MATTHIAS BREWER

The University of Vermont	
Department of Chemistry	
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EDUCATION:

- 1992-1996 B.A. in Chemistry (*Cum Laude*); Minors in Math, French University of Vermont
- 1997-2002 Ph.D. in Organic Chemistry (Adviser: Prof. Daniel H. Rich) University of Wisconsin-Madison

PROFESSIONAL EXPERIENCE:

05/11- present Associate Professor of Chemistry - University of Vermont

- 08/05-05/11 Assistant Professor of Chemistry University of Vermont
- 10/02-05/05 **NIH NRSA Postdoctoral Fellow University of California-Irvine** Adviser: Prof. Larry E. Overman Initiated studies toward the total synthesis of the complex antiarrhythmic diterpene alkaloid hetisine. Served as Overman Group lab coordinator.

 09/97-08/02 Graduate Research Assistant - University of Wisconsin-Madison Adviser: Prof. Daniel H. Rich Title of Dissertation: *The Synthesis of Mechanism-Based Inhibitors of Botulinum Neurotoxin Serotypes A and B*. Completed the synthesis of three highly functionalized hydroxyethylene peptidomimetics and small molecules as inhibitors of Botulinum neurotoxins A and B zinc-metalloproteases.

01/97-08/97 **Associate Medicinal Chemist - LeukoSite Inc.** Synthesized small molecules aimed at disrupting the protein-protein interaction between leukocyte integrins and cell adhesion molecules as a means of developing novel anti-inflammatory agents.

PROFESSIONAL MEMBERSHIPS:

American Chemical Society 1998

PEER REVIEWED PUBLICATIONS:

- 20. Zhang, Z.; Giampa, G.M.; Draghici, C.; Huang, Q; Brewer, M. "Synthesis of demissidine by a ring fragmentation/1,3-dipolar cycloaddition approach", *Organic Letters*, **2013**, *15*(9), 2100-2103.
- 19. Jabre, N.D.; Brewer, M.; "Stereoelectronic Effects in the Fragmentation of γ-Silyloxy-β-hydroxyα-diazocarbonyl Compounds", *J. Org. Chem.* **2012**, 77(21), 9910-9914.
- 18. Al Bataineh, N.Q.; Brewer, M. "Iodine(III)-mediated bicyclic diazenium salt formation", *Tetrahedron Letters*, **2012**, *53*, 5411-5413.
- 17. Bercovici, D.A.; Brewer, M. "Stereospecific intramolecular C–H amination of 1–aza–2– azoniaallene salts", *Journal of the American Chemical Society*, **2012**, *134*(24) 9890-9893.
- 16. Tsvetkov, N.P.; Bayir, A.; Schneider, S.; Brewer, M. "A Ring Fragmentation Approach to Medium-Sized Cyclic 2-Alkynones", *Organic Letters*, **2012**, *14*(1), 264-267.
- 15. Wyman, J.; Javed, M.I.; Al-Betaineh, N.; Brewer, M. "Synthetic Approaches to Bicyclic Diazenium Salts", *The Journal of Organic Chemistry*, **2010**, *75*(23), 8078-8087.
- Bayir, A.; Draghici, C.; Brewer, M. "Preparation of Tethered Aldehyde Ynoates and Ynones by Ring Fragmentation of Cyclic gamma-Oxy-beta-hydroxy-alpha-diazo Carbonyls", *The Journal of Organic Chemistry*, **2010**, 75 (2), 296-302.
 Note: This manuscript was selected for publication as a Featured Article.
- Draghici, C.; Huang, Q.; Brewer, M. "An Efficient Synthetic Approach to Polycyclic 2,5-Dihydropyrroles from α-Silyloxy Ketones", *The Journal of Organic Chemistry*, **2009**, *74* (21), 8410–8413.
- 12. Javed, M.I.; Wyman, J.M.; Brewer, M. "Synthesis of Fused and Bridged Bicyclic Diazenium Salts by Intramolecular Cycloaddition", *Organic Letters*, **2009**, *11*(10), 2189–2192.
- 11. Draghici, C.; Brewer, M. "Lewis acid promoted carbon-carbon bond cleavage of δ-silyloxy-βhydroxy-α-diazoesters", *Journal of the American Chemical Society*, **2008**, *130*(12), 3766-3767.
- 10. Wyman, J.M.; Jochum, S.; Brewer, M. "Chlorodimethylsulfonium Chloride-Mediated Formation of Phenyl-α-chloroazoalkanes", *Synthetic Communications*, **2008**, *38*, 3623-3630.
- 9. Javed, M.I., Brewer, M. "Diphenyldiazomethane", Organic Syntheses, 2008, 85, 189-195.

PEER REVIEWED PUBLICATIONS (Cont.):

- Harriman, G.C.; Brewer, M.; Bennett, R.; Kuhn, C.; Bazin, M.; Larosa, G.; Skerker, P.; Cochran, N.; Gallant, D.; Baxter, D.; Picarella, D.; Jaffee, B.; Luly, J.R.; Briskin, M.J. "Selective Cell Adhesion Inhibitors: Barbituric Acid Based α4β7–MAdCAM Inhibitors" *Bioorg. Med. Chem. Lett.* 2008, 18(7), 2509-2512.
- 7. Javed, M.I., Brewer, M. "Diazo Preparation via Dehydrogenation of Hydrazones with "Activated" DMSO" *Organic Letters*, **2007**, *9*, 1789-1792.
- 6. Brewer, M. Conversion of hydrazones to alkyl chlorides under Swern oxidation conditions." *Tetrahedron Letters*, **2006**, *47*, 7731-7733.
- 5. Haug, B.E., Brewer, M., Rich, D.H. "Facile Degradative Lactonization of Gln-Arg and Gln-Phe Hydroxyethylene Dipeptide Derivatives." *Journal of Peptide Research*, **2005**, *65* (1), 77-83.
- 4. Brewer, M., James, C.A., Rich, D.H. "Synthesis of a Tripeptide Derivative Containing the Gln-Arg Hydroxyethylene Dipeptide Isostere." *Organic Letters*, **2004**, *6* (25), 4779-4782.
- 3. Oost, T., Sukonpan, C., Brewer, M., Goodnough, M., Tepp, W., Johnson, E.A., Rich, D.H. "Design and Synthesis of Substrate-Based Inhibitors of Botulinum Neurotoxin Type B Metalloprotease" *Biopolymers*, **2003**, *71*(6), 602-619.
- 2. Brewer, M., Oost, T., Sukonpan, C., Pereckas, M., Rich, D.H. "Sequencing Hydroxyethylamine containing peptides via Edman Degradation." Organic Letters, **2002**, *4* (20), 3469-3472.
- 1. Brewer, M., Rich, D.H. "Synthesis of a Tripeptide Derivative Containing the Phe-Arg Hydroxyethylene Dipeptide Isostere." *Organic Letters*, **2001**, *3*(6), 945-948.

INVITED TALKS AND LECTURES:

- 1. Department of Chemistry, University of New Hampshire, Durham, NH, Dec. 11, 2007.
- 2. 15th Annual American Chemical Society Undergraduate Day, Northeast ACS Section, Department of Chemistry, Simmons College, Boston, MA, Nov. 1, 2008
- 3. Department of Chemistry, University of Massachusetts Dartmouth, North Dartmouth, MA, Mar. 11, 2009
- 4. Department of Chemistry, University of Rochester, Rochester, NY, Oct. 29, 2009
- 5. Department of Chemistry, University of Delaware, Newark, DE, Nov. 4, 2009
- 6. Department of Chemistry, University of Minnesota, Minneapolis, MN, Nov. 17, 2009
- Department of Chemistry, Université de Montréal, Montréal, Quebec Canada, Dec. 4, 2009
- 8. Department of Chemistry, Dartmouth College, Hanover, NH, Jan. 7, 2010
- 9. Department of Chemistry, Indiana University, Bloomington, IN Feb. 8, 2010
- 10. Department of Chemistry, University of California-Irvine, Irvine, CA, Feb. 10, 2010
- 11. Department of Chemistry, University of California-Santa Barbra, CA, Feb. 11, 2010
- 12. Department of Chemistry, UCLA, Los Angeles, CA, Feb. 12, 2010
- 13. Department of Chemistry, Wayne State University, Detroit, MI, May 12, 2010
- 14. Symposium on *Metals in Organic Synthesis*, American Chemical Society 37th North East Regional Meeting, Potsdam, NY, June 3, 2010
- 15 Department of Chemistry, Colby College, Waterville, ME, Feb. 25, 2011

- 16. Flohet XII, Florida Heterocyclic and Synthetic Conference, Gainesville, FL, Mar. 7, 2011
- 17. Gordon Research Conference; Heterocyclic Compounds, Newport, RI, June 2011
- 18. Department of Chemistry, Penn-State University, College Station, PA, Mar. 12, 2012
- 19. Department of Chemistry, Juniata College, Huntingdon, PA, Mar. 13, 2012

AWARDS AND FELLOWSHIPS:

2009	Thieme Chemistry Journals Award
2008	NSF CAREER Award
2006	Amgen New Faculty Award
2005	Amgen New Faculty Award
2002	NIH National Research Service Award Postdoctoral Research Fellowship
2001	APS Bruce W. Erickson Young Investigator Award (2 nd Place)
1996	National Institute of Chemists Award
1995	Merck Index Award
1995	Pfizer Summer Fellow
1994-1996	George W. Kidder Scholarship Recipient; University of Vermont

RESEARCH GROUP MEMBERS:

a) Current Group Members:

Post-docs: Nikolay Tsvetkov, Nitin Jabre

<u>Graduate Students</u>: Ali Bayir; Nezar Al Bataineh; Dan Bercovici, Zhe Zhang, Geoffrey Giampa, Olivia Hoermann, Ramya Srinivasan

Undergraduate Students: Eva Rouanet, Aliya Lapp

b) Former Group Members:

Ph.D. Students:

Jodi M. Ogilvie (née Wyman; Ph.D. Awarded 2/12) Muhammad I. Javed (Ph.D. Awarded 4/09) Cristian Draghici (Ph.D. Awarded 2/09)

Post-docs:

Qiufeng Huang (4/08-3/10)

Undergraduate Students:

Stephanie Jochum (1/06 - 07/07); Benjamin Wilson (10/05 - 12/05) Lauren Kopec (3/06 - 5/06); Chelsea Lowe (3/07 - 5/07); Douglass Chieffe (9/08 - 11/08); Matthew Falco (9/07 - 6/08); Adam Burgess 1/08 - 5/09); Frank Wood (9/08 - 12/09); Jesse Wiener (09/09 - 10/09); Thomas Ford-Hutchinson (1/10 - 5/10), Gordana Vukmirovic(1/10 - 5/10), Bradley Parker (1/10 - 5/10); Michael Chapman (9/10 - 5/11); Spencer Scholz (5/09 - 6/11), Dan Cooney (2/10 - 6/11), Nicholas Staudaher (5/10 - 6/11), Samuel Schneider (5/11 - 8/11) Andrew Spaulding (5/12 - 5/13), Teruki Wantanabe (5/12 - 5/13)

STUDENT DISSERTATIONS AND THESES

- 1. Cristian Draghici "Discovery of a Novel Ring Fragmentation Reaction; Efficient Preparation of Tethered Aldehyde Ynoates and N-Containing Heterocycles; Radical Addition Approach to Asymmetric Amine Synthesis" Ph.D., Feb. 2009, University of Vermont
- 2. Muhammad I. Javed "Studies on the Reaction of Sulfonium Salts with Hydrazones: Synthetic Methods for the Preparation of Diazo Compounds, Alpha-Chloroazo Compounds and Fused of Bridged Bicyclic Diazenium Salts", Ph.D., April 2009, University of Vermont
- Jodi M. Ogilvie "Exploration of the Reactivity of 1-Aza-2-azoniaallene Salts as Precursors to αchloroazos, Bicyclic Diazenium Salts and Protonated Azomethine Imines", Ph.D., February 2012, University of Vermont

OUTREACH ACTIVITIES

- 6/10 8/10 Oversaw the development of an exhibit about Green Chemistry and biodegradable polymers at the ECHO Lake Aquarium and Science Center
- 7/10 & 8/10 Preformed demonstrations for ECHO Lake Aquarium and Science Center *Meet the Scientist* program

COURSES TAUGHT:

- 1. CHEM 241: Advanced Organic Chemistry 1, the University of Vermont, fall 2005. *Three credit hours*.
- 2. CHEM 242: Advanced Organic Chemistry 2, the University of Vermont, spring 2006. *Three credit hours*.
- 3. CHEM 241: Advanced Organic Chemistry 1, the University of Vermont, fall 2006. *Three credit hours*.
- 4. CHEM 146: Advanced Organic Laboratory, the University of Vermont, fall 2006. *Two credit hours*.
- 5. CHEM 242: Advanced Organic Chemistry 2, the University of Vermont, spring 2007. *Three credit hours*.
- 6. CHEM 143: Organic Chemistry for Majors 1, the University of Vermont, fall 2007. *Four credit hours*.
- 7. CHEM 146: Advanced Organic Laboratory, the University of Vermont, fall 2007. *Two credit hours*
- 8. CHEM 143: Organic Chemistry for Majors 1, the University of Vermont, fall 2008. *Four credit hours*.
- 9. CHEM 146: Advanced Organic Laboratory, the University of Vermont, fall 2008. *Two credit hours*
- 10. CHEM 39: Introduction to Research, the University of Vermont, fall 2008. *Two credit hours*.
- 11. CHEM 488: Research Problem Conception and Solution, the University of Vermont, fall 2008. *One credit hour.*
- 12. CHEM 146: Advanced Organic Laboratory, the University of Vermont, fall 2009. *Two credit hours*
- 13. CHEM 39: Introduction to Research, the University of Vermont, fall 2009. *Two credit hours*.

- 14. CHEM 142: Organic Chemistry 2, the University of Vermont, spring 2010. Four credit hours.
- 15. CHEM 39: Introduction to Research, the University of Vermont, fall 2010. *Two credit hours*.
- 16. CHEM 146: Advanced Organic Laboratory, the University of Vermont, fall 2010. *Two credit hours*
- 17. CHEM 142: Organic Chemistry 2, the University of Vermont, spring 2011. Four credit hours.
- 18. CHEM 146: Advanced Organic Laboratory, the University of Vermont, fall 2011. *Two credit hours*
- 19. CHEM 142: Organic Chemistry 2, the University of Vermont, spring 2012. Four credit hours.
- 20. CHEM 146: Advanced Organic Laboratory, the University of Vermont, fall 2012. *Two credit hours*
- 21. CHEM 144: Organic Chemistry 2 for Majors, the University of Vermont, spring 2013. *Four credit hours*.