Adam A. Meares

637 S. Paca St. Apt A, Baltimore, MD 21230 ⬢ (443) 500-3136 ⬢ ameares1@umbc.edu

EDUCATION

University of Maryland-Baltimore County (UMBC) **Baltimore, MD**
Ph.D. Organic Chemistry (GPA 4.0) February 2020
Focus: Organic Synthesis, Fluorescence Spectroscopy, Fluorophores

University of Connecticut (UConn) **Storrs, CT**
Graduate Studies (14 credits) June 2011-May 2012

Western New England College/University (WNEC/WNE) **Springfield, MA**
B.S. Chemistry (GPA 3.95) May 2011

RESEARCH EXPERTISE

- Organic Synthesis: Multistep Synthesis, Micro- and Macroscale Synthesis, Fluorophore Synthesis (hydroporphyrins, BODIPYs)
- Design of fluorescent probes for energy transfer, multicolor imaging, *in-vivo* imaging, theranostic application
- Structure-property relationship studies: design of novel target and model compounds
- Fluorescence Spectroscopy

EXPERIENCE

George Mason University **Fairfax, VA**
Post-doctoral Research Fellow April 2020-Present

UMBC
Graduate Research Assistant June 2012-April. 2020

- Synthesized novel ethenyl linked chlorin dimers to probe the structure property relationship between ethenyl vs ethynyl linked hydroporphyrins.
- Synthesized en-diyne linked hydroporphyrin arrays to further examine the properties of π-expanded systems and develop a new strategy designing systems similar to photosynthetic special pair.
- Synthesized numerous energy transfer arrays:
  - hydrophobic BODIPY-chlorin for structure-property-relationship studies to determine the effects of linker type and the BODIPY to chlorin conjugation site on energy transfer efficiency and fluorescence quantum yield.
  - amphiphilic BODIPY-chlorin for constructs with a neutral water solubilizing functionality and large pseudo-Stokes' shift, towards high resolution *in-vivo* imaging.
  - long wavelength emitting BODIPY-bacteriochlorin arrays for multiple excitation-single emission multiplexed imaging, and probing energy transfer efficiency with regards to variable degree of spectral overlap.
- Determined photophysical properties for all mentioned novel constructs.
- Provided hydroporphyrin monomers and multichromophore arrays for various collaborations.

Mentor

- Mentored numerous undergraduate students attending UMBC on different projects, primarily involving teaching synthetic techniques and photophysical characterization.
- Mentored advanced undergraduate students through Chemistry R.E.U. Summer Programs.
- Mentored a high school student with an introductory photophysics study.

Lab Manager/Organizer

- Routinely performed inventory and ordering of common reagents and solvents, organized waste removal.
- Performed general maintenance and simple repairs of mechanical equipment, maintained solvent still and manifolds, etc.
- Performed routine data management and backup.

Graduate Teaching Assistant Fall 2012-Spring 2014, Spring 2016-Present
Organic Chemistry Lab Assistant (CHEM 351-352L)

- Taught students fundamental organic chemistry concepts and techniques: two sections during fall or spring semester and one accelerated section during summer session.
- Prepared rubrics and aided in question design for student assignments.
- Proctored exams, graded weekly assignments and final exams, conducted weekly office hours for students.

- Created and maintained grading datasheets.
- Troubleshooting of experiments and instrumentation newly incorporated to syllabus.

UConn

Graduate Research Assistant June 2011-May 2012

- Prepared various Vitamin D_3 A ring analogues for Hedgehog Pathway Inhibition structure-activity relationship studies.

Graduate Teaching Assistant Fall 2011-Spring 2012

Dosage Forms Preparation Laboratory I and II (PHRX 3032, PHRX 4031)

- Taught pharmacy students basic techniques of sterile and non-sterile dosage preparation for liquid, solid and semisolid forms: two sections during spring or fall semester.
- Performed experiments prior to teaching in order to troubleshoot and search for design flaws/difficulties of experiments.
- Proctored exams and graded weekly assignments.

WNEC

Preparation Lab Assistant Fall 2009-Spring 2011

- Prepared solutions and organized lab space for general chemistry lab courses (CHEM 209-210).
- Assisted with inventory, relocation, and subsequent reorganization, of equipment to new chemistry building.

General Chemistry Tutor Fall 2010-Spring 2011

- Held weekly study sessions and final exam review for students.
- Selected questions and organized problem sets for supplemental study.

Undergraduate Teaching Assistant Fall 2009-Spring 2010

Organic Chemistry Lab Assistant (CHEM 209-210)

- Taught students fundamental organic chemistry concepts and techniques, under supervision of professor.
- Prepared solutions, organized equipment and reagents for weekly experiments.

General Chemistry Lab Assistant (CHEM 105-106)

- Taught students general chemistry concepts and techniques, under supervision of professor.

HONORS AND AWARDS

UMBC Outstanding Graduate Teaching Award	March 2019
UMBC Outstanding Graduate Research Award	March 2018
UMBC Dean's Merit Award	Summer 2012-Spring 2020
American Chemical Society Outstanding Graduating Senior Award	May 2011
WNEC Chemistry Book Prize	May 2011
WNEC Honors Program	2007-2011
WNEC Dean's List	Fall 2007-Spring 2011
WNEC President's List	Fall 2007-Spring 2011

SKILLS AND PROFICIENCIES

Synthesis & Purification: oxygen free reactions, multi-step reactions, microwave assisted reactions, handling of light sensitive compounds (all operations performed in darkness), column chromatography, size exclusion chromatography

Data acquisition and analysis: ^{1}H NMR, 2D ^{1}H NMR, ^{13}C NMR, UV-Vis-NIR Absorption & Emission, Mass Spectrometry (MALDI-TOF, Bruker)

Relevant Software: MS Office Suite, ChemDraw, MestReNova (NMR data processing), KaleidaGraph, Spartan, Delta (Jeol) and Topspin (Bruker) NMR operating software

PUBLICATIONS

1. Uthe, B.; ***Meares, A***.; Ptasztek, M.; Pelton, M. Solvent-dependent Energy and Charge Transfer Dynamics in Hydroporphyrin-BODIPY Arrays. *J. Phys. Chem.* **2020**, 153, 074302.

2. ***Meares, A***.; Bhagavathy, G. V.; Satraitis, A.; Shannon, R. Z.; Ptaszek, M. Photoinduced Trans-Cis Isomerization of Endiynyl linker in Hydroporphyrin Dyads Leads to Slipped Cofacial Hydroporphyrin Dimers with Strong Through-Bond and Through-Space Electronic Interactions *J. Org. Chem.* **2019**, 84 (12) 7851-7862.
3. Ogata, F.; Nagaya, T.; Maruoka, Y.; Akhigbe, J.; ***Meares, A***.; Lucero, M.Y.; Satraitis, A.; Okada, R.; Inagaki, F.; Choyke, P.L.; Ptaszek, M.; Kobayashi, H. Activatable Near-Infrared Fluorescence Imaging Using PEGylated Bacteriochlorin-Based Chlorin and BODIPY-Dyads as Probes for Detecting Cancer, *Bioconjugate Chem.* **2019**, 30, 169-183.
4. ***Meares, A***.; Bhagavathy, G. V.; Zik, S.; Gallagher, T.; Ptaszek, M. Expanding π-Conjugation in Chlorins Using Ethenyl Linker, *J. Org. Chem.* **2018**, 83(16), 9076-9087.
5. ***Meares, A***.; Satraitis, A.; Ptaszek, M. BODIPY-Bacteriochlorin Energy Transfer Arrays: Toward Near-IR Emitters with Broadly Tunable, Multiple Absorption Bands, *J. Org. Chem.* **2017**, 82(24), 13068-13075.
6. ***Meares, A***.; Satraitis, A.; Akhigbe, J.; Santhanam, N.; Swaminathan, S., Ehudin, M.; Ptaszek, M. Amphiphilic BODIPY-Hydroporphyrin Energy Transfer Arrays with Broadly Tunable Absorption and Deep Red/Near-Infrared Emission in Aqueous Micelles, *J. Org. Chem.* **2017**, 82(12), 6054-6070.
7. ***Meares, A***.; Satraitis, A.; Santhanam, N.; Yu, Z.; Ptaszek, M. Deep-Red Emissive BODIPY-Chlorin Arrays Excitable with Green and Red Wavelengths, *J. Org. Chem.* **2015**, 80(8), 3858-3869.
8. DeBerardinis, A.; Madden, D. J.; Banerjee, U.; Sail, V.; Raccuia, D. S.; De Carlo, D.; Lemieux, S. M.; ***Meares, A***.; Hadden, M. K. Structure-Activity Relationships for Vitamin D3-Based Aromatic A-Ring Analogues as Hedgehog Pathway Inhibitors, *J. Med. Chem.* **2014**, 57(9), 3724-3736.

CONFERENCE PRESENTATIONS

1. ***Meares, A***.; Yu, Z.; Satraitis, A.; Bhagavathy, G.; Ptaszek, M. Trans-cis isomerization of ene-diyne linked hydroporphyrin dyads results in slipped co-facial orientation with extensive electronic coupling, 47th Middle Atlantic Regional Meeting of the American Chemical Society, Baltimore, MD, May 30-June 1, 2019, MARM-54.
2. ***Meares, A***.; Satraitis, A.; Ptaszek, M. BODIPY-Bacteriochlorin Energy Transfer Arrays with Tunable Absorption and Near-Infrared Emission, 254th ACS National Meeting & Exposition, Washington, DC, August 20-24, 2017, ORGN-95.
3. Saha Ray, A.; Pak, Y.; ***Meares, A***.; Ptaszek, M.; Swaan, P.; Daniel, M.-C. Study of Cellular Localization and Toxicity of Dendronized Gold Nanoparticles for Theranostic Applications, 254th ACS National Meeting & Exposition, Washington, DC, August 20-24, 2017, PMSE-485.
4. ***Meares, A***.; Satraitis, A.; Ptaszek, M. BODIPY-Bacteriochlorin Energy Transfer Arrays with Tunable Absorption and Near-Infrared Emission, 39th Annual Graduate Research Conference (GRC), University of Maryland-Baltimore County, Baltimore, MD, March 29th, 2017.
5. ***Meares, A***.; Satraitis, A.; Santhanam, N.; Ptaszek, M. Novel Water Soluble BODIPY Derivative and its Incorporation into Near-Infrared Fluorescent Energy Transfer Dyads, 9th Frontiers in Chemistry and Biology Interface Symposium, Johns Hopkins University, Baltimore, MD, May 14th, 2016.
6. ***Meares, A***.; Zik, S.; Ptaszek, M. Long-wavelength Absorbing Vinylene-linked Chlorin Dimer: Microwave-assisted Olefin Metathesis Synthesis and Photochemical Properties, 248th ACS National Meeting & Exposition, San Francisco, CA, August 10-14, 2014, ORGN-962.

PROFESSIONAL AND HONOR SOCIETY MEMBERSHIPS

American Chemical Society	2011-Present
Phi Kappa Phi	2014-2015
Alpha Lambda Delta	2008-2009

GRADUATE COURSEWORK

UMBC

Organic Synthetic Methods, Mechanisms of Organic Reactions, Fluorescence Spectroscopy, Optical Spectroscopy, Statistical Thermodynamics, Comprehensive Biochemistry I, Inorganic Chemistry

UConn

Determination of Organic Structures, Advanced Organic Chemistry, Drug Discovery and Development, Introduction to Biostatistics