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EDUCATIONAL HISTORY

- **Ph.D.** in Chemistry, The University of Chicago, **2000**.
  Thesis title: *"Application of the Heck Cyclization Methodology to the Synthesis of Geissoschizine and Strictamine";* Advisor: Prof. Viresh H. Rawal.
- **B.S.** in Chemistry with Honors and *Magna cum laude*, University of North Carolina at Charlotte, **1995**.
  Honors thesis title: *"Preparation of Tricyclic pharmaceuticals via Directed Dilithiation of Diphenyl Ether";* Advisor: Prof. Craig A. Ogle.

PROFESSIONAL AFFILIATIONS

2009-present **Associate Professor,** Department of Chemistry, Washington University in St. Louis

2003-2009 **Assistant Professor,** Department of Chemistry, Washington University in St. Louis

2000-2003 **Postdoctoral Fellow,** Department of Chemistry, Columbia University, Advisor: Prof. Samuel J. Danishefsky

HONORS

- Thieme Journals Award **(2007)**
- ACS Petroleum Research Fund Type G Award **(2006-2008)**
- National Institutes of Health National Research Service Award **(2001-2003)**
- The American Institute of Chemists Foundation Student Award **(1999)**
- Division of Organic Chemistry Graduate Fellowship **(1998-1999)**
- Undergraduate Research Award, North Carolina Section of ACS **(1995)**

RESEARCH INTERESTS

- ***Synthetic methodology.*** Amidine-based enantioselective acyl transfer catalysts and their synthetic applications; chiral 2-(ortho-iodoxyphenyl)oxazolines and their application to enantioselective oxidation of phenols, anionic acyl transfer catalysis.
- ***Total synthesis of bioactive natural products.*** Completed synthetic targets include (±)-sceptrin, prekinamycin and (−)-lobeline.

PUBLICATIONS

1. Yang, X.; Birman, V. B.* "Acyl Transfer catalysis with 1,2,4-Triazole Anion" *Org. Lett.* **2009,** *ASAP.*
2. Boppisetti, J. K.; Birman, V. B.* "Asymmetric Oxidation of o-Alkylphenols with Chiral 2-(o-Iodoxyphenyl)-Oxazolines", *Org. Lett.* **2009,** *11,* 1221.
3. Li, X.; Peng, L.; Houk, K. N.;* Birman, V. B.* "Origin of Enantioselectivity in CF_3-PIP-Catalyzed Kinetic Resolution of Secondary Benzylic Alcohols" *J. Am. Chem. Soc.* **2008,** *130,* 13836.
4. Birman, V. B.;* Li, X. "Homobenzotetramisole: An Effective Catalyst for Kinetic Resolution of Arylcycloalkanols" *Org. Lett.* **2008,** *10,* 1115.
5. Birman, V. B.;* Jiang, H.; Li, X. "Enantioselective Synthesis of Lobeline via Nonenzymatic Desymmetrization" *Org. Lett.* **2007,** *9,* 3237.
6. Birman, V. B.;* Zhao, Z.; Guo, L. **"**Benzo[b]fluorenes via Indanone Dianion Annulation. A Short Synthesis of Prekinamycin**"** *Org. Lett.* **2007***, 9,* 1223.
7. Birman, V. B.;* Li, X.; Han, Z. "Nonaromatic Amidine Derivatives as Acylation Catalysts" *Org. Lett.* **2007***, 9,* 37.
8. Birman, V. B.;* Guo, L.; "Kinetic Resolution of Propargylic Alcohols Catalyzed by Benzotetramisole" *Org. Lett.* **2006***, 8,* 4859.
9. Birman, V. B.;* Jiang, H.; Li, X.; Guo, L.; Uffman, E. W. "Kinetic Resolution of 2-Oxazolidinones via Catalytic, Enantioselective N-Acylation" *J. Am. Chem. Soc.* **2006***, 128,* 6536.
10. Birman, V. B.;* Li, X. "Benzotetramisole: A Remarkably Enantioselective Acyl Transfer Catalyst" *Org. Lett.* **2006,** *8,* 1351.
11. Birman, V. B.;* Li, X.; Jiang, H.; Uffman, E. W. "Influence of Electronic and Steric Factors on 2,3-Dihydroimidazo[1,2-*a*]pyridine-Based Enantioselective Acylation Catalysts" *Tetrahedron* **2006**, *62,* 285. (Symposium-in-Print on Organocatalysis).
12. Birman, V. B.;* Jiang, H. "Kinetic Resolution of Alcohols Using a 1,2-Dihydroimidazo[1,2-*a*]quinoline Enantioselective Acylation Catalyst" *Org. Lett.* **2005**, *7,* 3445.
13. Birman, V. B.;* Uffman, E. W.; Jiang, H.; Li, X.; Kilbane, C. J. "2,3-Dihydroimidazo[1,2-a]pyridines: A New Class of Enantioselective Acyl Transfer Catalysts and Their Use in Kinetic Resolution of Alcohols" *J. Am. Chem. Soc.* **2004**, *126,* 12226.
14. Birman, V. B.;* Jiang, X.-T. "Synthesis of Sceptrin Alkaloids" *Org. Lett.* **2004**, *6,* 2369.
15. Birman V. B.; Danishefsky, S. J.* *"The Total Synthesis of (±)-Merrilactone A", J. Am. Chem. Soc.* **2002**, *124,* 2080.
16. Iwama, T.; Birman, V. B.; Kozmin, S. A.; Rawal, V. H.* *"Regiocontrolled Synthesis of Carbocycle-Fused Indoles via Arylation of Silyl Enol Ethers with o-Nitrophenylphenyliodonium Fluoride" Org. Lett.* **1999**, *1,* 673.
17. Birman V. B.,* Rheingold, A. L.; Lam, K.-C. "Spirobiindane-7,7'-diol: A Novel, C_2-Symmetric Chiral Ligand" *Tetrahedron: Asymmetry* **1999**, *10,* 125.

18. Birman V. B.; Rawal V. H.* "A General, Stereocontrolled Route to the Geissoschizine Family of Alkaloids. A Concise Synthesis of the Apogeissoschizine Skeleton" *J. Org. Chem.* **1998**, *63,* 9146.
19. Birman V. B.; Rawal V. H.* "A Novel Route to the Geissoschizine Skeleton: The Influence of Ligands on the Diastereoselectivity of the Heck Cyclization" *Tetrahedron Letters,* **1998**, *39,* 7219.
20. Birman V. B.; Chopra A.; Ogle C. A.* "A Novel Approach to Tricyclic Pharmaceuticals via Directed Dilithiation of Diaryl Compounds" *Tetrahedron Letters,* **1996**, *37,* 5073.

INVITED LECTURES

(a) Lecture title: "Design, Development and Applications of A New Class of Enantioselective Acyl Transfer catalysts"

1. Rutgers University, October 24, 2008
2. Syracuse University, October 14, 2008
3. University of California-San Diego, May 12, 2008.
4. Texas Christian University, Fort Worth, TX, April 29, 2008.
5. Northern Illinois University, De Kalb, IL, April 28, 2008.
6. Purdue University, November 20, 2007.
7. University of Chicago, November 9, 2007.
8. University of Minnesota-Duluth, September 28, 2007.
9. Texas A&M University, September 7, 2007.
10. Young Investigators' Symposium, 234th ACS Meeting, Boston, MA, August 19, 2007
11. Eli Lilly, Indianapolis, IN, June 19, 2007.
12. University of California-Los Angeles, March 19, 2007.
13. University of California-Santa Barbara, March 16, 2007.
14. Ohio State University, February 15, 2007.
15. International Symposium on Organocatalysis in Organic Synthesis: University of Glasgow, UK, July 6, 2006.
16. Missouri Organic Day: University of Missouri in Columbia, April 29, 2006
17. University of Missouri in Kansas City, January 12, 2006
18. University of Missouri in St. Louis, November 7, 2005
19. Wichita State University, October 5, 2005
20. CV Therapeutics, Inc. Palo Alto, CA, September 23, 2005

(b) Lecture title: "Our current research" (Chalk talk)

21. NSF workshop, Holderness, NH, June 2006.

(c) Lecture title: "Synthetic studies towards diazobenzo[b]fluorene antibiotics"

22. Gordon Research Conference on Natural Products, Tilton, NH, July 23-27, 2007

CONTRIBUTED PRESENTATIONS

(asterisk indicates primary author; presenting author is underlined)

1. Seizert, C.A.; Birman, V. B.* "Cope rearrangement route to hexahydroazulenes" 237th ACS National Meeting, Salt lake City, UT, March 22-26, 2009. ORGN 195 (oral)
2. Yang, X.; Birman, V. B.* "1,2,4-Triazolide anion: An active nucleophilic catalyst for ester aminolysis" 237th ACS National Meeting, Salt lake City, UT, March 22-26, 2009. ORGN 187 (oral)
3. Li, X.; Lu, P.; Cheong, P. H.-Y.; Um, J. A.; Houk, K. N.;* Birman, V. B.* "Origins of enantioselectivity in CF_3-PIP-catalyzed asymmetric acylation: A computational study" 236th ACS National Meeting, Philadelphia, PA, August 17-21, 2008. ORGN 438 (poster)
4. Vladimir B.Birman* "Design, Development and Applications of a New Class of Enantioselective Acyl Transfer Catalysts" Gordon Research Conference on Natural Products, Tilton, NH, July 20-25, 2008 (Poster).
5. Hui Jiang, Ximin Li, Vladimir B. Birman* "Enantioselective synthesis of (–)-lobeline via nonenzymatic desymmetrization" Gordon Research Conference on Natural Products, Tilton, NH, July 23-27, 2007 (Poster).
6. Vladimir B. Birman,* Ximin Li, Hui Jiang, Lei Guo, Jagadish K. Boppisetti, Eric W. Uffman, Xuntian Jiang, Zhenfu Han, Corey J. Kilbane, Erica L. Flor, Vadim B. Krylov "Design, Development and Applications of a New Class of Enantioselective Acyl Transfer Catalysts" Eighth Tetrahedron Symposium June 27 – 29, 2007, Berlin, Germany (Poster).
7. Vladimir B. Birman,* Zhufeng Zhao, Lei Guo "Studies Towards the Total Synthesis of Kinamycins" Eighth Tetrahedron Symposium June 27 – 29, 2007, Berlin, Germany (Poster).
8. Li, X.; Birman, V. B.* "Ring-expanded tetramisole analogues as enantioselective acyl transfer catalysts" 234th ACS National Meeting, Boston, MA, August 19-23, 2007, ORGN 650.
9. Boppisetti, J. K.; Birman, V. B.* "The first asymmetric oxidation of phenols to ortho-quinols using a new class of enantioselective oxidants" 234th ACS National Meeting, Boston, MA, August 19-23, 2007, ORGN 389.
10. Birman, V. B.* "Design, development and applications of a new class of enantioselective acyl transfer catalysts" 234th ACS National Meeting, Boston, MA, August 19-23, 2007, ORGN 061 (Young Academic Investigators' Symposium).
11. Boppisetti, J. K.; Li, X.; Birman, V. B.* "Structural variation of Cl-PIQ and BTM, enantioselective acyl transfer catalysts" 233rd ACS National Meeting, Chicago, IL, March 26-30, 2007, ORGN 740 (Poster).
12. Birman, V. B.;* Guo, L. "Kinetic resolution of propargylic alcohols using Cl-PIQ and BTM" 233rd ACS National Meeting, Chicago, IL, March 26-30, 2007, ORGN 739 (Poster).
13. Achanta, S.; Padakanti, P. Birman, V. B.* "Dimerization strategies for the construction of the central core of lomaiviticins" 233rd ACS National Meeting, Chicago, IL, March 26-30, 2007, ORGN 405 (Poster).

14. Li, X.; Han, Z.; Birman, V. B.* "Catalytic activity of nonaromatic amidine derivatives in acylation reactions" 233rd ACS National Meeting, Chicago, IL, March 26-30, 2007, ORGN 367.

15. Zhao, Z.; Guo, L.; Birman, V. B.* "Total synthesis of prekinamycin and progress towards kinamycins" 233rd ACS National Meeting, Chicago, IL, March 26-30, 2007, ORGN 341.

16. Jiang, H.; Li, X.; Birman, V. B.* "Enantioselective synthesis of lobeline via nonenzymatic desymmetrization" 233rd ACS National Meeting, Chicago, IL, March 26-30, 2007, ORGN 297.

17. Zhao, Z.; Guo, L.; Birman, V. B.* "Synthetic studies towards diazobenzo[b]fluorene antibiotics" 231st ACS National Meeting, Atlanta, GA, March 26-30, 2006, ORGN 473.

18. Li, X.; Jiang, H.; Uffman, E. W.; Birman, V. B.* "Variation of steric and electronic parameters of DHIP catalysts" 231st ACS National Meeting, Atlanta, GA, March 26-30, 2006, ORGN 176 (Poster).

19. Jiang, H.; Birman, V. B.* "2,3-Dihydroimidazo[1,2a]quinolines: The second generation of asymmetric acylation catalysts" National Organic Symposium, Salt Lake City, Utah, June 2005

20. Birman, V. B.;* Li, X. "Benzotetramisole: A highly selective catalyst for kinetic resolution of benzylic alcohols and 2-oxazolidinones" 231st ACS National Meeting, Atlanta, GA, March 26-30, 2006, ORGN 032.

21. Birman, V. B.;* Jiang, H. "2,3-Dihydroimidazo[1,2a]quinolines: The second generation of asymmetric acylation catalysts" 229th ACS National Meeting, San Diego, March 13-17, 2005 ORGN 313.

22. Birman, V. B.;* Uffman, E. W. "Kinetic resolution of chiral oxazolidinones via catalytic, enantioselective N-acylation" 229th ACS National Meeting, San Diego, March 13-17, 2005 ORGN 312.

23. Birman, V. B.;* Jiang, X. "Synthesis of Sceptrin Alkaloids" Gordon Research Conference on Natural Products, Tilton, NH, July, 2004

24. Birman, V. B.;* Kilbane, C. J.; Uffman, E. W. "New asymmetric catalysts from an old heterocycle: Practical approach to rational catalyst design" 227th ACS National Meeting, Anaheim, CA, March 28-April 1, 2004, ORGN 534.

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25. Reddy, T. J.; Birman, V. B.; Rawal, V. H.* "Catalytic asymmetric total synthesis of (+)-geissoschizine" 226th ACS National Meeting, New York, NY, September 7-11, 2003, ORGN 711.

26. Birman, V. B.; Rawal, V. H.* "Synthetic approaches to strictamine and geissoschizine using the Heck cyclization methodology" 218th ACS National Meeting, New Orleans, Aug. 22-26, 1999, ORGN 625.

27. Chopra, A.; Birman, V. B.; Ogle, C. A.* "A novel approach to thioxanthene-based tricyclic pharmaceuticals via directed dilithiation of diphenylsulfone." 212th ACS National Meeting, Orlando, FL, August 25-29, 1996, MEDI 086.

REVIEWING ACTIVITIES

- Peer review of manuscripts submitted to *Journal of American Chemical Society, Angewandte Chemie Int. Ed., Journal of Organic Chemistry, Organic Letters, Chemical Reviews, Tetrahedron, Tetrahedron Letters, Synlett*, and proposals submitted to *NSF, ACS PRF and Research Corporation.*

PROFESSIONAL MEMBERSHIPS

- American Chemical Society **(2002-present)**

COLLABORATORS

Prof. Kendall N. Houk, University of California, Los Angeles **(2007-present).** Computational studies on the origin of enantioselectivity in kinetic resolution using amidine-based enantioselective acyl transfer catalysts.

PATENTS

- Danishefsky, S. J.; Meng, Z.; Birman V. B. *Enantioselective Synthesis of Merrilactone A and its Analogs"* PCT Int. Appl. 2005 WO 2005051303
- Danishefsky, S. J.; Birman V. B. *"The Total Synthesis of Merrilactone A and its Analogs"* PCT Int. Appl. 2003 WO 2003051303.