AARON T. GARRISON

University of Florida
College of Pharmacy
Department of Medicinal Chemistry

Tel.: (352) 212-3583
Email: atgarrison@ufl.edu
LinkedIn: https://www.linkedin.com/in/aaron-t-garrison/

Education

2013 – 2017	Ph.D., Pharmaceutical Sciences – Medicinal Chemistry Advisor: Dr. Robert W. Huigens, III	University of Florida
2009 – 2013	B.A., Chemistry, Biochemistry Emphasis	University of South Florida

Skills

- Synthetic organic chemistry
- Small molecule design and multi-step synthesis
- Heterocyclic chemistry (quinolines, phenazines)
- Advanced NMR spectroscopy (COSY, HMBC, NOESY)
- Metal-catalyzed cross-coupling
- UV-Vis spectroscopy
- HPLC, LC-MS
- Lead optimization
- Prodrug synthesis and evaluation
- Antimicrobial agents

Publications

9. 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.

8. **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"

7. **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.
   - 2016 MedChemComm Hot Article; Invited for Themed Issue: "New Talent: Americas"

6. 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.

5. **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.

4. **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.

3. 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.

2. **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.

1. 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.

Presentations and Proceedings

Garrison, A. T.; Abouelhassan, Y.; Kallifidas, D.; Luesch, H.; Huigens III, R. W. "Discovery and Development of Halogenated Phenazines as Biofilm-Eradicating and Anti-Tuberculosis Agents." Poster presented at ACS Florida Chapter's 93rd Florida Annual Meeting and Exposition (FAME), Palm Harbor, FL, May 2017.

Abouelhassan, Y.; **Garrison, A. T.**; Basak, A.; Yang, H.; Huigens III, R. W. "Discovery of Halogenated Phenazines, Hydroxyquinolines and NH125 Small Molecules as Potent Biofilm-Eradicating Agents of Gram-Positive Pathogens and MRSA Persister Cell Killers." Poster presented at ACS Florida Chapter's 93rd Florida Annual Meeting and Exposition (FAME), Palm Harbor, FL, May 2017.

Huigens III, R. W.; **Garrison, A. T.**; Abouelhassan, Y.; Basak, A.; Yang, H.; Norwood IV, V. M.; Burch, G. M.; Paciaroni, N. G. "Efforts to Expand Our Antibiotic Arsenal to Eradicate Persistent Bacterial Biofilms." Poster presented at 253rd American Chemical Society National Meeting and Exposition, San Francisco, CA, April 2017.

Garrison, A. T.; Abouelhassan, Y.; Kallifidas, D.; Luesch, H.; Huigens III, R. W. "Discovery and Development of Halogenated Phenazines as Biofilm-Eradicating and Anti-Tuberculosis Agents." Poster presented at the UF Graduate Student Research Day, Gainesville, FL, April 2017.

Garrison, A. T.; Abouelhassan, Y.; Kallifidas, D.; Luesch, H.; Huigens III, R. W. "Discovery and Development of Halogenated Phenazines as Biofilm-Eradicating and Anti-Tuberculosis Agents." Poster presented at the UF College of Pharmacy Research Showcase, Gainesville, FL, February 2017.

Abouelhassan, Y.; **Garrison, A. T.**; Basak, A.; Huigens III, R. W. "Discovery of Potent Halogenated Phenazine and Quinoline Small Molecule Biofilm-Eradicating Agents." Poster presented at the University of Florida Drug Discovery Symposium, Gainesville, FL, April 2016.

- Award for 1st place poster presentation

Burch, G. M.; **Garrison, A. T.**; Abouelhassan, Y.; Huigens III, R. W. "Discovery of Halogenated Quinoline Small Molecules as Potent Biofilm Dispersal and Antibacterial Agents against *Staphylococcus epidermidis*." Poster presented at the UF College of Pharmacy Research Showcase, Gainesville, FL, February 2016.

- Award for 1st place poster presentation

Abouelhassan, Y.; **Garrison, A. T.**; Burch, G. M.; Basak, A.; Huigens III, R. W. "Discovery of Halogenated Quinoline Small Molecules as Potent Antibiofilm and Antibacterial Agents against Pathogenic Bacteria." Poster presented at the University of Florida Graduate Research Day, Gainesville, FL, October 2014.

Huigens III, R. W.; Jin, S.; **Garrison, A. T.**; Bai, F.; Paciaroni, N. G.; Borrero, N. V.; Rocca, J. R. "Phenazine Antibiotic Inspired Discovery of Antibacterial and Antibiofilm Agents". Poster presented at the UF College of Pharmacy Research Showcase, Gainesville, FL, February 2014.

Garrison, A. T.; Han, S.; Li, S. "Modification of Gold Nanoshells to Optimize SERS Signal Enhancement." Poster presented at the Raymond N. Castle Student Research Conference, Tampa, FL, April 2013.

- Award for 1st place poster presentation

Garrison, A. T.; Han, S.; Li, S. "Synthesis of Si-Au Nanoparticles for use as SERS Substrates." ACS Florida Chapter's Florida Annual Meeting and Exposition (FAME), Palm Harbor, FL, May 2012; Raymond N. Castle Student Research Conference, Tampa, FL, May 2012.

Patents (Issued and Provisional)

Huigens III, R. W.; **Garrison, A.**; Abouelhassan, Y. "Halogenated Phenazine Small Molecules as Bacterial Biofilm Eradicating Agents." Filed with UF: 7/15/2015.

Huigens III, R.W.; Abouelhassan, Y.; **Garrison, A.** "Combination Therapy for Treating Infectious Diseases." Filed with UF: 4/1/2015.

Graduate Coursework

- CHM 5224: Basic Principles of Organic Chemistry
- CHM 5235: Organic Spectroscopy
- CHM 6226: Advanced Synthetic Organic Chemistry
- PHA 6447: Drug Design
- PHA 6356: Structure Determination of Complex Natural Products
- GMS 6009: Principles of Drug Action
- PHA 5515: Principles of Pharmacology

Awards

- University of Florida Graduate School Fellowship (GSF) Award (2013 – 2017)
- First Place Research Poster, "Synthesis of Si-Au Nanoparticles for use as SERS Substrates." Raymond N. Castle Student Research Conference, April 2013

Mentorship

May 2015 – August 2015	Tho J. Nguyen UF Pharm.D. Student (2nd year) Mentored Project: Microwave-assisted Friedländer quinoline synthesis
May 2014 – August 2014	Wilson Wong UF Pharm.D. Student (2nd year) Mentored Project: Synthesis of halogenated quinoline biofilm inhibitors *-Recipient of the Merck Award of Outstanding Research, 2017*

References

Prof. Robert W. Huigens III
Assistant Professor
Dept. of Medicinal Chemistry
University of Florida
Gainesville, FL 32610
rhuigens@cop.ufl.edu
1-352-273-7718

Prof. Hendrik Luesch
Professor, Department Chair
Dept. of Medicinal Chemistry
University of Florida
Gainesville, FL 32610
luesch@cop.ufl.edu
1-352-273-7738

Prof. Aaron Aponick
Associate Professor
Dept. of Chemistry
University of Florida
Gainesville, FL 32611
aponick@chem.ufl.edu
1-352-392-3484