
Department of Psychology
Behavioral Neuroscience
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Education

- 2009 **Ph.D.**, UT Southwestern Medical Center at Dallas, Dallas, TX
Division of Basic Sciences, Neuroscience Program
- 2004 **B.S.**, St. Mary's University, San Antonio, TX
Major: Biology, Minors: Chemistry, Music

Professional Experience

- 8/2016-present **Assistant Professor**, Michigan State University, Lansing, MI
Department of Psychology, Behavioral Neuroscience
- 11/2013-6/2016 **Postdoctoral Fellow**, Washington State University, Pullman, WA
Integrative Physiology and Neuroscience
Laboratory of Rita A. Fuchs Lokensgard, Ph.D. (lab relocated from UNC Chapel Hill)
- 11/2010-11/2013 **Postdoctoral Fellow**, UNC at Chapel Hill, Chapel Hill, NC
Department of Psychology, Behavioral Neuroscience Program
Laboratory of Rita A. Fuchs Lokensgard, Ph.D.
- 3/2009-10/2010 **Postdoctoral Fellow**, Mt. Sinai School of Medicine, New York, NY
Department of Neuroscience
Laboratory of Cristina M. Alberini, Ph.D.
- 2004-2009 **Graduate Research Assistant**, UT Southwestern Medical Center at Dallas, Dallas, TX
Division of Basic Sciences, Neuroscience Program
Thesis: Mechanism of morphine's actions on hippocampal progenitor cells.
Mentor: Amelia J. Eisch, Ph.D., Department of Psychiatry
- 6/2003-8/2003 **Summer Research Fellow**, UT Southwestern Medical Center at Dallas, Dallas, TX
Laboratory of Anne B. Satterthwaite, Ph.D., Department of Internal Medicine
- 6/2002-8/2002 **Summer Research Fellow**, Texas A&M University, College Station, TX
Laboratory of Patricia J. LiWang, Ph.D., Biochemistry & Biophysics Department
- 6/2001-8/2001 **Summer Research Fellow**, University of Texas at Houston, Houston, TX
Laboratory of Susan A. Martinis, Ph.D., Biochemistry Department

Awards/Honors

- 2014-present NIH K99/R00 Pathway to Independence Award, NIDA (PI)
- 2016 Travel Award, American College of Neuropsychopharmacology, 55th Annual Meeting
- 2015 Travel Award, American College of Neuropsychopharmacology, 54th Annual Meeting
- 2015 Travel Award, NIDA Frontiers in Addiction Research Mini-convention, Chicago IL
- 2014 Travel Award, American College of Neuropsychopharmacology, 53rd Annual Meeting
- 2014 Travel Award, NIDA Frontiers in Addiction Research Mini-convention, Washington D. C.
- 2014 Best Presentation, Washington State University, 1st Annual College of Veterinary
Medicine Postdoctoral Research Symposium
- 2012 Carolina Postdoctoral Program for Faculty Diversity Trainee Position, *offer declined*

2005-2009 NIDA Minority Supplement to R01 (Amelia J. Eisch, Ph.D.)
 2008 Invited Poster Presenter, NIDA Frontiers in Addiction Research Mini-convention,
 Annual Meeting of the Society for Neuroscience, Washington D. C.
 2004 St. Mary's Presidential Scholar
 2003 Tri Beta Chapter Frank G. Brooks Award for Excellence in Research
 2002-2004 Minority Access to Research Careers (MARC) Fellowship
 2000-2002 St. Mary's Music Department Scholarship
 2000-2004 St. Mary's Presidential Scholarship

Professional Memberships

2014-fall semester **Vice-President**, Washington State University Postdoctoral Association
 2005-present **Member**, Society for Neuroscience

Teaching Experience

2014 **Lecturer**, Motivation (Psych 470), Washington State University
 Topic: Motivation and Emotion,
 2014 **Lecturer**, Introduction to Psychology (Psych 105.8), Washington State University
 Topic: Psychological Disorders - Anxiety and Mood Disorders

Mentoring Experience

2014-2016 **Mentor to Jacob Hall**, Independent Study undergraduate student (WSU)
 Recipient, Alcohol & Drug Abuse Undergraduate Research Fellowship
 Recipient, WSU Undergraduate Auvil Scholars Fellowship
 2014-fall semester **Mentor to Marshall Mitchell**, Independent Study undergraduate student (WSU)
Mentor to Priyanka Bushana, Graduate Rotation Student (WSU)
Trained students on laboratory techniques, supervised experiments, assigned and discussed relevant literature
 2011-2013 **Mentor to Matt Hodges**, Independent Study and Honors student (UNC)
Trained student on laboratory techniques, supervised experiments, assigned and discussed relevant literature, supervised preparation of honors thesis and oral defense
 2012-2013 **Mentor to Kyree Clark**, Independent Study undergraduate student (UNC)
Trained student on laboratory techniques, supervised experiments, assigned and discussed relevant literature
 2011 **Mentor to Honorio Lara**, SMART program fellow (UNC)
Trained student on laboratory techniques, supervised experiments, assigned and discussed relevant literature, supervised preparation of final presentation titled "The role of protein kinase A in cocaine memory reconsolidation"
 2011-2012 **Mentor to Christopher Hanlin**, Independent Study undergraduate student (UNC)
Trained student on laboratory techniques, supervised experiments, assigned and discussed relevant literature, supervised preparation of final paper on "The involvement of protein kinase A in the basolateral amygdala on cocaine memory reconsolidation"
 2007 **Mentor to Angel Cook**, Summer high school research intern (UTSW)
Trained student on lab techniques, supervised experiments, assigned and discussed relevant literature, supervised preparation of final presentation titled "Chronic morphine's effect on maturation of proliferating cells in the subgranular zone of the hippocampus."

Research Support

Current

NIDA 4R00DA037271-03 (PI: Amy A. Arguello) 7/27/16, approved

Role of novel CNS subcircuits in cue-induced drug relapse

Goal: The R00 portion of the proposed grant will examine the role of novel, subregional orbitofrontal-basolateral amygdala circuits in cue-induced reinstatement of cocaine-seeking behavior.

Completed

NIDA 1K99DA037271-01A1 (PI: Amy A. Arguello) 7/1/14-6/30/16

Role of novel CNS subcircuits in cue-induced drug relapse

Goal: The K99 portion of the proposed grant will elucidate the complex role of distinct lateral orbitofrontal-basolateral amygdala subcircuits in drug-associated explicit cue-induced reinstatement of cocaine-seeking behavior by combining *in vivo* optogenetics with intravenous cocaine self-administration in rodents.

NIDA Minority supplement to R01 DA016765 (PI: Amelia J. Eisch)

7/1/05-2/12/09

Regulation of adult neurogenesis by opiates

Goal: This administrative supplement provided stipend and tuition support for a predoctoral student (Arguello)

Publications

Peer-reviewed Publications (*Denotes shared first-authorship)

Arguello AA, Wang R, Lyons CM, Higginbotham JA, Hodges MA, Fuchs RA. Role of agranular insular cortex in the reconsolidation of cocaine-associated contextual memories and drug-context induced reinstatement, *in preparation*. *Designed study, collected and analyzed data, co-wrote paper.*

Arguello AA, Richardson BD, Hall JL, Wang R, Hodges MA, Mitchell MP, Stuber GD, Rossi DJ, Fuchs RA. Role of a lateral orbitalfrontal cortex-basolateral amygdala circuit in cue-induced cocaine-seeking behavior. *Neuropsychopharmacology*, Accepted 8/11/16. *Designed study, collected and analyzed data, co-wrote paper.*

Wells AM, Xie X, Higginbotham JA, **Arguello AA**, Healey KL, Blanton M, Fuchs RA (2015). Contribution of an SFK-mediated signaling pathway in the dorsal hippocampus to cocaine-memory reconsolidation in rats. *Neuropsychopharmacology*, 41: 675-85, PMID: 26202103. *Collected and analyzed data for molecular experiments, edited paper.*

Lasseter HC*, Xie X*, **Arguello AA**, Wells AM, Hodges MA, Fuchs RA. (2014) Contribution of a mesocorticolimbic subcircuit to drug context-induced reinstatement of cocaine-seeking behavior in rats. *Neuropsychopharmacology*, 39: 660-9. PMID: 24051899. *Designed, collected and analyzed data for fluorescent tracing experiment, co-wrote paper.*

Arguello AA, Hodges MA, Wells AM, Lara H 3rd, Xie X, Fuchs RA. (2014) Involvement of amygdalar protein kinase A, but not calcium calmodulin-dependent protein kinase II, in the reconsolidation of cocaine-related contextual memories. *Psychopharmacology*, 231: 55-65. PMID: 23873418. *Designed study, collected and analyzed data, co-wrote paper.*

Xie X, **Arguello AA**, Wells AM, Reittinger AM, Fuchs RA. (2013) Role of a hippocampal SRC-family kinase-mediated glutamatergic mechanism in drug context-induced cocaine seeking. *Neuropsychopharmacology*, 38: 2657-65. PMID: 23872878. *Designed, collected and analyzed data for molecular experiments, co-wrote paper.*

Arguello AA*, Ye X*, Bozdagi O, Pollonini G, Tronel S, Bambah-Mukku D, Huntley GW, Platano D, Alberini CM. (2013) CCAAT enhancer binding protein δ plays an essential role in memory consolidation and reconsolidation. *Journal of Neuroscience*, 33: 3646-58. PMID: 23426691. *Designed study, collected and analyzed data, co-wrote paper.*

Wells AM, **Arguello AA**, Xie X, Blanton MA, Lasseter HC, Reittinger AM, Fuchs RA. (2013) Extracellular signal-related kinase in the basolateral amygdala, but not the nucleus accumbens core, is critical for context-response-cocaine memory reconsolidation in rats. *Neuropsychopharmacology*, 38: 753-62. PMID: 23232446. *Collected and analyzed data for molecular experiments, edited paper.*

Xie X, **Arguello AA**, Reittinger AM, Wells AM, Fuchs RA. (2012) Role of nicotinic acetylcholine receptors in the effects of cocaine-paired contextual stimuli on impulsive decision making in rats. *Psychopharmacology*, 223: 271-9. PMID: 22526542. *Contributed to design of experiments, collected data, edited paper.*

Arguello AA, Fischer SJ, Schonborn JR, Markus RW, Brekken RA, Eisch AJ. (2009) Effect of chronic morphine on the dentate gyrus neurogenic microenvironment. *Neuroscience*, 159: 1003-1010. PMID: 19356684. *Designed study, collected and analyzed data, wrote paper.*

Arguello AA, Harburg GC, Schonborn JR, Mandyam CD, Yamaguchi M, Eisch AJ. (2008) Time course of morphine's effects on adult hippocampal subgranular zone reveals preferential inhibition of cells in S phase of the cell cycle and a subpopulation of immature neurons. *Neuroscience*, 157: 70-79. PMID: 18832014. *Designed study, collected and analyzed data, wrote paper.*

Fischer SJ, **Arguello AA**, Charlton JJ, Fuller DC, Zachariou V, Eisch AJ. (2008) Morphine blood levels, dependence, and regulation of hippocampal subgranular zone proliferation rely on administration paradigm. *Neuroscience*, 151: 1217-1224. PMID: 18248906. *Contributed to study design, collected data, edited paper.*

Lagace DC, Whitman MC, Noonan MA, Ables JA, DeCarolis NA, **Arguello AA**, Donovan MH, Fischer SJ, Farnbauch LA, Beech RD, DiLeone RJ, Greer CA, Mandyam CD, Eisch AJ. (2007) Dynamic contribution of nestin-expressing stem cells to adult neurogenesis. *Journal of Neuroscience*, 27: 12623-12629. PMID: 18003841. *Contributed to study design, collected data, edited paper.*

Published Abstracts

Arguello AA, Higginbotham JA, Bushana PN, Barnes JA, Wang R, Fuchs RA. Optogenetic inhibition of the dorsal hippocampus: effect on reconsolidation of cocaine-associated contextual memories and subsequent cocaine-seeking behavior. Abstract Accepted. Chicago, IL: SfN 2015.

Arguello AA, Hall JL, Hodges MA, Stuber GD, Fuchs RA. Effect of optogenetic inhibition of a lateral orbitofrontal to basolateral amygdala subcircuit on cue-induced cocaine-seeking behavior in rats. American College of Neuropsychopharmacology (ACNP) 53rd Annual Meeting, Phoenix, AZ: 2014.

Arguello AA, Hodges MA, Stuber GD, Fuchs RA. Optogenetic inhibition of a lateral orbitofrontal to basolateral amygdala subcircuit impairs cue-induced cocaine-seeking behavior in rats. Program #430.18, Washington DC: Society for Neuroscience (SfN) 2014.

Presker MA, Stringfield SJ, Harmon KM, Higginbotham JA, **Arguello AA**, Fuchs RA. CB1 receptor involvement in reconsolidation of context-cocaine memories that drive instrumental drug-seeking behavior. Program #232.06, Washington DC: SfN 2014.

Fuchs RA, Lasseter HC, Xie X, **Arguello AA**, Wells AM, Hodges MA. Contribution of a mesocorticolimbic subcircuit to drug context-induced reinstatement of cocaine-seeking behavior in rats. ACNP Annual Meeting. Hollywood, FL: 2013.

Stringfield SJ, **Arguello AA**, Presker MA, Jr., Fuchs RA. Paradoxical enhancement in context-induced cocaine-seeking behavior following glucocorticoid receptor antagonism in the BLA. Program #816.12, San Diego, CA: SfN 2013.

Blanton M, Wells AM, Xie X, **Arguello AA**, Fuchs RA. Mechanisms of cocaine memory reconsolidation: The role of the Src family of tyrosine kinases in the dorsal hippocampus. The Annual Celebration of Undergraduate Research, UNC. Chapel Hill, NC: 2013.

Arguello AA, Wells AM, Hodges MA, Lara H 3rd, Xie X, Stringfield SJ, Fuchs RA. Protein kinase A in the basolateral amygdala controls the reconsolidation of contextual cocaine memories that promote cocaine-seeking behavior. Program #396.05, New Orleans, LA: SfN 2012.

Xie X, **Arguello AA**, Reittinger AM, Wells AM, Fuchs RA. Role of nicotinic acetylcholine receptors in cocaine context-induced impulsive decision making in rats. Program #396.06, New Orleans, LA: SfN 2012.

Wells AM, Xie X, **Arguello AA**, Blanton MA, Reittinger AM, Stringfield SJ, Fuchs RA. Src tyrosine kinase in the dorsal hippocampus regulates cocaine memory reconsolidation. Program #396.04, New Orleans, LA: SfN 2012.

Blanton MA, Wells AM, **Arguello AA**, Xie X, Reittinger AM, Fuchs, RA. Molecular mechanisms of cocaine memory reconsolidation. The Annual Celebration of Undergraduate Research, UNC. Chapel Hill, NC: 2012.

Wells AM, **Arguello AA**, Lasseter HC, Xie X, Reittinger AM, Newsome AR, Fuchs RA. Extracellular signal-related kinase inhibition in the basolateral amygdala, but not the nucleus accumbens core, following cocaine memory reactivation impairs subsequent drug context-induced cocaine seeking in rats. Federation of European Neuroscience Societies Conference, 2012.

Xie X, **Arguello AA**, Reittinger AM, Wells AM, Fuchs RA. Nicotinic cholinergic receptor stimulation is critical for the ability of cocaine-paired contextual stimuli to control impulsive decision making in rats. College on Problems of Drug Dependence (CPDD) Conference. Palm Springs, CA: 2012.

Wells AM, **Arguello AA**, Lasseter HC, Xie X, Reittinger AM, Newsome AR, Fuchs RA. Extracellular signal-related kinase inhibition in the basolateral amygdala, but not the nucleus accumbens core, following cocaine memory reactivation impairs subsequent drug context-induced cocaine seeking in rats. CPDD Conference. Palm Springs, CA: 2012.

Xie X, **Arguello AA**, Wells AM, Lasseter HC, Fuchs RA. Src tyrosine kinase-mediated activation of NMDA receptor function in the dorsal hippocampus is necessary for drug context-induced cocaine seeking behavior in rats. ACNP Annual Meeting. Waikoloa, HI: 2011.

Wells AM, **Arguello AA**, Lasseter HC, Xie X, Reittinger AM, Newsome AR, Fuchs RA. Extracellular signal related kinase inhibition in the basolateral amygdala, but not the nucleus accumbens core, following cocaine memory reactivation impairs subsequent drug context-induced cocaine-seeking behavior in rats. Program #409.21, Washington DC: SfN 2011.

Lasseter HC, Wells AM, Xie X, Reittinger AM, **Arguello AA**, Fuchs RA. Ventral tegmental area-orbitofrontal cortex-basolateral amygdala circuitry regulates the reinstatement of drug context-induced cocaine-seeking behavior in rats. Program #264.09, Washington DC: SfN 2011.

Xie X, Wells AM, Lasseter HC, **Arguello AA**, Newsome AR, Reittinger AM, Fuchs RA. Src-family tyrosine kinase in the dorsal hippocampus is critical for drug context-induced cocaine-seeking behavior in rats. Program #264.10, Washington DC: SfN 2011.

Arguello AA, Tronel S, Bambah-Mukku B, Platano D, Alberini CM. CCAAT enhancer binding protein delta plays an essential role in memory consolidation. Poster presented at SfN and the Annual Molecular and Cellular Cognition Society Meeting. Program #782.8, Chicago, IL: SfN 2009.

Arguello AA, Harburg GC, Schonborn JR, Mandyam CD, Yamaguchi M, Eisch AJ. Chronic morphine differentially impacts SGZ cells in discrete phases of the cell cycle and stages of maturation. Poster presented at SfN and NIDA Frontiers in Addiction Research Mini-convention. Program #229.24, Washington DC: SfN 2008.

Arguello AA, Mandyam CD, Eisch AJ. Chronic morphine alters cell cycle of adult hippocampal progenitor cells. Program #456.12, San Diego, CA: SfN 2007.

Arguello AA, Ables JL, DeCarolis NA, Mandyam CD, Lagace DC, Eisch AJ. Chronic morphine dynamically alters hippocampal growth factors and hippocampal progenitor cells. Program #713.8, Atlanta, GA: SfN 2006.

Arguello AA, Norris RD, Mandyam CD, Eisch AJ. Time course of morphine's impact on hippocampal progenitor cells, growth factors and the cell cycle. Program #1021.16, Washington DC: SfN 2005.

Colloquium Presentations

- 2015 **Special Seminar**, "Role of the lateral orbitofrontal and basolateral amygdala subcircuits in cue-induced drug relapse." University of New Mexico School of Medicine, January 2015.
- 2014 **Speaker**, 1st Annual College of Veterinary Medicine Postdoctoral Research Symposium, "Optogenetic Inhibition of a Specific Lateral Orbitofrontal to Basolateral Amygdala Subcircuit Impairs Cue-Induced Cocaine-Seeking Behavior." WSU, April 2014
- 2012 **Speaker**, The Behavioral Neuroscience Seminar Series, "Involvement of Protein Kinase A in Cocaine Memory Reconsolidation." UNC Chapel Hill, February 2012
- 2010 **Speaker**, The Behavioral Neuroscience Seminar Series, "Role of CCAAT Enhancer Binding Protein Delta in Memory Reconsolidation." UNC Chapel Hill, August 2010
- 2009 **Speaker**, The Jose Miguel Cimadevilla Memorial Seminar Series, "Chronic Morphine's Effect on Adult Hippocampal Progenitor Cells." St. Mary's University, January 2009
- 2005-2008 **Speaker**, Department of Psychiatry Seminar Series, UTSW at Dallas, yearly presentation
- 2007-2008 **Speaker**, Department of Neuroscience Graduate Student Works in Progress, UTSW at Dallas, yearly presentation

Laboratory Skills

- Fluorescent and colorimetric immunohistochemistry, including double- and triple- staining
- Confocal microscopy including orthogonal analysis
- Epifluorescence and brightfield microscopy including cell counting in tissue sections
- Regional brain dissection in rodents, including hippocampal subfields
- Protein preparation, immunoblotting, subcellular fractionation and synaptoneurosome preparation
- Fluorescent *in situ* hybridization
- Brain tissue preparation and fixation via intracardial perfusion and microtome sectioning
- Handling and care of rodents, including intraperitoneal injections, subcutaneous pellet implantation, blood and serum extraction
- Stereotaxic surgery in rodents, including intracranial microinfusions of drug compounds, fluorescent retrotracers, and viral constructs
- Jugular vein catheter surgery in rodents
- Operant conditioning for IV self-administration in rodents
- Inhibitory avoidance training in rodents
- *In vivo*, circuit-specific optogenetic manipulations in rodents
- PCR
- Immunohistochemistry of human tissue
- Culturing of neurospheres and general tissue culture
- Bacterial protein purification