

Curriculum Vitae: Michael J. Krische, Professor of Chemistry
University of Texas at Austin (October 2009)

A. Contact Information

B. Professional Preparation/Positions

C. Selected Honors and Awards

D. Scientific Publications

E. Professional References

F. Research Presentations

A. Contact Information

Prof. Michael J. Krische, Ph.D. (Born: 9/16/66)
Department of Chemistry and Biochemistry
University of Texas at Austin
Austin TX, 78712, USA

Phone: (512) 232-5892
FAX: (512) 471-8696
Email: mkrische@mail.utexas.edu
Web: <http://www.cm.utexas.edu>

B. Professional Preparation/Positions

Robert A. Welch Chair in Science
University of Texas at Austin (9/07-Present)

Professor of Chemistry
(*Direct Promotion from Assistant Professor*)
University of Texas at Austin (9/04-Present)

Assistant Professor of Chemistry
University of Texas at Austin (9/99-8/03)

NIH Post-Doc., Université Louis Pasteur (1/97-8/99)
Advisor: Professor Jean-Marie Lehn

Ph.D. Chemistry, Stanford University (9/90-12/96)
Advisor: Professor Barry M. Trost

Fulbright Fellow, Helsinki University, (9/89-6/90)
Advisor: Professor Ari M. P. Koskinen

B.S. Chemistry, Univ. of California at Berkeley
Advisor: Professor Henry Rapoport (8/86-8/89)

C. Selected Honors and Awards

Mukaiyama Award, Society of Synthetic
Organic Chemistry, Japan (SSOCJ), 2010

Humboldt Foundation Senior Research Award
Awarded Summer 2009- Summer 2011

Freiburg Institute for Advanced Studies (FRIAS)
External Senior Fellow, 1/09- 12/11

Tetrahedron Young Investigator Award
Awarded Summer 2009

Novartis Lectureship Award
Awarded Spring 2008

Presidential Green Chemistry Challenge Award
Awarded Summer 2007

Dowpharma Prize - Creativity in Chiral
Chemistry, Awarded Summer 2007

ACS Elias J. Corey Award
Awarded Spring 2007

Solvias Ligand Prize
Awarded Summer 2006

Johnson & Johnson Focused Giving Award
Awarded Spring 2005

The Society of Synthetic Chemistry, Japan
2005 - Lectureship on Organic Synthesis

Camille Dreyfus Teacher-Scholar Award
Awarded Spring 2003

Alfred P. Sloan Research Fellow
Awarded Spring 2003

Eli Lilly Granteeship for Untenured Faculty
Awarded Fall 2002

Frasch Foundation Award in Chemistry
Awarded Fall 2002

Research Corporation, Cottrell Scholar Award
Awarded Spring 2002

UT College of Natural Sciences, Teaching
Excellence Award, Awarded Spring 2002

National Science Foundation, CAREER Award
Awarded Fall 2000

Maître de Conference, Collège de France
2/99 to 7/99

National Institute of Health, Post-Doctoral
Fellow, Université Louis Pasteur, 1/97-1/99

Veatch Graduate Fellowship
Stanford University, 1/95 to 1/96

Sigma Xi Grantee/Visiting Researcher
Surrey University, UK, 6/90 to 8/90

Fulbright Fellow, Helsinki University, Finland
9/89 to 5/90

Presidents Undergraduate Fellow
UC Berkeley, 9/87 to 6/88

For Named Lectureships, Please See "Research Presentation" Section

D. Publications (*Independent Contributions Designated by Asterisk**)

D.1. Reviews, Chapters and Invited Publications

- *132. "Iridium Catalyzed Carbonyl Allylation from the Alcohol Oxidation Level *via* Transfer Hydrogenation: Minimizing Preactivation for Synthetic Efficiency," Han, S. B.; Kim, I. S.; Krische, M. J. *Chem. Commun.* **2009**, In Press.
- *131. "Catalytic Carbonyl Addition through Transfer Hydrogenation: A Departure from Preformed Organometallic Reagents," Bower, J. F.; Kim, I. S.; Patman, R. L.; Krische, M. J. *Angew. Chem. Int. Ed.* **2009**, *48*, 34.
- *130. "Formation of C-C Bonds *via* Ruthenium Catalyzed Transfer Hydrogenation: Carbonyl Addition from the Alcohol or Aldehyde Oxidation Level," Shibahara, F.; Krische, M. J. *Chem. Lett.* **2008**, *37*, 1102.
- *129. "Formation of C-C Bonds *via* Catalytic Hydrogenation and Transfer Hydrogenation: Vinylation, Allylation and Enolate Addition," Patman, R. L.; Bower, J. F.; Kim, I. S.; Krische, M. J. *Aldrichim. Acta* **2008**, *41*, 95.
- *128. "Diastereo- and Enantioselective Reductive Aldol Addition of Vinyl Ketones *via* Catalytic Hydrogenation," Han, S. B.; Hassan, A.; Krische, M. J. *Synthesis* **2008**, 2669.
- *127. "Hydrogenation for C-C Bond Formation," Bower, J. F.; Krische, M. J. In *Handbook of Green Chemistry*; Anastas, P. Ed. Wiley-VCH: Weinheim, 2007, Vol. 1, pp 205-254.
- *126. "Enantiomerically Enriched Allylic Alcohols and Allylic Amines *via* C-C Bond Forming Hydrogenation: Asymmetric Carbonyl and Imine Vinylation," Skucas, E.; Ngai, M.-Y.; Komanduri, V.; Krische, M. J. *Acc. Chem. Res.* **2007**, *40*, 1394.
- *125. "Catalytic Enantioselective Reductive Cyclization of Acetylenic Aldehydes *via* Hydrogenation," Rhee, J. U.; Jones, R. A.; Krische, M. J. *Pract. Synth. Proc.* **2007**, 3427.
- *124. "Metal Catalyzed Reductive Aldol Coupling," Garner, S.; Han, S. B.; Krische, M. J. In *Modern Reduction Methods*; Andersson, P., Munslow, I. Eds. Wiley-VCH: Weinheim, 2008, pp 387-408.
- *123. "The Catalytic Asymmetric Stetter Reaction," Webber, P.; Krische, M. J. *Chemtract* **2007**, *19*, 262.
- *122. "Catalytic Reductive Coupling of Alkenes and Alkynes to Carbonyl Compounds and Imines Mediated by Hydrogen," Iida, H.; Krische, M. J. *Top. Curr. Chem.* **2007**, *279*, 77.
- *121. "Hydrogen-Mediated C-C Bond Formation – A Broad New Concept in Catalytic C-C Coupling," *Perspective Commemorating Receipt of the ACS Elias J. Corey Award for Outstanding Original Contribution in Organic Synthesis by a Young Investigator*. Ngai, M.-Y.; Kong, J.-R.; Krische, M. J. *J. Org. Chem.* **2007**, *72*, 1063.
- *120. "Lessons in Green Chemistry from the Smallest of Molecules – C-C Bond Formation *via* Catalytic Hydrogenation," Ngai, M.-Y.; Krische, M. J. *Chim. Oggi/Chemistry Today* **2006**, *24(4)*, 12.
- *119. "Metal Catalyzed Reductive Cyclization (C=C, C≡C, C=O Bonds)" Krische, M. J., Jang, H.-Y. In *Comprehensive Organometallic Chemistry III*; Mingos, M., Crabtree, R., Elsevier: Oxford, 2006, Vol. 10, pp 493-536.
- *118. "Hydrogen-Mediated Carbon-Carbon Bond Formation Catalyzed by Rhodium," Krische, M. J., Cho, C.-W. In *Handbook of Homogeneous Hydrogenation*. De Vries, H., Elsevier, K. Eds. Wiley-VCH: Weinheim, 2007, Vol. 2, pp 713-741.
- *117. "A Brief Perspective on Catalysis from its Origins and at the Threshold of the 21st Century," Krische, M. J. *Tetrahedron* **2005**, *61*, 6169.
- *116. "Hydrogen-Mediated Cross-Coupling of Enones and Carbonyl Compounds: Aldol Condensation *via* Catalytic Hydrogenation," Jang, H.-Y.; Krische, M. J. *Eur. J. Org. Chem.* **2004**, 3953.
- *115. "Catalytic C-C Bond Formation *via* Capture of Hydrogenation Intermediates," Jang, H.-Y.; Krische, M. J. *Acc. Chem. Res.* **2004**, *37*, 653.
- *114. "Nucleophilic Activation of Enones *via* Homogeneous Hydrogenation: Catalytic Reductive C-C Bond Formations Under Hydrogenation Conditions," Jang, H.-Y.; Huddleston, R. R.; Krische, M. J. *Chemtract* **2003**, *16*, 554.
- *113. "Synthetic Duplex Oligomers Defined *via* Covalent Casting of a 1-Dimensional Hydrogen Bonding Motif," Archer, Eric; Krische, Michael J. *Polymer Preprints (A.C.S., Div. Poly. Chem.)* **2003**, *44*, 600.
- *112. "Enones as Latent Enolates in Catalytic Processes: Catalytic Cycloreduction, Cycloaddition and Cycloisomerization," Huddleston, R. R.; Krische, M. J. *Synlett* **2003**, 12.

- *111. "Second Generation Light-Driven Molecular Motors: Unidirectional Rotation Controlled by a Single Stereogenic Center with Near-Perfect Photoequilibria and Acceleration of the Speed of Rotation by Structural Modification," Archer, E. A.; Krische, M. J. *Chemtract* **2002**, *15*, 465.
- *110. "The First Direct and Enantioselective Cross-Aldol Reaction of Aldehydes," Cauble, D. F., Jr.; Krische, M. J. *Chemtracts* **2002**, *15*, 380.
- *109. "The Covalent Casting of One-Dimensional Hydrogen Bonding Motifs: Toward Oligomers and Polymers of Predefined Topography," Archer, E. A.; Sochia, A. E.; Krische, M. J. *Chem. Eur. J.* **2001**, *7*, 2059.
- *108. "Hydrogen Bonding in Noncovalent Synthesis: Selectivity and the Directed Organization of Molecular Strands," Archer, E. A.; Gong, H.; Krische, M. J. *Tetrahedron* **2001**, *57*, 1139.
107. "Utilization of Persistent Hydrogen-Bonding Motifs in the Self-Assembly of Supramolecular Architectures" Lehn, J.-M.; Krische, M. J.: A Chapter in "Structure and Bonding," **2000**, *94*, 3.
106. "Transition Metal Catalyzed Cycloisomerizations," Trost, B.; Krische, M. J. *Synlett* **1998**, 1.

D2. Primary Literature Publications

- *105. "Diastereo- and Enantioselective *anti*-Alkoxyallylation Employing Allylic *gem*-Dicarboxylates as Allyl Donors via Iridium Catalyzed Transfer Hydrogenation," Han, S. B.; Han, H.; Krische, M. J. *Submitted for Publication*.
- *104. "ESI-MS, DFT and Synthetic Studies on the H₂-Mediated Coupling of Acetylene: Insertion of C=X Bonds into Rhodacyclopentadienes and Brønsted Acid Cocatalyzed Hydrogenolysis of Organorhodium Intermediates," Williams, V. M.; Kong, J.-R.; Ko, B.-J.; Mantri, Y.; Brodbelt, J. S.; Baik, M.-H.; Krische, M. J. *J. Am. Chem. Soc.* **2009**, *131*, 16054.
- *103. "Protecting-Group-Free Synthesis of 3-*tert*-Prenylated Indoles: Contiguous All Carbon Quaternary Centers via Tertiary Neopentyl Substitution," Grant, C. D.; Krische, M. J. *Org. Lett.* **2009**, *11*, 4485.
- *102. "Direct Prenylation of Aromatic and α,β -Unsaturated Carboxamides via Iridium Catalyzed C-H Oxidative Addition-Allene Insertion," Zhang, Y. J.; Skucas, E.; Krische, M. J. *Org. Lett.* **2009**, *11*, 4248.
- *101. "All Carbon Quaternary Centers via Ruthenium Catalyzed Hydroxymethylation of 2-Substituted Butadienes Mediated by Formaldehyde: Beyond Hydroformylation," Smejkal, T.; Han, H.; Breit, B.; Krische, M. J. *J. Am. Chem. Soc.* **2009**, *131*, 10366.
- *100. "Elongation of 1,3-Polyols via Iterative Catalyst-Directed Carbonyl Allylation from the Alcohol Oxidation Level," Hassan, A.; Lu, Y.; Krische, M. J. *Org. Lett.* **2009**, *11*, 3112.
- *99. "Concise Synthesis of the Bryostatin A-Ring via Consecutive C-C Bond Forming Transfer Hydrogenations," Lu, Y.; Krische, M. J. *Org. Lett.* **2009**, *11*, 3108.
- *98. "Enantioselective Allylation, Crotylation and Reverse Prenylation of Substituted Isatins: Iridium Catalyzed C-C Bond Forming Transfer Hydrogenation," Itoh, J.; Han, S. B.; Krische, M. J. *Angew. Chem. Int. Ed.* **2009**, *48*, 6316.
- *97. "1,*n*-Glycols as Dialdehyde Equivalents in Iridium Catalyzed Enantioselective Carbonyl Allylation and Iterative Two-Directional Assembly of 1,3-Polyols," Lu, Y.; Kim, I.-S.; Hassan, A.; Del Valle, D. J.; Krische, M. J. *Angew. Chem. Int. Ed.* **2009**, *48*, 5018.
- *96. "Enantioselective Carbonyl Reverse Prenylation from the Alcohol or Aldehyde Oxidation Level Employing 1,1-Dimethylallene as the Prenyl Donor," Han, S. B.; Kim, I.-S.; Han, H.; Krische, M. J. *J. Am. Chem. Soc.* **2009**, *131*, 6916.
- *95. "Hydroacylation of 2-Butyne from the Alcohol or Aldehyde Oxidation Level via Ruthenium Catalyzed C-C Bond Forming Transfer Hydrogenation," Williams, V. M.; Leung, J. C.; Patman, R. L.; Krische, M. J. *Tetrahedron* **2009**, *65*, 5024. (*Symposium in Print Commemorating Receipt of the Tetrahedron Young Investigator Award*).
- *94. "Asymmetric Total Synthesis of the Iridoid β -Glucoside (+)-Geniposide via Phosphine Organocatalysis," Jones, R. A.; Krische, M. J. *Org. Lett.* **2009**, *11*, 1849.
- *93. "*anti*-Aminoallylation of Aldehydes via Ruthenium Catalyzed Transfer Hydrogenative Coupling of Sulfonamido-Allenes: 1,2-Aminoalcohols," Skucas, E.; Zbieg, J. R.; Krische, M. J. *J. Am. Chem. Soc.* **2009**, *131*, 5054.
- *92. "*anti*-Diastereo- and Enantioselective Carbonyl Crotylation from the Alcohol or Aldehyde Oxidation Level Employing a Cyclometallated Iridium Catalyst: α -Methyl Allyl Acetate as a Surrogate to Preformed Crotylmetal Reagents," Kim, I. S.; Han, S.-B.; Krische, M. J. *J. Am. Chem. Soc.* **2009**, *131*, 2514.
- *91. "Direct Vinylation of Alcohols or Aldehydes Employing Alkynes as Vinyl Donors: A Ruthenium Catalyzed C-C Bond Forming Transfer Hydrogenation," Patman, R. L.; Chaulagain, M. R.; Williams, V. M.; Krische, M. J. *J. Am. Chem. Soc.* **2009**, *131*, 2066.

- *90. "Concise Stereocontrolled Formal Synthesis of (\pm)-Quinine and Total Synthesis of (\pm)-7-Hydroxyquinine *via* Merged Morita–Baylis–Hillman–Tsuji–Trost Cyclization," Webber, P.; Krische, M. J. *J. Org. Chem.* **2008**, *73*, 9379.
- *89. "Enantioselective Iridium Catalyzed Carbonyl Allylation from the Alcohol or Aldehyde Oxidation Level *via* Transfer Hydrogenative Coupling of Allyl Acetate: Departure from Chirally Modified Allyl Metal Reagents in Carbonyl Addition," Kim, I. S.; Ngai, M.-Y.; Krische, M. J. *J. Am. Chem. Soc.* **2008**, *130*, 14891.
- *88. "Diene Hydroacylation from the Alcohol or Aldehyde Oxidation Level *via* Ruthenium-Catalyzed C-C Bond-Forming Transfer Hydrogenation: Synthesis of β,γ -Unsaturated Ketones," Shibahara, F.; Bower, J. F.; Krische, M. J. *J. Am. Chem. Soc.* **2008**, *130*, 14120.
- *87. "Catalyst-Directed Diastereoselectivity in Hydrogenative Couplings of Acetylene to α -Chiral Aldehydes: Formal Synthesis of All Eight L-Hexoses," Han, S. B.; Kong, J.-R.; Krische, M. J. *Org. Lett.* **2008**, *10*, 4133.
- *86. "Branch-Selective Reductive Coupling of 2-Vinyl Pyridines and Imines *via* Rhodium Catalyzed C-C Bond Forming Hydrogenation," Komanduri, V.; Grant, C. D.; Krische, M. J. *J. Am. Chem. Soc.* **2008**, *130*, 12592.
- *85. "Ruthenium Catalyzed C-C Bond Formation *via* Transfer Hydrogenation: Branch-Selective Reductive Coupling of Allenes to Paraformaldehyde and Higher Aldehydes," Ngai, M.-Y.; Skucas, E.; Krische, M. J. *Org. Lett.* **2008**, *10*, 2705.
- *84. "Direct Copper-Free Domino Conjugate Addition-Cycloallylation using Diorganozinc Reagents: Intramolecular Allylic Substitution of Ketone Enolates," Komanduri, V.; Pedraza, F.; Krische, M. J. *Adv. Synth. Catal.* **2008**, 1569.
- *83. "Carbonyl Propargylation from the Alcohol or Aldehyde Oxidation Level Employing 1,3-Enynes as Surrogates to Preformed Allenylmetal Reagents: A Ruthenium Catalyzed C-C Bond Forming Transfer Hydrogenation," Patman, R. L.; Williams, V. M.; Bower, J. F.; Krische, M. J. *Angew. Chem. Int. Ed.* **2008**, *47*, 5220.
- *82. "Enantioselective Iridium Catalyzed Carbonyl Allylation from the Alcohol or Aldehyde Oxidation Level Using Allyl Acetate as an Allyl Metal Surrogate," Kim, I. S.; Ngai, M.-Y.; Krische, M. J. *J. Am. Chem. Soc.* **2008**, *130*, 6340.
- *81. "Ruthenium Catalyzed C-C Bond Forming Transfer Hydrogenation: Carbonyl Allylation from the Alcohol or Aldehyde Oxidation Level Employing Acyclic 1,3-Dienes as Surrogates to Preformed Allyl Metal Reagents," Shibahara, F.; Bower, J. F.; Krische, M. J. *J. Am. Chem. Soc.* **2008**, *130*, 6338.
- *80. "Diastereo- and Enantioselective Hydrogenative Aldol Coupling of Vinyl Ketones: Design of Effective Monodentate TADDOL-Like Phosphonite Ligands," Bee, C.; Han, S. B.; Hassan, A.; Iida, H.; Krische, M. J. *J. Am. Chem. Soc.* **2008**, *130*, 2747.
- *79. "Iridium Catalyzed C-C Coupling *via* Transfer Hydrogenation: Carbonyl Addition from the Alcohol or Aldehyde Oxidation Level Employing 1,3-Cyclohexadiene," Bower, J. F.; Patman, R. L.; Krische, M. J. *Org. Lett.* **2008**, *10*, 1033.
- *78. "Iridium Catalyzed Hydrocarboxylation of 1,1-Dimethylallene: Byproduct-Free Reverse Prenylation of Carboxylic Acids," Kim, I. S.; Krische, M. J. *Org. Lett.* **2008**, *10*, 513.
- *77. "Catalytic C-C Coupling *via* Transfer Hydrogenation: Reverse Prenylation, Crotylation and Allylation from the Alcohol or Aldehyde Oxidation Level," Bower, J. F.; Skucas, E.; Patman, R. L.; Krische, M. J. *J. Am. Chem. Soc.* **2007**, *129*, 15134.
- *76. "Carbonyl Allylation in the Absence of Preformed Allyl Metal Reagents: Reverse Prenylation *via* Iridium Catalyzed Hydrogenative Coupling of Dimethylallene," Skucas, E.; Bower, J. F.; Krische, M. J. *J. Am. Chem. Soc.* **2007**, *129*, 12678.
- *75. "Enantioselective Iridium Catalyzed Imine Vinylation: Optically Enriched Allylic Amines *via* Alkyne-Imine Reductive Coupling Mediated by Hydrogen," Barchuk, A.; Ngai, M.-Y.; Krische, M. J. *J. Am. Chem. Soc.* **2007**, *129*, 12644.
- *74. "Enantioselective Reductive Coupling of 1,3-Enynes to Glyoxalates Mediated by Hydrogen: Asymmetric Synthesis of β,γ -Unsaturated α -Hydroxy Esters," Hong, Y.-T.; Cho, C.-W.; Skucas, E.; Krische, M. J. *Org. Lett.* **2007**, *9*, 3745.
- *73. "Allylic Amines *via* Iridium Catalyzed C-C Bond Forming Hydrogenation: Imine Vinylation in the Absence of Stoichiometric Byproducts or Metallic Reagents," Barchuk, A.; Ngai, M.-Y.; Krische, M. J. *J. Am. Chem. Soc.* **2007**, *129*, 8432.
- *72. "Contrasteric Regiocontrol in Rhodium Catalyzed Hydrogenative Couplings of Nonsymmetric 1,3-Diynes to Ethyl Glyoxalate," Cho, C.-W.; Skucas, E.; Krische, M. J. *Organometallics* **2007**, *26*, 3860.
- *71. "Rhodium Catalyzed Reductive Mannich Coupling of Vinyl Ketones to *N*-Sulfonyl Imines Mediated by Hydrogen," Garner, S. A.; Krische, M. J. *J. Org. Chem.* **2007**, *72*, 5843.
- *70. "Enantioselective Reductive Coupling of Acetylene to *N*-Arylsulfonyl Imines *via* Rhodium Catalyzed C-C Bond Forming Hydrogenation: (*Z*)-Dienyl Allylic Amines," Skucas, E.; Kong, J.-R.; Krische, M. J. *J. Am. Chem. Soc.* **2007**, *129*, 7242.

- *69. "Iridium Catalyzed C-C Bond Forming Hydrogenation: Direct Regioselective Reductive Coupling of Alkyl-Substituted Alkynes to Activated Ketones," Ngai, M.-Y.; Barchuk, A.; Krische, M. J. *J. Am. Chem. Soc.* **2007**, *129*, 280.
- *68. "Enantioselective Reductive Coupling of 1,3-Enynes to Heterocyclic Aromatic Aldehydes and Ketones via Rhodium Catalyzed Asymmetric Hydrogenation: Mechanistic Insight into the Role of Brønsted Acid Additives," Komanduri, V.; Krische, M. J. *J. Am. Chem. Soc.* **2006**, *128*, 16448.
- *67. "Catalytic Carbonyl (Z)-Dienylation via Multicomponent Reductive Coupling of Acetylene to Aldehydes and α -Ketoesters Mediated by Hydrogen: Carbonyl Insertion into Cationic Rhodocyclopentadienes," Kong, J.-R.; Krische, M. J. *J. Am. Chem. Soc.* **2006**, *128*, 16040.
- *66. "Reductive Aldol Coupling of Divinyl Ketones via Rhodium Catalyzed Hydrogenation: *syn*-Diastereoselective Construction of β -Hydroxyenones," Han, S. B.; Krische, M. J. *Org. Lett.* **2006**, *8*, 5657.
- *65. "Asymmetric Induction in Hydrogen-Mediated Reductive Aldol Additions to α -Amino Aldehydes Catalyzed by Rhodium: Selective Formation of *syn*-Stereotriads Directed by Intramolecular Hydrogen-Bonding," Jung, C.-K.; Krische, M. J. *J. Am. Chem. Soc.* **2006**, *128*, 17051.
- *64. "Phosphine Catalyzed Allylic Substitution of Morita-Baylis-Hillman Acetates: Synthesis of *N*-Protected β -Aminophosphonic Acid Esters," Park, H.; Cho, C.-W.; Krische, M. J. *J. Org. Chem.* **2006**, *71*, 7892.
- *63. " α -Hydroxy Esters via Enantioselective Hydrogen-Mediated C-C Coupling: Regiocontrolled Reactions of Silyl-Substituted 1,3-Diynes," Cho, C.-W.; Krische, M. J. *Org. Lett.* **2006**, *8*, 3873.
- *62. "Highly Enantioselective Reductive Cyclization of Acetylenic Aldehydes via Rhodium Catalyzed Asymmetric Hydrogenation," Rhee, J.-U.; Krische, M. J. *J. Am. Chem. Soc.* **2006**, *128*, 10674.
- *61. "Branch-Selective Intermolecular Hydroacylation: Hydrogen-Mediated Coupling of Anhydrides to Styrenes and Activated Olefins," Hong, Y.-T.; Barchuk, A.; Krische, M. J. *Angew. Chem. Int. Ed.* **2006**, *128*, 6885.
60. "Hierarchic Supramolecular Interactions within Assemblies in Solution and in the Crystal of 2,3,6,7-Tetrasubstituted 5,5'-(Anthracene-9,10-diyl)bis[pyrimidine-2-amines]," Balaban, T. S.; Eichhöfer, A.; Krische, M. J.; Lehn, J.-M. *Helv. Chim. Acta* **2006**, *89*, 333.
- *59. "Enantioselective Total and Formal Syntheses of Paroxetine (PAXIL) via Phosphine Catalyzed Enone α -Arylation Using Arylbismuth(V) Reagents: A Regiochemical Complement to Heck Arylation," Koech, P. K.; Krische, M. J. *Tetrahedron* **2006**, *62*, 10594.
- *58. "Enantioselective Reductive Coupling of Alkynes and α -Ketoaldehydes via Rhodium-Catalyzed Hydrogenation: An Approach to Bryostatin Substructures," Cho, C.-W.; Krische, M. J. *Org. Lett.* **2006**, *8*, 891.
- *57. "Highly Enantioselective Direct Reductive Coupling of Conjugated Alkynes and α -Ketoesters via Rhodium Catalyzed Asymmetric Hydrogenation," Kong, J.-R.; Ngai, M.-Y.; Krische, M. J. *J. Am. Chem. Soc.* **2006**, *128*, 718.
- *56. "Hydrogen-Mediated Aldol Reductive Coupling of Vinyl Ketones Catalyzed by Rhodium: High *Syn*-Selectivity through the Effect of Tri-2-furylphosphine," Jung, C.-K.; Garner, S. A.; Krische, M. J. *Org. Lett.* **2006**, *8*, 519.
- *55. "Hydrogen-Bond Mediated Self-Assembly of Aminopyrazolones: Macrocyclic Quartets, Single and Stacked 1-Dimensional Motifs," Gong, H.; Krische, M. J. *Angew. Chem. Int. Ed.* **2005**, *44*, 7069.
- *54. "Alkynes as Synthetic Equivalents to Stabilized Wittig Reagents: Intra- and Intermolecular Carbonyl Olefinations Catalyzed by Ag(I), BF₃ and HBF₄," Rhee, J. U.; Krische, M. J. *Org. Lett.* **2005**, *7*, 2493.
- *53. "Hydrogen-Mediated Reductive Coupling of Conjugated Alkynes with Ethyl (*N*-Sulfinyl)iminoacetates: Diastereoselective Synthesis of Unnatural α -Amino Acids via Rhodium Catalyzed C-C Bond Forming Hydrogenation," Kong, J.-R.; Cho, C.-W.; Krische, M. J. *J. Am. Chem. Soc.* **2005**, *127*, 11269.
- *52. "Enantioselective Reductive Cyclization of 1,6-Enynes via Rhodium Catalyzed Asymmetric Hydrogenation: C-C Bond Formation Precedes Hydrogen Activation," Jang, H.-Y.; Hughes, F. W.; Gong, H.; Zhang, J.; Brodbelt, J. S.; Krische, M. J. *J. Am. Chem. Soc.* **2005**, *127*, 6174.
- *51. "Chiral β -Diketonate Ligands of "Pseudo Planar Chiral" Topology: Enantioselective Synthesis and Transition Metal Complexation," Bocknack, B. M.; Wang, L.-C.; Hughes, F. W.; Krische, M. J. *Tetrahedron* (Symposium-In-Print) **2005**, *61*, 6266.
- *50. "Duplex Molecular Strands Based on the 3,6-Diaminopyridazine Hydrogen Bonding Motif: Amplifying Small Molecule Self-Assembly Preferences through Preorganization and Iterative Arrangement of Binding Residues," Gong, H.; Krische, M. J. *J. Am. Chem. Soc.* **2005**, *127*, 1719.

- *49. "Regio- and Stereoselective Construction of γ -Butenolides via Phosphine Catalyzed Substitution of Morita-Baylis-Hillman Acetates: An Organocatalytic Allylic Alkylation," Cho, C.-W.; Krische, M. J. *Angew. Chem. Int. Ed.* **2004**, *43*, 6689.
- *48. "A Mechanistic Dichotomy in the Reaction of Gilman Reagents with Conjugated Enones: Partitioning of Electron Transfer and Conjugate Addition Manifolds," Yang, J.; Cauble, D. C.; Berro, A. J.; Bauld, N. L.; Krische, M. J. *J. Org. Chem.* **2004**, *69*, 7979.
- *47. "Nucleophilic Catalysis via Phosphine Conjugate Addition: Vinyl Sulfones as Reacting Partners in Catalytic Cross-Michael Cycloisomerization," Luis, A.-L.; Krische, M. J. *Synthesis* (Feature Article) **2004**, 2579.
- *46. "Rhodium Catalyzed Reductive Cyclization of 1,6-Diynes and 1,6-Enynes Mediated by Hydrogen: Catalytic C-C Bond Formation via Capture of Hydrogenation Intermediates," Jang, H.-Y.; Krische, M. J. *J. Am. Chem. Soc.* **2004**, *126*, 7875.
- *45. "Phosphine Catalyzed α -Arylation of Enones Using Hypervalent Bismuth Reagents: Regiospecific Enolate Arylation via Nucleophilic Catalysis," Koech, P. K.; Krische, M. J. *J. Am. Chem. Soc.* **2004**, *126*, 5350.
- *44. "Phosphine Catalyzed Regiospecific Allylic Amination and Dynamic Kinetic Resolution of Morita-Baylis-Hillman Acetates," Cho, C.-W.; Kong, J. R.; Krische, M. J. *Org. Lett.* **2004**, *6*, 1337.
- *43. "Phosphine Mediated Reductive Condensation of γ -Acyloxy Butynoates: A Diversity Oriented Strategy for the Construction of Substituted Furans," Wang, J.-C.; Jung, C.-K.; Krische, M. J. *J. Am. Chem. Soc.* **2004**, *126*, 4118.
- *42. "Hydrogen-Mediated C-C Bond Formation: Catalytic Regio- and Stereoselective Reductive Condensation of α -Ketoaldehydes and 1,3-Enynes," Jang, H.-Y.; Huddleston, R. R.; Krische, M. J. *J. Am. Chem. Soc.* **2004**, *126*, 4664.
- *41. "Catalytic Addition of Metallo-Aldehyde Enolates to Ketones: A New C-C Bond Forming Hydrogenation," Koech, P. K.; Krische, M. J. *Org. Lett.* **2004**, *6*, 691.
- *40. "Chemically Induced Anion Radical Cycloadditions: Intramolecular Cyclobutanation of bis(Enones) via Homogeneous Electron Transfer," Yang, J.; Felton, G. A. N.; Bauld, N. L.; Krische, M. J. *J. Am. Chem. Soc.* **2004**, *126*, 1634.
- *39. "Desymmetrization of Enone-Diones via Rhodium Catalyzed Catalytic Diastereo- and Enantioselective Tandem Conjugate Addition-Aldol Cyclization," Bocknack, B. M.; Wang, L.-C.; Krische, M. J. *Proc. Nat. Acad. Sci. U.S.A.* **2004**, *101*, 5421.
- *38. "Metallo-Aldehyde Enolates via Enal Hydrogenation: Catalytic Cross Aldolization with Glyoxal Partners as Applied to the Synthesis of 3,5-Disubstituted Pyridazines," Marriner, G. A.; Garner, S. A.; Jang, H.-Y.; Krische, M. J. *J. Org. Chem.* **2004**, *69*, 1380-1382.
- *37. "Copper Catalyzed Tandem Conjugate Addition-Electrophilic Trapping: Ketones, Esters and Nitriles as Terminal Electrophiles," Agapiou, K.; Cauble, D. F.; Krische, M. J. *J. Am. Chem. Soc.* **2004**, *126*, 4528.
- *36. "First Catalytic Reductive Coupling of 1,3-Diynes to Carbonyl Partners: A New Regio- and Enantioselective C-C Bond Forming Hydrogenation," Huddleston, R. R.; Jang, H.-Y. Krische, M. J. *J. Am. Chem. Soc.* **2003**, *125*, 11488.
- *35. "Intramolecular Organocatalytic [3+2] Dipolar Cycloaddition: Stereospecific Cycloaddition and The Total Synthesis of (\pm)-Hirsutene," Wang, J.-C.; Krische, M. J. *Angew. Chem. Int. Ed.* **2003**, *42*, 5855.
- *34. "Catalytic Crossed Michael Cycloisomerization of Thioenates: Total Synthesis of (\pm)-Ricciocarpin A," Agapiou, K.; Krische, M. J. *Org. Lett.* **2003**, *5*, 1737.
- *33. "Catalytic C-C Bond Formation under Hydrogenation Conditions: Reductive Coupling of Dienes and Glyoxals," Jang, H.-Y.; Huddleston, R. R.; Krische, M. J. *Angew. Chem. Int. Ed.* **2003**, *42*, 4074.
- *32. "Catalytic Enone Allylation via Concomitant Activation of Latent Nucleophilic and Electrophilic Partners: Merging Organic and Transition Metal Catalysis" Jellerichs, B. G.; Kong, J.-R.; Krische, M. J. *J. Am. Chem. Soc.* **2003**, *125*, 7758.
- *31. "Enolate Generation under Hydrogenation Conditions: Catalytic Aldol Cycloreduction of Keto-Enones" Huddleston, R. R.; Krische, M. J. *Org. Lett.* **2003**, *5*, 1143.
- *30. "Catalytic Diastereoselective Synthesis of Diquinanes from Acyclic Precursors," Wang, J.-C.; Ng, S.-S.; Krische, M. J. *J. Am. Chem. Soc.* **2003**, *125*, 3682.
- *29. "Diastereo- and Enantioselective Catalytic Carbometallative Aldol Cycloreduction: Tandem Conjugate Addition-Aldol Cyclization," Cauble, D. F.; Gipson, J. D.; Krische, M. J. *J. Am. Chem. Soc.* **2003**, *125*, 1110.
- *28. "Studies on the Enantioselective Catalysis of Photochemically Promoted Transformations: "Sensitizing Receptors" as Chiral Catalysts," Cauble, D. F.; Lynch, V.; Krische, M. J. *J. Org. Chem.* **2003**, *68*, 15.

- *27. "Borane-Mediated Aldol Cycloreduction of Mono-Enone Mono-Ketones: Diastereoselective Formation of Quaternary Centers," Huddleston, R. R.; Cauble, D. F.; Krische, M. J. *J. Org. Chem.* **2003**, *68*, 11.
- *26. "Use of Elemental Hydrogen for the Reductive Generation of Enolates from Enones: Catalytic C-C Bond Formation under Hydrogenative Conditions," Jang, H.-Y.; Huddleston, R. R.; Krische, M. J. *J. Am. Chem. Soc.* **2002**, *124*, 15156.
- *25. "Diastereoselective Cycloreductions and Cycloadditions Catalyzed by Co(dpm)₂/Silane (dpm = 2,2,6,6-tetramethylheptane-3,5-dionate): Mechanism and Partitioning of Hydrometallative vs. Anion Radical Pathways," Wang, L.-C.; Jang, H.-Y.; Roh, Y.; Schultz, A. J.; Wang, X.; Lynch, V.; Krische, M. J. *J. Am. Chem. Soc.* **2002**, *124*, 9448.
- *24. "Duplex Oligomers Defined via Covalent Casting of a 1-Dimensional Hydrogen Bonding Motif," Eric A. Archer, Michael J. Krische *J. Am. Chem. Soc.* **2002**, *124*, 5074.
- *23. "Organocatalytic Michael Cycloisomerization of bis(Enones): The Intramolecular Rauhut-Currier Reaction," Wang, L.-C.; Luiz, A.-L.; Agapiou, K.; Jang, H.-Y.; Krische, M. J. *J. Am. Chem. Soc.* **2002**, *124*, 2402.
22. "Supramolecular Polymers: Formation, Characterization and Properties of Supramolecular Polymers formed from Heterocomplementary Monomers Linked through Multiple Hydrogen Bonding Arrays," Berl, V.; Schmutz, M.; Krische, M. J.; Khoury, R. G.; Lehn, J.-M. *Chem. Eur. J.* **2002**, *8*, 1227.
- *21. "Anion Radical Chain Cycloaddition of Tethered Enones: Intramolecular Cyclobutanation and Diels-Alder Cycloaddition," Roh, Y.; Jang, H.-Y.; Bauld, N. L.; Krische, M. J. *Org. Lett.* **2002**, *4*, 611.
20. "Chemo-, Regio- and Enantioselective Pd-Catalyzed Allylic Alkylation of Indolocarbazole Pro-Aglycons," Trost, B. M.; Krische, M. J.; Berl, V.; Grenzer, E. M. *Org. Lett.* **2002**, *4*, 2005.
- *19. "Synthetic Duplex Oligomers: Optimizing Interstrand Affinity in a Synthetic Duplex Dimer through the use of a Noncovalent Constraint," Archer, E. A.; Cauble, D. F. Jr.; Lynch, V.; Krische, M. J. *Tetrahedron* **2002**, *58*, 721.
- *18. "Diastereoselective Metal Catalyzed [2+2]Cycloaddition of Tethered Enones," Baik, T.-G.; Wang, L.-C.; Luiz, A.-L.; Krische, M. J. *J. Am. Chem. Soc.* **2001**, *123*, 6716.
- *17. "Diastereoselective Aldol and Michael Cycloreductions Catalyzed by Cobalt," Baik, T.-G.; Luiz, A.-L.; Wang, L.-C.; Krische, M. J. *J. Am. Chem. Soc.* **2001**, *123*, 5112.
- *16. "Nanostructured Polymer Duplexes via the Covalent Casting of 1-Dimensional H-Bonding Motifs: A New Strategy for the Self-Assembly of Macromolecular Precursors," Archer, E. A.; Goldberg, N. T.; Lynch, V.; Krische, M. J. *J. Am. Chem. Soc.* **2000**, *122*, 5006.
15. "Formation and Interconversion of Artificial Single and Double Stranded Helices," Berl, V.; Huc, I.; Khoury, R. G.; Krische, M. J.; Lehn, J.-M. *Nature* **2000**, *407*, 720.
14. "Template-Induced and Molecular Recognition-Directed Hierarchical Generation of Supramolecular Assemblies from Molecular Strands," Berl, V.; Krische, M. J.; Huc, I.; Lehn, J.-M.; Schmutz, M. *Chem. Eur. J.* **2000**, *6*, 1938.
13. "Self-Assembly of 1- and 2-Dimensional Multicompartmental Arrays via the 2-Aminopyrimidine H-Bonding Motif and Selective Guest Inclusion," Krische, M. J.; Lehn, M.-J.; Kyritsakas, N.; Fischer, J.; Wegelius, E.; Rissanen, K. *Tetrahedron* **2000**, *56*, 6701.
12. "Self-Assembly of Helical Supramolecular Channels from Chiral Aminopyrimidine Hydrogen Bonding Motifs in the Solid State," Krische, M. J.; Lehn, J.-M.; Cheung, E.; Vaughn, G.; Krische, A. L. *C. R. Acad. Sci. Paris, t. 2, Série IIc*, **1999**, 549.
11. "The Palladium-Catalyzed Enyne Cycloisomerization Reaction in a General Approach to the Asymmetric Syntheses of the Picrotoxane Sesquiterpenes. Part II. Second Generation Total Syntheses of Corianin, Picrotoxinin, Picrotin and Methyl Picrotoxate," Trost, B.; Krische, M. J. *J. Am. Chem. Soc.* **1999**, *121*, 6131.
10. "The Palladium-Catalyzed Enyne Cycloisomerization Reaction in a General Approach to the Asymmetric Syntheses of the Picrotoxane Sesquiterpenes. Part I. First Generation Total Synthesis of Corianin and Formal Syntheses of Picrotoxinin and Picrotin," Trost, B.; Haffner, C.; Jeberatnam, D.; Krische, M. J.; Thomas, A. *J. Am. Chem. Soc.* **1999**, *121*, 6183.
9. "Dynamic Combinatorial Chemistry: Substrate H-Bonding Directed Assembly of Receptors Based on Bipyridine-Metal Complexes," Huc, I.; Krische, M. J.; Funeriu, D. P.; Lehn, J.-M. *Eur. J. Inorg. Chem.* **1999**, 1415.
8. "Molecular Recognition Directed Self-Assembly of Pleated Sheets from Aminopyrimidine Hydrogen Bonding Motifs," Krische, M. J.; Lehn, J.-M.; Kyritsakas, N.; Fischer, J. *Helv. Chim. Acta* **1998**, *81*, 1909.
7. "Exploring the 2-Aminopyrimidine Hydrogen Bonding Motif: A Modular Approach to Alkoxy Functionalized Hydrogen-Bonded Networks," Krische, M. J.; Lehn, J.-M.; Kyritsakas, N.; Fischer, J.; Wegelius, E. K.; Nissinen, M. J.; Rissanen, K. *Helv. Chim. Acta* **1998**, *81*, 1921.

6. "Transformations of the Picrotoxanes: The Synthesis of Corianin and Structural Analogues from Picrotoxinin," Krische, M. J.; Trost, B. M. *Tetrahedron* **1998**, *54*, 7109.
5. "Total Synthesis of Methyl Picrotoxate *via* the Palladium Catalyzed Enyne Cycloisomerization Reaction," Krische, M. J.; Trost, B. M. *Tetrahedron* **1998**, *54*, 3693.
4. "On Asymmetric Induction in Allylic Alkylation *via* Enantiotopic Facial Discrimination," Trost, B. M.; Krische, M. J.; Radinov, R.; Zanoni, G. *J. Am. Chem. Soc.* **1996**, *118*, 6297.
3. "A General Strategy for the Asymmetric Synthesis of the Picrotoxanes," Trost, B. M.; Krische, M. J. *J. Am. Chem. Soc.* **1996**, *118*, 233.
2. "Preparation of 9-Bromo-9-Phenylfluorene," Jamison, T. F.; Lubell, W.; Dener, J.; Krische, M. J.; Rapoport, H. *Org. Syn.* **1993**, *71*, 220.
1. " γ -Amino- β -Keto Phosphonates in Synthesis: Synthesis of the Sphingosine Skeleton," Koskinen, A.; Krische, M. J. *Synlett* **1990**, 665.

E. Professional References

Barry M. Trost (Ph.D. Advisor)
 Tamaki Professor of Humanities and Sciences
 Stanford University, Department of Chemistry
 Stanford, California 94305-5080
 Phone: (650) 723-3385

Professor Jean-Marie Lehn, Nobel Lauréate and Professeur
 au Collège de France (Post-doctoral Advisor)
 ISIS - Université Louis Pasteur, CNRS UMR 7006
 8 Allée Gaspard Monge, BP 70028, F-67083 Strasbourg
 Phone: +33 (0)3 90-24-5145 (5144; 5143)

F. Research Presentations, Spring 2000-Present

186. Mukaiyama Award Symposium, Invited Lecture, Kobe, Japan, September 2-4.
185. National Organic Symposium, Invited Lecture, Princeton University, New Jersey, June 5-9, 2011.
184. Boehringer Ingelheim Pharmaceuticals, Ridgefield, CT, Invited Lecture, August 19, 2010.
183. The 2010 International Chemical Congress of Pacific Basin Societies (Pacifichem), Honolulu, Hawaii, USA, Invited Seminar(s) & Conference Co-Organizer, December 15 - 20, 2010.
182. Gordon Research Conference on Stereochemistry, Invited Lecture, Salve Regina College, Rhode Island, August 1-6, 2010.
181. Syngenta Crop Protection, Basel, Switzerland, Invited Seminar, June 24, 2010.
180. University of Geneva, Switzerland, Invited Seminar, June 10, 2010.
179. Sanofi-Aventis, Frankfurt, Germany, Invited Seminar, May 31, 2010.
178. University of Notre Dame, Invited Seminar, April 15, 2010.
177. ACS National Meeting, San Francisco, Invited Seminar at Award Symposium Honoring Professor Ei-ichi Negishi's Receipt of the 2010 ACS Award for Creative Work in Synthetic Organic Chemistry, March 21-25, 2010.
176. Schering-Plough Research Institute, Invited Seminar, Union, NJ, December 8, 2009.
175. Bristol-Myers Squibb, Discovery Chemistry Department, Lawrenceville/Hopewell, Invited Seminar, November, 19, 2009.
174. University of York, Invited Seminar, York, UK, Invited Seminar, October 21, 2009.
173. Challenges for Catalysis in Fine Chemicals and Pharmaceuticals II, London, UK, Invited Seminar, October 20, 2009.
172. Pfizer Global Research & Development, Groton, CT, Invited Seminar, October 15, 2009.
171. 24th Annual W. S. Johnson Symposium in Organic Chemistry, Stanford University, Invited Seminar, October 2-3, 2009.
170. Exxon-Mobile, Baytown, TX, Invited Seminar, September 22, 2009.

169. AstraZeneca, Wilmington, DE, Invited Seminar, September 10, 2009.
168. National ACS Meeting, Washington DC, Plenary Lecture in Green Chemistry, August 16, 2009.
167. International Conference on Green & Sustainable Chemistry, Singapore, Plenary Lecture, August 3-5, 2009.
166. Gordon Conference on Natural Products Chemistry, Invited Seminar, July 26-30, 2009.
165. Technical University Munich, Germany, Invited Seminar, July 7, 2009.
164. Ludwig-Maximilians-Universität (LMU), Munich, Germany, Invited Seminar, July 6, 2009.
163. Tetrahedron Young Investigator Award, Award Lecture, Paris, France, June 24-26, 2009.
162. Helsinki University, Finland, Invited Seminar, June 8-9, 2009.
161. Bayer CropScience, Frankfurt, Germany, Invited Seminar, June 4, 2009.
160. Max Planck Institute (Mulheim), Invited Seminar, May 28, 2009.
159. University of Montreal, Invited Seminar, "Eisai Lecturer," May 6, 2009.
158. Oxford University, Invited Seminar, The Andy Derome Lecture, April 27-28, 2009.
157. Albany Molecular Research, Invited Seminar, Albany, NY, April 17, 2009.
156. Novartis-Basel, Novartis Lectureship, April 1, 2009.
155. University of Pennsylvania, Invited Seminar, "Novartis Lecturer," March 16, 2009.
154. Zing 2009 Conference: Catalytic Reactions in Research and Process Chemistry, Antigua, March 4-7, 2009.
153. Sepracor, Marlborough, Massachusetts, Invited Seminar, February 9, 2009.
152. Eastman Chemical Company, Kingsport Tennessee, Invited Seminar, January 19, 2009.
151. Glaxo-Smith-Kline, Tonbridge, United Kingdom, Invited Seminar, November 7, 2008.
150. Pfizer-Sandwich, United Kingdom, Autumn Symposium, November 6, 2008.
149. Novartis-Horsham, United Kingdom, Novartis Lectureship, November 5, 2008.
148. Green Chemistry Symposium, Pfizer Research Laboratories-St Louis, Invited Lecture, October 28, 2008.
147. ACS ProSpectives conference on Organic Reactions and Syntheses, Philadelphia, Invited Lecture, October 27, 2008.
146. Purdue University, Invited Seminar, 3rd Annual Brown-Negishi Lectures, October 13-14, 2008.
145. Freiburg University, Germany, Invited Seminar, September 3, 2008.
144. Leibniz-Institut for Catalysis, Rostock University, Germany, Invited Seminar, September 2, 2008.
143. Gordon Conference on Green Chemistry, Invited Seminar, August 3-8, 2008.
142. International Symposium on Process Chemistry, Kyoto, Japan, Invited Seminar, July 28-30, 2008.
141. Gordon Conference on Organic Reactions and Mechanisms, Invited Seminar, July 13-18, 2008.
140. The 17th International Conference on Organic Synthesis (IUPAC ICOS-17) at Daejeon, Korea, Invited Seminar, June 22-27, 2008.
139. Kangwon National University, Korea, Invited Seminar, June 22, 2008.

138. Novartis Emeryville, CA, Novartis Lectureship, June 9, 2008.
137. Modern Synthetic Methods & Chiral Europe Conference, Vilamoura, Portugal, Invited Seminar, May 21-23, 2008.
136. INNOVATION-II" conference in Tarragona, Spain, Invited Seminar, May 20-22, 2008.
135. Institute of Chemical Research of Catalonia (ICIQ), Tarragona, Spain, Invited Seminar, May 19, 2008.
134. Novartis Cambridge, MA, Novartis Lectureship, May 13, 2008.
133. University of North Carolina, Chapel Hill, "Scynexis Lecturer," April 18, 2008.
132. Glaxo-Smith-Kline, Invited Seminar, April 18, 2008.
131. University of Ottawa, "Merck-Frosst Lecture," March 14, 2008.
130. Dupont Crop Protection, Invited Seminar, Newark, DE, March 10, 2008.
129. Centre for Synthesis and Chemical Biology (CSCB) Annual Symposium, Dublin, Ireland, Invited Seminar, December 14, 2007.
128. 62nd Southwest Regional American Chemical Society Meeting, Plenary Lecture, November 4-7, 2007.
127. University of Basel, Switzerland, Invited Seminar, October 2, 2007.
126. Hoffman LaRoche, Basel, Switzerland, Invited Seminar, October 1, 2007.
125. Dow Chemicals, Inc. Freeport, TX, Invited Seminar, September 27, 2007.
124. GlaxoSmithKline, Invited Seminar, September 11, 2007.
123. ACS National Meeting in Chicago, Invited Seminar, August 19-23, 2007.
122. 14th IUPAC Symposium on Organometallic Chemistry Directed towards Organic Synthesis (OMCOS14) in Nara, Japan. Invited Lecture, August 2-6, 2007.
121. Dowpharma Prize Lecture at the Chiral USA Conference, Philadelphia, July 11-13.
120. Merck – West Point, PA, Invited Seminar, July 10, 2007.
119. Merck Process – Rahway, NJ, Invited Seminar, July 9, 2007.
118. Presidential Green Chemistry Award Lecture, Washington D.C., June 26, 2007.
117. Beijing University, China, Invited Seminar, June 16, 2007.
116. 8th International Symposium on Carbanion Chemistry, Madison, Wisconsin, Plenary Lecture, June 6-10, 2007.
115. Schering-Plough, New Jersey, Invited Seminar, May 30, 2007.
114. Aldrich Chemicals, Milwaukee, Wisconsin, Invited Seminar, May 8, 2007.
113. ACS National Meeting in Chicago, Invited Seminar - Elias J. Corey Award Symposium, March 25-29, 2007.
112. Elan Pharmaceutical, Invited Seminar, March 15, 2007.
111. Chicago University, Invited Seminar, February 19, 2007.
110. Johnson & Johnson Focused Funding: 25 Years of Innovation Symposium, Invited Seminar, November 27-28, 2006.
109. Yale University, Invited Seminar, November 8, 2006.

108. UCLA, Invited Seminar, October 5, 2006.
107. University of Alabama, Invited Seminar, September 21, 2006.
106. Gordon Research Conference on Heterocyclic Chemistry, Invited Seminar, July 2-7, 2006.
105. Solvias Science Day (Basel, Switzerland), Invited Seminar, June 23, 2006.
104. Hoffmann-La Roche Ltd., Palo Alto, Invited Seminar, June 22, 2006.
103. East China Normal University, Invited Seminar, May 19, 2006
102. Shanghai Institute of Organic Chemistry, Invited Seminar, May 18, 2006
101. Max Planck Institute (Mulheim), Invited Seminar, March 16, 2006.
100. Karlsruhe University, Invited Seminar, March 15, 2006.
99. Boehringer-Ingelheim (Biberbach), Invited Seminar, March 14, 2006.
98. Marburg University, Invited Seminar, March 13, 2006.
97. Université Louis Pasteur, Invited Seminar, March 10, 2006.
96. Indiana University, Invited Seminar, February 20, 2006.
95. University of Toronto, Invited Seminar," Boehringer-Ingelheim Lecturer," February 10, 2006.
94. Boehringer-Ingelheim (Montreal), Invited Seminar, February 9, 2006.
93. Boston College, Invited Seminar, February 7, 2006.
92. University of West Virginia, Invited Seminar, November 30, 2005.
91. Johnson & Johnson Rariton PRD, Invited Seminar, November 18th.
90. National Tsing Hua University, Invited Seminar-10th International Chemical Conference in Taipei, October 28-30, 2005.
89. Kyoto University, Invited Seminar, September 14, 2005.
88. Nagoya Institute of Technology, Invited Seminar, September 13, 2005.
87. Nagoya University (Japan), Invited Seminar, September 12, 2005.
86. Gifu University (Japan), Invited Seminar, September 10, 2005.
85. Mie University (Japan), Invited Seminar, September 9, 2005.
84. The Society of Synthetic Chemistry, Japan: 2005 Lectureship, Takayama City, September 6-8, 2005.
83. Tokyo University (Japan), Invited Seminar, September 5, 2005.
82. Tokyo Institute of Technology (Japan), Invited Seminar, September 3, 2005.
81. Gakushuin University (Japan), Invited Seminar, September 2, 2005.
80. Stanford University, Invited Seminar-"Futures in Organic Chemistry Seminar Series," April 6, 2005.
79. Amgen-Thousand Oaks, Invited Seminar, May 20, 2005.
78. Pfizer-St. Louis, Invited Seminar, May 16, 2005.

77. Amgen-Cambridge, Invited Seminar, March 18, 2005.
76. Yale University, Connecticut Organic Chemistry Symposium, Invited Seminar, January 28, 2005.
75. Osaka University (Japan), Invited Seminar, January 12, 2005.
74. Kyoto University (Japan), Invited Seminar, January 11, 2005.
73. Conference on Organometallic Chemistry – Japanese Ministry of Education, Invited Seminar, January 8-9, 2005.
72. Pfizer-Japan, Invited Seminar, January 7, 2005.
71. Bristol-Myers Squibb Process Research and Development (New Brunswick), Invited Seminar, October 21, 2004.
70. Pfizer Pharmaceutical, Invited Seminar, October 7, 2004.
69. ACS Southwest Regional Meeting Invited Seminar, September 29 – October 02, 2004.
68. Bristol University (UK), Invited Seminar, September 24, 2004.
67. Oxford University (UK), Invited Seminar, September 23, 2004.
66. Imperial College (UK), Invited Seminar, September 21, 2004.
65. Elan Pharmaceutical, Invited Seminar, September 17, 2004.
63. Pennsylvania State University, Invited Seminar, September 13, 2004.
62. Research Conference on Organic Synthesis, Invited Seminar, Edinburgh, Scotland, July 27-31, 2004.
61. Gordon Research Conference on Stereochemistry, Invited Seminar, June 20-25, 2004.
60. ALA LabFusion 2004 Conference, Invited Seminar, June 12-16, 2004.
59. Merck Symposium: “Catalysis in Organic Chemistry,” Invited Seminar, UC Irvine, June 5, 2004.
58. Ligand Pharmaceutical, Invited Seminar, April 30, 2004.
57. Johnson and Johnson, Invited Seminar, April 29, 2004.
56. University of Texas at San Antonio, Invited Seminar, April 21, 2004.
55. Abbott Laboratories, Invited Seminar, April 16, 2004.
54. University of Texas Southwestern Medical Center, Invited Seminar, April 6, 2004.
53. Boston University, Invited Seminar, “Novartis Lecturer,” March 29, 2004.
52. Harvard University – Eli Lilly Symposium, Invited Seminar, March 22, 2004.
51. Eli Lilly Pharmaceutical, Invited Seminar, March 1-2, 2004.
50. Stanford University, Invited Seminar, February 18, 2004.
49. University of California at Berkeley, Invited Seminar, “Organic Synthesis Lecturer,” February 17, 2004.
48. The Scripps Research Institute, Invited Seminar, January 30, 2004.
47. NSF Young Investigator Workshop on Supramolecular Chemistry, Invited Seminar, January 11-15, 2004.
46. Albany Molecular, Invited Seminar, January 9, 2004.

45. Texas Academy of Sciences Inaugural Meeting, San Antonio, January 6-7, 2004.
44. University of Colorado, Invited Seminar, November 18, 2003.
43. Colorado State University, Invited Seminar, November 17, 2003.
42. University of North Carolina, Chapel Hill, Invited Seminar, November 14, 2003.
41. ACS Midwest Regional Meeting, Invited Seminar, November 6, 2003.
40. ACS Southwest Regional Meeting, Invited Seminar, October 26-28, 2003.
39. Wayne State University, Invited Seminar, October 15, 2003.
38. University of Michigan, Invited Seminar, October 14, 2003.
37. University of Utah, Invited Seminar, October 2, 2003.
36. IUPAC-Conference on Supramolecular Chemistry, Invited Seminar, August 10-15, 2003.
35. Gordon Conference on Natural Products Chemistry, Invited Seminar, July 27-August 1, 2003.
34. Gordon Conference on Organic Reactions and Mechanisms, Invited Seminar, July 20-25, 2003.
33. NSF-Workshop on Synthesis, Invited Seminar, July 10-14, 2003.
32. Boehringer Pharmaceutical, Invited Seminar, May 22, 2003.
31. Bristol-Myers Squibb Pharmaceutical Research Institute (Wallingford), Invited Seminar, May 21, 2003.
30. Bayer Pharmaceutical, Invited Seminar, May 9, 2003.
29. Emory University, Invited Seminar, April 22, 2003.
28. Georgia Institute of Technology, Invited Seminar, April 22, 2003.
27. Yale University, Invited Seminar, April 16, 2003.
26. University of Houston, Invited Seminar, April 8, 2003.
25. ACS National Meeting: New Orleans, Louisiana, Invited Seminar, March 23-27, 2003.
24. Texas A&M University, Invited Seminar, March 20, 2003.
23. University of Illinois at Urbana-Champaign, Invited Seminar, March 12, 2003.
22. University of Wisconsin at Madison, Invited Seminar, March 11, 2003.
21. Tulane University, Invited Seminar, February 19, 2003.
20. Merck Pharmaceutical, Invited Seminar, February 5, 2003.
19. Purdue University, Invited Seminar, January 28, 2003.
18. University of Kentucky, Invited Seminar, December 13, 2002.
17. Ohio State University, Invited Seminar, December 12, 2002.
16. University of Pennsylvania, Invited Seminar, December 2, 2002.
15. ACS Southwest Regional Meeting, Invited Seminar, November 3-6, 2002.

14. ACS Southwest Regional Meeting, Session Organizer, November 3-6, 2002.
13. ACS Midwest Regional Meeting, Invited Seminar, October 23-25th, 2002.
12. Columbia University, Invited Seminar, October 10, 2002.
11. Gordon Conference on Heterocyclic Chemistry, Invited Seminar, July 8-12, 2002.
10. NSF-Workshop on Physical Organic Chemistry, Invited Seminar, June 1-5, 2002.
9. Eli Lilly Pharmaceutical, Invited Seminar, July 23, 2002.
8. Pfizer Pharmaceutical, Invited Seminar, May 23, 2002.
7. ACS National Meeting: Orlando, Florida, Invited Seminar, April 8-12, 2002.
6. Caltech, Invited Seminar, March 27, 2002.
5. Bristol-Myers Squibb Pharmaceutical Research Institute (Princeton), Invited Seminar, March 22, 2002.
4. Princeton, Invited Seminar, March 14, 2002.
3. Gordon Conference on Supramolecular Chemistry, Oral Presentation, July 29-August 3, 2002.
2. ACS Southwest Regional Meeting, Invited Seminar, Friday, October 19, 2001.
1. Texas Lutheran University, Invited Seminar, Spring 2000.