

ELIZABETH A. COLBY DAVIE

Assumption College
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EDUCATION

- Massachusetts Institute of Technology** · Cambridge, Massachusetts **2000 - 2005**
Ph.D. in Organic Chemistry with Professor Timothy F. Jamison
- Macalester College** · St. Paul, Minnesota **1996 - 2000**
B.A. in Chemistry, summa cum laude

TEACHING EXPERIENCE

- Assumption College**
Associate Professor of Chemistry **2014 - present**
Assistant Professor of Chemistry **2007 - 2014**
Courses taught: Introductory Organic Chemistry I and II (lecture and laboratory), Advanced Organic Chemistry (lecture), General Chemistry I (laboratory), and supervision of numerous independent studies in chemistry.
- Massachusetts Institute of Technology** **2000 - 2005**
Teaching Assistantship
Courses (TA): Introductory Organic Chemistry I and II and Graduate-level Organic Synthesis I
- Macalester College** **1996 - 2000**
Teaching/Tutoring Assistantships
Courses (TA): Physical Chemistry I and II and Introduction to Genetics
Student Tutor: Calculus and chemistry tutor in the Macalester College Learning Center

RESEARCH EXPERIENCE

- Assumption College** **2007 - present**
Associate, Assistant Professor of Chemistry
Synthesis: Research undergraduates is aimed toward the total synthesis of bioactive natural products. A bidirectional synthesis strategy enabled the synthesis of simple montamine analogs in three steps. Total synthesis of the putative structure was completed in collaboration with Dr. Jonathan Sperry, University of Auckland.
- University of Massachusetts Medical School** **2013 - 2014**
Visiting Faculty
Synthesis: In collaboration with Prof. William Kobertz, fluorescent potassium ion sensors were synthesized. The emission maximum has been observed in the near IR region, which will facilitate usage in the presence of cellular structures. A manuscript is in preparation.

Boston College*NIH Postdoctoral Research Fellow with Professor Scott J. Miller***2005 - 2007***Methodology:* Investigation of minimal nucleophilic peptides as enantioselective catalysts.**Massachusetts Institute of Technology***Graduate Research with Professor Timothy F. Jamison***2001 - 2005**Total synthesis of amphidinolides T1 and T4 using Ni-catalyzed, stereoselective reductive coupling reactions. Synthesis and study of *P*-chiral ferrocenyl phosphines in Ni-catalyzed enantioselective reactions.**University of Minnesota***Lando Undergraduate Research Fellow with Professor Thomas R. Hoyer***summer 1999**

Simplified analogs of acetogenin natural products were synthesized.

Macalester College*Howard Hughes Undergraduate Research Fellow with Professor Rebecca C. Hoyer***summer 1998**

Studies were directed toward the synthesis of analogs of the natural product elenic acid.

GRANT AND FELLOWSHIP FUNDING

American Chemical Society Petroleum Research Fund Grant \$50,000, type G*New Synthetic Methodology for Ring Formation***2008 - 2011****NIH Ruth K. Kirschstein NRSA Postdoctoral Fellowship \$75,000***Asymmetric Alkylation via Chiral Nucleophilic Catalysis***2005 - 2007****Bristol-Myers Squibb Graduate Research Fellowship \$28,000***Synthetic Organic Chemistry Fellow***2004 - 2005****National Defense Science and Engineering Graduate Research Fellowship \$78,000***Chemistry Research Fellow***2001 – 2004****Assumption College Faculty Development Grant \$4,350***Synthesis of the Natural Product Montamine***summer 2015****Assumption College Faculty Development Grant \$4,444***Synthesis of Montamine, a Novel Anticancer Natural Product***summer 2013****Assumption College Honors Fellowship \$7,000** (included stipend for student and faculty member)*Evaluation of Montamine and Moschamine Analogs for Anticancer Activity***summer 2012****Assumption College Honors Fellowship \$7,000** (included stipend for student and faculty member)*Investigation of Nucleophilic Catalysis for Formation of 4- and 5-Membered Rings***summer 2009**

PUBLICATIONS

(Assumption College undergraduate co-authors are shown in bold type. Maiden name is denoted Colby, E. A. Undergraduate co-authors trained by EACD at MIT are underlined.)

Davie, E. A. C. Multistep Synthesis of a Terphenyl Derivative Showcasing a Diels-Alder Reaction. *Manuscript submitted to the Journal of Chemical Education, peer-reviewed and in the process of revision.*

Blair, L.; Davie, E. A. C.; Sperry, J. Total Synthesis of Putative Montamine and a Proposed Structural Reassignment. *Organic and Biomolecular Chemistry* **2014**, *12*, 6878-6884.

Freitas, M. B.; Simollardes, K. A.; Rufo, C. M.; McLellan, C. N.; Dugas, G. J.; Lupien, L. E.; Davie, E. A. C. Bidirectional Synthesis of Montamine Analogs. *Tetrahedron Letters* **2013**, *54*, 5489-5491.

Davie, E. A. C.; Mennen, S. M.; Xu, Y.; Miller, S. J. Asymmetric Catalysis Mediated by Synthetic Peptides. *Chemical Reviews* **2007**, *107*, 5759-5812.

Colby, E. A.; O'Brien, K. C.; Jamison, T. F. Total Syntheses of Amphidinolides T1 and T4 via Catalytic, Stereoselective Reductive Macrocyclizations. *Journal of the American Chemical Society* **2005**, *127*, 4297-4307.

Colby, E. A.; Jamison, T. F. A Comparative Analysis of the Total Syntheses of the Amphidinolide T Natural Products. *Organic and Biomolecular Chemistry* **2005**, *3*, 2675-2684.

O'Brien, K. C.; Colby, E. A.; Jamison, T. F. Synthesis of C13-C22 of Amphidinolide T2 via Nickel-Catalyzed Reductive Coupling of an Alkyne and a Terminal Epoxide. *Tetrahedron* **2005**, *61*, 6243-6248.
Miller, K. M.; Colby, E. A.; Woodin, K. S.; Jamison, T. F. Asymmetric Catalytic Reductive Couplings of 1,3-Enynes and Aromatic Aldehydes. *Advanced Synthesis and Catalysis* **2005**, *347*, 1533-1536.

Colby, E. A.; O'Brien, K. C.; Jamison, T. F. Synthesis of Amphidinolide T1 via Catalytic Stereoselective Macrocyclization. *Journal of the American Chemical Society* **2004**, *126*, 998-999.

Colby, E. A.; Jamison, T. F. *P*-Chiral, Monodentate Ferrocenyl Phosphines, Novel Ligands for Asymmetric Catalysis. *Journal of Organic Chemistry* **2003**, *68*, 156-166.

PRESENTATIONS

(undergraduate co-authors shown in bold)

Poster presentation at the Boston Symposium on Organic and Bioorganic Chemistry (BSOBC), October 8, 2014. Jonathan Sperry and Elizabeth A. Colby Davie. "Lessons from the Synthesis of Putative Montamine."

Presentation of sabbatical research at the Assumption College Natural Science Seminar Series, September 29, 2014. "Organic Synthesis- Modern Applications Beyond Stumping Students."

Poster presentation at the 2013 Northeast Regional Meeting of the American Chemical Society, October 25, 2013. **Melanie B. Freitas** and Elizabeth A. Colby Davie. "Progress Toward the Synthesis of Montamine Employing Bidirectional Synthesis." NERM-1240.

Poster presentation at the 240th National Meeting of the American Chemical Society, August 25, 2010. Elizabeth A. Colby Davie, **Chantel McLellan, Caroline Rufo, Kelly Simollardes, Michael A. Dion, Gabrielle J. Dugas, Jaclyn M. St. Louis, Leslie E. Lupien.** "Studies Directed Toward the Synthesis of Montamine." ORGN-1057.

Presentation of research at the Assumption College Natural Science Seminar Series, February 16, 2009. "Lessons and Questions from Natural Product Synthesis Endeavors."

Poster presentation at the 232nd National Meeting of the American Chemical Society, September 19, 2006. Elizabeth A. Colby Davie and Scott J. Miller. "Peptide-Catalyzed Kinetic Resolution of 1,1'-Bi-2-naphthol and Derivatives." ORGN-159.

Poster presentation at the Gordon Research Conference on Stereochemistry, June 21, 2006. Elizabeth A. Colby Davie and Scott J. Miller. "Peptide-Catalyzed Kinetic Resolution of 2,2'-Binaphthol and Derivatives."

Invited oral presentation at Bristol-Myers Squibb, May 5, 2005 (fellowship awardee symposium). "Total Syntheses of Amphidinolides T1 and T4 via Catalytic, Reductive Macrocyclizations."

Oral presentation at the 226th National Meeting of the American Chemical Society, September 10, 2003. Elizabeth A. Colby and Timothy F. Jamison. "Application of Asymmetric Nickel-Catalyzed Reductive Coupling Reactions to the Total Synthesis of Amphidinolide T1." ORGN-643.

Oral presentation at the 224th National Meeting of the American Chemical Society, August 20, 2002. Elizabeth A. Colby and Timothy F. Jamison. "Novel *P*-Chiral Ferrocenyl Phosphines for Nickel-Catalyzed Reductive Coupling of Alkynes and Aldehydes." ORGN-416.

UNDERGRADUATE STUDENTS MENTORED AT ASSUMPTION COLLEGE

Thomas Caya, '2010 · M.S. from Boston College, employed at Novartis

Jackie St. Louis, '2010 · M.S. from Univ. of Penn., employed at Children's Hospital of Philadelphia

Jeremy Rathbun, '2010 · employed at Pfizer

Leslie Lupien, '2010 · doctoral student at Dartmouth College

Candice Baird, '2010 · doctoral student at Yale University

Gabrielle Dugas, '2010 · M.S. from Brandeis University, employed at Mediatech

Chantel McLellan, '2011 · materials and process engineer at Kestrel Aircraft

Michael Dion, '2011 · M.S. from Northeastern University, research microbiologist with U.S. Army

Caroline Rufo, '2011 · doctoral student at Syracuse University

Kelly Simollardes, '2012 · doctoral student at Pennsylvania State University

Zachary DeLoughery, '2012 · doctoral student at Brown University

Andrew Dexter, '2012 · employed at Target Corporation

Casey Halajian, '2012 · research assistant at Massachusetts General Hospital

Amrit Vinod, '2013 · medical student at the University of Massachusetts Medical School

Melanie Freitas, '2014 · employed at Pfizer

Kaitlin Henry, '2016 · current student

Jessica Wisniewski, '2017 · current student

SERVICE TO ASSUMPTION COLLEGE

Co-chair of the Assumption College Undergraduate Research Symposium · **2015**
Co-coordinator of Department of Natural Sciences Seminar Series · **2015, 2008 – 2010**
Member of the Disabilities Committee · **2014 – present**
Member of the Merit Awards Committee · **2014 – present**
Representative Faculty Senator · **fall 2011 – spring 2013, fall 2014 – present**
Member of the Academic Policy Board · **2008 – present**
Member of the Health Professions Committee · **2008 – present**
Curriculum Review Group Member, sub-group IVB (assessment) · **2012**
Residential Life program participant · **2012**
Member of the Honors Council · **2010 - 2013**
Faculty Advisor to Operation Smile campus club · **2009 – 2013**
Assumption College Amgen Scholars Ambassador · **2011 – present**
Department representative at Accepted Students Day · **2010, 2011, 2015**
Faculty lecture host for prospective student visiting days · **2009, 2010**

AWARDS AND HONOR SOCIETIES

Outstanding Teaching Assistant, Massachusetts Institute of Technology · **2001**
Macalester College Award for Outstanding Research in Chemistry · **2000**
Macalester College Award for Outstanding Senior Student in Chemistry · **2000**
Presidential Leadership Award, Macalester College · **2000**
Outstanding Scholar-Athlete Award, Macalester College · **2000**
Academic All-American Athlete · **2000**
Phi Beta Kappa · **1999** (inducted as college junior)
Iota Sigma Pi, national honor society for women in chemistry · **1999**
Pi Mu Epsilon, honorary national mathematics society · **1999**
Macalester College Award for Outstanding Junior Student in Chemistry · **1999**
Macalester College Award for Outstanding First-Year Student in Chemistry (CRC) · **1997**
National Merit Scholar (sponsored by Honeywell) · **1996 – 2000**

PROFESSIONAL ACTIVITIES/COMMUNITY INVOLVEMENT

Faculty Panelist – participated in an academic careers panel discussion for graduate students and postdoctoral researchers at MIT · **January, 2015**
Workshop Participant – attended NSF-sponsored *Teaching Guided-Inquiry Organic Chemistry Laboratories* (Chemistry Collaborations, Workshops, & Communities of Scholars series) · **June 2014**
Manuscript Reviewer, International Journal of Molecular Sciences · **2014**
Manuscript Reviewer, Current Bioactive Compounds · **2013**
Grant Reviewer, American Chemical Society Petroleum Research Fund (PRF) · **2010, 2014**
American Chemical Society member · **2001 – present**
Science Olympiad –event supervisor for the Massachusetts State Science Olympiad · **2009 – 2015**
Chemistry Outreach Program, Massachusetts Institute of Technology – Traveled to several Boston-area high schools to perform chemistry demonstrations to promote interest in chemistry and science · **2002 - 2005**
Women in Chemistry Group, Massachusetts Institute of Technology – Participant in monthly lunchtime discussions and field trips designed to foster support for women in chemistry and science · **2002 - 2005**