

# ELIZABETH A. COLBY DAVIE

Assumption College  
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## EDUCATION

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- 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

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- Assumption College** **2014 - present**  
*Associate Professor of Chemistry*
- Assistant Professor of Chemistry* **2007 - 2014**  
Courses taught: Introductory Organic Chemistry I and II (lecture and laboratory), Advanced Organic Chemistry (lecture), Honors Junior Seminar (college honors program), 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

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- Assumption College** **2007 - present**  
*Associate, Assistant Professor of Chemistry*  
Synthesis: A research program involving undergraduates was initiated that is aimed toward the total synthesis of bioactive natural products. The natural product montamine was synthesized by a bidirectional route and showed the structure was incorrect. The revised structure of montamine was synthesized and NMR data extensively analyzed and compared to a known natural product providing strong evidence for the corrected structure.
- University of Massachusetts Medical School** **2013 - 2014**  
*Visiting Faculty in the laboratory of Professor William R. Kobertz*  
Synthesis: Near-IR fluorescent potassium ion sensors were synthesized.

**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**  
Synthesis and Methodology: Total synthesis of amphidinolides T1 and T4 and synthesis and investigation of *P*-chiral ferrocenyl phosphines in nickel-catalyzed enantioselective reactions.

**University of Minnesota**

*Lando Undergraduate Research Fellow with Professor Thomas R. Hoye* **summer 1999**  
Simplified analogs of acetogenin natural products were synthesized.

**Macalester College**

*Howard Hughes Undergraduate Research Fellow with Professor Rebecca C. Hoye* **summer 1998**  
Studies toward the synthesis of analogs of the natural product elenic acid.

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**GRANTS, FELLOWSHIPS, AND INSTRUMENT DONATION (EXTERNAL FIRST)**

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**400 MHz NMR Spectrometer Acquisition** **2017**

*Secured donation of a research grade instrument from GlaxoSmithKline, ~\$400,000 if purchased new*

**Collegium – Association of Catholic Colleges and Universities \$2,500** **2015**

*Tapping into the Mission: Promoting and Sustaining Faculty Dialogue about Mission at Assumption College*  
(co-written with David Crowley, Cary LeBlanc, and Smriti Rao)

**American Chemical Society Petroleum Research Fund Grant \$50,000, type G** **2008 - 2011**

*New Synthetic Methodology for Ring Formation*

**NIH Ruth K. Kirschstein NRSA Postdoctoral Fellowship \$75,000** **2005 - 2007**

*Asymmetric Alkylation via Chiral Nucleophilic Catalysis*

**Bristol-Myers Squibb Graduate Research Fellowship \$28,000** **2004 - 2005**

**National Defense Science and Engineering Graduate Research Fellowship \$78,000** **2001 – 2004**

**Assumption College Course Load Reduction for Scholarship** **2018 - 2020**

*Direct Phenol Dehydrogenative Coupling as a Macrocyclization Strategy for the Synthesis of Biaryl Antibiotics*

**Assumption College Faculty Development Grant \$4,350** **summer 2015**

*Synthesis of the Natural Product Montamine*

**Assumption College Faculty Development Grant \$4,444** **summer 2013**

*Synthesis of Montamine, a Novel Anticancer Natural Product*

**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**

## GRANT AND FELLOWSHIP APPLICATIONS (UNFUNDED)

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American Chemical Society Petroleum Research Fund Grant, type UR 2017  
Henry Dreyfus Teacher-Scholar Award 2015

## PUBLICATIONS

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(Assumption College undergraduate co-authors are shown in bold type. Maiden name is denoted Colby, E. A.)

Bandara, H. M. D.; Hua, Z.; Pauff, S. M.; Miller, S. C.; Davie, E. A. C.; Kobertz, W. R. Palladium-Mediated Synthesis of a Near-IR Fluorescent K<sup>+</sup> Sensor. *Journal of Organic Chemistry* **2017**, *82*, 8199-8205.

**Henry, K. G.**; Blair, L. M.; Sperry, J.; Davie, E. A. C. 4,4'-Bismoschamine: Biomimetic Synthesis and Evidence to Support Structural Equivalency to Montamine. *Organic and Biomolecular Chemistry* **2016**, *14*, 8838-8847.

Davie, E. A. C. Multistep Synthesis of a Terphenyl Derivative Showcasing a Diels-Alder Reaction. *Journal of Chemical Education* **2015**, *92*, 1209-1213.

Blair, L. M.; 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

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(Assumption College co-authors shown in bold)

Invited oral presentation, University of Minnesota, NSF-sponsored workshop *Teaching Guided-Inquiry Organic Chemistry Laboratories* (Chemistry Collaborations, Workshops, & Communities of Scholars series). “Beyond Survival Mode: Fostering Scientific Thinking in the Organic Lab.” June 6, 2016.

Invited oral presentation, Bowdoin College (chemistry seminar series). “Efforts Toward the Synthesis and Structural Revision of the Natural Product Montamine.” November 20, 2015.

Oral presentation at the 250<sup>th</sup> National Meeting of the American Chemical Society, August 16, 2015. Elizabeth A. Colby Davie. “Adventures with the Natural Product Montamine: Synthetic Efforts and Structural Insights.” ORGN-71.

Poster presentation at the 250<sup>th</sup> National Meeting of the American Chemical Society, August 19, 2015. **Kaitlin Henry, Jessica Wisniewski**, and Elizabeth A. Colby Davie. “Efficient Synthesis of 5-Hydroxytryptophol and Derivative.” ORGN-703.

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 240<sup>th</sup> 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 232<sup>nd</sup> 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 226<sup>th</sup> 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 224<sup>th</sup> 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.

## AWARDS AND HONOR SOCIETIES

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Michael O'Shea Presidential Award for Teaching Excellence, Assumption College · **2016**

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**

## UNDERGRADUATE STUDENTS MENTORED AT ASSUMPTION COLLEGE

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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 · Ph.D. from Yale University

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

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

Michael Dion, '2011 · M.S. from Northeastern Univ., employed with US Army

Caroline Rufo, '2011 · Ph.D. from Syracuse University, postdoctoral fellow at Yale Univ.

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

Zachary DeLoughery, '2012 · doctoral student at Brown University

Andrew Dexter, '2012 · QC chemist at AMRO

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

Amrit Vinod, '2013 · M.D. from University of Massachusetts Medical School

Melanie Freitas, '2014 · employed at Pfizer

Kaitlin Henry, '2016 · masters of theology, Catholic University

Jessica Wisniewski, '2017 · employed at Takeda Pharmaceuticals

Rachel Avard, '2017 · doctoral student at Columbia University

Marielena Layuna Matos, '2017 · dental student, University of Puerto Rico School of Dental Medicine

Karina Torres, '2017 · medical student, University of Medical and Health Sciences, St. Kitt's

Marissa Gifford, '2018 · employed at Charles River Laboratories

## SERVICE TO ASSUMPTION COLLEGE

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Calendar Advisory · **2018 – present**  
Curriculum Committee · member, **2015 – 2016**; chair, **2016 – 2017**; co-chair, **2017 – 2018**  
Tapping into the Mission (faculty retreat and discussion group), co-planner · **2015 – present**  
Co-coordinator of Department of Natural Sciences Seminar Series · **2008 – 2010, 2015 – 2017**  
Honors Council member · **2010 – 2013, 2016 – 2018**  
Co-chair of the Undergraduate Research Symposium Committee **2014 – 2015, 2015 – 2016**  
Core Implementation Subcommittee member · member **Spring 2015**, chair **2015 – 2016**  
First Year Common Book, orientation faculty co-leader · **Summer 2015**  
Planning assistant for the Testa @10 celebration · **2014 – 2015**  
Member of the Merit Awards Committee · **2014 – 2015**  
Contributor to *Le Provocateur* · **2014**  
Representative Faculty Senator · **fall 2011 – spring 2013, fall 2014 – spring 2015**  
Member of the Academic Policy Board · **2008 – 2016**  
Member of the Health Professions Committee · **2008 – present**  
Core Curriculum Review Group Member, sub-group IVB (assessment) · **2012**  
Residential Life program participant · **2012**  
Faculty Advisor to Operation Smile campus club · **2009 – present**  
Assumption College Amgen Scholars Ambassador · **2011 – present**  
Faculty panelist for Honors Proposal Course, HON300 · **2011, 2015, 2017**  
Department representative at Majors Fair · **2011**  
Department representative at Accepted Students Day · **2010, 2011**  
Faculty lecture host for prospective student visiting days · **2009, 2010, 2016**  
Collegium Representative · **June 2009**

## PROFESSIONAL ACTIVITIES/COMMUNITY INVOLVEMENT

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*Outside Reviewer for Tenure Candidates (two different small liberal arts colleges)* · **2016, 2017**  
*Workshop Participant* – attended NSF-sponsored *Teaching Guided-Inquiry Organic Chemistry Laboratories* (Chemistry Collaborations, Workshops, & Communities of Scholars series) · **June 2014, 2016**  
*Faculty Panelist* – participated in an academic careers panel discussion for graduate students and postdoctoral researchers at MIT · **January, 2015**  
*Manuscript Reviewer, Synthetic Communications* · **2015, 2017**  
*Manuscript Reviewer, Journal of Chemical Education* · **2015**  
*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**  
*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**  
*American Chemical Society member* · **2001 – present**  
*Southborough Extended Day Program, member of the Board of Directors* · **2014 – 2017**