

## Remy L. Brim, Ph.D.

### Education

2006-2011

**University of Michigan** Ann Arbor, MI  
**Doctor of Philosophy, *Pharmacology***  
Thesis Advisors: James H. Woods, Ph.D. and Roger K. Sunahara, Ph.D.

2003-2006

**Michigan State University** East Lansing, MI  
**Bachelor of Science, *Microbiology and Molecular Genetics***  
Honors College, Lyman Briggs College  
Summa Cum Laude, with High Honor

### Fellowships

2011-2013

**National Institutes of Health**, Bethesda, MD  
Department of Bioethics  
*Post-Doctoral Bioethics Fellow*

2012

**United States House of Representatives**, Washington, DC  
Representative Allyson Schwartz (D)  
*Health Care Policy Fellow*

2011

**University of Michigan**, Ann Arbor, MI  
Department of Pharmacology  
*Post-Doctoral Research Fellow*

### Professional Memberships

2008-Present

American Society for Pharmacology and Experimental Therapeutics

2010-2011

College on Problems of Drug Dependence

2004-2006

American Society for Microbiology

### Awards

2012

**Distinguished Dissertation Award**  
*University of Michigan Rackham Graduate School*, one of eight theses chosen across all disciplines.

2011

**Best Abstract Award**  
*American Society of Pharmacology and Experimental Therapeutics Annual Meeting*  
Drug Discovery, Development and Regulatory Affairs, Second Place

2010-2011

**Ruth L. Kirschstein National Research Service Award**  
*National Institute on Drug Abuse*, 1F31DA028086-01

2010

**Best Abstract Award**  
*American Society of Pharmacology and Experimental Therapeutics Annual Meeting*  
Drug Discovery, Development and Regulatory Affairs, Second Place

2009

**Best Abstract Award**  
*American Society of Pharmacology and Experimental Therapeutics Annual Meeting*  
Behavioral Pharmacology, Second Place

2009

**Graduate Student Travel Award**  
*American Society of Pharmacology and Experimental Therapeutics*

2007-2009

**Pharmacological Sciences Training Program Trainee**  
*University of Michigan*, Training Grant USPHS GM007767

2006

**Gerhardt Award**  
*Michigan State University*, Department of Microbiology Academic Merit Scholarship

2005

**Duvall Award**  
*Michigan State University*, Department of Microbiology Senior Research Scholarship

## Committees and Collaborations

- 2012-Present** **Mentoring Committee** of the American Society for Pharmacology and Experimental Therapeutics
- 2011-Present** **NIH Fellows Committee Liaison** to the Intramural Program on Research on Women's Health (elected position)
- 2011-2012** **Diversity Committee** of the American Society for Pharmacology and Experimental Therapeutics
- 2009-2011** **Women in Pharmacology Committee** of the American Society for Pharmacology and Experimental Therapeutics, Student Representative
- 2008-2010** **Contributing Scientist to Reckitt Benckiser Pharmaceuticals** Designed and executed preclinical drug studies

## Leadership

- 2012** **Judge** for the National Institutes of Health Fellows Award for Research Excellence
- 2012** **Lead Judge** for the National Institutes of Health Post-baccalaureate Research Poster Day
- 2012** **Lead Judge** for the National Institutes of Health Graduate Student Symposium
- 2011** **Session Moderator** at the American Society for Bioethics and Humanities national meeting
- 2011** **Symposium Organizer** for the ASPET Women in Pharmacology Committee career round-table event at the 2011 Experimental Biology meeting. Organized event, recruited and coordinated speakers, and designed advertisements
- 2010-2011** **Representative** for the Pharmacology Department to the Graduate Student Council at the University of Michigan

## Research Experience

- 2011-Present** **National Institutes of Health**  
**Department of Bioethics**  
*Post-Doctoral Bioethics Fellow*  
Research focused on clinical trial design, inclusion of patient reported outcomes, communication and debriefing about placebo effect. Conceptual and empirical manuscript composition. Observation of clinical rounds, NIH institutional review board meetings, and the ethics consultation service.  
Mentor: Steven D. Pearson, M.D., M.Sc.
- 2007-2011** **University of Michigan Medical School**  
**Department of Pharmacology**  
*Graduate Student Research Assistant and Post-Doctoral Research Fellow*  
Evaluating the *in vitro* and *in vivo* properties of a bacterial cocaine esterase (CocE) for development into a pharmacotherapy for cocaine toxicity and addiction. Effects of CocE on animal cocaine toxicity and cocaine-reinforced operant behavior. Pharmacokinetic and pharmacodynamic studies in rats via radiolabeling and mass spectrometry respectively. *In vitro* enzymology via mutational analysis and activity assays. Collaboration with a small pharmaceutical company to conduct and report licensed pre-clinical studies. Grant and publication composition. Daily experimental planning and execution. Supervising undergraduate assistants and technicians.  
Principal Investigators: James H. Woods, Ph.D.  
Roger K. Sunahara, Ph.D.
- 2007** **University of Michigan Medical School**  
**Department of Pharmacology**  
*Pre-Doctoral Candidate*  
Evaluating drug cross-sensitization and the effects of protein kinase C  $\beta$  (PKC- $\beta$ ) on dopamine transporter function. Behavioral analysis of PKC- $\beta$  knock-out mice during nicotine and amphetamine regimens. *Ex vivo* analysis of PKC- $\beta$  synaptosome function. Skills included mammalian cell culture, radioactivity work and animal handling.  
Principal Investigator: Margaret Gnegy, Ph.D.

- 2006**                    **University of Michigan Medical School**  
**Department of Pharmacology**  
*Pre-Doctoral Candidate*  
 Revealing the role of Human Papilloma Virus (HPV) in the response of oral cancers to DNA-damage inducing chemotherapies. Mammalian cell culture, qRT-PCR, and apoptosis assays. Composition of fellowship applications. Meetings with clinical researcher teams.  
 Principal Investigator: Thomas Carey, Ph.D.
- 2004-2006**            **Michigan State University**  
**Department of Microbiology**  
*Undergraduate Research Assistant*  
 Elucidating effects of Pentatricopeptide Repeat (PPR) proteins on *Trypanosoma. brucei* growth and RNA expression. Small interfering RNA (siRNA) knockdown of 18 PPR proteins with mitochondrial targeting sequences. Skills included vector cloning, protozoan cell culture. Maintained laboratory stock solutions and equipment.  
 Principal Investigator: Donna Koslowsky, Ph.D.
- 2003-2004**            **Michigan State University**  
**Department of Fisheries and Wildlife**  
*Undergraduate Research Assistant*  
 Effects of shoreline development on the Bluegill and Smallmouth Bass populations in small Michigan inland lakes. Fish scale age analysis and data entry. Water and fish sample collection.  
 Principal Investigator: Mary Bremigan, Ph.D.

**Teaching Experience**

- 2011**                    University of Michigan PIBS 502: Introduction to Scientific Writing  
 Graduate Student Teaching Assistant
- 2010**                    University of Michigan Medical School Summer Science Academy  
 Academic enrichment program for underprivileged, highly-motivated high school students  
 Laboratory Instructor
- 2009**                    Washtenaw Community College Nursing 115: Pharmacology  
 Guest Lecturer: June 22, 2009  
 University of Michigan Pharmacology 576: Signal Transduction  
 Graduate Student Teaching Assistant  
 University of Michigan PIBS 502: Introduction to Scientific Writing  
 Graduate Student Teaching Assistant
- 2008-2009**            Ann Arbor Father Gabriel Richard High School  
 Assistant JV Volleyball Coach for 2 seasons
- 2008**                    University of Michigan Psychology 436: Drugs of Abuse, Brain and Behavior  
 Guest Lecturer: November 25, 2008

**Publications**

A. *Peer Reviewed*

**Brim, R.L.**, Pearson, S.D., *The Use and Reporting of Patient-Reported Outcomes in Phase III Breast Cancer Trials*. Clinical Trials (Under Review)

**Brim, R.L.**, Miller, F.G., *The Potential Benefit of the Placebo Effect in Sham-Controlled Trials: Implications for Risk/Benefit Assessments and Informed Consent*. Journal of Medical Ethics (In Press)

Collins, G.T., **Brim, R. L.**, Noon K.R., Narasimhan, D., Lukacs, N.W., Sunahara, R. K., Woods, J.H., Ko, M.C.. *Repeated Administration of a Mutant Cocaine Esterase: Effects on Plasma Cocaine Levels, Cocaine-Induced Cardiovascular Activity, and Immune Responses in Rhesus Monkeys*. Journal of Pharmacology and Experimental Therapeutics 342(1):205-13 (2012)

**Brim, R. L.**, Noon K.R., Collins, G.T., Stein, A., Nichols, J., Narasimhan, D., Sunahara, R. K., Woods, J.H.. *The Fate of Bacterial Cocaine Esterase (CocE): An in vivo Study of CocE-Mediated Cocaine Hydrolysis, CocE Pharmacokinetics, and CocE Elimination*. Journal of Pharmacology and Experimental Therapeutics 340(1): 83-95 (2012)

**Brim, R. L.**, Noon, K.R., Collins, G.T., Nichols, J., Narasimhan, D., Woods, J.H., Sunahara, R.K.. *The Ability of Bacterial Cocaine Esterase to Hydrolyze Cocaine Metabolites and their Simultaneous Quantification Using High Performance Liquid Chromatography-Tandem Mass Spectrometry Method*. Molecular Pharmacology. 80(6): 1119-27 (2011)

**Brim, R.L.**, Noon, K.R., Nichols, J., Narasimhan, D., Woods, J.H., Sunahara, R.K.. *Evaluation of the Hydrolytic Activity of a Long-Acting Mutant Bacterial Cocaine in the Presence of Commonly Co-Administered Drugs*. Drug and Alcohol Dependence. 119(3): 224-8 (2011)

**Brim, R. L.**, Nance, M. R., Youngstrom, D., Narasimhan, D., Tesmer, J. J. G., Sunahara, R. K., Woods, J.H.. *A Thermally Stable Form of Bacterial Cocaine Esterase: A Potential Therapeutic Agent for Treatment of Cocaine Abuse*. Molecular Pharmacology. 77(4): 593-600 (2010)

Park, J.B., Kwon, Y.M., Lee, T.Y., **Brim, R.L.**, Ko, M.C., Sunahara, R.K., Woods, J.H., Yang, V.C.. *PEGylation of Bacterial Cocaine Esterase for Protection against Protease Digestion and Immunogenicity*. Journal of Controlled Release. 142(2): 174-9 (2010)

Collins, G.T., **Brim, R. L.**, Narasimhan, D., Sunahara, R. K., Woods, J. H.. *Cocaine Esterase Prevents the Ongoing Intravenous Self-Administration of Cocaine in Rats*. Journal of Pharmacology and Experimental Therapeutics. 331(2):445-55 (2009)

Gao, D., Narasimhan, D., Macdonald, J., **Brim, R.**, Ko, M. C., Landry, D. W., Woods, J. H., Sunahara R.K., Zhan, C.G.. *Thermostable Variants of Cocaine Esterase for Long-Time Protection against Cocaine Toxicity*. Molecular Pharmacology (75): 318-23 (2009)

#### *B. Presented Abstracts*

**Brim, R.L.**, Noon, K.R., Stein, A., Nance, M.R., Nichols, J., Narasimhan, D., Sunahara, R.K., Woods, J.H.. "Quantification of rapid in vivo cocaine hydrolysis by bacterial cocaine esterase," American Society of Pharmacology and Experimental Therapeutics Annual Meeting, Washington DC, April 2011

**Brim, R.L.**, Sunahara, R. K., Woods, J. H. "Pharmacokinetic properties of a bacterial cocaine esterase to be used as a treatment against cocaine-induced toxicities," The College on Problems of Drug Dependence Annual Meeting, Scottsdale AZ, June 2010.

**Brim, R. L.**, Sunahara, R. K., Woods, J. H. "Ability of bacterial cocaine esterase to hydrolyze active cocaine metabolites, and function in the presence of commonly co-abused drugs," American Society of Pharmacology and Experimental Therapeutics Annual Meeting, Anaheim CA, April 2010.

**Brim, R. L.**, Nance, M., Tesmer, J., Sunahara, R. K., Woods, J. H. "Mutant Bacterial Cocaine Esterase with a Three-day Half-life Possess Characteristics of a Cocaine Abuse Therapy," American Society of Pharmacology and Experimental Therapeutics Annual Meeting, New Orleans LO, April 2009.

#### *C. Patents*

PCT/US2008/069659 Landry, D., Macdonald, J., Stojanovic, M.N, Sunahara, R.K., Narasimhan, D., Woods, J.H., Tesmer, J.J.G., and **Brim, R.L.**, "Thermostabilization of Proteins"

#### *D. Other publications*

**Brim, R.L.**, *How will the practice of science change in your lifetime?* Science NextGen VOICES: 335(6064): online supplement (2012) <http://www.sciencemag.org/content/335/6064/36/suppl/DC1>

**Brim, R.L.**, *How do we prepare pharmacology students for the world outside of academia?* ASPET PharmTalk Blog January 2012 <http://www.aspet.org/Blog.aspx?id=2436&blogid=219>