

GABRIELA FERNÁNDEZ-CUERVO

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EDUCATION

- 2013 – 2017 **Ph.D. Pharmaceutical Sciences**
The University of Arizona, Tucson, AZ
Drug Discovery and Development Emphasis, Biological Chemistry Program
HHMI Gilliam Fellowship for Advanced Study
Thesis Advisor: Mark D. Pagel, Ph.D.
- 2011 – 2012 **Post-Baccalaureate Research Program**
Emory University, Atlanta, GA
NIH PREP Fellowship
- 2007 – 2011 **B.S. Chemistry**
University of Puerto Rico – Río Piedras, San Juan, PR
NIH MARC Scholarship

RESEARCH EXPERIENCE

- 2013 – 2017 **Graduate Research Assistant**
Department of Pharmaceutical Sciences, University of Arizona, Tucson AZ
Thesis Advisor: Mark D. Pagel
- Developed diamagnetic enzyme-responsive CEST MRI contrast agents for *in vivo* reporter gene imaging as part of a highly interdisciplinary project.
 - Established the design and chemical synthesis of small molecule imaging probes, conducted biochemical and enzymatic kinetics studies, and handled the cell culture work to develop a cell line and xenograph animal models to complete *in vivo* imaging.
- 2012 – 2013 **Research Assistant**
Department of Chemistry, Emory University, Atlanta, GA
Research Advisors: Ethel C. Garnier-Amblard and Dennis Liotta
- Synthesized 2-benzamido thiophene analogues as novel negative or positive subunit-selective allosteric modulators of NMDA receptors.
- 2011 – 2012 **NIH Post-Baccalaureate Research Experience Program (PREP) Fellowship**
Emory University School of Medicine, Atlanta, GA
Research Advisors: Ethel C. Garnier and Steven F. Traynelis
- Worked towards the development of NMDA-targeted small molecules. Synthesized two series of compounds and identified 2-benzamido thiophene derivatives that display inhibitory or potentiating activity with remarkably different patterns of selectivity towards NMDA receptors containing different GluN2 subunits.

2009 – 2011

NIH Minority Access in Research Careers (MARC) Scholar

Department of Chemistry, The University of Puerto Rico – Rio Piedras

Research Advisor: José A. Prieto

- Studied the effects of remote protecting groups in the regioselective cleavage of 3,4-epoxy alcohols.

2010

Summer Medical and Research Training (SMART) Program

Baylor College of Medicine, Houston, TX

Research Advisors: George T. Somogyi and Alvaro Muñoz

- Performed electrophysiology studies to evaluate whether alterations of the signaling pathways triggered by purinergic and nicotinic receptors are affected in hyperactive urinary bladders from diabetic rats.

2009

Chemistry Summer Undergraduate Research Fellowship (Chem-SURF)

Department of Chemistry, University of California Irvine

Research Advisor: Fillmore Freeman

- Performed theoretical calculations to study the mechanisms of the cycloadditions of singlet heterocarbenes and heterocyclic carbenes with alkenes, which form heterocyclopropanes and spirocyclopropanes, respectively.

ACADEMIC HONORS AND AWARDS

- 2017 AAAS Helen F. Holt Scholarship for Early-Career Women in Science
- 2016 Academic Excellence Award, College of Pharmacy, University of Arizona
- 2015 **Howard Hughes Medical Institute Gilliam Fellowship for Advanced Study** – 3-years of funding
- 2015 Centennial Achievement Graduate Student Award *Nominee*
- 2015 Graduate and Professional Student Council Travel Grant
- 2015 NIH T32 Training Grant Research Fellowship – Biological Chemistry Program
- 2014 NIH T32 Training Grant Research Fellowship – Biological Chemistry Program
- 2013 University of Arizona Graduate College – Graduate Access Fellowship
- 2013 NIH Initiative for Maximizing Student Diversity (IMSD) Graduate Study Award
- 2012 Recipient of a 2012 ABRCMS Outstanding Presentation Award in Chemistry
- 2012 Emory PREP Travel Award to attend ABRCMS
- 2011 NIH Post-Baccalaureate Research Experience Program (PREP) Fellowship
- 2009 NIH Minority Access in Research Careers (MARC) Fellowship Scholar – 2-years
- 2008 Dean's List – Chemistry Department, University of Puerto Rico
- 2007 Dean's List – Chemistry Department, University of Puerto Rico
- 2007 Governor's Scholar – Puerto Rico Top 100 high-school seniors

PUBLICATIONS

Research Articles

1. **Fernández-Cuervo, G.**, Tucker, K.T., Malm, S.W., Jones, K.M. & Pagel M.D. Diamagnetic Imaging Agents with a Modular Chemical Design for Quantitative Detection of β -Galactosidase and β -Glucuronidase Activities with CatalyCEST MRI. *Bioconjug. Chem.* 2016, 27 (10):2549–2557. PMID: 27657647
2. Sinharay, S., **Fernández-Cuervo, G.** & Pagel, M.D. Detection of Sulfatase Enzyme Activity with a catalyCEST MRI Contrast Agent. *Chemistry*. 2016, 22(19):6491-6495. PMID: 26956002
3. **Fernández-Cuervo, G.**, Sinharay, S. & Pagel, M.D. A CatalyCEST MRI Contrast Agent that Can Simultaneously Detect Two Enzyme Activities. *ChemBioChem*. 2016, 17(5):383-387. PMID: 26693680
4. Jespersen, A., Tajima, N., **Fernández-Cuervo, G.**, Garnier-Amblard, E.C. & Furukawa, H. Structural Insights into Competitive Antagonism in NMDA Receptors. *Neuron*. 2014, 81:366–378. PMID: 24462099

Abstracts and Presentations

- 2017 **Gabriela Fernández-Cuervo**, Alyssa C. Pollard, Neale Hanke, Assaf A. Gilad, Mark D. Pagel. *β -Glucuronidase reporter gene imaging with catalyCEST MRI: from synthesis to in vivo imaging*. HHMI Gilliam Fellows Meeting, Chevy Chase, DC
- 2017 **Gabriela Fernández-Cuervo**. *In vivo reporter gene imaging with catalyCEST MRI*. World Molecular Imaging Congress, Philadelphia, PA. [**oral presentation**]
- 2017 **Gabriela Fernández-Cuervo**, Kirsten A. Tucker, Scott W. Malm, Kyle M. Jones, Mark D. Pagel. Diamagnetic Imaging Agents with a Modular Chemical Design for Quantitative *Detection of β -Galactosidase and β -Glucuronidase Activities with CatalyCEST MRI*. ISMRM 25th Annual Meeting & Exhibition, Honolulu, HI
- 2017 **Gabriela Fernández-Cuervo**, Kirsten A. Tucker, Scott W. Malm, Kyle M. Jones, Mark D. Pagel. *Reporter gene MRI agents for quantitative detection of glycoside hydrolase enzymes*. AAAS 2017 Annual Meeting, Boston, MA
- 2016 **Gabriela Fernández-Cuervo**, Kirsten A. Tucker, Scott W. Malm, Kyle M. Jones, Mark D. Pagel. *Quantitative detection of beta-galactosidase and beta-glucuronidase activities with catalyCEST MRI*. SACNAS – STEM Diversity and Public Understanding Annual Conference, Long Beach, CA
- 2016 **Gabriela Fernández-Cuervo**. *Monitoring beta-glucuronidase enzyme with catalyCEST MRI – A method to assess antibody directed enzyme prodrug therapy*. 2016 Annual ERN Conference in STEM, Washington, DC [**oral presentation**]
- 2015 **Gabriela Fernández-Cuervo**, Kyle M. Jones, Mark D. Pagel. *Towards monitoring antibody-enzyme conjugates to improve ADEPT with catalyCEST MRI*. HHMI Gilliam Fellows Meeting, Chevy Chase, DC
- 2015 **Gabriela Fernández-Cuervo**, Paul J. Akhenblit, Sanhita Sinharay, Edward Randtke and Mark D. Pagel. *Monitoring dual enzyme activities with catalyCEST MRI*. World Molecular Imaging Congress, Honolulu, HI
- 2015 **Gabriela Fernández-Cuervo**, Kyle M. Jones, Edward Randtke and Mark D. Pagel. *Towards monitoring antibody-enzyme conjugates to improve ADEPT with catalyCEST MRI*. World Molecular Imaging Congress, Honolulu, HI
- 2014 Riley E. Perszky, Gangireddy P.K. Reddy, Ethel C. Garnier-Amblard, Sharon A. Swanger, **Gabriela Fernández-Cuervo**, Lanny S. Liebeskind and Stephen F. Traynelis. *Mechanism of action of a novel series of drug-like N-methyl-D-aspartate receptor positive allosteric modulators and their effects in hippocampal CA1 neurons*. Society for Neuroscience Annual Meeting, Washington, DC

- 2014 **Gabriela Fernández-Cuervo**. *Towards monitoring antibody-enzyme conjugates to improve ADEPT with catalyCEST MRI*. 2nd Biological Chemistry Program Retreat. University of Arizona, AZ [**oral presentation**]
- 2012 **Gabriela Fernández-Cuervo**, Ethel C. Garnier-Amblard, Kevin Ogden and Stephen F. Traynelis. *Structure-Activity relationship studies of 2-benzamido thiophene Analogues as novel negative or positive sub-unit selective allosteric modulators of NMDA receptors*. 12th Annual Biomedical Research Conference for Minority Students, San Jose, CA
- 2012 Luis A. Vazquez-Maldonado, **Gabriela Fernández-Cuervo**, Elizabeth Valentín, Gerardo Torres and José A. Prieto. *Effect of the remote protecting group in the cleavage reaction of 3,4-epoxy alcohols*; 243rd ACS National Meeting, San Diego, CA
- 2012 Fillmore Freeman and **Gabriela Fernández-Cuervo**. *Philicity of heterocarbenes and heterocyclic carbenes: Mechanisms of 1,2-cycloadditions to alkenes*. 243rd ACS National Meeting, San Diego, CA
- 2011 Fillmore Freeman and **Gabriela Fernández-Cuervo**. *Mechanisms of cycloaddition of 1,3-dioxol-2-ylidene to unsaturated systems*. 241st ACS National Meeting, Anaheim, CA
- 2011 **Gabriela Fernández-Cuervo**, José A. Prieto, Gerardo Torres and Elizabeth Valentín. *Effect of the remote protecting group in the cleavage of 3,4-epoxy alcohols*. 241st ACS National Meeting, Anaheim, CA
- 2010 **Gabriela Fernández-Cuervo**, George T. Somogyi, and Alvaro Muñoz. *Evaluation of purinergic and nicotinic receptors in bladders of diabetic rats*. 10th Annual MARC Students Poster Presentation, Río Piedras, PR
- 2010 **Gabriela Fernández-Cuervo**, George T. Somogyi and Alvaro Muñoz. *Evaluation of purinergic and nicotinic receptors in bladders of diabetic rats*. 10th Annual Biomedical Research Conference for Minority Students, Charlotte, NC
- 2009 **Gabriela Fernández-Cuervo** and Fillmore Freeman. *Mechanisms of cycloaddition of 1,3-dioxol-2-ylidene to substituted phenylethenes*. 18th Conference on Current Trends in Computational Chemistry, Jackson, MS
- 2009 **Gabriela Fernández-Cuervo** and Fillmore Freeman. *Electronic structure, philicity and mechanism of cycloaddition of 1,3-dioxol-2-ylidene to substituted ethenes*. ACS Southeastern Regional Meeting, San Juan, PR

MENTORING AND OUTREACH

- 2017 **HHMI Gilliam Meeting Planning Committee**: I was part of the first student-lead planning committee for the Gilliam Fellows Annual Meeting. With the help of HHMI, we selected and coordinated the 2017 keynote speaker, organized networking activities, and moderated scientific sessions.
- 2016 **Graduate Peer Mentor**: Mentored for first time undergraduate presenters at SACNAS National Conference, Long Beach, CA.
- 2015 – 2017 Active member of the Program to Advance Women Scientist (PAWS), University of Arizona.
- 2015 Fundraising Chair of the Program to Advance Women Scientist (PAWS), University of Arizona.
- 2015 **Graduate and Professional Student Council (GPSC) Travel Award Judge**: Reviewed travel award applications submitted by graduate students to attend conferences or workshops.

- 2014 – 2017 **Graduate Student Mentor:** Trained and mentored three undergraduate students in their first research experience and one graduate student leading to co-authored publications.
- 2014 – 2016 **IMSD Scholar Panel:** Participated in the annual panel discussion for incoming IMSD graduate students.
- 2014 – 2016 **Drug Discovery and Development Program Student Representative:** Served as student member in the recruiting and admissions committee.
- 2012 **PREP Emory University's Recruiting Team:** Attended ABRCMS National Conference as a post-baccalaureate (PREP) student to share my experiences with other minority students to help in the recruiting process in San Jose, CA.

PROFESSIONAL EXPERIENCE

- 2016 **Business Intelligence Student Fellow**
University of Arizona, Tech Launch Arizona, Tucson, AZ
- 2015 – 2016 **Technology Transfer Student Fellow**
University of Arizona, Tech Launch Arizona, Tucson, AZ

CAREER DEVELOPMENT

- 2016 JAX The Whole Scientist Workshop, The Jackson Laboratory, Bar Harbor ME
- 2015 COAch: Professional Skills Training for Minority Graduate Students and Postdocs – SACNAS National Conference, National Harbor, MD
- 2014 New Drugs in Oncology Pre-Annual Meeting Seminar – American Society of Clinical Oncology (ASCO) 50th Annual Meeting, Chicago, IL
- 2014 Arizona Research Institute for Biomedical Imaging (ARIBI) Workshop, University of Arizona

ADDITIONAL SKILLS

- Languages: Native fluency in Spanish and English
- Computer: Windows and Mac OS; Microsoft Office; diverse scientific software, including MestreNova, MatLab, ImageJ, ChemDraw and Chem3D.
- Technical: Chemical synthesis, mass spectroscopy, NMR, HPLC, *in vivo* and phantom MR imaging, enzyme kinetics, cell culture, protein expression and purification, enzymatic analysis.
- Personal: Productive, self-motivated, goal-focused, problem-solver, detail-oriented; excellent interpersonal skills; can interact effectively and work cohesively in a team environment; ability to relate well with people at all levels.