

Arthur Charles Riegel Jr, Ph.D.

Curriculum Vitae

SCHOOL ADDRESS

University of Arizona
Department of Pharmacology
College of Medicine
1501 N. Campbell, Life Science North 649
Tucson AZ 85724

HOME ADDRESS

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Tucson AZ 85704

PERSONAL AND CONTACT INFORMATION

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EDUCATION

Year	Institution	Degree	Major
2001	University of Arizona	Ph.D.	Pharmacology and Toxicology
1998	University of Arizona	M.S.	Pharmacology
1995	University of Kansas	B.A.	Biochemistry
1993	University of Kansas	B.A.	Chemistry

POSTDOCTORAL EDUCATION

Year	Institution	Role
2005 - 2006	Oregon Health & Science Univ. - Vollum Inst. for Biomedical Studies	Postdoctoral Fellow
2001 - 2005	NIH - National Institute on Drug Abuse - IRP	Postdoctoral Fellow

FACULTY APPOINTMENTS

Year	Institution	Role
2019 - present	University of Arizona, Graduate Interdisciplinary Program (IDP)	Associate Professor (Non-Tenure Eligible)
2019 - present	University of Arizona, Neuroscience	Associate Professor (Non-Tenure Eligible)
2019 - present	University of Arizona, Comprehensive Pain & Addiction Center (CPAC)	Full Member

2019 - present	University of Arizona, Pharmacology	Associate Professor (Tenured)
2016 - 2019	Medical University of South Carolina, Neuroscience	Associate Professor
2010 - 2019	Medical University of South Carolina, College of Graduate Studies	Full Member
2009 - 2016	Medical University of South Carolina, Neuroscience	Assistant Professor
2008 - 2009	Medical University of South Carolina, Neuroscience	Research Assistant Professor
2006 - 2008	Oregon Health & Science University, Vollum Inst. for Biomedical Studies	Research Assistant Professor

PROFESSIONAL EXPERIENCE

Grant Review

Year	Institution/Organization
<u>Center for Scientific Review (CSR)/NIH Study Section</u>	
2015 – 2018, 2020	F12 Postdoctoral Research Associate (PRAT) Fellowships. Special Emphasis Panel, Div. of Neuroscience, NIMGS; ZGM1-TWD-X-PR
2019	Neurobiology of Motivated Behavior (NMB)
2018 - 2019	Avenir (formerly Directors) Award Program for Genetics or Epigenetics of Substance Abuse Disorders (DP1) (05 ZDA1 IXN-O (04) S)
2018	Biobehavioral Regulation, Learning and Ethology (BRLE); Integrated Review Group, Div. Neuroscience, Biobehavioral & Behavioral Processes (BBBP)
2013	Molecular Neuropharmacology, Special Emphasis Panel, ZRG1 MDCN-T (06); Integrated Review Group, Div. Neuroscience, Development and Aging
2013	NIH, Center for Scientific Review (CSR), Emerging Technologies and Training in Neurosci., ETTN-10, Integrated Review Group, Div. Neuroscience, Development and Aging, Clinical Neurophysiology
2009	Molecular Neuroscience. Special Emphasis Panel, ZRG1 MDCN-N (04); Integrated Review Group, Div. of Neuroscience, Development & Aging

Department of Defense

2012	DoD/US Army Medical Research and Materiel Command (USAMRMC)
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Academic

2017 - 2018	Tufts University Clinical and Translational Science Institute, Consortium SRC Study
2015 - 2019	South Carolina Clinical and Translational Research (SCTR) Institute at MUSC
2015	Univ. of Texas System, Neuroscience & Neurotechnology Institute (UTS-NNRI), White House BRAIN Initiative.

International

2015	Netherlands Organization for Scientific Research (NWO), Div. Earth and Life Sciences
2011	Institut National de la Santé et de la Recherche Médicale (INSERM)
2008	Neurological Foundation of New Zealand, Neuroscience

PROFESSIONAL SOCIETIES/ASSOCIATIONS

Year	Society/Association	Role
2019- Present	American Society for Pharmacology and Experimental Therapeutics	Member
2012 - 2014	American Pain Society (APS)	Member
2010 - 2019	South Carolina Chapter of the Society for Neuroscience	Councilor

2005 - 2012	International Narcotics Research Conference (INRC)	Member
2001 - 2008	International Cannabinoid Research Society (ICRS)	Member
1996 - Present	Society for Neuroscience (SFN)	Member
1995 - 2001	Society for Neuroscience Tucson Chapter	Member
1993 - 1996	American Chemical Society	Member

EDITORIAL SERVICES

Year	Society/Association	Role
2018	Frontiers in Neuroscience	Ad Hoc Reviewer
2014 - 2015	Brain Research Reviews	Guest Editor
2005 - Present	Journal of Neuroscience	Ad Hoc Reviewer
2005 - Present	Journal of Pharmacology and Experimental Therapeutics	Ad Hoc Reviewer
2005 - Present	European Journal of Neuroscience	Ad Hoc Reviewer
2005 - Present	Journal of Neurophysiology	Ad Hoc Reviewer
2005 - Present	Neuroscience	Ad Hoc Reviewer
2005 - Present	Neuropharmacology	Ad Hoc Reviewer
2005 - Present	Psychopharmacology	Ad Hoc Reviewer
2005 - Present	Brain Research	Ad Hoc Reviewer
2005 - Present	Addiction Science & Clinical Practice (NIDA)	Ad Hoc Reviewer
2005 - Present	PloS One	Ad Hoc Reviewer
2005 - Present	Cerebral Cortex	Ad Hoc Reviewer
2005 - Present	The International Journal of Neuropsychopharmacology	Ad Hoc Reviewer
2005 - Present	Brain Research Reviews	Ad Hoc reviewer
2005 - Present	Psychoneuroendocrinology	Ad Hoc Reviewer
2005 - Present	Neuropsychopharmacology	Ad Hoc reviewer

CONTRACTS OR GRANTS

Ongoing Research Support

R01-DA046476	Riegel (PI)	NIH/NIDA	07/2018 - 06/2023
<i>Title: "The role of ryanodine receptors in drug seeking." Overall goal: Investigate the cellular signaling and physiological mechanisms whereby PFC ryanodine receptors regulate relapse behavior. Proposal uses patch-clamp electrophysiology, viral-mediated gene expression, rodent model of drug seeking using FOS-TRAP mice & FOS-GFP rats, 2-photon in vitro Ca²⁺ imaging.</i>			
Role: Principal Investigator (90% effort)		Direct Costs: \$250,000	Indirect Costs: \$123,750
R01-DA032708-06	Cowan (PI)	NIH/NIDA	07/2018 - 06/2023
<i>Title: "Role of Class IIa HDAC target genes in opioid and cocaine addiction." Overall goal: The goal of this grant is to study the role and regulation of HDAC5 target gene, Npas4, in cocaine and heroin addiction.</i>			
Role: Co-Investigator (5% effort)		Direct Costs: \$250,000	Indirect Costs: \$123,750

Pending Research Support

P30-DA051355-01 Porreca (PI) NIH/NIDA 07/2020- 06/2025
Title: "Core Center of Excellence in Addiction Studies" Overall goal: Center of Excellence for Addiction Studies (CEAS) that will offer core services allowing users to develop projects that will lead to new research in addiction. The CEAS will complement our Comprehensive Pain and Addiction Center (CPAC), by focusing on maladaptations on brain circuits linked to addiction. CEAS will allow the development of new insights into mechanisms and molecular targets relevant to addiction and relapse. The Behavioral Core-4 will provide users with standardized behavioral assays aimed at evaluation of opioid addiction including assessment of reward, tolerance, dependence, negative affect of addictive states and cognitive outcomes.
 Role: Co-I — Core 4 (0.6 AY effort)

Riegel (PI)

Title: "Stress related relapse to cocaine-seeking." Overall goal: Define the cellular adaptations in the VTA dopamine neurons in evoked relapse to cocaine-seeking. Grant integrates cocaine self-administration, stress-evoked relapse, whole-cell patch clamp two-photon Ca²⁺ microscopy. New submission based on a previous A1-Score of 34; %: 27
 Role: Principal Investigator (50% effort)

Completed Research Support

R01-DA013951-15 Woodward (PI) NIH/NIDA 04/2002 – 06/2019
Title: "Neural Actions of Toluene." Overall goal: To determine the functional and behavioral effects of toluene on the addiction neurocircuitry with special emphasis on specific sub-types of NMDA and nicotinic receptors.
 Role: Co-Investigator (5% effort) Direct Costs: \$225,000 Indirect Costs: \$111,375

P50-DA015369 Kalivas (PI) NIH/NIDA 2013 - 2018
Title: "Neurobiology of Addiction Research Center." Project 4 — Selective Restoration of KCNQ Channel Inhibition in the PFC to Inhibit Cue-Induced Cocaine-Seeking. Neurobiology of Addiction Research Center
 Role: Project Director — Project 4 Total Costs (2013-2018): \$783,559

R01-DA033342-05S1 Riegel (PI) NIH/NIDA 2017 - 2018
Title: "Relapse to cocaine-seeking: Cellular adaptations in the VTA". NIDA Summer Research Internship Program Supplement
 Role: Principal Investigator Direct Costs: \$7,840 Indirect Costs: \$627

R01-DA033342 Riegel (PI) NIH/NIDA 2012 - 2017
Title: "Relapse to cocaine-seeking: Cellular adaptations in the VTA" Overall goal: Define the cellular adaptations in VTA dopamine neurons that underlie stress-evoked relapse to cocaine-seeking. This RO1 uses behavioral models of cocaine self-administration, stress-evoked relapse, whole-cell patch clamp electrophysiology to examine mGluR/sK channels, flash photolysis to uncage intracellular Ca²⁺, and two-photon microscopy to investigate dendritic Ca²⁺ transients.
 Define the cellular adaptations in VTA dopamine neurons that underlie stress-evoked relapse to cocaine-seeking.
 Role: Principal Investigator Total Costs (2012-2017): \$1,829,575

NIH-COBRE Pilot Riegel (Co-PI) 2016-2017
 Behavior and neuronal function following a single v.s. multiple sessions of rTMS in stroke
 Role: Co-Principal Investigator Total Costs: \$49,749

Neuroscience Institute	Riegel (Co-PI)		2016
Gating of post-stroke plasticity by somatostatin interneurons			
Role: Co-Principal Investigator			Total Costs: \$10,000
Research Equipment	Riegel (Co-PI)		2015
Enhancement Fund (REEF)			
Equipment upgrade, Office of the Associate Provost for Research			
Role: Co-Principal Investigator			Total Costs: \$15,000
R01-DA033342-04S1	Riegel (PI)	NIH/NIDA	06/2015 - 06/2016
<i>Title: "Relapse to cocaine-seeking: Cellular adaptations in the VTA"</i>			
Supplement to support Ms. H. Regen-Tuero (Brown University) for a NIDA Summer Research Internship			
Role: Sponsor		Direct Costs: \$7,340	Indirect Costs: \$587
F31-DA036989	Riegel (PI)		2014 - 2016
<i>Title: "Restoration of intrinsic inhibition to the PFC to prevent cocaine seeking"</i> Sponsor for Mr. W. Buchta.			
Role: Mentor			Total Costs: \$111,688
#4675412 (pilot grant)	Riegel (PI)	MUSC - Alcohol Research Center	2010 - 2011
<i>Title: "Chronic exposure to ethanol & dysregulated GABA release onto dopamine neurons"</i> <i>Overall goal: Used a behavioral model of chronic intermittent exposure to ethanol vapor, with whole cell patch clamp electrophysiology to study GABA-B and CB1R neuroadaptations in VTA dopamine neurons.</i>			
Chronic exposure to ethanol & dysregulated GABA release onto dopamine neurons			
Role: Principal Investigator			Total Costs: \$10,000
P30-DA028811-01	Kalivas (PI)	NIH/NIDA	09/2009 - 08/2011
<i>Title: "Faculty Recruitment into Neurobiology of Addiction Research Center (NARC)"</i> <i>Overall goal: Drs. Riegel and Kalivas wrote this grant. The funds provided a startup package (lasers, etc.) for Dr. Riegel to establish a live cell imaging center using brain slices from rats trained to self-administer addictive drugs.</i>			
Faculty Recruitment into Neurobiology of Addiction Research Center (NARC)			
Role: Awardee			Total Costs: \$552,002
84873 NARC Pilot Grant	Riegel (PI)	MUSC	07/2008 - 07/2010
<i>Title: "CRF, dopamine neuron electrophysiology & reinstatement to drug seeking"</i> <i>Overall goal: This grant investigated dopamine neurons and the changes in a presynaptic CRF-R1/R2 mechanism during withdrawal from cocaine self-administration and during stress-evoked relapse to cocaine seeking.</i>			
Role: Principal Investigator			Total Costs: \$10,000
K01-DA020751	Riegel (PI)	NIH/NIDA	09/2006 - 08/2011
<i>Title: "Cellular Mechanisms Regulating VTA Dopamine Neurons in Stress & Addiction"</i> <i>Overall goal: This grant examined a mGluRs, sK channels, CRF-R2, adenylyl cyclase, PKA & Ca²⁺ release from intracellular stores using whole cell patch clamp physiology and spinning confocal and two-photon microscopy.</i>			
Role: Principal Investigator			Total Costs: \$614,735

HONORS AND AWARDS

Awards

- 2017-2018 Nominated for *Teacher of the Year* by MUSC Graduate Student Body Association and the College of Graduate Studies
- 2016 *MUSC Recognized Research Innovator* by achieving extramural research funding of more than \$100,000 in Fiscal Year 15.

Traineeships

- 2005 - 2006 NIDA/NIAAA Postdoctoral Traineeship, Dept. Behavioral Neuroscience, OHSU
- 2002 - 2004 NIH Intramural Research Training Award (IRTA), NIDA-IRP
- 1999 - 2001 NIDA Predoctoral Traineeship, Dept. of Pharmacology, University of Arizona
- 1997 NIDA Predoctoral Traineeship, University of Arizona – awarded, but declined

Research Competitions

- 2004 Fellows Award for Research Excellence Competition, NIH. Cannabinoids Attenuate GABAB-and Potentiate AMPA-receptor Mediated Synaptic Responses in Dopamine Neurons: mGluR & Endocannabinoid interactions: Riegel AC and CR Lupica – \$1000 research funds.
- 2003 Coy Waller Postdoctoral Award, 1st place, International Cannabinoid Research Society, Riegel AC, Williams JT and CR Lupica. CB1 Activation Depresses GABA-B Mediated Synaptic Responses in Dopamine Neurons: mGluR & Endocannabinoid interactions – \$400 honorarium.
- 2002 Coy Waller Postdoctoral Award, 2nd place, International Cannabinoid Research Society, Riegel AC, Hoffman AF and CR Lupica. Modulation of Constitutive GABAergic Neurotransmission in Hippocampal Interneurons by Cannabinoids – \$200 honorarium.
- 1993 Sigma Xi Scientific Research Competition, 1st Place: Riegel AC, Szawelski R, and RL Schowen. Investigation of the mechanism of the Proteolytic Enzyme Trypsin Studied by Protein Engineering in Conjunction with Kinetic Studies and Solvent Isotope Effects – \$400 honorarium.

Travel Awards

- 2014 International Narcotics Research Conference – \$1000
- 2010 American College of Neuropsychopharmacology (ACNP) Annual Conference
- 2010 American College of Neuropsychology, 49th Annual Meeting, Early Career Invitee
- 2009 International Narcotics Research Conference – \$1000
- 2008 American College of Neuropsychology, Early Career Invitee
- 2004 International Cannabinoid Research Society – \$1000
- 2002 International Cannabinoid Research Society – \$500
- 1997 University of Arizona Committee on Graduate/Professional Students – \$300

Research Profiled

- 2012 Society of Neuroscience (SFN) Newsworthy Research: “dmPFC Neurons as Biomarkers to Study the Affective Component of Neuropathic Pain. B. Harlan, H Hughes, W. Buchta, T Shippenberg, and A Riegel

- 2008 Nature Neuroscience Reviews: Research Highlights in Brief. "Molecular Neuroscience" 9, 250 (April) "CRF facilitates calcium release from intracellular stores in midbrain dopamine neurons." Riegel and Williams
- 2007 Press release: American College of Neuropharmacology (ACNP). "The abused inhalant toluene increases dopamine release in the nucleus accumbens by directly stimulating ventral tegmental area neurons." Riegel AC, Zapata A, Shippenberg T and French E. Neuropsychopharmacology (01 Jan)
- 2007 Nature Neuroscience Reviews: Research Highlights. "Reward" (8, 84: 01 Feb)
- 2007 Science Magazine: ScienceNOW Daily News. "A Huff Equals a Puff." (10 Jan) Riegel AC, et al.
- 2007 Chemical & Engineering News, American Chemical Society: Latest News in Science & Technology.
- 2005 NIDA NOTES (Vol 19: 5). "Dopamine Enhancement Underlies a Toluene Behavioral Effect"
- 2005 NIDA Director's Report to the National Advisory Council on Drug Abuse, 'Research Findings'
- 1997 Press release: College on Problems of Drug Dependence (CPDD): Toluene Alters Rat A10 DA and Non-DA Neurons Through A Dose-Dependent Mechanism. Riegel AC and French ED.
- 1997 Press release: Society of Neuroscience (SFN): Hypoxia Alters Rat A10 VTA Activity (Excitation of Non-DA and Inhibition of DA): Implications for Inhalant Abuse. Riegel AC & French ED.

COMMITTEES

Year	Name of Committee	Role
2019 - present	UA, Undergraduate Biology Research Program (UBRP) Selection Committee	Committee member
2019 - present	UA, ABBS Graduate Program, Executive Committee	Committee member
2019 - present	UA, Dept Pharmacology, Hank Yamamura Travel Grant Selection Committee	Committee member
2019 - present	UA Optical Microscopy FRAC	Committee member
2019 - present	UA Vice President for Research Faculty Oversight Committees on Core Facilities	Committee member
2017 - 2018	MUSC, Dept. of Neurosci., 2-photon Faculty Search Committee	Committee member
2017 - 2018	MUSC, Dept. of Neurosci., Seminar Series Committee	Committee member
2016 – 2017	MUSC, Dept. of Neurosci., Human Imaging Faculty Search	Committee member
2016 - 2019	LMU-CoC-MUSC Selection Committee member	Co-Director, Committee member
2014 - 2019	MUSC, SCTR Scientific Review Committee (SRC)	Member
2012 - 2019	MUSC, T32 Medical Scientist Training Program (MSTP) Training Grant & Admissions Committee	Member
2012 - 2019	MUSC, Dept. of Neurosci., Written Qualifying Exam	Member
2012 - 2019	MUSC, Dept. of Neurosci., T32 Fellowship	Member
2010 - 2019	MUSC, Dept. of Neurosci., Graduate Training Committee	Member
2010 - 2019	South Carolina Chapter of the Society for Neuroscience	Councilor
2010	MUSC, Dept. of Neurosci., Faculty Search Committee for Molecular/Imaging tools	Member
2010	MUSC, Dept. of Neurosci., Faculty Search Committee for Epilepsy	Member
2010	MUSC, P50 Alcohol Research Center Steering Committee	Member
2009	MUSC, Judging Committee, Frontiers of Neuroscience	Judging Committee

2004 - 2005	NIH Judging Committee, Fellows Award for Research Excellence 2005 Award Competition	Judging Committee Member
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TEACHING EXPERIENCE/CURRICULUM DEVELOPMENT

Course Coordinator or Director

Year	Title/Description
2010, 2012, 2015, 2017	MUSC, NSCS 764 (Ion Channels): <i>Co-director</i> , College of Medicine, MUSC. 2 hr lectures/14 lectures/taught ~1/2 of the lectures: total ~14 contact hrs. Course evaluation (1.2/5.00). Lectures (1.1/5.00).
2013, 2016	MUSC, NSCS 775 (Dendrites & Disease): <i>Co-Director</i> , College of Medicine, MUSC. Fall. 2 hr lectures/14 lectures/taught or attended 90% of the lectures: total ~13 contact hrs. Evaluation (mean): overall teaching (1.13/5.00); knowledge on subject (1.0/5.00). 2 hr lectures/14 lectures: total ~28 contact hrs.
2013	MUSC, NSCS 780: Seminar & Journal Club (Innovative Findings in Neuroscience), Spring. 8 contact hrs.
2009 - 2010	<i>Data Blitz</i> , MUSC — weekly discussion of on-gong electrophysiology projects at MUSC. The group consists of 6-10 scientists (students, junior faculty, and post-docs) that present their best/worst experiments of the week. This collegial approach emphasized practical, problem-solving and the identification of creative solutions to exploit new findings. ~30 contact hours.

Lectures Given

Year	Title/Description
2014 - 2019	MUSC CGS 760: Important Unanswered Questions in the Biomedical Sciences. 1 contact hr.
2014 - 2019	MUSC, SURP Lecture: Stress and Anxiety systems in Addiction. 1 contact hr.
2013	NSCS 780: Seminar & Journal Club (Innovative Findings in Neuroscience), Spring. 8 contact hrs.
2012	MUSC, Neurology residents, "Fundamentals of Pain Biology" College of Medicine, MUSC. 1 contact hr.
2012	MUSC MSTP Seminar Program. 1 contact hr.
2011	MUSC, Neurology residents, "AEDs in Neurology: Basic Neurosciences" College of Medicine, MUSC. 1 contact hr.
2009 - 2019	MUSC, NSCS 735: Clinical & Systems Neuroscience — Cannabinoid systems. 2 contact hrs. Evaluation (mean): overall teaching (1.78/5.00); knowledge on subject (1.5/5.00)
2009 - 2019	MUSC, NSCS 735: Clinical & Systems Neuroscience — Stress & Anxiety systems. 2 contact hrs. Evaluation (mean): overall teaching (1.88/5.00); knowledge on subject (1.33/5.00)
2009 - 2019	MUSC, NSCS 730: Fundamentals of Neuroscience — Synaptic plasticity, Synaptic integration, Passive properties of membranes, Dendritic propagation, Synaptic transmission. 3hr lectures/9 contact hrs. Evaluation (mean): overall teaching (1.28/5.00); knowledge on subject (1.2/5.00), knowledge on subject (1.20/5.00).
2006	<i>Course in Neurobiology</i> , Electrophysiology Section, Woods-Hole Marine Biological Laboratory (MBL). Course Director: Dr. Ed McCleskey. 12 hr sessions / day, 6 days / week, for 5 weeks: ~360 contact hrs.
2000	<i>Principles of Pharmacology</i> , IDP-Graduate Program Pharmacology, University of Arizona. Monoaminergic systems. Course Director: Dr. Frank Porreca. 6 contact hrs.
1998	<i>Principles of Pharmacology</i> , School of Pharmacy, University of Arizona. Course Director: Dr. P. Consroe. 3 contact hrs.
1997 - 1998	<i>Human Medical Neuroscience</i> , College of Medicine, University of Arizona. Course Directors: Drs. Erwin Montgomery and John Nolte. 1 hr sessions / week, 8 weeks: ~8 contact hours

2012	Neurology residents, "Fundamentals of Pain Biology" College of Medicine, MUSC. 1 contact hr
2014 - 2019	CGS 760: Important Unanswered Questions in the Biomedical Sciences. 1 contact hr.
2014 - 2019	SURP Lecture: Stress and Anxiety systems in Addiction. 1 contact hr

MENTORING ACTIVITIES

Visiting Faculty

Year	Name
2016	Dr. Priscila Sanabria, Ph.D (Visiting Faculty). Director & Prof; Summer sabbatical to learn optogenetics/DREADDs. Univ. Central del Caribe, Bayamón, Puerto Rico, Dept. of Physiology.

Post-docs (Mentored)

Year	Name
2019 - Present	K. Barber, Ph.D., Operant behavior, electrophys, optogenetics and Ca ²⁺ imaging studies focused on identifying the cellular changes in ER function underlying relapse to opioid/cocaine-seeking.
2016 - 2017	P. Goswamee, PhD. Electrophys & Ca ²⁺ photolysis. Co-authored a J. Neuroscience paper. <i>Current Position:</i> post-doc Virginia Commonwealth University.
2015 - 2017	J. Parilla-Carrero, PhD. Synaptic physiology & behavior. 1 st author on J. Neuroscience paper. <i>Current Position:</i> post-doc, MUSC.
2014	E. Potapenko, PhD, MD. VTA synaptic physiology. <i>Current Position:</i> post-doc, Univ. of Georgia.

Post-docs (Co-Mentor/Consultant)

Year	Name
2018 - Present	E. Anderson, PhD (Cowan lab) Consultant NIDA KO1-NIDA grant. <i>Current Position:</i> MUSC
2017 - Present	R. Penrod-Martin, PhD (Cowan lab) Consultant KO1-NIDA grant. <i>Current Position:</i> MUSC
2010 - 2012	H. Shen, PhD (Kalivas lab) Co-mentor: Cocaine self-administration; electrophysiology and confocal microscopy. <i>Current Position:</i> Associate Professor, National Institute on Drug Dependence, Peking University, Beijing, China.
2010 - 2013	K. Reissner, PhD (Kalivas lab) Co-mentor & consultant (NIDA K99 DA031790): glutamate homeostasis in accumbal neurons during relapse; antisense & electrophysiology. <i>Current Position:</i> Assist. Professor, Psychology Dept., UNC.
2010 - 2011	Y. Kupchik, PhD (Kalivas lab) Co-mentor; Ventral pallidum electrophysiology. <i>Current Position:</i> Assist. Professor, School of Medicine-IMRIC, The Hebrew University.
2010 - 2011	M. Gill, PhD (See lab) Co-mentor; lateral habenula to the VTA; electrophysiology and optogenetics. <i>Current Position:</i> Assist. Professor of Neuroscience, North Central College, Naperville, IL.
2010	M. Hearing (Wickman lab) visited for 3 weeks to learn the basic VTA brain slice electrophysiology. <i>Current Position:</i> Assist. Professor Biomedical Sciences, Marquette University.

M.D. & Medical Scientist Training Program (Mentor)

Year	Name	Role
2018- 2019	Mr. O. Culver	MSTP Rotation student
2016 - 2018	Mr. D. Hartman	MSTP Thesis Committee member
2016	Mr. G. Evans	MSTP Rotation student

2010 Mr. R. Desai M.D. Summer student

Graduate Students (Mentor/Thesis Committee)

Year	Name
2020	Mr. Christopher "Scotty" Campbell (Riegel lab), rotation student
2016	Ms. M. Acosta (Riegel lab), MUSC PREP Scholar
2012 - 2018	Mr. J. Pena-Bravo (Lavin Lab)
2012 - 2016	Mr. W. Buchta (Riegel lab) Thesis: "Neuroadaptations in KV7 regulation of PFC neurons after cocaine relapse"; behavior, electrophysiology and optogenetics ** Based on work in our laboratory, he was awarded a NIDA/NIH-F31 (2014), published 4 peer reviewed papers and was nominated for the South Carolina SFN Chapters Graduate Student Travel Award (2014). <i>Current Position</i> : post-doc at the Univ of Colorado.
2011 - 2016	Mr. B. Hughes (Woodward Lab)
2011 - 2015	Ms. C. Den Hartog (Woodward Lab)
2015	Ms. C. King (Becker Lab)
2011 - 2015	Ms. N. Straight (Mulholland lab)
2011	Mr. Z. Cope (Aston Jones lab)
2010 - 2012	Mr. J. Swearingen (Bahushi lab)
2009 - 2012	Mr. J. Beckley (Woodward lab), Consultant NRSA NIAAA
2009 - 2010	Mr. A. Woodell (Bahushi lab)

Post-Bachelors/Undergraduates (Mentor)

Year	Name	Association
2019 - Present	Mr. R. Ochoa	MARC Trainee University of Arizona, Physiology major
2019 - Present	Mr. B. Lopez	Research Credits, Honors Thesis University of Arizona, Physiology major
2019 - Present	Mr. M. Weinstein	Research Credits University of Arizona, Physiology major
2017 - 2019	Ms. R. Brooks	Research Credits, Honors Thesis The Citadel, Military College of South Carolina
2017 - 2018	Ms. D. Martinez	Research Credits, Honors Thesis The Citadel, Military College of South Carolina
2017	Ms. S. Nielsen	Research Credits College of Charleston
2017	Ms. B. Harmon	Research Credits College of Charleston
2017	Mr. S. Hatten	NIDA SURP Program Penn State University
2017	Ms. I. Nordgren	NIDA SURP Program Drury College
2017	Ms. A. Adusei	NIDA Summer Research Intern Binghamton University
2016 - 2017	Ms. G. McKendrick	College of Charleston **Based on experiences in our laboratory she co-authored a <i>J. Neurosci</i> paper (2018) and was successfully accepted to multiple PhD Programs. <i>Current Position</i> : PhD student Penn State University (Psychology).
2016	Ms. M. Acosta	PREP Scholar MUSC

Current Position: Univ California (Riverside)

2015 - 2016	Ms. M. Soluiman	SURP Awardee	College of Charleston
2015	Ms. H. Regen-Tuero	NIDA-Summer Research Program	Brown University
2015-2017	Mr. O. Culver		The Citadel, Military College of South Carolina
	**Based on experiences in our laboratory he was awarded a SURP Awardee (2015), completed Honors Research Thesis (2017), co-author on J. Neurosci. paper. <i>Current Position:</i> MSTP at MUSC School of Medicine.		
2013 - 2016	Ms. B. Pavlinchak		College of Charleston
	**Based on experiences in our laboratory completed an Honor Thesis, was awarded a SURP (2013), co-author on Molec. Neurobio. paper <i>Current Position:</i> MUSC School of Medicine.		
2013 - 2016	Ms. C. Bailes		College of Charleston
	**Based on experiences in our laboratory she completed an Honors Thesis, was awarded a SURP (2013), Travel Award SYNAPSE Conference (Univ. North Carolina, Asheville; 2015). <i>Current Position:</i> USC School of Medicine (Greenville).		
2013 - 2015	Mr. B. Harlan		MUSC
	**Based on work in our laboratory: <u>1st author</u> Neuropsychopharmacology paper (2018), co-author on 2 other papers (2017; 2018 <i>in submission</i>), <u>1st place</u> Poster Award (2011) Neuropalooza Research Competition, <u>2nd place</u> Poster Award (2012) MUSC Student Research Day. <i>Current Position:</i> PhD candidate, MUSC.		
2013 - 2014	Ms. S. Lyons	Research Credits	College of Charleston
2013 - 2014	Ms. M. Burns	Research Credits	College of Charleston
2013	Mr. W. Hilton	Research Credits	College of Charleston
2013	Mr. S. Corbett	Research Credits	College of Charleston
2013	Ms. R. Generous	Honor thesis	College of Charleston
2013	Ms. A. Conroy	NIDA SURP Program	College of Charleston
2010 - 2013	Ms. H. Hughes		College of Charleston
	** Based on work in our laboratory, she completed an <i>Honors thesis</i> (2013) and was awarded a SURP (2011), <u>2nd place</u> Poster Award (2012) MUSC Student Research Day, and <u>1st place</u> Poster Award (2011) Neuropalooza Research Competition. Graduated MUSC School of Medicine. <i>Current Position:</i> Univ. of Connecticut Health Center.		
2010 - 2011	Ms. A. Quattelbaum	Research Credits	College of Charleston
	Behavioral models of stress, slice electrophysiology. <i>Current Position:</i> Ph.D. Candidate MUSC		
2010 - 2011	Ms. C. Rowley	post-bachelor B.A.	
2009 - 2010	Ms. N. Quaranto	Research Credits	College of Charleston
2009 - 2010	Ms. S. Berger	Research Credits	College of Charleston
2008 - 2010	Ms. E. Trent-Ramsbottom		College of Charleston
	Based on experiences in our laboratory, she completed an Honors Thesis, decided to complete a graduate degree in Neuroscience/Biomedical Engineering (Clemson University). <i>Current Position:</i> Span-America Biotechnology Corp.		
2008 - 2010	Ms. C. Williams,		College of Charleston

**Based on experiences in our laboratory, she completed an *Honors Thesis* and was awarded 1st place Poster Award (2009) Annual Meeting of Frontiers in Neuroscience, 1st place Poster Award (2010) Annual Meeting of Frontiers in Neuroscience. 1st author on *J. Neurosci.* Paper (2014). She developed a proficiency in brain slice electrophysiology and pursued PhD training in neurophysiology at OHSU. *Current Position*: post-doc, Vollum Institute.

EXPERIENCE: PROJECTS/TECHNIQUES

- Synaptic adaptations in the VTA & dmPFC regulate cue/stress-evoked relapse to cocaine-seeking
- Cellular adaptations in mesolimbic neurons & their terminals in cortex regulate the affective component of chronic/neuropathic pain.
- Synaptic Physiology: Enduring changes in CB1, CRF-R1/R2 dysregulate glutamate/GABA release in VTA following chronic exposure to alcohol vapor
- Molecular Physiology & Signal Transduction: regulation of intracellular Ca²⁺ stores and Ca²⁺-induced Ca²⁺-release in dopamine cells by mGluR activation.

RESEARCH INTERESTS

- Imaging/Optical: *multiphoton microscopy, intracellular uncaging (flash photolysis)*
- Electrophysiological/Biophysical: *in vitro whole-cell patch (current/voltage) clamp, in vitro cell attached recordings (omega), in vivo & in vitro extracellular recordings, focal iontophoresis, pressure application, focal electrical stimulation*
- Anatomy: *ballistic labeling and dynamic imaging of dendritic spines with Dil/DiO*
- Behavioral models of drug abuse and addiction: *rat i.v. drug (cocaine and heroin) self-administration, cue/stress reinstatement, i.v. cannulations & survival surgeries, intracranial injections, neurochemical lesions, and locomotor assays.*
- Accepted models of chronic, peripheral pain: *formalin (as a model of tissue destruction), complete freund's adjuvant (CFA; as a model of inflammatory pain or rheumatoid arthritis), and spared nerve injury (SNI; model of neuropathic pain)*

PRESENTATIONS

Invited Speaker

1. 2019 – Graduate Interdisciplinary Program, University of Arizona —Tucson Arizona
2. 2019 - Department of Neuroscience, University of Arizona —Tucson Arizona
3. 2016 - University of Texas at San Antonio (UTSA), Neurosciences Institute—San Antonio Texas
4. 2016 - University of Puerto Rico, San Juan PR.
5. 2015 - Integrative Neuroscience Research Center, Marquette University—Milwaukee Wisconsin
6. 2015 - Research Society on Alcoholism (RSA), Symposia on Ca²⁺ signaling — San Antonio Texas
7. 2014 - Department of Pharmacology, University of Arizona —Tucson Arizona
8. 2014 - International Narcotics Research Conference (INRC), Hot topics —Montreal Canada
9. 2013 - Ernest Gallo Clinic and Research Center, UCSF —San Francisco California
10. 2012 - Center for Excellence in the Neurosciences, UNE—Biddeford & Portland, Maine
11. 2012 - Medical Science Training Program (MSTP) Seminar Series, MUSC —Charleston SC
12. 2012 - Center for Excellence in the Neurosciences, UNE—Biddeford & Portland, Maine
13. 2012 - Medical Science Training Program (MSTP) Seminar Series, MUSC —Charleston SC

14. 2009 - Max Planck Institute for Biophysical Chemistry, Göttingen Germany. "CRF regulates calcium release – implications for the excitability of dopamine neurons."
15. 2008 - Symposia on CRF & Dopamine Neurons, 42nd Winter Conference on Brain Research, "CRF effects on midbrain dopamine neurons – implications for psychostimulant actions."

Posters

1. 2020 Smith AF, Flohrschutz A, Riegel A, Largent-Milnes T, and T Vanderah, "Functional Connectivity of Prelimbic Prefrontal Cortex and Rostral Ventromedial Medulla for Descending Pain Modulation" Experimental Biology
2. 2017 - Parrilla-Carrero J, Goswamee P, Buchta W, and A Riegel, "Cocaine self-administration causes a persistent reduction of Kv7 channel mediate intrinsic inhibition in the prefrontal cortex," Society for Neuroscience
3. 2017 - Goswamee P, Parrilla-Carrero J Buchta W, Kalivas PW and A Riegel, "Chronic Cocaine Self-Administration Potentiates the Dopamine-induced Hyperexcitability by Inhibition of Kv7/KCNQ Channels," Annual Meeting of the Biophysical Society
4. 2016 - Parrilla-Carrero J, Goswamee P, Bailes C, Pavlinchak B, and A Riegel, "Acute Stress Exposure Mediates Circuit-Specific, Neuroadaptations in Glutamate Inhibition in VTA Dopaminergic Neuron," Society for Neuroscience
5. 2016 - Parrilla-Carrero, J and A Riegel, "Relapse to cocaine seeking disrupts KCNQ channel inhibition in the prefrontal cortex," 2016 MUSC Research Day Meeting
6. 2016 - Goswamee P, Parrilla-Carrero J, Buchta W, Kalivas PW and A Riegel, "Chronic Cocaine Self-Administration Potentiates the Dopamine-induced Hyperexcitability by Inhibition of Kv7/KCNQ Channels," 2015 MUSC Research Day Meeting
7. 2016 - McKendrick G, Andersen M, Parrilla-Carrero J, Goswamee P, A Riegel, "Characterization of Circuit-specific Responses of Mesolimbic Dopamine Neuron Projections to Stress," Perry V. Halushka MUSC Research Day, 2016
8. 2015 – Williams C and A Riegel, "Changes in Kv7 channel inhibition after neuropathic pain," International Narcotics Research Conference (INRC) —Phoenix Arizona
9. 2015 - Buchta W and A Riegel, "Cocaine self-administration and cue-reinstatement disrupt Kv7 (KCNQ) channel inhibition in the prefrontal cortex," 2015 MUSC Research Day Meeting.
10. 2015 - Parrilla, J, Pavlinchak G, Bayle C and A Riegel, "Disruption of mGluR/SK inhibition in VTA dopamine neurons by exposure to stress potentiates the responsiveness to cocaine," 2015 MUSC Research Day Meeting
11. 2015 - Buchta W, Mahler S, Aston-Jones G and A Riegel, "Mesocortical dopamine encodes cocaine cues after chronic cocaine self-administration via enduring inhibition of Kv7 channels," American College of Neuropsychopharmacology Conference, Hollywood, FL. December.
12. 2015 - Buchta W and A Riegel, "Superactivation of dopamine-D1 receptor signaling in the prefrontal cortex following chronic cocaine self-administration," Society for Neuroscience Meeting, Chicago, IL. October 2015.
13. 2015 - Bailes C, Pavlinchak B, Riegel A and B William, "Intracellular Ca²⁺ signaling in the prefrontal cortex regulates cocaine sensitization." SYNAPSE - University of North Carolina - Asheville, Reuter Center.
14. 2014 - Bailes C, Pavlinchak B, Riegel A and B William, "Increased intracellular Ca²⁺ signaling in the prefrontal cortex contributes to cocaine sensitization." MUSC Research Day Meeting.
15. 2014 - Potapenko E, Bailes C and A Riegel, "Repeated Exposure to Cocaine or Environmental Stressor Unmasks SMOCs in VTA Dopamine Neurons," MUSC Research Day Meeting.
16. 2014 - Buchta W and A Riegel. "Superactivation of dopamine-D1 receptor signaling in the prefrontal cortex following chronic cocaine self-administration." Gordon Conference on Synaptic Transmission.
17. 2014 - Harlan B, Hughes H, Buchta W, Wang R, Shippenberg T and AC Riegel, "The Functional Rewiring of Cortical Synapses in a Translational Model of Neuropathic Pain," International Narcotics Research Conference.
18. 2014 - Buchta W and AC Riegel, "Regulation of prefrontal cortex activity by VTA dopamine terminals following Chronic Cocaine Self-Administration & Cue-Reinstatement: an electrophysiological analysis using optogenetics & DREADDs," American college of neuropsychopharmacology (ACNP).

19. 2014 - Buchta W and A Riegel, "Ventral tegmental area regulation of the prefrontal cortex is superactivated by chronic cocaine self-administration," Society for Neuroscience Meeting, Washington, DC. November 2014.
20. 2013 - Buchta W and A Riegel, "VTA dopamine terminals regulate neuronal excitability in the PFC via inhibition of the slow afterhyperpolarization," MUSC Student Research Day, MUSC.
21. 2013 - Buchta W, Harlan B, Kalivas P and A Riegel, "Cocaine potentiates dopamine regulation of calcium activated K⁺ channels in the prefrontal cortex," Annual Society for Neuroscience Scientific Meeting.
22. 2013 - Harlan B, Hughes H, Buchta W, Wang R, Shippenberg T and A Riegel, "Cellular adaptations in dmPFC neurons: mechanisms underlying the affective component of neuropathic pain," American Pain Society's 32nd Annual Scientific Meeting.
23. 2013 - Harlan B, Hughes H and A Riegel, "Intercellular Calcium Stores in PFC Pyramidal Neurons are Dysregulated by Neuropathic Pain," The Neuroscience Institute of the Medical University of South Carolina's 14th Annual Frontiers in Neuroscience Research Day.
24. 2013 - Buchta W, Harlan B, Kalivas P and A Riegel, "Dopamine Signaling Regulates Spike-Frequency Adaptation in the Prefrontal Cortex," The Neuroscience Institute of the Medical University of South Carolina's 14th Annual Frontiers in Neuroscience Research Day.
25. 2012 - Harlan B, Buchta W, Hughes H, Shippenberg T and A Riegel, "dmPFC neurons as biomarkers to study the affective component of neuropathic pain," Annual Meeting for the Society of Neuroscience.
26. 2012 - Buchta W, Harlan B, Kalivas PW and A Riegel, "Chronic cocaine self-administration induces hyperexcitability in cortical neurons via cellular adaptations in KCNQ (Kv7) but not sK channels'," Annual Meeting for the Society of Neuroscience.
27. 2011 - Harlan B, Hughes H, Wang R, Shippenberg T and A Riegel, "Neuroplasticity of pyramidal neurons in the dmPFC following chronic and neuropathic pain," Neuropalooza.
28. 2011 - Buchta W, Quattlebaum A, Harlan B and A Riegel, "Plasticity of Prefrontal Cortex Pyramidal Neurons after Cocaine Self-administration", Neuropalooza, MUSC.
29. 2011 - Harlan B, Griffin W, Lopez M, Becker H and A Riegel, "CRF Regulates GABA release onto Ventral Tegmental Area Dopamine Neurons: Persistent Cellular Adaptations During Protracted Withdrawal From Exposure to Chronic Intermittent Ethanol," Annual Meeting of Frontiers in Neuroscience.
30. 2011 - Quattlebaum A and A Riegel, "Desensitization of Burst-Pause Firing Patterns in VTA Dopamine Neurons During Reinstatement to Cocaine-Seeking," Annual Meeting of Frontiers in Neuroscience.
31. 2011 - Hughes B, Hughes H and A Riegel, "Annual Meeting of Frontiers in Neuroscience Chronic Cocaine Induces Lasting Changes in mGluR/sK Mediated Inhibitory Postsynaptic Currents in Midbrain Dopaminergic Neurons," Annual Meeting of Frontiers in Neuroscience.
32. 2010 - Feltenstein M, Shippenberg T, Zapata A, See R and A Riegel, "Pain during heroin self-administration enhances relapse of heroin-seeking in rats," College on Problems of Drug Dependence.
33. 2010 - Williams C and A Riegel, "Corticotrophin-Releasing Factor Reduces GABA Release onto Ventral Tegmental Area Dopamine Neurons: Neuroadaptations after chronic cocaine self-administration," The Annual Perry Halushka Research Conference.
34. 2010 - Williams C and A Riegel, "Cocaine self-administrations dysregulates the actions of glutamate on VTA dopamine neurons," Frontiers in Neuroscience.
35. 2010 - William C and A Riegel, "Stress, addiction and relapse: the cellular circuitry underlying the stress regulation of brain reward pathways," College of Charleston, Charleston SC.
36. 2009 - Quaranto N, Zapata A, Shippenberg T and A Riegel, "Peripheral pain produces superactivates mesolimbic dopamine neurons," Frontiers in Neuroscience.

PEER-REVIEWED PUBLICATIONS

In Preparation

1. Harlan B, *et al.* "Hyperexcitability in dmPFC neurons regulate the affective component of neuropathic pain."

Published

1. Buchta WC, Moutal A, Hines B, Garcia-Keller C, Smith ACW, Kalivas P, Khanna R, **Riegel AC**. Dynamic CRMP2 Regulation of CaV2.2 in the Prefrontal Cortex Contributes to the Reinstatement of Cocaine Seeking. *Mol Neurobiol.* 2019 PMID: 31359322
2. Mahler VM, Brodnik ZD, Cox BM, Buchta WC, Bentzley BS, Cope ZA, Lin EC, Riedy MD, Scofield MD, Messinger J, **Riegel AC**, Espana RA, Aston-Jones G. "Chemogenetic Manipulations of VTA Dopamine Neurons Reveal Multifaceted Roles in Cocaine Abuse. *J Neurosci.* 2019 Jan 16;39(3):503-518. PMCID: PMC6335749
3. Harlan B, Becker H, Woodward J, **Riegel AC**, "Opposing actions of CRF-R1 and CB1 receptors on VTA-GABAergic plasticity following chronic exposure to ethanol." *Neuropsychopharmacology*, 2018, 43(10):2064-2074. PMCID: PMC6098046
4. Parrilla-Carrero J, Buchta WC, Goswamee P, Culver O, McKendrick G, Harlan B, Moutal A, Penrod R, Khanna R, Kalivas P, **Riegel AC**, "Restoration of Kv7 channel mediated inhibition reduces cued-reinstatement of cocaine seeking." *J. Neurosci.* 2018 Apr 10. pii: 2767-17. PMCID: PMC5963852.
5. *Note: Productivity in 2017 was delayed by a significant flood that destroyed all the electrophysiology and computer equipment in my laboratory. Restoring the facility and rebuilding the laboratory required 7 months.
6. Buchta W, Mahler S, Harlan B, Aston-Jones G, and **A Riegel**, "Dopamine terminals from the ventral tegmental area gate intrinsic inhibition in the prefrontal cortex." *Physiological Reports*, 2017. PMCID: PMC5371565
7. Buchta WC, **Riegel AC**, "Chronic cocaine disrupts mesocortical learning mechanisms." *Brain Res*, 2015. 1628(Pt A):88-103. PMCID: PMC4739740.
8. Williams CL, Buchta WC, **Riegel AC**, "CRF-R2 and the heterosynaptic regulation of VTA glutamate during stress-induced reinstatement of cocaine-seeking." *J. Neuroscience*, 2014, 34(31): 10402-14. PMCID: PMC4115144.
9. Deignan J, Luján R, Bond C, **Riegel A**, Watanabe M, Williams JT, Maylie J, Adelman JP, "SK2 and SK3 expression differentially affect firing frequency and precision in dopamine neurons." *Neuroscience*. 2012 Aug 16;217:67-76. doi: 10.1016/j.neuroscience.2012.04.053.
10. Moussawi K, **Riegel A**, Nair S, Kalivas PW, "Extracellular glutamate: functional compartments operate in different concentration ranges." *Front Syst Neurosci.* 2011 Nov 24;5:94. doi: 10.3389/fnsys.2011.00094.
11. **Riegel AC**, Kalivas PW. "Neuroscience: Lack of inhibition leads to abuse." News and Views. *Nature*. 2010 Feb 11;463(7282):743-4. PMID: 20148025.
12. **Riegel AC**, Williams JT, "CRF facilitates calcium release from intracellular stores in midbrain dopamine neurons." *Neuron*. 2008 Feb 28;57(4):559-70. PMCID: PMC2696265.
13. **Riegel AC**, Zapata A, Shippenberg TS, French ED, "The abused inhalant toluene increases dopamine release in the nucleus accumbens by directly stimulating ventral tegmental area neurons." *Neuropsychopharmacology*. 2007 Jul;32(7):1558-69. Epub 2007 Jan 10. PMID: 17213847.
14. Lupica CR, **Riegel AC**, "Endocannabinoid release from midbrain dopamine neurons: a potential substrate for cannabinoid receptor antagonist treatment of addiction." *Neuropharmacology*. 2005 Jun;48(8):1105-16. Review. PMID: 15878779
15. **Riegel AC**, Lupica CR, "Independent presynaptic and postsynaptic mechanisms regulate endocannabinoid signaling at multiple synapses in the ventral tegmental area." *J. Neurosci.* 2004 Dec 8;24(49):11070-8. PMCID: PMC4857882.
16. **Riegel AC**, Ali SF, Torinese S, French ED, "Repeated exposure to the abused inhalant toluene alters levels of neurotransmitters and generates peroxynitrite in nigrostriatal and mesolimbic nuclei in rat." *Ann. N. Y. Acad. Sci.* 2004 Oct; 1025:543-51.
17. Lupica CR, **Riegel AC**, Hoffman AF, "Marijuana and cannabinoid regulation of brain reward circuits." *Br. J. Pharmacol.* 2004 Sep;143(2):227-34. Epub 2004 Aug 16. Review. PMID: 15313883.

18. Hoffman AF, **Riegel AC**, Lupica CR, "Functional localization of cannabinoid receptors and endogenous cannabinoid production in distinct neuron populations of the hippocampus." *Eur. J. Neurosci.* 2003 Aug;18(3):524-34. PMID: 12911748.
19. **Riegel AC**, Ali SF, French ED, "Toluene-induced locomotor activity is blocked by 6-hydroxydopamine lesions of the nucleus accumbens and the mGluR2/3 agonist LY379268." *Neuropsychopharmacology.* 2003 Aug;28(8):1440-7. Epub 2003 May 7. PMID: 12784113.
20. **Riegel AC**, French ED, "Abused inhalants and central reward pathways: electrophysiological and behavioral studies in the rat." *Ann. N. Y. Acad. Sci.* 2002 Jun; 965:281-91. PMID: 12105104.
21. **Riegel A** and E French, "The abused inhalant toluene has direct stimulatory effects on VTA dopamine (DA) and non-DA neurons *in vitro*." *Drug & Alcohol Dependence.* 63: S131, 2001, PMID: 10426163.
22. **Riegel A** and E French, "The abused inhalant toluene has direct stimulatory effects on VTA dopamine (DA) and non-DA neurons *in vitro*." *NIDA monograph Series*, 2001
23. **Riegel AC**, French ED, "The susceptibility of rat non-dopamine ventral tegmental neurones to inhibition during toluene exposure." *Pharmacol. Toxicol.* 1999 Jul;85(1):44-6. PMID: 10426163
24. **Riegel AC**, French ED, "An electrophysiological analysis of rat ventral tegmental dopamine neuronal activity during acute toluene exposure." *Pharmacol. Toxicol.* 1999 Jul;85(1):37-43. PMID: 10426162.
25. **Riegel AC**, French ED, "Acute toluene induces biphasic changes in rat spontaneous locomotor activity which are blocked by remoxipride." *Pharmacol. Biochem. Behav.* 1999 Mar;62(3):399-402. PMID: 10080229.
26. **Riegel A** and E French, "Toluene alters rat A10 DA and non-DA neurons through a dose-dependent mechanism." *NIDA monograph Series*, 1997

COMMUNITY SERVICE

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| 2018 - 2019 | Charleston, South Carolina, The St. Andrew's School of Math and Science, STEM Night. Demonstration of preserved human brain and spinal cord to elementary school students and their families. 03/2018 |
| 01/2015 | "Advances in Addiction Research Winter Seminar Series", January 13-15, 2015, Puerto Rico. Myself and other members of the Neurobiology of Addiction Research Center (NARC) performed outreach to educate and inform the local community including undergraduate, graduate, and medical students, post-doctoral scientists on the current concepts on addiction research. |
| 2014 - 2019 | "The International Neuroscience Research and Training Exchange Program:" Together with Dr. Michael Ruscio (College of Charleston), we developed a scientific exchange program, involving Ludwig-Maximilians-University Munich Center for Neuroscience (LMU-MCN), The Medical University of South Carolina (MUSC) Department of Neurosciences, and the College of Charleston (CofC). ** This program is funded and the first LMU (masters level) student began her work at MUSC in Summer 2016. |
| 2013 - 2019 | MUSC, Neuroscience Graduate Program, <i>Electrophysiology in living brain slices</i> : My students and I host an electrophysiology experiment (2-4 hrs) for first year graduate students enrolled in "The fundamentals of Neuroscience." They are encouraged to ask questions and apply the concepts they have learned in class to a "real world" experiment. |