HUW M. L. DAVIES
CURRICULUM VITAE

ADDRESS

Department of Chemistry
Emory University
Atwood Hall
1515, Dickey Drive
Atlanta, GA 30322

Phone: 404-727-6839
Fax: 404-727-6677
E-mail: hmdavie@emory.edu

EDUCATION

University College Cardiff, Cardiff, Wales, UK.	B. Sc. (Honors) Class I	1977	Chemistry
University of East Anglia, Norwich, England, UK.	Ph.D.	1980	Organic Chemistry

RESEARCH AND/OR PROFESSIONAL EXPERIENCE

1980-1983	Research Associate, Princeton University, Chemistry.
1983-1988	Assistant Professor of Chemistry, Wake Forest University
1988-1993	Associate Professor of Chemistry, Wake Forest University
1993-1995	Professor of Chemistry, Wake Forest University
1990-1995	Faculty Associate, Department of Physiology and Pharmacology, Wake Forest University School of Medicine, Winston-Salem, NC.
1995-2008	Faculty Associate, Department of Physiology and Pharmacology, Wake Forest University School of Medicine, Winston-Salem, NC.
1995-2003	Professor of Chemistry, State University of New York at Buffalo
2003-2008	UB Distinguished Professor, State University of New York at Buffalo
2000-2008	Larkin Professor of Organic Chemistry, State University of New York at Buffalo
2007-2009	Founder and Chief Executive Officer, Dirhodium Technologies, Inc.
2008-present	Asa Griggs Candler Professor of Chemistry, Emory University

HONORS AND AWARDS

1989	Wake Forest University Excellence in Research Award
1999	Fellowship from the Japanese Society for the Promotion of Science
2000	Johnson & Johnson Focused Giving Grant (In recognition of outstanding research toward the advancement of science and technology in health care)
2001	University at Buffalo, College of Arts and Sciences Excellence in Teaching Award
2001	Visiting Professor at the Graduate College of the University of Aachen, Germany
2002	University at Buffalo Exceptional Scholar Program, Sustained Achievement Award
2002	State University of New York Chancellor's Excellence in Teaching Award
2002	State University of New York Chancellor's Research Recognition Award
2003	State University of New York Chancellor's Award for Excellence in Scholarship and Creative Activities
2004	Niagara Frontier, Inventor of the year 2nd Place – Physical Sciences
2005	American Chemical Society Cope Scholar Award
2005	Niagara Frontier, Inventor of the year 2nd Place – Physical Sciences
2007	Fellow of the Royal Society of Chemistry
2008	George Büchi Visiting Lectureship, Massachusetts Institute of Technology
2009	Fellow of the American Chemical Society
2011	2010-2011 Novartis Lecturer
2012	Eastman Lecturer, UC Santa Barbara
2012	TGH Jones Memorial Lecture, University of Queensland, Australia
2013	Bristol-Myers Squibb Lecture, UCLA
2013	Bristol-Myers Squibb Lecture, Princeton
2013	Fellow of the American Association for the Advancement of Science
2013	eEROS Reagent of the Year Award
2014	Frank Burnett Dains Memorial Lecture, University of Kansas

2014	Visiting Professor at the Ecole Supérieure de Physique et de Chimie Industrielles (ESPCI), Paris, France
2015	Fellow of the National Academy of Inventors
2015	Aldrich Lecture, Oklahoma State University
2015	Aldrich Lecture, Ohio State University
2015	Swiss Chemical Society Lectureship
2016	Research Award of the Alexander von Humboldt Foundation

PROFESSIONAL ACTIVITIES

American Chemical Society Organic Division Representative to the Catalysis Secretariat, 1993-2003
Executive Officer, National Organic Symposium, American Chemical Society 2003
Chair, Organic Division of the American Chemical Society, 2005
Alternate Councilor, Organic Division of the American Chemical Society, 2008-2010
Councilor, Organic Division of the American Chemical Society, 2011-2013
Co-Organizer, Organic Division of the American Chemical Society, Academic Young Investigator Symposium, 2006-present
Program Chair, Gordon Conference on Heterocyclic Compounds, 2005
Member of the Editorial Board, *Organic Reactions*, 2004-2010
Member of the Editorial Board, *Organic Syntheses*, 2008-present
Editorial Advisory Board, *Chemical Society Reviews*, 2005-2013
Associate Editor, *Chemical Society Reviews*, 2013-present
Guest Editor, *Tetrahedron Asymmetry*: Special Issue on "Catalytic Asymmetric Carbene Transfer Reactions", 2003
Editorial Board, *Chirality*, 1996-present
Expert Analyst, *CHEMTRACTS-Organic Chemistry*, 2000-2008
Associate Editor, *Current Organic Synthesis*, 2002-2008
Associate Editor, *Mini-Reviews in Organic Chemistry*, 2002-2008
Editorial Advisory Board Member, *Current Medicinal Chemistry–Central Nervous System Agents*, 2000-2006
Editorial Advisory Board Member, *Current Organic Synthesis*, 2002-2008
NIAAA Study Section Reviewer, 1994, 2003, 2005
NIDA Study Section Reviewer, 1997, 2000,
NIH Medicinal Chemistry Study Section Reviewer, 1999, 2001
NIMH Study Section Reviewer, 2003
NIH-SBC-B Study Section Reviewer, 2005
NIH Neuroscience Study Section Reviewer, Permanent Member 2005-2006, 2007
NIH Synthetic & Biological Chemistry-B Study Section Reviewer, Permanent Member 2006-2010
NIH IMST-11 Small Business Review Panel, Chair, 2011-2012
NSF Board of Visitors Review Panel, 2013
International Tenure Review Panel Member, HEJ Research Institute of Chemistry, University of Karachi, Pakistan, 2006
External Review Committee Member, Department of Chemistry, Bryn Mawr College, 2006
Consultant, Oxychem, Inc., 1996-1998.
Consultant, Merck Inc., 2005.

RESEARCH INTERESTS

Catalytic asymmetric C–H functionalization
New synthetic methodology based on carbenoid intermediates
Design of chiral catalysts for asymmetric synthesis
Total synthesis of biologically active natural products
Development of enabling technology for the synthesis of pharmaceutically relevant targets
Development of medications for neuropathic pain, other CNS diseases and anticancer agents

CURRENT FUNDING

PI, National Institutes of Health, "Enantioselective Zwitterionic Reactions," $289,798 yearly total, $1,159,192 total (9/11-5/15).
PI, National Science Foundation, "New Directions in Carbenoid Chemistry", $140,000 yearly total, $420,000 total [9/12-8/15]

PI, National Science Foundation, "SAVI Center Global Network", $321,000 yearly total, $632,000 total [9/13-8/15]
PI and Center Director, National Science Foundation, "Phase II Center in Chemical Innovation in Selective C-H Functionalization", $4,000,000 yearly total, $20,000,000 total [9/12-8/17]

PREVIOUS FUNDING

Research Corporation, "Application of Carbenoid Rearrangements for the Convergent Synthesis of Dienes and Polyenes", $8,000 (11/83 -11/85).
Petroleum Research Fund, "Synthesis and Chemistry of Cyclic Sulfur Ylides", $15,000 (9/85 - 9/87).
Petroleum Research Fund, "Novel Synthesis of Tropones and Tropolones", $40,000 (1/90-8/93).
National Science Foundation, "3+4 Cycloadditions of Vinyl Carbenoids with Dienes", $113,275 (7/86 -12/89).
National Science Foundation, Travel Grant to Attend the VIth IUPAC Conference in Organic Synthesis in Moscow, USSR, $1,100 (8/86).
National Science Foundation, "Vinylcarbenoids in Organic Synthesis", $166,080 (4/91-3/94)
National Science Foundation (Author and Co PI), "Rennovation of Salem Hall", $208, 000 (9/92-8/94)
National Science Foundation, "Catalysts with D_2 Symmetry for Asymmetric Cyclopropanations by Vinylcarbenoids", $240,000 [1/95-12/97],
National Science Foundation, "D_2 Symmetric Catalysts in Organic Synthesis", $370,000 total [2/98-12/00]
National Institutes of Health, "Synthesis and Evaluation of Novel Cocaine Analogs," $302,817 (5/91-4/94)
National Institutes of Health, "Synthesis and Evaluation of Novel Cocaine Analogs," $683,637 (5/94-4/98)
National Institutes of Health, "Project in Center for Neurobiological Investigation of Drug Abuse," $135,000 (10/91-8/94)
National Institutes of Health, "Project in Center for Neurobiological Investigation of Drug Abuse," $476,278 (10/94-9/98),
National Institutes of Health, "Novel Radioligands for Cocaine Neurobiological Studies," $532,822 (10/94-9/97)
R. J. Reynolds, "Synthesis of Nicotine Analogues", $25,000 (10/88 - 9/89).
R. J. Reynolds, "Novel Approach for the Synthesis of Bridged Nicotinoid Structures", $10,750 (4/90-12/91)
R. J. Reynolds, "Synthesis of Bridged Nicotinoid Structures", $16,000 (3/91-2/92
R. J. Reynolds, "Synthesis of Bridged Nicotinoid Structures", $56,650 (6/92-5/93).
R. J. Reynolds, "Synthesis of Bridged Nicotinoid Structures", $90,500 (6/93-5/94).
R. J. Reynolds, "Synthesis of Bridged Nicotinoid Structures", $78,868 (6/94-12/96).
Astra Arcus USA, "Synthesis and Evaluation of Novel Azabicyclic Derivatives as Selective Nicotinic Agents"$25,000 (3/97- 2/98.
Resolution Pharmaceuticals. "Tropanes as Novel Diagnostic Agents $160,000 (1/97-12/98)
PI, National Institutes of Health, "Synthesis of CP-263,114: New Farnesylation Inhibitor," $364,000 t[8/99-8/02].
PI, Johnson & Johnson Focused Giving Grant, "Pharmaceutical Applications of Catalytic Asymmetric Reactions," $72,000 yearly direct cost, $240,000 total [9/00-8/03].
PI, National Science Foundation, "High Symmetric Catalysts in Organic Synthesis", $116,000 yearly total, $348,000 total [3/01-2/04]
PI, National Institutes of Health, "Synthesis and Evaluation of Novel Cocaine Analogs," $159,447 yearly direct, $229,479 yearly total; $850,865 total direct, $1,164,865 total, (6/98-4/04).
PI, National Institutes of Health, "Chemistry Core in Center for Neurobiological Investigation of Drug Abuse," $79,405 yearly direct, $122,284 yearly total, $611,450 total (2/99-3/04).
PI, National Institutes of Health, “Potential Medication for Cocaine Addiction”, Contract, $92,720 yearly direct, $140,930 yearly total, $731,621 total (9/28/01-9/27/06).
PI, Cleveland Biolabs, “Optimization of the Structure of PFTv”, $63,091 direct (10/1/06-9/30/07)
PI, National Science Foundation, "Catalytic Asymmetric Intermolecular C—H Activation", $140,000 yearly total, $560,000 total [2/04-12/07]
PI, National Institutes of Health, "Methylphenidate Analogs as Medications for Cocaine Abuse," $225,000 yearly direct, $306,766 yearly total; $1,125,000 total direct, $1,533,830 total, (4/02-3/08).
PI, National Institutes of Health, "Chemistry Core in Center for Neurobiological Investigation of Drug Abuse," $134,098 yearly total, $726,462 total (3/04-12/08).
Co PI, National Institutes of Health (Sub-contract, Katherine Burkhart, PI, Buffalo Biolabs, "Targeting MLL as Anticancer Therapy for Infant Acute Lymphoblastic Leukemia," $33,000 sub-contract yearly total (7/09-12/09).
PI, National Science Foundation, "New Advances in Rhodium Carbenoid Chemistry", $152,000 yearly total, $456,000 total [2/08-1/11]

PI, National Institutes of Health, “Application of C-H Activation to Natural Product Synthesis,” $190,000 yearly direct (5/1/2007 – 4/31/2011)
PI, National Institutes of Health, "Design of New Treatment Agents for Drug Abuse," $393,200 yearly total, $786,400 total (8/09-7/11).
PI and Center Director, National Science Foundation, "Phase I Center in Chemical Innovation in Stereoselective C-H Functionalization", $500,000 yearly total, $1,500,000 total [9/09-8/12]
Co PI, National Institutes of Health (Sub-contract, Debasish Ghosh, PI, Hauptman Woodward Research Institute, "Structure and Function of Integral Membrane Enzyme Human Aromatase ," $31,461 sub-contract yearly total, $187,00 total (1/09-12/12).

PUBLICATIONS

A: BOOK CHAPTERS

1. Reactions of Keto-Carbenoids with C=C π-Bonds, Davies, H. M. L., invited book chapter for *Comprehensive Organic Synthesis*, Pergamon Press, **1991**. Vol. 4, pp 1031-1067.

2. Reaction of Metal-Stabilized Carbenoids with Pyrroles, Davies, H. M. L., invited book chapter for *Advances in Nitrogen Heterocycles*, JAI Press, **1995**. Vol. 1, pp 1-18.

3. Sulfur Ylides. b) From Metal Carbenoids, Davies, H. M. L., invited book chapter, *in Nitrogen, Oxygen and Sulfur Ylides in Synthesis: A Practical Approach*, Clark, J. S., Ed. Oxford University Press: accepted.

4. 3 + 4 Annulations Between Rhodium-Stabilized Vinylcarbenoids and Dienes, Davies, H. M. L., invited book chapter in *Advances in Cycloaddition*, Harmata, M. Ed.; JAI Press: **1998**. Vol. 5. pp 119-164.

5. Intermolecular Metal-Catalyzed Carbenoid Cyclopropanations, Davies H. M. L.; Antoulinakis, E. G., *Organic Reactions*, **2001**, *57*, 1-326.

6. Tetrakis{1-[(4-dodecylphenyl)sulfonyl]-(2S)-prolinate] dirhodium, Davies, H. M. L., invited review article, Electronic Encyclopedia of Reagents in Organic Synthesis, Paquette, L; Rigby, J.; Roush, W.; Wipf, P., Eds., John Wiley & Sons., **2002**.

7. C-H Insertion Reactions, Cycloadditions and Ylide Formation of Diazo Compounds, Davies, H. M. L., invited book chapter in *Comprehensive Asymmetric Synthesis – Supplement 1*, Springer-Verlag, **2003**, pp 83-84.

8. Rhodium(II) Stabilized Carbenoid Containing Both Donor and Acceptor Groups, Davies, H. M. L.; Walji, A. M., invited book chapter in *Modern Rhodium-Catalyzed Transformations*, Evans, P. A., Ed.,Wiley & Sons, **2005**, pp 301-340.

9. Methyl Phenyldiazoacetate, Davies, H. M. L., invited review article, Electronic Encyclopedia of Reagents in Organic Synthesis, Paquette, L; Rigby, J.; Roush, W.; Wipf, P., Eds., John Wiley & Sons, **2004**.

10. Rhodium-catalyzed Enantioselective Carbene Addition, Davies, H. M. L., invited book chapter in *C–H Activation* Dyker, G., Ed.,Wiley & Sons, **2005**, pp 301-340.

11. Synthetic Reactions via C-H Bond Activation: Carbene and Nitrene C-H Insertion, Davies, H. M. L.; Dai, X., invited book chapter for Comprehensive Organometallic Chemistry III, Crabtree, R. H.; Mingos, D. M. Eds. Elsevier, **2006**, Vol 10, pp 167-212.

12. Dirhodium(II) Tetraacetate: First Update, Davies, H. M. L. and James R. Manning, invited review article, *Electronic Encyclopedia of Reagents in Organic Synthesis*, Paquette, L; Rigby, J.; Roush, W.; Wipf, P., Eds., John Wiley & Sons, **2006**.

13. Bis–{1,3-[N,N’-di(4-dodecyl-benzenesulfonyl)-2S,2’S),(5R,5’R)-5,5’-prolinate]benzene Dirhodium(II), Davies, H. M. L. and James R. Manning, invited review article, *Electronic Encyclopedia of Reagents in Organic Synthesis*, Paquette, L; Rigby, J.; Roush, W.; Wipf, P., Eds., John Wiley & Sons, **2006**.

14. Dirhodium(II) Tetraoctanoate: First Update, Davies, H. M. L. and James R. Manning, invited review article, *Electronic Encyclopedia of Reagents in Organic Synthesis*, Paquette, L; Rigby, J.; Roush, W.; Wipf, P., Eds., John Wiley & Sons, **2006**.

15. Dirhodium(II) Tetrakis(trifluoroacetate): First Update, Davies, H. M. L. and James R. Manning, invited review article, *Electronic Encyclopedia of Reagents in Organic Synthesis*, Paquette, L; Rigby, J.; Roush, W.; Wipf, P., Eds., John Wiley & Sons, **2006**.

16. Dirhodium(II) Tetrakis(triphenylacetate), Davies, H. M. L. and James R. Manning, invited review article, *Electronic Encyclopedia of Reagents in Organic Synthesis*, Paquette, L; Rigby, J.; Roush, W.; Wipf, P., Eds., John Wiley & Sons, **2006**.

17. Dirhodium(II) Tetrakis[N-phthaloyl]-(S)-tert-Butylleucinate, Davies, H. M. L.; Reddy, R, invited review article, *Electronic Encyclopedia of Reagents in Organic Synthesis*, Paquette, L; Rigby, J.; Roush, W.; Wipf, P., Eds., John Wiley & Sons, **2006**.

18. Tetrakis{1-[(4-dodecylphenyl)sulfonyl]-(2S)-prolinate] dirhodium: First Update, Davies, H. M. L. and James R. Manning, invited review article, Electronic Encyclopedia of Reagents in Organic Synthesis, Paquette, L; Rigby, J.; Roush, W.; Wipf, P., Eds., John Wiley & Sons, **2006**.

19. Total synthesis of natural products using the combined C–H activation/Cope rearrangement as the key step, Davies, H. M. L.; Dai, X. Strategies and Tactics in Organic Synthesis, Harmata, M., Ed. John Wiley & Sons, **2007**; Vol 7. pp 383-407.

20. Methyl Vinyldiazoacetate, Davies, H. M. L. and James R. Manning, invited review article, Electronic Encyclopedia of Reagents in Organic Synthesis, Paquette, L; Rigby, J.; Roush, W.; Wipf, P., Eds., John Wiley & Sons, **2007**.

21. Dirhodium(II) Tetrakis[N-phthaloyl]-(S)-Adamatylleucinate, Davies, H. M. L.; Reddy, R., invited review article, Electronic Encyclopedia of Reagents in Organic Synthesis, Paquette, L; Rigby, J.; Roush, W.; Wipf, P., Eds., John Wiley & Sons, **2008**.

22. Intermolecular C-H insertions of carbenoids, Davies H. M. L.; Pelphrey, P., *Organic Reactions*, **2011**. *75*, 75-212.

23. C-C and C-N Bond Formation by C-H Functionalization, Davies, H. M. L.; Morton, D. *Science of Synthesis*, in press.

24. Rhodium Carbenes, Davies, H. M. L.: Parr, B. T. In Contemporary Carbene Chemistry, Moss, R. A. and Doyle, M. P. (Eds.), Wiley, Inc., 2013, 363-403.

25. Reactions of Indoles with Metal-bound Carbenoids, Davies H. M. L.; Spangler, J. E. in Advances in Heterocyclic Chemistry, Katritzky, A. (Ed.), in Press.

B: REVIEWS

1. Tandem Cyclopropanation/Cope Rearrangement: A General Method for the Construction of Seven-Membered Rings, Davies H. M. L., *Tetrahedron*, **1993**, *49*, 5203.

2. Asymmetric Synthesis Using Rhodium-Stabilized Vinylcarbenoid Intermediates, Davies, H. M. L. *Aldrichimica Acta*, invited review article, **1997**, 30, 105.

3. Rhodium-Stabilized Vinylcarbenoid Intermediates in Organic Synthesis, Davies, H. M. L. *Curr. Org. Chem*., invited review article, **1998**, *2*, 463-488.

4. Dirhodium Tetra(N-arylsulfonylprolinates) as Chiral Catalysts for Asymmetric Transformations of Vinyl- and Aryldiazoacetates, Davies, H. M. L., invited review article, *Eur. J. Org. Chem.* **1999**, 2459-2469.

5. Asymmetric Synthesis Using Vinylcarbenoid Chemistry, Davies, H. M. L. in "Modern Problems of Organic Chemistry" (St.Petersburg University Press), invited review article, **2001**, *13*, 14-21.

6. Recent progress in asymmetric intermolecular C-H activation by rhodium carbenoid intermediates, Davies, H. M. L.; Antoulinakis, E. G., invited review article, *J. Organomet. Chem.* **2001**, *617-618*, 47-55.

7. Catalytic asymmetric C-H activation of sp3 hybridized C–H bonds by means of carbenoid C–H insertions: Applications in organic synthesis, Davies, H. M. L, invited review article, *J. Mol. Catalysis A; Chem,* **2002**, *189*, 125-135.

8. Catalytic enantioselective C–H activation by means of metal-carbenoid induced C–H insertion, invited review article, Davies, H. M. L.; Beckwith, R. E. J. invited review article, *Chem. Rev.* **2003**, *103*, 2861-2903.

9. Intermolecular C—H Insertions of Donor/Acceptor-Substituted Rhodium Carbenoids: A Practical Solution for Catalytic Enantioselective C—H Activation, Davies, H. M. L.; Loe, O. invited review article, *Synthesis* **2004**, 2595-2608.

10. Catalytic and Enantioselective Allylic C-H Activation with Donor/Acceptor-Substituted Carbenoids, Davies, H. M. L.; Nikolai, J. invited review article, *Org. Bio. Chem.* **2005**, *3*, 4176.

11. Intermolecular Reactions of Electron-rich heterocycles with Copper and Rhodium Carbenoids, Hedley, S. J.; Davies, H. M. L. *Chem. Soc. Rev*. **2007**, 36, 1109-1119.

12. Catalytic C–H Functionalization. An enabling synthetic method for drug development. Invited review article, Davies, H. M. L.; Manning, J. R. *Nature* **2008**, *451*, 417-424.

13 High symmetry dirhodium(II) paddlewheel complexes as chiral catalysts, Hansen, J.; Thompson, J.; Davies, H. M. L. Invited review article, *Coord. Chem. Rev.* **2008**, *252*, 545-555.

14 Application of Donor/Acceptor-Carbenoids to the Synthesis of Natural Products, Davies, H. M. L.; Denton, J. R. *Chem. Soc. Rev*. **2009**, *38*, 3061.

15 Functionalization of Carbon-Hydrogen Bonds Through Transition Metal Carbenoid Insertion, Davies, H. M. L.; Dick, A R., *Top. Curr. Chem.* **2010**, *292*, 303-345.

.

16 Guiding Principles for Site Selective and Stereoselective C–H Functionalization by Donor/Acceptor-Substituted Rhodium Carbenoids, Davies, H. M. L.; Morton, D. *Chem. Soc. Rev*. **2011**, 40, 1857-1869.

17. The Combined C—H Functionalization/Cope Rearrangement: Discovery and Applications in Organic Synthesis, Davies, H. M. L.; Lian, Y. *Acc. Chem. Res.* **2012**, 45, 923-935.

18. Reactions of Metallocarbenes Derived from N-Sulfonyl-1,2,3-Triazoles, Davies, H. M. L.; Alford, J. S. *Chem. Soc. Rev.* **2014**, *43*, 5151-5162.

19. Davies, H. M. L. and D. Morton (2016). "Recent Advances in C-H Functionalization. *J. Org. Chem.* **2016**, *81*, 343-350.

C: HIGHLIGHTS/EDITORIALS

1. Recent advances in catalytic intramolecular C–H aminations Davies, H. M. L.; Long, M. S. *Angew. Chem., Int. Ed*. **2005**, *44*, 3518.

2. Recent advances in catalytic intermolecular C–H Functionalization Davies, H. M. L. *Angew. Chem., Int. Ed*. **2006**, 45, 6422.

3. Expanding the art of synthesis, Davies, H. M. L., *Nature Chemistry* **2009**, *1*, 519-520.

4. Synthetic lessons from nature, Davies, H. M. L., *Nature* **2009**, *459*, 786-787.

5. Davies, H. M. L.; Du Bois, J.; Yu, J. Q., C-H Functionalization in organic synthesis. *Chem. Soc. Rev*. **2011,** 40, 1855.

6. Davies, H. M. L., C-H Functionalization, *Beilstein J. Org. Chem*. **2012**, *8*, 1552-1553.

7. Davies, H. M. L.; Morton, D.: C-H Functionalization: Collaborative Methods to Redefine Chemical Logic. *Angew. Chem. Int. Ed.* **2014**, *53*. 10256 -10258.

8. A New Collaborative Approach For Chemists, Davies H. M. L.; Morton, D. *Chem. Eng. News.* **2106**, *93(39),* 32-33.

D: ARTICLES IN REFEREED JOURNALS

1. Formation of Monocyclic and Bicyclic Aza-β-Lactams and Other Novel Heterocycles From 1-(Diphenylmethylenyl-methylene)-3-oxo-1,2-diazetidinium Inner Salt, Taylor, E. C.; Clemmens, R. J.; Davies, H. M. L.; Haley, N. F., *J. Am. Chem. Soc.* **1981**, *103*, 7659.

2. 3-Oxo-1, 2-diazetidinium Tosylate, Taylor, E. C.; Davies, H. M. L.; Clemmens, R. J.; Yanagisawa, H.; Haley, N. F. *J. Am. Chem. Soc.* **1981**, *103*, 7660.

3. Rhodium(II) Acetate Catalyzed Reaction of Ethyl 2-Diazo-3-oxopent-4-enoates: Simple Routes to 4-Aryl-2-hydroxy-1-naphthoates and β,γ-Unsaturated Esters. The Dianion of Ethyl 4-(Diethylphosphono)acetoacetate as a Propionate Homoenolate Equivalent, Taylor E. C.; Davies, H. M. L. *Tetrahedron Lett.* **1983**, *24*, 5453.

4. Synthesis of Cyclic Azomethine Imines from Aza β-Lactams. Conversion of 3-Oxo-1,2-diazetidinium Tosylates into 1-Substituted 3-Oxo-1,2-diazetidinium Inner Salts, Taylor E. C.; Clemmens, R. J.; Davies, H. M. L. *J. Org. Chem.* **1983**, *48*, 4567.

5. Approaches to the Synthesis of Aza Analogues of the β-Lactam Antibiotics; Some Anomalous Rhodium (II) Catalyzed Carbene Insertions Reactions, Taylor E. C.; Davies, H. M. L. *J. Org. Chem.* **1984**, *49*, 113.

6. N- vs O-Acylation of 1,2-Diazetidin-3-one: 4,5-Dihydro-1,3,4-oxadiazin-6-ones by Ring Enlargement, Taylor E. C.; Davies, H. M. L.; Lavell, W. T.; Jones N. D. *J. Org. Chem.* **1984**, *49*, 2204.

7. Synthesis and Reactions of Some 1-Substituted 1,2-Diazetidinones, Taylor E. C.; Davies, H. M. L. *J. Org. Chem.* **1984**, *49*, 4415.

8. [3+4] Cycloaddition Reactions of Vinyl Carbenoids with Furans, Davies, H. M. L.; Clarke, D. M., Smith, T. K., *Tetrahedron Lett.* **1985**, *26*, 5659.

9. Thallium in Organic Synthesis. 67. Intramolecular Capture of Radical Cations by an N-Tosyl Group, McKillop, A.; Davies, H. M. L.; Taylor, E. C. *Synth. Commun.* **1986**, *16*, 267.

10. Synthesis and Reactions of Some 1,2-Disubstituted 1,2-Diazetidin-3-ones: An Intramolecular Aldol Approach to Bicyclic Systems, Taylor E. C.; Davies, H. M. L.; Hinkle, J. S. *J. Org. Chem.* **1986**, *51*, 1530.

11. Synthesis of Fused 1,2-Diazetidinones Via an Intramolecular Horner-Emmons Reaction, Taylor, E. C.; Davies, H. M. L. *J. Org. Chem.* **1986**, *51*, 1537.

12. Synthesis and Pyrolysis of Cyclic Sulfonium Ylides, Davies H. M. L.; Crisco, L. V. T.*Tetrahedron Lett.* **1987**, *28*, 371.

13. Tandem Cyclopropanation/Cope Rearrangement Sequence. Stereospecific [3+4] Cycloaddition of Vinylcarbenoids with Cyclopentadiene, Davies, H. M. L.; Smith, H. D.; Korkor, O. *Tetrahedron Lett.* **1987**, *28*, 1853.

14. Diazotransfer Reactions with p-Acetamidiobenzenesulfonyl Azide, Baum, J. S.; Shook, D. A.; Davies, H. M. L.; Smith, H. D. *Synth. Commun.* **1987**, *17*, 1709.

15. Mechanistic Aspects of [3+4] Cycloadditions Between Vinylcarbenoids and Furans, Davies H. M. L.; Clark, D. M.; Alligood, D. B.; Eiband G. R., *Tetrahedron* **1987**, *43*, 4265.

16. Novel Approach to Seven Membered Rings by the Intramolecular Tandem Cyclopropanation/Cope Rearrangement Sequence, Davies, H. M. L.; Oldenburg, C. E. M.; McAfee, M. J.; Nordahl, J. G.; Henretta, J. P.; Romines, K. R., *Tetrahedron Lett.* **1988**, *29*, 975.

17. Direct Synthesis of Furans by 3 + 2 Cycloadditions Between Rhodium(II) Acetate Stabilized Carbenoids and Acetylenes, Davies, H. M. L.; Romines K. R., *Tetrahedron* **1988**, *44*, 3343.

18. Scope and Stereochemistry of the Tandem Intramolecular Cyclopropanation/Cope Rearrangement Sequence, Davies, H. M. L.; McAfee, M. J.; Oldenburg, C. E. M., *J. Org. Chem.* **1989**, *45*, 930.

19. Stereoselective Cyclopropanation Reactions with Vinylcarbenoids, Davies, H. M. L., Church, L. A.; Clark, J., *Tetrahedron Lett.* **1989**, *30*, 5057.

20. Direct Synthesis of the Tropane Skeleton Through Reaction of Vinylcarbenoids with Pyrroles, Davies, H. M. L.; Smith, H. D.; Young, W. B.; *Tetrahedron Lett.* **1989**, *30*, 4653.

21. Anomalous Reactivity of Mono Substituted Rhodium(II) Stabilized Vinylcarbenoids, Davies, H. M. L.; Saikali, E.; Clark, T. J ; Chee, E. H. *Tetrahedron Lett.* **1990**. *31*, 6299.

22. Direct Synthesis of Furans from Rhodium(II) Stabilized Carbenoids with Alkenes, Davies, H. M. L.; Cantrell, W. C.; Romines, K. R.; Baum, J. S., *Org. Synth.* **1991**, *70*, 93.

23. Stereoselective Synthesis of Seven-Membered Carbocycles By a Tandem Cyclopropanation/Cope Rearrangement Between Rhodium(II) Stabilized Vinylcarbenoids and Dienes, Davies, H. M. L.; Smith, H. D.; Clark, T. J. *J. Org. Chem*. **1991**, *56*, 3817.

24. Stereoselective Convergent Synthesis of Hydroazulenes Via an Intermolecular Cyclopropanation/Cope Rearrangement, Davies, H. M. L.; Cantrell, W. R., *J. Org. Chem*. **1991**, *56*, 723.

25. Direct Synthesis of Tropones by Reaction of Vinylcarbenoids with Oxygenated Dienes. Davies, H. M. L.; Clark, T. J., Kimmer, G. F. *J. Org. Chem.* **1991**, *56*, 6440.

26. Direct Synthesis of (±)-Ferruginine and (±)-Anhydroecgonine Methyl Ester by a Tandem Cyclopropanation/Cope Rearrangement, Davies, H. M. L.; Saikali, E.; Young, W. B. *J. Org. Chem.* **1991**, *56*, 5698.

27. α-Hydroxy Esters as Inexpensive Chiral Auxiliaries in Rhodium(II)-Catalyzed Cyclopropanations with Vinyldiazomethanes, Davies, H. M. L.; Cantrell, W. R., Jr. *Tetrahedron Lett.* **1991**, *32*, 6509.

28. Regioselective [3 + 2] Annulations with Rhodium(II)-Stabilized Vinylcarbenoids, Davies, H. M. L.; Hu, B. *Tetrahedron Lett.* **1992**, *33*, 453.

29. Convenient Synthesis of Vinyldiazomethanes from α-Diazo-β-keto Esters and Related Systems, Davies, H. M. L.; Hougland, P. W.; Cantrell, W. R., Jr. *Synth. Commun*. **1992**, *22*, 971.

30. Highly Stereoselective 3 + 2 Annulations by Cyclopropanation of Vinyl Ethers with Rhodium(II)-Stabilized Vinylcarbenoids Followed by a Formally Forbidden 1,3-Sigmatropic Rearrangement, Davies, H. M. L.; Hu, B. *J. Org. Chem*. **1992**, *57*, 3186.

31. Ring Expansion of tert-Butyl 1-Vinylcyclopropane-1-carboxylates to α-Ethylidenebutyrolactones, Davies, H. M. L.; Hu, B. *J. Org. Chem.* **1992**, *57*, 4309.

32. Divergent Reactions Pathways Between Rhodium(II)-Stabilized Vinylcarbenoids and Benzenes, Davies, H. M. L.; Smith, H. D.; Hu, B.; Klenzak, S. M.; Hegner, F. J., *J. Org. Chem.* **1992**, *57*, 6900.

33. Enantioselective Synthesis of Tropanes by Reaction of Rhodium-Stabilized Vinylcarbenoids with Pyrroles, Davies, H. M. L.; Huby, N. J. S., *Tetrahedron Lett.* **1992**, *33*, 6935.

34. Novel 2-Substituted Cocaine Analogs: Binding Properties at Dopamine Transport Sites in Rat Striatum, Davies, H. M. L.; Saikali, E.; Sexton, T.; Childers, S. R. *Eur. J. Pharamacol.* **1993**, *244*, 93.

35. Diastereoselectivity Enhancement in Cyclopropanation and Cyclopropenation Reactions of Chiral Diazoacetate Esters Catalyzed by Chiral Dirhodium Carboxamides, Doyle, M. P.; Protopova, M. N.; Brandes, B. B.; Davies, H. M. L.; Huby, N. J. S.; Whitesell, J. K. *Synlett.* **1993**, 151.

36. Synthesis of Ether Analogues of (±)-Acetomycin, Davies, H. M. L.; Hu, B., *Heterocycles* **1993**, *35*, 385.

37. α-Hydroxy Esters as Chiral Auxiliaries in Asymmetric Cyclopropanation By Rhodium(II) Stabilized Vinylcarbenoids, Davies, H. M. L.; Huby, N. J. S.; Cantrell, W. R., Jr.; Olive, J. L. *J. Am. Chem. Soc.* **1993**, *115*, 9468.

38. Enantioselective Synthesis of Vinylcyclopropanes by Rhodium(II) Catalyzed Decomposition of Vinyldiazomethanes in the Presence of Alkenes, Davies, H. M. L.; Hutcheson, D. K. *Tetrahedron Lett.* **1993**, *34*, 7243.

39. Synthesis of Novel 2β-Acyl-3β-aryl-8-azabicyclo[3.2.1]octanes and Their Binding Affinities at Dopamine and Serotonin Transport Sites in Rat Striatum and Frontal Cortex, Davies, H. M. L.; Saikali, E.; Huby, N. J. S.; Gilliatt, V. J.; Matasi, J. J.; Sexton, T.; Childers, S. R. *J. Med. Chem*. **1994**, *37*, 1262.

40. Behavioral Effects of the Novel Tropane Analog, 2β-Propoanoyl-3β-(4-tolyl)tropane (PTT), Porrino, L. J.; Migliarese, K.; Davies, H. M. L.; Saikali, E.; Childers, S. R. *Life Sciences* **1994**, *54*, 511.

41. Carbenoid Versus Vinylogous Reactivity in Rhodium(II)-Stabilized Vinylcarbenoids, Davies, H. M. L.; Hu, B.; Saikali, E.; Bruzinski, P. R. *J. Org. Chem.* **1994**, *59*, 4535.

42. Rhodium(II) Catalyzed Intramolecular Reactions Between Vinyldiazomethanes and Pyrroles. Novel Synthesis of Fused 7-Azabicyclo[4.2.0]octadienes, Davies, H. M. L.; Matasi, J. J. *Tetrahedron Lett.* **1994** *35*, 5209.

43. Synthesis of Highly Functionalized Tropolones By Rhodium(II)-Catalyzed Reactions of Vinyldiazomethanes with Oxygenated Dienes, Davies, H. M. L.; Clark, T. J. *Tetrahedron* **1994**, *50*, 9883.

44. Asymmetric Synthesis of Seven-Membered Carbocycles by Rhodium(II) (N-p-(*tert*Butyl)Phenylsulfonyl)prolinate Catalyzed Reactions Between Vinyldiazomethanes and Dienes, Davies, H. M. L.; Peng, Z. -Q.; Houser, J. H. *Tetrahedron Lett.* **1994**, *35*, 8939.

45. Novel 2-Substituted Cocaine Analogs: Uptake and Ligand Binding Studies at Dopamine, Serotonin and Norepinephrine Transport Sites in the Rat Brain, Bennett, B. A.; Wichems, C. H.; Hollingsworth, C. K.; Davies, H. M. L.; Thornley, C.; Sexton, T.; Childers, S. R. *J. Pharmacol. Exp. Ther.* **1995**, *272*, 1176.

46. Comparison of a Novel Tropane Analog of Cocaine, 2β-Propanoyl-3β-(4-tolyl)tropane (PTT) with Cocaine HCl in Rats: Nucleus Accumbens Extracellular Dopamine Concentration and Motor Activity, Hemby, S. E.; Co, C.; Reboussin, D.; Davies, H. M. L.; Dworkin, S. I.; Smith, J. E.. *J. Pharmacol. Exp. Ther*. **1995**, *272*, 656.

47. Behavioral and Local Cerebral Metabolic Effects of the Novel Tropane Analog, 2β-Propoanoyl-3β-(4-tolyl)tropane (PTT), Porrino, L. J.; Davies, H. M. L.; Childers, S. R. *J. Pharmacol. Exp. Ther*. **1995**, *272*, 901.

48. Synthesis and Chemistry of Donor/Acceptor Substituted Cyclopropenes, Davies, H. M. L.; Houser, J. H.; Thornley, C. *J. Org. Chem.*, **1995**, *60*, 7529.

49. Control of Carbenoid Reactivity Through Neighboring Group Participation, Davies, H. M. L.; Matasi, J.; Thornley, C. *Tetrahedron Lett.*, **1995**, *36*, 7205.

50. Divergent Pathways in the Intramolecular Reactions Between Rhodium-Stabilized Vinylcarbenoids and Pyrroles: Construction of Fused Tropanes and 7-Azabicyclo[4.2.0]octadienes, Davies, H. M. L.; Matasi, J. J.; Ahmed, G. J. *Org. Chem*, **1996**, *61*, 2305.

51. Asymmetric Synthesis of the Tremulane Skeleton By a Tandem Cyclopropanation/Cope Rearrangement, Davies, H. M. L.; Doan, B. D. *Tetrahedron Lett.* **1996**, *37*, 3967.

52. Effect of Diazoalkane Structure on the Stereoselectivity of Rhodium(II) (S)-N-(Arylsulfonyl)prolinate Catalyzed Cyclopropanations, Davies, H. M. L.; Bruzinski, P. R.; Fall, M. J. *Tetrahedron Lett.* **1996**, *37*, 4133.

53. Synthesis of 3β-Aryl-8-azabicyclo[3.2.1]octanes with High Binding Affinities and Selectivities for the Serotonin Transport Site, Davies, H. M. L.; Kuhn, L.; Thornley, C.; Matasi, J. J.; Sexton, T.; Childers, S. R. *J. Med. Chem*. **1996**, *39*, 2554.

54. Asymmetric Cyclopropanations by Rhodium(II) N-(Arylsulfonyl)prolinate Catalyzed Decomposition of Vinyldiazomethanes in the Presence of Alkenes. Practical Enantioselective Synthesis of the Four Stereoisomers of 2-Phenylcyclopropane-1-amino Acid, Davies, H. M. L.; Bruzinski, P.; Hutcheson, D. K.; Fall, M. J. *J. Am. Chem. Soc.* **1996**, *118*, 6897.

55. Asymmetric Synthesis of Highly Functionalized 8-Oxabicyclo[3.2.1]octane Derivatives, Davies, H. M. L.; Ahmed, G.; Churchill, M. R. *J. Am. Chem. Soc.* **1996**, *118*, 10774.

56. Practical Enantioselective Synthesis of Functionalized Tropanes By Rhodium(II) Carboxylate Catalyzed Decomposition of Vinyldiazomethanes in the Presence of Pyrroles. Davies, H. M. L.; Matasi, J. J.; Hodges, L. M.; Huby, N. J. S.; Thornley, C.; Kong, N. *J. Org. Chem.* **1997**, *62*, 1095.

57. Type II Intramolecular Annulations Between Vinylcarbenoids and Furans. Davies, H. M. L.; Calvo, R.; Ahmed, G. *Tetrahedron Lett.* **1997**,38, 1737.

58. Rhodium(II)(S)-N-(Arylsulfonyl)prolinate Catalyzed Asymmetric Insertions of Vinyl- and Phenylcarbenoids into the Si-H Bond, Davies, H. M. L.; Hansen. T.; Rutberg, J.; Bruzinski, P. *Tetrahedron Lett*. **1997**, 38, 1741.

59. The reinforcing and Discriminative Stimulus Effects of the Novel Cocaine Analog 2β-Propanoyl-3β-(4-tolyl)tropane (PTT) in Rhesus Monkeys, Nader, M. A.; Grant, K. A.; Davies, H. M. L.; Mach, R. H.; Childers, S. R. *J. Pharmacol. Exp. Ther*., **1997**, 280, 541.

60. Potential Antidepressant Effects of Novel Tropane Compounds, Selective for Serotonin or Dopamine Transporters, Hemby, S. E.; Lucki, I.; Gatto, G.; Singh, A.; Thornley, C.; Matasi, J. J.; Kong, N.; Smith, J. E.; Davies, H. M. L.; Dworkin, S. I. *J. Pharmacol. Exp. Ther*. **1997**, *282*, 727.

61. Local Cerebral Metabolic Effects of the Novel Serotonin-Selective Tropane Analog, WF-31: Comparisons to Fluoxetine. Porrino, L. J.; Miller, M.; -Rowe, A. H.; Thornley, C.; Matasi, J. J.; Davies, H. M. L. *Synapse*. **1997**, *27*, 26.

62. Alterations in Behavior and Opioid Gene Expression Induced by the Novel Cocaine Analog WF-31. Dunais, J. B.; Hart, S. L.; -Rowe, A. H.; Thornley, C.; Matasi, J. J.; Davies, H. M. L; Porrino, L. J.. *Molecular Brain Res.* **1997**, *50*, 293.

63. Synthesis and Evaluation of a Novel Dirhodium Tetraprolinate Catalysts Containing Bridging Prolinate Ligands, Davies, H. M. L.; Kong, N. *Tetrahedron Lett.* **1997**, 38, 4203

64. Effect of Tether Position on the Intramolecular Reaction Between Rhodium-Stabilized Carbenoids and Furans, Davies, H. M. L.; Calvo, B. L. *Tetrahedron Lett.* **1997**, 38, 5623.

65. Asymmetric Intermolecular Carbenoid C-H Insertions Catalyzed By Rhodium(II) (*S*)-*N*-(*p*-Dodecylphenyl)sulfonylprolinate, Davies, H. M L.; Hansen, T. *J. Am. Chem. Soc*. **1997**, *119*, 9075.

66. Further Evaluation of the Reinforcing Effects of the Novel Cocaine Analog 2β-Propanoyl-3β-(4-tolyl)tropane (PTT) in Rhesus Monkeys, Birmingham, A. M.; Nader, S. H.; Grant, K. A.; Davies, H. M. L.; Nader, M. A. *Psychopharmacology*. **1998**, *136*, 139-147.

67. Prolonged Dopamine and Serotonin Transporter Inhibition After Exposure to Tropanes, Bennett, B. A.; Hollingsworth, C. K.; Martin, R. S.; Childers, S. R.; Ehrenkaufer, R. E.; Porrino, L. J.; Davies, H. M. L. *Neuropharmacology* **1998**, 123-130.

68. Total Synthesis of (±)-Tremulenolide A and (±)-Tremulenediol A Via a Stereoselective Cyclopropanation/Cope Rearrangement Annulation Strategy, Davies, H. M. L.; Doan, B. D. *J. Org. Chem.* **1998**, *63*, 657-660.

69. Rhodium(II)-Catalyzed Decomposition of Vinyldiazomethanes in the Presence of 1,2-Dihydropyridines: Synthesis of the 6-Azabicyclo[3.2.2]nonane Nucleus, Davies, H. M. L.; Hodges, L. M.; Thornley, C. T. *Tetrahedron Lett*. **1998**, 39, 2707-2710.

70. Asymmetric Synthesis of 2,3-Dihydrofurans By Reaction of Rhodium-Stabilized Vinylcarbenoids With Vinyl Ethers, Davies, H. M. L.; Ahmed, G.; Calvo, R. L.; Churchill, R. M.; Churchill, D. G. *J. Org. Chem.* **1998**, *63*, 2641-2645.

71. Tandem Asymmetric Cyclopropanation/Cope Rearrangement. A Highly Diastereoselective and Enantioselective Method for the Construction of 1,4-Cycloheptadienes , Davies, H. M. L.; Stafford, D. G.; Doan, B. D.; Houser, J. H.. *J. Am. Chem. Soc.* **1998**, *120*, 3326-3331.

72. Effect of Carbenoid Structure on the Reactivity of Rhodium-Stabilized Carbenoids, Davies, H. M. L.; Hodges, L. M.; Matasi, J. J.; Hansen, T.; Stafford, D. S. *Tetrahedron Lett.*, **1998**, 39, 4417-4420.

73. Cation Induced Rearrangement of Tropanes to 6-azabicyclo[3.2.1]octanes, Davies, H. M. L.; Cao, G. *Tetrahedron Lett.* **1998**, 39, 5943-5946.

74. Asymmetric Synthesis of Cyclopentenes by 3 + 2 Annulations Between Vinylcarbenoids and Vinyl Ethers, Davies, H. M. L.; Kong, N.; Churchill, M. R. *J. Org. Chem*. **1998**, 63, 6586-6589.

75. Long-Acting Blockade of Biogenic Amine Transporters in Rat Brain by Administration of the Potent Novel Tropane 2β-Propanoyl-3β-(2-naphthyl)-tropane, Daunais, J. B.: Hart, S. L.; Smith, H. H.; Letchworth, S. R.; Davies, H. M. L.; Sexton, T.; Bennett, B. A.; Childers, S. R.; Porrino, L. J. *J. Pharmacol. Exp. Ther*. **1998**, *285*, 1246-1254.

76. Effect of Catalyst on the Diastereoselectivity of Methyl Phenyldiazoacetate Cyclopropanations, Davies, H. M. L.; Ruziniak, L. *Tetrahedron Lett.* **1998**, 39, 8811-8812.

77. Self-Administration of Cocaine Analogs, Roberts, D. C. S.; Phelan, R.; Hodges, L. M.; Hodges, M. M.; Bennett, B.; Childers, S. R.; Davies, H. M. L. *Psychopharmacology*, **1999**, *144*, 389-397.

78. Highly Regio-, Diastero- and Enantioselective C-H Insertions of Methyl Aryldiazoacetates into Cyclic N-Boc Protected Amines. Asymmetric Synthesis of Novel C-2 Symmetric Amines and threo-Methyphenidate, Davies, H. M. L.; Hansen, T.; Hopper, D. *J. Am. Chem. Soc.*, **1999**, *121*, 6509-6510.

79. Novel Dirhodium Tetraprolinate Catalysts Containing Bridging Prolinate Ligands for Asymmetric Carbenoid Reactions, Davies, H. M. L.; Panaro, S. *Tetrahedron Lett.* **1999**, *40*, 5287-5291.

80. Catalytic Asymmetric Synthesis of Syn-Aldol Products from Intermolecular C-H Insertions Between Allyl Silyl Ethers and Methyl Aryldiazoacetates. Davies, H. M. L.; Antoulinakis, E. G.; Hansen, T. *Org. Lett*. **1999**, *1*, 383-386.

81. Catalytic Asymmetric Synthesis of Diarylacetates and 4,4-Diarylbutanoates. A Formal Asymmetric Synthesis of (+)-Sertraline. Davies, H. M. L.; Stafford, D. G.; Hansen, T. *Org. Lett*. **1999**, *1*, 233-236.

82. Enantioselective Synthesis of Fused Cycloheptadienes By a Tandem Cyclopropanation/Cope Rearrangement Sequence, Davies, H. M. L.; Doan, B. D. *J. Org. Chem.* **1999**, *64*, 8501-8508.

83. Absolute Configuration of $C_{23}H_{34}O_8Si$, the Product of An Asymmetric Synthesis Involving the Rh(II) Catalyzed Reaction of a Chiral Vinyldiazomethane with Methyl 2-Methyl-3-furoate, Churchill, M. R.; Churchill, D. G.; Ahmed, G.; Davies, H. M. L. *J. Chem. Cryst.* **1999**, *29*, 707.

84. Absolute Configuration of $C_{20}H_{30}O_6Si$, a Species with a (1*R*,5*R*)-8-Oxabicyclo[3.2.1]octa-2,6-diene Core Produced Selectively by the Rhodium(II) Octanoate Catalyzed Decomposition of a Chiral Vinyldiazomethane in the Presence of Furan., Churchill, M. R.; Churchill, D. G.; Ahmed, G.; Davies, H. M. L. *J. Chem. Cryst.* **1999**, *29*, 713.

85. Regulation of Rat Dopamine Transporter mRNA and Protein by Chronic Cocaine Administration, Letchworth, S. R.; Sexton, T.; Childers, S. R.; Vrana, K. E.; Vaughan, R. A.; Davies, H. M. L.; Porrino, L. J. Neurochemistry **1999**, *73*, 1982-1989.

86. Fluorine-18 Labeled Tropane Analogs for PET Imaging Studies of the Dopamine Transporter, Mach, R. H.; Nader, M. A.; Ehrenkaufer, R. L.; Gage, H. D.; Childers, S. R.; Hodges, L. M.; Hodges, M. M.; Davies, H. M. L. *Synapse* **2000**, *37*, 109.

87. Catalytic Asymmetric C-H Activation of Alkanes and Tetrahydrofuran, Davies, H. M. L.: Hansen, T.; Churchill, M. R. *J. Am. Chem. Soc*. **2000**, *122*, 3063

88. Effect of Carbenoid Structure on the Reactions of Rhodium-Stabilized Carbenoids with Cycloheptatriene, Davies, H. M. L.; Stafford, D. G.; Hansen, T.; Churchill, M. R.; Keil, K. M. *Tetrahedron Lett* **2000**, 41, 2035.

89. A Comparison of the Behavioral and Biological Effects of the Repeated Administration of PTT, 2β-Propanoyl-3β-(4-tolyl)tropane, and Cocaine, Freedland, C. S.; Daunais, J. B.; Hart, S. L.; Smith, H. R.; Davies, H. M. L.; Porrino, L. J. *Brain Research* **2000**, *869*, 98.

90. A Novel Cocaine Analog, 2β-Propanoyl-3β-(4-tolyl)tropane (PTT), Reduces Tyrosine Hydroxylase in the Mesolimbic Dopamine Pathway, Freeman, W. M.; Yohrling, G. J., IV; Daunais, J. B.; Giota, L.; Hart, S. L.; Porrino, L. J.; Davies, H. M. L.; Vrana, K. E. *Drug and Alcohol Dependence*, **2000**, *61*, 15.

91. Effect of Rhodium Carbenoid Structure on Cyclopropanation Chemoselectivity, Davies, H. M. L.; Panaro, S. A. *Tetrahedron* **2000**, *56*, 4871.

92. An Exploratory study of Type II [3 + 4] Cycloadditions Between Vinylcarbenoids and Dienes, Davies, H. M. L.; Calvo. R. L.; Townsend, R. J.; Ren, P.; Churchill, R. M. *J. Org. Chem.* **2000**, *65*, 4261.

93. Stereoselectivity of Methyl Aryldiazoacetate Cyclopropanations of 1,1-Diarylethyles. Asymmetric Synthesis of a Cyclopropyl Analog of Tamoxifen. Davies, H. M. L.; Nagashima, T.; Klino, J., III Org. Lett. **2000**, *2*, 823.

94. Characterization of a Tropane Radioligand, [^{3}H] 2β-Propanoyl-3β-(4-tolyl)tropane ([^{3}H]PTT), for Dopamine Transport Sites in Rat Brain, Letchworth, S. R.; Smith, H. R.; Porrino, L. J.; Bennett, B. A.; Davies, H. M. L.; Sexton, T.; Childers, S. R. *J. Pharmacol. Exp. Ther*. **2000**, *293*, 686.

95. Regiochemistry of Molybdenum Catalyzed O-H Insertions of Vinylcarbenoids, Davies, H. M. L.; Yokota, Y. *Tetrahedron Lett.* **2000**, *41*, 4851.

96. Self-administration of two long acting monoamine transport blockers in rhesus monkeys, Lile, J. A.; Morgan, D.; Freedland, C. S.; Sinnott, R. S.; Davies, H. M. L; Nader, M. A. *Psychopharmacology*, **2000**, *152*, 414.

97. Dihydro- and tetrahydrofuran ring-opening reactions directed towards the synthesis of CP-263,114, Davies, H. M. L.; Ren, P. *Tetrahedron Lett.* **2000**, *41*, 9021.

98. Asymmetric synthesis of 1-alkynylcyclopropane-1-carboxylates, Davies, H. M. L.; Boebel, T. A. *Tetrahedron Lett.* **2000**, *41*, 8189.

99. Asymmetric catalytic C-H activation applied to the synthesis of syn-aldol products. Davies, H. M. L.; Antoulinakis, E. G. *Org. Lett.* **2000**, *2*, 4153.

100. Synthesis and monoamine transporter affinity of 3β-(4-(2-pyrrolyl)phenyl)-8-azabicyclo[3.2.1}octanes and 3β-(6-indolyl)-8-azabicyclo[3.2.1]octanes, Davies, H. M. L.; Ren, P.; Kong, N. X.; Sexton, T.; Childers, S. R. *Biorg. Med. Chem. Lett.*, **2001**, *11*, 487.

101. Catalytic asymmetric C-H activation of silyl enol ethers as an equivalent of an asymmetric Michael reaction, Davies, H. M. L.; Ren, P. *J. Am. Chem. Soc*. **2001**, *123*, 2070.

102. Catalytic asymmetric cyclopropanation on solid phase, Davies, H. M. L.; Nagashima, T. *J. Am. Chem. Soc*. **2001**, *123*, 2695.

103. Synthesis of 2β-acyl-3β-(substituted naphthyl)-8-azabicyclo[3.2.1]octanes and their binding affinities at dopamine and serotonin transport sites, Davies, H. M. L.; Gilliat, V.; Kuhn, L.; Saikali, E.; Ren, P.; Hammond, P. S.; Sexton, T.; Childers, S. R. *J. Med. Chem* **2001**, *44*, 1509.

104. Kinetic Resolution and Double Stereodifferentiation in Catalytic Asymmetric C-H Activation of 2-Substituted Pyrrolidines, Davies, H. M. L.; Venkataramani, C. *Org. Lett.* **2001**, *3*, 1773.

105. Asymmetric Intramolecular C-H Insertions of Aryldiazoacetates, Davies, H. M. L.; Grazini, , M. V. A.; Aouad, E. *Org. Lett.* **2001**, *3*, 1475.

106. Catalytic asymmetric synthesis of highly functionalized cyclopentenes by a [3 + 2] cycloaddition, Davies, H. M. L.; Xiang, B.; Kong, N.; Stafford, D. G. *J. Am. Chem. Soc*. **2001**, *123*, 7461.

107. Stereoselective synthesis of epoxides by reaction of donor/acceptor substituted carbenoids with α,β-unsaturated aldehydes, Davies, H. M. L.; DeMeese, J. *Tetrahedron Lett.* **2001**, 42, 6803.

108. Catalytic asymmetric cyclopropanation of heteroaryldiazoacetates, Davies, H. M. L.; Townsend, R. J. *J. Org. Chem.* **2001**, *66*, 6595.

109. Conformational analysis and stereochemical assignments of products derived from C-H activation of secondary sites, Davies, H. M. L.; Ren, P. *Tetrahedron Lett.* **2001**, *42*, 3149.

110. Catalytic asymmetric allylic C-H activation as a surrogate of an asymmetric Claisen rearrangement, Davies, H. M. L.; Ren, P.; Jin, Q.*Org. Lett.* **2001**, *3*, 3587.

111. Diasteroselective kinetic protonation of exocyclic enolates derived from bicyclic ketones: Control of stereochemistry mediated by bridging heteroatoms, Davies, H. M. L.; Hodges, L. M.; Gregg, T. M. *J. Org. Chem.* **2001**, *66*, 7898.

112. Synthesis of iodinated 3β-aryltropanes with selective binding to either the dopamine or serotonin transporters, Davies, H. M. L.; Ren, P.; Kong, N. X.; Sexton, T.; Childers, S. R. *Biorg. Med. Chem. Lett.*, **2002**, *12*, 845.

113. Catalytic asymmetric benzylic C-H activation by means of carbenoid induced C–H insertions, Davies, H. M. L.; Jin, Q.; Ren, P. *J. Org. Chem.* **2002**, *67*, 4165.

114. The reinforcing efficacy of the dopamine reuptake inhibitor PTT as measured by a progressive-ratio schedule and a choice procedure in rhesus monkeys, J. A.; Morgan, D.; Nader, S. H.; Birmingham, A. M.; Davies, H. M. L.; Nader, M. A. *J. Pharmacol. & Exp. Ther*, **2002**, *303*, 640.

115. Rhodium carboxylate catalyzed decomposition of vinyldiazoacetates in the presence of heterodienes: Asymmetric synthesis of the 6-azabicylo[3.2.2]octane and 6-azabicyclo[3.2.2]nonanone ring systems, Davies, H. M. L.; Hodges, L. M. *J. Org. Chem.* **2002**, *67*, 5683.

116. Catalytic asymmetric C–H activation by methyl thiophen-3-yldiazoacetate applied to the synthesis of (+)-cetiedil, Davies, H. M. L.; Abbas, W.; Townsend, R.B. *Tetrahedron Lett.* **2002**, *43*, 4981.

117. Catalytic asymmetric synthesis of beta-amino acids, Davies, H. M. L.; Venkataramani, C. *Angew. Chem.* **2002** *41*, 2197.

118. Asymmetric synthesis of (+)-indatraline using rhodium catalyzed C–H activation, Davies, H. M. L.; Gregg, T. M. *Tetrahedron Lett.* **2002**, *43*, 4951.

119. Facile formation of chloro-η^3-allyl complexes by reaction of vinyldiazoacetates and ruthenium(II) arene complexes, Nishiyama, H.; Konno, M.; Aoki, K.; Davies, H. M. L. *Organometallics* **2002**, *21*, 2536.

120. Catalytic asymmetric cyclopropanation using bridged dirhodium tetraprolinates on solid support, Nagashima, T.; Davies, H. M. L. *Org. Lett.* **2002**; *4*, 1989.

121. Asymmetric intermolecular C-H activation using immobilized dirhodium tetrakis((*S*)-*N*-(dodecylbenzenesulfonyl)prolinate) as a recoverable catalyst, Davies, H. M. L.; Walji, A. M., *Org. Lett*. **2003**, *5*, 479.

122. Intermolecular C–H activation at benzylic positions. Synthesis of (+)-imperanene and (-)-α-conidendrin, Davies, H. M. L.; Jin, Q. *Tetrahedron Asymmetry* **2003**, *14*, 941.

123. New strategic reactions for organic synthesis: catalytic asymmetric C–H activation α to nitrogen as a surrogate to the Mannich reaction, Davies, H. M. L.; Venkateramani, C.; Hansen, T.; Hopper, D. W. *J. Am. Chem. Soc*. **2003**, *125*, 6462.

124. New strategic reactions for organic synthesis: catalytic asymmetric C–H activation α to oxygen as a surrogate to the aldol reaction, Davies, H. M. L.; Beckwith, R. E. J.; Antoulinakis, E. G.; Jin, Q.. *J. Org. Chem*. **2003**, *68*, 6126.

125. Dirhodium tetraprolinates catalyzed asymmetric cyclopropanation with extremely high turnover numbers, Davies, H. M. L.; Venkateramani, C, *Org. Lett*. **2003**, *5*, 1403.

126. Effect of HD-23, a potent long acting cocaine-analog, on cocaine self-administration in rats, Roberts D. G. S.: Kelly R. Jungersmith, K. R.: Phelan, R.; Gregg, T. M.; Davies, H. M. L. *Psychopharmacology 2003*, **167**, 386.

127. The reinforcing efficacy of psychostimulants in rhesus monkeys: the role of pharmacokinetics and pharmacodynamics, Lile, J. A.; Wang, Z.; Woolverton, W. L.; France, J. E.; Gregg, T. C.; Davies, H. M. L.: Nader, M. A. *J. Pharmacol. and Exp. Therapeutics* **2003**, *307*, 356.

128. Influence of a β-alkoxy substituent on the C–H activation chemistry of alkyl ethers, Davies, H. M. L.; Yang, J. *Adv. Synth. Catal*. **2003**, *345*,1133.

129. Isotope effects and the nature of selectivity in rhodium-catalyzed cyclopropanations, Nowlan, D. T., III; Gregg, T. M.; Davies, H. M. L.; Singleton, D. A. *J. Am. Chem. Soc.* **2003**, *125*, 15902.

130. Direct Gas-Phase Interaction of Aryldiazoacetates and Dirhodium Catalysts, Petrukhina, M. A.; Andreini, K. W.; Walji, A. M.; Davies, H. M. L. *J. Chem,. Soc., Dalton Trans*. **2003**, 4221.

131. Effect of the dopamine reuptake inhibitor PTT on reinstatement and on food- and cocaine-maintained responding in rhesus monkeys, Lile, J. A.; J. A.; Morgan, D.; Birmingham, A. M.; Davies, H. M. L.; Nader, M. A. *Psychopharmacology* **2004**, *174*, 246.

132. Double C–H activation strategy for the asymmetric synthesis of C2 symmetric anilines, Davies, H. M. L.; Jin, Q. *Org. Lett.* **2004**, 6, 1769-1772.

133. Effects of 2β-propanoyl-3β(4-tolyl)-tropane (PTT) on the self-administration of cocaine, heroin and cocaine/heroin combinations in rats, Sizemore, G. M,; Davies, H. M. L.; Martin, T. J.; Smith, J. E. *Drug Alcohol Depend.* **2004**, *73*, 259.

134. Simple strategy for the immobilization of dirhodium tetraprolinate catalysts using a pyridine-linked solid support, Davies, H. M. L.; Walji, A. M.; Nagashima, T. *J. Am. Chem. Soc*. **2004**, *126*, 4271.

135. Synthesis of methylphenidate analogues and their binding affinities at dopamine and serotonin transport sites, Davies, H. M. L.; Hopper, D. W.; Hansen, T.; Liu, X.; Childers, S. R. *Biorg. Med. Chem. Lett.* **2004**, *14*, *1799*.

136. New catalytic asymmetric reactions in organic synthesis: the combined C-H activation/Cope rearrangement, Davies, H. M. L.; Jin, Q. *Proc Natl Acad Sci U S A.* **2004**, *101*, 5472.

137. Dirhodium tetrakis((*S*)-*N*-(dodecylbenzenesulfonyl)prolinate catalyzed enantioselective cyclopropenation of alkynes, Davies, H. M. L.; Lee, G. H. *Org. Lett*, **2004**, *6*, 1233.

138. Lewis acid induced tandem Diels-Alder reaction/ring expansion as an equivalent of a [4 + 3] cycloaddition, Davies, H. M. L.; Dai, X. *J. Am. Chem. Soc.* **2004**, *126*, 2692.

139. Enantioselective synthesis of cyclopropylphosphonates containing quaternary stereocenters using a *D*2-symmetric chiral catalyst Rh_2(*S*-biTISP)$_2$ Davies, H. M. L.; Lee, G. H.; *Org. Lett.* **2004**, 6, 2117.

140. Highly diastereoselective and enantioselective C—H functionalization of 1,2-dihydronaphthalenes: A combined C—H activation/Cope rearrangement followed by a retro-Cope rearrangement, Davies, H. M. L.; Jin, Q. *J. Am. Chem. Soc*. **2004**, *126*, 10862.

141. Catalytic asymmetric reactions for organic synthesis: The combined C—H activation/siloxy-Cope rearrangement, Davies, H. M. L.: Beckwith, R. E. J. *J. Org. Chem.* **2004**, *69*, 9241.

142. Metal carbene-promoted sequential transformations for the enantioselective synthesis of highly functionalized cycloheptadienes, Deng, L.; Giesser, A. J.; Gerlitz, O. O.; Dai, X.; Diver, S. T.; Davies, H. M. L. *J. Am. Chem. Soc*. **2005**, *127*, 1342.

143. Direct synthesis of (+)-erogorgiaene by means of a kinetic enantiodifferentiating step, Davies, H. M. L.; Walji, A. M. *Angew. Chem., Int. Ed.* **2005**, 44, 1733.

144. Effects of long-term biogenic amine transporter blockade on receptor/G-protein coupling in rat brain, O'Connor, K. A.; Gregg, T. C.; Davies, H. M. L.; Childers, S. R. *Neuropharmacology* **2005**, *48*, 62.

145. Enantioselective double C–H activation of dihydronaphthalenes, Davies, H. M. L.; Jin, Q. Org. Lett. **2005**, *7*, 2293.

146. Universal strategy for the immobilization of chiral rhodium catalysts, Davies, H. M. L.; Walji, A. *Org. Lett*. **2005**, *7*, 2941.

147. Time-dependent changes in receptor/G-protein coupling in rat brain following chronic monoamine transporter blockade. O'Connor, K. A.; Porrino, L. J. Davies, H. M. L.; Childers, S. R *J. Pharmacol. and Exp. Therapeutics* **2005**, *313*, 510.

148. Lewis acid-catalyzed tandem Diels-Alder reaction/retro-Claisen rearrangement as an equivalent of the inverse electron demand Diels-Alder reaction, Davies, H. M. L.; Dai, X. *J. Org. Chem.* **2005**, *70*, 6680.

149. Asymmetric intermolecular C–H functionalization of benzyl silyl ethers mediated by chiral auxiliary-based aryldiazoacetates and chiral dirhodium catalysts, Davies, H. M. L.; Hedley, S. J.; Bohall, B. R. *J. Org. Chem.* **2005**, *70*, 10737.

150. Asymmetric C–H insertion of Rh(II) Stabilized Carbenoids into Acetals: A C–H Activation Protocol as a Claisen Condensation Equivalent, Davies, H. M. L.; Yang, J.; Nikolai, J. *Organometallics*, **2005**, *690*, 6111.

151. Sequential cycloaddition approach to the tricyclic core of vibsanin E. Total synthesis of (±)-5-ep1-10-epi-vibsanin E, Davies, H. M. L.; Loe, O.; Stafford, D, G. *Org. Lett.* **2005**, *7*, 5561.

152. Combined C-H activation/Cope rearrangement as a strategic reaction in organic synthesis: Total synthesis of (-)-colombiasin A and (-)-elisapterosin B, Davies, H. M. L.; Dai, X. *J. Am. Chem. Soc.* **2006**, *128*, 2485.

153. C–H Activation as a strategic reaction: Enantioselective synthesis of 4-substituted indoles, Davies, H. M. L.; Manning, J.R. *J. Am. Chem. Soc.* **2006**, *128*, 1060.

154. Direct synthesis of methyl 2-diazo-4-aryl-3-butenoates and their application to the enantioselective synthesis of 4-aryl-4-(1-naphthyl)-2-butenoates, Davies, H. M. L.; Yang, J.; Manning, J. R., invited article, *Tetrahedron Asymmetry* **2006**, 17, 6665.

155 Application of the combined C–H activation/Cope rearrangement as a key step in the total syntheses of the reported structure of (–)-elisabethadione and a (–)-p-benzoquinone natural product, Davies, H. M. L.; Dai, X. invited article, *Tetrahedron*, **2006**, *62*, 10477.

156. Investigation into factors influencing stereoselectivity in the reactions of heterocycles with donor-acceptor substituted rhodium carbenoids, Hedley, S. J.; Ventura, D. L.; Dominiak, P. M.; Nygren, C. L.; Davies, H. M. L. *J. Org. Chem.* **2006**, *71*, 5349..

157. Enantioselective synthesis of beta-amino esters and its application to the synthesis of the enantiomers of venlafaxine, Davies, H. M. L.: Ni, A. *Chem. Commun.* **2006**, 3110.

158. Diversity synthesis using the complimentary reactivity of rhodium(II)- and palladium(II)-catalyzed reactions, Ni, A.; France, J.; Davies, H. M. L. *J. Org. Chem.* 2**006**, *71*, 5594.

159. Dirhodium tetracarboxylate derived from adamantylglycine as a chiral catalyst for carbenoid reactions, Reddy, R. P.; Lee, G. H.; Davies, H. M. L. *Org. Lett.* **2006**, *8*, 3437.

160 Dirhodium tetracarboxylates derived from adamantylglycine as chiral catalyst for enantioselective C–H aminations, Reddy, R. P.; Lee, H. M. L. *Org. Lett.* **2006**, *8*, 5013.

161. Formal enantioselective [4 + 3] cycloaddition by a tandem Diels-Alder reaction/ring expansion, Dai, X.; Davies, H. M. L. *Adv. Synth. Catal.* **2006**, *348*, 2449.

162. Synthesis and isolation studies related to the marine natural products (+)-elisabethadione and (+)-elisabethamine, Dai, X.; Wan, Z.; Kerr, R. G.; Davies, H. M. L. *J. Org. Chem.* **2007**, *72*, 1895.

163. Enhancement of cyclopropanation chemistry in the silver-catalyzed reactions of aryldiazoacetates, Thompson, J. L.; Davies, H. M. L. *J. Am. Chem. Soc*. **2007**, *129*, 6090.

164. Enantioselective synthesis of trifluromethyl-substituted cyclopropanes. Denton, J. R.; Sukumaran, D.; Davies, H. M. L. *Org. Lett.* **2007**, *6*, 2625.

165. Irreversible binding of a novel phenylisothiocyanate tropane analog to monoamine transporters in rat brain, Murthy, V.; Hedley, S. J.; Davies, H. M. L.; Childers, S. R. *Biochem. Pharmacol.* **2007**, *74*, 336.

166. Mechanistic studies of UV assisted [4+2] cycloadditions in synthetic efforts towards vibsanin E, Nikolai, J.; Loe, Ø.; Dominiak, P. M.; Gerlitz, O. O.; Autsbach, J.; Davies, H. M. L. *J. Am. Chem. Soc.* **2007**, *129*, 10763.

167. Asymmetric synthesis of tropanes by rhodium-catalyzed [4 + 3] cycloaddition. Reddy, R. P.; Davies, H. M. L. *J. Am. Chem. Soc.* **2007**, *129*, 10312.

168. Balance between allylic C–H activation and cyclopropanation in the reactions of donor/acceptor-substituted rhodium carbenoids with trans alkenes, Davies, H. M. L.; Coleman, M. G.; Ventura, D. L. *Org. Lett.*, **2007**, *9*, 4971.

169. One-flask synthesis of methyl arylvinyldiazoacetates and their application in enantioselective C–H functionalization: Synthesis of (E)-methyl 2-diazo-4-phenylbut-3-enoate and (*S*,*E*)-methyl 2-(*R*)-4-methyl-1,2-dihdronaphthalen-2-yl0-4-phenylbut-3-enoate, Manning, J. R.; Davies, H. M. L. *Org. Synth.* **2007**, *84*, 334.

170. Asymmetric [4 + 3] Cycloadditions between Benzofuranyldiazoacetates and Dienes: Formal Synthesis of (+)-Frondosin B, Olson, J. P.; Davies, H. M. L. *Org. Lett.*, **2008**, *10*, 573-576.

171. Influence of electron deficient ruthenium(I) carbonyl carboxylates on the vinylogous reactivity of metal carbenoids, Sevryugina, Y.; Weaver, B.; Hansen, J.; Thompson, J.; Davies, H. M. L.; Petrukhina, M. A. *Organometallics*, **2008**, *27*, 1750.

172. Stereoselective construction of nitrile-substituted cyclopropanes, Denton, J. R.; Cheng, K.; Davies, H. M. L. *Chem. Commun.*, **2008**, 1238.

173. Efficient route to 4*H*-1,3-oxazines through ring expansion of isoxazoles by rhodium carbenoids, Manning, J. R.; Davies, H. M. L. invited article, *Tetrahedron*, **2008**, *64*, 6901.

174. One-Pot Synthesis of Highly Functionalized Pyridines via a Rhodium Carbenoid Induced Ring Expansion of Isoxazoles Manning, J. R.; Davies, H. M. L. *J. Am. Chem. Soc.* **2008**, *130*, 8602-8603.

175. Rhodium carbenoid induced intermolecular C-H functionalization at tertiary C-H bonds, Nadeau, E.; Li, Z.; Morton, D.; Davies, H. M. L. *Synlett* **2009**, 151-154.

176. Intermolecular C-H functionalization versus cyclopropanation of electron rich 1,1-disubstituted and trisubstituted alkenes, Ventura, D. L.; Li, Z.; Coleman, M. G.; Davies, H. M. L. *Tetrahedron* **2009**, 65, 3052-3061.

177. 1-Naphthyl and 4-indolyl arylalkylamines as selective monoamine reuptake inhibitors, Manning, J. R.; Sexton, T.; Childers, S. R.; Davies, H. M. L. *Bioorg. Med. Chem. Lett.* **2009**, *19*, 58-61.

178. Enantioselective reactions of donor/acceptor carbenoids derived from α-aryl-α-diazoketones, Denton, J. R.; Davies, H. M. L. *Org. Lett.* **2009**, 1*1***,** 787-790.

179. Asymmetric [4 + 3] Cyloadditions between Vinylcarbenoids and Dienes: Application to the Total Synthesis of the Natural Product (–)-5-*epi*-Vibsanin E, Schwartz, B. D.; Denton, J. R.; Lian, Y.; Davies, H. M. L.: Williams, C. M. *J. Am. Chem. Soc*. **2009**,*131*, 8329-8332.

180. Computational Study on the Selectivity of Donor/Acceptor-Substituted Rhodium Carbenoids , Hansen, J.; Autsbach, J.; Davies, H. M. L. *J. Org. Chem.* **2009**, *74*, 6555-6563.

181. Combined Experimental and Computational Studies of Heterobimetallic Bi–Rh Paddlewheel Carboxylates as Catalysts for Metal Carbenoid Transformations, Hansen, J.; Li, B.; Dikarev, E.; Autsbach, J.; Davies, H. M. L. *J. Org. Chem.* **2009**, *74*, 6564-6571.

182. Towards the total synthesis of 3-hydroxyvibsanin E, Schwartz, B. D.; Denton, J. R.; Bernhardt, P. V.; Davies, H. M. L.; Williams, C. M. *Synthesis* **2009**, 2840-2846.

183. Total synthesis of (±)-vibsanin E, E, Schwartz, B. D.; Denton, J. R.; Davies, H. M. L.; Williams, C. M. *Aust. J. Chem.* **2009**, *62*, 980-982.

184. Asymmetric Synthesis of Fused Indolines by Rhodium-Catalyzed [3 + 2] Annulation of Indoles, Lian, Y.; Davies, H. M. L. *J. Am. Chem. Soc*. **2010**, *132*, 440.

185. Enantioselective C—C Bond Formation by Rhodium-Catalyzed Tandem Ylide Formation/[2,3]-Sigmatropic Rearrangement between Donor/Acceptor Carbenoids and Allylic Alcohols, Li, Z.; Davies, H. M. L. *J. Am. Chem. Soc*. **2010**, *132*, 396.

186. Solvent Free Enantioselective C–C Bond Forming Reactions with Very High Catalyst Turnover Numbers, Philip P.; Hansen, J. H.; Davies, H. M. L. *Chem. Sci.* **2010**, 1, 254-257.

187. Rhodium Carbenoid Approach for Introduction of 4-Substituted (*Z*)-Pent-2-enoates into Sterically Encumbered Pyrroles and Indoles, Y. Lian, H M. L. Davies *Org. Lett.* **2010**, *12*, 924.

188. Controlling Factors for C—H Functionalization *versus* Cyclopropanation of Dihydronaphthalenes, E. Nadeau, D. L. Ventura, J. A. Brekan H. M. L. Davies *J. Org. Chem* **2010**, *75*, 1927.

189. Catalyst-Controlled Formal [4+3] Cycloaddition Applied to the Total Synthesis of (+)-Barekoxide and (-)-Barekol, Lian, Y.; Miller, L. C.; Born, S.; Sarpong, R.; Davies, H. M. L. *J. Am. Chem. Soc*. **2010**, *132*, 12422-12425.

190 Highly Enantioselective Rh_2(S-DOSP)$_4$-Catalyzed Cyclopropenation of Alkynes with Styryldiazoacetates, Briones, J. F.; Hansen, J. H.; Hardcastle, K. I.; Autschbach, J.; Davies, H. M. L. *J. Am. Chem. Soc*. **2010**, *132*, 17211-17215.

191 On the Mechanism and Selectivity of the Combined C–H Activation/Cope Rearrangement, Hansen, J. H.; Gregg, T.M.; Ovalles, S. R.; Lian, Y.; Autschbach, J.; Davies, H. M. L *J. Am. Chem. Soc*. **2011**, *133*, 5076-5085

192. Rhodium(II)-Catalyzed Cross-Coupling of Diazo Compounds, Hansen, J. H.; Parr, B. T.; Pelphrey, P.; Jin, Q.; Autschbach, J.; Davies, H. M. L., *Angew. Chem., Int. Ed.* **2011**, *50*, 2544.

193. Vinylogous reactivity of silver(I) vinylcarbenoids, Hansen, J. H.; Davies, H. M. L. *Chem. Sci*. **2011**, *2*, 457.

194. Computationally-Guided Stereocontrol of the Combined C–H Functionalization/Cope Rearrangement, Lian, Y.; Hardcastle, K. I.; Davies, H. M. L. *Angew. Chem., Int. Ed.* **2011**, *50*, 9370-9373.

195. Combined C—H Functionalization/Cope Rearrangement with Vinyl Ethers as a Surrogate for the Vinylogous Mukaiyama Aldol Reaction, Lian, Y.; Davies, H. M. L. *J. Am. Chem. Soc*. **2011**, *133*, 11940.

196. D_2-Symmetric Dirhodium Catalyst Derived from a 1,2,2-Triarylcyclopropanecarboxylate Ligand: Design, Synthesis and Application, Qin, C.; Boyarskikh, V.; Hansen, J. H.; Hardcastle, K. I.; Musaev, D. G.; Davies, H. M. L. *J. Am. Chem. Soc*. **2011**, *133*, 19198-19204.

197. Silver Triflate-Catalyzed Cyclopropenation of Internal Alkynes with Donor-/Acceptor-Substituted Diazo Compounds. Briones, J. F.; Davies, H. M. L. *Org. Lett.* **2011**, 13, 3984.

198. Sequential Rhodium-, Silver-, and Gold-Catalyzed Synthesis of Fused Dihydrofurans, Wang, H. Denton, J. R., Davies, HML *Org. Lett.* **2011**, *13*, 4316–4319.

199. Rh_2(S-PTAD)$_4$-catalyzed asymmetric cyclopropenation of aryl alkynes, Briones, J. F.; Davies, H. M. L. *Tetrahedron* **2011**, *67*, 4313.

200. Sequential Transformations to Access Polycyclic Chemotypes: Asymmetric Crotylation and Metal Carbenoid Reactions, Wu, J.; Becerril, J.; Lian, Y. J.; Davies, H. M. L.; Porco, J. A.; Panek, J. S. *Angew. Chem., Int. Ed.* **2011**, *50*, 5938.

201. Thermally Induced Cycloadditions of Donor/Acceptor Carbenes, Ovalles, S. R.; Hansen, J. H.; Davies, H. M. L. *Org. Lett.* **2011**, *13*, 4284-4287.

202. Asymmetric synthesis of highly functionalized cyclopentanes by a rhodium- and scandium-catalyzed five-step domino sequence, Parr, B. T.; Li, Z.; Davies, H. M. L. *Chem. Sci*. **2011**, *2*, 2378-2382.

203. Convenient method for the functionalization of the 4- and 6-positions of the androgen skeleton, Morton, D.; Dick, A. R.; Ghosh, D.; Davies, H. M. L. *Chem. Commun*., **2012**, *48*, 5838-5840.

204. Rh_2(S-biTISP)$_2$-Catalyzed Asymmetric Functionalization of Indoles and Pyrroles with Vinylcarbenoids, Lian, Y.; Davies, H. M. L. *Org. Lett*. **2012**, *14*, 1934-1937.

205. Highly Stereoselective C—C Bond Formation by Rhodium-Catalyzed Tandem Ylide Formation/[2,3]-Sigmatropic Rearrangement Between Donor/Acceptor Carbenoids and Chiral Allylic Alcohols, Li, Z.; Parr, B. T.; Davies, H. M. L. *J. Am. Chem. Soc*. **2012**, *134*, 10942–10946.

206. Gold(I)-Catalyzed Asymmetric Cyclopropenation of Internal Alkynes. Briones, J. F.; Davies, H. M. L. *J. Am. Chem. Soc.* **2012**, *134*, 11916.

207. Metal-Free N-H Insertions of Donor/Acceptor Carbenes. Hansen, S. R.; Spangler, J. E.; Hansen, J. H.; Davies, H. M. L., *Org. Lett.* **2012**. *14*, 4626-4629.

208. Scope and Mechanistic Analysis of the Enantioselective Synthesis of Allenes by Rhodium-Catalyzed Tandem Ylide Formation/[2,3]-Sigmatropic Rearrangement between Donor/Acceptor Carbenoids and Propargylic Alcohols. Li, Z.; Boyarskikh, V.; Hansen, J. H; Autschbach, J.; Musaev, D. G.; Davies, H. M. L. *J. Am. Chem. Soc.* **2012**. *134*, 15497-15504.

209. Novel Aromatase Inhibitors by Structure-Guided Design. Ghosh, D.; Lo, J.; Morton, D.; Valette, D.; Xi, J. L.; Griswold, J.; Hubbell, S.; Egbuta, C.; Jiang, W. H.; An, J.; Davies, H. M. L., *J. Med. Chem.* **2012**, *55*, 8464-8476.

210. Social Dominance in Female Monkeys: Dopamine Receptor Function and Cocaine Reinforcement, Nader, M. A.; Nader, S. H.; Czoty, P. W.; Riddick, N. V.; Gage, H. D.; Gould, R. W.; Blaylock, B. L.; Kaplan, J. R.; Garg, P. K.; Davies, H. M. L.; Morton, D.; Garg, S.; Reboussin, B. A., *Biol. Psych.* **2012**, *72*, 414-421.

211. Rhodium-Catalyzed Enantioselective Vinylogous Addition of Enol Ethers to Vinyldiazoacetates, Smith, A. G.; Davies, H. M. L. *J. Am. Chem. Soc.* **2012**, *134*, 18241-18244.

212. Alkynoate Synthesis through the Vinylogous Reactivity of Rhodium(II) Carbenoids, Valette, D.; Lian, Y. J.; Haydek, J. P.; Hardcastle, K. I.; Davies, H. M. L. *Angew. Chem., Int. Ed.* **2012**, *51*, 8636.

213. Expanding the Scope of Donor/Acceptor Carbenes to N-Phthalimido Donor Groups: Diastereoselective Synthesis of 1-Cyclopropane alpha-Amino Acids, Alford, J. S.; Davies, H. M. L. *Org. Lett.* **2012**, *14*, 6020-6023.

214. Enantioselective Synthesis of 2-Arylbicyclo[1.1.0]butane Carboxylates, Qin, C.; Davies, H. M. L. *Org. Lett.* **2013**,*13*, 310-313.

215. Rhodium-Catalyzed Conversion of Furans to Highly Functionalized Pyrroles, Parr, B. T.; Green, S. A.; Davies, H. M. L. *J. Am. Chem. Soc.* **2013**, *135*, 4716-4718.

216. Influence of an Internal Trifluoromethyl Group on the Rhodium(II)-Catalyzed Reactions of Vinyldiazocarbonyl Compounds, Nikolaev, V. A.; Supurgibekov, M. B.; Davies, H. M. L.; Sieler, J.M.; Zakharova, V. M. *J. Org. Chem.* **2013**, *78*, 4239-4244.

217. Catalytic Asymmetric Synthesis of Pyrroloindolines via a Rhodium(II)-Catalyzed Annulation of Indoles, Spangler, J. E.; Davies, H. M. L. *J. Am. Chem. Soc.* **2013**, *135*, 6802–6805.

218. Sequential C–H Functionalization Reactions for the Enantioselective Synthesis of Highly Functionalized 2,3-Dihydrobenzofurans, Wang, H.; Li, G.; Engle, K. M.; Yu, J. -Q., Davies, H. M. L. *J. Am. Chem. Soc.* **2013**, *135*, 6774–6777.

219. Rhodium-catalyzed enantioselective cyclopropanation of electron deficient alkenes, Wang, H.; Guptill, D.; Varela-Álvarez, A.; Musaev, D. G.; Davies, H. M. L. *Chem. Sci.* **2013,** *4*, 2844-2850.

220. Iridium(III)-bis(oxazolinyl)phenyl catalysts for enantioselective C–H functionalization, Owens, C. P.; Varela-Álvarez, A.; Boyarskikh, V.; Musaev, D. G.; Davies, H. M. L. Blakey, S. B. *Chem. Sci.* **2013**, *4*, 2590-2596.

221. Guide to Enantioselective Dirhodium(II)-Catalyzed Cyclopropanation with Aryldiazoacetates, Chepiga, K. M.; Qin, C.; Alford, J. S.; Chennamadhavuni, S.; Gregg, T. M.; Olson, J. P.; Davies, H. M. L. *Tetrahedron* **2013**, *69*, 5765-5771.

222. Rhodium-Catalyzed Tandem Cyclopropanation/Cope Rearrangement of 4-Alkenyl-1-sulfonyl-1,2,3-triazoles with Dienes, Parr, B. T.; Davies, H. M. L. *Angew. Chem. Int. Ed.* **2013**, *52*, 10044-10047

223. Conversion of Cyclic Ketones to 2,3-Fused Pyrroles and Substituted Indoles Alford, J. S.; Spangler, J. E.; Davies, H. M. L. *J. Am. Chem. Soc.* **2013**, *135*, 11712-11715.

224. Catalytic Asymmetric Synthesis of Pyrroloindolines via a Rhodium(II)-Catalyzed Annulation of Indoles, Spangler, J. E.; Davies, H. M. L., *J. Am. Chem. Soc.* **2013,** *135*, 6802-6805.

225. Enantioselective Gold(I)-Catalyzed Vinylogous [3 + 2] Cycloaddition between Vinyldiazoacetates and Enol Ethers. Briones, J. F.; Davies, H. M. L., *J. Am. Chem. Soc.* **2013**, *135*, 13314-13317.

226. Rh_2(R-TPCP)$_4$-Catalyzed Enantioselective [3+2]-Cycloaddition between Nitrones and Vinyldiazoacetates. Qin, C.; Davies, H. M. L. *J. Am. Chem. Soc.* **2013**, *135*, 14516-14519.

227. Direct Spectroscopic Characterization of a Transitory Dirhodium Donor-Acceptor Carbene Complex, Kornecki, K. P.; Briones, J. F.; Boyarskikh, V.; Fullilove, F.; Autschbach, J.; Schrote, K. E.; Lancaster, K. M.; Davies, H. M. L.; Berry, J. F. *Science* **2013**, *342*, 351-354.

228. Silica-Immobilized Chiral Dirhodium(II) Catalyst for Enantioselective Carbenoid Reactions, Chepiga, K. M.; Feng, Y.; Brunelli, N. A.; Jones, C. W.; Davies, H. M. L. *Org. Lett.* **2013**, *15*, 6136-6139.

229. Silver-Catalyzed Vinylogous Fluorination of Vinyl Diazoacetates, Qin, C.; Davies, H. M. L. *Org. Lett.* **2013**, *15*, 6152-6154.

230. Rhodium(II)-Catalyzed Stereoselective Synthesis of Allylsilanes, Guptill, D. M.; Cohen, C. M.; Davies, H. M. L., *Org. Lett.* **2013**, *15*, 6120-6123.

231. Ibbeson, B. M.; Laraia, L.; Alza, E.; O' Connor, C. J.; Tan, Y. S.; Davies, H. M. L.; McKenzie, G.; Venkitaraman, A. R.; Spring, D. R., Diversity-oriented synthesis as a tool for identifying new modulators of mitosis. *Nature Commun.* **2014**, *5*, article # 3155; doi:10.1038/ncomms4155.

232. Par, B. T.; Davies, H. M. L., Highly Stereoselective Synthesis of Cyclopentanes bearing Four Stereocenters by a Rhodium Carbene–Initiated Domino Sequence, *Nature Commun.* **2014**, *5*, article # 4455; doi:10.1038/ncomms5455.

233. Fu, L.; Wang, H.; Davies, H. M. L., Role of *ortho*-substituents on rhodium-catalyzed asymmetric synthesis of -lactones by intramolecular C–H insertions of aryldiazoacetates, *Org. Lett.* **2014**, *16*, 3036.

234. Guzmán, P. E.; Lian, Y.; Davies, H. M. L. Reversal of the Regiochemistry in the Rhodium-Catalyzed [4+3] Cycloaddition Between Vinyldiazoacetates and Dienes, *Angew. Chem. Int. Ed.* **2014,** *53*, 13083-13087. doi: 10.1002/anie.201406440.

235. Qin, C.; Davies, H. M. L. Role of Sterically Demanding Chiral Dirhodium Catalysts on Site Selective C–H Functionalization of Primary C–H Bonds, *J. Am. Chem. Soc.* **2014**, *136*, 9792.

236. Spangler, J. E.; Lian, Y.; Raikar, S. N.; Davies, H. M. L. Synthesis of Complex Hexacyclic Compounds via a Tandem Rh(II)-Catalyzed Double Cyclopropanation/Cope Rearrangement/Diels-Alder Reaction, *Org. Lett.* **2014**, *15*, 4794-4797.

237. Alford, J. S.; Davies, H. M. L. Mild Aminoacylation of Indoles and Pyrroles through a Three-Component Reaction with Ynol Ethers and Sulfonyl Azides, *J. Am. Chem. Soc.* **2014**, *136*, 10266.

238. Lu, P.; Mailyan, A.; Gu, Z.; Guptil, D. M.; Wang, H.; Davies, H. M. L.; Zakarian, A. Enantioselective Synthesis of (–)-Maoecrystal V by Enantiodetermining C–H Functionalization, *J. Am. Chem. Soc.* **2014,** *136*, 17738-17749.

239. Guptil, D. G.; Davies, H. M. L. 2,2,2-Trichloroethyl Aryldiazoacetates as Robust Reagents For the Enantioselective C–H Functionalization of Methyl Ethers. *J. Am. Chem. Soc.* **2014,** *136*, 17718-17721.

240. Stereoselective synthesis of highly substituted cyclohexanes by a rhodium carbene-initiated domino sequence, Parr, B. T.; Davies, H. M. L. *Org. Lett.* **2015**, *17*, 794-797.

241. Late-stage C-H functionalization of complex alkaloids and drug molecules via intermolecular rhodium-carbenoid insertion, He, J.; Hamann, L. G.; Davies, H. M. L.; Beckwith, R. E. J. *Nature Commun.* **2015**, *6*. #5943.

242. Concise syntheses of dictyodendrins A and F by a Sequential C-H Functionalization Strategy, Yamaguchi, A. D.; Chepiga, K. M.; Yamaguchi, J.; Itami, K.; Davies, H. M. L. *J. Am. Chem. Soc.* **2015**, *137*, 644-647.

243. Using IR vibrations to quantitatively describe and predict site-selectivity in multivariate Rh-catalyzed C–H functionalization, Bess, E. N.;. Guptill, D. M.; Davies, H. M. L. Sigman, M. S. *Chem. Sci.* **2015**, *6*, 3057-3062.

244. Composite Polymer/Oxide Hollow Fiber Contactors: Versatile and Scalable Flow Reactors for Heterogeneous Catalytic Reactions in Organic Synthesis, Moschetta, E. G.; Negretti, S.; Chepiga, K. M.; Brunelli, N. A.; Labreche, Y.; Feng, Y.; Rezaei, F.; Lively, R. P.; Koros, W. J.; Davies, H. M. L.; Jones, C. W. *Angew. Chem. Int. Ed.* **2015**, *54*, 6470-6474.

245. Enantioselective Dirhodium(II)-catalyzed cyclopropanations with trimethylsilylethyl and trichloroethyl Aryldiazoacetates, Negretti, S.; Cohen, C. M.; Chang, J. J. Guptill, D. M.; Davies, H. M. L. *Tetrahedron* **2015**, *71*, 7415-7420.

246. Rhodium-Catalyzed [4+3] Cycloaddition to Furans: Direct Access to Functionalized Bicyclo[5.3.0]decane Derivatives, Krainz, T.; Chow, S.; Korica, N.; Bernhardt, P. V.; Boyle, G. M.; Davies, P. G.; Davies, H. M. L.; Williams, G. M. *Eur. J. Org. Chem.* **2016**, 41-44.

247. Recent Advances in C-H Functionalization, Davies, H. M. L.; Morton, D. *J. Org. Chem.* **2016**, *81*, 343-350

248. Rhodium(II)-Catalyzed C–H Functionalization of Electron-Deficient Methyl Groups, Fu, L.; Guptill, D. M.; Davies, H. M. L. *J. Am. Chem. Soc.* **2016**, *138*, 5761-5764. DOI: 10.1021/jacs.6b01941

249. Liao, K.; Negretti, S.; Musaev, D. G.; Bacsa, J.; Davies, H. M. L Site-selective and stereoselective functionalization of unactivated C-H bonds. *Nature* **2016**, 533, 7602. DOI: 10.1038/nature17651.

250. Iridium(III)-bis(imidazolinyl)phenyl Catalysts for Enantioselective C–H Functionalization with Ethyl Diazoacetate", Weldy, Nina; Schafer, Andrew; Owens, Clayton; Herting, Cameron; Varela-Álvarez, Adrián; Chen, Shentan; Niemeyer, Zachary; Musaev, Djamaladdin; Sigman, Matthew; Davies, Huw; Blakey, Simon, *Chem. Sci.* **2016**, *7*, 3142-3146

251. A Rapid Construction of the Indoxamycin Core Enabled by C–H FunctionalizationT. Aaron Bedell, Graham A. B. Hone, Dr. Damien Valette, Jin-Quan Yu, Huw M. L. Davies, and Erik J. Sorensen *Angew Chem., Int. Ed.* **2016**, 55 8270-8274.

252. Kubiak, R. W.; Mighion, J. D.; Wilkerson-Hill, S. M.; Alford, J. S.; Yoshidomi, T.; Davies, H. M. L. Enantioselective Intermolecular C-H Functionalization of Allylic and Benzylic sp^3 C-H Bonds Using N-Sulfonyl-1,2,3-triazoles. *Org. Lett.* **2016**, *18*, 3118-3121.

E: PATENTS

1. Novel Biologically Active Tropane Derivatives (with Elie Saikali and Steven Childers), filed March 11, 1992. issued November 16, 1993, patent no: 5,262,428.

2. 2 Step Process for Preparing Biologically Active Tropane Derivatives and Starting Materials Therefore (with Elie Saikali and Steven Childers), filed March 11, 1992. issued August 30, 1994, patent no: 5,262,428.

3. Method for the Treatment of Neurodegenerative Diseases (with Bill Caldwell and Pat Lipielo), filed March 11, 1992, issued July 13, 1993, patent no: 5,227,385.

4. Compounds for Treatment of Neurodegenerative Diseases (with Elie Saikali), filed March 13, 1992, issued February 12, 1994, patent no: 5,288,872.

5. 2 step process for preparing biologically active tropane derivatives and starting material therefore (with Elie Saikali and Steven R. Childers), filed November 17, 1992, issued August 30, 1994, patent no: 5,342,949.

6. Biologically active tropane derivatives, (with Steven R.Childers), field June 13, 1997, issued June 9, 1998, patent no. 5,763,455

7. Treatment Process for Blocking 5-HT and Dopamine Uptake with Biologically Active Tropane Derivatives (with Steven R. Childers and Barbara Bennett), filed May 14, 1993, issued December 28, 1999 US Patent # 6,008,227.

8. Enantioselective Synthesis of Seven-Membered Carbocycles and Tropanes, filed October 11, 1994, issued. January 7, 1997, patent no: 5,591,854.

9. Biologically Active Tropane Derivatives (with Steven R. Childers), filed January, 1996, issued June 2, 1998. U.S patent no 5.760,055.

10. Tropane Derivatives with Selective Binding to the Serotonin Reuptake Transporter for Treatment of Mental Illness and as Intermediates in the Formation Of Imaging Diagnostic Agents for Depression, issued July 16, 1999, Patent no. 6,013,242,

11. Metal Catalysts and Methods for Making Same, filed March 8, 2000, issued June 25, 2002, Application no US 6,410,746 B1.

12. Metal Catalysts and Methods for Making and Using Same, patent filed March 30th 2002, issued July 13, 2004, application no. US 6,762,304 B2.

13. Solid Support Dirhodium Catalyst Compositions and Methods for Using Same, patent filed August 27, 2002, issued November 8, 2005, application no US 6,962,891

14. Dirhodium Catalyst Compositions and Methods for Using Same, patent filed August 27, 2002, issued April 18, 2006, application no. US 7,030,051

15. Metal Catalysts and Methods for Making and Using Same, patent filed April 5th, 2004, issued September 19, 2006, application no. 7,109,343

16. Catalysts for use in enantioselective synthesis (with Ravisekhara P. Reddy), patent filed November 30, 2006, issued June 10. 2008, application no. 7,385,064,

17. Tropane prodrugs with central nervous system activity, patent filed March 12, 2007, issued October 7, 2008, application no. 7,432,376,

18. Cyclopropanes with central nervous system activity (with Timothy Gregg), patent filed March 12, 2007, issued March 10, 2009, application no. 7,501,453.

19. Homotropanes with central nervous system activity, patent filed March 12, 2007, issued June 23, 2009, application no. 7,550,588.

20. Erogorgiaene congeners and methods and intermediates useful in the preparation of same (with Abbas Walji), patent filed June 8, 2006, issued April 20, 2010, application no. 7,700,798.

21. 4-substituted and 7-substituted indoles, benzofurans, benzothiophenes, benzimidazoles, benzoxazoles, and benzothiazoles and methods for making same (with James Manning), patent filed June 9, 2006, issued October 19, 2010, application no. 7,816,536.

22. Use of tetrahydropyridines in the treatment of central nervous system disorders (with Anil K. Ratty), patent filed March 12, 2007, issued December 14, 2010 application no. 7,851,487.

23. Tetrahydropyridines with central nervous system activity, patent filed March 12, 2007, issued December 14, 2010, application no. 7,851,488.

24. Substituted androst-4-enedione, Davies, H. M. L.; Ghosh, D.; Morton, D., filed, April 7, 2011; issued March 3, 2015. US patent # 8,969,327.

25. Dirhodium catalyst compositions and synthetic processes related thereto, Davies, H. M. L.; Qin, C.; Hansen, J. H., filed, June 1, 2012, issued March 10, 2015, US patent # 8,975,428.

INVITED SYMPOSIA PRESENTATIONS

1. VII th International Union of Pure and Applied Chemistry Conference on Organic Synthesis, Nancy, France, July 3-7, 1988
   Oral Presentation: "Stereoselective Synthesis of Seven-Membered Rings"

2. 3rd Symposium on Latest Trends in Organic Synthesis, VPI, Blacksburg Virginia, October 10-13, 1988
   Invited Lecture: "Stereoselective Synthesis of Seven-Membered Rings"

3. National Science Foundation Workshop in Organic Synthesis and Natural Product Chemistry, Colorado, July 22-27, 1990
   Oral Presentation: "Vinylcarbenoids in Organic Synthesis"

4. 10th Lakeland Heterocyclic Symposium, Grasmere, England, May 9-13, 1991.
   Invited Oral Presentation: "Novel Entry to the Tropane System by Reaction of Rhodium(II) Acetate Stabilized Vinylcarbenoids with Pyrroles"

5. 13th International Congress of Heterocyclic Chemistry, Corvalis, OR, August 11-16, 1991.
   Oral Presentation: "Synthesis of (±)-Ferruginine and (±)-Anhydroecgonine Methyl Ester by Reaction of Vinylcarbenoids with Pyrroles"

6. 43rd SouthEast Regional American Chemical Society Meeting, Richmond, Va, November 12-15, 1991
   Symposium Presentation: "Asymmetric Cyclopropanation with Rhodium(II) stabilized Vinylcarbenoids" (

7. Medicinal Chemistry Workshop, National Institute on Drug Abuse, Rockville, MD, March 19, 1992
   Invited Oral Presentation: "Synthesis and Evaluation of Novel Cocaine Analogs". (with Steven R. Childers).

8. Gordon Research Conference on Stereochemistry, Newport, RI, June 22-26, 1992.
   Invited Oral Presentation: "Asymmetric Transformations with Rhodium(II)-Stabilized Vinylcarbenoids"

9. Department of Chemistry at Northwestern University 1992 Fall Symposium, Evanston, Il, October 16, 1992
   Invited Oral Presentataion: "New Synthetic Transformations of Rhodium Stabilized Vinylcarbenoids"

10. Medicinal Chemistry Workshop, National Institute on Drug Abuse, Bethesda, MD, May 19-20, 1993
    Invited Oral Presentation: "Synthesis and Pharmacology of Novel Cocaine Analogs". (with Steven R. Childers).

11. Symposium on Current Problems of the Chemistry of Aliphatic Diazo Compounds, St. Petersburg, Russia, September 8-10, 1993
    Invited Oral Presentation: "Asymmetric Synthesis Based on Rhodium(II)-Catalyzed Decomposition of Vinyldiazomethanes." (with D. K. Hutcheson, N. J. S. Huby, W. R. Cantrell, Jr.)

12. 45th SouthEast Regional American Chemical Society Meeting, Johnson City, TN, October 17-20, 1993
    Symposium Presentation: "New Synthetic Methods Based on Vinylcarbenoid Intermediates" (with William R. Cantrell, Jr, Nicholas J. S. Huby and Debra K. Hutcheson).

13. 46th SouthEast Regional American Chemical Society Meeting, Birmingham, Al, October 16-19, 1994
    Invited Symposium Presentation: "Applications of Catalysts with D_2 Symmetry in Asymmetric Synthesis".

14. Sixth International Symposium on Chiral Discrimination, St. Louis, MO, June 1995.
    Invited Oral Presentation: "Asymmetric Synthesis with Rhodium Catalysts of D_2 Symmetry".

15. Gordon Research Conference on Heterocyclic Chemistry, New Hampton, NH, July 9-14, 1995
    Invited Oral Presentation: "General Synthesis of Tropanes by Reaction of Vinylcarbenoids with Pyrroles".

16. FASEB Summer Research Conference on Drug Abuse, Copper Mountain, CO, July 23-28, 1995
    Invited Oral Presentation: "Chemistry of Novel Tropanes"

17. 1995 International Chemical Congress on Pacific Basin Societies, Honolulu, Hawaii, December 17-22, 1995
    Invited Symposium Presentation: "D_2 Symmetric Catalysts in Asymmetric Cyclopropanations"

18. 212th National American Chemical Society Meeting, Orlando, Florida FL August 25-30 , 1996.
    Invited Oral Presentation for Symposium on Chiral Catalysis: "Highly Enantioselective and Diastereoselective Cyclopropanations Catalyzed by Dirhodium Tetraprolinates".

19. 216th National American Chemical Society Meeting, Boston, MA, August 23-27, 1998.
    Invited Symposium Presentation: "Asymmetric Synthesis of Heterocycles Using rhodium-Stabilized Carbenoids" (with Hodges,L.M.; Hansen T.)

20. Colloquium in Contemporary Organic Chemistry in Honor of Professor Edward C. Taylor, Eli Lilly, Indianapolis, IN, September 28, 1998.
    Invited Symposium Presentation: "Asymmetric Synthesis Using Rhodium Carbenoid Intermediates"

21. 14th Organic Winter Meeting of the Norwegian Chemical Society, Geilo, Norway, January 7-10, 1999.
    Invited Plenary Speaker: "Asymmetric Synthesis Using Rhodium Carbenoid Intermediates"

22. 219th National American Chemical Society Meeting, San Francisco, CA, March 25-30, 2000.
    Invited Awards Symposium Presentation: "Catalytic Asymmetric C-H Activation of Alkanes" (

23. 4th International Symposium On Modern problems of Aliphatic Diazo compound Chemistry, Saint-Petersburg, Russia, June 26-28, 2000.
    Invited Awards Symposium Presentation: "Catalytic Asymmetric C-H Activation of Alkanes"

24. 13th IUPAC International Conference on Organic Synthesis (ICOS-13), Warsaw, Poland, July 1-5, 2000, meeting,
    Invited short presentation: Catalytic Asymmetric C-H Activation in Organic Synthesis, (with Hansen T.; Antoulinakis, E.)

25. 2000 International Chemical Congress on Pacific Basin Societies, Honolulu, Hawaii, December 13-18, 2000
    Invited Symposium Presentation: "Asymmetric Synthesis Using High Symmetry Catalysts".

26. 2000 International Chemical Congress on Pacific Basin Societies, Honolulu, Hawaii, December 13-18, 2000
    Invited Symposium Presentation: "Catalytic Asymmetric C-H Activation in Organic Synthesis",

27. 223^{3r} National American Chemical Society Meeting, Orlando, FL., April 7-11, 2002.

Invited Symposium Presentation: "Discovery of New Asymmetric Transformations for Organic Synthesis". Venkateramani, C.; Antoulinakis, E.; Davies, H. M. L.

38. Third Annual International Symposium on "Recent Development in Organometalic and Organic Synthesis," Montreal, Canada, May 4-6, 2002
Invited Plenerary Lecture: "Discovery of New Asymmetric Transformations for Organic Synthesis".

29 2002 CU-Roche Colorado Symposium on Synthetic Organic Chemistry, Boulder, CO, June 6-7, 2002
Invited Symposium Presentation: "Discovery of New Catalytic Reactions for Organic Synthesis."

30. CHIRAL USA 2002, Boston, MA, October 14-15, 2002
Invited Symposium Presentation: "New Asymmetric Strategies for Organic Synthesis Based on Catalytic C-H Activation."

31. SCI Fine Chemicals Group Meeting on "Synthesis Using Carbenes Nitrenes and Radicals. London, UK, April4, 2003.
Invited Symposium Presentation: " Discovery of New Catalytic Asymmetric Reactions for Organic Synthesis Organic Synthesis"

32. Sixth International Symposium on Process Development Chemistry and Technology, Amelia Island, FL. April 27-30, 2003
Invited Symposium Presentation: " Applications of Catalytic Asymmetric C-H Activation to Organic Synthesis"

33. 65th Annual Meeting of the College on Problems of Drug Dependence, Bal Harbour, FL, June 14-19, 2003 .
Invited Symposium Presentation: " New Chemistry and Drug Addiction: Development of New Probes and Potential Medications" (joint presentation with S. R. Childers).

34. Gordon Research Conference of Heterocyclic Compounds, Salve Regina University, Newport, RI, July 6-11, 2003.
Invited Symposium Presentation: " C-H Activation Strategies for the Asymmetric Synthesis of Heterocycles"

35. 35th Central Regional Meeting of the American Chemical Society, Pittsburgh, PA, October 19-22, 2003.
Invited Symposium Presentation: " Donor/Acceptor Substituted Carbenoids as Versatile Intermediates in Organic Synthesis"

36. Tenth Meeting of the French-American Chemical Society, Charleston, SC, June 6-10, 2004
Invited Symposium Presentation: " New Strategic Reactions for Organic Synthesis"

37. Gordon Research Conference on Organic Reactions and Processes, Roger Williams University, Bristol, RI, July 18-23, 2004.
Invited Symposium Presentation: " Catalytic Asymmetric C—H Activation: Applications in Organic Synthesis"

38. 5th RSC International Symposium on Transition Metals in Organic Synthesis, Glasgow, UK, September 14-17, 2004
Invited Plenerary Lecture: " Rhodium(II) Prolinate–Catalyzed Enantioselective Intermolecular C—H Activation: Applications in Organic Synthesis"

39. NorthEast Regional meeting of the American Chemical Society, Rochester, NY, November 1-3, 2004
Invited Symposum Presentation: "Direct Synthesis of (+)-Erogorgiaene by means of a Kinetic Enantiodifferentiating Step"

40. Modern Synthetic Methods and Chiral USA, Princeton, NJ, June 8-10, 2005
Invited Symposium Presentation: "Rhodium-catalyzed enantioselective intermolecular C-H activation: Applications in organic synthesis

41. Singapore International Chemical Conference IV, Singapore, December 8-10, 2005
Invited Symposium Presentation: "Rhodium-catalyzed enantioselective intermolecular C-H activation: Applications in organic synthesis".

42. 2005 International Chemical Congress on Pacific Basin Societies, Honolulu, Hawaii, December 15-20, 2005
Invited Symposium Presentation: "Enantiomer differentiation in the combined C-H activation/Cope rearrangement: Application to natural product total synthesis".

43. 2005 International Chemical Congress on Pacific Basin Societies, Honolulu, Hawaii, December 15-12, 2005
Invited Symposium Presentation: "Catalytic enantioselective C-H activation by means of carbenoid-induced C-H insertion",

44. SCI Fine Chemicals Group Meeting on "Six Nations Organic Synthesis. London, UK, April 25, 2006.
Invited Symposium Presentation: " C-H Activation: Applications in organic synthesis"

45. University of Missouri Organic Day Symposium, Columbia, Missouri, 2006.
Invited Symposium Presentation: " C-H Activation: Applications in organic synthesis"

46. DFG Symposium on Selective Functionalization" Germany, May 7-9, 2006.
Invited Plenary Speaker: " C-H Activation: Applications in organic synthesis"

47. Mid-Atlantic Regional Meeting, Hershey, PA, June 3-5, 2006.
Invited Symposium Presentation: " C-H Activation: Applications in organic synthesis"

48. Gordon Research Conference on Heterocyclic Chemistry, Roger Williams University, Bristol, RI, July 2-7, 2006.
Invited Symposium Presentation: " Heterocycles and rhodium-carbenoids: Partners or enemies"

49. South-East Regional Meeting, Augusta, GA November 1-3, 2006.
Invited Symposium Presentation: " C-H Activation: Applications in organic synthesis"

50. Canadian Chemical Society National Meeting, Winnipeg, Canada, May 26-30, 2007
Invited Symposium Presentation: " C-H Activation: Applications in organic synthesis"

51. 5th Herron Island Symposium, Herron Island, Australia, July 11-16, 2010
Invited Symposium Presentation: "Cascade reactions using rhodium carbenoid intermediates"

52. 2010 International Chemical Congress on Pacific Basin Societies, Honolulu, Hawaii, December 18-23, 2010
Invited Symposium Presentation: "Synthetic application of rhodium-carbenoid chemistry"

53 2011 Emmerson Symposium of C-C Bond-forming Reactions, Emory University, Atlanta, April 27, 2011
Invited Symposium Presentation: " Synthetic applications of enantioselective C-H functionalization"

54. Canadian Chemical Society National Meeting, Montreal, Canada, June 5-9, 2011
Invited Symposium Presentation: " Enantioselective C-H functionalization in organic synthesis"

55. Gordon Research Conference on Heterocyclic Chemistry, Salva Regina Univ., Newport, RI, June 26 -July 1, 2011.
Invited Symposium Presentation: " Synthesis of heterocyles using rhodium-carbenoid chemistry"

56. Gordon Research Conference on Organic Reactions and Processes, Roger Williams University, Bristol, RI, July 17-21, 2011.
Invited Symposium Presentation: " Synthetic applications of C-H functionalization"

57. 19th International Conference on Organic Synthesis, Melbourne, Australia, July 1-6, 2012.
Invited Plenary Lecture: " Recent Advances in Rhodium Carbenoid Chemistry"

58. Gordon Research Conference on Natural Products, Proctor Academy, Andover, NH, July 22-27, 2012.
Invited Symposium Presentation: " Natural Product Synthesis Using C-H Functionalization Methodologies"

59. Annual Meeting of the NSF CCI Center for Enabling New Technologies through Catalysis, University of Washington, Seattle, WA, September 10-12, 2012.
Invited Presentation: " NSF CCI Center for Selective C-H Functionalization"

60. 1st International Symposium on C-H Functionalization, Beijing, China, October 6-8, 2012.
Invited Symposium Presentation: " Challenging the Scope of Carbenoid-Induced C-H Functionalization"

61 The 1st International Symposium on Transformative Bio-molecules (ISTBM-1), Nagoya, Japan, April 18,19, 2012.

Invited Symposium Presentation: " Center Approach to C-H Functionalization"

62. EUCHEM Conference on Stereochemistry, the 48th 'Burgenstock Conference", Brunnen, Switzerland, April 28 – May 3, 2013.
    Invited Lecture: "Center Approach to C-H Functionalization"
63. Burroughs Welcome Foundation: Programs Unifying Population and Laboratory Based Sciences (PUP) Student Symposium, School of Public Health, Emory University, Atlanta, GA May 14-16, 2013
    Keynote Speaker: "NSF-CCI Center for Selective C–H Functionalization: How Does it Impact Biomedical Research? How Does it Enhance Student Education and Growth?"

64. Department of Medicine and Pediatrics Research Resources 101 Workshop, School of Medicine, Emory University, Atlanta, GA, May 16, 2013
    Speaker: "New Advances in Chemical Synthesis and Drug Discovery?"

65. Gordon Research Conference on Heterocyclic Chemistry, Salve Regina College, Newport, RI, July 16-21, 2013.
    Invited Symposium Presentation: " Unusual Reactions between Rhodium Carbenes and Heterocycles"

66. 14th Annual Symposium on Chemical Diversity: Synthesis and Applications, Boston University, Boston, MA, July 28, 2013
    Invited Symposium Presentation: "New Advances in C-H Functionalization"

67. Annual Contractors Meeting on Catalysis and Chemical Transformations, Department of Energy, Annapolis, MA, July 30- July 2, 2013
    Invited Presentation: " New Advances in C-H Functionalization"

68. 6th Herron Island Symposium, Herron Island, Australia, July 7-13, 2013
    Invited Presentation: "New Adventures with Donor/Acceptor Carbenoids"

69. 17th IUPAC meeting on Organometallics in Organic Synthesis (OMCOS), Fort Collins, CO, July 28- August 1, 2013
    Invited eEROS Reagent of the Year Award Presentation: " Metal Carbenoids Derived from Vinyldiazoacetates: Past and Present"
70. 2nd Annual Conference of the International Chemical Biology Society, Kyoto, Japan, October 7-9, 2013
    Invited Presentation: " Impact of New Enabling Technologies from Organic Synthesis on Chemical Biology"

71. Annual Meeting of the American Chemical Society, Dallas, TX, March 14-19, 2014
    Invited Presentation for the Symposium on Advances in C-H Functionalization: "Collaborative Approach for C-H Functionalization"

72. Telluride Meeting on the Future of Asymmetric Catalysis, Telluride CO, June 22-26, 2014
    Invited Presentation: "What is the Long-term Future for Asymmetric Catalysis with Precious Transition Metal Catalysts?"

73. 12th Anglo-Norman Organic Chemistry Conference. Norwich, UK, June 28-July 1st, 2014
    Invited Presentation: "Collaborative Approach for C-H Functionalization"

74. GDP Innovation Industrial Short Course, Paris, France, July 8-9, 2014
    Invited Short Course Presentation: "Recent Advances in C-H Functionalization"

75. Annual Conference of the Korean Chemical Society, South Korea, October 16-17, 2014
    Invited Presentation: "Collaborative Approach for C-H Functionalization"

76. The Sixth International Forum on Homogeneous Catalysis, Shanghai, China, October 19-22, 2014
    Invited Presentation: "Collaborative Approach for C-H Functionalization"

77. Center for Chemical Innovation Principal Investigators Meeting, November 18-19, 2014
    Invited Presentation: "Center for Selective C-H Functionalization"

78. 16th Annual – Florida Heterocycle and Synthetic Conference, Gainesville, FL, March 1-4, 2015
    Invited Presentation: "N-Sulfonyltriazoles as Useful Precursors to Donor/acceptor Carbenes"

79. Anatolian Conference on Synthetic Organic Chemistry, Anatalya, Turkey, March 14-17, 2015
Invited Presentation: "Collaborative Approach for C-H Functionalization"

80. Western New York Undergraduate Symposium, Buffalo, NY, April 10, 2015
Invited Plenary Presentation: "Collaborative Approach for C-H Functionalization"

81. 2015 ACS Florida Annual Meeting and Exposition, Tampa Bay, FL, May 8-10, 2015
Invited Presentation: "Collaborative Approach for C-H Functionalization"
Invited Presentation: "N-Sulfonyltriazoles as Useful Precursors to Donor/acceptor Carbenes"

81. Organic Chemistry Symposium: Royal Chemical Society Roadshow, Sendai, Japan, June 1, 2015
Invited Oral Presentation: "Collaborative Approach for C-H Functionalization"

82. Organic Chemistry Symposium: Royal Chemical Society Roadshow, Tokyo, Japan, June 3, 2015
Invited Oral Presentation: "Collaborative Approach for C-H Functionalization"

83. Organic Chemistry Symposium: Royal Chemical Society Roadshow, Kyoto, Japan, June 5, 2015
Invited Oral Presentation: "Collaborative Approach for C-H Functionalization"

84. 252nd National Meeting of the American Chemical Society, Boston, MA, August 16-20, 2015
Invited Presentation at Presidential Symposium: " Center for Selective C-H Functionalization"

85. 8th Peking University – Eli Lilly Symposium on Organic Synthesis, Peking University, China, September 18-20, 2015
Invited Plenary Presentation: "Collaborative Approach for C-H Functionalization"

86. Chemical Society Reviews Symposium, Lanzhou University, Lanzhou, China, September 21, 2015
Invited Oral Presentation: "Collaborative Approach for C-H Functionalization"

87. 973 Participants Symposium, Peking University, China, September 21, 2015
Invited Plenary Presentation: "Collaborative Approach for C-H Functionalization"

88. 13th International Kyoto Conference on New Aspects of Organic Chemistry (IKCOC-13) Kyoto, Japan, November 9-13, 2015
Invited Plenary Presentation: "Collaborative Approach for C-H Functionalization"

89. 16th Brazilian Meeting on Organic synthesis,) Buzios, Brazil, November 14-118, 2015
Invited Plenary Presentation: "Collaborative Approach for C-H Functionalization"
Invited Short Course Presentation: "Recent Advances in C-H Functionalization"

90. 2015 International Chemical Congress on Pacific Basin Societies, Honolulu, Hawaii, December 15-20, 2015
Invited Symposium Presentation: "Collaborative Approach for C-H Functionalization"
Invited Symposium Presentation: "N-Sulfonyl Triazoles as Carbene Precursors"

91. 2016 Norwegian Chemical Society Winter Organic Chemistry Meeting, Norway, January 7-10th , 2016
Invited Oral Presentation: "Collaborative Approach for C-H Functionalization"

92. UNAM-Emory University Mini-Symposium, Emory University , March 1-3 , 2016
Invited Oral Presentation: "Collaborative Approach for C-H Functionalization"

93. 2016 Organic Reactions Catalysis Society (ORCS), Miami, Fl, March 27-31, 2016
Invited Keynote Presentation: "Collaborative Approach for C-H Functionalization"

94. 7th Herron Island Symposium, Herron Island, Australia, July 9-15, 2016
Invited Presentation: "Collaborative Approach for C-H Functionalization"

95. Journées de Chimie Organique (JCO 2016) Ecole Polytechnique Palaiseau, France, September 7-9, 2016
Invited Keynote Presentation: "Collaborative Approach for C-H Functionalization"

96. COST C-H Functionalization Applications for organic Synthesis (CHAOS) Kickoff meeting, Vienna, Austria, September 26-28, 2016
Invited Keynote Presentation: "Collaborative Approach for C-H Functionalization"

97. 2016 Centers for Chemical Innovation Directors Meeting, Washington, DC, October 26-27, 2016
Invited Presentation: "Recent Advances from the Center for Selective C-H Functionalization"

INVITED PRESENTATIONS AT UNIVERSITIES

1985	Department of Chemistry, University of Warwick, England
	Department of Chemistry, University of Newcastle, England
	Department of Chemistry, University of North Carolina, Greensboro
	Department of Chemistry, University of North Carolina, Charlotte
	Department of Chemistry, State University of New York in Binghamton
1986	Department of Chemistry, North Carolina A & T
	Department of Chemistry, East Carolina University,
1987	Department of Chemistry, University of Bath, England
1988	Department of Chemistry, University of Oregon
	Department of Chemistry, University of California, Davis
	Department of Chemistry, University of California, Santa Barbara
	Department of Chemistry, University of California, Los Angeles
	Department of Chemistry, University of California, San Diego
	Department of Chemistry, University of Georgia, Athens
	School of Chemistry, University of Bristol, Bristol, England
	Department of Chemistry, Imperial College of Science and Technology, London, England
1989	Department of Chemistry, Emory University
	Department of Chemistry, North Carolina State University,
	Department of Chemistry, University of North Carolina at Chapel Hill
	Department of Chemistry, Wayne State University,
	Department of Chemitry, University of South Carolina
1990	Department of Physiology and Pharmacology, Bowman Gray School of Medicine
	Department of Chemistry, Rice University
1991	Department of Chemistry, University of Minnesota
	Department of Chemistry, Appalachian State University
	Department of Chemistry, University College Cardiff, Wales
	Department of Chemistry, University of East Anglia, England
	Department of Chemistry, Clemson University
	Department of Chemistry, Ohio University
1992	Department of Chemistry, Case Western Reserve University

Department of Chemistry, Auburn University
Positron Emission Tomography Center, Bowman Gary School of Medicine
Department of Chemistry, University of Delaware

1993 Department of Chemistry, Duke University

1994 Department of Chemistry, University of Virginia
Department of Chemistry, State University of New York at Buffalo

1995 Department of Chemistry, University of New Orleans
Department of Chemistry, Buffalo State University

1996 Department of Chemistry, State University of New York at Fredonia
Department of Chemistry, University of Toronto, Canada

1997 Department of Chemistry, Canisius College, Buffalo NY
Department of Chemistry, Wayne State University, MI
Department of Chemistry, University of Windsor, Canada
Department of Chemistry, Penn State University, PA
Department of Chemistry, Juniata College. Huntingdon, PA
Department of Chemistry, University of Rochester, Rochester, NY

1998 Department of Chemistry, Hamilton College, NY
Department of Chemistry, Yale University, New Haven, CT
Department of Chemistry, Nottingham University, England
Department of Chemistry, Sheffield University, England
Department of Chemistry, Bristol University, England
Department of Chemistry, Oxford University, England
Department of Chemistry, University College Cardiff, Wales

1999 Department of Chemistry, University of Illinois at Urbana-Champaign, IL
Department of Chemistry, University of California, Riverside, CA
Department of Chemistry, University of California, Irvine, CA
Department of Chemistry, Scripps Research Institute, CA
Department of Chemistry, Renselaer Polytechnic Institute, Troy, NY
Department of Chemistry, University of California, San Diego, CA
Department of Chemistry, University of Pennsylvania, Philadelphia, PA

2000 Department of Chemistry, York University, Ontario, Canada
Department of Chemistry, University of Vermont, Burlington, VT
Department of Chemistry, State University of New York at Plattsburgh, NY
Department of Chemistry, Queens University, Kingston, Ontario, Canada
Department of Chemistry, University of Montana, Bozeman, Montana
Department of Chemistry, Tohoku University, Tohoku, Japan
Department of Chemistry, Hokkaido University, Hokkaido, Japan
Department of Chemistry, Tokyo University, Tokyo, Japan
Department of Chemistry, Tsukuba University, Tsukuba, Japan
Department of Chemistry, Tokyo Institute of Technology, Tokyo, Japan
Department of Chemistry, Toyohashi University, Toyohashi, Japan
Department of Chemistry, Nagoya University, Nagoya, Japan
Department of Chemistry, Kyoto University, Kyoto, Japan
Department of Chemistry, Kyoto Institute of Technology, Kyoto, Japan
Department of Chemistry, Kyushu University, Kyushu Japan

2001 Department of Chemistry, Illinois Wesleyan University, Bloomington. Il
Department of Chemistry, Indiana University, Bloomington, IN

Department of Chemistry, Aachen University, Aachen, Germany
Department of Chemistry, Free University, Berlin, Germany
Department of Chemistry, Ulm University, Ulm, Germany
Department of Chemistry, Regensburg University, Regensburg, Germany
Department of Chemistry, Leipzig University, Leipzig, Germany
Department of Chemistry, Inha University, Soeul, Korea
Department of Chemistry, Soeul University, Soeul, Korea
Roswell Park Cancer Institute, Buffalo, NY
Department of Chemistry, S.U. N. Y at Brockport, Brockport, NY

2002 Department of Chemistry, Indiana University, Bloomington, IN
Department of Chemistry, University of North Carolina at Chapel Hill, NC
Department of Chemistry, Texas A&M University, TX
Department of Chemistry, Michigan State University
Department of Chemistry, Rutgers University
Department of Chemistry, University of South Florida
Department of Chemistry, Berkeley
Department of Chemistry, Stanford
Department of Chemistry, CalTech
Department of Chemistry, North Dakota State University
Department of Chemistry, University of Illinois, Chicago

2003 Department of Chemistry, Boston University
Department of Chemistry, University College London
Department of Chemistry, University of Bristol, UK
Department of Chemistry, University of Durham, UK
Department of Chemistry, Canisius College
Department of Chemistry, Cornell University
Department of Chemistry, Boston College
Department of Chemistry, University of Arkansas
Department of Chemistry, University of Delaware

2004 Department of Chemistry, University of Tennessee
Department of Chemistry, Bowling Green University
Department of Chemistry, University of Wisconsin
Department of Chemistry, Northwestern University
Department of Chemistry, Nottingham University, UK
Department of Chemistry, University College Dublin, Ireland
Department of Chemistry, Florida State University
Department of Biochemistry, SouthWest Medical School, Dallas
Department of Chemistry, Colorado State University
Department of Chemistry, Allegheny College
Department of Chemistry, Princeton University

2005 Department of Chemistry, Notre Dame University
Department of Chemistry, McMaster University
Department of Chemistry, Brock University
Department of Chemistry, Emory University
Department of Chemistry, UC Riverside
Department of Chemistry, Colorado State University
Department of Chemistry, University of Oxford, UK

2006 Department of Chemistry, University of Missouri
Department of Chemistry, University of Gröningen, Holland
Max-Plank Research Institute, Mülheim, Germany
Department of Chemistry, University of Laval (Astra Zeneca Lecturer)

Department of Chemistry, University of Montreal (Astra Zeneca Lecturer)
Department of Chemistry, University of Ottawa (Astra Zeneca Lecturer)
Roswell Park Cancer Center
Department of Chemistry, Calvin College
Department of Chemistry, Hope College
Department of Chemistry, Brandeis University
Department of Biochemistry, University Texas Medical School at Galveston
Department of Chemistry, Southern Methodist University
Department of Chemistry, University of Texas at Arlington

2007 Department of Chemistry, IUPUI
Roswell Park Cancer Center
Department of Chemistry, University of Rochester
Department of Chemistry, SUNY Courtland
Department of Chemistry, MIT (The George Büchi Visiting Lectureship in Organic Chemistry)
Roswell Park Cancer Center

2008 Department of Chemistry, Emory University
Department of Chemistry, Ohio State University (Organic Synthesis Workshop Speaker)
Department of Chemistry, University of Michigan
Department of Chemistry, University of Cambridge, UK

2009 School of Pharmacy, University of Wisconsin
Department of Chemistry, University of Georgia
Department of Chemistry, University of Chicago

2010 Department of Chemistry, University of California, Davis

2011 Department of Chemistry, Georgia State University, Atlanta
Department of Chemistry, University of Basel, Switzerland
Department of Chemistry, University of Missouri, St. Louis
Department of Chemistry, Brown University
Department of Chemistry, University of Colorado
Department of Chemistry, University of Utah
Department of Chemistry, University of Florida

2012 Department of Chemistry, Vanderbilt University
Department of Chemistry, University of Wisconsin, Madison
Department of Chemistry, University of California, Santa Barbara (Eastman Lecturer)
School of Chemistry and Molecular BioSciences, University of Queensland (2012 TGH Jones Memorial Lecture)
Department of Chemistry, University of Texas at Austin

2013 Department of Chemistry, UCLA (Bristol-Myers-Squibb Lecture)
Department of Chemistry, Princeton University (Bristol-Myers Squibb Lecture)
Department of Chemistry, Penn State University
Department of Chemistry, University of Geneva
Department of Chemistry, Oxford University, UK (Royal Society of Chemistry Lecturer)

2014 Department of Chemistry, University of Kansas (Frank Burnett Dains Memorial Lecture)
Department of Chemistry, UC Merced
Department of Chemistry, Wake Forest University
Department of Chemistry, Winston-Salem State University
Department of Chemistry, UT Arlington
Ecole Supérieure de Physique et de Chimie Industrielles de la Ville de Paris, Paris, France
Department of Chemistry, University of Rouen, France
Department of Chemistry, University of Marsailles, France

Ecole Polytechnique, Paris, France
Department of Chemistry, University of Lyon, France

2015 Department of Chemistry, Scripps, CA
Department of Chemistry, Oklahoma State University, OK (Aldrich Lecture)
Department of Chemistry, State University of New York at Buffalo, Buffalo NY
Department of Chemistry, Northwestern University
Department of Chemistry, University of Texas at Austin
Department of Chemistry, Georgia Tech University
Department of Chemistry, Nankai University, China
Department of Chemistry, McGill University, Canada
Department of Chemistry, Notre Dame University
Department of Chemistry, Ohio State University (Aldrich Lecture)
Department of Chemistry, University of Basel (Swiss Chemical Society Lectureship)
Department of Chemistry, EPFL (Swiss Chemical Society Lectureship)
Department of Chemistry, University of Geneva (Swiss Chemical Society Lectureship)
Department of Chemistry, University of Bern (Swiss Chemical Society Lectureship)
Department of Chemistry, ETH (Swiss Chemical Society Lectureship)
Department of Chemistry, University of Zurich (Swiss Chemical Society Lectureship)

2016 Department of Chemistry, University of Toronto, Canada
Department of Chemistry, University of Alberta, Canada
Department of Chemistry, Osaka University, Japan
Department of Chemistry, University of Nagoya, Japan
Department of Chemistry, University of Tennessee

INVITED INDUSTRIAL PRESENTATIONS

1987 Ortho Pharmaceuticals Corp., Raritan, New Jersey

1989 Research Triangle Institute, Research Triangle Park, NC
Wyeth-Ayerst Company, Princeton, NJ
Burroughs Wellcome Co., Research Triangle Park, NC
Sheering Company, Bloomfield, NJ

1991 3M, Minneapolis, MN
Pfizer, Groton, CT

1992 Glaxo, Ware, U. K.

1993 Glaxo, RTP, NC

1996 Astra Arcus, Rochester, NY
Smith Kline Beecham, Inc., Philadelphia, NJ

1997 Upjohn Pharmacia, Inc., Kalamazoo. MI
Merck Pharmaceuticals, NJ
Hoffman La-Roche, NJ
Norvartis, NJ
Bristol Myers Squibb, NJ

1998	Astra Arcus, Rochester, NY Cyanamid, Princeton, NJ
1999	Wyeth-Ayerst Company, White Plains, NY PRI of Johnson & Johnson, NJ Pfizer, Groton, CT
2000	Johnson Mathey, Inc., NJ Merck Process Research, Rahway, NJ Targacept, Inc, NC
2001	PRI of Johnson & Johnson, PA Eli Lilly, IN Albany Molecular, NY Sphinx Pharmaceuticals, NC Glaxo Smith Kline, NC Axys, CA Chemical Discovery, CA
2002	Albany Molecular, NY Amgen, CA Bristol Myers Squibb, Wallingford, CT
2003	Pfizer, MI Bristol Myers Squibb, NY Astra Zeneca, Maccesfield, UK Astra Zeneca, Loughborough, UK
2004	Amgen, CA Merck Process Research, Rahway, NJ Johnson & Johnson, Bridgewater, NJ
2005	Sepracor, MA Sherring-Plough, NJ
2006	Merck, West Point, PA Cleveland Biosciences, Cleveland, OH
2007	Albany Molecular, NY Abbot, Chicago, Il Strem, CT Syngenta, UK Syngenta, Switzerland Genentec, CA
2009	Glaxo Smith Kline, Philadelphia, PA
2010	Novartis, Boston MA (Novartis Lecturer) Boehringer-Ingelheim
2011	Novartis, London, UK (Novartis Lecturer) Novartis, Basel, Switzerland (Novartis Lecturer)
2012	Amgen, Boston, MA Merck, Rahway, NJ

2013	Bristol-Myers-Squibb, Wallingford, CT Gilead, San Francisco, CA Pfizer, Groton, CT
2014	AbbVie, Chicago, Il
2015	DuPont, Newark, Delaware (C-H functionalization short course)
2016	AbbVie, Chicago, Il (C-H functionalization short course) Pfizer, Groton, CT (C-H functionalization short course) Norvatis, Boston, MA Bristol Myer Squibb, Princeton, NJ Bristol Myer Squibb, Summit, NJ Celgene, Boston, MA

TEACHING RESPONSIBILITIES

Wake Forest University 1983-1995

Taught 4-6 courses per year: Courses taught included: Sophomore Organic Chemistry (undergraduate), Sophomore Organic Chemistry lab (undergraduate), Organic Structure Identification, Organic Synthesis, Heterocycles

University at Buffalo 1995-2008

Taught 1-2 courses per year: Sophomore Organic Chemistry (undergraduate), Honors Sophomore Organic Chemistry (undergraduate), Organic Chemistry and Society (undergraduate), Organic Synthesis (undergraduate), Core Graduate Course in Organic Chemistry, Advanced Organic Synthesis (graduate)

Emory University 2008-present

Taught 2 courses per year: Special Topics on Organometallics in Organic Synthesis (graduate), Organic Synthesis (graduate), Short Course on C-H Functionalization (graduate), Topics in Bioorganic Chemistry (undergraduate), Sophomore Organic Chemistry (undergraduate), Freshman Organic Chemistry (undergraduate).