

Marisa C. Kozlowski Curriculum Vitae

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Current Position

2009- present Professor, University of Pennsylvania, Philadelphia, PA
2003-2009 Associate Professor, University of Pennsylvania, Philadelphia, PA
1997-2003 Assistant Professor, University of Pennsylvania, Philadelphia, PA

Academic History

1995-1997 NSF Postdoctoral Research Fellow with Professor David A. Evans, Harvard University, MA
1989-1994 Ph. D., Organic Chemistry with Professor Paul A. Bartlett, University of California at Berkeley, Berkeley, CA
1985-1989 A. B., *magna cum laude*, Chemistry, Cornell University, Ithaca, NY

Professional Affiliations

American Chemical Society, Member (1990-present), Organic Div. Member-at-Large (2006-2008), Organic Div. Secretary Treasurer (2010-2013)
AAAS, Member (1997-present), Chemistry Electorate Nominating Committee (2006-2009)
Philadelphia Organic Chemist's Club, Chair-elect (1997-1998), Chair (1998-1999)
University of Pennsylvania Center for Cancer Pharmacology
University of Pennsylvania Penn Cancer Center
University of Pennsylvania Laboratory for Research on the Structure of Matter (LRSM)
Editorial Advisory Board, Journal of Organic Chemistry (2005-2011)

Awards and Honors

2007 ACS Progress Travel Award
2002-2006 American Cancer Society Beginning Research Scholar
2002 Kahn Award for Distinguished Teaching by an Assistant Professor
2002-2004 Alfred P. Sloan Research Fellow
2001 George Lesher Lecturer in Bioorganic and Medicinal Chemistry (RPI)
2001-2006 NSF CAREER Award
1998-2001 DuPont Young Investigator Award
1995-1996 National Science Foundation Postdoctoral Fellowship, Harvard University
1992-1993 Syntex Fellowship, University of California at Berkeley
1989-1992 Department of Education Fellowship, University of California at Berkeley
1989 Merck Chemistry Award, Cornell University
1985-1989 Cornell Tradition Fellowship, Cornell University

Research Interests

- 1) Identification of new ligands for asymmetric synthesis using database mining, functionality mapping, theoretical calculations of selectivities, and QSAR techniques.
- 2) Synthesis of the computationally identified ligands and testing in asymmetric biaryl coupling, Michael addition, lithiation/substitution, organometal addition, and Claisen rearrangement reactions.
- 3) Development of asymmetric oxidative carbon-carbon bond forming reactions.
- 4) Total synthesis and investigation of the mode of action of the perylenequinone natural products, compounds with photodynamic anticancer activity.

Teaching Achievements

- 1) Development of an up-to-date curriculum for Chemistry 443, a synthetic methods course for organic graduate students. Computer-generated notes provide a comprehensive survey.
- 2) Introduction of hands-on computational chemistry to Chemistry 241, the first semester undergraduate organic chemistry courses. Students run calculations themselves to address questions of chemical structure and reactivity.
- 3) Development of an up-to-date curriculum for Chemistry 541, a physical organic chemistry course for undergraduate and graduate students. Module included: 1) basic physical organic chemistry, 2) calculations including hands-on exercises, and 3) mechanism case studies with a comprehensive treatment of kinetics.
- 4) Providing undergraduate students the opportunity to participate in research.

Collaborators

Prof. A. Gil Santos, Universidade Nova de Lisboa, Lisbon, Portugal
 Prof. Shannon Stahl, University of Wisconsin at Madison
 Prof. Richard Hsung, University of Wisconsin at Madison
 Prof. Andreas Pfaltz, Institut für Organische Chemie, Universität Basel
 Prof. William Bailey, University of Connecticut
 Prof. Pier Giorgio Cozzi, University of Bologna
 Dr. Steven Dixon, Schrödinger
 Prof. Peter O'Brien, University of York
 Dr. William Nugent, Bristol-Myers Squibb
 Prof. Kenneth Merz, University of Florida
 Prof. Jerry Shay, University of Texas Southwestern Medical Center
 Prof. Dale Boger, Scripps Research Institute
 Prof. Peter O'Dwyer, University of Pennsylvania
 Prof. Steve Johnson, University of Pennsylvania
 Prof. Gerhard Bringmann, Institut für Organische Chemie, Universität Würzburg, Am Hubland
 Quest PharmaTech
 Biosearch Italia
 Galileaus

Peer Reviewed Publications from Graduate and Postdoctoral Studies

- 1) Kozlowski, M. C.; Bartlett, P. A. "Synthesis of a Potential Transition-State Analogue Inhibitor of Isochorismate Synthase" *J. Am. Chem. Soc.* **1991**, *113*, 5897-5898.
- 2) Kozlowski, M. C.; Tom, N. J.; Seto, C. T.; Sefler, A. M.; Bartlett, P. A. "Chorismate-Utilizing Enzymes Isochorismate Synthase, Anthranilate Synthase, and *p*-Aminobenzoate Synthase: Mechanistic Insight through Inhibitor Design" *J. Am. Chem. Soc.* **1995**, *117*, 2128-2140.
- 3) Kozlowski, M. C.; Bartlett, P. A. "Formation of the 7-Oxa-1,4,10-triazatricyclo-[8.2.2^{5,12}]tetradecane-2,14-dione Ring System: Misrouted Synthesis of a Peptidomimetic" *J. Org. Chem.* **1996**, *61*, 7681-7696.
- 4) Sefler, A. M.; Kozlowski, M. C.; Guo, T.; Bartlett, P. A. "Design, Synthesis, and Evaluation of a Small Molecule Mimic of Tendamistat" *J. Org. Chem.* **1997**, *62*, 93-102.
- 5) Evans, D. A.; Murry, J. A.; Kozlowski, M. C. "C₂-Symmetric Copper(II) Complexes as Chiral Lewis Acids. Catalytic Enantioselective Aldol Additions of Silylketene Acetals to (Benzyloxy)acetaldehyde" *J. Am. Chem. Soc.* **1996**, *118*, 5814-5815.
- 6) Evans, D. A.; Kozlowski, M. C.; Tedrow, J. S. "Cationic Bis(oxazoline) and Pyridyl-

bis(oxazoline)Cu(II) and Zn(II) Lewis Acid Catalysts. A Comparative Study in Catalysis of Diels-Alder and Aldol Reactions" *Tetrahedron Lett.* **1996**, 37, 7481-7484.

- 7) Evans, D. A.; Kozlowski, M. C.; Burgey, C. S.; MacMillan, D. W. C. "C₂-Symmetric Copper(II) Complexes as Chiral Lewis Acids. Catalytic Enantioselective Aldol Additions of Enolsilanes to Pyruvate Esters" *J. Am. Chem. Soc.* **1997**, 119, 7893-7894.
- 8) Evans, D. A.; Kozlowski, M. C.; Murry, J. A.; Burgey, C. S.; Connell, B. T. "C₂-Symmetric Copper(II) Complexes as Chiral Lewis Acids. Scope and Mechanism of Catalytic Enantioselective Aldol Additions of Enolsilanes to (Benzyloxy)acetaldehyde" *J. Am. Chem. Soc.* **1999**, 121, 669-685.
- 9) Evans, D. A.; Burgey, C. S.; Kozlowski, M. C. "C₂-Symmetric Copper(II) Complexes as Chiral Lewis Acids. Scope and Mechanism of Catalytic Enantioselective Aldol Additions of Enolsilanes to Pyruvate Esters" *J. Am. Chem. Soc.* **1999**, 121, 686-699.
- 10) Evans, D. A.; Rovis, T.; Kozlowski, M. C.; Tedrow, J. S. "C₂-Symmetric Copper(II) Complexes as Chiral Lewis Acids. Catalytic Enantioselective Michael Addition of Silylketene Acetals to Alkylidene Malonates" *J. Am. Chem. Soc.* **1999**, 121, 1994-1995.
- 11) Evans, D. A.; Rovis, T.; Kozlowski, M. C.; Downey, C. W.; Tedrow, J. S. "C₂-Symmetric Copper(II) Complexes as Chiral Lewis Acids. Catalytic Enantioselective Michael Addition of Silylketene Acetals to Alkylidene Malonates" *J. Am. Chem. Soc.* **2000**, 122, 9134-9142.

Peer Reviewed Independent Publications

- 12) Li, X.; Schenkel, L. B.; Kozlowski, M. C. "Synthesis and Resolution of a Novel Chiral Diamine Ligand and Application to Asymmetric Lithiation-Substitution" *Org. Lett.* **2000**, 2, 875-878.
<http://dx.doi.org/10.1021/ol9903133>
- 13) Ganguly, B.; Freed, D. A.; Kozlowski, M. C. "Relevance of Torsional Effects to the Conformational Equilibria of 1,5-Diaza-*cis*-decalins: A Theoretical and Experimental Study" *J. Org. Chem.* **2001**, 66, 1103-1108.
<http://dx.doi.org/10.1021/jo000580i>
- 14) Li, X.; Yang, J.; Kozlowski, M. C. "Enantioselective Oxidative Biaryl Coupling Reactions Catalyzed by 1,5-Diazadecalin Metal Complexes" *Org. Lett.* **2001**, 3, 1137-1140.
<http://dx.doi.org/10.1021/ol015595x>
- 15) Kozlowski, M. C.; Xu, Z.; Santos, A. G. "Synthesis and Conformational Analysis of 2,6-Dimethyl-1,5-diaza-*cis*-decalins" *Tetrahedron* **2001**, 57, 4537-4542.
[http://dx.doi.org/10.1016/S0040-4020\(01\)00370-2](http://dx.doi.org/10.1016/S0040-4020(01)00370-2)
- 16) Waters, S. P.; Kozlowski, M. C. "Synthesis of the Isocoumarin Portion of the Rubromycins" *Tetrahedron Lett.* **2001**, 42, 3567-3570.
[http://dx.doi.org/10.1016/S0040-4039\(01\)00524-X](http://dx.doi.org/10.1016/S0040-4039(01)00524-X)
- 17) Freed, D. A.; Kozlowski, M. C. "N-Acyl Imine and Enamide Intermediates in Palladium-Catalyzed Amidocarbonylation Reaction" *Tetrahedron Lett.* **2001**, 42, 3403-3406.
[http://dx.doi.org/10.1016/S0040-4039\(01\)00466-X](http://dx.doi.org/10.1016/S0040-4039(01)00466-X)
- 18) DiMauro, E. F.; Kozlowski, M. C. "BINOL-Salen Metal Catalysts Incorporating a Bifunctional Design" *Org. Lett.* **2001**, 3, 1641-1644.

<http://dx.doi.org/10.1021/ol0158213>

- 19) Phuan, P.-W.; Kozlowski, M. C. "Convenient Preparation of Naphthyridines from Halopyridines: Sequential Heck Coupling and Cyclization" *Tetrahedron Lett.* **2001**, *42*, 3963-3965.
[http://dx.doi.org/10.1016/S0040-4039\(01\)00632-3](http://dx.doi.org/10.1016/S0040-4039(01)00632-3)
- 20) Xie, X.; Freed, D. A.; Kozlowski, M. C. "Synthesis and Conformational Properties of *N*-Monoalkyl 1,5-Diaza-*cis*-decalins" *Tetrahedron Lett.* **2001**, *42*, 6451-6454.
[http://dx.doi.org/10.1016/S0040-4039\(01\)01344-2](http://dx.doi.org/10.1016/S0040-4039(01)01344-2)
- 21) Xie, X.; Kozlowski, M. C. "Synthesis of the Naphthalene Portion of the Rubromycins" *Org. Lett.* **2001**, *3*, 2661-2663.
<http://dx.doi.org/10.1021/ol016220e>
- 22) DiMauro, E. F.; Kozlowski, M. C. "Salen-Derived Catalysts Containing Secondary Basic Groups in the Addition of Diethylzinc to Aldehydes" *Org. Lett.* **2001**, *3*, 3053-3056.
<http://dx.doi.org/10.1021/ol016535u>
- 23) DiMauro, E. F.; Kozlowski, M. C. "Phosphabenzenes as Electron Withdrawing Ligands in Catalysis" *J. Chem. Soc., Perkin Trans. I* **2002**, 439-444.
<http://dx.doi.org/10.1039/b101454o>
- 24) DiMauro, E. F.; Kozlowski, M. C. "Late Transition Metal Complexes of BINOL-Derived Salens: Synthesis, Structure, and Reactivity" *Organometallics* **2002**, *21*, 1454-1461.
<http://dx.doi.org/10.1021/om010571f>
- 25) Kozlowski, M. C.; Panda, M. "Computer-Aided Design of Chiral Ligands. Part I. Database Search Methods to Identify Chiral Ligand Types for Asymmetric Reactions" *J. Mol. Graphics Modell.* **2002**, *20*, 399-409.
[http://dx.doi.org/10.1016/S1093-3263\(01\)00138-3](http://dx.doi.org/10.1016/S1093-3263(01)00138-3)
- 26) Xu, Z.; Kozlowski, M. C. "Conformational Control of Flexible Molecules: Design and Synthesis of Novel Chiral 1,5-Diaza-*cis*-decalins" *J. Org. Chem.* **2002**, *67*, 3072-3078.
<http://dx.doi.org/10.1021/jo025503x>
- 27) Li, X.; Xu, Z.; DiMauro, E. F.; Kozlowski, M. C. "Unusual Oxidative Rearrangement of 1,5-Diazadecalin" *Tetrahedron Lett.* **2002**, *43*, 3747-3750.
[http://dx.doi.org/10.1016/S0040-4039\(02\)00559-2](http://dx.doi.org/10.1016/S0040-4039(02)00559-2)
- 28) Phuan, P.-W.; Kozlowski, M. C. "Control of the Conformational Equilibria in Aza-*cis*-Decalins: Structural Modification, Solvation, and Metal Chelation" *J. Org. Chem.* **2002**, *67*, 6339-6346.
<http://dx.doi.org/10.1021/jo025544t>
- 29) Panda, M.; Phuan, P.-W.; Kozlowski, M. C. "Utility of Calculated ^{13}C NMR Chemical Shifts in Differentiating Conformational Isomers: A Study of Metal-Complexed and Uncomplexed Bispidines" *J. Chem. Soc., Chem. Commun.* **2002**, 1552-1553.
<http://dx.doi.org/10.1039/b201950g>
- 30) Kozlowski, M. C.; Li, X.; Carroll, P. J.; Xu, Z. "Copper(II) Complexes of Novel 1,5-Diaza-*cis*-decalin Diamine Ligands: An Investigation of Structure and Reactivity" *Organometallics* **2002**, *21*, 4513-4522.
<http://dx.doi.org/10.1021/om020425p>

- 31) DiMauro, E. F.; Kozlowski, M. C. "Development of Bifunctional Salen Catalysts: Rapid, Chemoselective Alkylations of α -Ketoesters" *J. Am. Chem. Soc.* **2002**, *124*, 12668-12669.
<http://dx.doi.org/10.1021/ja026498h>
- 32) DiMauro, E. F.; Kozlowski, M. C. "The First Catalytic Asymmetric Addition of Dialkylzincs to α -Ketoesters" *Org. Lett.* **2002**, *4*, 3781-3784.
<http://dx.doi.org/10.1021/ol026315w>
- 33) Panda, M.; Phuan, P.-W.; Kozlowski, M. C. "Theoretical and Experimental Studies of Asymmetric Organozinc Additions to Benzaldehyde Catalyzed by Flexible and Constrained γ -Aminoalcohols" *J. Org. Chem.* **2003**, *68*, 564-571.
<http://dx.doi.org/10.1021/jo0262210>
- 34) Kozlowski, M. C.; Waters, S. P.; Skudlarek, J. W.; Evans, C. A. "Computer-Aided Design of Chiral Ligands. Part III. A Novel Ligand for Asymmetric Allylation Designed Using Computational Techniques" *Org. Lett.* **2002**, *4*, 4391-4393.
<http://dx.doi.org/10.1021/ol026971w>
- 35) Smith, A. B., III.; Lee, D.; Adams, C. M.; Kozlowski, M. C. "SmI₂-Promoted Oxidation of Aldehydes in the Presence of Electron Rich Heteroatoms" *Org. Lett.* **2002**, *4*, 4539-4541.
<http://dx.doi.org/10.1021/ol027095p>
- 36) DiMauro, E. F.; Mamai, A.; Kozlowski, M. C. "Synthesis, Characterization, and Metal Complexes of a Salen Ligand Containing a Quinoline Base" *Organometallics* **2003**, *22*, 850-855.
<http://dx.doi.org/10.1021/om0205795>
- 37) Annamalai, V.; DiMauro, E. F.; Carroll, P. J.; Kozlowski, M. C. "Catalysis of the Michael Addition Reaction by Late Transition Metal Complexes of BINOL-Derived Salens" *J. Org. Chem.* **2003**, *68*, 1973-1981.
<http://dx.doi.org/10.1021/jo025993t>
- 38) Kozlowski, M. C.; Panda, M. "Computer-Aided Design of Chiral Ligands. Part II. Functionality Mapping as a Method to Identify Stereocontrol Elements for Asymmetric Reactions" *J. Org. Chem.* **2003**, *68*, 2061-2076. Featured on the cover, March 21, 2003 (issue #6).
<http://dx.doi.org/10.1021/jo020401s>
- 39) Xie, X.; Phuan, P.-W.; Kozlowski, M. C. "Novel Pathways for the Formation of Chiral Binaphthyl Polymers: Oxidative Asymmetric Phenolic Coupling and Tandem Glaser/Oxidative Asymmetric Phenolic Coupling" *Angew. Chem., Int. Ed.* **2003**, *42*, 2168-2170.
<http://dx.doi.org/10.1002/anie.200250325>
- 40) Kozlowski, M. C.; Dixon, S.; Panda, M.; Lauri, G. "Quantum Mechanical Models Correlating Structure with Selectivity: Predicting the Enantioselectivity of β -Amino Alcohol Catalysts in Aldehyde Alkylation" *J. Am. Chem. Soc.* **2003**, *125*, 6614-6615.
<http://dx.doi.org/10.1021/ja0293195>
- 41) Mulrooney, C. A.; Li, X.; DiVirgilio, E. S.; Kozlowski, M. C. "General Approach for the Synthesis of Chiral Perylenequinones via Catalytic Enantioselective Oxidative Biaryl Coupling" *J. Am. Chem. Soc.* **2003**, *125*, 6856-6857.
<http://dx.doi.org/10.1021/ja027745k>

- 42) Li, X.; Hewgley, J. B.; Mulrooney, C.; Yang, J.; Kozlowski, M. C. "Enantioselective Oxidative Biaryl Coupling Reactions Catalyzed by 1,5-Diazadecalin Metal Complexes: Efficient Formation of Chiral Functionalized BINOL Derivatives" *J. Org. Chem.* **2003**, *68*, 5500-5511.
<http://dx.doi.org/10.1021/jo0340206>
- 43) Lipkowitz, K. B.; Kozlowski, M. C. "Understanding Stereoinduction in Catalysis via Computer: New Tools for Asymmetric Synthesis" *Synlett* **2003**, 1547-1565.
<http://dx.doi.org/10.1055/s-2003-40849>
- 44) Phuan, P.-W.; Ianni, J. C.; Kozlowski, M. C. "Is the A-Ring of Sparteine Essential for High Enantioselectivity in the Asymmetric Lithiation-Substitution of *N*-Boc-pyrrolidine?" *J. Am. Chem. Soc.* **2004**, *126*, 15473-15479.
<http://dx.doi.org/10.1021/ja046321i>
- 45) Fennie, M. W.; DiMauro, E. F.; O'Brien, E. M.; Annamalai, V.; Kozlowski, M. C. "Mechanism and Scope of Salen Bifunctional Catalysts in Asymmetric Aldehyde and α -Ketoester Alkylation" *Tetrahedron* **2005**, *61*, 6249-6265; invited contribution to "Catalysis in Industry and Academia" Symposium-in-Print.
<http://dx.doi.org/10.1016/j.tet.2005.03.117>
- 46) Kozlowski, M. C.; DiVirgilio, E. S.; Malolanarasimhan, K.; Mulrooney, C. A. "Oxidation of Chiral α -Phenylacetate Derivatives: Formation of Dimers with Contiguous Quaternary Stereocenters versus Tertiary Alcohols" *Tetrahedron: Asymmetry* **2005**, *16*, 3599-3605; invited contribution to "Asymmetric Oxidations" Symposium-in-Print.
<http://dx.doi.org/10.1016/j.tetasy.2005.10.008>
- 47) Ianni, J. C.; Annamalai, V.; Phuan, P.-W.; Kozlowski, M. C. "A Priori Theoretical Prediction of Selectivity in Asymmetric Catalysis: Design of New Chiral Catalysts using Quantum Molecular Interaction Fields" *Angew. Chem., Int. Ed.* **2006**, *45*, 5502-5505.
<http://dx.doi.org/10.1002/anie.200600329>
- 48) Huang, J.; Ianni, J. C.; Antoline, J. E.; Hsung, R. P.; Kozlowski, M. C. "De Novo Chiral Amino Alcohols in Catalyzing Asymmetric Additions to Aryl Aldehydes" *Org. Lett.* **2006**, *8*, 1565-1568.
<http://dx.doi.org/10.1021/ol061112j>
- 49) Basra, S.; Fennie, M. W.; Kozlowski, M. C. "Catalytic Asymmetric Addition of Dialkylzincs to α -Aldiminoesters" *Org. Lett.* **2006**, *8*, 2659-2662.
<http://dx.doi.org/10.1021/ol0602093>
- 50) Waters, S. P.; Kozlowski, M. C. "Convergent Route to the Purpuromycin Bisphenolic Spiroketal: Hydrogen Bonding Control of Spiroketalization Stereochemistry" *Tetrahedron. Lett.* **2006**, *47*, 5409-5413.
<http://dx.doi.org/10.1016/j.tetlet.2006.05.044>
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<http://dx.doi.org/10.1021/ol061112j>
- 52) DiVirgilio, E. S.; Dugan, E. C.; Mulrooney, C. A.; Kozlowski, M. C. "Asymmetric Total Synthesis of Nigerone" *Org. Lett.* **2007**, *9*, 385-388.
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<http://dx.doi.org/10.1002/adsc.200600570>
- 54) Morgan, B. J.; Xie, X.; Phuan, P-W.; Kozlowski, M. C. "Enantioselective Synthesis of Binaphthyl Polymers using Chiral Asymmetric Phenolic Coupling Catalysts: Oxidative Coupling and Tandem Glaser/Oxidative Coupling" *J. Org. Chem.* **2007**, 72, 6171-6182.
<http://dx.doi.org/10.1021/jo070636+>
- 55) Dickstein, J. S.; Mulrooney, C. A.; O'Brien, E. M.; Morgan, B. J.; Kozlowski, M. C. "Development of a Catalytic Aromatic Decarboxylation Reaction" *Org. Lett.* **2007**, 9, 2441-2444. "Top 20 Most Accessed Articles April-June 2007"
<http://dx.doi.org/10.1021/ol070749f>
- 56) Lowell, A. N.; Fennie, M. W.; Kozlowski, M. C. "A Concise Synthesis of the Naphthalene Portion of Purpuromycin" *J. Org. Chem.* **2008**, 73, 1911-1918.
<http://dx.doi.org/10.1021/jo7024114>
- 57) Dickstein, J. S.; Kozlowski, M. C. "Organometal Additions to α -Iminoesters: *N*-Alkylation via Umpolung" *Chem. Soc. Rev.* **2008**, 37, 1166-1173.
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- 58) O'Brien, E. M.; Morgan, B. J.; Kozlowski, M. C. "Dynamic Stereochemistry Transfer in a Transannular Aldol Reaction: Total Synthesis of Hypocrellin A" *Angew. Chem., Int. Ed.* **2008**, 47, 6877-6880. Highlighted in *Chemistry World*:
<http://www.rsc.org/chemistryworld/Issues/2008/July/ColumnTotallySynthetic.asp>
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- 59) Hewgley, J. B.; Stahl, S. S.; Kozlowski, M. C. "Mechanistic Study of Asymmetric Oxidative Biaryl Coupling: Evidence for Self-Processing of the Copper Catalyst to Achieve Control of Oxidase vs. Oxygenase Activity" *J. Am. Chem. Soc.* **2008**, 130, 12232-12233.
<http://dx.doi.org/10.1021/ja804570b>
- 60) Dickstein, J. S.; Norman, A.; Fennie, Michael W.; Palouse, B. J.; Kozlowski, M. C. "Three Component Coupling of α -Iminoesters via Umpolung Addition of Organometals: Synthesis of α,α -Disubstituted α -Amino Acids" *J. Am. Chem. Soc.* **2008**, 130, 15794-15795.
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- 61) Linton, E. C.; Kozlowski, M. C. "Catalytic Enantioselective Meerwein-Eschenmoser Claisen Rearrangement: Asymmetric Synthesis of Allyl Oxindoles" *J. Am. Chem. Soc.* **2008**, 130, 16162-16163.
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- 62) Annamali, R.; Linton, E. C.; Kozlowski, M. C. "Design of an Organocatalytic Claisen Rearrangement Catalyst for Monodentate Substrates" *Org. Lett.* **2009**, 11, 621-624.
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- 63) Wentzel, M. T.; Kamble, R.; Wall, P.; Hewgley, J. B.; Kozlowski, M. C. "Copper Catalyzed *N*-Arylation of Hindered Substrates Under Mild Conditions" *Adv. Synth. Cat.* **2009** 351, 931-937.
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- 64) Morgan, B. J.; Dey, S.; Johnson, S. W.; Kozlowski, M. C. "Total Synthesis of Cercosporin and New Photodynamic Perylenequinones: Inhibition of the Protein Kinase C Regulatory Domain" *J. Am. Chem. Soc.* **2009**, *131*, 9413–9425.
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- 65) Kozlowski, M. C.; Morgan, B. J.; Linton, E. C.; "Total Synthesis of Chiral Biaryl Natural Products by Asymmetric Biaryl Coupling" *Chem. Soc. Rev.* **2009**, *38*, 3193-3207.
- 66) Turkish, A. R.; D' Ambrosio, D.; Tran, A.; Cromley, D.; Trokel, S.; Kozlowski, M. C.; Li, J.; Garbarino, J.; Billheimer, J. T.; Sturley, S. L. "Esters of long chain dialcohols are synthesised by members of the human DGAT2 gene superfamily; Acyl-CoA Dialcohol Acyltransferase 1 (ADAT1) and Monoacylglycerol Acyltransferase 3 (MGAT3)" *J. Biol. Chem.* Submitted.
- 67) Mulrooney, C. A.; Morgan, B. J.; Li, X.; Kozlowski, M. C. "Perylenequinone Natural Products: Asymmetric Synthesis of the Oxidized Pentacyclic Core" *J. Org. Chem.* in press.
- 68) Morgan, B. J.; Mulrooney, C. A.; O'Brien, E. M.; Kozlowski, M. C. "Perylenequinone Natural Products: Total Syntheses of the Diastereomers (+)-Phleichrome and (+)-Calphostin D by Assembly of Centrochiral and Axial Chiral Fragments" *J. Org. Chem.* in press.
- 69) Morgan, B. J.; Mulrooney, C. A.; Kozlowski, M. C. "Perylenequinone Natural Products: Evolution of the Total Synthesis of Cercosporin" *J. Org. Chem.* in press.
- 70) O'Brien, E. M.; Li, J.; Carroll, P. J.; Kozlowski, M. C. "Synthesis of the Cores of Hypocrellin and Shiraichrome: Diastereoselective 1,8-Diketone Aldol Cyclization" *J. Org. Chem.* in press.
- 71) O'Brien, E. M.; Morgan, B. J.; Mulrooney, C. A.; Kozlowski, M. C. "Perylenequinone Natural Products: Total Synthesis of Hypocrellin A" *J. Org. Chem.* in press.

Book Sections and Chapters

- 1) Phuan, P.-W.; Kozlowski, M. C. "2.15.8 Product Class 8: Naphthyridines" in *Category 2: Hetarenes and Related Ring Systems Volume 15: Six-Membered Hetarenes with One Nitrogen or Phosphorus Atom*, Science of Synthesis, Thieme: New York, 2005; pp 947-985.
[http://dx.doi.org/10.1055/tcsos-015\(2006.1\)-01638](http://dx.doi.org/10.1055/tcsos-015(2006.1)-01638)
- 2) Kozlowski, M. C.; Kamble, R. "1,5-Diaza-cis-decalin" e-EROS, Article Online Posting Date: September 15, 2006.
<http://dx.doi.org/10.1002/047084289X.rn00646>
- 3) Morgan, B. J.; Kozlowski, M. C. "(–)-Sparteine" EROS, Article Online Posting Date: March 15, 2007.
<http://dx.doi.org/10.1002/047084289X.rs119.pub2>
- 4) Morgan, B. J.; Kozlowski, M. C. "(5S)-2,2,3-Trimethyl-5-(phenylmethyl)-4-imidazolidinone" EROS, Article Online Posting Date: March 14, 2008
<http://dx.doi.org/10.1002/047084289X.rn00807>

Books

Walsh, P. J.; Kozlowski, M. C. "Fundamentals of Asymmetric Catalysis" University Science Books: 2008. <http://www.uscibooks.com/>

Patents

"Asymmetric Synthesis of Allyl Oxidoles" U.S. Provisional Patent Application filed 6/16/08.

The following compounds have been licensed to Sigma-Aldrich:

(*R,R*)-1,5-diaza-*cis*-decalin copper iodide catalyst
(*S,S*)-1,5-diaza-*cis*-decalin copper iodide catalyst
dimethyl (1*R*)-2,2'-dihydroxy-1,1'-binaphthalene-3,3'-dicarboxylate
dimethyl (1*S*)-2,2'-dihydroxy-1,1'-binaphthalene-3,3'-dicarboxylate
(*R,R*)-cyclohexanediamine-(*p-tert*-butyl)-(morpholin-1-ylmethyl)-salen
(*S,S*)-cyclohexanediamine-(*p-tert*-butyl)-(morpholin-1-ylmethyl)-salen
ethylenediamine-(*p-tert*-butyl)-(morpholin-1-ylmethyl)-salen
(*R,R*)-cyclohexanediamine-(*p-tert*-butyl)-(piperid-1-ylmethyl)-salen
(*S,S*)-cyclohexanediamine-(*p-tert*-butyl)-(piperid-1-ylmethyl)-salen
ethylenediamine-(*p-tert*-butyl)-(piperid-1-ylmethyl)-salen
(*R*)-2-hydroxy-2-phenylbutyric acid
(*S*)-2-hydroxy-2-phenylbutyric acid

Academic, Industrial Seminars, & Invited Conferences

- 1997:** DuPont Central Research and Development
PUDDUP (Univ. of Penn., Univ. of Delaware, and DuPont Inorganic Chemists' Seminar Series)
- 1998:** Bryn Mawr College
- 1999:** NSF Workshop on Inorganic Chemistry
- 2000:** Temple University
Bristol-Myers Squibb, Wallingford
MARM ACS Symposium, University of Delaware
Stereochemistry Gordon Conference
Heterocyclic Compounds Gordon Conference
NSF Workshop on Natural Products and Organic Synthesis
Organic Reactions & Processes Gordon Conference
2000 Southeast/Southwest ACS Symposium on Asymmetric Synthesis with Chiral Carbanions
- 2001:** Villanova University
Bristol-Myers Squibb, New Brunswick
Bristol-Myers Squibb, Lawrenceville
Johnson Matthey, West Deptford
North Jersey ACS Section: NJ Organic Topical Seminar, Seton Hall University
The Future is Now Symposium, 222th National Meeting of the American Chemical Society
University of Pittsburgh
Brown University
Dartmouth College
Rennselear Polytechnic Inst., George Lesher Lecturer in Bioorganic and Medicinal Chemistry
- 2002:** Organic Reaction and Processes Gordon Conference

Natural Products Gordon Conference
Boston College
SUNY Stony Brook
South Jersey ACS Section
Columbia University
University of Delaware
University of Utah
Colorado State
University of Colorado at Boulder
University of Virginia
PennState
University of Michigan
University of Illinois at Urbana-Champaign
University of California at Berkeley
Stanford University
Scripps Institute
Princeton University
University of California at San Diego
California Institute of Technology
University of California at Los Angeles
Bayer
Pfizer
Eli Lilly
University of Minnesota
University of Wisconsin at Madison
University of Indiana at Bloomington
University of California at Irvine
University of California at Santa Barbara
Swarthmore

- 2003:** Philadelphia Organic Chemists' Club
Paul Reider Symposium: Earle B. Barnes Award for Leadership in Chemical Research
Management, 225th National Meeting of the American Chemical Society
"Caveat Pensionarius: A Symposium in Honor of Paul Bartlett on the Occasion of his
Academic Retirement"
19th International Congress of Heterocyclic Chemistry
Chiral USA 2003
NSF/DST Workshop: Recent Advances in Organometallic Catalysis and Olefin
Polymerization, Madras, India
Texas A&M
University of Texas at Austin
Sepracor
University of North Carolina
Duke University
Johnson & Johnson
Rutgers, New Brunswick
IIT Kanpur, India
IISc Bangalore, India (2 lectures)
IIT Guwahati, India (2 lectures)
- 2004:** Coordination Chemistry of Enantioselective Catalysts, 227th National Meeting of the
American Chemical Society

Women in Organic Synthesis, 228th National Meeting of the American Chemical Society
Aventis
Hoffman-LaRoche
University of Rochester
The College of New Jersey
Pfizer, St. Louis
Hood College

2005: 3D Pharmaceuticals
University of Arizona
Amgen, Thousand Oaks
William & Mary
St. Joseph's University
Johns Hopkins University

2006: Hamilton College
Richard Stockton College
MARM Target Organic Synthesis Symposium

2007: Physical Organic Chemistry Gordon Conference
Chiral USA 2007

2008: University of Oregon
Oregon State University
University of California at Davis, Miller Symposium
Heterocycles Gordon Conference
Balticum Organicum Syntheticum, Vilnius, Lithuania
Marburg University
University of Zürich
University of Liverpool
ESPCI, Paris
Boston College
University of New Hampshire
18th Symposium on Optically Active Compounds, Tokyo, Japan
RIKEN Institute, Japan
Waseda University, Japan
Tokyo University of Science, Japan
Chiba University, Japan

2009: Dartmouth
Case Western University
University of Buffalo

Book Reviews

Kozlowski, M. C. "Review of Modern Catalytic Methods for Organic Synthesis with Diazo Compounds, M. Doyle, M. A. McKervey and T. Ye, ISBN 0-471-13556-9", *Chemtracts - Organic Chemistry* **1999**, 12(7).

Kozlowski, M. C. "Chiral Diazaligands for Asymmetric Synthesis. Topics in Organometallic Chemistry, 15 Edited by Marc Lemaire (Université Claude Bernard Lyon 1) and Pierre Mangeney

(Université P. et M. Curie, Paris). Springer: Berlin, Heidelberg, New York. 2005. x + 302 pp. \$299.00. ISBN 3-540-26064-1.", *J. Am. Chem. Soc.* **2006**, 128, 9574.

Teaching Experience

Fall 1997	Chemistry 443 Organic Synthetic Methods 22 students enrolled
Fall 1998	Chemistry 443 Organic Synthetic Methods 23 students enrolled
Fall 1999	Chemistry 443 (with Jeff Winkler) Organic Synthetic Methods, 21 students enrolled
Fall 1999	Chemistry 241 Organic Chemistry I, 73 students enrolled
Fall 1999	Pharmacology (guest lecturer)
Fall 2000	Chemistry 443 Organic Synthetic Methods, 28 students enrolled
Fall 2000	Pharmacology (guest lecturer)
Spring 2001	Chemistry 241 Organic Chemistry I, 120 students enrolled
Fall 2001	Chemistry 443 Organic Synthetic Methods, 17 students enrolled
Fall 2002	Chemistry 443 Organic Synthetic Methods, 16 students enrolled
Spring 2003	Chemistry 241 Organic Chemistry I, 100 students enrolled
Fall 2003	Chemistry 541 Physical Organic Chemistry, 15 students enrolled
Spring 2004	Chemistry 241 Organic Chemistry I, 87 students enrolled
Summer 2004	Chemistry 241 Organic Chemistry I, 92 students enrolled
Fall 2004	Chemistry 241 Organic Chemistry I (majors), 20 students enrolled
Fall 2004	Chemistry 541 Physical Organic Chemistry, 17 students enrolled
Fall 2005	Chemistry 541 Physical Organic Chemistry, 14 students enrolled
Spring 2007	Chemistry 701-003 Organic Spectroscopy, 10 students enrolled
Fall 2007	Chemistry 241 Organic Chemistry I (majors), 20 students enrolled
Fall 2007	Chemistry 443 Organic Synthetic Methods, 22 students enrolled
Fall 2008	Chemistry 443 Organic Synthetic Methods, 26 students enrolled

Course Development:

Summer 2001	ICDF grant: Molecular Graphics and Computer Modeling for Chemistry 241 \$3,000 7/1/01 - 6/30/02
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Research Students Supervised

Undergraduate Students:

Catherine Evans	Penn undergraduate: 1997-1999 (Benjamin Franklin Scholar); PhD Boston College; Research Scientist, Infinity Pharmaceuticals
Eric Keebler	Univ. Delaware undergraduate: 1998-1999 (NSF-REU Summer 1998)
Frank Knoll	Penn undergraduate: Summer 1998
Toby Zaleski	University of Sussex undergraduate: Summer 1998; PhD Brown University
Laurie Schenkel	Penn undergraduate: 1998-2000 (NSF-REU Summer 1999); PhD U.C. Berkeley; Research Scientist, Amgen, Boston
Chris Hoess	Penn undergraduate: 1999-2000 (Vagelos Scholar)
Jen Bartels	Penn undergraduate: 1999-2000 (Penn Undergraduate Res. Prog.; NSF-REU Summer 2000)
Judd Flesch	Penn undergraduate: 2000 (NSF-REU Summer 2000)
Brett Dunn	Penn undergraduate: 2000-2001
B.J. Morgan	Kenyon undergraduate (NSF-REU Summer 2003); PhD program in chemistry at the University of Pennsylvania
Kusha Tavakoli	Penn undergraduate: Spring 2004
Jason Reminick	Penn undergraduate: Spring 2004

Miriam Bowring Yale undergraduate: Summer 2004 (NSF-REU Summer 2004); PhD program in chemistry at the University of California, Berkeley

Jason Vitullo Penn undergraduate: Summer 2004, Fall 2004, Spring 2005, Fall 2005, Spring 2006

Jon Ghergurovich Penn undergraduate: Summer 2005-Spring 2006

Magaly Ramirez University of Puerto Rico at Cayey undergraduate: Summer 2005 (NSF-REU Summer 2005)

Carla Taylor Washington & Lee University undergraduate: Summer 2005

Andre Isaacs College of Holy Cross undergraduate: Summer 2005; PhD program in chemistry at the University of Pennsylvania

P. Triyawatanyu Penn undergraduate: Spring 2006

Christine Skibinski Richard Stockton College undergraduate: undergraduate: Summer 2006 & 2007

Esther Kim Cornell undergraduate: Summer 2006 (NSF-REU)

Jingxian Li Penn undergraduate (Vagelos Scholar): Fall 2006-present

Carilyn Torruellas University of Puerto Rico at Cayey undergraduate: Summer 2007 (NSF-REU)

Amber Norman University of Nebraska at Kearney: Spring –Summer 2008; PhD program in chemistry at the University of Kansas

Graduate Students:

Xiaolin Li B.S. Peking Univ.; Ph.D. Fall 2002; Novartis, San Diego

Dana Freed B.S. Bryn Mawr College; M.S. Summer 2000

Jason Skudlarek B.S. Georgia Tech.; M.S. Fall 2000; Metastatix, Georgia

Karen Marcantonio B.S. Connecticut College; M.S. Summer 1999; Merck, Rahway

Erin DiMauro B.A. Wesleyan University; Ph.D. Summer 2003; Amgen, Boston

Puay-Wah Phuan B.S.; University of Oregon; Ph.D. Fall 2003; Research Chemist, Inst. for Neurodegenerative Disease, UCSF

Evan DiVirgilio B.S. SUNY Binghamton; M.S. Spring 2004; Amgen, Thousand Oaks

Stephen Waters B.S. Univ. Pittsburgh; Ph.D. Spring 2004; Assistant Professor, University of Vermont

J. Brian Hewgley B.S. Univ. Tennessee; Ph.D. Summer 2005; General Electric, Schenectady

Carol Mulrooney B.S. Univ. Connecticut; Ph.D. Summer 2006; Broad Institute, Boston

V. Annamalai B.S. Georgia Inst. Tech.; Ph.D. Fall 2006; postdoc with Laura Kiessling (Univ. Wisconsin)

Michael Fennie B.S. Canisius; Ph.D. Summer 2006; SanofiAventis, New Jersey

Michael Wentzel B.S. Creighton College; M.S. Spring 2007; Ph.D. student University of Minnesota

Erin O'Brien B.S. Mount Allison Univ.; Ph.D. Summer 2007; Millenium, Boston

Andrew Lowell B.S. Washington State Univ.; Ph.D. Fall 2008

B.J. Morgan B.A. Kenyon College ; Ph.D. Summer 2009; Broad Inst.

Elizabeth Dugan B.S. George Washington Univ.; Ph.D. Summer 2009; High School Teaching

Joshua Dickstein B.S. Johns Hopkins Univ.; Ph.D. Summer 2009; Bridgestone

Scott Allen B.S. Pennsylvania State Univ.; third year graduate student

Ryan Walvoord B.S. Rochester Inst. Tech.; third year graduate student

Erin Podlesney B.S. Gettysburg College; third year graduate student

Trung Cao B.S. Ho Chi Minh University of Pedagogy; third year graduate student

Rosaura Padilla-Salinas B.S. University of Colorado at Colorado Springs, second year graduate student

John Curto B.S. Holy Cross, second year graduate student

Postdoctoral Fellows:

Bishwajit Ganguly 9/99 - 8/00; Ph.D. IISc Bangalore; Central Salt and Marine Chemicals Res. Inst., Bhavnagar, India

Jaemoon Yang 4/00 - 6/01; Ph.D. Univ. Pittsburgh; research scientist at Cambridge Isotope

Zhenrong Xu	Labs 5/00 - 7/02; Ph.D. Shanghai Inst. Org. Chem.; research scientist at Vitae Pharmaceuticals
Salim Barkallah	8/00 - 12/01; Ph.D. Univ. Tunis, Tunisia; research scientist at Cambridge Isotope Labs
Xu Xie	8/00 - 8/02; Ph.D. Shanghai Inst. Org. Chem.
K. Malolanarasimhan	12/00 - 12/01; Ph.D. Rutgers Univ.; research scientist AstraZeneca R&D Bangalore, India
Manoranjan Panda	1/01 - 10/02; Ph.D. IISc Bangalore; research scientist AstraZeneca R&D Bangalore, India
James Ianni	10/02 - 3/31/06; Ph.D. Drexel Univ.; research scientist at High Performance Technologies
Rakeshwar B. Chor	1/04 - 5/05; Ph.D. Univ. Regensburg, Germany; research scientist Dr. Reddy's Labs Hyderabad, India
Rajesh Kamble	10/04 - 3/31/06; Ph.D. IIT Kanpur; research associate at University of Pennsylvania
Sandeep Basra	11/04 - 8/05; Ph.D. Univ. Bristol, U. K.; patent specialist at DF-MP, Germany
Philip Wall	7/05 - 6/06; Ph.D. Univ. Bristol, U. K.; research scientist Pfizer, U. K.
Sangeeta Dey	1/08 - present; Ph.D. Univ. Nebraska Lincoln; postdoctoral associate Princeton

Theses Supervised

- 1) Karen M. Marcantonio; M.S. Thesis "Synthesis, Resolution, and pi-Allylation Studies of 8-(2-Diphenylphosphino-1-naphthyl)quinoline: A Novel Ligand for Asymmetric Catalysis" Fall 1999.
- 2) Jason W. Skudlarek; M.S. Thesis "Synthesis of a Novel *cis*-Decalin Ligand Scaffold and Application of Boron-Mediated Reactions to Asymmetric Ligand Evaluation" Fall 2000.
- 3) Dana A. Freed; M. S. Thesis "Studies of the Palladium Catalyzed Amidocarbonylation Reaction" Fall 2000.
- 4) Xiaolin Li; Ph. D. Thesis "Part I: Development of Chiral 1,5-Diaza-*cis*-decalin Ligands for Asymmetric Synthesis. Part II: Enantioselective Oxidative Biaryl Coupling Reactions. Part III: Synthetic Studies of Perylenequinone Natural Products." Fall 2002.
- 5) Erin F. DiMauro, Ph. D. Thesis "Development of Bifunctional Salen Catalysts with Modular Ligand Motifs for Asymmetric Synthesis" Spring 2003.
- 6) Puay-Wah Puan, Ph. D. Thesis "Part I. Novel Ligands for Asymmetric Reactions. Part II. Development of Biconformational Diamines as Chemo-responsive Molecular Switches" Fall 2003.
- 7) Evan S. DiVirgilio, M. S. Thesis "Stereoselective Oxidative Coupling Reactions of Phenylcyanoacetate Derivatives and Highly Functionalized Naphthols" Spring 2004.
- 8) Stephen P. Waters; Ph.D. Thesis "Studies Toward the Total Synthesis of Purpuromycin. Synthesis of Bisbenzannelated 5,6-Spiroketal via a [3+2] Dipolar Cycloaddition Strategy" Spring 2004.
- 9) J. Brian Hewgley; Ph.D. Thesis "Studies of a Copper Oxidase Catalyst in Enantioselective Biaryl Coupling" Fall 2005.
- 10) Carol A. Mulrooney, Ph.D. Thesis "Part I: Substrate Scope of the Asymmetric Biaryl Coupling Reaction. Part II: Asymmetric Synthesis of a Perylenequinone. Part III: Progress toward the Synthesis of Cercosporin" Summer 2006
- 11) Michael W. Fennie, Ph.D. Thesis "Part I: Asymmetric Alkylation of α -Ketoesters and α -Iminoesters Using Bifunctional Catalysts. Part II: Strategies for the Synthesis of the Spirocyclic Cores of the Rubromycins" Summer 2006
- 12) Venkatachalam Annamalai, Ph.D. Thesis "Part 1: Using Quantitative Structure Selectivity Relationship (QSSR) Models to Predict the Selectivity of New β -Amino Alcohols in the Addition of Et_2Zn to Benzaldehyde. Part 2: Using Functionality Mapping (FUNMAP) and Database Mining Techniques (CAVEAT) to Design a Catalytic, Enantioselective Claisen Rearrangement" Fall 2006

- 13) Michael Wentzel, M.S. Thesis "Copper Catalyzed *N*-Arylation of Hindered Substrates Under Mild Conditions" Spring 2007
- 14) Erin O'Brien, Ph.D. Thesis "Part I: Development of a Diastereoselective, 1,8-Diketone Aldol Cyclization Total Synthesis of Hypocrellin A. Part II: Synthesis of a Wyeth Opiate Antagonist" Summer 2007
- 15) Andrew N. Lowell, Ph.D. Thesis "Toward the Total Synthesis of Purpuromycin: A Hemiketal Conjugate Addition Strategy and Use of a Diketone to Aid Spiroketal Formation" Fall 2008
- 16) Elizabeth C. Linton, Ph.D. Thesis "The First Asymmetric Total Synthesis of Nigerone Part II: Catalytic, Enantioselective Claisen Rearrangements" Summer 2009
- 17) Barbara J. Morgan, Ph.D. Thesis "Synthetic Studies and Biological Evaluation of the Perylenequinones: Total Syntheses of Cercosporin, (+)-Calphostin D, (+)-Phleichrome and Novel Photodynamic Perylenequinones" Summer 2009
- 18) Joshua S. Dickstein, Ph.D. Thesis "Part I: Palladium-Mediated Aromatic Decarboxylation Part II: Formation of α,α -Disubstituted α -Amino Acids via Three Component Coupling of α -Iminoesters" Summer 2009

Departmental & University Service

Cumulative Exam Coordinator (Organic Division)	8/97 - 5/02
Freshman Advising	8/98 - 5/99
Search Committee for Bioorganic Senior Hire (Chemistry)	8/98 - 8/99
Chemistry Graduate Committee	1/99 - 8/02
Organic Seminar Series Coordinator (Chemistry)	8/00 - 8/02
FEW Grant: Women in Chemistry (with M. Joullie, M. Lester)	10/1/00 - 9/30/02
Chemistry Safety Committee	8/02 - 8/05
FEW Grant: Women in Chemistry (with M. Lester)	10/1/02 - 9/30/03
FEW Grant: Women in Chemistry (with M. Joullie, M. Lester)	10/1/03 - 9/30/04
University Teaching Awards Committee	3/04
Cumulative Exam Coordinator (Organic Division)	8/04 - 8/05
Graduate Advisor (Organic Division)	8/04 - 8/05
Penn Women's Biomedical Society Faculty Chat Leader	9/04 - 4/05
FEW Grant: Women in Chemistry (with M. Joullie, M. Lester)	10/1/05 - 9/30/06
FEW Grant: Women in Chemistry (with M. Joullie, M. Lester, S. Park)	10/1/06 - 9/30/07
FEW Grant: Women in Chemistry (with M. Joullie, M. Lester, S. Park)	10/1/07 - 9/30/08
FEW Grant: Women in Chemistry (with M. Joullie, M. Lester, S. Park, D. Huryn)	10/1/08 - 9/30/09
Chemistry Web Committee	8/05 - 8/09
SAS Graduate Education Committee	1/09 - 5/10
Chemistry Graduate Committee (Chair)	8/05 - present
Freshman Advising	6/05 - present
Chair's Advisory Committee	8/09 - present
Graduate Advisor (Organic Division)	8/09 - present

Extramural Service

Philadelphia Organic Chemist's Club (Chair-elect 1997-1998; Chair 1998-1999)
 Temple University Dissertation Committees (January 1998, August 2000)
 Organizer and Mediator: ACS Award Symposium for Encouraging Women into Careers in the Chemical Sciences; 215th American Chemical Society National Meeting; Dallas, TX; April 1, 1998
 NIH-NIAID Special Emphasis Panel RFP-00-14 (9/99 - 1/00)
 NIH Chemistry/Biophysics Fellowships Panel ZRB1 F04 20 (3/14/03 - 3/15/03)
 American Chemical Society, Awards Selection Committee (2005-2007, 2009-2011)
 American Cancer Society CCD Proposal Review Study Section, Ad Hoc Member (1/2005)
 Editorial Advisory Board, Journal of Organic Chemistry (2005 - 2011)

American Chemical Society, Organic Division Member-at-Large (2006-2008)
American Cancer Society CCD Proposal Review Study Section, Permanent Member (1/06-12/10)
AAAS, Chemistry Electorate Nominating Committee (2006-2009)
NSF Synthetic Chemistry Panel (3/2008)
National Academy of Sciences "Chemistry Research Platform for Pharmaceuticals" (8/14/08)
NIH-SBCB Study Section (2/2009)
American Chemical Society, Organic Division Secretary Treasurer (20010-2013)

Pending Support

NIH RO1 RO1GM087605 4/1/09 – 3/31/13
"Catalysts Designed for Asymmetric Organic Reactions"

NIH T32GM07133 (PI Marmorstein) 7/1/10 – 6/30/15
"Predoctoral Training at the Chemistry-Biology Interface"
Training grant for graduate students in a program centered on the interface of chemistry and biology.

NSF CRIF (PI Lester) 1/1/10 – 12/31/12
"Purchase of Departmental Beowulf Cluster for Computational Chemistry"
A multi-user computer cluster will be used for high-end chemistry computation requiring large memory or parallel processing.

Current Support

PRF Grant 47616-AC1 3/1/08 – 8/30/10
"Formation of Functional Amino Acids via Three-Component Coupling: An Unusual Addition Mode to the Nitrogen of α -Iminoesters"

NSF CHE0911713 8/01/09 – 7/31/12
"Oxidative Methods for C-C and C-N Bond Formation"

NIH R56 CA109164 8/01/09 – 7/31/10
"Synthesis of Novel Anticancer Agents"

NIH R01 GM59945 \$200,000 (TDC) 8/01/09 – 7/31/10
"Designing Ligands for Reactions Using Computational Techniques"

NSF GOALI (co-PI; with G. Molander, P. Walsh) 8/15/09 – 7/31/12
"High Throughput Experimentation for Reaction Optimization"

NSF Chemical Instrumentation (co-PI with P. Walsh, J. Bode, I. Dmochowski, L. Sneddon, A. Smith) "Purchase of an X-Ray Diffractometer" 7/1/09 – 6/30/10

Past Support

Merck Basic Research Grant 11/1/97-10/31/00

University of Pennsylvania Research Foundation 2/1/98 - 1/31/99
"Computer-Aided Design of Asymmetric Reaction Processes"

NSF Leveraged Starter Option Grant 4/1/98 - 4/31/00

"Asymmetric Amino Acid Synthesis by Imine Hydroformylation"

DuPont Young Investigator Award 7/1/98 - 6/31/01
 "Rational Design of Chiral Auxiliaries and Catalysts for Asymmetric Synthesis"

Petroleum Research Fund Type G Grant 9/1/98 - 8/31/00
 "Rational Design of Chiral Auxiliaries and Catalysts for Asymmetric Synthesis"

University of Pennsylvania Research Foundation 6/15/99 - 6/14/00
 "Towards Alternate Amino Acid Synthesis: Investigations of Amidocarbonylation and Imine Carbonylation Reactions"

Pharmacia & Upjohn Research Grant 12/01/99 - 11/30/00

University of Pennsylvania Research Foundation 6/1/01 - 5/30/02
 "Efficient Methods of C-C Bond Formation: Oxidative Coupling of Stabilized Anions"

Petroleum Research Fund Type AC Grant 9/1/00 - 8/31/02
 "Applications of *cis*-Decalin Ligands in Asymmetric Synthesis"

NCSA AAB Grant 10/1/01-9/30/02
 "Electronic Structure Calculations for the Development of Chiral Ligands for Asymmetric Synthesis"

NSF CRIF Grant - Beowulf Cluster (co-PI) 2/01/02-1/31/03
 "Beowulf Cluster for Computational Chemistry at the University of Pennsylvania"

University of Pennsylvania Research Foundation 7/01/02 - 6/30/03
 "Bifunctional Salen Catalysts for Asymmetric Synthesis"

NCSA AAB Grant 10/1/02-9/30/03
 "Electronic Structure Calculations for the Development of Chiral Ligands for Asymmetric Synthesis"

Alfred P. Sloan Foundation Research Fellowship 9/16/02 - 9/15/04

NCSA AAB Grant 1/01/04 - 6/10/05
 "Electronic Structure Calculations for the Development of Chiral Ligands for Asymmetric Synthesis"

National Institutes of Health R01 GM59945 3/1/00 - 2/27/06
 "Designing Ligands for Reactions Using Computational Techniques"

NSF CAREER Award 4/1/01 - 3/31/06
 "Asymmetric Oxidative Methods for C-C Bond Formation"

American Cancer Society 7/1/02 - 6/30/06
 "Synthetic and Biological Studies of the Rubromycins"

NIH RO1 CA109164-01 7/20/04 - 4/30/09
 "Synthesis of Novel Anticancer Agents"

NSF Grant 0616885 8/1/06 - 7/31/09
 "Oxidative Methods for C-C and C-N Bond Formation"