

# Laura M. Wysocki

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Associate Professor of Chemistry  
Department of Chemistry  
Wabash College  
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## EDUCATION

- 2003–2008 **Ph.D., Organic Chemistry**  
University of Wisconsin–Madison, Madison, WI  
Dissertation: “Progress Toward the Total Synthesis of Trilobin and Trilobacin and Investigation of the Synthesis of Phorboxazole B”
- 1999–2003 **B.A., Chemistry, Integrated Science Program** with honors, *magna cum laude*  
Northwestern University, Evanston, IL  
Honors Thesis: “Development of an Improved Method for Solid–Phase Synthesis of Cyclic Peptides”

## TEACHING EXPERIENCE

- 2017–present Associate Professor of Chemistry, Wabash College
- 2011–2017 Assistant Professor of Chemistry, Wabash College
- CHE 221: Organic Chemistry I with Laboratory
  - CHE 321: Organic Chemistry II with Laboratory
  - CHE 421: Advanced Organic Chemistry
  - CHE 101: Survey of Chemistry with Laboratory
  - FRC 13Q: Enduring Questions
- 2010–2011 Undergraduate Mentor, Howard Hughes Medical Institute, Janelia Research Campus
- Mentored the summer internships of two undergraduates
- 2005–2006 Undergraduate Mentor, University of Wisconsin–Madison
- Directed and managed the honors thesis projects of two undergraduates
- 2004–2005 Instructor of *Organic Boot Camp*, University of Wisconsin–Madison
- Co-created the weekly lecture/problem solving session designed to give undergraduate students a more focused look at organic chemistry topics in an informal environment, without any faculty guidance
- 2004–2005 Organic Chemistry Lecture Teaching Assistant, University of Wisconsin–Madison
- 2003 General Chemistry Lab Teaching Assistant, University of Wisconsin–Madison
- 2003 Guest Lecturer, Evanston Township High School
- Undertook independent study of teaching integrated science at the high school level

**RESEARCH EXPERIENCE**2011–present **Undergraduate Research Advisor**

Wabash College, Crawfordsville, IN

Mentor to 25 independent study or summer internship students

- Pursuing the synthesis of a fluorogenic sensors for palladium and fluoride
- Developing stable fluorogenic substrates to study CYP450 and phosphatase activity
- Investigating the open–closed equilibrium of rhodamine B derivatives

2008–2011 **Postdoctoral Associate**

Howard Hughes Medical Institute, Janelia Research Campus, Ashburn, VA

Advisor: Dr. Luke D. Lavis

- Developed a modular synthesis of caged xanthene dyes via reduced intermediates
- Promoted the growth of the Lavis lab as the first group member
- Performed microwave reactions and reverse-phase chromatography purification

2003–2008 **Graduate Research Fellow**

University of Wisconsin–Madison, Madison, WI

Advisor: Dr. Steven D. Burke

- Optimized Pd(0)-mediated/chiral ligand-controlled bis(cycloetherification) to form the core of trilobin and trilobacin in 2 steps, 84% yield, and 20:1 selectivity
- Explored challenging differentiation of similar functional groups on small molecules
- Co-designed, developed, and completed a concise, convergent, scalable synthesis of the C20–C46 subunit of the phorbaxozoles utilizing a unique bicyclic silyl orthoester
- Maintained, taught group members, and used chiral analytical and semi-prep HPLC
- Performed air-sensitive experiments and used high field NMR spectrometers

2003

**Summer Research Internship**

Lucent Technologies, Bell Labs, Murray Hill, NJ

Advisor: Dr. Joanna Aizenberg

- Investigated the effect of the concentration of magnesium ions on the formation of calcite crystals on various self-assembled monolayers
- Operated and prepared samples for scanning electron microscope

2002–2003 **Undergraduate Researcher**

Northwestern University, Evanston, IL

Advisor: Dr. Richard B. Silverman

- Investigated the development of a “traceless linker” from silicon to aryl carbon
- Performed solid phase organic chemistry reactions

**ACTIVITIES AND AFFILIATIONS**

2012–2018 Howard Hughes Medical Institute Visiting Scientist

2014–present Wabash Democracy and Public Discourse Advisory Board

2003–present American Chemical Society

2013–present Professional and Organizational Development Network in Higher Education

2014–present Council of Undergraduate Research

2014–present Reviewer for *Sensors*, *Molecules*, and AAC&U Transforming STEM Conference

2008–2011 Janelia Academic Research Society

**FELLOWSHIPS AND GRANTS**

- 2015–present NSF-IUSE Award #1503919, *Encouraging Science Communication in the Wabash College Chemistry Department*, \$208,954. Period: 2015–2018.  
*National Science Foundation*
- 2015–2018 Cottrell College Science Award, *From Dark to Light: Versatile Synthesis of Fluorogenic Small Molecule Sensors and Enzyme Substrates*, \$40,000.  
*Research Corporation for Science Advancement*
- 2014–2016 Henry and Nellie Pence Trust Grant, \$20,000
- 2011–2016 Lilly Undergraduate Research Grant, \$5,000 each year
- 2003–2008 Chemistry–Biology Interface NIH Training Grant  
*University of Wisconsin–Madison*
- 2003–2007 Graduate Research Program for Women Fellowship  
*Lucent Technologies Foundation*
- 2003 McElvain Fellowship  
*University of Wisconsin–Madison*
- 2002 Undergraduate Summer Research Grant  
*Northwestern University*

**AWARDS AND HONORS**

- 2017 McLain-McTurnan-Arnold Research Scholar  
*Wabash College*
- 2011 Byron K. Trippet Assistant Professorship  
*Wabash College*
- 2005 Outstanding Teaching Assistant Award  
*University of Wisconsin–Madison*
- 2002 Phi Beta Kappa Honor Society  
*Northwestern University*
- 2002 Gamma Sigma Alpha Honor Society  
*Northwestern University*
- 2001–2003 Rho Lambda Honor Society  
*Northwestern University*
- 2001–2003 Order of Omega Honor Society  
*Northwestern University*
- 1999–2003 National Society of Collegiate Scholars  
*Northwestern University*

**PUBLICATIONS (\*denotes undergraduate coauthors)**

1. Gruber, T. D.; Krishnamurthy, C.; Grimm, J. B.; Tadross, M. R.; Wysocki, L. M.; Gartner, Z. J.; Lavis, L. D. Cell-Specific Chemical Delivery Using a Selective Nitroreductase-Nitroaryl Pair. *ACS Chem. Biol.* **2018**, *13* (10), 2888–2896.
2. Drury, S. A. M.; Bost, A. G.; Wysocki, L. M.; Ingram, A. L. Encouraging Science Communication through Deliberative Pedagogy: A Study of a Gene Editing Deliberation in a Nonmajors Biology Course. *J. Microbiol. Biol. Educ.* **2018**, *19* (1), accessed online April 2, 2018.
3. Drury, S. A. M.; Stucker, K.\*; Douglas, A.\*; Rush, R. A.; Novak, W. R. P.; Wysocki, L. M. Using a Deliberation of Energy Policy as an Educational Tool in a Nonmajors Chemistry Course. *J. Chem. Educ.* **2016**, *93* (11), 1879–1885.
4. Kitley, W. R.\*; Santa Maria, P. J.\*; Cloyd, R. A.\*; Wysocki, L. M. Synthesis of High Contrast Fluorescein-Diethers for Rapid Bench-Top Sensing of Palladium. *Chem. Commun.* **2015**, *51*, 8520–8523.
5. Tian, L.; Yang, Y.; Wysocki, L. M.; Arnold, A. C.; Hu, A.; Ravichandran, B.; Sternson, S. M.; Looger, L. L.; Lavis, L. D. Selective Esterase–Ester Pair for Targeting Small Molecules with Cellular Specificity. *Proc. Natl. Acad. Sci.* **2012**, *109*, 4756–4761.
6. Wysocki, L. M.; Lavis, L. D. Advances in the Chemistry of Small Molecule Fluorescent Probes. *Curr. Opin. Chem. Biol.* **2011**, *15*, 752–759.
7. Wysocki, L. M.; Grimm, J. B.; Tkachuk, A. N.; Brown, T. A.; Betzig, E.; Lavis, L. D. Facile and General Synthesis of Photoactivatable Xanthene Dyes. *Angew. Chem., Int. Ed.* **2011**, *50*, 11206–11209.
8. Wysocki, L. M.; Dodge, M. W.; Voight, E. A.; Burke, S. D. A Stereochemically General Approach to Adjacent Bis(tetrahydrofuran) Cores of Annonaceous Acetogenins. *Org. Lett.* **2006**, *8*, 5637–5640.
9. Han, Y.-J.; Wysocki, L. M.; Thanawala, M. S.; Siegrist, T.; Aizenberg, J. Template-Dependent Morphogenesis of Oriented Calcite Crystals in the Presence of Magnesium Ions. *Angew. Chem., Int. Ed.* **2005**, *44*, 2386–2390.

**PRESENTATIONS**

1. Wysocki, L. M. Learning from Darkness: Tailoring Fluorescent Dyes. Presentation at Janelia Probest 2018, Ashburn, VA, October 2018.
2. Wysocki, L. M.; Drury, S. A. M. Encouraging Bridges: Connecting Scientists and the Public in the Classroom, Laboratory, and Beyond. Presentation at the American Chemical Society 255<sup>th</sup> National Meeting & Exposition, New Orleans, LA, March 2018.
3. Drury, S. A. M.; Wysocki, L. M. Communication Studies as a Civic Partner with STEM Fields: How to Create Connections, Find Opportunities, Improve Communication Pedagogy, and Build Civic Engagement. Seminar at the National Communication Association Conference, Philadelphia, PA, November, 2016.
4. The Power of Darkness: Contrast in Fluorogenic Dyes. Presentation at the American Chemical Society 252<sup>nd</sup> National Meeting & Exposition, Philadelphia, PA, August 2016 (invited).
5. Drury, S. A. M.; Wysocki, L. M. Speaking Science: A residential Research, Communication, and Engaged Learning Program. Wabash College 37<sup>th</sup> Ides of August, Wabash College, Crawfordsville, IN, August 2016.
6. Drury, S. A. M.; Wysocki, L. M.; Ingram A. L. Deliberation on Campus and in the Community: Undergraduate Research, Interdisciplinary Learning, and Civic Engagement. Panel Presentation at the Council of Undergraduate Research Biennial Conference, Tampa, FL, June, 2016.
7. Wysocki, L. M.; Drury, S. A. M. Translating Technical Information: Scientists and the Public. Poster Presentation at the NSF/AAAS Envisioning the Future of Undergraduate STEM Education: Research and Practice Symposium, Washington, DC, April 2016.
8. Learning From Darkness: Tailoring Fluorescent Dyes. Butler University, Indianapolis, IN, March 2016 (invited).
9. Wysocki, L. M.; Drury, S. A. M.; Novak, W. R. P.; Rush, R. A.; Stucker, K.\*; Douglas, A.\* Deliberations in Chemistry: Innovating Undergraduate STEM Education. Presentation at the AAC&U Crossing Boundaries: Transforming STEM Education Conference, Seattle, WA, November 2015.
10. Wysocki, L. M.; Drury, S. A. M.; Rush, R. A. Deliberations in Chemistry 101: Approaches to Energy Policy. Wabash College 36<sup>th</sup> Ides of August, Wabash College, Crawfordsville, IN, August 2015.
11. Finding Light in the Darkness: Undergraduate Synthesis of Fluorogenic Sensors. Presentation at the Joint 41<sup>st</sup> Great Lakes and 46<sup>th</sup> Central Regional Meeting of the American Chemical Society, Grand Rapids, MI, May 2015 (invited).
12. Cmehil, E. D.\*; Norley, J.\*; Wysocki, L. M. Optimizing Chemical Structure to Find Effective Fluorescein Diether Cytochrome P450 Substrates. Poster Presentation at the Joint 41<sup>st</sup> Great Lakes and 46<sup>th</sup> Central Regional Meeting of the American Chemical Society, Grand Rapids, MI, May 2015.
13. Milto, A. J.\*; Norley, J. R.\*; Cloyd, R. A.\*; Wysocki, L. M. Improving the Efficiency of Fluorescein Diether Cytochrome P450 Substrates. Poster Presentation at the American Chemical Society 249<sup>th</sup> National Meeting & Exposition, Denver, CO, March 2015.
14. Santana, J. S.\*; Miller J. C.\*; Wysocki, L. M. Designing an Efficient and Practical Polarity Assay for Xanthene Dyes. Poster Presentation at the American Chemical Society 249<sup>th</sup> National Meeting & Exposition, Denver, CO, March 2015.
15. Learning from Darkness: Tailoring Fluorescent Dyes. Wabash College, Crawfordsville IN, February 2015.
16. Under What Conditions Does a Dye Become Fluorescent? Wabash College 35<sup>th</sup> Ides of August, Wabash College, Crawfordsville, IN, August 2014.

17. Ledford, B. A.\*; Davis, J. W.\*; Wysocki, L. M. Using a Polarity Assay to Characterize Rhodamine Derivatives. Poster Presentation at the American Chemical Society 247<sup>th</sup> National Meeting & Exposition, Dallas, TX, March 2014.
18. Cloyd, R. A.\*; McCauley, A. M.\*; Wysocki, L. M. Synthesis and Testing of a Library of Fluorescein Diether Cytochrome P450 Substrates. Poster Presentation at the American Chemical Society 247<sup>th</sup> National Meeting & Exposition, Dallas, TX, March 2014.
19. Wysocki, L. M.; Kitley, W. R.\*; Santa Maria, P. J.\*; Cloyd, R. A.\* Versatile Synthesis of Fluorogenic Probes via a Leuco Fluorescein Derivative. Poster Presentation at the American Chemical Society 245<sup>th</sup> National Meeting & Exposition, New Orleans, LA, April 2013.
20. Kitley, W. R.\*; Santa Maria, P. J.\*; Cloyd, R. A.\*; Wysocki, L. M.; From Dark to Light: Testing of a Fluorescein-Based Palladium Sensor. Poster Presentation at the American Chemical Society 245<sup>th</sup> National Meeting & Exposition, New Orleans, LA, April 2013.
21. Sullivan, R. L.\*; Wintczak, D. H.\*; Cloyd, R. A.\*; Gunderman, P. R.\*; Wysocki, L. M.; Synthesis of Rhodamine B Derivatives and Their Analysis in Different pH and Polarity Environments. Poster Presentation at the American Chemical Society 245<sup>th</sup> National Meeting & Exposition, New Orleans, LA, April 2013.
22. Palladium and Fluoride Fluorescent Sensors: Student Research on Campus and Beyond. Wabash College 33<sup>rd</sup> Ides of August, Wabash College, Crawfordsville, IN, August 2012.
23. Wysocki, L. M.; Betzig, E.; Lavis, L. D. Facile Synthesis of Caged Xanthene Dyes via Leuco Derivatives. Poster Presentation at the American Chemical Society 239<sup>th</sup> National Meeting & Exposition, San Francisco, CA, March 2010.
24. Wysocki, L. M.; Burke, S. D. Efficient Synthesis of the Bis(tetrahydrofuran) Ring Core of Trilobin and Trilobacin and Progress Toward the Synthesis of the Natural Products. Poster Presentation for the Academic Employment Initiative at the American Chemical Society 232<sup>nd</sup> National Meeting & Exposition, San Francisco, CA, September 2006.
25. The Hetero-Ene Reaction: Development and Synthetic Utility. 3<sup>rd</sup> Year Departmental Seminar, University of Wisconsin–Madison, Madison, WI, October 2005.
26. Wysocki, L. M.; Burke, S. D. Progress Toward the Synthesis of Trilobin and Trilobacin. Poster Presentation at the American Chemical Society 229<sup>th</sup> National Meeting & Exposition, San Diego, CA, March 2005.