

Gregory R. Naumiec

EDUCATION

Postdoctoral Fellow

PET Radiopharmaceutical Sciences, Molecular Imaging Branch, National Institute of Mental Health

National Institutes of Health, Bethesda, Maryland

PI: Dr. Victor Pike

Ph.D. Organic Chemistry – “The Development of Novel MR Molecular Imaging Agents Towards the Visualization of DAT”, May 2010

University of Rhode Island, Kingston, Rhode Island

Advisor: Dr. Brenton DeBoef

B.S. Biochemistry, May 2005

State University of New York at Geneseo, Geneseo, New York

TEACHING AND MENTORING EXPERIENCE

2015 – Present Assistant Professor of Chemistry

University of Central Arkansas

– CHEM 2401- Organic Chemistry I

2010 – 2015 Postdoctoral Fellow

PET Radiopharmaceutical Sciences, Molecular Imaging Branch, National Institute of Mental Health

National Institutes of Health, Bethesda, Maryland

PI: Dr. Victor Pike

- “Scientists Teaching Science”- 2 hour workshop
- “Scientists Teaching Science”- 9 week course
- Led journal club discussions
- Mentored and trained post baccalaureate fellows
- Mentored an trained high school interns

2005 – 2010 Graduate Teaching Assistant

Department of Chemistry, University of Rhode Island, Kingston, Rhode Island

Advisor: Dr. Brenton DeBoef

- Directly supervised/mentored five undergraduate researchers and assisted in the guidance of 15 other undergraduate researchers through several research projects

- **CHM 102** – Introductory General Chemistry Laboratory (16 students)
- **CHM 226** – Organic Chemistry Laboratory (non-majors, 24 students)
- **CHM 292** – Organic Chemistry II Laboratory (chemistry majors, 24 students)
 - Introduced new experiments
 - A green Passerini reaction – Hooper, M.M., DeBoef, B. J. *Chem. Educ.* **2009**, 86, 1077.
 - Implemented extensive use of NMR analysis using a new NMR instrument and MNova software
- **CHM 425** – Advanced Organic Chemistry Laboratory (24 students)
 - Received the Graduate Student Teaching Assistant Award
 - Introduced new experiments
 - A green Passerini reaction – Hooper, M.M., DeBoef, B. J. *Chem. Educ.* **2009**, 86, 1077.
 - Combinatorial Chemistry – Doxsee, K.M., and Hutchison, J.E. *Green Organic Chemistry*, **2004**, 231.
 - Designed and implemented a chromatography experiment using a novel flash chromatography apparatus which was designed and built in-house
 - Gregory R. Naumiec, Angela N. Del Padre, Matthew M. Hooper, Alison St. Germaine, and Brenton DeBoef, “A Modern Apparatus for Performing Flash Chromatography: An Experiment for the Organic Laboratory,” *J. Chem. Ed.*, **2013**, 90, 376.
 - Assisted in the design of a multistep tripeptide synthesis lab final
 - Implemented extensive use of NMR and GC/MS analysis, introduced the use of microwaves in the laboratory curriculum
- **CHM 425** – Advanced Organic Chemistry Lecture – Guest Lecturer
 - Cyclohexene conformational analysis
- **CHM 292** – Organic Chemistry II Lecture – Guest Lecturer
 - Electrophilic aromatic substitution
 - Formation of acyl chlorides, esters, anhydrides, and acids

2004 – 2005 Undergraduate Teaching Assistant
 Department of Chemistry, SUNY Geneseo, Geneseo, New York
 Advisor: Professor Kazu Yokoyama

- **CHEM 103** – Chemistry and Society Laboratory

PROFESSIONAL EXPERIENCE

Skills – Proficient in organic synthesis of small molecules, nuclear magnetic resonance (NMR) spectroscopy, mass spectroscopy (MS), high performance liquid chromatography (HPLC), flash chromatography, thin layer chromatography (TLC), relaxometry, gas chromatography (GC/MS), LC/MS, infrared spectroscopy (FTIR), carbon-11 radiochemistry, and fluorine-18 radiochemistry.

2015 – Present Assistant Professor of Chemistry
 University of Central Arkansas

2010 – 2015 Postdoctoral Fellow
PET Radiopharmaceutical Sciences, Molecular Imaging Branch, National Institute of
Mental Health
National Institutes of Health, Bethesda, Maryland
PI: Dr. Victor Pike

- Organic synthesis and medicinal chemistry
 - Synthesized novel trisubstituted guanidine ligands for the phencyclidine (PCP) site of the *N*-methyl-D-aspartate (NMDA) receptor
 - Synthesized ligands for the NR2B subunit of the NMDA receptor
 - Synthesized electron-rich 2-halopyridines
 - Synthesized over 200 ligands for the NMDA receptor all fully characterized and isolated using techniques such as NMR spectroscopy, LC/MS, HPLC, flash chromatography, and TLC
- Radiochemistry
 - Performed carbon-11 and fluorine-18 radiosyntheses in order to develop a positron emission tomography (PET) radioligand for in vivo imaging of the NMDA receptor
 - Performed nucleophilic fluorine-18 substitutions of electron-rich 2-halopyridines using an Advion microfluidic apparatus in order to probe the effects of electron donating groups on [¹⁸F]fluorinations

2005 – 2010 Graduate Research Assistant
Department of Chemistry, University of Rhode Island, Kingston, Rhode Island
Advisor: Dr. Brenton DeBoef

- Organic synthesis
 - Synthesized novel gadolinium-based magnetic resonance imaging (MRI) contrast agents containing cocaine for the molecular imaging of dopamine transporter (DAT)
 - Synthesized novel cryptophane Xenon-129 MRI biosensors for the imaging of DAT
 - Synthesized over 200 different compounds all fully characterized and isolated using techniques such as NMR spectroscopy, relaxometry, mass spectroscopy, GC/MS, LC/MS, FTIR, flash chromatography, TLC, and HPLC
 - Responsible for maintenance and troubleshooting of NMR, GC/MS, and HPLC instruments

PROFESSIONAL DEVELOPMENT

"Scientists Teaching Science"
"How to Write a Scientific Paper"
"Grant Writing 101"

PROFESSIONAL ASSOCIATIONS

American Chemical Society Member

AWARDS

2006 K. Force Analytical Chemical Scholarship
2006 Joseph Waite Ince Chem. Prize
2007 Milton Waltcher Chemistry Scholarship
2008 Graduate Student Teaching Assistant Award
2009 Bertram Brown Chemistry Scholarship

GRANTS

2009 Enhancement of Graduate Research and Scholarship Grant, URI Foundation

PRESENTATIONS

1. Gregory R. Naumiec and Brenton DeBoef, "The Synthesis and Use of Cocaine-based MRI Contrast Agents to Detect the Concentration of DAT" ACS National Meeting, Boston, MA, August 2007. *Poster Presentation*
2. Gregory R. Naumiec and Brenton DeBoef, "The Synthesis and Use of Cocaine-based MRI Contrast Agents to Detect the Concentration of DAT" ACS National Meeting, Philadelphia, PA, August 2008. *Poster Presentation*
 - Work was highlighted in *New Scientist*, 20 August 2008, issue 2670.
3. Matthew Hooper, Gregory R. Naumiec, and Brenton DeBoef, "Development of a Green Chemistry Laboratory Module: The Aqueous Passerini Reaction" ACS National Meeting, Philadelphia, PA, August 2008. *Poster Presentation*
4. Gregory R. Naumiec, Sarah E. Decato, and Brenton DeBoef, "The Synthesis and Use of Cocaine-based MRI Contrast Agents to Detect the Concentration of DAT" INBRE Winter 2009 Research Fellows Meeting and Faculty Retreat, Roger Williams University, Bristol, RI, January 2009. *Poster Presentation*
5. Gregory R. Naumiec and Brenton DeBoef, "Target-Specific MRI Contrast Agents: Cocaine Derived Probes to Visualize DAT" ACS National Meeting, Washington, DC, August 2009. *Poster Presentation*
6. Sarah E. Decato, Gregory R. Naumiec, and Brenton DeBoef, "Synthesis and Optimization of Hyperpolarized Xenon Cryptophane-based Biosensors for use in HYPERCEST ^{129}Xe MRI" ACS National Meeting, Washington, DC, August 2009. *Poster Presentation*
7. Grace A. Lincourt, Gregory R. Naumiec, and Brenton DeBoef, "Multimodal Dopamine Transporter imaging *in vivo*" ACS National Meeting, Washington DC, August 2009. *Poster Presentation*
8. Gregory R. Naumiec, et al. "Radiosynthesis of [^{11}C]CNS 1261, a positron emission tomography tracer for the phencyclidine site of the N-methyl-D-aspartate receptor" ACS National Meeting, Philadelphia, PA, August 2012. *Poster Presentation*

PUBLICATIONS

1. Potavathri, S., Dumas, A.S., Dwight, T.A., Naumiec, G.R., Hammann, J.M., DeBoef, B. *Tet. Lett.* **2008**, 49, 4050.
2. Gregory R. Naumiec, Angela N. Del Padre, Matthew M. Hooper, Alison St. Germaine, and Brenton DeBoef, "A Modern Apparatus for Performing Flash Chromatography: An Experiment for the Organic Laboratory," *J. Chem. Ed.*, **2013**, 90, 376.
3. Gregory R. Naumiec, Grace Lincourt, Jeremy Cilver, Michael McGregor, Abraham Kovoor and Brenton DeBoef, "MR Imaging of Neuroreceptors: Cocaine-Derived Dynamic Contrast Agents to Visualize the Dopamine Transporter," *ACCEPTED to Org. & Biomol. Chem.*
4. Gregory R. Naumiec, Lisheng Cai, and Victor W. Pike, "New leads to PET ligands for imaging of the open NMDA receptor based on *N*-aryl-*N'*-(3-(substituted)phenyl)-*N'*-methylguanidines," *ACCEPTED to Bioorganic & Medicinal Chemistry Letters*.
5. Gregory R. Naumiec, Lisheng Cai, Kimberly Jenko, Robert B. Innis, and Victor W. Pike, "*N*-(Aryl)-*N'*-(3-(trifluoromethyl)phenyl)-*N'*-methylguanidines: A Potent Class of Substrates for the Open Channel of the NMDA Receptor," *in preparation, will be submitted to Journal of Medicinal Chemistry*.