

ADAM SCOTT DUERFELDT, PH.D.

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 University of Oklahoma
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EDUCATION*The University of Kansas, Lawrence, KS***Ph.D. in Medicinal Chemistry**

2011

Dissertation: "A New Generation of Hsp90 Inhibitors: Addressing Isoform Selectivity and Heat Shock Induction"

*Central College, Pella, IA***B.A. in Chemistry**

2006

Highest Distinction

PROFESSIONAL EXPERIENCE*Excitant Therapeutics, Oklahoma City, OK*

2018 –

Co-Founder*University of Oklahoma, Norman, OK***Assistant Professor**

2014 –

Vice President of Research Distinguished Faculty Fellow

2016 – 2019

*The Scripps Research Institute, La Jolla CA***American Cancer Society Postdoctoral Fellow**

2012 – 2014

Advisor: Professor Dale L. Boger

*The University of Kansas, Lawrence, KS***Madison and Lila Self Graduate Fellow**

2006 – 2011

Advisor: Professor Brian S. J. Blagg

*Central College, Pella, IA***Undergraduate Research Assistant**

2005 – 2006

Advisor: James A. Shriver

HONORS & AWARDS

University of Oklahoma Growth Fund Winner

2017

Journal of Natural Products Jack L. Beal Award

2017

Awarded to the top paper published in the journal by a young investigator

University of Oklahoma CBR Outstanding Professor of the Year (student voted)

2017

University of Oklahoma Inaugural Faculty Leadership Academy Fellow

2015

American Cancer Society Special Friend: Researcher Award

2015

Elsevier Top 10 Reviewer for Bioorganic & Medicinal Chemistry Letters

2013

The University of Kansas Irsay–Dahle Award

2011

*Awarded to recognize outstanding contributions in academics, research activities**and citizenship by a senior graduate student in the Medicinal Chemistry Department*

The University of Kansas Cancer Symposium Excellence in Research Award

2009

ESPN the Magazine Academic All-American Player of the Year

2006

IIAC Duane Schroeder Scholar of the Year

2006

Woody Hayes Division-III National Scholar Athlete of the Year

2006

Alpha Zeta Mu

2006

ESPN the Magazine First Team Academic All-American

2006

ESPN the Magazine First Team Academic All-American

2005

FELLOWSHIPS

University of Oklahoma College of Arts & Sciences Junior Faculty Fellowship	2016
University of Oklahoma Vice President of Research Junior Faculty Fellowship	2015
American Cancer Society Postdoctoral Fellowship	2012 – 2014
Institute for Advancing Medical Innovation Fellowship (KU)	2010
American Foundation for Pharmaceutical Education (AFPE) Pre-doctoral Fellowship	2010
Sanofi-Aventis AFPE Pre-doctoral Fellowship	2009
Josiah Kirby Lilly, Sr. Memorial AFPE Pre-doctoral Fellowship	2008
Madison and Lila Self Graduate Fellowship (KU)	2006 – 2010
NCAA Postgraduate Fellowship	2006

MEMBERSHIPS (Organizations and Research Centers)

American Society of Microbiology	2018 –
Harold Hamm Diabetes Center	2016 –
American Society of Pharmacognosy	2015 –
Stephenson Cancer Center, Experimental Therapeutic Research Program	2015 –
American Association for the Advancement of Science	2011 –
American Chemical Society	2006 –

PROFESSIONAL DEVELOPMENT WORKSHOPS/SEMINARS (INDEPENDENT CAREER)

Mentoring Graduate Students and Postdocs Workshop Series	2019
Small Teaching Strategies: Large Classes Workshop	2018
NSF CAREER CRPDE Workshop	2016
University of Oklahoma Faculty Leadership Academy	2015 – 2016
New Faculty in Organic and Biological Chemistry Mentoring Workshop (NIH-NIGMS)	2015
NSF CAREER: Resources, Templates and Tools Workshop (OU)	2015
Tenure and Promotion Workshop (OU)	2015
CRPDE Individual Research Plan (iRep) Workshop (OU)	2014

SCIENTIFIC SERVICE (INDEPENDENT CAREER)

Chair, Seminar Committee	2017 – 2019
Skype a Scientist Participant	2017 –
COBRE Symposium Poster Judge	2017
FYRE Symposium Poster Judge	2017
Full Faculty Member, F1000	2016 –
Review Panelist, National Science Foundation (GRFP)	2016 –
Research Mentor, NSF REU in Structural Biology	2016
Co-Chair, ACS National Meeting 2016 MEDI Symposium	2015 – 2016
Seminar Committee, Department of Chemistry & Biochemistry	2015 – 2019
Research Mentor, First-Year Research Experience (FYRE)	2014 –
Organizing Committee, 2015 American Society of Pharmacognosy National Meeting	2014 – 2015

EXTRACURRICULAR SERVICE

Scientific Consultant, i2E	2016 –
OU Innovation Prize Task Force	2016
Guest Pitch Competition Judge for New Venture Development II (ENT 4113)	2015 –
Faculty Mentor for OU Entrepreneurial Activities	2015 –
<i>2015 Governor's Cup High Growth Undergraduate Champion (Raw)</i>	
<i>2015 Tri-state Runner-up (Raw)</i>	
Central College National Advisory Committee	2015 – 2017
Biotechnology Advisory Committee, Moore Norman Technology Center	2015 –
Board Member, Timothy Yates Heggen Foundation	2002 – 2015

MANUSCRIPT REVIEW

Beilstein Journal of Organic Chemistry, Journal of Chemical Information and Modeling, Organic Letters, Bioorganic & Medicinal Chemistry, ACS Medicinal Chemistry Letters, Journal of Medicinal Chemistry, Bioorganic & Medicinal Chemistry Letters, ACS Omega, MedChemComm, Oklahoma Journal of Undergraduate Research

PUBLICATIONS

Refereed Papers/Articles

19. Li, Y.; Gardner, J.J.; Fortney, K.R.; Leus, I.V.; Bonifay, V.; Zgurskaya, H.I.; Pletnev, A.A.; Zhang, S.; Zhang, Z.Y.; Gribble, G.W.; Spinola, S.M.; Duerfeldt, A.S. First-Generation Structure-Activity Relationship Studies of 2,3,4,9-tetrahydro-1*H*-carbazol-1-amines as CpxRA Phosphatase Inhibitors. *Bioorg. Med. Chem. Lett.*, **2019**, in press.
18. Lavey, N.P.; Duerfeldt, A.S., *Clostridium difficile* ClpP Homologs are Capable of Uncoupled Activity and Exhibit Different Levels of Susceptibility to Acyldepsipeptide Modulation, *ACS Infect. Dis.*, **2018**, *5*, 79.
17. Que, N.L.S.; Crowley, V.M.; Duerfeldt, A.S.; Zhao, J.; Kent, C.N.; Blagg, B.S.J.; Gewirth, D.T. Structure Based Design of a Grp94-Selective Inhibitor: Exploiting a Key Residue in Grp94 to Optimize Paralog-Selective Binding. *J. Med. Chem.*, **2018**, *61*, 2793.
16. Dou, X.; Nath, D.; Shin, Y.; Ma, J.; Duerfeldt, A.S. Structure-Guided Evolution of a 2-Phenyl-4-carboxyquinoline Chemotype into PPAR α Selective Agonists: New Leads for Oculovascular Conditions. *Bioorg. Med. Chem. Lett.*, **2018**, *28*, 2717.
15. Li, Y.; Lavey, N.P.; Coker, J.A.; Knobbe, J.E.; Truong, D.C.; Yu, H.; Lin, Y.S.; Nimmo, S.L.; Duerfeldt, A.S. Consequences of Depsipeptide Substitution on the ClpP Activation Activity of Antibacterial Acyldepsipeptides. *ACS Med. Chem. Lett.*, **2017**, *8*, 1171-1176.
14. Avila, Q.P.; Zgurskaya, H.I.; Duerfeldt, A.S. Recent Advances towards Rational Antibacterial Discovery: Addressing Permeation and Efflux. *ACS Med. Chem. Rev.* **2017**, *52*, 319-339.
13. Di, X.J.; Wang, Y.J.; Han, D.Y.; Duerfeldt, A.S.; Blagg, B.S.J.; Mu, T.W. Grp94 Delivers γ -aminobutyric Acid Type A (GABA_A) Receptors to Hrd1-Mediated Endoplasmic Reticulum-Associated Degradation. *J. Biol. Chem.* **2016**, *291*, 9526-9539.
12. Crowley, V.M.; Khandelwal, A.; Mishra, S.; Stothert, A.R.; Huard, D.J.E.; Zhao, J., Muth, A.; Duerfeldt, A.S.; Kizziah, J.L.; Lieberman, R.L.; Dickey, C.A.; Blagg, B.S.J. Development of Glucose Regulated Protein 94-Selective Inhibitors Based on the BnIm and Radamide Scaffold. *J. Med. Chem.* **2016**, *59*, 3471-3488.
11. Lavey, N.P.; Coker, J.A.; Ruben, E.A.; Duerfeldt, A.S. Sclerotiamide: The First Non-Peptide Based Natural Product Activator of Bacterial Caseinolytic Protease P. *J. Nat. Prod.*, **2016**, *79*, 1193-1197.
10. Anderson, E.D.; Duerfeldt, A.S.; Zhu, K.; Glinkerman, C.M.; Boger, D.L. Cycloadditions of Noncomplementary Substituted 1,2,3-Triazines. *Org. Lett.* **2014**, *16*, 5084-5087.
9. Duerfeldt, A.S.; Boger, D.L. Stereoselective Syntheses of (-)-Pyrimidoblamic Acid and P-3A. *J. Am. Chem. Soc.* **2014**, *136*, 2119-2125.
8. Wolfe, A.L., Duncan, K.K., Lajiness, J.P., Zhu, K., Duerfeldt, A.S., Boger, D.L. A Fundamental Relationship between Hydrophobic Properties and Biological Activity for the Duocarmycin Class of DNA Alkylating Antitumor Drugs: Hydrophobic Binding-Driven-Bonding. *J. Med. Chem.* **2013**, *56*, 6845-6857.
7. Suntharalingam, A.; Abisambra, J.F.; O'Leary, J.C.; Koren III, J.; Zhang, B.; Kuk Joe, M.; Blair, L.J.; Hill, S.E.; Jinwal, U.K.; Cockman, M.; Duerfeldt, A.S.; Tomarev, S.; Blagg, B.S.J.; Lieberman, R.L.; Dickey, C.A. Glucose-regulated Protein 94 Triage of Mutant Myocilin through Endoplasmic Reticulum-associated Degradation Subverts a More Efficient Autophagic Clearance Mechanism. *J. Biol. Chem.* **2012**, *287*, 40661-40669.

6. Duerfeldt, A.S.; Peterson, L.B.; Maynard, J.C.; Ng, C.L.; Eletto, D.; Ostrovsky, O.; Shinogle, H.E.; Moore, D.S.; Argon, Y.; Nicchitta, C.V.; Blagg, B.S.J. Development of a Grp94 Inhibitor. *J. Am. Chem. Soc.* **2012**, *134*, 9796–9804.
5. Kusuma, B.R.; Duerfeldt, A.S.; Blagg, B.S.J. Synthesis and Biological Evaluation of Arylated Novobiocin Analogs as Hsp90 Inhibitors. *Bioorg. & Med. Chem. Lett.* **2011**, *21*, 7170–7174.
4. Duerfeldt, A.S.; Blagg, B.S.J. Hsp90 Inhibition: Elimination of Shock and Stress. *Bioorg. & Med. Chem. Lett.* **2010**, *20*, 4983–4987.
3. Jadhav, V.; Duerfeldt, A.S.; Blagg, B.S.J.; Design, Synthesis and Biological Activity of Bicyclic Radester Analogues as Hsp90 Inhibitors. *Bioorg. & Med. Chem. Lett.* **2009**, *19*, 6845–6850.
2. Duerfeldt, A.S.; Brandt, G.E.L. Blagg, B.S.J.; Design, Synthesis and Biological Evaluation of Conformationally Constrained *cis*-Amide Hsp90 Inhibitors. *Org. Lett.* **2009**, *11*, 2353–2356.
1. Duerfeldt, A.S.; Blagg, B.S.J. Hydrating for Resistance. *ACS Chem. Biol.* **2009**, *4*, 245–247.

Patents/Disclosures

4. Blagg, B.S.J.; Duerfeldt, A.S.; Grp94 Inhibitors, U.S. Patent 8,685,966, April 1, 2014.
3. Levine, M.; Duerfeldt, A.S.; Wallace, J. FDA-Approved Drugs for the Control of Periodontal Disease, Invention disclosure No. 16HSC025 filed Dec. 15, 2015. (expired - not converted)
2. Ma, J.X.; Duerfeldt, A.S.; Moran, E.; Deng, G.; Phenylquinoline Compositions for Treatment of Ocular Disorders and Conditions, filed PCT/US2017/030053 on Apr. 28, 2017.
1. Duerfeldt, A.S.; Ma, J.X.; Sinh, Y.; Nath, D.; Dou, X.; Agonists of Peroxisome Proliferator-Activated Receptor-Alpha (PPAR α) and Methods of Use, filed PCT/US19/22400 on Mar. 16, 2019.

Non-Refereed Contributions

20. F1000 Review: DOI: 10.3410/f.734839795.793555934
 - Article Reviewed: Discovery of a GPR40 Superagonist: The Impact of Aryl Propionic Acid α -fluorination. *ACS Med. Chem. Lett.*, **2019**, *10*, 16.
19. F1000 Review: DOI: 10.3410/f.734368160.793553488
 - Article Reviewed: The CryoEM Method MicroED as a Powerful Tool for Small Molecule Structure Determination. *ACS Cent. Sci.*, **2018**, *4*, 1587,
18. F1000 Review: DOI: 10.3410/f.727449235.793553487
 - Article Reviewed: Structural basis for specific ligation of the peroxisome proliferator-activated receptor δ . *Proc. Nat. Acad. Sci.*, **2017**, *114*, E2563.
17. F1000 Review: DOI: 10.3410/f.733998655.793551100
 - Article Reviewed: Superoxide Dismutase Activity Confers (p)ppGpp-mediated Antibiotic Tolerance to Stationary-phase *Pseudomonas aeruginosa*. *Proc. Nat. Acad. Sci.*, **2018**, *115*, 9797.
16. F1000 Review: DOI: 10.1021/acs.jmedchem.7b00718
 - Article Reviewed: Quest for Novel Chemical Entities through Incorporation of Silicon in Drug Scaffolds. *J. Med. Chem.*, **2017**, *ASAP*.
15. F1000 Review: DOI: 10.1038/s41598-017-11336-4
 - Article Reviewed: Glucosyltransferase Activity of *Clostridium difficile* Toxin B Triggers Autophagy-mediated Cell-Growth. *Sci. Rep.*, **2017**, *7*, 10532.
14. F1000 Review: DOI: 10.1126/science.aan0003
 - Article Reviewed: A Modular and Enantioselective Synthesis of Pleuromutilin Antibiotics. *Science*, **2017**, *356*, 956.
13. F1000 Review: DOI: 10.1021/acs.jmedchem.6b01727
 - Article Reviewed: Structure-Activity Relationship of 2,4-Dichloro-N-(3,5-dichloro-4-(quinolin-3-yloxy)phenyl)benzenesulfonamide (INT131) Analogs for PPAR γ -Targeted Antidiabetics. *J. Med. Chem.*, **2017**, *60*, 4584.
12. F1000 Review: DOI: 10.3410/f.726854959.793526968
 - Article Reviewed: Arginine Phosphorylation Marks Proteins for Degradation by a ClpP Protease. *Nature*, **2016**, *539*, 48.

11. F1000 Review: DOI: 10.3410/f.727412755.793530690
 - Article Reviewed: Catalytic Synthesis of N-Heterocycles via Direct C(sp³)-H Amination Using an Air-Stable Iron (III) Species with a Redox-Active Ligand. *J. Am. Chem. Soc.*, **2017**, *139*, 5117.
10. F1000 Review: DOI: 10.3410/f.726596128.793526810
 - Article Reviewed: Oxidative diversification of amino acids and peptides by small-molecule iron catalysis. *Nature*, **2016**, *537*, 214-219.
9. F1000 Review: DOI: 10.3410/f.726443578.793521804
 - Article Reviewed: Development of a Dual-Acting Antibacterial Agent (TNP-2092) for the Treatment of Persistent Bacterial Infections. *J. Med. Chem.*, **2016**, *59*, 6645.
8. F1000 Review: DOI: 10.3410/f.726375486.793519527
 - Article Reviewed: Cholesterol Autoxidation Revisited: Debunking the Dogma Associated with the Most Vilified of Lipids. *J. Am. Chem. Soc.*, **2016**, *138*, 6932.
7. F1000 Review: DOI: 10.3410/f.726303649.793519008
 - Article Reviewed: A Conformationally Constrained Cyclic Acyldepsipeptide Is Highly Effective in Mice Infected with Methicillin-Susceptible and -Resistant Staphylococcus aureus. *PLoS ONE*, **2016**, *11*, e0153912.
6. F1000 Review: DOI: 10.3410/f.726204404.793517336
 - Article Reviewed: ReAsH as a Quantitative Probe of In-Cell Protein Dynamics. *Biochemistry*, **2016**, *55*, 1968.
5. F1000 Review: DOI: 10.3410/f.12541956.13766061
 - Article Reviewed: Identification of Heat-Shock Protein 90 Beta in Japanese Encephalitis Virus-Induced Secretion Proteins. *J. Gen. Virol.*, **2011**, *92*, 2803-2809.
4. F1000 Review: DOI: 10.3410/f.4023957.3790057
 - Article Reviewed: The Palladium-Catalyzed Trifluoromethylation of Aryl Chlorides. *Science*, **2010**, *328*, 1679-1681.
3. F1000 Review: DOI: 10.3410/f.3213956.2898054
 - Article Reviewed: D-Amino Acids Trigger Biofilm Disassembly. *Science*, **2010**, *328*, 627-629.
2. F1000 Review: DOI: 10.3410/f.1226961.694060
 - Article Reviewed: Human Liver Microsomal Metabolism of (+)-Discodermolide. *J. Nat. Prod.*, **2009**, *72*, 1748-1754.
1. F1000 Review: DOI: 10.3410/f.1165088.627080
 - Article Reviewed: Inhibitors Selective for Mycobacterial Versus Human Proteasomes. *Nature*, **2009**, *461*, 621-626.

SEMINARS AND PAPERS PRESENTED (INDEPENDENT CAREER)

Invited Presentations (ASD)

Concordia University (<i>Concordia, WI</i>) School of Pharmacy <i>Hit to Lead Evolution of Small Molecule PPARα Agonists: New Visions for an Old Target</i>	2019.04.26
University of North Carolina Greensboro (<i>Greensboro, NC</i>) Department of Chemistry and Biochemistry <i>Hit to Lead Evolution of Small Molecule PPARα Agonists: New Visions for an Old Target</i>	2019.03.01
The University of Ohio State (<i>Columbus, OH</i>) Department of Medicinal Chemistry and Pharmacognosy <i>Hit to Lead Evolution of Small Molecule PPARα Agonists: New Visions for an Old Target</i>	2019.02.12
University of Connecticut (<i>Storrs, CT</i>) Department of Medicinal Chemistry <i>Small Molecule and Macromolecular Insights into ClpP Modulation as an Antibacterial Strategy</i>	2018.03.05
American Chemical Society Midwest Regional Meeting (<i>Lawrence, KS</i>) Session: Chemical Biology of Infectious Disease <i>Chemical and Macromolecular Insights into ClpP Modulation as an Antibacterial Strategy</i>	2017.10.19

Oklahoma State University (<i>Stillwater, OK</i>) Oklahoma Center for Respiratory and Infectious Diseases <i>Exploration of ClpP Activation to Treat Respiratory Infections in Cystic Fibrosis</i>	2016.04.19
University of Oklahoma Health Sciences Center (<i>Oklahoma City, OK</i>) Department of Microbiology & Immunology <i>Bacterial ClpP Activation: Expanding the Arsenal and Assessing the Therapeutic Potential</i>	2015.11.10
Central College (<i>Pella, IA</i>) Department of Chemistry <i>A Multifaceted Approach Towards the Identification of Novel Bacterial Caseinolytic Protease P Activators</i>	2015.11.05
American Chemical Society Midwest Regional Meeting (<i>St. Joseph, MO</i>) <i>A Multifaceted Approach Towards the Identification of Novel Bacterial Caseinolytic Protease P Activators</i>	2015.10.22
University of Oklahoma Health Sciences Center (<i>Oklahoma City, OK</i>) Department of Pharmaceutical Sciences <i>Towards New Antimicrobial and Anticancer Agents: Exploiting Unconventional Targets</i>	2015.06.05

Accepted Abstracts – Oral Presentations (ASD)

1. Duerfeldt, A.S. Hit to Lead Evolution of Small Molecule PPAR α Agonists: Working Towards Non-Invasive Options for Retinal Diseases” American Chemical Society National Meeting, Orlando, FL, March 31, 2019.

Posters (ASD)

Presentations by A.S.D.

1. Duerfeldt, A.S. Chemoactivation of a Bacterial Protease: Expanding the Molecular Arsenal and Exploring Therapeutic Potential, *American Society of Pharmacognosy National Conference*, Copper Mountain, CO, July 25–29, 2015.

Oral Presentations (Students)

American Chemical Society Southwest Regional Meeting, Little Rock, AR <i>Development of Novel PPARα Small-Molecule Agonists: A Promising Approach to Treating Retinal Diseases</i> Presenter: Xiaozheng Dou	2018.11.08
3 rd National Symposium for Undergraduate Research, St. Jude’s Children’s Research Hospital <i>Identification and Biological Evaluation of New PPARα Agonistic Chemotypes</i> Presenter: Dat Truong	2018.06.13
University of Oklahoma, COBRE 5 th Annual Structural Biology Symposium, Norman, OK <i>Structural Insights into the ClpP System of Clostridium difficile: SAXS Analysis of ClpP1</i> Presenter: Nathan Lavey	2017.06.15
University of Oklahoma Undergraduate Research Day, Norman, OK <i>Screening Marine Extracts for Novel ClpP Activators: A Search for New Antibacterial Leads</i> Presenters: Jessie Knobbe and Dat Truong	2017.04.08
University of Oklahoma Undergraduate Research Day, Norman, OK <i>A Rude Awakening: Antibiotics by ClpP Activation</i> Presenter: Jesse Coker <i>**Highlighted by Sooner Magazine (Summer 2015)</i>	2015.04.18

Poster Presentations (Students, presenter underlined, * = undergraduate)

14. *Knobbe, J.E.; Duerfeldt, A.S. “Structure-Guided Optimization of PPAR α Agonists” 2019 Senior Thesis Poster Symposium, University of Oklahoma, Norman, OK, May 1, 2019.

13. *Hoang, A.; Nath, D.; **Duerfeldt, A.S.** “Design, Synthesis, and Bioactivity of Novel Subtype-selective PPAR α Agonists” 2019 FYRE Poster Symposium, University of Oklahoma, Norman, OK, May 1, 2019.
12. Dou, X.; Nath, D.; Shin, Y.; Ma, J.X.; Duerfeldt, A.S. Design, Synthesis, and Bioactivity of Small Molecule Leads for the Treatment of Oculovascular Diseases, ACS National Meeting, New Orleans, LA, March 18–22, 2018.
11. Lavey, N.P.; Duerfeldt, A.S. Behavior and Biological Significance of Caseinolytic Protease P in *Clostridium difficile*, ACS National Meeting, New Orleans, LA, March 18–22, 2018.
10. *Truong, D., Dou, X., Nath, D., Duerfeldt, A.S. Identification and Biological Evaluation of New PPAR α Agonistic Chemotypes, 32nd National Conference for Undergraduate Research, Edmond, OK, April 4–7, 2018.
9. Lavey, N.P., Duerfeldt, A.S. Structural and Functional Nuances between *C. difficile* ClpP1 and ClpP2, 6th Annual Symposium on Structural Biology, Norman, OK, June 14, 2018.
8. Lavey, N.P.; Duerfeldt, A.S. Towards the Structure-Function Elucidation of Caseinolytic Protease P in *Clostridium difficile*, University of Oklahoma 5th Annual Symposium on Structural Biology, Norman, OK, June 15, 2017.
7. Lavey, N.P.; Duerfeldt, A.S. Towards the Structure-Function Characterization of Caseinolytic Protease P in *Clostridium difficile* 630, ACS Midwest Regional Meeting, Manhattan, KS, October 26–28, 2016.
6. Lavey, N.P.; Duerfeldt, A.S. Towards the Structural and Functional Characterization of Caseinolytic Protease P in *Clostridium difficile*, University of Oklahoma 4th Annual Symposium on Structural Biology, Norman, OK, June 14, 2016.
5. *Truong, D.; *Knobbe, J.; Duerfeldt, A.S. Screening Marine Extracts for Novel ClpP Activators: A Search for New Antibacterial Leads, University of Oklahoma First Year Research Experience (FYRE) Symposium, Norman, OK, May 4, 2016.
4. Lavey, N.P.; Coker, J.A.; Ruben, E.A.; Duerfeldt, A.S. Sclerotiamide: The First Non-Peptide-Based Natural Product Activator of Bacterial Caseinolytic Protease P, University of Oklahoma Research and Creativity Day 2016, Norman, OK, March 4, 2016.
**Recipient of Second Place Award for Science A Division
3. *Johnston, R.A.; Duerfeldt, A.S. Natural Product Inspired Small Molecule Activators of ClpP, University of Oklahoma First Year Research (FYRE) Symposium, Norman, OK, April 29, 2015.
**Recipient of Best FYRE Project Award
2. *Zhou, Y.; Duerfeldt, A.S. Trojan Horse Antibiotics: Small Molecule and Natural Product Activation of Bacterial Protease ClpP, University of Oklahoma Undergraduate Research Day, Norman, OK, April 18, 2015.
1. *Nguyen, S.M.; *Johnston, R.A.; Duerfeldt, A.S. Synthesis of Novel Antibacterial Agents, University of Oklahoma Undergraduate Research Day, Norman, OK, April 18, 2015.

EXTERNAL COMPETITIVE GRANT ACQUISITIONS

**Amounts shown are total direct costs associated only with my lab's science

NIH-NIAID R01 (R01AI136795): \$665,000 (Co-investigator) <i>Predictive Models for Small-Molecule Accumulation in Gram-Negative Bacteria</i>	2018 – 2023
NIH COBRE (P20GM103640): \$750,000 (Project Leader) <i>Structure, Function, and Therapeutic Potential of Clostridium difficile Caseinolytic Protease P</i>	2017 – 2022

NIH R21 (1R21EY028279): \$275,000 (PI) <i>Hit to Lead Optimization of a Systemically Available Treatment for Diabetic Retinopathy</i>	2017 – 2019
Harold Hamm Oklahoma Diabetes Center (HHDC) COBRE Pilot Project Grant: \$50,000 (PI) <i>Hit to Lead Optimization of a Novel PPARα Agonist Towards a Systemically Available Treatment for Diabetic Retinopathy (NIH 5P20GM104934)</i>	2017
Oklahoma Center for Respiratory & Infectious Disease (OCRID) Pilot Project Grant: \$25,000 (PI) <i>Exploration of ClpP Activation to Treat Respiratory Infections in Cystic Fibrosis (NIH P20GM103648)</i>	2015
Oklahoma Center for the Advancement of Science (OCAST): \$135,000 (PI) <i>Exploration of Bacterial ClpP as a Treatment Strategy for Hospital-Acquired Infections</i>	2015 – 2018
American Cancer Society (ACS): \$150,000 (PI) <i>Design, Synthesis, and Evaluation of Novel Bleomycin Analogs</i>	2012 – 2014

INTERNAL COMPETITIVE FUNDING ACQUISITIONS

University of Oklahoma Growth Fund: \$75,000 (PI) <i>Pre-clinical Assessment of Small Molecule Drug Leads for Ocular Microvasculature Diseases</i>	2018 – 2019
University of Oklahoma CAS Junior Faculty Fellowship: \$7,000 <i>Development of a New Natural Product Extract Screening Method: Simplifying the Search for Natural Drug Leads</i>	2016
University of Oklahoma VPR Junior Faculty Fellowship: \$7,000 <i>Identification and Validation of Natural Product ClpP: Activators Capitalizing on an Unexploited Strategy for New Antibiotic Development</i>	2015

CONTRACT RESEARCH

University of Oklahoma Health Sciences Center: \$31,404 (PI) <i>Development of PPAR-alpha agonists</i>	2016 – 2018
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CURRENT RESEARCH TEAM

Postdoctoral Research Associates

Dinesh Nath, Ph.D.
Ziwei Hu, Ph.D.
Catherine Bishop, Ph.D.

Graduate Students

Quentin Avila, M.S.
Xiaozheng Dou, M.S.
2018 Robberson Travel Grant recipient
2015 Kenneth M. Nicholas Graduate Summer Fellowship
Jessica Gardner
2019 Robberson Travel Grant recipient
April Aloway, M.S.
Julie Lee

Undergraduates

Jessica Knobbe
2016 FYRE student
2016 UROP grant recipient
Karla Bonic
Anh Hoang
2019 FYRE student

RESEARCH GROUP ALUMNI

Postdoctoral Research Associates

Yangxiong Li, Ph.D. – postdoctoral researcher
Postdoc at OUSHC
Gopal Peddabuddi – postdoctoral researcher
Employed at Accele BioPharma

Graduate Students

Nathan P. Lavey, Ph.D.
Postdoctoral Fellow (National Cancer Institute – NIH)
2019 Lloyd E. Swearingen Award – selected on the basis of outstanding performance in research
2016 Robberson Travel Grant recipient
Hailee Rau – Non-thesis Masters
Apryl Saunders – Non-thesis Masters
2016 Kenneth M. Nicholas Graduate Summer Fellowship

Undergraduates

Dat Truong
Medical student at UT Southwestern
2016 UROP grant recipient
FYRE Symposium 2016 – Outstanding FYRE Student of the Year Awardee
FYRE Symposium 2016 – Best FYRE Project Awardee
Jesse A. Coker
Graduate student at University of Oxford
2014 & 2015 summer internship at Vanderbilt University with Stephen Fesik Group
2015 UROP grant recipient
2015 Astellas Pharma Scholarship
2016 HRAP Awardee
2016 Goldwater Scholarship Recipient
2016 Rhodes Scholar Finalist
Yanjia (Cici) Zhou
Medical student at University of Oklahoma Health Sciences Center
Accepted to Scripps (La Jolla, CA) and Stephenson Cancer Center (Oklahoma City, OK) summer research programs
Joshua Lujan
Medical student at University of Incarnate Word School of Osteopathic Medicine
Ryan Johnston
FYRE Symposium 2015 – Best FYRE Project Awardee
Sean Nguyen
2015 FYRE student
Tristan Lilley
Delaney Finn
Josie Smith

TEACHING RECORD

CHEM 3053	Organic Chemistry I: Biological (164 students)	Sp. 2019
CHEM 3053	Organic Chemistry I: Biological (218 students)	Fa. 2018
CHEM 5450	Organic Characterization (3 students)	Sp. 2018
CHEM 3053	Organic Chemistry I: Bio (Honors, 19 students)	Fa. 2017
CHEM 5480	Practicum in Organic Characterization (8 students)	Sp. 2017
CHEM 5450	Organic Characterization (9 students)	Sp. 2017
CHEM 5470	Medicinal Chemistry (8 students)	Fa. 2016
CHEM 5480	Practicum in Organic Characterization (9 students)	Sp. 2016
CHEM 5450	Organic Characterization (10 students)	Sp. 2016
CHEM 5470	Medicinal Chemistry (7 students) – <i>developed course</i>	Fa. 2015
CHEM 6680	Organic Spectroscopy (10 students)	Fa. 2014

COLLABORATIONS

Ongoing

- | | |
|---|--------|
| Robert Cichewicz, Ph.D., University of Oklahoma, Department of Chemistry & Biochemistry
<i>Structure activity relationships resulting from the incorporation of unnatural amino acids into natural products.</i> | 2017 – |
| Stanley Spinola, M.D., Indiana University, Department of Microbiology and Immunology
<i>Towards the development of CpxRA activators as antibacterials</i> | 2016 – |
| Jian-Xing Ma, Ph.D., OUHSC, Department of Physiology
<i>Towards the development of novel PPARα Agonists</i> | 2016 – |
| Jimmy Ballard, Ph.D., OUHSC, Department of Microbiology & Immunology
<i>Structure-Function Characterization of ClpP in C. difficile</i> | 2015 – |