

HEATHER D. BEAN

ASSISTANT PROFESSOR • ARIZONA STATE UNIVERSITY • SCHOOL OF LIFE SCIENCES

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EDUCATION

2002 - 2008 Georgia Institute of Technology Atlanta, GA
Doctor of Philosophy in Chemistry
Dissertation: Prebiotic Synthesis of Nucleic Acids

1995 - 1999 Georgia Institute of Technology Atlanta, GA
Bachelor of Science in Chemistry, Biochemistry track
Summa cum Laude

RESEARCH & EMPLOYMENT HISTORY

2015 – present Arizona State University Tempe, AZ
Assistant Professor, Biomedicine & Biotechnology, School of Life Sciences
Identifying biomarkers of chronic lung infections for the development of real-time diagnostics for primary human specimens.

2013 – 2015 Dartmouth College Hanover, NH
Postdoctoral Fellow, Thayer School of Engineering
Carol Basbaum Cystic Fibrosis Foundation Postdoctoral Fellow
Identified volatile biomarkers of *P. aeruginosa* adaptation to the cystic fibrosis lung using comprehensive two-dimensional gas chromatography time-of-flight mass spectrometry (GC×GC-TOFMS).

2009 – 2013 University of Vermont Burlington, VT
Postdoctoral Fellow, School of Engineering
Developed breath-based diagnostics for bacterial lung infections using secondary electrospray ionization-mass spectrometry (SESI-MS) and GC×GC-TOFMS.

2008 - 2009 Texas A&M University College Station, TX
Postdoctoral Research Associate, School of Chemical Engineering
Explored the role of nucleotides in *E. coli* and *P. aeruginosa* biofilm formation.

2003 - 2008 Georgia Institute of Technology Atlanta, GA
Graduate Research Assistant, School of Chemistry & Biochemistry
Ph.D. dissertation on the prebiotic synthesis of nucleosides and oligonucleotides. Analytical techniques employed include NMR, mass spectrometry, HPLC, column chromatography, and gel electrophoresis.

2003 - 2006 Georgia Institute of Technology Atlanta, GA
Graduate Student Assistant, Bioanalytical Mass Spectrometry Center
Mass spectrometry sample analysis using the ionization techniques of EI, FAB, ESI, and MALDI on two-sector, triple quadrupole, TOF, TOF/TOF, and hybrid quadrupole-TOF instruments.

2002 - 2003 Georgia Institute of Technology Atlanta, GA
Graduate Teaching Assistant, Biochemistry Lab I, II
Developed experiments for undergraduates based on published protocols.

1999 - 2002 Merck & Co., Inc. Albany, GA
Associate Analyst
Assured the quality of in-process material and bulk pharmaceutical products in accordance with cGMPs using GC, HPLC, capillary electrophoresis, and wet chemistry techniques.

SELECTED HONORS & AWARDS

- 2014 Genzo Shimadzu Best Oral Presentation Award, 11th GC×GC Symposium, Riva del Garda, Italy
- 2012 Carol Basbaum Memorial Research Fellow for best priority score, Cystic Fibrosis Foundation
- 2012 Young Investigator Travel Award, NISBRE
- 2012 CASSS Travel Award, 36th ISCC & 9th GC×GC Symposium, Riva del Garda, Italy
- 2011 NACF Junior Investigator Best Abstract in Basic Science Award, Finalist
- 2010 American Chemical Society Younger Chemist Committee Leadership Award, Runner-up
- 2007 Graduate Student Award, School of Chemistry & Biochemistry, Georgia Tech
- 2006 Session Chair, Gordon Research Conference: Origin of Life
- 2006 Co-Chair, Gordon-Kenan Graduate Research Seminar: Origin of Life
- 2006 Suddath Award, Parker H. Petit Institute of Bioengineering and Biosciences
- 2005 Molecular Biophysics Trainee, Georgia Institute of Technology
- 2003 Outstanding Performance as a Graduate Teaching Assistant Award

PEER-REVIEWED PUBLICATIONS

17. **Heather D. Bean***, Christiaan A. Rees*, Jane E. Hill. (2016) Comparative Analysis of the Volatile Metabolomes of *Pseudomonas aeruginosa* Clinical Isolates. *Journal of Breath Research*. **10**, 047102. [*co-first authors]
16. Alex Gifford, Sven Willger, Emily Dolben, Lisa Moulton, Dana Dorman, **Heather D. Bean**, Jane E. Hill, Thomas Hampton, Alix Ashare, Deborah A. Hogan. (2016) The Use of a Multiplex Transcript Method for the Analysis of the *Pseudomonas aeruginosa* Gene Expression Profiles in the Cystic Fibrosis Lung. *Infection and Immunity*. **84**, 2995-3006.
15. **Heather D. Bean***, Theodore R. Mellors*, Jiangjiang Zhu, Jane E. Hill. (2015) Profiling Aged Artisanal Cheddar Cheese using Secondary Electrospray Ionization-Mass Spectrometry (SESI-MS). *Journal of Agricultural and Food Chemistry*. **63**, 4386-4392. [*co-first authors]
14. **Heather D. Bean**, Jane E. Hill, Jean-Marie D. Dimandja. (2015) Improving the Quality of Biomarker Candidates in Untargeted Metabolomics via Peak Table-Based Alignment of Two Dimensional Gas Chromatography-Mass Spectrometry Data. *Journal of Chromatography A*. **1394**, 111-117.
13. **Heather D. Bean***, Jaime Jiménez-Díaz*, Jiangjiang Zhu, Jane E. Hill. (2015) Breathprints of Model Murine Bacterial Lung Infections are Linked with Immune Response. *European Respiratory Journal*. **45**, 181-190. [*co-first authors]
Editorial Feature Article: *European Respiratory Journal*. **45**, 21-24.
12. **Heather D. Bean***, Jiangjiang Zhu*, Jackson C. Sengle, Jane E. Hill. (2014) Identifying Methicillin-Resistant *Staphylococcus aureus* (MRSA) Lung Infections in Mice via Breath Analysis using Secondary Electrospray Ionization-Mass Spectrometry (SESI-MS). *Journal of Breath Research*. **8**, 041001. [*co-first authors]
Featured Article
11. Jiangjiang Zhu, Jaime Jiménez-Díaz, **Heather D. Bean**, Nirav A. Dapthary, Minara I. Aliyeva, Lennart K. A. Lundblad, Jane E. Hill. (2013) Robust Identification of *P. aeruginosa* and *S. aureus* Acute Lung Infections by Secondary Electrospray Ionization-Mass Spectrometry (SESI-MS) Breathprinting: From Initial Infection to Clearance. *Journal of Breath Research*. **7**, 037106.
10. Jiangjiang Zhu, **Heather D. Bean**, Jaime Jiménez-Díaz, Jane E. Hill. (2013) Secondary Electrospray Ionization-Mass Spectrometry (SESI-MS) Breathprinting of Multiple Bacterial Lung Pathogens, a Mouse Model Study. *Journal of Applied Physiology*. **114**, 1544-1549.
9. Jiangjiang Zhu, **Heather D. Bean**, Matthew J. Wargo, Laurie W. Leclair, Jane E. Hill. (2013) Detecting Bacterial Lung Infections: *In Vivo* Evaluation of *In Vitro* Fingerprints. *Journal of Breath Research*. **7**, 016003.
IOP Featured Article

8. **Heather D. Bean**, Jean-Marie D. Dimandja, Jane E. Hill. (2012) Bacterial Volatile Discovery using Solid Phase Microextraction and Comprehensive Two-Dimensional Gas Chromatography–Time-of-Flight Mass Spectrometry. *Journal of Chromatography B* **901**, 41-46.
7. Lakshmi N. Anumukonda, Avery Young, David G. Lynn, Ragan Buckley, Amena Warrayat, Christina L. Graves, **Heather D. Bean**, and Nicholas V. Hud. (2011) Adenine Synthesis in a Model Prebiotic Reaction: Connecting Origins of Life Chemistry with Biology. *Journal of Chemical Education*. **88**, 1698-1701.
6. **Heather D. Bean**, Jiangjiang Zhu, Jane E. Hill. (2011) Characterizing Bacterial Volatiles Using Secondary Electrospray Ionization Mass Spectrometry. *Journal of Visualized Experiments*. **52**, <http://www.jove.com/details.php?id=2664>.
5. Jiangjiang Zhu, **Heather D. Bean**, Yin-Ming Kuo, Jane E. Hill (2010). Fast Detection of Volatile Organic Compounds from Bacterial Cultures by SESI-MS. *Journal of Clinical Microbiology* **48**, 4426-4431.
4. Irena Mamajanova, Aaron E. Engelhart, **Heather D. Bean**, Nicholas V. Hud (2010). DNA and RNA in Anhydrous Media: Evidence for Duplex, Triplex, and G-Quadruplex Secondary Structures in a Deep Eutectic Solvent. *Angewandte Chemie, International Edition* **49**, 6310-6314.
3. Yinghong Sheng, **Heather D. Bean**, Irena Mamajanov, Nicholas V. Hud, Jerzy Leszczynski (2009). Comprehensive Investigation of the Energetics of Pyrimidine Nucleoside Formation under Prebiotic Conditions. *Journal of the American Chemical Society* **131**, 16088-16095.
2. **Heather D. Bean**, Yinghong Sheng, James P. Collins, Frank A. L. Anet, Jerzy Leszczynski, Nicholas V. Hud (2007). Formation of a β -Pyrimidine Nucleoside by a Free Pyrimidine Base and Ribose in a Plausible Prebiotic Reaction. *Journal of the American Chemical Society* **129**, 9556-9557.
1. **Heather D. Bean**, Frank A. L. Anet, Ian R. Gould, Nicholas V. Hud (2006). Glyoxylate as a Backbone Linkage for a Prebiotic Ancestor of RNA. *Origins of Life and Evolution of Biospheres* **36**, 39-63.

BOOK CHAPTERS & EDITORIALS

2. **Heather D. Bean**, Joachim D. Pleil, Jane E. Hill (2015). Editorial: New Analytical and Statistical Approaches for Interpreting the Relationships among Environmental Stressors and Biomarkers. *Biomarkers* **20**, 1-4.
1. **Heather D. Bean**, David G. Lynn, Nicholas V. Hud (2009). Self-Assembly and the Origin of the First RNA-Like Polymers, in *Chemical Evolution II: From the Origins of Life to Modern Society*, Zaikowski, L., Friedrich, J. M. and Seidel, S. R., Eds. Washington, DC, American Chemical Society. **1025**: 109-132.

SELECTED ORAL PRESENTATIONS (*AWARDS, † INVITED)

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| Nov 2016 | Marine Biological Laboratory Workshop | Woods Hole, MA |
| † | “A Brief History of Breath-Based Diagnostics: From Hippocrates to the Era of Personalized Medicine” | |
| Oct 2016 | North American Cystic Fibrosis Conference | Orlando, FL |
| | “Biomarkers of <i>P. aeruginosa</i> Chronic Lung Infections and Associated Bacterial Phenotypes” | |
| Sep 2016 | International Association for Breath Research Summit | Zurich, Switzerland |
| | (Keynote) “Bridging Gaps: Linking <i>In Vivo</i> to <i>In Vitro</i> , and Metabolomes to Transcriptomes to Identify Volatile Biomarkers of Bacterial Phenotypes” | |
| Jun 2016 | American Society for Mass Spectrometry | San Antonio, TX |
| | “Discovering Volatile Biomarkers Using GC×GC-TOFMS: Detecting and Phenotyping Infections Directly From Lung Samples” | |
| May 2016 | 40 th ISCC & 13 th GC×GC Symposium | Riva del Garda, Italy |
| † | “GC×GC-TOFMS for the Identification of Soluble and Volatile Biomarkers in Bronchoalveolar Lavage Fluid” | |

- Apr 2016 32nd International Symposium on Microscale Separations & Bioanalysis Toronto, ON
† “Discovering biomarkers using GC×GC-TOFMS for the detection of infection phenotypes directly from lung samples”
- Aug 2015 4th Telluride Workshop on Cystic Fibrosis Telluride, CO
“Volatile Metabolomics in CF”
- May 2015 39th ISCC & 12th GC×GC Symposium Fort Worth, TX
† “GC×GC-TOFMS for the Identification of Volatile Biomarkers of Chronic Bacterial Lung Infections”
- Feb 2015 Drexel University, College of Medicine Philadelphia, PA
† “Developing Breath-Based Diagnostics for Acute and Chronic Bacterial Lung Infections”
- Feb 2015 Arizona State University, School of Life Sciences Tempe, AZ
† “Developing Breath-Based Diagnostics for Acute and Chronic Bacterial Lung Infections”
- Jan 2015 IUPUI, Department of Chemistry & Chemical Biology Indianapolis, IN
† “Identifying Biomarkers of Lung Infections using SESI-MS and GC×GC-TOFMS: Progress Toward Breath-based Diagnostics”
- Dec 2014 University of Tennessee, Department of Chemistry Knoxville, TN
† “Identifying Biomarkers of Lung Infections using SESI-MS and GC×GC-TOFMS: Progress Toward Breath-based Diagnostics”
- Oct 2014 Northeast Laboratory Conference Portland, ME
† “Breath-based Diagnostics for Lung Infections: Promise and Progress”
- Aug 2014 American Chemical Society, 248th National Meeting San Francisco, CA
“Murine Lung Exposure to Bacterial Antigens Leads to Predictive Breathprints”
- May 2014 38th ISCC & 11th GC×GC Symposium Riva del Garda, Italy
* “Discovering Volatile Biomarkers of *P. aeruginosa* Adaptation during Chronic Lung Infections using GC×GC-TOFMS and Chemometrics”
- Feb 2014 Cambridge Metabolomics Symposium Boston, MA
† “Identifying Biomarkers of *P. aeruginosa* Antibiotic Susceptibility Using GC×GC-TOFMS and Fisher Ratios”
- Jan 2014 5th Multidimensional Chromatography Workshop Toronto, Canada
† “Discovering Volatile Biomarkers of Chronic *P. aeruginosa* Infections Using GC×GC-TOF and GC Image”
- Dec 2013 San Diego State University, Department of Chemistry San Diego, CA
† “Developing Breath-Based Diagnostics: Applications of GC×GC-TOFMS and SESI-MS”
- Dec 2013 UVM School of Medicine, Division of Infectious Diseases Burlington, VT
† “Developing Breath-Based Diagnostics for Bacterial Lung Infections”
- Aug 2013 Emory+Children's Center for Cystic Fibrosis Research Atlanta, GA
† “Developing Breath-Based Diagnostics for Acute and Chronic Bacterial Lung Infections”
- May 2013 10th GC×GC Symposium & 37th ISCC Palm Springs, CA
† “Identifying Biomarkers of *P. aeruginosa* Antibiotic Susceptibility Using GC×GC-TOFMS and Fisher Ratios”
- Apr 2013 University of Vermont, Department of Chemistry Burlington, VT
† “Developing Breath-Based Diagnostics: Applications of GC×GC-TOFMS and SESI-MS”
- Mar 2013 Vermont Lung Center, University of Vermont Burlington, VT
† “Developing Breath-Based Diagnostics for Acute and Chronic Bacterial Lung Infections”
- Jan 2013 4th Multidimensional Chromatography Workshop Toronto, Canada
† “Identifying Biomarkers of *P. aeruginosa* Antibiotic Susceptibility Using GC×GC-TOF and Statistical Compare”
- Dec 2012 Florida State University, Department of Chemistry Tallahassee, FL
† “Putting ‘Bad Breath’ to Good Use: Developing Breath-Based Diagnostics for Lung Infections”

May 2012	36 th ISCC & 9 th GC×GC Symposium	Riva del Garda, Italy
	* “Bacterial Volatile Discovery Using SPME and GC×GC-TOFMS”	
Apr 2012	Children’s Healthcare of Atlanta Center for CF Research	Atlanta, GA
	† “ <i>P. aeruginosa</i> Volatile Biomarkers: Discovery and Application”	
Feb 2011	Mass Spectrometry Applications to the Clinical Lab	San Diego, CA
	* “Characterizing the Adaptation of <i>P. aeruginosa</i> to the CF Lung Using GC×GC-TOF and SESI-MS”	
Aug 2010	American Chemical Society, 240 th National Meeting	Boston, MA
	* “Volatile Signature of <i>P. aeruginosa</i> Adaptation to the Cystic Fibrosis Lung”	
Oct 2007	Graduate Student Awards Symposium Award Presentation, Georgia Tech	Atlanta, GA
	* “Prebiotic Synthesis of Nucleic Acids”	
Mar 2007	Suddath Symposium Award Presentation, Georgia Tech	Atlanta, GA
	* “Investigating the Origin and Molecular Evolution of RNA”	
Feb 2007	Università degli Studi di Roma, La Sapienza	Rome, Italy
	† “From Small Molecules to Polymers. The Synthesis of Nucleic Acid Polymers in Prebiotic Environments”	
Feb 2007	Università della Tuscia	Viterbo, Italy
	† “From Small Molecules to Polymers. The Synthesis of Nucleic Acid Polymers in Prebiotic Environments”	
Jul 2006	Gordon Research Conference: Origin of Life	Lewiston, ME
	† “ <i>galNA</i> : Plausible Prebiotic Synthesis of a Proto-RNA Backbone”	

STUDENT POSTER PRESENTATIONS (¹Undergraduate, ²Graduate, **Presenter)**

Apr 2016	55 th Annual ASM AZ/Southern NV Branch Meeting	Tempe, AZ
	<u>Charity Bhebhe</u> ¹ , <u>Nathan Dacasin</u> ¹ , <u>Darrin Ellison</u> ¹ , Heather D. Bean	
	“Developing Breath-Based Diagnostics to Detect <i>P. aeruginosa</i> Exoproducts in CF Lung Infections”	
Apr 2016	55 th Annual ASM AZ/Southern NV Branch Meeting	Tempe, AZ
	<u>Jonathan Kiermayr</u> ¹ , <u>Amritha Venguideshe</u> ¹ , <u>Lea Witzel</u> ¹ , Heather D. Bean	
	“Developing Breath-Based Diagnostics to Detect <i>P. aeruginosa</i> Motility and Antibiotic Resistance in CF Lung Infections”	
Apr 2016	ASU School of Life Sciences Undergraduate Research Symposium	Tempe, AZ
	<u>Charity Bhebhe</u> ¹ , <u>Nathan Dacasin</u> ¹ , <u>Darrin Ellison</u> ¹ , Heather D. Bean	
	“Developing Breath-Based Diagnostics to Detect <i>P. aeruginosa</i> Exoproducts in CF Lung Infections”	
Apr 2016	ASU School of Life Sciences Undergraduate Research Symposium	Tempe, AZ
	<u>Jonathan Kiermayr</u> ¹ , <u>Amritha Venguideshe</u> ¹ , <u>Lea Witzel</u> ¹ , Heather D. Bean	
	“Developing Breath-Based Diagnostics to Detect <i>P. aeruginosa</i> Motility and Antibiotic Resistance in CF Lung Infections”	

RESEARCH SUPPORT

Current Support

Cystic Fibrosis Foundation Pilot and Feasibility Grant

04/2016 – 03/2018 \$108,000

Project title: Rapid, Non-Invasive Detection of *Pseudomonas* and *Staph* CF Lung Infections

Role: PI, ASU Sub-award (\$10,629)

Pending

Cystic Fibrosis Research Institute New Horizons Research Program (Preproposal, Pending)
 06/2017 – 05/2019 \$139,776 (Direct Costs Only)
 Project title: Volatile Biomarkers for the *In Situ* Detection of *P. aeruginosa* Chronic Lung Infection Phenotypes

Blavatnik Award (ASU Nomination Pending)

DoD SO160105 FY16 SOCOM – Extramural Biomedical R&D Award (Preproposal, Pending)
 07/2017 – 06/2019 \$638,000 (\$546,000 Direct Costs)
 Project title: Inhibition of Fungal Infections by Bacterial Volatile Compounds
 Role: PI, ASU Sub-Award (\$349,724)

NIH U19-AI131139-01 Human Tissue Models for Infectious Diseases (Pending)
 07/2017 – 06/2022 \$7,577,300 (\$4,993,448 Direct Costs)
 Program title: Bioengineering 3-D Lung Microenvironments to Study Polymicrobial Infections in Cystic Fibrosis
 Role: Project 2 Co-I (Cheryl Nickerson, ASU and Daniel Weiss, University of Vermont, Co-PIs)
 Bean Lab budget: \$270,180 (\$191,430 Direct Costs)

Completed Support

Dartmouth Neukom CompX Faculty Grant
 02/2015 – 01/2016 \$25,000
 Project title: Integrating Rich Data from Lung Infections for Contextually-Framed Biomarker Discovery
 Role: Co-I (Hill, PI)

Dartmouth Synergy Pilot Award
 05/2015 – 04/2016 \$50,000
 Project title: Biomarker Discovery and Validation for Lung Infection in CF Patients
 Role: Co-I (Hill and Ashare, PIs)

Cystic Fibrosis Foundation Postdoctoral Research Fellowship
Carol Basbaum Memorial Fellow for the Best Priority Score
 05/2012 – 04/2015 \$132,150
 05/2015 – 04/2016 No Cost Extension
 Project title: Volatile Biomarkers of *P. aeruginosa* Adaptation to the CF Lung
 Role: PI

Travel Grants (Award, Sponsor, Purpose)

\$1800, Chromaleont 40th ISCC & 13th GC×GC Symposium in Riva del Garda, Italy, May 2016
 \$2500, Leco American Society for Mass Spectrometry in San Antonio, TX, Jun 2016

TEACHING & CURRICULUM DEVELOPMENT

Arizona State University, School of Life Sciences

BIO 498 / BIO 591: Biomarkers and Medical Diagnostics (Fall 2015), 7 students
 MIC 302: Advanced Bacteriology Laboratory (Fall 2016), 45 students
 BIO 189: Careers in Life Sciences (Fall 2016), 18 students
 MIC 205: Microbiology (Spring 2017), 190 students *anticipated enrollment*

Prior Institutions

Center for Chemical Evolution, Georgia Institute of Technology
 Laboratory experiments (2) for high school science classes

School of Chemistry & Biochemistry, Georgia Institute of Technology

CHEM 4581: Biochemistry Laboratory I, 60 students, 4 sections	Head teaching assistant, 1 semester
CHEM 4582: Biochemistry Laboratory II, 6 Students	Teaching assistant, 1 semester
CHEM 2803: Evolution of Life, 18 Students	Guest lecturer, 1 class

School of Engineering & Honors College, University of Vermont

CE 256: Biological Processes and Water/Wastewater Treatment, 30 Students	Guest lecturer, 1.5 weeks
ME 312: Multi-scale Bioengineering, 17 Students	Guest lecturer, 1 class
HCOL 185L: Sex, Fear, and Anxiety, 20 Students	Guest lecturer, 1 class

MENTORING**Arizona State University**Graduate Researchers (PhD/MS, Dept., Dates)

Trenton Davis (PhD, SoLS, 2016 – present)
Michelle Vening (PhD, SoLS, 2016 – present)

Thesis Committee Member (PhD/MS, Dept., Dates)

Natalie Mitchell (PhD, SoLS, 2015 – present)
Jason Maarsingh (PhD, SoLS, 2016 – present)
Devika Krishnamurthy (MS, SBSHE, 2016)

Undergraduate Researchers (Department, dates)

Darrin Anderson (SoLS, 2015 – present)
Charity Bhebhe (SoLS, 2015 – present)
Nathan Dacasin (SoLS, 2015 – 2016)
Jonathan Kiermayr (SMS, 2015 – present)
Amritha Venguideshe (SoLS, 2015 – present)
Lea Witzel (SoLS, 2015 – present)

Undergraduate Honors Committees (Dept., Role)

Zachary Elwell (SoLS, Member)
Isaac Berger (SoLS, Member)
Alexandra Olson (SoLS, Member)
Jonathan Kiermayr (SMS, Chair)
Amritha Venguideshe (SoLS, Chair)
Lea Witzel (SoLS, Chair)

Prior InstitutionsGraduate Researchers

Theodore Mellors (Dartmouth, 2013 – 2015)
Christiaan Rees (Dartmouth, 2014 – 2015)
Jackson Sengle (Dartmouth, 2012 – 2015)
Jaime Jiménez-Díaz (U. Vermont, 2012 – 2013)
Kristi Herzer (U. Vermont, 2012 – 2013)
Jiangjiang Zhu (U. Vermont, 2009 – 2013)
Yijian Zhang (U. Vermont, 2011 – 2013)

Undergraduate & Post-Baccalaureate Researchers

Di'Vennici Lucas (Stanford, 2014)
Jasmine Williams (Spelman, 2013)
Daniel Kendall (U. Vermont, 2012 – 2013)
Pierre Galea (U. Vermont, 2011 – 2013)
Theodore Mellors (U. Vermont, 2010 – 2011)
Megan Liamos (U. Vermont, 2011)
Zachary Silberman (U. Vermont, 2011)
Jared Hinrichs (U. Vermont, 2010)
Kaycee Quarles (Georgia Tech, 2007 – 2008)
Ryan Hayn (Georgia Tech, 2006 – 2007)
James P. Collins (Georgia Tech, 2002 – 2005)
Jeffrey Boyles (Georgia Tech, 2004 – 2005)

High School Educators

Avery Smith (Georgia Tech, 2007)
Lakshmi Anumukonda (Georgia Tech, 2007)

PROFESSIONAL DEVELOPMENT

2016	College of Liberal Arts and Sciences Instructional Demofest	ASU
2016	Alan Alda Center for Communicating Science Workshop	ASU
2015-2016	New Faculty Workshop Series; College of Liberal Arts and Sciences (5 sessions)	ASU
2012	Science: Becoming the Messenger; NSF Workshop	Burlington, VT
2011	American Chemical Society Leadership Institute	Ft. Worth, TX
2009-2010	Make Learning a Win/Win Experience for You and Your Students (4 sessions)	U. Vermont
2009	Toward Career Success in Science (12 sessions)	U. Vermont

PROFESSIONAL SERVICE

International, National, and Regional**Conferences, Symposia, and Professional Organizations**

2016	55 th Annual ASM AZ/Southern NV Branch Meeting	<i>Co-Organizer</i>
2015	12 th GC×GC Symposium	<i>Poster Judge & Session Chair</i>
2014	248 th ACS National Meeting	<i>ENVR Symposium Organizer</i>
2012, 2013	American Chemical Society, Green Mountain Local Section	<i>Chair</i>
2011	American Chemical Society, Green Mountain Local Section	<i>Chair-Elect</i>
2006	Gordon-Kenan Graduate Research Seminar: Origin of Life	<i>Co-Chair</i>
2006	Gordan Research Conference: Origin of Life	<i>Session Chair</i>

Grant Reviewer

2016	Natural Sciences and Engineering Research Council of Canada	<i>Ad-hoc Reviewer</i>
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Manuscript Reviewer: Journal (Number)

Analytica Chimica Acta (2), Analytical & Bioanalytical Chemistry (4), Astrobiology (1), Biopolymers (1), Biotechnology Journal (1), Journal of Breath Research (4), Journal of Molecular Evolution (1), Journal of the American Chemical Society (2), Metabolomics (1), RNA-A (1), Scientific Reports (2), Separation Sciences (1)

Arizona State University**Committees and Groups**

2016 – Present	School of Life Sciences, Seminar Series	<i>Chair</i>
2015 – 2016	Microbiome Faculty Search Committee	<i>Member</i>
2015 – 2016	Molecular and Cellular Biology Graduate Admissions Committee	<i>Ad-hoc Member</i>
2015 – Present	School of Life Sciences, Communications Committee	<i>Member</i>
2016 – Present	School of Life Sciences, Postdoc Group	<i>Advisor</i>

Classes

2016, Spring	MIC 401: Research Paper (1 student)	<i>Reader</i>
2016, Fall	MIC 401: Research Paper (2 students)	<i>Reader</i>

Grant Reviewer

2016	Mayo-ASU Team Science Grants	<i>Ad-hoc Reviewer</i>
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Educational Outreach

2016	ASU School of Life Sciences Faculty/Staff Research Seminar	<i>Presenter</i>
2016	Intel International Science and Engineering Fair	<i>Judge</i>
2012-2015	ACS Green Mountain Section, US National Chemistry Olympiad	<i>Coordinator</i>
2012	National Chemistry Week, Burlington VT	<i>Co-coordinator</i>
2011-2013	Vermont State Science & Math Fair	<i>Judge</i>
2010	Women Can Do!, Vermont Works for Women	<i>Workshop Presenter</i>
2010	Community Rounds, University of Vermont College of Medicine	<i>Workshop Presenter</i>
2005	Buzz on Biotechnology High School Open House, Georgia Tech	<i>Workshop Presenter</i>
1997	Georgia Science Olympiad	<i>Event Facilitator</i>

PROFESSIONAL AFFILIATIONS

2004 - Present	American Chemical Society
2010 - Present	American Society for Microbiology
2016 - Present	American Society for Mass Spectrometry
2016 - Present	Arizona State University Faculty Women's Association
2003 - 2008	Center for Fundamental and Applied Molecular Evolution (FAME)
2007 - 2008	Center for Chemical Evolution