Chemistry	Tetrahedron Letters
	Tetrahedron: Asymmetry	Tetrahedron
	Journal of Carbohydrate Chemistry	Chemical Reviews
	Canadian Journal of Chemistry	Synlett
	Synthetic Communications	Organic Reactions

Journal of Natural Products  
Bioorganic and Medicinal Chemistry

Research

Bioorganic and Medicinal Chemistry Letters  
Journal of the Chemical Society  
Journal of the Chemical Society: Chemical Communications  
Organic and Biomolecular Chemistry

Reviewer-

Research Corporation  
National Science Foundation  
Sloan Foundation  
North Carolina Board of Science and Technology  
Arkansas Board of Science and Technology  
NIH Biorganic and Natural Products SS Special Emphasis Panel (November, 1995)  
NIH Medicinal Chemistry A Study Section, ad hoc member (Feb, 1996; Oct. 2000, March 2003)  
NIH Physical Biochemistry Study Section, ad hoc member (October, 1997)  
NIH SSSB Study Section, March 2002, November 2002, November 2003, July 2004  
Research Grants Council of Hong Kong  
NIH Synthetic and Biological Chemistry A Study Section, member (2005-2009)

Synthesis  
Journal of Chemical  
Organometallics  
Nature  
Petroleum Research Fund  
Jeffrus Trust  
International Science Federation

## DISSERTATIONS AND THESES

- Lever, John G., Ph.D. 1986 "Studies Toward the Synthesis of the Milbemycins and Avermectins. Synthesis of the Hexahydrobenzofuran Subunit" currently employed Milliken Research Corporation, Spartanburg, SC
- Bankaitis, Danute M., Ph.D. 1986 "Studies Toward the Synthesis of the Milbemycins and Avermectins. A Formal Synthesis of Milbemycin  $\beta_3$ " currently employed Amgen Corporation
- Mascarella, S. Wayne, Ph.D. 1986 "The Total Synthesis of ( $\pm$ )-Silphinene" currently employed Research Triangle Institute, Research Triangle Park, NC
- Deloach, Joseph A., Ph.D. 1987 "A Photochemical Approach to the Synthesis of Cyclopentanoid Natural Products" currently employed Eastman Chemical Co., Kingsport, TN
- Gould, Lori D., Ph.D. 1987 "Total Synthesis of Laurenene"
- Hollis, W. Gary, Jr., Ph.D. 1988 "Studies Toward the Synthesis of Milbemycin D" currently employed Roanoke College, Roanoke, VA
- O'Mahony, Rosemary, Ph.D. 1988 "Studies Toward the Synthesis of Spiroketal Containing Natural Products: Talaromycin A and Avermectin B1b" currently employed Chimerix, Inc., Durham, NC
- Dudek, Caroline M., Ph.D. 1989 "Studies Toward the Total Synthesis of Subergorgic Acid" currently employed Dupont, Brookline, MA
- Thomas, James B., Ph.D. 1990 "Studies Toward the Synthesis of Ginkgolide B" currently employed Research Triangle Institute, Research Triangle Park, NC
- Stetson, Katherine M., M.S. 1990 "Studies in Asymmetric Photocycloadditions," currently employed Glaxo Smith Kline Inc., Research Triangle Park, NC
- Gray, Jeffrey L., Ph.D. 1991 "A Formal Synthesis of ( $\pm$ )-Bilobalide" currently employed Proctor and Gamble Co., Cincinnati, OH
- Cheung, Adrian-W.H., Ph.D. 1991 "Cyclobutylcarbinyl Radical Cleavage and Rearrangement: Studies Toward the Total Synthesis of Lubiminol" currently employed Hoffman La Roche Co., Nutley, NJ

Dedopoulou, Dimitra, Ph.D. 1991	"Studies Toward the Synthesis of Retigeranic Acid" currently employed Queens College, Charlotte, NC
Reinhold, Tracy L., Ph.D. 1992	"Studies Toward the Synthesis of Crinipellin A"
Jung, David K., Ph.D. 1992	"A Total Synthesis of ( $\pm$ )-Bilobalide" currently employed Glaxo Smith Kline Inc., Research Triangle Park, NC
McKerlie, Lynne A., Ph.D. 1992	"Studies Toward the Synthesis of Lubiminol" currently employed Chemical Synthesis Services Durham, NC
Nantermet, Philippe G., Ph.D. 1993	"Studies Toward the Total Synthesis of the Ginkgolides" currently employed Merck and Co. West Point, PA
Vallin, Isabelle M., Ph.D. 1993	"An Approach to the Synthesis of Milbemycin D" currently employed Proctor and Gamble, Belgium
Watson, Paul S., Ph.D. 1994	"Stereoselective Photocycloadditions of 1,7-Dienes. An Approach to the Lycopodium Alkaloid Magellaninone" currently employed, Inspire Pharmaceuticals, RTP, NC
Huang, Sujuan, M.S. 1995	"Radical Fragmentations of Cyclobutanes for the Synthesis of Medium Rings" currently employed Novartis, Summit, New Jersey
Mathes, Brian M., M.A. 1996	"An Approach to the Lycopodium Alkaloid Magellaninone" currently employed Eli Lilly, Indianapolis, IN
Guise Lisa E., Ph.D. 1996	"An Intramolecular [2+2] Photocycloaddition Approach to Taxane Diterpenes" currently employed Pharmacoepia, Philadelphia, PA
Carroll, Charlotte A., M.A. 1996	"Studies Directed Toward the Total Synthesis of Magellaninone: A Focus on the Rearrangement of the Fused Ring System"
Tyhonas, John, M.A. 1997	"Studies Directed Toward the Total Synthesis of Taxusin" currently employed Ligand Pharmaceuticals, San Diego, CA
Rafferty, Steven W., M.A. 1997	"Stereo and Regioselective Reductive Fragmentations of Spiroketal" currently employed Glaxo Smith Kline Inc., Research Triangle Park, NC

- Wang, Zhuo, Ph.D. 1997 "Total Synthesis of ( $\pm$ )-Lubiminol" currently postdoctoral fellow, University of Ottawa, Ottawa, Ontario
- King, Bryan W., Ph.D. 1998 "Asymmetric Aldol Additions with Titanium Enolates of Acyloxazolidinethiones: Asymmetric Synthesis of the Carbocyclic Nucleoside 1592U89; Asymmetric Total Synthesis of Callystatin A:" currently employed, Glaxo-Smith-Kline, Philadelphia, PA
- Murphy, Meghan M., M.S. 1999 "Enantioselective Synthesis of Carbocyclic Nucleosides"
- Choy, Allison L., Ph.D. 1999 "Enantioselective Synthesis of Medium Ring Ethers" currently employed Pfizer Research Labs, Ann Arbor, MI
- Carroll, Charlotte A., Ph.D. 1999 "Approach to the Synthesis of the Antitumor Agent Leucascandrolide A" currently employed Magellan Laboratories, Research Triangle Park, NC
- Washburn, David G., Ph.D. 1999 "Synthesis of the AB Spiroketal Fragment of Spongistatin 1" currently employed Glaxo Smith Kline Inc., Philadelphia, PA
- McDowell, Jacob, M.A. 2000 "Studies Toward the Total Synthesis of Mucocin" currently employed, Eli Lilly and Co.
- Lappenbusch, William C., Ph.D., 2000 "Studies Toward the Total Synthesis of Cocaine and Ceroplastol", currently employed Chemcodes, RTP, NC
- Tabet, Elie A., Ph.D., 2000 "Asymmetric Aldol-Metathesis Approach to the Synthesis of Carbocycles and Heterocycles: Total Synthesis of Trehazolin, Prelaureatin and Laurallene" currently employed Glaxo Smith Kline Inc., Research Triangle Park, NC
- Wells, Angela L., Ph.D. 2000 "Studies Toward the Total Synthesis of Magellaninone and Mucocin" currently Assistant Professor, Morgan State University, Baltimore, MD
- Hauser, E. Bryan, Ph.D. 2001 "Studies in Crossed Photocycloadditions, An Approach to the Total Synthesis of CP263,114" currently employed Davidson College, Davidson, NC
- Emmitte, Kyle A., Ph.D. 2001 "Synthesis of Medium Ring Ethers by Olefin Metathesis: Laurencin, Isolaurallene, Brevetoxin A"

currently employed Glaxo Smith Kline Inc., Research Triangle Park, NC

Katz, Jason D., Ph.D. 2002 "Total Synthesis of Spongistatin 1" currently employed Merck and Co., Boston, MA

Green, Jennifer L., Ph.D. 2002 "Total Synthesis of *trans*-Isoprelaufucin" currently postdoctoral fellow, Williams College

Diaz, Caroline J., M.A. 2003 "Development of a Novel Methodology for the Construction of 2,6-Disubstituted Tetrahydropyranone Systems and Application Toward the Total Synthesis of (-)-Zampanolide" currently employed Glaxo-Smith-Kline, Research Triangle Park, NC

Stanton, Matthew G., Ph.D. 2003 "The Total Synthesis of (-)-Laulimalide and Efforts Toward the Total Synthesis of (+)-Lasonolide A" currently employed, Merck and Co, West Point, PA

Chaudhary, Kleem, Ph.D. 2003 "Asymmetric Aldol Additions Using Titanium Enolates of Acylthiazolidinethiones: Application Towards the Total Synthesis of Apoptolidinone" currently employed Gilead Pharmaceuticals, So. San Francisco, CA

Cleary, Pamela A., Ph.D. 2003 "Studies Toward the Total synthesis of Brevetoxin A," currently employed Glaxo Smith Kline Inc., Philadelphia, PA

Diaz, Frank A., Ph.D. 2003 "Studies Toward the Total synthesis of Mucocin," currently Assistant Professor of Chemistry, University of North Alabama, Florence, AL

Siliphaivanh, Phieng, Ph.D. 2003 "Total Synthesis of the Leucascandrolide A Macrolactone." currently employed Merck and Co., Boston, MA

Kung, Joyce E., M.S. 2004 "Progress Towards the Synthesis of the Bis-THF Core of Annonaceous Acetogenins," currently law student at UNC-Chapel Hill.

Samuelson, Adam, M.S. 2004 "Studies Toward the Total Synthesis of Migrastatin," currently employed, Inspire Pharmaceuticals RTP, NC

She, Jin, Ph.D. 2004 "Total Synthesis of (+)-Gigantecin," currently employed, Inspire Pharmaceuticals, RTP, NC

Brown, Brandon H., Ph.D. 2004 "Total Synthesis of Ophirin B," currently employed Gilead Pharmaceuticals, S. San Francisco, CA

Vanier, Grace S., Ph.D. 2005	“Total Synthesis of SCH351448,” currently employed CEM Corp. Charlotte, NC
Slade, David J., Ph.D. 2005	“Total Synthesis of 6-Deoxyerythronolide B,” currently employed, Inspire Pharmaceuticals, RTP, NC
DeBaillie, Amy C., Ph.D. 2005	“Total Synthesis of Rogioloxepane A and Bistramide A,” Currently employed, Eli Lilly, Indianapolis, IN.
Gowani, Amran A., M.S. 2006	“Studies Toward the Total Synthesis of Hygrolidin,” currently employed, Merck and Co., Rahway, NJ
Showalter, Todd, M.S. 2006	“Studies in Diastereoselective Anti Aldol Reactions” Currently employed, Novartis, Cambridge, MA
McDougall, Patrick J., Ph.D. 2006	“Synthesis of the ABCDE Fragment of Brevetoxin A,” Currently employed, Chevron, Inc. CA
Smith, Aaron C., Ph.D. 2006	“Synthesis of Yokonolide A, Aglycone,” Currently employed, Pfizer, Inc. Groton, CT.
Milner, Erin E., Ph.D. 2007	“Efforts Directed Toward the Total Synthesis of Lasonolide A,” currently employed US Army Research.
Ellis, J. Michael, Ph.D. 2007	“Synthesis of Asbestinins and Brevetoxin A,” currently employed, Merck and Co. Cambridge, MA
Zuccarello, J. Lucas, Ph.D. 2007	”Synthesis of the GHIJ Fragment of Brevetoxin A,” currently postdoctoral fellow, University of North Carolina at Chapel Hill
Zhang, Yan, Ph.D. 2007	Synthetic studies on Mucocin and Brianthein A,” Currently employed, Pfizer, Inc. Groton, CT.
Jacobs, Danielle, Ph.D. 2008	“Towards the Total Synthesis of Pyranicin,” currently Assistant Professor of Chemistry, Ryder University
Shamszad, Mariam, Ph.D. 2009	“Highly Selective Auxiliary-Mediated Acetate Aldol Additions and Progress Toward the Synthesis of (-)- Brevenal,” currently employed Lubrizol Corp. Wickliffe, Ohio
Haley, Matthew W., Ph.D. 2009	“Studies Toward the Total Synthesis of Sorangicin A,” currently postdoctoral fellow, Colorado State University
Stevens, Jason M., Ph.D. 2010	“Total Synthesis of Irciniastatin A (Psymberin),” currently postdoctoral fellow, Princeton University



- Azman, Adam M., Ph.D. 2010 “Spiroketal as Natural Product Mimics and Progress Toward the Total Synthesis of Milbemycin  $\beta$ 14,” currently employed, Butler University
- Mans, Mark, C., Ph.D. 2011 “Synthesis and Structural Revision of the Proposed Structure of Briarellin J.” currently employed Jost Chemical Co., Inc., St. Louis, Mo.
- Martin, Timothy J., Ph.D. 2011 “Progress Toward the Synthesis of Amphidinol 3,” currently postdoctoral fellow, Colorado State University
- O’Bryan, Elizabeth A., Ph.D. 2011 “Synthesis of Spirofungins A and B; Formal Synthesis of Sorangicin A” currently postdoctoral fellow, Northwestern University
- Dechert, Anne-Marie R., Ph.D. 2011 “Total Synthesis of the Polyketide Natural Product (-)-Pironetin and Studies Toward the Total Synthesis of Iriomoteolide 1a,” currently postdoctoral fellow, University of Texas, Austin.
- Williams, Philip S., Ph.D. 2012 “Stereoselective Synthesis of Quaternary Carbons via the Dianionic Ireland-Claisen Rearrangement: An Approach to the Synthesis of Briarane Diterpenes,” currently employed Merck and Co., Durham, NC
- Hughes, Colin O., Ph.D. 2012 “Synthesis of the Proposed Structure of Aldingenin B.” Currently employed Jones Day, San Diego, CA.

58 Ph.D.’s, 13 Masters

## POSTDOCTORALS

Kim-Meade, Agnes S. (1993-1996) employed: Schering Corp., Bloomfield, NJ  
Zawacki, Frank J. (1993-1996) employed: American Cyanamid, Princeton, NJ  
Al-awar, Rima S. (1993-1995) employed: Eli Lilly and Co., Indianapolis, IN  
Wagman, Allan S. (1995-1996) employed: Chiron, San Francisco, CA  
Kirincich, Steven J. (1996-1998) employed: Genetics Institute, Cambridge, MA  
Watterson, Scott H. (1996-1998) employed: Bristol-Myers Squibb, Lawrenceville, NJ  
Captain, Laura F. (1997-1999) employed: Johnson and Johnson, La Jolla, CA  
Zuercher, William (1998-2000) employed: Glaxo Smith Kline Inc., RTP, NC  
Pace, Jennifer M. (1998-2000) employed: Abbott Laboratories, Abbott Park, IL  
Nakagawa-Goto, Kyoko (1998-2002) postdoctoral fellow, Department of Medicinal Chemistry, University of North Carolina, Chapel Hill  
Looker, Adam (2000-2002) employed: Vertex Pharmaceuticals, Cambridge, MA  
Allwein, Shawn P. (2001-2002) employed: Cephalon Pharmaceuticals, Philadelphia, PA  
Powell, Mark T. (2001-2003) employed: Johnson and Johnson, Raritan, NJ  
Heady, Tiffany A. (2001-2003) employed: US Army Research, Frederick, MD  
Long, Alan (2003-2004) employed: Scynexis Pharmaceuticals, RTP, NC  
Parrish, Jonathon D. (2003-2005) employed: Cephalon Pharmaceuticals, Philadelphia, PA  
Perales, Joe B. (2003-2005) employed: Scynexis Pharmaceuticals, RTP, NC  
Vong, Binh (2004-2005) employed: Neurogen Bioscience, San Diego, CA  
Plake, Hilary R. (2004-2005) employed: Amgen, San Francisco, CA  
Causannel, Franck (2004-2006) employed: Aventis, Paris, France  
Martinot, Theodore (2005-2006) employed: Vertex Pharmaceuticals, Cambridge, MA  
Schaaf, Gregory (2004-2006) employed: Glaxo Smith Kline Inc., RTP, NC  
Christie, Hamish S. (2003-2006) employed: University of Arizona, Tuscon, AZ  
Hatcher, Mark (2005-2007) employed: Glaxo Smith Kline Inc., RTP, NC  
Krelien, Matthew (2005-2007) employed: Albany Molecular Research, Albany, NY  
Stauffer, Christina (2007-2008) employed: Dupont, Wilmington, DE  
Mattson, Anita (2007-2009) employed: Ohio Sate University

## UNDERGRADUATE RESEARCH ASSISTANTS

Lowen, Gregory T. (1981-82) Schetzina, Karen (1991-93)  
Hollis, W. Gary, Jr. (1982-83) Trotter, B. Wesley (1991-93)  
Linder, Lori A. (1982-83) Shakib, Sharene (1991-93)  
Washburn, Lisa K. (1982-83) Lacey, D. Borden (1992-94)  
Battigelli, Lisa C. (1984-85) Dean, William (1993-94)  
Dickson, John K. (1984-85) Danek, Krisstina (1993-94)  
Courtney, Ray D. (1985-87) Davidson, Stephanie (1994-95)  
Blanton, Douglas C. (1986-87) Davis, Jamie (1995-96)  
Huber, Scott K. (1986-87) Downey, Wade (1996-97)  
Ludwig, Beverly (1986-87) Williams, John (1997)  
Wills, Matthew K. (1986-88) Wagner, Diana (1997)  
Dore, Timothy (1988-90) Inman, J. Lucas (1997-1998)  
Biswas, Kunda, (1991-93) McCall, Chad (1997-1998)  
Smirnov, Dimitri (2005) McAdam, Catherine (2010)  
Mighion, Jeffrey (2007-) Choy, Bonnie (2011)

## **CURRENT RESEARCH GROUP**

Butler, Kristina	postdoctoral student
Carper, Daniel	postdoctoral student
Choy, Bonnie	undergraduate student

## **CURRENT RESEARCH SUPPORT:**

National Institutes of Health, (GM60567), "Enantioselective Synthesis of Polyethers," \$1,300,034 total costs (2-1-08 to 1-31-2013).

National Institute of Allergies and Infectious Diseases, "Structure and Inhibition of the Conjugative DNA Relaxase Helicase," Role: Co-PI 8% (1 month) \$1,790,190 total costs \$63,000 annual direct costs for Crimmins (4-1-08 to 3-31-13).

University Cancer Research Fund Innovation Award: "Synthesis and Mechanism of Action of Irciniastatin A," Role: PI \$200,000 total costs (7-1-10 to 6-31-12).

"Development of Ladder Frame Polyethers as Drug Escortins," North Carolina Biotechnology Center, \$250,000; 1-1-2012 to 12-31-2013. Andrea Bourdelais, PI. Crimmins, Co-PI. \$83,000 direct costs for Crimmins (1-1-12 to 12-31-14).

## **GRANT ACQUISITIONS**

"Studies in Intramolecular Photocycloadditions: An Approach to Pentalenic Acid," Petroleum Research Fund, June 1, 1982 - August 31, 1984; \$10,000.

"Asymmetric Diels-Alder Reactions," University Research Council, April 1982 - 1984; \$1,500.

"400 MHz Varian NMR Spectrometer," National Science Foundation, 1984 (with M.S. Brookhart), \$200,000.

"Total Synthesis of The Avermectins," Merck, Sharp and Dohme Co., April 1, 1983; \$1,500.

"Total Synthesis of The Avermectins and Milbemycins," National Institutes of Health, AI-19544, March 1, 1983 - February 28, 1986; \$233,547.

"Total Synthesis of Laurenene," Junior Faculty Development Award, UNC-CH, January 1, 1984 - December 31, 1984, \$5,000.

"Synthesis of Cyclopentanoids by Photocycloadditions," National Institutes of Health, GM-38904, July 1, 1983 - June 30, 1986; \$194,389.

"Total Synthesis of Milbemycins and Related Studies," National Institutes of Health, AI-19544, September 1, 1986 - August 31, 1989; \$368,022.

"200 MHz NMR Spectrometer, National Science Foundation, 1986, \$150,000.

"Synthesis of the Milbemycins," The Upjohn Co., March 1, 1987, \$3,000.

"Synthesis of Cyclopentanoids by Photocycloadditions," National Institutes of Health, GM-38904, August 1, 1987 - July 31, 1990; \$355,288.

"Synthesis of Ginkgolide B," Rhone Poulenc Co., \$5,500.

"Synthesis of Ginkgolide B," Randleigh Foundation, Chapel Hill, NC., \$5,000.

"Cyclopentanoids by Photocycloadditions," National Institutes of Health, GM-38904, July 1, 1991 - June 30, 1994; \$449,688.

"Synthetic Applications of Photocycloadditions," National Science Foundation, CHE-9014641, August 15, 1990 - December 31, 1993, \$217,600.

"Photocycloaddition-Fragmentation Sequences in Synthesis," Petroleum Research Fund, January 1, 1991 to December 31, 1993, \$40,000.

"Synthesis of Ginkgolide B," Rhone Poulenc Co., unrestricted grant, \$12,000.

"Synthetic Applications of Photocycloadditions," National Institutes of Health, GM-38904, July 1, 1994 to June 30, 1998, \$721,980.

"Photocycloadditions in Synthesis," National Science Foundation, CHE-9319512, March 1, 1994 to February 28, 1997, \$231,000.

"Asymmetric Synthesis of Polyketides" National Institutes of Health, CA-63572, February 1, 1995 to January 31, 1998, \$587,649.

"Research Opportunity Award for George Maguire, Methodist College" National Science Foundation, May 15, 1995 to August 15, 1995; \$12,000.

"NMR Development Plan for the Chemistry Department at The University of North Carolina At Chapel Hill" National Science Foundation, 7-1-96 to 6-30-98. Funded for \$836,660 for two years.

"Minority Supplement for Angela Wells" National Institutes of Health, GM38904, Funded for March 1, 1996 to June 30, 1996, \$19,950 per year.

- "The Need for and Supply of African-American Ph.D. Chemists" Alfred P. Sloan Foundation, \$210,000, January 1, 1997 to December 31, 1999. (with S.A. Evans and E.T. Samulski)
- "Enantioselective Synthesis of Nucleoside Analog Libraries" Glaxo-Wellcome, Inc. \$125,000, July 1, 1997 to June 30, 1998.
- "Asymmetric Synthesis of Polyketides" National Institutes of Health, CA-63572, July 1, 1998 to June 30, 2002, \$749,693, 12.0 percentile.
- "Asymmetric Synthesis of Novel Natural Products," National Institutes of Health, GM-38904, July 1, 1998 to June 30, 2002, \$831,960; 5.6 percentile.
- "Enantioselective Synthesis of Nucleoside Analog Libraries" Glaxo-Wellcome, Inc. \$125,000, July 1, 1999 to June 30, 2000.
- "Minority Supplement for Frank Diaz" National Institutes of Health, GM38904, Funded for July 1, 1999 to June 30, 2002, \$102,621.
- "Asymmetric Synthesis of Medium Ring Ethers" National Institutes of Health, GM-60567, February 1, 2000 to January 31, 2004, \$758,778, 10.6 percentile.
- "Training of Scientifically Versatile Women and Minorities in the Chemical Profession" Department of Education, Graduate Assistance in Areas of National Need (GAANN), August 15, 2000 to August 14, 2003, \$765,600.
- "The Need for and Supply of African-American Ph.D. Chemists" Alfred P. Sloan Foundation, \$270,000, January 1, 2000 to December 31, 2003.
- "Minority Supplement for Mark Powell" National Institutes of Health, GM60567, Funded for February 1, 2001 to January 31, 2003, \$116,000.
- "Asymmetric Synthesis of Antitumor Agents" National Institutes of Health, CA-63572, April 1, 2002 to March 31, 2006, funded for \$1,118,722, 3.8 percentile.
- "Asymmetric Synthesis of Novel Natural Products," National Institutes of Health, GM-38904, funded for January 1, 2003 to December 31, 2006, \$1,138,155, 17 percentile.
- "Minority Supplement for Joe B. Perales" National Institutes of Health, CA63572, funded for May 1, 2003-June 30, 2005. \$133,864.
- "Asymmetric Synthesis of Medium Ring Ethers" National Institutes of Health, GM-60567, \$1,455,000 funded for February 1, 2004 – January 31, 2008, \$ 1,149,232, 10.4 percentile.
- "Micromass Mass Spectrometer," National Institutes of Health, April 1, 2004– March 31, 2005, submitted March 21, 2003; priority score: 129. Funded for \$330,000.
- "Asymmetric Synthesis of Polyethers" National Institutes of Health, GM-60567, funded for February 1, 2008 – January 31, 2013, \$1,300,034; priority score 150; 11.5 percentile.

“MRI: Acquisition of a 600MHz NMR Spectrometer with Cryogenic Probe” National Science Foundation, 0922858, \$770,000; September 1, 2009 – August 31, 2010.

“Synthesis and Mechanism of Action of Irciniastatin A,” University Cancer Research Fund Innovation Award: \$200,000 total costs (7-1-10 to 6-31-13).

“Partial Renovation of Kenan Chemistry Laboratories,” National Science Foundation ARI-2, \$1,841,124 (9-1-2010 to 8-31-2013).

“Development of Ladder Frame Polyethers as Drug Escortins,” North Carolina Biotechnology Center, \$250,000; 1-1-2012 to 12-31-2013. Andrea Bourdelais, PI. Crimmins, Co-PI.