ALISON DONNELLY AXTMAN, PH.D.

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EDUCATION:

THE UNIVERSITY OF KANSAS (KU) LAWRENCE, KS
Doctor of Philosophy, Medicinal Chemistry, March 2011, Advisor: Dr. Brian S. J. Blagg
Dissertation: *Design, Synthesis and Evaluation of Non-Canonical Hsp90 Modulators*
Master of Science, Medicinal Chemistry, June 2009, Advisor: Dr. Brian S. J. Blagg

CASE WESTERN RESERVE UNIVERSITY (CWRU) CLEVELAND, OH
Bachelor of Science, *cum laude*, Chemistry, May 2006
Bachelor of Arts, *cum laude*, Spanish, May 2006

PROFESSIONAL AND RESEARCH EXPERIENCE:

RESEARCH ASSISTANT PROFESSOR, SGC-UNC, ESHELMAN SCHOOL OF PHARMACY, UNC JULY 2015–PRESENT
PRINCIPAL INVESTIGATOR, MEDICINAL CHEMISTRY, STRUCTURAL GENOMICS CONSORTIUM (SGC)
DESIGN AND SYNTHESIS OF KINASE INHIBITORS THAT ENABLE CHARACTERIZATION OF THE UNDERSTUDIED HUMAN KINOME

- Explore unique chemical starting points to develop diverse scaffolds capable of kinase inhibition
- Screen inhibitors to determine their kinase profile against the human kinome and identify leads for understudied kinases
- Employ medicinal chemistry to convert hits to chemical probes for understudied kinases
- Openly share compounds and data with all interested private and academic collaborators
- Ensure that SGC-UNC functions as a kinase knowledge hub, accessible to everyone and with all data in the public domain

INVESTIGATOR, CHEMICAL BIOLOGY, GLAXOSMITHKLINE, RTP MARCH 2014–JUNE 2015
DESIGN AND SYNTHESIS OF FIRST-IN-CLASS SMALL MOLECULES AS PART OF TARGET VALIDATION AND HIT-TO-LEAD PROGRAMS FOR DERMAL APPLICATIONS

- Designed and prepared natural product analogues as mechanism of action probes and back-up clinical candidates.
- Established a robust and versatile *in vitro* system to evaluate impact of small molecules on diseases with T-cell involvement.
- Characterized molecular and biological signatures of therapeutically used natural product extracts to support their re-launch.

CMAD POSTDOCTORAL FELLOW, WENDER LABORATORY, STANFORD UNIVERSITY APRIL 2011–FEBRUARY 2014
DESIGN, SYNTHESIS AND BIOLOGICAL EVALUATION OF IMMUNE-STIMULATING PKC AGONISTS AS FIRST-IN-CLASS, NON-TOXIC ANTI-CANCER IMMUNOTHERAPIES

- Developed high-throughput mixed lymphocyte response, immune-mediated cytotoxicity and lymphocyte activation assays.
- Confirmed that non-toxic, bryostatin-like PKC activators stimulate the immune system, leading to cancer cell death.
- Forged new partnerships and managed multi-institutional collaborations with 2 U.S. universities and 4 Stanford laboratories.
- Efficiently synthesized novel diacylglycerol analogues that display PKC affinity on par with complex natural product leads.
- Generated major advancements toward solving the biologically relevant membrane-associated, ligand-bound form of PKC with the Cegelski lab, treating resistant cancers using siRNA with the Teng lab, and exploring PKC-induced neuronal growth with the Cui lab.

ACS ORGANIC CHEMISTRY AND NIH GRADUATE FELLOW, BLAGG LABORATORY, KU AUGUST 2006–MARCH 2011
DESIGN, SYNTHESIS AND BIOLOGICAL EVALUATION OF CLINICALLY PROMISING ANTI-CANCER AND NEUROPROTECTIVE HSP90 MODULATORS

- Designed, prepared and evaluated novel Hsp90 *C*-terminal modulators that elicit anti-cancer and neuroprotective activities.
- Conceived efficient syntheses of potential cancer chemotherapeutics that outperform clinically used agents *in vivo*.
- Managed multi-institutional collaborations with the NIH and 2 U.S. universities to facilitate advanced biological testing of lead compounds.
- Guided a subgroup of postdoctoral fellows and graduate students as a collaborative team working toward the design and preparation of novobiocin-inspired libraries.

RESEARCH ASSISTANT, NECKERS LABORATORY, NATIONAL CANCER INSTITUTE JUNE–AUGUST 2008
ANALYSIS OF HSP90 PHOSPHORYLATION AND CHARACTERIZATION OF HEAT SHOCK PROTEIN EXPRESSION FOLLOWING TREATMENT WITH HSP90 MODULATORS

- Established role of phosphorylation in Hsp90 regulation through making mutants of yeast Hsp90 and expressing human Hsp90 in E. coli.
- Identified three novel classes of *C*-terminal Hsp90 modulators and explored protein isoform selectivity in yeast.
- Extended collaboration through synthesis of an inhibitor of Hsp90 phosphorylation targeting Wee1 for use *in vivo*.

INDEPENDENT UNDERGRADUATE RESEARCHER, LEE AND BERDIS LABORATORIES, CWRU JUNE 2005–MAY 2006
DESIGN AND SYNTHESIS OF NON-NATURAL NUCLEOTIDES AS POTENTIAL ANTI-CANCER CHEMOTHERAPEUTICS

- Prepared non-natural nucleotides that terminate chain elongation when DNA is damaged as potential anti-cancer chemotherapeutics.

INDEPENDENT UNDERGRADUATE RESEARCHER, PROTASIEWICZ LABORATORY, CWRU AUGUST 2003–MAY 2004

DESIGN AND SYNTHESIS OF NOVEL ORGANOPHOSPHOROUS REAGENTS AND LIGANDS FOR DIVERGENT APPLICATIONS

- Synthesized organophosphorus compounds for development of new catalytic reactions and construction of novel materials.

HONORS:

September 2018:	The ALS Association Investigator Initiated Starter Grant
December 2016:	IBM Junior Faculty Development Award
November 2016:	Tier A PharmAlliance Award
April 2015:	GSK Silver Recognition Award
March 2015:	GSK Silver Recognition Award
December 2014:	GSK Silver Recognition Award
September 2013:	Center for Molecular Analysis and Design (CMAD) Postdoctoral Fellowship
February 2013:	Journal of Medicinal Chemistry Highly Cited Article of 2011
July 2011:	Invited speaker at American Chemical Society (ACS) Division of Organic Chemistry (DOC) Inaugural Graduate Research Symposium
March 2011:	Dissertation Defense with Honors
September 2009–May 2011:	ACS DOC Graduate Fellow
July 2007–May 2011:	NIH Predoctoral Trainee in Dynamic Aspects of Chemical Biology
August 2006–May 2007:	Greta Jean and Gerry D. Goetsch Award
May 2006:	Case Department of Chemistry Hypercube Scholar Award
August 2004–May 2006:	Case Alumni Association Junior and Senior Scholarship
August 2003–May 2006:	University Athletic Association (UAA) All-Academic Athlete
January 2003–May 2006:	Dean's High Honors or Dean's Honors
January 2003–December 2004:	The National Dean's List
August 2002–May 2006:	Provost Scholarship
August 2002–May 2003:	BPO Elks Scholarship

BOOK CHAPTERS:

1. Axtman, A. D.; Couñago, R.; Drewry, D. H.; Robers, M. B.; Wells, C. I. "Drugging the Kinome" *Kinase Drug Discovery: Modern Approaches (Eds: R. A. Ward, F. W. Goldberg).* RSC Publishing, **2018**, *Ch. 10*, 253–280.
2. Wender, P. A.; Donnelly, A. C.; Loy, B. A.; Near, K. E.; Staveness, D. "Rethinking the role of natural products: function-oriented synthesis, bryostatin and bryologs" *Natural Products in Medicinal Chemistry (Ed: S. Hanessian).* Wiley-VCH, **2014**, *Ch. 14*, 475–544.

PUBLICATIONS:

3. Agajanian, M. J.; Walker, M. P.; Axtman, A. D.; Ruela-de-Sousa, R. R.; Serafin, D. S.; Rabinowitz, A. D.; Graham, D. M.; Ryan, M. B.; Tamir, T.; Nakamichi, Y.; Gammons, M. V.; Bennett, J. M.; Couñago, R. M.; Drewry, D. H.; Elkins, J. M.; Gileadi, C.; Gileadi, O.; Godoi, P. H.; Kapadia, N.; Müller, S.; Santiago, A. S.; Sorrell, F. J.; Wells, C. I.; Fedorov, O.; Willson, T. W.; Zuercher, W. J.; Major, M. B. "WNT activates the AAK1 kinase to promote clathrin-mediated endocytosis of LRP6 and establish a negative feedback loop" *Cell Rep* **2019**, *26*, 79–93; doi: 10.1016/j.celrep.2018.12.023.
4. Jamieson, S. A.; Ruan, Z.; Burgess, A. E.; Curry, J. R.; McMillan, H. D.; Brewster, J. L.; Dunbier, A. K.; Axtman, A. D.; Kannan, N.; Mace, P. D. "Substrate binding allosterically relieves autoinhibition of the TRIB1 pseudokinase" *Sci. Signal.* **2018**, *11*, eaau0597; doi: 10.1126/scisignal.aau0597.
5. Jamieson, S. A.; Ruan, Z.; Burgess, A. E.; Curry, J. R.; McMillan, H. D.; Brewster, J. L.; Dunbier, A. K.; Axtman, A. D.; Kannan, N.; Mace, P. D. "Substrate binding allosterically relieves autoinhibition of the TRIB1 pseudokinase" *bioRxiv* **2018**, *313767;* doi: 10.1101/313767.
6. Krulikas, L. J.; McDonald, I. M.; Lee, B.; Okumu, D. O.; East, M. P.; Gilbert, T. S. K.; Herring, L. E.; Golitz, B. T.; Wells, C. I.; Axtman, A. D.; Zuercher, W. J.; Willson, T. M.; Kireev, D.; Yeh, J. J.; Johnson, G. L.; Baines, A. T.; Graves, L. M. "Application of integrated drug screening/kinome analysis to identify inhibitors of gemcitabine-resistant pancreatic cancer cell growth" *SLAS Discov*. **2018**, 2472555218773045; doi: 10.1177/2472555218773045.
7. Yang, H.; Staveness, D.; Ryckbosch, S. M.; Axtman, A. D.; Loy, B. A.; Barnes, A. B.; Pande, V. S.; Schaefer, J.; Wender, P. A.; Cegelski, L. "REDOR NMR reveals multiple conformers for a protein kinase C ligand in a membrane environment" *ACS Cent. Sci.* **2018**, *4*, 89–96; doi: 10.1021/acscentsci.7b00475.
8. Agajanian, M.; Walker, M.; Axtman, A.; Ruela-de-Sousa, R.; Rabinowitz, A.; Graham, D.; Ryan, M.; Serafin, S.; Bennett, J.; Couñago, R.; Drewry, D.; Elkins, J.; Gileadi, C.; Gileadi, O.; Godoi, P.; Kapadia, N.; Muller, S.; Santiago, A.; Sorrell, F.; Wells, C.; Fedorov, O.; Willson, T.; Zuercher, W.; Major, M. B. "AAK1 inhibits WNT signaling by promoting clathrin-mediated endocytosis of LRP6" *bioRxiv* **2018**, *258632;* doi: 10.1101/258632.
9. Drewry, D. H.; Wells, C. I.; Andrews, D. M.; Angell, R.; Al-Ali, R.; Axtman, A. D.; Capuzzi, S. J.; Elkins, J. M.; Ettmayer, P.; Frederiksen, M.; Gileadi, O.; Gray, N.; Hooper, A.; Knapp, S.; Laufer, S.; Luecking, U.; Michaelides, M.; Müller, S.; Muratov, E.; Denny, R. A.; Saikatendu, K. S.; Treiber, D. K.; Zuercher, W. J.; Willson, T. M. "Progress towards a public chemogenomic set for protein kinases and a call for contributions" *PloS one* **2017**, *12*, e0181585; doi: 10.1371/journal.pone.0181585.

10. Drewry, D. H.; Wells, C. I.; Andrews, D. M.; Angell, R.; Al-Ali, R.; Axtman, A. D.; Capuzzi, S. J.; Elkins, J. M.; Ettmayer, P.; Frederiksen, M.; Gileadi, O.; Gray, N.; Hooper, A.; Knapp, S.; Laufer, S.; Luecking, U.; Muller, S.; Muratov, E.; Denny, R. A.; Saikatendu, K. S.; Treiber, D. K.; Zuercher, W. J.; Willson, T. M. "Progress towards a public chemogenomic set for protein kinases and a call for contributions" *bioRxiv* **2017**, *104711*; doi: 10.1101/104711.
11. Couñago, R. M.; Axtman, A. D.; Capuzzi, S. J.; Azevedo, H.; Drewry, D. H.; Elkins, J. M.; Gileadi, O.; Guimarães, C. R. W.; Mascarello, A.; Serafim, R. A. M.; Wells, C. I.; Willson, T. M.; Zuercher, W. J. "Development of narrow spectrum ATP-competitive kinase inhibitors as probes for BIKE and AAK1" *bioRxiv* **2017**, *094631;* doi: 10.1101/094631.
12. Wender, P. A.; Axtman, A. D.; Golden, J. E.; Kee, J.-M.; Sirois, L. E.; Quiroz, R. V.; Stevens, M. C. "Function through bio-inspired, synthesis-informed design: step-economical syntheses of designed kinase inhibitors" *Org. Chem. Front*. **2014**, *1*, 1166–1171; doi: 10.1039/C4QO00228H.
13. Iwai, A.; Bourboulia, D.; Mollapour, M.; Jensen-Taubman, S.; Lee, S.; Donnelly, A. C.; Yoshida, S.; Miyajima, N.; Tsutsumi, S.; Smith, A. K.; Sun, D.; Wu, X.; Blagg, B. S.; Trepel, J. B.; Stetler-Stevenson, W. G.; Neckers, L. "Combined inhibition of Wee1 and Hsp90 activates intrinsic apoptosis in cancer cells" *Cell Cycle* **2012**, *11*, 3649–3655; doi: 10.4161/cc.21926.
14. Eskew, J. D.; Sadikot, T.; Morales, P.; Duren, A.; Dunwiddie, I.; Swink, M.; Zhang, X.; Hembruff, S.; Donnelly, A.; Rajewski, R. A.; Blagg, B. S.; Manjarrez, J. R.; Matts, R. L.; Holzbeierlein, J. M.; Vielhauer, G. A. "Development and characterization of a novel C-terminal inhibitor of Hsp90 in androgen dependent and independent prostate cancer cells" *BMC Cancer* **2011**, *11*, 468; doi: 10.1186/1471-2407-11-468.
15. Samadi, A. K.; Zhang, X.; Mukerji, R.; Donnelly, A. C.; Blagg, B. S.; Cohen, M. S. "A novel C-terminal HSP90 inhibitor KU135 induces apoptosis and cell cycle arrest in melanoma cells" *Cancer Lett*. **2011**, *312*, 158–167; doi: 10.1016/j.canlet.2011.07.031.
16. Zhao, H; Donnelly, A. C.; Kusuma, B. R.; Brandt, G. E. L.; Brown, D.; Rajewski, R. A.; Vielhauer, G.; Holzbeierlein, J.; Blagg, B. S. J. "Engineering an antibiotic to fight cancer: Optimization of the novobiocin scaffold to produce anti-proliferative agents" *J. Med. Chem.* **2011**, *54*, 3839–3853; doi: 10.1021/jm200148p.
17. Matts, R. L.; Brandt, G. E.; Lu, Y.; Dixit, A.; Mollapour, M.; Wang, S.; Donnelly, A. C.; Neckers, L.; Verkhivker, G.; Blagg, B. S. "A systematic protocol for the characterization of Hsp90 modulators" *Biochem. Med. Chem. Lett.* **2011**, *19*, 684–692; doi: 10.1016/j.bmc.2010.10.029.
18. Donnelly, A. C.; Zhao, H.; Kusuma, B. R.; Blagg, B. S. J. "Cytotoxic sugar analogues of an optimized novobiocin scaffold" *Med. Chem. Comm.* **2010**, *1*, 165–170; doi:10.1039/C0MD00063A.
19. Mollapour, M.; Tsutsumi, S.; Donnelly, A. C.; Beebe, K.; Tokita, M. J.; Lee, M.-J.; Lee, S.; Morra, G.; Bourboulia, D.; Scroggins, B. T.; Colombo, G.; Blagg, B. S.; Panaretou, B.; Stetler-Stevenson, W. G.; Trepel, J. B.; Piper, P. W.; Prodromou, C.; Pearl, L. H.; Neckers, L. "Swe1/Wee1-dependent tyrosine phosphorylation of Hsp90 regulates distinct facets of chaperone function" *Mol. Cell* **2010**, *37*, 333–343; doi: 10.1016/j.molcel.2010.01.005.
20. Matthews, S. B.; Vielhauer, G. A.; Manthe, C. A.; Chaguturu, V. K.; Szabla, K.; Matts, R. L.; Donnelly, A. C.; Blagg, B. S.; Holzbeierlein, J. M. "Characterization of a novel novobiocin analogue as a putative C-terminal inhibitor of heat shock protein 90 in prostate cancer cells" *Prostate* **2010**, *70*, 27–36; doi: 10.1002/pros.21035.
21. Shelton, S. N.; Shawgo, M. E.; Comer, S. B.; Lu, Y.; Donnelly, A. C.; Szabla, K.; Tanol, M.; Vielhauer, G. A.; Rajewski, R. A.; Matts, R. L.; Blagg, B. S.; Robertson, J. D. "KU135, a novel novobiocin-derived C-terminal inhibitor of Hsp90, exerts potent antiproliferative effects in human leukemic cells" *Mol. Pharmacol.* **2009**, *76*, 1314–1322; doi: 10.1124/mol.109.058545.
22. Donnelly, A.; Blagg, B. S. "Novobiocin and additional inhibitors of the Hsp90 C-terminal nucleotide-binding pocket" *Curr. Med. Chem.* **2008**, *15*, 2702–2717; doi: 10.2174/092986708786242895.
23. Donnelly, A. C.; Mays, J. R.; Burlison, J. A.; Nelson, J. T.; Vielhauer, G.; Holzbeierlein, J.; Blagg, B. S. "The design, synthesis, and evaluation of coumarin ring derivatives of the novobiocin scaffold that exhibit antiproliferative activity" *J. Org. Chem.* **2008**, *73*, 8901–8920; doi: 10.1021/jo801312r.
24. Vineyard, D.; Zhang, X.; Donnelly, A.; Lee, I.; Berdis, A. "Optimization of non-natural nucleotides for selective incorporation opposite damaged DNA" *Org. Biomol. Chem*. **2007**, *5*, 3623–3630; doi: 10.1039/B712480E.
25. Zhang, X.; Donnelly A.; Lee, I.; Berdis, A. "Rational attempts to optimize non-natural nucleotides for selective incorporation opposite an abasic site" *Biochemistry* **2006**, *45*, 13293–13303; doi: 10.1021/bi060418v.

PATENTS:

26. Blagg, B. S.; Zhao, H.; Donnelly, A. C. "Novobiocin analogues having modified sugar moieties" WO 10/096650. 2010 Aug. 26.

FUNDING:

Investigator Initiated Starter grant (PI: Axtman) 9/1/18–8/31/19 3.0 calendar months (25%)
The ALS Association $50,000 (no salary support)
Role: PI
Rational design of first-in-class TBK1-activating small molecules
This award will enable the development of a robust assay to allow assessment of TBK1 activation *in vitro* following treatment with novel small molecules that target TBK1 selectively.

U24DK116204-01 (PI: Johnson) 11/15/17–10/31/23 2.0 calendar months (17%)
NIH; Role: Staff Scientist $1,780,180 total project costs

Illuminating Function of the Understudied Druggable Kinome
Aim 1: Generation, systematization and dissemination of knowledge about dark kinases; Aim 2. Quantitative analysis of DKs using Parallel Reaction Monitoring (PRM) and RNAseq; Aim 3: Annotating the dark kinome for cellular phenotypes and functions in signal transduction; Aim 4: Identifying and characterizing cell active chemical tools for dark kinases; Aim 5: Collaborations to determine the expression and function of DKs in primary human cells and tissues.

1R44TR001916-01 2/1/17–12/31/18 1.2 calendar months (10%)
Luceome Biotechnologies, LLC/NIH $210,138 (subcontract DC only)
Role: Consortium Investigator (PI: Drewry)
SBIR: Tools for Accelerating R&D for Historically Understudied Protein Kinases
This work will include (a.) design of chemical inducers of dimerization (CIDs) which will be used to develop split luciferase assays for historically understudied kinases, and (b.) iterative medicinal chemistry to generate potent, selective and cell-active chemical probes to target members of the historically understudied kinome.

1UM1AI126619-01 (PI: Margolis) 7/14/16–6/30/21 0.48 calendar months (4%)
NIH; Role: Co-Investigator, Chemical Biology $86,000 (Chemical Biology/Frye Project)
Collaboratory of AIDS Researchers for Eradication (CARE)
The overarching objective of this program is to seek eradication of HIV infection by developing and testing therapies that will permanently destroy the persistent viral reservoir in the T cells of HIV patients receiving potent antiretroviral therapy.

Intramural Award (PI: Axtman) 1/1/17–12/31/17 0.12 calendar months (1%)
University of North Carolina at Chapel Hill $7,500 (no salary support)
IBM Junior Faculty Development Award
The overarching aim of this grant is the preparation of a small library of small molecule inhibitors that target the understudied human kinase AAK1. Funds are divided between the diversification and expansion of chemical scaffolds and screening of inhibitors that are synthesized, supporting the ultimate goal of identifying at least one potent and selective inhibitor of AAK1.

Intramural Award (PI: Axtman/Wells/Willson) 1/3/17–1/3/18 1.2 calendar months (10%)
PharmAlliance $47,500 (no salary support)
Pilot studies to establish a UCL/UNC kinase drug discovery platform
This award enables screening of small molecule chemogenomic libraries in disease-relevant, patient-derived phenotypic assays as an objective way to identify understudied protein kinases as targets for drug discovery.
Funds will support assay development and screening at UCL/MRC-T, while data deconvolution and follow-up chemistry will take place at UNC.

INVITED PRESENTATIONS:

October 2018: "Prioritization of NanoBRET assays for the 163 IDG understudied kinases"
Kinase-DRGC Meeting, Chapel Hill, NC
August 2018: "Kinase chemical probe discovery"
Duke University Drug Discovery Showcase, Durham, NC
February 2017: "AAK1 probe story"
SGC Scientific Advisory Board Meeting, Chapel Hill, NC
November 2016: "PKIS snapshot"
PharmAlliance Meeting, Chapel Hill, NC
October 2016: "Gap filling strategies" and "Potential funding mechanisms"
SGC-UNC Conference on Development of a Unique Kinase Chemogenomics Set, Ocean Isle Beach, NC
July 2016: "DDR2 inhibitors for dupuytren's disease"
UCL Dragon's Den, London, UK
October 2015: "Medicinal chemistry enables probe development"
SGC-Disease Foundations Research "Speed dating," Chapel Hill, NC
June 2011: "Studies on the novobiocin coumarin core"
National Organic Symposium, Princeton, NJ
July 2010: "Engineering an antibiotic to fight cancer"
1st Annual Graduate Research Symposium, Boston, MA
October 2008: "The design, synthesis, and evaluation of coumarin ring derivatives of the novobiocin scaffold that exhibit anti-proliferative activity"
14th Annual Dynamic Aspects of Chemical Biology Symposium, Lawrence, KS
April 2008: "Novobiocin analogues that exhibit anti-tumor activity"
MIKI meeting, Iowa City, IA
September 2007: "Derivitizing novobiocin to modulate Hsp90 expression and affect multiple therapeutic targets"
13th Annual Dynamic Aspects of Chemical Biology Symposium, Lawrence, KS

POSTER PRESENTATIONS:

October 2018 "Rational design of first-in-class TBK1-activating small molecules"
17th Annual NEALS Meeting, Clearwater Beach, FL

March 2018: "The Kinase Chemogenomic Set (KCGS)"
IDG Consortium Kick-off meeting, Bethesda, MD

December 2017: "Synergistic HIV Latency Reversal from an In Vitro Combination Screen of Epigenetic and Kinase Inhibitors"
HIV Persistence Workshop, Miami, FL

June 2017: "Combination Screen of Epigenetic Modifiers with Kinase Inhibitors to Discover Synergistic HIV Latency Reversing Agents"
CARE meeting 2017, Chapel Hill, NC

October 2013: "Function-Oriented Synthesis: Step-Economical Synthesis of Novel Bryostatin Analogs"
Johnson Symposium 2013, Stanford, CA

May 2013: "Solid State NMR Characterization of Ligands Bound to Protein Kinase C"
CMAD Symposium 2013, Stanford, CA

May 2013: "Function-oriented synthesis: The step-economical, scalable total synthesis of highly potent bryostatin analogs via macrocyclization strategies"
CMAD Symposium 2013, Stanford, CA

October 2012: "Function-oriented synthesis: The step-economical, scalable total synthesis of highly potent bryostatin analogs via macrocyclization strategies"
Johnson Symposium 2012, Stanford, CA

October 2011: "Function-oriented synthesis: The step-economical, scalable total synthesis of highly potent bryostatin analogs via macrocyclization strategies"
Johnson Symposium 2011, Stanford, CA

April 2010: "Cytotoxic novobiocin analogues that probe the hydrophobic C-terminal Hsp90 binding pocket"
University of Kansas School of Pharmacy Graduate Honors Symposium, Lawrence, KS

April 2010: "Cytotoxic novobiocin analogues that probe the hydrophobic C-terminal Hsp90 binding pocket"
MIKI meeting, Chicago, IL

December 2009: "Sugar analogues of novobiocin that manifest anti-proliferative activity"
Hsp90 Symposium, Lawrence, KS

October 2009: "Sugar analogues of novobiocin that manifest anti-proliferative activity"
15th Annual Dynamic Aspects of Chemical Biology Symposium, Lawrence, KS

August 2009: "Sugar analogues of novobiocin that manifest anti-proliferative activity"
ACS meeting, Washington, DC

April 2009: "Sugar analogues of novobiocin that manifest anti-proliferative activity"
MIKI meeting, Minneapolis, MN

October 2008: "Swe1/Wee1 directly phosphorylates Hsp90 and regulates its chaperone activity in a cell cycle dependent manner"
4th International Conference on The Hsp90 Chaperone Machine, Monastery Seeon, Germany

April 2008: "Using novobiocin analogs to probe the C-terminus of Hsp90"
ACS meeting, New Orleans, LA

April 2007: "Novobiocin: a bidirectional approach toward cytotoxic Hsp90 inhibition"
MIKI meeting, Lawrence, KS

March 2007: "Novobiocin: a bidirectional approach toward cytotoxic Hsp90 inhibition"
ACS meeting, Chicago, IL

TEACHING:

Fall 2018–Spring 2019: Seminar in Biological and Biomedical Sciences: BBSP FYG (BBSP 902 006 FA18)
Fall 2017–Spring 2018: Seminar in Biological and Biomedical Sciences: BBSP FYG (BBSP 902 006 FA17)

PROFESSIONAL MEMBERSHIPS:

ACS Divisions of Organic, Biological, and Medicinal Chemistry