CURRICULUM VITAE

Amanda L. Garner, Ph.D.

Current Status:

Business Address: University of Michigan
College of Pharmacy
Department of Medicinal Chemistry
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Current Position: Assistant Professor of Medicinal Chemistry

Other Affiliations: Assistant Professor, Program in Chemical Biology
Core Member, University of Michigan Rogel Cancer Center
Executive Committee Member, University of Michigan Center for RNA Biomedicine

Education:

Graduate: University of Pittsburgh, Pittsburgh, PA
Ph.D. in Chemistry, 2008
Research Advisor: Professor Kazunori Koide
Thesis Title: Development of Fluorescein-Based Fluorescent Chemosensors and Convergent Approaches in Solid-Phase Organic Synthesis

Undergraduate: Allegheny College, Meadville, PA
B.S. in Chemistry, Magna cum Laude, 2003
Research Advisor: Professor Leonard D. Vuocolo
Thesis Title: The Synthesis of Chlorine-Substituted Diamide-Diamine Manganese Complexes for Potential Use as Nitrogen-Atom-Transfer Reagents

Professional Record:

Assistant Professor, University of Michigan, Ann Arbor, MI, August 2013 – present
Senior Research Associate, The Scripps Research Institute, La Jolla, CA, July 2012 – July 2013
Research Associate, The Scripps Research Institute, La Jolla, CA, Dec. 2010 – June 2012
NIH Postdoctoral Fellow, The Scripps Research Institute, La Jolla, CA, Nov. 2008 – Nov. 2010

Honors, Awards and Fellowships:

Catalyst Award, Dr. Ralph and Marian Falk Medical Research Trust, 2016
NIH Postdoctoral Fellowship, 2008
Pitt Innovator Award, 2008
Strem Travel Award, 2006
Novartis Fellowship for Women and Minorities, 2005
NASA Space Grant Fellowship, 2004
Safford Award for Excellence as a Graduate Student Teacher, 2004

Chairman's Scholar Grant, Ashe Fellowship, 2003
Society for Analytical Chemistry of Pittsburgh Chemistry Award, 2003
Phi Beta Kappa, 2003

Editorial Work:

"RNA Therapeutics," Amanda L. Garner (Ed.), *Topics in Medicinal Chemistry*, Vol. 27, **2018**, Springer International Publishing (Cham, Switzerland)
Series Editor, *Topics in Medicinal Chemistry*, Springer International Publishing (Cham, Switzerland), 2018–present
Associate Editor, *RSC Advances*, Royal Society of Chemistry, June 1, 2019–present
Editorial Board Member, *SLAS Discovery*, starting January 1, 2020

Independent Publications:

46. Mitchell, D. C.; Menon, A.; Garner, A. L. "Mitotic Regulation of 4E-BP1 Phosphorylation and Cap-Dependent Translation by Cyclin-Dependent Kinase 4." *FEBS Lett.* **2019**, *submitted*.
45. Sherman, E. J.; Mitchell, D. C.; Garner, A. L. "Proteomic Analysis Reveals the RNA-Binding Protein SART3 as a Putative Pre-miR-34a-Binding Protein That Promotes G1 Arrest in Non-Small Cell Lung Cancer Cells." *J. Biol. Chem*. **2019**, *in revision*.
44. Garner, A. L. "RNA-Targeted Drug Discovery: Moving Beyond Promiscuous Small Molecule Scaffolds." *Fut. Med. Chem.* **2019**, *accepted*.
43. Song, J. M.; Gallagher, E. E.; Menon, A.; Mishra, L. D.; Garner, A. L. "The Role of Olefin Geometry in the Activity of Hydrocarbon Stapled Peptide Targeting Eukaryotic Translation Initiation Factor 4E (eIF4E)." *Org. Biomol. Chem*. **2019**, *17*, 6414–6419.
42. Sherman, E. J.‡; Lorenz, D. A.‡; Garner, A. L. "Click Chemistry-Mediated Complementation Assay for RNA-Protein Interactions." *ACS Comb. Sci.* **2019**, *21*, 522–527. (‡Shared Authorship)
41. Gallagher, E. E.‡; Song, J. M.‡; Menon, A.; Mishra, L. D.; Chmiel, A. F.; Garner, A. L. "Consideration of Binding Kinetics in the Design of Stapled Peptide Mimics of the Disordered Proteins Eukaryotic Translation Initiation Factor 4E-Binding Protein 1 and Eukaryotic Translation Initiation Factor 4G." *J. Med. Chem.* **2019**, *62*, 4967–4978. (‡Shared Authorship)
40. Garner, A. L.; Lorenz, D. A.; Gallagher, E. E. "A Click Chemistry Assay to Identify Natural Product Ligands for pre-microRNAs." *Methods Enzymol.* **2019**, *623*, 85–99.
39. Garner, A. L.; Lorenz, D. A.‡; Sandoval, J.‡; Gallagher, E. E.; Kerk, S. A.; Kaur, T.; Menon, A. "Tetracyclines as Inhibitors of pre-microRNA Maturation: A Disconnection Between RNA Binding and Inhibition." *ACS Med. Chem. Lett.* **2019**, *10*, 816–821. (‡Shared Authorship)
38. Mitchell, D. C.; Menon, A.; Garner, A. L. "Chemoproteomic Profiling Uncovers CDK4-Mediated Phosphorylation of the Translational Suppressor 4E-BP1." *Cell Chem. Biol.* **2019**, *26*, 980–990.
37. Kaur, T.; Menon, A.; Garner, A. L. "Synthesis of 7-Benzylguanosine Cap Analogue Conjugates for eIF4E Targeted Degradation." *Eur. J. Med. Chem.* **2019**, *166*, 339–350.
36. Johnson, O. T.; Kaur, T.; Garner, A. L. "A Conditionally Fluorescent Peptide Reporter of Secondary Structure Modulation." *ChemBioChem* **2019**, *20*, 40–45.
    - **Invited as part of the ChemBioTalents issue**
    - **Selected as a VIP Manuscript and highlighted in *ChemistryViews***
35. Garner, A. L. "cat-ELCCA: Catalyzing Drug Discovery Through Click Chemistry." *Chem. Commun.* **2018**, *54*, 6531–6539.
    - **Invited as part of the Emerging Investigators issue**
34. Lorenz, D. A.; Kaur, T.; Kerk, S. A.; Gallagher, E. E.; Sandoval, J. Garner, A. L. "Expansion of cat-ELCCA for the Discovery of Small Molecule Inhibitors of the Pre-let-7–Lin28 RNA-Protein Interaction." *ACS Med. Chem. Lett.* **2018**, *9*, 517–521.
    - **Chosen as the Feature cover article**
    - **Chosen as an ACS Editors' Choice article**

33. Lorenz, D. A.; Vander Roest, S.; Larsen, M. J.; Garner, A. L. "Development and Implementation of an HTS-Compatible Assay for the Discovery of Selective Small Molecule Ligands for pre-microRNAs." *SLAS Discovery* **2018**, *23*, 47–54.
    - **Featured in *C&E News* "The RNA Drug Hunters" 2017, November 27 issue, pg. 16–18**
    - **Featured in *The Scientist*: https://www.the-scientist.com/lab-tools/drug-discovery-techniques-open-the-door-to-rna-targeted-drugs-65903**
32. Song, J. M.; Menon, A.; Mitchell, D. C.; Johnson, O.T.; Garner, A. L. "High-Throughput Chemical Probing of Full-Length Protein-Protein Interactions." *ACS Comb. Sci.* **2017**, *19*, 763–769.
    - **Chosen as the cover article**
31. Lorenz, D. A.; Garner, A. L. "Approaches for the Discovery of Small Molecule Ligands Targeting microRNAs." *Topics Med. Chem.* **2018**, *27*, 79–110.
30. Lorenz, D. A.; Garner, A. L. "A Click Chemistry-Based microRNA Maturation Assay Optimized for High-Throughput Screening." *Chem. Commun.* **2016**, *52*, 8267–8270.
    - **Featured in *The Scientist*: https://www.the-scientist.com/lab-tools/drug-discovery-techniques-open-the-door-to-rna-targeted-drugs-65903**
29. Hart, J. R.; Weinberg, M. S.; Morris, K. V.; Roberts, T. C.; Janda, K. D.; Garner, A. L.; Vogt, P. K. "MINCR is Not a MYC-Induced lncRNA." *Proc. Natl. Acad. Sci., U. S. A.* **2016**, *113*, E496–E497.
28. Lorenz, D. A.; Song, J. M.; Garner, A. L. "High-Throughput Platform Assay Technology for the Discovery of pre-microRNA-Selective Small Molecule Probes." *Bioconj. Chem.* **2015**, *26*, 19–23.

Post Doc Publications:

27. Hart, J. R.*; Garner, A. L.*; Yu, J.; Ito, Y.; Sun, M.; Ueno, L.; Rhee, J.-K.; Baksh, M. M.; Stefan, E.; Hartl, M.; Bister, K.; Vogt, P. K.; Janda, K. D. "An Inhibitor of MYC Identified in a Kröhnke Pyridine Library." *Proc. Natl. Acad. Sci., U. S. A.* **2014**, *111*, 12556–12561. (*Co-First Authorship)
26. Garner, A. L.; Fullagar, J. L.; Day, J. A.; Cohen, S. M.; Janda, K. D. "Development of a High-Throughput Screen and Its Use in the Discovery of *Streptococcus pneumoniae* Immunoglobulin A1 Protease (IgA1P) Inhibitors." *J. Am. Chem. Soc.* **2013**, *135*, 10014–10017.
25. Kravchenko, V. V.; Garner, A. L.; Mathison, J. C.; Seit-Nebi, A.; Yu, J.; Gileva, I. P.; Ulevitch, R. J.; Janda, K. D. "Facilitating Cytokine-Mediated Cancer Cell Death by Proteobacterial *N*-Acylhomoserine Lactones." *ACS Chem. Biol.* **2013**, *8*, 1117–1120.
24. Fullagar, J. L.*; Garner, A. L.*; Struss, A. K.; Day, J. A.; Martin, D. P.; Cai, X.; Janda, K. D.; Cohen, S. M. "Antagonism of a Zinc Metalloprotease Using a Unique Metal-Chelating Scaffold: Tropolones as Inhibitors of *P. aeruginosa* Elastase." *Chem. Commun.* **2013**, *49*, 3197–3199. (*Co-First Authorship)
23. Garner, A. L.; Yu, J.; Struss, A. K.; Kaufmann, G. F.; Kravchenko, V. V.; Janda, K. D. "Immunomodulation and the Quorum Sensing Molecule 3-Oxo-C_{12}-Homoserine Lactone: The Importance of Chemical Scaffolding for Probe Development." *Chem. Commun.* **2013**, *49*, 1515–1517.
22. Garner, A. L.; Struss, A. K.; Fullagar, J. L.; Agrawal, A.; Moreno, A. Y.; Cohen, S. M.; Janda, K. D. "3-Hydroxy-1-alkyl-2-methylpyridine-4(1*H*)-thiones: Inhibition of the *Pseudomonas aeruginosa* Virulence Factor LasB." *ACS Med. Chem. Lett.* **2012**, *3*, 668–672.
21. Li, Z.; Garner, A. L.; Gloeckner, C.; Janda, K. D.; Carlow, C. K. S. "Targeting the *Wolbachia* Cell Division Protein FtsZ as a New Approach for Antifilarial Therapy." *PLoS Negl. Trop. Dis.* **2011**, *5*, e1411.
20. Garner, A. L.; Park, J.; Zakhari, J. S.; Lowery, C. A.; Struss, A. K.; Sawada, D.; Kaufmann, G. F.; Janda, K. D. "A Multivalent Probe for AI-2 Quorum Sensing Receptors." *J. Am. Chem. Soc.* **2011**, *133*, 15934–15937.
    - **Featured in *ChemBioChem* 2012, *13*, 508–510**
19. Garner, A. L.; Janda, K. D. "A Small Molecule Antagonist of Ghrelin *O*-Acyltransferase (GOAT)." *Chem. Commun.* **2011**, *47*, 7512–7514.
18. Garner, A. L.; Gloeckner, C.; Tricoche, N.; Zakhari, J. S.; Samje, M.; Cho-Ngwa, F.; Lustigman, S.; Janda, K. D. "Design, Synthesis and Biological Activities of Closantel Analogues: Structural Promiscuity and Its Impact on *Onchocerca volvulus*." *J. Med. Chem.* **2011**, *54*, 3963–3972.
17. Uckun, F. M.; Qazi, S.; Ozer, Z.; Garner, A. L.; Pitt, J.; Ma, H.; Janda, K. D. "Inducing Apoptosis in Chemotherapy-Resistant B-Lineage Acute Lymphoblastic Leukemia (ALL) Cells by Targeting GRP78/HSPA5,

A Master Regulator of the Anti-Apoptotic Unfolded Protein Response (UPR) Signaling Network." *Br. J. Haematol.* **2011**, *153*, 741−752.

16. Kirchdoerfer, R. N.; Garner, A. L.; Flack, C. E.; Mee, J. M.; Horswill, A. R.; Janda, K. D.; Kaufmann, G. F.; Wilson, I. A. "Structural Basis for Ligand Recognition and Discrimination of a Quorum-quenching Antibody." *J. Biol. Chem.* **2011**, *286*, 17351−17358.
15. Garner, A. L.; Yu, J.; Struss, A. K.; Lowery, C. A.; Zhu, J.; Kim, S. K.; Park, J.; Mayorov, A. V.; Kaufmann, G. F.; Kravchenko, V. V.; Janda, K. D. "Synthesis of 'Clickable' Bacterial Autoinducing Probes: Unanticipated Effects on Mammalian Cell Activation." *Bioorg. Med. Chem. Lett.* **2011**, *21*, 2702−2705.
14. Garner, A. L.; Janda, K. D. "Shedding Light on the Ghrelin/GOAT Metabolism Saga." *ChemBioChem* **2011**, *12*, 523−525.
13. Garner, A. L.; Janda, K. D. "Protein-Protein Interactions and Cancer: Targeting the Central Dogma." *Curr. Topics Med. Chem.* **2011**, *11*, 258−280.
12. Garner, A. L.; Janda, K. D. "cat-ELCCA: A Robust Method to Monitor the Fatty Acid Acyltransferase Activity of Ghrelin *O*-Acyltransferase (GOAT)." *Angew. Chem. Int. Ed.* **2010**, *49*, 9630−9634.
    - **Featured in *C&E News* 2010, September 27 issue, pg. 15**
11. Gloeckner, C.; Garner, A. L.; Mersha, F.; Oksov, Y.; Tricoche, N.; Eubanks, L. M.; Lustigman, S.; Kaufmann, G. F.; Janda, K. D. "Repositioning of an Existing Drug for the Neglected Tropical Disease Onchocerciasis." *Proc. Natl. Acad. Sci., U. S. A.* **2010**, *107*, 3424−3429.
    - **Featured in Science Now: http://news.sciencemag.org/sciencenow/2010/02/09-01.html**
    - **Featured in *C&E News* 2010, February 22 issue, pg. 35**

Graduate Publications:

10. Koide, K.; Osman, S.; Garner, A. L.; Song, F.; Dixon, T.; Greenberger, J. S.; Epperly, M. W. "The Use of 3,5,4'-Tri-*O*-acetylresveratrol as a Potential Pro-drug for Resveratrol Protects Mice from γ-Irradiation-Induced Death." *ACS Med. Chem. Lett.* **2011**, *2*, 270−274.
    - **Featured in *Newsweek*: http://www.newsweek.com/2011/05/15/newsbeast-health.html**
9. Garner, A. L.; St. Croix, C. M.; Pitt, B. R.; Leikauf, G. D.; Ando, S.; Koide, K. "Specific Fluorogenic Probes for Ozone in Biological and Atmospheric Samples." *Nat. Chem*. **2009**, *1*, 316−321.
    - **Featured by the RSC: http://www.rsc.org/chemistryworld/News/2009/May/31050901.asp**
    - **Featured in *Nature Methods*: http://www.nature.com/nmeth/journal/v6/n8/full/nmeth0809-557.html**
8. Garner, A. L.; Song, F.; Koide, K. "Enhancement of a Catalysis-Based Fluorometric Detection Method for Palladium through Rational Fine-Tuning of the Palladium Species." *J. Am. Chem. Soc*. **2009**, *131*, 5163−5171.
7. Uchida, T.; Mills, K. L.; Kuo, C-H.; Roh, W.; Tung, Y-C.; Garner, A. L.; Koide, K.; Thouless, M. D.; Takayama, S. "External Compression-Induced Fracture Patterning on the Surface of Poly(dimethylsiloxane) Cubes and Microspheres." *Langmuir* **2009**, *25*, 3102−3107.
6. Garner, A. L.; Koide, K. "Studies of Fluorogenic Probe for Palladium and Platinum Leading to a Palladium-Specific Detection Method." *Chem. Commun.* **2009**, 86−88.
5. Garner, A. L.; Koide, K. "Fluorescent Method for Platinum Detection in Buffers and Serum for Occupational Hazard and Cancer Medicine." *Chem. Commun.* **2009**, 83−85.
4. Garner, A. L.; Koide, K. "Oxidation State-Specific Fluorescent Method for Palladium(II) and Platinum(IV) Based on the Catalyzed Aromatic Claisen Rearrangement." *J. Am. Chem. Soc.* **2008**, *130*, 16472−16473.
3. Koide, K.; Song, F.; de Groh, E. D.; Garner, A. L.; Mitchell, V. D.; Davidson, L. A.; Hukriede, N. A. "Scalable and Concise Synthesis of Dichlorofluorescein Derivatives Displaying Tissue Permeation in Live Zebrafish Embryos." *ChemBioChem* **2008**, *9*, 214−218.
2. Garner, A. L.; Koide, K. "Solid-Phase Olefin Cross-Metathesis Promoted by a Linker." *Org. Lett.* **2007**, *9*, 5235−5238.
    - **Featured in *C&E News* 2007, November 26 issue, pg. 8**
    - **Highlighted in *Synfacts*, 2008, pg. 0211**

1. Song, F.; Garner, A. L.; Koide, K. "A Highly Sensitive Fluorescent Sensor for Palladium Based on the Allylic Oxidative Insertion Mechanism." *J. Am. Chem. Soc.* **2007**, *129*, 12354–12355.
    - **Featured in *C&E News* 2007, October 1 issue, pg. 30**

Patents:

- Koide, K.; Garner, A. L. "Fluorescent Sensor for Ozone." U.S. Pat. Appl. Publ. (2010), US 20100255525 A1 20101007.
- Koide, K.; Garner, A. L. "Methods of Determining the Oxidation State of Platinum and Palladium Using Fluorogenic Probes." Provisional patent filed on July 14, 2008.
- Koide, K.; Garner, A. L. "Preparation of Hydroxymethyl Fluorescein Derivatives for Use as Biological Markers and Dyes." WO 2008094502 A1 20080807.
- Koide, K.; Garner, A. L.; Song, F. "Detection of Platinum Group Metals with Fluorophores via Allylic Oxidative Insertion." WO 2008094496 A1 20080807.
    - This chemosensor was licensed to and commercialized by Arbor Assays, LLC (www.arborsassays.com/products/inserts/K007-F1_product.pdf).

Research Support:

Active:

1 R01 CA202018-01A1 (PI: Garner) 07/01/2016 – 06/30/2021 3.0 CM
NIH/NCI $1,143,750
4E-BP Mimetics as Chemical Probes for Studying Translational Control in Cancer
The overall goal of this project is to further develop 4E-BP stapled peptides as chemical probes targeting the eIF4E–4E-BP PPI and fully decipher their mechanism-of-action through proteomic and cellular analyses. The Specific Aims of this proposal are: (1) To further develop 4E-BP stapled peptides as chemical probes targeting the eIF4E–4E-BP PPI; (2) To identify and validate the cellular targets of 4E-BP stapled peptides; and (3) To determine the effect of 4E-BP stapled peptides in Myc-driven cancer cells. From these proposed studies, we will provide validated chemical probes for targeting the eIF4E–4E-BP PPI and preliminary data regarding its status as a promising therapeutic approach for the treatment of cancer.

1 R01 GM135252 (PI: Garner) 09/20/2019 – 08/31/2023 3.0 CM
NIH/NIGMS $790,000
Chemical Biology Approach for Validating and Manipulating Cellular RNA-Protein Interactions
The overall goal of this project is to further develop an organelle-specific live cell detection assay for RNA-protein interactions developed in our laboratory, RNA interaction with Protein-mediated Complementation Assay, or RiPCA.

Completed:

1 R01 GM118329-01 (PI: Garner) 04/01/2016 – 03/31/2019 3.0 CM
NIH/NIGMS $600,000
Discovery of Selective Small Molecule Probes for pre-microRNAs
The overall goal of this project is to use high-throughput assay technology developed in our laboratory to discover modulators for pre-microRNAs implicated in human disease. To do so, we will optimize our existing assay to enable two-dimensional screening of diverse collections of small molecules and natural product libraries against libraries of pre-microRNAs. Application of this technology will enable the discovery of new chemical space for targeting RNA, illuminate its druggability and provide the basis for the development of RNA-targeted small molecule therapeutics.

No number (PI: Garner) 11/30/2016 – 08/29/2018 1.2 CM
Dr. Ralph and Marian Falk Medical Research Trust $300,000
Leveraging the microRNA Interactome for Cancer Drug Discovery
The overall goals of this project are to develop a high-throughput screening assay of the let-7–Lin28 miR–miR-BP interaction for small molecule inhibitor discovery, and to develop a strategy for the discovery of miR-BPs using chemically-modified pre-miR probes.

No number (PI: Garner) 01/01/2017 – 06/30/2018 0.0 CM
University of Michigan CDNM $47,739
Targeting the eIF4E–4E-BP1 Protein-Protein Interaction for Cancer Drug Discovery
The overall goal of this project is to use high-throughput assay technology developed in our laboratory to discover small molecule modulators of the eIF4E–4E-BP1 PPI. The anti-proliferative activity of discovered molecules will then be examined in cellular cancer models with mTOR hyperactivation.

No number (PI: Garner) 06/01/2017 – 05/31/2018 0.0 CM
University of Michigan Comprehensive Cancer Center $75,000
Identifying New Druggable Targets in Colorectal Cancer Using Chemoproteomics
The overall goal of this project is to use a chemoproteomic ATP crosslinker to identify novel kinases responsible for mTOR inhibitor drug resistance in colorectal cancer.

No number (PI: Garner) 07/01/2015 – 06/30/2016 1.2 CM
American Brain Tumor Association $50,000
Targeting the eIF4E–4E-BP1 Protein-Protein Interaction for the Treatment of Malignant Brain Tumors
The overall goal of this project is to take a two-prong approach for targeting the eIF4E–4E-BP1 PPI for glioblastoma drug discovery by identifying peptide- and small molecule-based modulators of this PPI and characterizing their cellular anti-cancer activity.

No number (PI: Garner) 05/01/2015 – 04/30/2016 0.0 CM
University of Michigan CDNM $50,000
High-Throughput Platform Assay Technology for the Discovery of pre-microRNA-21-Selective Inhibitors
The overall goal of this project is to use high-throughput assay technology developed in our laboratory to discover small molecule modulators of pre-microRNA-21 maturation. These compounds will then be used to investigate the impact of miRNA-21 inhibition in cellular models of glioblastoma.

1 F32 DK083179-01 (PI: Garner; Mentor: Janda) 12/01/2008 – 11/30/2010 12.0 CM
NIH/NIDDK $92,056
Catalytic Antibody-Based Vaccine for Weight Loss
The overall goals of this project were a two-prong approach for the development of therapies for the treatment of weight gain: (1) to develop catalytic antibodies that specifically act on ghrelin and (2) to design inhibitors of the enzyme responsible for ghrelin's unique post-translational modification, ghrelin *O*-acyltransferase (GOAT).

Pending:
1 R01 GM132341-01A1 (PI: Garner) 12/01/2019 – 11/30/2023 3.0 CM
NIH/NIGMS $1,737,138
Delineating the Biology of Translational Repressor 4E-BP1
The overall goal of this project is to investigate the biology of 4E-BP1, the gate-keeper of cap-dependent translation using chemical biology techniques. Through these studies, we will not only further enhance our knowledge of 4E-BP1-mediated translational regulation, but also illuminate new druggable targets for treatment of the many diseases associated with aberrant cap-dependent translation.
Percentile: 18

No number (PIs: Garner and Hsieh) 04/01/2020 – 03/31/2023 1.2 CM
DoD/PCRP $750,000
Targeting the eIF4E–eIF4G Protein-Protein Interaction in AR-Deficient Prostate Cancer
The overall goal of this project is to develop 4E-BP1 stapled peptides as preclinical candidates for the treatment of AR-deficient prostate cancer.

Invited Presentations (External):

- "Chemical Probing of Translational Control and microRNA Biology." Western Michigan University, Department of Chemistry, Kalamazoo, MI, 2019.
- "Strategies for Targeting Aberrant microRNA Activity in Cancer." 258th ACS National Meeting, San Diego, CA, 2019.
- "Identification of Kinase-Targeted Drug Combinations Using Chemoproteomics." Cambridge Healthtech Institute's 6th Annual Chemical Biology and Target Validation Conference, Boston, MA, 2019.
- "Chemical Probing of Coding and Non-Coding RNA Biology." Gordon Research Conference (Bioorganic Chemistry), Andover, NH, 2019.
- "Chemical Probing of Translational Control and microRNA Biology." Emory University School of Medicine, Department of Pharmacology and Chemical Biology, Atlanta, GA, 2019.
- "Chemical Probing of Translational Control and microRNA Biology." Student-invited Speaker, Weill Cornell Medicine, Department of Pharmacology, New York, NY, 2019.
- "Chemical Probing of Translational Control and microRNA Biology." University of Massachusetts Medical School, Department of Biochemistry and Molecular Pharmacology, Worcester, MA, 2019.
- "A Chemist Like Me." Spelman College, Department of Chemistry, Atlanta, GA, 2019.
- "Chemical Probing of Translational Control and microRNA Biology." University of Minnesota, Department of Medicinal Chemistry, Chemical Biology Colloquium, Minneapolis, MN, 2019.
- "Chemical Probing of Translational Control and microRNA Biology." University of Pittsburgh, Department of Chemistry, Pittsburgh, PA, 2019.
- "Deciphering Mechanisms by which to Selectively Target Specific microRNAs for Drug Discovery." 2nd Annual Chemical Biology in the Hub Symposium, Cambridge, MA, 2018.
- "Chemical Probing of Translational Control and microRNA Biology." University of Notre Dame, Department of Chemistry, South Bend, IN, 2018.
- "Chemical Probing of Translational Control and microRNA Biology." University of Illinois at Chicago, Department of Medicinal Chemistry and Pharmacognosy, Chicago, IL, 2018.
- "Deciphering Mechanisms by which to Selectively Target Specific microRNAs for Drug Discovery." Genomics Institute of the Novartis Research Foundation, San Diego, CA, 2018.
- "High-Throughput Platform Assay Technology for the Discovery of pre-microRNA-Selective Small Molecule Probes." International Roundtable on Nucleosides, Nucleotides and Nucleic Acids, La Jolla, CA, 2018.
- "Deciphering Mechanisms by which to Selectively Target Specific microRNAs for Drug Discovery." Gordon Research Conference (Medicinal Chemistry), New London, NH, 2018.
- "Deciphering Mechanisms by which to Selectively Target Specific microRNAs for Drug Discovery." Third Rock Ventures, Boston, MA, 2018.
- "Chemical Probing of Translational Control and microRNA Biology." Wayne State University, Department of Chemistry, Detroit, MI, 2018.
- "Chemical Probing of Translational Control and microRNA Biology." Abbvie, Chicago, IL, 2018.
- "Chemical Probing of Translational Control and microRNA Biology." Rutgers University, Department of Microbiology, Biochemistry and Molecular Genetics, Newark, NJ, 2018.
- "High-Throughput Platform Assay Technology for the Discovery of pre-microRNA-Selective Small Molecule Probes." 255th ACS National Meeting, New Orleans, LA, 2018.
- "Chemical Probing of Translational Control and microRNA Biology." University of Washington, Department of Chemistry, Seattle, WA, 2018.
- "Chemical Probing of Translational Control and microRNA Biology." Ohio State University, Center for RNA Biology, Columbus, OH, 2017.
- "Chemical Probing of Translational Control in Cancer." University of Toledo, College of Pharmacy and Pharmaceutical Sciences, Department of Medicinal and Biological Chemistry, Toledo, OH, 2017.
- "Chemical Probing of Translational Control in Cancer." Purdue University, Department of Chemistry, West Lafeyette, IN, 2017.

- "High-Throughput Platform Assay Technology for the Discovery of pre-microRNA-Selective Small Molecule Probes." Arrakis Therapeutics, Waltham, MA, 2017.
- "High-Throughput Platform Assay Technology for the Discovery of pre-microRNA-Selective Small Molecule Probes." New York Academy of Sciences, New York, NY, 2017.
- "Lessons Learned from a Past Attendee: My Life as an Assistant Professor August 1, 2013–Present." ASBMB Mentoring and Grant Writing Workshop, Washington, DC, 2017.
- "Lessons Learned from Employing High-Throughput Screening to Identify Small Molecule microRNA Ligands." Cambridge Healthtech Institute's 12th Annual Drug Discovery Chemistry Conference, Short Course, San Diego, CA, 2017.
- "Chemical Approaches for Targeting Translational Control." Department of Chemistry, Oakland University, 2017.
- "Chemical Approaches for Targeting Translational Control." Department of Chemistry and Biochemistry, Andrews University, 2017.
- "High-Throughput Platform Assay Technology for the Discovery of pre-microRNA-Selective Small Molecule Probes." 251st ACS National Meeting, San Diego, CA, 2016.
- "Targeting Translational Control in Cancer: From End to End." Sanford Burnham Prebys Medical Discovery Institute, La Jolla, CA, 2015.
- "High-Throughput Platform Assay Technology for the Discovery of pre-microRNA-Selective Small Molecule Probes." 249th ACS National Meeting, Denver, CO, 2015.
- "Chemical Approaches for Studying the Biology of Translational Repressor 4E-BP1." ASBMB Mentoring Workshop for Early Career Scientists, Washington, DC, 2014.

Invited Presentations (University of Michigan):

- "Approaches for Studying Aberrant Translation Regulation in Cancer." Rogel Cancer Center Retreat, 2019.
- "Identification of Kinase-Targeted Drug Combinations Using Chemoproteomics." Cayman Chemical Sponsored Symposium on Reinventing Drug Discovery through Chemical Biology, 2019.
- "Chemical Probing of Translational Control and microRNA Biology." Department of Medicinal Chemistry, 2018.
- "RNA: The Last Frontier in Drug Discovery." University of Michigan Bicentennial Feast of Ideas, 2017.
- "Chemical Probing of Translational Control in Cancer." Center for the Discovery of New Medicines, 2017.
- "Progress Toward the Discovery of microRNA-21-Selective Small Molecules." Center for RNA Biomedicine, RNA Innovation Seminar, 2016.
- "Chemical Approaches for Targeting Translational Control." Keynote Speaker, Inaugural ACS Medicinal Chemistry Symposium, 2016.
- "Chemical Approaches for Targeting Translational Control." Keynote Speaker, Interdisciplinary REU Program Closing Symposium, 2016.
- "High-Throughput Platform Assay Technology for the Discovery of pre-microRNA-Selective Small Molecule Probes." Inaugural Center for RNA Biomedicine Symposium, 2016.
- "RNA: The Last Frontier in Drug Discovery (how can we solve this problem?)." Ignite Talk, College of Pharmacy Faculty Meeting, 2016.
- "Targeting Translational Control in Cancer." Student-Invited Chalk Talk, Chemistry Biology Interface Training Program, 2015.
- "Targeting Translational Control in Cancer: From End to End." Translational Oncology Program, 2014.

Invited Presentations (Graduate and Post Doc):

- "Expanding the Scope of Organic Chemistry: Applications in Assay Design and Chemical Probe Discovery." University of Michigan, College of Pharmacy, Ann Arbor, MI, 2013.
- "Expanding the Scope of Organic Chemistry: Applications in Assay Design and Chemical Probe Discovery." University of California, San Diego, Department of Chemistry, La Jolla, CA, 2012.
- "Expanding the Scope of Organic Chemistry: Applications in Assay Design and Chemical Probe Discovery." UNC Eshelman School of Pharmacy, Division of Chemical Biology and Medicinal Chemistry, Chapel Hill, NC, 2012.

- "Expanding the Scope of Organic Chemistry: Applications in Assay Design and Chemical Probe Discovery." Indiana University School of Medicine, Department of Biochemistry and Molecular Biology, Indianapolis, IN, 2012.
- "Diagnostic and Therapeutic Approaches for the Elimination of Onchocerciasis." Plenary Lecture, The American Association of Veterinary Parasitologists (AAVP) 57th Annual Meeting, San Diego, CA, 2012.
- "Chemical Design Principles for the Discovery of Protein-Protein Interaction Inhibitors." Keynote Presentation, Cambridge Healthtech Institute's 5th Annual Protein-Protein Interactions as Drug Targets Symposium, San Diego, CA, 2012.
- "Expanding the Scope of Organic Chemistry: Applications in Assay Design and Chemical Probe Discovery." University of Kansas, Department of Chemistry, Lawrence, KS, 2012.
- "Expanding the Scope of Organic Chemistry: Applications in Assay Design and Chemical Probe Discovery." University of Pittsburgh, School of Pharmacy, Pittsburgh, PA, 2011.
- "Development of a Convergent Approach in Solid-Phase Organic Synthesis." Novartis Fellowship Symposium, Boston, MA, 2006.
- "Development of a Convergent Approach in Solid-Phase Organic Synthesis: Resin-to-Resin Olefin Cross-Metathesis Between Two Spatially Separated Substrates." 232nd ACS National Meeting, San Francisco, CA, 2006.

Poster Presentations:

- "Chemoproteomic Profiling Uncovers CDK4-Mediated Control of Cap-Dependent Translation." Gordon Research Conference (Bioorganic Chemistry), Andover, NH, 2018.
- "High-Throughput Platform Assay Technology for the Discovery of pre-microRNA-Selective Small Molecule Probes." Gordon Research Conference (High-Throughput Chemistry and Chemical Biology), Andover, NH, 2017.
- "4E-BP1 Mimetics as Chemical Probes for Studying Translational Control in Cancer." Gordon Research Conference (Bioorganic Chemistry), Andover, NH, 2017.
- "Probing the Structure-Function of Translational Suppressor 4E-BP1." Cold Spring Harbor Translational Control Meeting, Cold Spring Harbor, NY, 2016.
- "Targeting Translational Control in Cancer." Gordon Research Conference (High-Throughput Chemistry and Chemical Biology), New London, NH, 2015.
- "cat-ELCCA: A Robust Method to Monitor the Fatty Acid Acyltransferase Activity of Ghrelin *O*-Acyltransferase (GOAT)." Gordon Research Conference (High-Throughput Chemistry and Chemical Biology), New London, NH, 2011.
- "The Synthesis of Chlorine-Substituted Diamide-Diamine Manganese Complexes for Potential Use as Nitrogen-Atom Transfer Reagents." 225th ACS National Meeting, New Orleans, LA, 2003.

Teaching Experience:

University of Michigan:

MedChem 600, *CNS Drugs section*, University of Michigan College of Pharmacy, Ann Arbor, MI, Fall 2014–present
MedChem 660, *Research Ethics*, University of Michigan College of Pharmacy, Ann Arbor, MI, Fall 2014–present
Cellular Biotechnology 504, *Guest Lecturer*, University of Michigan, Ann Arbor, MI, Winter 2015
MedChem 532, *Nucleic Acid-Targeted Drugs section*, University of Michigan College of Pharmacy, Ann Arbor, MI, Fall 2016–present
Chem 548, *New Frontiers at the Chemistry Biology Interface*, University of Michigan, Ann Arbor, MI, Winter 2017
Pharmacy 614, *Principles of Research and Problem Solving*, University of Michigan College of Pharmacy, Ann Arbor, MI, Winter 2018
MedChem 410, *BSPS Laboratory*, University of Michigan College of Pharmacy, Ann Arbor, MI, Spring 2017–Summer 2018, Summer 2019–present, course design and planning
ChemBio 502, *Guest Lecturer*, University of Michigan, Ann Arbor, MI, Winter 2019

University of Pittsburgh:

Chemistry 110, *Guest Lecturer*, University of Pittsburgh, Pittsburgh, PA, Spring 2008
Chemistry 110, *Recitation and Laboratory Instructor*, University of Pittsburgh, Pittsburgh, PA, Spring 2008
Chemistry 120, *Guest Lecturer*, University of Pittsburgh, Pittsburgh, PA, Spring 2005
Tutor for Undergraduate and High School Chemistry Students, Pittsburgh, PA, 2004–2007
Chemistry 120, *Recitation and Laboratory Instructor*, University of Pittsburgh, Pittsburgh, PA, Summer 2004 and Spring 2005
Chemistry 120, *Recitation Instructor*, University of Pittsburgh, Pittsburgh, PA, Spring 2004
Chemistry 110, *Recitation Instructor*, University of Pittsburgh, Pittsburgh, PA, Fall 2003

Allegheny College:

Peer-Led Team Leader for Organic Chemistry II, Allegheny College, Meadville, PA, Spring 2002 and 2003
Peer-Led Team Leader for Organic Chemistry I, Allegheny College, Meadville, PA, Fall 2001 and 2002

Mentoring Experience:

Postdoctoral Researchers:

Dr. Lauren Mishra (September 2013–September 2014)
Dr. Tanpreet Kaur (August 2016–April 2019)
Dr. Emilio Cardenas (August 2019–present)

Graduate Students:

Erin Gallagher (Medicinal Chemistry, 2014–2018)
Oleta Johnson (Program in Chemical Biology, 2014–2018)
Daniel Lorenz (Program in Chemical Biology, 2014–2018)
James Song (Program in Chemical Biology, 2014–2018)
Dylan Mitchell (Program in Chemical Biology, 2015–2019)
Jorge Sandoval (Program in Chemical Biology, 2017–2018)
Emily Sherman (Program in Chemical Biology, 2017–2019)
Sydney Rosenblum (Program in Chemical Biology, 2018–present)
Rachel Torrez (Medicinal Chemistry, 2018–present)
Yihao Zhuang (Medicinal Chemistry, 2019–present)

Rotation Students:

Maureen Corrielus (Medicinal Chemistry, Winter 2014)
April Tang (Chemistry, Winter 2014)
Sumit Bandekar (Medicinal Chemistry, Fall 2014)
Jason Miller (Medicinal Chemistry, Fall 2014)
Omari Baruti (Program in Chemical Biology, Winter 2015)
Atsunori Kaneshige (Medicinal Chemistry, Fall 2016)
Evan Barnes (Program in Chemical Biology, Summer 2017)
Alex Ayoub (Program in Chemical Biology, Fall 2017)
Yuning Shen (Medicinal Chemistry, Winter 2018)
Glory Velazquez (Medicinal Chemistry, Winter 2018)
Ryan Rutkoski (Medicinal Chemistry, Winter 2019)
Jesse Wotring (Medicinal Chemistry, Winter 2019)

Research Staff:

Arya Menon (Oct. 2013–present)
Samuel Kerk (Feb.–June 2017)

PharmD Students:

Thomas Hancock (Oct. 2017–April 2018)

Undergraduate Students:

Hannah Foley (REU student from Central Michigan University, Summer 2015)
Maxum Paul (REU student from Amherst College, Summer 2016)
Alyah Chmiel (University of Michigan, Summer 2017–Summer 2018)
Madeline Hinkley (University of Michigan, Fall 2019–present)
Julia Crowther (University of Michigan, Fall 2019–present)

Visiting Scholars:

Prof. Leyte Winfield (Faculty Sabbatical, Spelman College, August 2017–July 2018)

Student Awards:

Erin Gallagher: Pharmacological Sciences Training Program Trainee (2014–2016)
Rackham Graduate Student Research Grant Awardee (2016)
Kristen L. McGlone Research Award (2018)
Oleta Johnson: Chemistry Biology Interface Training Program Trainee (2014–2016)
Rackham Pre-Candidate Graduate Student Research Grant Awardee (2014)
NSF Graduate Research Fellowship Awardee (2015–2018)
Rackham Graduate Student Research Grant Awardee (2016)
Carl Storm Underrepresented Minority Fellowship (2017)
Daniel Lorenz: Rackham Pre-Candidate Graduate Student Research Grant Awardee (2014)
Rackham Graduate Student Research Grant Awardee (2017)
Dylan Mitchell: Proteome Informatics of Cancer Training Program Trainee (2015–2017)
Rackham Pre-Candidate Graduate Student Research Grant Awardee (2015)
Rackham Graduate Student Research Grant Awardee (2017)
Rackham Predoctoral Fellowship Awardee (2018)
Sydney Rosenblum: Rackham Pre-Candidate Graduate Student Research Grant Awardee (2018)
Jorge Sandoval: Chemistry Biology Interface Training Program Trainee (2017–2019)
Rackham Pre-Candidate Graduate Student Research Grant Awardee (2018)
Emily Sherman: NSF Graduate Research Fellowship Awardee (2017–2020)
Rackham Pre-Candidate Graduate Student Research Grant Awardee (2017)
James Song: Cellular Biotechnology Training Program Trainee (2014–2016)
Honorable Mention, NSF Graduate Research Fellowship (2015)
Rackham Pre-Candidate Graduate Student Research Grant Awardee (2015)
Rackham Graduate Student Research Grant Awardee (2017)
Rachel Torrez: Pharmacological Sciences Training Program Trainee (2018–2020)

Service:

College of Pharmacy:

Co-Chair, Graduate Admissions Committee, Medicinal Chemistry, Fall 2013/Winter 2014
Pharmacy Phamily Mentor, Fall 2013–2017
Faculty Advisor for COP Graduate Student Organization, Winter 2014–Spring 2016
Chair, Graduate Admissions Committee, Medicinal Chemistry, Fall 2014–present
PharmD Admissions Committee Member, Fall 2014–Spring 2016
Seminar Series Lead, Medicinal Chemistry, Summer 2015–Spring 2016
Faculty Advisor for ACS Medicinal Chemistry Student Affiliate Chapter, Summer 2016–present
Graduate Education Committee Member, Fall 2016–present
Co-Chair, Faculty Search Committee, Medicinal Chemistry, Fall 2016–Winter 2017
Team Science Committee Member, Summer 2017–2018
Interdisciplinary REU Program Application Review Committee, Winter 2018
First Year Advisor to the Medicinal Chemistry Graduate Students, Fall 2018–present
Biosciences Initiative Faculty Search Committee Member, Winter 2019–present
Seminar Series Lead, Medicinal Chemistry, Summer 2019–present
Faculty Development Committee Member, Fall 2019–present

University of Michigan:

Admissions Committee Member for Program in Chemical Biology, 2013–2016

Thesis Committee Member:

John D. Nguyen, Stephenson Laboratory, Chemistry, Fall 2013–Summer 2014
Jordan Walk, Montgomery Laboratory, Chemistry, Fall 2013–Winter 2014
Sameer Phadke, Soellner Laboratory, Chemistry, Spring 2015
Zachary Garlets, Wolfe Laboratory, Chemistry, Winter 2014–Winter 2017
Cassie Joiner, Mapp Laboratory, Chemistry, Fall 2015–Winter 2017
Michael Agius, Soellner Laboratory, Medicinal Chemistry, Fall 2014–Summer 2017
Eric Lachacz, Soellner Laboratory, Medicinal Chemistry, Fall 2014–Summer 2017
Yvonne DePorre, Schindler Laboratory, Chemistry, Fall 2014–Winter 2018
Maxwell Stefan, Garcia Laboratory, Medicinal Chemistry, Fall 2014–Spring 2018
Yangbing Li, Wang Laboratory, Medicinal Chemistry, Fall 2015–Spring 2018
Anthony Nastase, Mosberg Laboratory, Medicinal Chemistry, Fall 2015–Summer 2018
Emilia Groso, Schindler Laboratory, Chemistry, Fall 2014–Fall 2018
Omari Baruti, Mapp Laboratory, Chemical Biology, Fall 2015–Spring 2019
Martin Sevrin, Stephenson Laboratory, Chemistry, Spring 2016–present
Melody Sanders, Mapp and Ohi Laboratories, Chemical Biology, Fall 2016–present
Nicholas Foster, Mapp Laboratory, Chemical Biology, Fall 2016–present
Shuai Hu, Neamati Laboratory, Medicinal Chemistry, Fall 2016–present
Sumit Bandekar, Tesmer Laboratory, Medicinal Chemistry, Fall 2016–present
Amie Frank, Montgomery Laboratory, Chemistry, Fall 2016–present
Taylor Sodano, Stephenson Laboratory, Chemistry, Fall 2016–present
Christine Cuthbertson, Neamati Laboratory, Medicinal Chemistry, Fall 2016–present
Nicholas Ragazzone, Garcia Laboratory, Medicinal Chemistry, Fall 2016–present
Samantha De Salle, Mapp Laboratory, Chemical Biology, Summer 2017–present
Jessica Yazarians, Narayan Laboratory, Chemistry, Fall 2017–present
Katherine Guild, Garcia Laboratory, Medicinal Chemistry, Fall 2017–present
Monika Franco, Koutmou Laboratory, Chemical Biology, Summer 2018–present
Tyler Lefevre, Smrcka Laboratory, Chemical Biology, Summer 2018–present
Jorge Becerra, Mapp Laboratory, Chemical Biology, Fall 2018–present
Maha Hanafi, Neamati Laboratory, Medicinal Chemistry, Fall 2018–present
Miranda Simes, Cierpicki/Grembecka Laboratory, Chemical Biology, Summer 2019–present
Luke Miller, Koutmou Laboratory, Chemical Biology, Summer 2019–present
Elizabeth Tidwell, Koutmos Laboratory, Biophysics, Fall 2019–present

Chemistry Biology Interface Training Program Selection Committee, 2015–present
Michigan Life Sciences Fellows Review Committee, Fall 2017–present
Center for Chemical Genomics Oversight Committee, 2018–present
Scientific Advisory Committee Member, Structure and Drug Screening Shared Resource, Rogel Cancer Center, 2018–present

National/International:

Peer Reviewer for the following journals:

ACS Chemical Biology
ACS Combinatorial Science
ACS Infectious Diseases
Bioconjugate Chemistry
Bioorganic and Medicinal Chemistry
Bioorganic and Medicinal Chemistry Letters
Bio-protocol
Cell Chemical Biology
ChemBioChem
Chemical Communications
Chemical Science

Chemistry – A European Journal
Journal of Medicinal Chemistry
Marine Drugs
Methods in Enzymology
Nucleic Acids Research
Organic and Biomolecular Chemistry
Organic Letters
PLoS ONE
Proceedings of the National Academy of Sciences of the United States of America
RSC Advances
Scientific Reports
Tetrahedron

NIH Grant Review:

ZRG1 OTC-N 80 A, AREA: Oncological Sciences Grant Applications, ad hoc, 2015
Drug Discovery and Molecular Pharmacology (DMP) Study Section, ad hoc, 2016, 2018 (×2)
Small Business: Drug Discovery and Development BCMB (10) Study Section, ad hoc, 2016, 2019
High-Throughput Screening Study Section BST-55, ad hoc, 2017 (×3)
Synthetic and Biological Chemistry B (SBCB) Study Section, ad hoc, 2018

International Grant Review:

Singapore Ministry of Education's Academic Research Fund (AcRF) Tier 2, 2015–present

Consulting Work:

Vida Ventures
Third Rock Ventures
GreatPoint Ventures

Conferences and Symposia:

Discussion Leader, Gordon Research Conference (Bioorganic Chemistry), Andover, NH, 2018
Poster Judge, Gordon Research Conference (Bioorganic Chemistry), Andover, NH, 2018
Poster Judge, Gordon Research Conference (Medicinal Chemistry), New London, NH, 2018
Co-Organizer, "Reinventing Drug Discovery through Chemical Biology" Symposium sponsored by Cayman Chemical, Ann Arbor, MI, 2019
Chair, "Chemical Biology and Target Validation" Symposium, World Pharma Week, Boston, MA, 2019
Session Organizer and Chair, 258th ACS National Meeting, "MEDI: Rising Stars: Women in Medicinal Chemistry," San Diego, CA, 2019

Professional Societies:

American Chemical Society, 2002–present
IS3NA, 2018–present
American Society for Biochemistry and Molecular Biology, 2019–present