

Robert W. Huigens III, Ph.D.
Assistant Professor
University of Florida
Department of Medicinal Chemistry
College of Pharmacy
rhuijgens@cop.ufl.edu
<http://pharmacy.ufl.edu/faculty/robert-w-huigens-iii/>



Independent Career Experience:

2014-2017 Affiliate Assistant Professor, University of Florida, Department of Chemistry
2013-present Assistant Professor, University of Florida, Department of Medicinal Chemistry

Professional Experience:

2009-2013 American Cancer Society Postdoctoral Fellow, University of Illinois at Urbana-Champaign, Chemistry Department (Advisor: Paul Hergenrother)
2004-2009 Graduate Assistant, North Carolina State University, Department of Chemistry (Advisor: Christian Melander)
2004-2007 Teaching Assistant, North Carolina State University, Department of Chemistry
2003-2004 Graduate Assistant, University of South Florida, Department of Chemistry
2003-2004 Teaching Assistant, University of South Florida, Department of Chemistry

Education:

2004-2009 Ph.D., Chemistry; North Carolina State University
 Thesis: “The Development of Ageliferin Inspired Small Molecules as Antibiofilm and Antibacterial Agents Against Multidrug Resistant Bacterial Pathogens.”
2000-2003 B.A. Biology; Minor Chemistry; University of North Carolina at Greensboro

Research Interests: The overarching goal of the Huigens lab is to discover and develop novel small molecules that can be used in the treatment of resistant and persistent bacterial infections, cancers and other human diseases. We currently have three major areas, which include: 1) developing innovative antibacterial discovery approaches, 2) ring distortion of complex indole alkaloids for drug discovery, and 3) advancing other small molecules in targeted disease areas (i.e., cancer, malaria, myotonic dystrophy) in collaboration with disease experts. Graduate, undergraduate, pharmacy students and postdocs in our group receive training at the interface of chemistry and biology using a combination of synthetic organic chemistry, medicinal chemistry, chemical biology, and microbiology techniques/approaches.

Publications:

From Independent Career at University of Florida (18 publications)

32. Yousaf, H. H.; Garrison, A. T.; Abouelhassan, Y.; Basak, A.; Jones, J. B.; **Huigens III, R. W.** “Identification of Nitroxoline and Halogenated Quinoline Analogues with Antibacterial Activities against Plant Pathogens.” *ChemistrySelect* **2017**, 2, 6235-6239.
31. Basak, A.; Abouelhassan, Y.; Zuo, R.; Yousaf, H.; Ding, Y.; **Huigens III, R. W.** “Antimicrobial Peptide-Inspired NH125 Analogues: Bacterial and Fungal Biofilm-Eradicating Agents and Rapid Killers of MRSA Persisters.” *Org. Biomol. Chem.* **2017**, 15, 5503-5512.
- Cover Art Selection: <http://pubs.rsc.org/en/content/articlepdf/2017/ob/c7ob90114c>

30. Yang, H.; Abouelhassan, Y.; Burch, G. M.; Kallifidas, D.; Huang, G.; Yousaf, H.; Jin, S.; Luesch, H.; **Huigens III, R. W.** "A Highly Potent Class of Halogenated Phenazine Antibacterial and Biofilm-Eradicating Agents Accessed Through a Modular Wohl-Aue Synthesis." *Sci. Rep.* **2017**, *7*, 2003.
29. Abouelhassan, Y.; Basak, A.; Yousaf, H.; **Huigens III, R. W.** "Identification of *N*-Arylated NH125 Analogues as Rapid Eradicating Agents against MRSA Persister Cells and Potent Biofilm Killers of Gram-Positive Pathogens." *ChemBioChem* **2017**, *18*, 352-357.
- *Front Cover Art Selection:* <http://onlinelibrary.wiley.com/doi/10.1002/cbic.v18.4/issuetoc>
28. Paciaroni, N. G.; Ratnayake, R.; Matthews, J. H.; Norwood IV, V. M.; Arnold, A. C.; Dang, L. H.; Luesch, H.; **Huigens III, R. W.** "A Tryptoline Ring Distortion Strategy Leads to Complex and Diverse Biologically Active Molecules from the Indole Alkaloid Yohimbine." *Chem. Eur. J.* **2017**, *23*, 4327-4335.
- *Cover Art Selection:* <http://onlinelibrary.wiley.com/doi/10.1002/chem.201605731/full>
27. Abouelhassan, Y.; Yang, Q.; Nguyen, M. T.; Rolfe, M.; Yousaf, H. Schultz, G. S.; **Huigens III, R. W.** "Nitroxoline: A Broad-Spectrum Persister Cell- and Biofilm-Eradicating Agent Against Pathogenic Bacteria." *Int. J. Antimicrob. Agents* **2017**, *49*, 247-251.
26. Garrison, A. T.; **Huigens III, R. W.** "Eradication of Bacterial Biofilms with Natural Products and Their Inspired Analogues that Operate Through Unique Mechanisms." *Curr. Top. Med. Chem.*, **2017**, *17*, 1954-1964.
- *Invited Review for Thematic Issue: "Recent Advances in Anti-biofilm Strategies."*
25. Garrison, A. T.; Abouelhassan, Y.; Yang, H.; Yousaf, H. H.; Nguyen, T.; **Huigens III, R. W.** "Microwave-Enhanced Friedländer Synthesis for the Rapid Assembly of Halogenated Quinolines with Antibacterial and Biofilm Eradication Activities against Drug Resistant and Tolerant Bacteria." *Med. Chem. Commun.* **2017**, *8*, 720-724.
- *Hot Article; Invited for Themed Issue: "New Talent: Americas"*
24. Zuo R.; Garrison A.T.; Basak A.; Zhang P.; **Huigens III, R. W.**; Ding Y. "In vitro antifungal and antibiofilm activities of halogenated quinoline analogues against *Candida albicans* and *Cryptococcus neoformans*." *Int. J. Antimicrob. Agents* **2016**, *48*, 208-211.
23. Basak, A.; Abouelhassan, Y.; Norwood IV, V. M.; Bai, F.; Nguyen, M.; Jin, S.; **Huigens III, R. W.** "Synthetically Tuning the 2-Position of Halogenated Quinolines: Optimizing Antibacterial and Biofilm Eradication Activities via Alkylation and Reductive Amination Pathways." *Chem. Eur. J.* **2016**, *22*, 9181-9189.
- *Hot Article & Cover Art Selection:* <http://onlinelibrary.wiley.com/doi/10.1002/chem.v22.27/issuetoc>
- *Highlighted in Angew. Chemie Int. Ed.:* <http://onlinelibrary.wiley.com/doi/10.1002/anie.201682713/full>
22. Garrison, A. T.; Abouelhassan, Y.; Norwood IV, V. M.; Kallifidas, D.; Bai, F.; Nguyen, M.; Rolfe, M. Burch, G. M., Jin, S., Luesch, H.; **Huigens III, R. W.** "Structure-Activity Relationships of a Diverse Class of Halogenated Phenazines that Targets Persistent, Antibiotic-Tolerant Bacterial Biofilms and *Mycobacterium tuberculosis*." *J. Med. Chem.* **2016**, *59*, 3808-3825.
21. Paciaroni, N. G.; Borrero, N. V.; Rocca, J. R., **Huigens III, R. W.** "Rapid Synthesis of Phenazine-1-Carboxylic Acid Derived Small Molecules from Diverse Anilines: Privileged Structures for Discovery." *Research & Reviews: Journal of Medicinal & Organic Chemistry* **2015**, *2*, 67-76.
20. Garrison, A. T.; Abouelhassan, Y.; Kallifidas, D.; Bai, F.; Ukhanova, M.; Mai, V.; Jin, S.; Luesch, H.; **Huigens III, R. W.** "Halogenated Phenazines that Potently Eradicate Biofilms, MRSA Persister Cells in Non-Biofilm Cultures and *Mycobacterium tuberculosis*." *Angew. Chem. Int. Ed.* **2015**, *54*, 14819-14823.
19. Basak, A.; Abouelhassan, Y.; **Huigens III, R. W.** "Halogenated Quinolines Discovered Through Reductive Amination with Potent Eradication Activities against MRSA, MRSE and VRE Biofilms." *Org. Biomol. Chem.* **2015**, *13*, 10290-10294.
- *2015 Hot Articles in Organic and Biomolecular Chemistry*

18. Abouelhassan, Y.; Garrison, A. T.; Bai, F.; Norwood IV, V. M.; Nguyen, M.; Jin, S.; **Huigens III, R. W.** "A Phytochemical-Halogenated Quinoline Combination Therapy Strategy for the Treatment of Pathogenic Bacteria." *ChemMedChem*, **2015**, *10*, 1157-1162.
17. Garrison, A. T.; Bai, F.; Abouelhassan, Y.; Paciaroni, N. G.; Jin, S.; **Huigens III, R.W.** "Bromophenazine Derivatives with Potent Inhibition, Dispersion and Eradication Activities against *Staphylococcus aureus* Biofilms." *RSC Adv.* **2015**, *5*, 1120-1124.
16. Abouelhassan, Y.; Garrison, A. T.; Burch, G. M.; Wong, W.; Norwood IV, V. M.; **Huigens III, R. W.** "Discovery of quinoline small molecules with potent dispersal activities against methicillin-resistant *Staphylococcus aureus* and *Staphylococcus epidermidis* biofilms using a scaffold hopping strategy." *Bioorg. Med. Chem. Lett.* **2014**, *24*, 5076-5080.
15. Borrero, N.V.; Bai, F.; Perez, C.; Duong, B. Q.; Rocca, J. R.; Jin, S.; **Huigens III, R. W.** "Phenazine antibiotic inspired discovery of potent bromophenazine antibacterial agents against *Staphylococcus aureus* and *Staphylococcus epidermidis*." *Org. Biomol. Chem.* **2014**, *12*, 881-886.

Postdoctoral Studies at University of Illinois, Urbana-Champaign (with P. Hergenrother, 2 publications)

14. Calvaresi, E.C.; Granchi, C.; Tuccinardi, T.; Di Bussolo, V.; **Huigens III, R.W.**; Lee, H.Y.; Palchadhuri, R.; Macchia, M.; Martinelli, A.; Minutolo, F.; Hergenrother, P.J. "Dual targeting of the Warburg Effect with a glucose-conjugated lactate dehydrogenase inhibitor." *ChemBioChem* **2013**, *14*, 2263-2267.
13. **Huigens III, R.W.**; Morrison, K.C.; Hicklin, R.W.; Flood Jr., T.A.; Richter, M.F.; Hergenrother, P.J. "A ring-distortion strategy to construct stereochemically complex and structurally diverse compounds from natural products." *Nature Chem.* **2013**, *5*, 195-202.
 - C&E News Highlight: "Ringing In New Drug Candidates." **2013**, 91 (4), 9.
 - Nature Chemistry Highlight: Sharma, I.; Tan, D.S. "Drug Discovery: Diversifying Complexity." *Nature Chem.* **2013**, *5*, 157-158.
 - Faculty of 1000 Highlight: <http://f1000.com/prime/717990389>.

Graduate Studies at North Carolina State University (with C. Melander, 12 publications)

12. Worthington, R.J.; Rogers, S.A.; **Huigens III, R.W.**; Melander, C.; Ritchie, D.F. "Foliar applied small molecule that suppresses biofilm formation and enhances control of copper-resistant *Xanthomonas euvesicatoria* on peppers." *Plant Disease* **2012**, *96*, 1638-1644.
11. Reyes, S.; **Huigens III, R.W.**; Su, Z.; Simon, M.L.; and Melander, C. "Synthesis and biological activity of 2-aminoimidazole triazoles accessed by Suzuki-Miyaura cross-coupling." *Org. Biomolec. Chem.* **2011**, *9*, 3041-3049.
10. Reed, C.S.; **Huigens III, R.W.**; Rogers, S.A.; Melander, C. "Modulating the development of *E. coli* biofilms with 2-aminoimidazoles." *Bioorg. & Med. Chem. Lett.* **2011**, *20*, 6310-6312.
9. Rogers, S.A.; **Huigens III, R.W.**; Cavanagh, J.; Melander, C. "Synergistic effects between conventional antibiotics and 2-aminoimidazole-derived antibiofilm agents." *Antimicrob. Agents & Chemother.* **2010**, *54*, 2112-2118.
 - Science Magazine Highlight: "Sponging away antibiotic resistance." **2009**.
8. **Huigens III, R.W.**; Reyes, S.; Reed, C. S.; Bunders, C.; Rogers, S.A.; Steinhauer, A.T.; Melander, C. "The chemical synthesis and antibiotic activity of a diverse library of 2-aminobenzimidazole small molecules against MRSA and multidrug-resistant *A. baumannii*." *Bioorg. & Med. Chem.* **2010**, *18*, 663-674.
7. Rogers, S.A.; **Huigens III, R.W.**; Melander, C. "A 2-aminobenzimidazole that inhibits and disperses gram-positive biofilms through a zinc-dependent mechanism." *J. Am. Chem. Soc.* **2009**, *131*, 9868-9869.
 - ChemBioChem Highlight: Musk Jr., D.J. "Zinc Fingering: New compounds that thwart gram-positive biofilm formation by sequestering zinc." *ChemBioChem* **2010**, *11*, 758-760.

6. **Huigens III, R.W.**; Rogers, S.A., Steinhauer, A.T., and Melander, C. "Inhibition of *Acinetobacter baumannii*, *Staphylococcus aureus*, and *Pseudomonas aeruginosa* biofilms with a class of TAGE-triazole conjugates." *Org. Biomolec. Chem.* **2009**, *7*, 794-802.
 5. Melander, C.; Moeller, P.D.R.; Ballard, T.E.; Richards, J.J.; **Huigens III, R.W.**; Cavanagh, J. "Evaluation of dihydrooroidin as an antifouling additive in marine paint." *Int. Biodeter. & Biodegrad.* **2009**, *64*, 529-532.
 4. Richards, J.J.; Ballard, T.E.; **Huigens III, R.W.**; Melander, C. "Synthesis and screening of an oroidin library for anti-biofilm activity." *ChemBioChem.* **2008**, *9*, 1267-1279.
 3. **Huigens III, R.W.**; Ma, L.; Gambino, C.; Moeller, P.D.R.; Basso, A.; Cavanagh, J.; Wozniack, D.J.; Melander, C. "Control of bacterial biofilms with marine alkaloid derivatives." *Mol. BioSys.* **2008**, *4*, 614-621.
 2. Richards, J.J.; **Huigens III, R.W.**; Ballard, T.E.; Basso, A.; Cavanagh, J.; Melander, C. "Inhibition and dispersion of proteobacterial biofilms." *Chem. Comm.* **2008**, *14*, 1698-1700.
 1. **Huigens III, R.W.**; Richards J.J.; Parise, G.; Ballard, T.E.; Zeng, W.; Deora, R.; Melander, C. "Inhibition of *Pseudomonas aeruginosa* biofilm formation with bromoageliferin analogues." *J. Am. Chem. Soc.* **2007**, *129*, 6966-6967.
- [Faculty of 1000 Highlight.](#)

Patents (Issued and Provisional):

From Independent Career at University of Florida

11. **Huigens III, R. W.**; Paciaroni, N. G. "Preparation of yohimbine analogues for the treatment of disease." PCT Int. Appl. **2017**, WO 2017190038 A1 20171102.
10. **Huigens III, R. W.**; Basak, A.; Abouelhassan, Y. "Halogenated Quinoline Derivatives as Antimicrobial Agents and Their Preparation." PCT Int. Appl. **2017**, WO 2017053696 A2 20170330.
9. **Huigens III, R. W.**; Garrison, A.; Abouelhassan, Y. "Preparation of Phenazine Derivatives as Antimicrobial Agents." PCT Int. Appl. **2017**, WO 2017011730 A2 20170119.
8. **Huigens III, R.W.**; Abouelhassan, Y.; Garrison, A. "Preparation of Quinoline Compounds and Combination Therapy for Treating Infectious Diseases." PCT Int. Appl. **2016**, WO 2016154051 A1 20160929.
7. **Huigens III, R.W.**, Jin, S. "Phenazine Derivatives as Antimicrobial Agents." PCT Int. Appl. **2015**, WO 2015100331 A2 20150702.

From Postdoctoral Studies at University of Illinois at Urbana-Champaign

6. Hergenrother, P.J.; **Huigens III, R.W.**; Morrison, K.C.; Hicklin, R.W.; Flood, T.A. "Construction of stereochemically complex and structurally diverse compounds from natural products." Provisional patent filed: 3/23/2012.

From Graduate Studies at North Carolina State University

5. Melander, C.; Rogers, S. A.; **Huigens III, R.W.** "Inhibition and dispersion of bacterial biofilms with benzimidazole derivatives." PCT Int. App. 2010, WO/2010/144686.
4. Melander, C.; Cavanagh, J.; Ritchie, D.; Rogers, S.A.; **Huigens III, R.W.** "Inhibition of biofilms in plants with triazole derivatives." PCT Int. Appl. 2010, WO/2010/077603.
3. Melander, C.; Cavanagh, J.; Ritchie, D.; **Huigens III, R.W.**; Ballard, T.E.; Richards, J.J.; Lindsey, J.S. "Inhibition of biofilms in plants with imidazole derivatives." Patent No. 8,278,340; Issued 10/2/2012.
2. Melander, C.; Rogers, S.A.; **Huigens III, R.W.**; Reed, C.S. "Inhibition and dispersion of bacterial biofilms with imidazole-triazole derivatives." Patent No. 7,897,631; Issued 3/1/2011.
1. Melander, C.; Cavanagh, J.; **Huigens, R.W.**; Ballard T.E.; Richards, J.J. "Inhibition of bacterial biofilms with imidazole derivatives." Patent No. 7,906,544; Issued 3/15/2011.

Invited Seminars (Independent Career):

15. *"Phenazine Antibiotics and Indole Alkaloids: New Platforms for Drug Discovery."* Florida State University, Department of Chemistry & Biochemistry; Organic Division. 11-16-2017. Seminar.
14. *"Ring Distortion of Indole Alkaloids: A New Platform for Drug Discovery and the Identification of Antiplasmodial Agents."* American Microbiology Society 103rd Southeastern Branch Annual Meeting; 11-11-2017. Seminar.
13. *"Phenazine Antibiotics and Indole Alkaloids: New Platforms for Drug Discovery."* University of North Carolina at Greensboro, Department of Chemistry & Biochemistry; 11-3-2017. Seminar.
12. *"From Organic Chemistry to Biofilm Eradication."* University of Florida Student Science Training Program (for high school students); 6-19-2017. Seminar.
11. *"Natural Product Inspired Synthetic Medicinal Chemistry: Functional and Complexity Driven Discoveries."* FAME 2017, Division of Organic Chemistry, American Chemical Society, Palm Harbor, FL; 5-5-2017. Seminar.
10. *"Synthetic Medicinal Chemistry Driven Discoveries."* University of Florida, Department of Biochemistry and Molecular Biology, College of Medicine; 3-29-2017. Seminar.
9. *"From Organic Chemistry to Biofilm Eradication."* University of Florida Student Science Training Program (for high school students); 6-20-2016. Seminar.
8. *"Tryptoline-Based Ring Distortion Strategies to Explore New Chemical Space."* University of Florida Drug Discovery Symposium; 4-29-2016. Seminar.
7. *"Phenazine Antibiotic Inspired Discovery of Biofilm-Eradicating Small Molecules."* Montana Biofilm S&T Meeting, Young Investigator: Center for Biofilm Engineering, Montana State University; 7-15-2015. Seminar.
6. *"From Organic Chemistry to Biofilm Eradication."* University of Florida Student Science Training Program (for high school students); 7-13-2015. Seminar.
5. *"Discovery of Phenazine and Quinoline Biofilm Eradicators."* FAME 2015, Division of Organic Chemistry, American Chemical Society, Palm Harbor, FL; 5-8-2015. Seminar.
4. *"Discovery of Halogenated Phenazine and Halogenated Quinoline Small Molecules with Antibacterial and Antibiofilm Activities against Staphylococcal Biofilms."* Young Investigator Symposium, Division of Medicinal Chemistry, 249th American Chemical Society Meeting, Denver, CO; 3-22-2015. Seminar.
3. *"Targeting Staphylococcal Biofilms: Discovery of Bromophenazine and Quinoline Anti-Biofilm Agents."* University of Florida, Oral Biology Department; 12-8-2014. Seminar.
2. *"Pseudomonas Inspired Discovery of Novel Antibacterial Agents."* University of Florida, Biochemistry Division Seminar, Department of Chemistry; 4-11-2014. Seminar.
1. *"Pseudomonas Inspired Discovery of Novel Antibacterial Agents."* University of South Florida, Department of Chemistry; 4-3-2014. Seminar.

Invited Poster Presentations (Independent Career):

1. *"Efforts to Expand Our Antibiotic Arsenal to Eradicate Persistent Bacterial Biofilms."* 253rd American Chemical Society Meeting, San Francisco, CA; 4-5-2017. Division of Medicinal Chemistry.

University of Florida Affiliations:

- 1.) Chemistry Department (affiliate)
- 2.) Emerging Pathogens Institute
- 3.) Center for Natural Products, Drug Discovery and Development (CNPD3)
- 4.) UF Health Cancer Center

Academic Honors, Awards and Service:

- 2017 Teaching Service Excellence Incentive Award (UF College of Pharmacy)
- 2017 Year 2 Outstanding Teaching Team Award, UF COP (with Drs. Motychka, Peris, Grundman)
- 2017 NIH Reviewer; Partnerships for Countermeasures Against Select Pathogens: Therapeutics, Immunotherapeutics, and Vaccines Review Panel
- 2017 Teacher of the Year, College of Pharmacy, University of Florida (recognized at AACP Annual Meeting, *Pharmacy Education 2017*; Nashville, TN)
- 2016 NIH Early Career Reviewer, Anti-Infective Drug Discovery and Mechanism of Resistance (DDR)
- 2015 Young Investigator Award, Center for Biofilm Engineering (Montana State University)
- 2015 Young Investigator Award, American Chemical Society (Division of Medicinal Chemistry)
- 2010-2013 American Cancer Society Postdoctoral Fellowship (UIUC)
- 2008-2009 Jimmy V Scholarship/Predoctoral Fellowship (NCSU)
- 2007 Teaching Excellence Award in Organic Chemistry (NCSU)
- 2006-2007 Phi Lambda Upsilon Treasurer (NCSU)
- 2005 Phi Lambda Upsilon Membership (NCSU)
- 2004 Phi Beta Kappa Society Membership (UNC-Greensboro)
- 2003 Graduated *Summa Cum Laude* (UNC-Greensboro)
- 2003 Eberhart Award (Biology Department, UNC-Greensboro)
- 2003 Student Excellence Award (Honors College, UNC-Greensboro)
- 2003 American Chemical Society Organic Chemistry Award (Chemistry Dept., UNC-Greensboro)
- 2001-2002 Beta Beta Beta Society President (Biology Department, UNC-Greensboro)
- 2001 Beta Beta Beta Society Membership (Biology Department, UNC-Greensboro)

Huigens Lab Personnel:

- 1.) Prof. Robert W. Huigens III (assistant professor of medicinal chemistry)
- 2.) Nicholas Paciaroni (medicinal chemistry graduate student; 2013-present)
- 3.) Yasmeen Abouelhassan (medicinal chemistry graduate student; 2014-present)
- 4.) Verrill "Chip" Norwood IV (medicinal chemistry graduate student; 2014-present)
- 5.) Hongfen Yang (medicinal chemistry graduate student; 2015-present)

Former Huigens Lab Personnel:

- 1.) Dr. Nicholas Borrero (postdoctoral research associate; 2013)
- 2.) Benjamin Duong (pharmacy student researcher; 2013)
- 3.) Cristian Perez (undergraduate researcher; 2013-2014)
- 4.) Wilson Wong (pharmacy student researcher; 2014)
- 5.) Alexander Valdes (undergraduate researcher; Biochemistry major; 2014)
- 6.) Thandiwe Jolly (pharmacy student; 2015)
- 7.) Melanie Rolfe (pharmacy student; 2015)
- 8.) Sam Goldstein (SSTP high school student; 2015)
- 9.) Charles Mock (high school student; 2015)
- 10.) Grace Hester (undergraduate researcher; 2015-2016)
- 11.) Minh Nguyen (undergraduate researcher; UF research scholar; Biochemistry 2014-2016)
- 12.) Sahar Alghamdi (graduate student 2014-2016; Master's degree awarded)
- 13.) William Wang (SSTP high school student, 2016)
- 14.) Hussain Yousef (researcher; 2014-2017)
- 15.) Faika Bashoglu (visiting graduate student; 2016-2017)
- 16.) Austin Arnold (undergraduate researcher; Chemistry major; 2015-2017)
- 17.) Gena Burch (pharmacy/graduate student; 2014-2017)
- 18.) Dr. Aaron Garrison (Med. Chem. grad student 2013-2017; PhD awarded; postdoc with Craig Lindsley)

19.) Dr. Akash Basak (Chemistry grad student 2014-2017; PhD awarded; postdoc with Christian Melander)

Mentored Undergraduate, Pharmacy and Graduate Student Awards:

- 1.) Gena Burch: Best Poster Award, 2015 UF COP Research Showcase (Professional Student Division)
- 2.) Minh Thu Nguyen: UF, 2015 University Scholars Program (Undergraduate Award, \$1,750)
- 3.) Yasmeen Abouelhassan: 2015-2016 International Graduate Student of the Year, Medicinal Chemistry
- 4.) Yasmeen Abouelhassan: Best Poster Award, 2016 UF Drug Discovery Symposium (Graduate Division)
- 5.) Gena Burch: 2016 Merck Award for Outstanding Research (Pharm.D. Student Research)
- 6.) Yasmeen Abouelhassan: 2015/2016 Best Graduate Student Seminar (Senior Division, \$100)
- 7.) Gena Burch: 2016-2017 Rho Chi Award (AFPE Pre-Doctoral Fellowship, \$7,500)
- 8.) Gena Burch: 2016/2017 Best Graduate Student Seminar (Junior Division, \$100)
- 9.) Yasmeen Abouelhassan: 2017 Marilyn Little Scholarship (Graduate Award, \$1,000)
- 10.) Wilson Wong: 2017 Merck Award for Outstanding Research (Pharm.D. Student Research)
- 11.) Nicholas Paciaroni: 2nd Annual UF Drug Discovery Symposium, Oral Competition Winner; 2017
- 12.) Verrill "Chip" Norwood IV: 2nd Annual UF Drug Discovery Symposium, Poster Award Winner; 2017
- 13.) Yasmeen Abouelhassan: 2nd Annual UF Drug Discovery Symposium, Poster Award Winner; 2017

Teaching (including invited lectures) at University of Florida:

- 1.) **PHA 6472:** Organic Synthesis of Drug Molecules (Spring 2016; 3 credit hours; graduate-level course)
- 2.) **PHA 6447:** Drug Design (Spring 2014/Fall 2015; 6-lecture series entitled: "Discovery of New Antibacterial Agents"; graduate-level course)
- 3.) **PHA 5433:** Fundamentals of Medicinal Chemistry (Fall 2014; 5 lectures on: "Physicochemical Principles of Drug Molecules"; pharmacy student course)
- 4.) **PHA 5438:** Medicinal Chemistry II (Spring 2015; 4 lectures on: "Antibiotic Resistance, Tetracyclines and Fluoroquinolone Antibiotics"; pharmacy student course)
- 5.) **PHA 5439:** Principles of Medicinal Chemistry & Pharmacology I (Fall 2015-2016; 10 lecture module with active learning: "Relationships of functional groups to pharmacological activity"; pharmacy course)
- 6.) **PHA 5782C:** Patient Care 2 (Fall 2016; Medicinal Chemistry Topics and lecture hours Include: Antibiotics, 3 hours; Antiemetics, 0.75 hours. Second-year pharmacy course.)
- 7.) **PHA 5878C:** Patient Care 3 (Fall 2016: Medicinal Chemistry Topics and lecture hours Include: Antihyperlipidemics, 1 hour)
- 8.) **PHA 5784C:** Patient Care 4 (Spring 2017; Medicinal Chemistry Topics and lecture hours Include: Vitamins, 0.75 hours; Weight Loss Drugs, 0.25 hours)
- 9.) **GMS 6009:** Principles of Drug Action (Spring 2015 lecture: "Complexity-to-Diversity in Drug Synthesis"; Spring 2016-2017 lectures: "Antibiotics"; graduate-level course)
- 10.) **PHA 6935:** Selected Topics in Pharmacy (Spring 2015; advanced chemical synthesis topics, including: total synthesis of biologically active natural products, reaction mechanism, complex transition states, project design; 2 credit hour graduate-level course)
- 11.) **PHA 6934:** Seminar in Medicinal Chemistry (2015-2016). Coordinator of seminar series in Medicinal Chemistry, which typically involves graduate student seminars on literature topics.
- 12.) **BCH 4905:** Science for Life Research Seminar. (Fall 2015; invited lecture, "Huigens Lab: Discovery of Next-Generation Antibacterial Agents.")

Reviewer for the following Journals (reviewed at least one manuscript for the following journals):

Chemical Reviews, Nature Chemistry, Journal of the American Chemical Society, Angewandte Chemie, ChemComm, Organic Letters, Journal of Medicinal Chemistry, Scientific Reports, ACS Chemical Biology, Analytical Chemistry, Antimicrobial Agents and Chemotherapy, International Journal for Antimicrobial Agents,

Molecular Microbiology, Organic & Biomolecular Chemistry, ACS Infectious Diseases, Biochemistry, ACS Sensors, RSC Advances, ChemBioChem, SYNLETT, ChemMedChem, Tetrahedron, Tetrahedron Letters, European Journal of Medicinal Chemistry, Bioorganic & Medicinal Chemistry, New Journal of Chemistry, Journal of Medical Microbiology, Antibiotics, Marine Drugs, Bioorganic & Medicinal Chemistry Letters, Molecules, Future Microbiology, International Journal of Environmental Research and Public Health

Funding Awarded:

NHMFL User Award

“Development of Halogenated Phenazine Prodrugs and Antibiotic Conjugates as Antibacterial Therapeutics”
AMRIS NMR Facility, University of Florida; 8/23/2017 to 12/31/2017; \$5,000.

Role: PI

Muscular Dystrophy Association, Inc.

“IMPEDE: Inhibition of Microsatellite Promoted Expression of Deleterious Expansions in Myotonic Dystrophy.”
8/1/2017 to 7/31/2019; \$300,000 total award (\$72,000 to Huigens Lab); PI: J. Andrew Berglund, Role: Co-I

2016-2017 College of Pharmacy Teacher of the Year (University of Florida)

Paul Doering endowment, awarded: \$2,625

NHMFL User Award

“Structure Elucidation of Complex and Diverse Small Molecules from Vincamine Using High-Field NMR”
AMRIS NMR Facility, University of Florida; 1/1/2017 to 12/31/2017; \$5,000.

Role: Co-PI with Mr. Verrill M. Norwood IV (graduate student)

University of Florida Research Opportunity Seed Fund Award

“Nitroxoline Small Molecules as Cures for Persistent Bacterial Infections”

Division of Sponsored Research; University of Florida; 6/1/2016 to 5/31/2018; \$89,000

Role: PI; Co-Investigators: G. Schultz, G. Drusano, A. Louie

1R01CA188132-01A1

“Studies on Thymidylate Synthase as a Tumor-Promoting Oncogene for Development of New Allosteric Inhibitors for Cancer Treatment.” Active: 1/1/2016 to 12/31/2020; \$78,000 (direct costs)

The goal of this study is to develop thymidylate synthase small molecule inhibitors as anticancer agents.

PI: Zajac-Kaye, Role: Co-Investigator

Emerging Pathogens Institute Seed Grant (University of Florida)

“Halogenated Quinoline Small Molecules as Bacterial Biofilm Eradicating Agents”

Emerging Pathogens Institute; University of Florida; 1/1/2015 to 12/31/2015; \$81,091

Role: PI; Co-Investigator: S. Jin

University of Florida Research Opportunity Seed Fund Award

“Development of Potent 2,4-Dibromophenazine Antibacterial Antibiofilm Agents”

Division of Sponsored Research; University of Florida; 6/1/2014 to 5/31/2016; \$84,000

Role: PI; Co-Investigators: S. Jin, V. Mai

American Cancer Society Postdoctoral Fellowship

119265-PF-10-117-01-CDD: “Englerin A: Chemical Inspiration for Novel Renal Cancer Treatments”

Highlighted: https://www.eurekalert.org/pub_releases/2010-05/acs-acs051710.php

7/1/2010 to 3/31/2013; \$150,000 (3 years).

Role: PI; Mentor: P. Hergenrother