Curriculum Vitae
Charles Jason Frazier, Ph.D.

Contact Information:

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1345 Center Drive
Gainesville, FL 32610

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Education:

Nov. 1997	Ph.D. in Neuroscience, University of Colorado Health Sciences Center Dissertation: *The Role of Nicotinic Acetylcholine Receptors in the Regulation of Hippocampal Excitability.* Mentor: Thomas V. Dunwiddie, Ph.D.
May 1991	B.A., Department of Neuroscience, Oberlin College Neuroscience Major, Psychology Minor

Professional Experience:

2023 - present	Professor and Associate Chair, College of Pharmacy, Department of Pharmacodynamics, University of Florida
2022- present	Professor, College of Pharmacy, Department of Pharmacodynamics, University of Florida Affiliate Professor, College of Medicine, Department of Neuroscience, University of Florida
2017 – 2020	University of Florida Term Professor, College of Pharmacy, Department of Pharmacodynamics, University of Florida
2010-2022	Associate Professor, College of Pharmacy, Department of Pharmacodynamics, University of Florida Affiliate Associate Professor, College of Medicine, Department of Neuroscience, University of Florida
2003-2010	Assistant Professor, College of Pharmacy, Department of Pharmacodynamics, University of Florida Affiliate Assistant Professor, College of Medicine, Department of Neuroscience, University of Florida
2000-2003	Post-doc, Department of Pharmacology and Therapeutics, University of Florida
1998-2000	Post-doc, Department of Physiology and Biophysics, Case Western Reserve Univ.

Current Research Interests:

- Cellular and synaptic function in health and disease.

- Oxytocin mediated signaling in central circuits that regulate stress responding, mood and anxiety.
- Age related changes in cellular and synaptic physiology impacting executive function, impulsivity, and risky decision making.

Honors:

2006 Nominated, College of Pharmacy Teacher of the Year
2007 Nominated, College of Pharmacy Teacher of the Year
2009 Nominated, College of Pharmacy Teacher of the Year
2010 Jack Wessel Award for Excellence as an Assistant Professor
2017 Appointed as University of Florida Term Professor (3-year term)
2017 Nominated, University of Florida Doctoral Dissertation Mentoring Award
2019 Nominated, University of Florida Research Foundation Professorship
2020 Nominated, University of Florida Doctoral Dissertation Mentoring Award

Peer Reviewed Publications:

Baumer-Harrison C, Elsaafien K, Johnson DN, Aponte JDP, de Arajuo A, Patel S, Bruce E, Harden SW, Frazier CJ, Scott KA, de Largigure G, Krause EG, de Kloet AD (2024) Alleviating hypertension by selectively targeting angiotensin receptor expressing vagal sensory neurons. *Journal of Neuroscience doi: 10.1523/JNEUROSCI.1154-23.2023* URL

Truckenbrod LM, Betzhold SM, Wheeler AR, Shallcross J, Singhal S, Harden SW, Schwendt M, Frazier CJ, Bizon JL, Setlow B, Orsini CA (2023) Circuit and cell=specific contributions to decision making involving risk of explicit punishment in male and female rates. *Journal of Neuroscience* 18:2023.01.15.524142. URL

Pati D, Krause EG, **Frazier CJ** (2022) Intrahypothalamic effects of oxytocin on PVN CRH neurons in response to acute stress. *Current Opinion in Endocrine and Metabolic Research.* Oct; 26:100382. URL

Thinschmidt JS, Harden SW, King MA, Talton JD, **Frazier CJ** (2022) A rapid *in vitro* assay for evaluating the effects of acetylcholinesterase ihhibitors and reactivators in the rat basolateral amygdala. *Frontiers in Cellular Neuroscience* Nov 21; 16:1066312. URL

Elsaafien K, Harden SW, Johnson DN, Kimball AK, Sheng W, Smith JA, Scott KA, **Frazier CJ**, Kloet AD de, Krause EG (2022) A Novel Organ-Specific Approach to Selectively Target Sensory Afferents Innervating the Aortic Arch. *Frontiers in Physiology* 13:841078. URL.

Mohammed M, Johnson DN, Wang LA, Harden SW, Sheng W, Spector EA, Elsaafien K, Bader M, Steckelings UM, Scott KA, Frazier CJ, Sumners C, Krause EG, Kloet AD de (2022) Targeting angiotensin type-2 receptors located on pressor neurons in the nucleus of the solitary tract to relieve hypertension in mice. *Cardivascular Research*:cvab085. URL.

McQuail JA, Blanca SB, Kelly KB, Hernandez DM, Bizon JL, **Frazier CJ** (2021) Attenuated NMDAR Signaling on Fast-Spiking Interneurons in Prefrontal Ortex Contributes to ASge-Related Decline of Cognitive Flexibility. *Neuropharmacology (*108720 *doi:10.1016 / j.neuropharm.2021.108720)* URL

Sheng W, Harden SW, Tan Y, Krause EG, **Frazier CJ** (2021) Dendritic osmosensors modulate activity-induced Ca2+ influx in oxytocinergic magnocellular neurons of the mouse PVN. *eLife* 2021;10:e63486 DOI: 10.7554/eLife.63486 URL.

Liu Y, Xing H, Sheng W, Singh KN, Korkmaz AG, Comeau C, Anika M, Ernst A, Yokoi F, Vaillancourt DE, **Frazier CJ**, Li Y (2021) Alteration of the cholinergic system and motor deficits in cholinergic neuron-specific Dyt1 knockout mice. *Neurobiology of Disease* 154:105342. URL.

Mohammed M, Johnson DN, Wang LA, Harden SW, Sheng W, Spector EA, Elsaafien K, Bader M, Steckelings UM, Scott KA, **Frazier CJ**, Sumners C, Krause EG, de Kloet AD (2021) Targeting angiotensin type 2 receptors located on pressor neurons in the nucleus of the solitary tract to relieve hypertension in mice. *Cardiovascular Research* : cvab085 URL.

Frazier CJ, Harden SW, Alleyne AR, Mohammed M, Sheng W, Smith JA, Elsaafien K, Spector EA, Johnson DN, Scott KA, Krause EG, Kloet AD de (2021) An Angiotensin-Responsive Connection from the Lamina Terminalis to the Paraventricular Nucleus of the Hypothalamus Evokes Vasopressin Secretion to Increase Blood Pressure in Mice. *Journal of Neuroscience* 41:1429–1442. URL.

Pati D, Harden SW, Sheng W, Kelly KB, de Kloet AD, Krause EG, **Frazier CJ**. (2020) Endogenous oxytocin inihbits hypothalamic CRH neurons following acute hypernatremia. *Journal of Neuroendocrinology.* URL.

Cirino TJ, Harden SW, McLaughlin JP, **Frazier CJ** (2020) Region-specific effects of HIV-1 Tat on intrinsic electrophysiological properties of pyramidal neurons in mouse prefrontal cortex and hippocampus. *Journal of Neurophysiology* 123:1332–1341. URL.

Hernandez DM, Orsini CA, Labiste C, Wheeler A, Ten Eyck T, Bruner MM, Sahagian TJ, Harden SW, **Frazier CJ**, Setlow B, Bizon JL. (2019) Aging alters the role of basolateral amygdala in intertemporal choice. *eLife*. URL

Tan Y, Singhal SM, Harden SW, Cahill KM, Nguyen DM, Colon-Perez LM, Sahagian TJ, Thinschmidt JS, de Kloet AD, Febo M, **Frazier CJ**[#], Krause EG[#] (2019) Oxytocin recpetors are expressed by glutamatergic prefrontal cortical neurons that selectively modulate social recognition. *The Journal of Neuroscience 18:2944. #denotes co-correspnding authors.* URL

Orsini CA, Hernandez CM, Singhal S, Kelly KB**, Frazier CJ**, Bizon JL, Setlow B. (2017) Optogenetic inhibition reveals distinct roles for basolateral amygdala activity at discrete timepoints during risky decision making. *Journal of Neuroscience* 37(48):2344–17. URL

Krause EG, Pati D & **Frazier CJ**. (2017) Chronic salt-loading reduces basal excitatory input to CRH neurons in the paraventricular nucleus and accelerates recovery from restraint stress in male mice. *Physiology and Behavior*. URL

Carpenter HE, Kelly KB, Bizon JL & **Frazier CJ**. (2016) Age related changes in tonic activation of presynaptic vs. extrasynaptic GABAB receptors in rat medial prefrontal cortex. *Neurobiology of Aging 45, 88-9*. URL

Harden SW & **Frazier CJ**. (2016) Oxytocin Depolarizes Fast-Spiking Hilar Interneurons and Induces GABA Release onto Mossy Cells of the Rat Dentate Gyrus. *Hippocampus / Cover Image* 26(9):1124-1139. URL, cover image.

McQuail JA, Beas BS, Kelly KB, Simpson KL, **Frazier CJ**, Setlow B & Bizon JL. (2016) NR2A-Containing NMDARs in the Prefrontal Cortex Are Required for Working Memory and Associated with Age-Related Cognitive Decline. *Jouranl of Neuroscience* 36**,** 12537-12548. URL

Pati D, Kelly K, Stennett B, **Frazier CJ** & Knackstedt LA. (2016) Alcohol consumption increases basal extracellular glutamate in the nucleus accumbens core of Sprague-Dawley rats without increasing spontaneous glutamate release. *European Journal of Neuroscience* 44(2):1896-19905. URL

Wang L, de Kloet AD, Pati D, Hiller H, Smith JA, Pioquinto DJ, Ludin JA, Oh SP, Katovich MJ, **Frazier CJ**, Raizada MK & Krause EG. (2016) Increasing brain angiotensin converting enzyme 2 activity decreases anxiety-like behavior in male mice by activating central Mas receptors. *Neuropharmacology* 105**,** 114-123. URL

McQuail JA, **Frazier CJ** & Bizon JL. (2015) Molecular aspects of age-related cognitive decline: the role of GABA signaling. *Trends in Molecular Medicine* 21**,** 450-460. URL

Smith JA, Pati D, Wang L, de Kloet AD, **Frazier CJ** & Krause EG. (2015) Hydration and beyond: neuropeptides as mediators of hydromineral balance, anxiety and stress-responsiveness. *Frontiers in Systems Neuroscience* 9**,** 46. URL

Banuelos C, Beas BS, McQuail JA, Gilbert RJ, **Frazier CJ**, Setlow B & Bizon JL. (2014) Prefrontal cortical GABAergic dysfunction contributes to age-related working memory impairment. *Journal of Neuroscience* 34**,** 3457-3466. URL

Graves CL, Harden SW, LaPato M, Nelson M, Amador B, Sorenson H, **Frazier CJ** & Wallet SM. (2014) A method for high purity intestinal epithelial cell culture from adult human and murine tissues for the investigation of innate immune function. *Journal of immunological methods*. 414:20-31. URL

de Kloet AD, Pati D, Wang L, Hiller H, Sumners C, **Frazier CJ**, Seeley RJ, Herman JP, Woods SC & Krause EG. (2013) Angiotensin Type 1a Receptors in the Paraventricular Nucleus of the Hypothalamus Protect against Diet-Induced Obesity. *Journal of Neuroscience* 33**,** 4825-4833. URL

Frazier CJ. (2013) Preformed vs. on-demand: molecular economics of endocannabinoid signalling. *Journal of Physiology* 591**,** 4683-4684. URL

Frazier CJ, Pati D, Hiller H, Nguyen D, Wang L, Smith JA, MacFadyen K, de Kloet AD & Krause EG. (2013) Acute hypernatremia exerts an inhibitory oxytocinergic tone that is associated with anxiolytic mood in male rats. *Endocrinology* 154**,** 2457-2467. URL

Hofmann ME & **Frazier CJ**. (2013) Marijuana, endocannabinoids, and epilepsy: Potential and challenges for improved therapeutic intervention. *Experimental Neurology* 244**,** 43-50. URL

Frazier CJ. (2011) Key questions of endocannabinoid signalling in the CNS: which, where and when? *Journal of Physiology* 589**,** 4807-4808. URL

Hofmann ME, Bhatia C & **Frazier CJ**. (2011) Cannabinoid receptor agonists potentiate action potential-independent release of GABA in the dentate gyrus through a CB1 receptor-independent mechanism. *Journal of Physiology* 589**,** 3801-3821. URL

Hofmann ME & **Frazier CJ**. (2010) Muscarinic receptor activation modulates the excitability of hilar mossy cells through the induction of an afterdepolarization. *Brain Research* 1318**,** 42-51. URL

Lindsly C & **Frazier CJ**. (2010) Two distinct and activity-dependent mechanisms contribute to autoreceptor-mediated inhibition of GABAergic afferents to hilar mossy cells. *Journal of Physiology* 588**,** 2801-2822. URL

Nahir B, Lindsly C & **Frazier CJ**. (2010) mGluR-mediated and endocannabinoid-dependent long-term depression in the hilar region of the rat dentate gyrus. *Neuropharmacology* 58**,** 712-721. URL

Hofmann ME, Nahir B**, Frazier CJ**. (2008) Excitatory afferents to CA3 pyramidal cells display differential sensitivity to CB1 dependent inhibition of synaptic transmission. *Neuropharmacology* 55**,** 1140-1146.

Nahir B, Bhatia C, **Frazier CJ** (2007) Presynaptic inhibition of excitatory afferents to hilar mossy cells. *Journal of Neurophysiology* 97(6):4036-47.

Frazier CJ (2007) Endocannabinoids in the dentate gyrus. *Progress in Brain Research*, 163:319-337.

Hoffman ME, Nahir B, **Frazier CJ** (2006) Endocannabinoid mediated depolarization-induced suppression of inhibition in hilar mossy cells of the rat dentate gyrus. *Journal of Neurophysiology.* 96(5):2501-12.

Thinschmidt JS, **Frazier CJ**, King MA, Meyer EM and Papke RL (2005) Medial septal/diagonal band cells express multiple functional nicotinic receptor subtypes that are correlated with firing frequency. *Neuroscience Letters* 389: 163-168.

Thinschmidt JS, **Frazier CJ**, King MA, Meyer EM and Papke RL (2005) Septal innervation regulates the function of alpha7 nicotinic receptors in CA1 hippocampal interneurons. *Experimental Neurology* 195: 342-352.

Frazier CJ, Strowbridge BW, Papke RL (2003) Nicotinic receptors on local circuit neurons in dentate gyrus: a potential role in regulation of granule cell excitability. *Journal of Neurophysiology* 89(6):3018-28.

Frazier CJ, Serrano JR, George EG, Yu X, Viswanathan A, Perez-Reyes E, and Jones SW (2001) Gating kinetics of the α1I T-Type Calcium Channel. *Journal of General Physiology* 118(5):457-470.

Frazier CJ, George EG, and Jones SW (2000) Apparent change in ion selectivity caused by changes in intracellular K(+) during whole-cell recording. *Biophysical Journal* 78 (4):1872-1880.

Frazier CJ, Buhler AV, Weiner JL, Dunwiddie TV (1998) Synaptic potentials mediated via alpha-bungarotoxin-sensitive nicotinic acetylcholine receptors in rat hippocampal interneurons. *Journal of Neuroscience* 18:8228-8235.

Frazier CJ, Rollins YD, Breese CR, Leonard S, Freedman R, Dunwiddie TV (1998) Acetylcholine activates an α-bungarotoxin-sensitive nicotinic current in rat hippocampal interneurons, but not pyramidal cells. *Journal of Neuroscience* 18:1187-1195.

Weiner JL, Valenzuela CF, Watson PL, **Frazier CJ**, Dunwiddie TV (1997) Elevation of basal protein kinase C activity increases ethanol sensitivity of $GABA_A$ receptors in rat hippocampal CA1 pyramidal neurons. *Journal of Neurochemistry* 68:1949-1959.

Frazier CJ, Rollins YD, Hall ME, Young DA, Rose GM (1996) Cholinergic deafferentation enhances rat hippocampal pyramidal neuron responsiveness to locally applied nicotine. *Brain Research* 727:217-220.

Valenzuela CF, Xiong Z, MacDonald JF, Weiner JL, **Frazier CJ**, Dunwiddie TV, Kazlauskas A, Whiting PJ, Harris RA (1996) Platelet-derived growth factor induces a long-term inhibition of N-methyl-D-aspartate receptor function. *Journal of Biological Chemistry* 271:16151-16159.

Selected Recent Abstracts / Conference Presentations:

Howard J, Harden SW, **Frazier CJ** (2021) Oxytocin excites pyramidal neurons of the rat ventral subiculum. *Society for Neuroscience Meeting.*

Alleyne A, Wilson L, Harden SW, McCurdy C, **Frazier CJ,** McLaughlin JP (2021) Sigma-1 ligand modulate methamphetamine sensitization and reward circuitry. *Society for Neuroscience Meeting.*

Setlow B, Orsini CA, Betzhold SM, Wheeler A, Ten-Eyck TW, Shallcross J, Singhal S, Harden SW, Schwendt M, **Frazier CJ**, Bizon JL (2019) Optogenetic dissection of contributions of the nucleus accumbens shell to decision making under risk of punishment. *Annual Meeting of the American College of Neuropyschopharmacology.*

Cirino TJ, Stacy HM, Eans SO, Harden SW, **Frazier CJ**, McLaughlin JP (2019) HIV-Tat protein expression modulates cognitive performance through induction of a hyper-glutamatergic state in the brain. *Society for Neuroscience Meeting* URL.

Blaes SL, Orsini CA, Holik HM, Betzhold SM, Singhal SM, **Frazier CJ**, Bizon JL, Setlow B (2019) Regulation of risky decision making via activity in dopaminergic neurons in the ventral tegmental area. *Society for Neuroscience Meeting.* URL.

Orsini CA, Holik HM, Betzhold SM, Wheeler A, Ten-Eyck TW, Shallcross J, Harden SW, Singhal SM, Schwendt M, **Frazier CJ**, Bizon JL, Setlow B (2019) Dissecting the role of the nucleus accumbens in risk taking with optogenetics. Society for Neuroscience Meeting. URL.

De Kloet AD, Alleyne AR, Harden SW, Bruce EB, Cahill KM, Tan Y, Raizada MK, Sumners C, **Frazier CJ**, Krause EG (2018) Identifying 'angiotensin sensitive' neurons in the lamina terminalis that coordinate endocrine, autonomic and behavioral responses mediating cardiovascular homeostasis. *Society for Neuroscience Meeting.* URL

Tan Y, Singhal S, Harden SW, Hiller H, Nguyen DT, Colon-Perez LM, Febo M, Wang L, Cahill K, de Kloet AD, **Frazier CJ**, Krause EG (2018) Oxytocin receptor expressing neurons within the prefrontal cortex exert top-down control over social recognition. *Society for Neuroscience Meeting.* URL

Singhal SM, Harden SW, **Frazier CJ** (2018) Oxytocin enhances excitatory and inhibitory synaptic transmission in a layer specific manner in the rate medial prefrontal cortex. *Society for Neuroscience Meeting.* URL

Hernandez DM, Orsini CA, Labiste CC, Wheeler AR, Ten Eyck TW, Gruner MM, Singhal SM, **Frazier CJ**, Setlow B, Bizon JL (2018) Aged rats do not use basolateral amygdala during outcome evaluation in an intertemporal choice task. *Society for Neuroscience Meeting.* URL

Sheng W, Harden SW, **Frazier CJ** (2018) Acute osmotic stress produces differential effects on synaptic vs. paracrine signaling in oxytocinergic magnocellular neurons in the mouse paraventricular nucleus. *Society for Neuroscience Meeting.* URL

Hernandez CM, Orsini CA, Labiste C, Singhal SM, Burke SN, **Frazier CJ**, Setlow B, Bizon JL (2017) Optogenetic inactivation of basolateral amygdala in young rats recapitulates aged rats' ability to delay gratification in an intertemporal choice task. *Society for Neuroscience Meeting.* URL

Orsini CA, Hernandez CM, Singhal SM, Kelly KB, **Frazier CJ**, Bizon JL, Setlow B (2017) Optogenetic inactivation reveals multiple distinct roles for BLA in regulating risky decision making. *Society for Neuroscience Meeting.* URL

Tan Y, Singhal SM, Hiller H, Nguyen DT, Colon-Perez LM, Febo M, Wang L, Cahill KM, de Kloet AD, **Frazier CJ**, Krause EG (2017) Optogenetic excitation of neurons in the prefrontal cortex that express oxytocin receptors eliminates preference for social novelty. *Society for Neuroscience Meeting.* URL

Kelly K, Bizon JL, and **Frazier CJ** (2016) Functional effects of age on NR2A and NR2B containing NMDA receptors in interneurons and pyramidal cells of the rat medial prefrontal cortex. *Society for Neuroscience Meeting*. URL

Singhal S, Harden SW, and **Frazier CJ**. (2016) Effects of Oxytocin on GABAergic Circuits in the Lateral Septum. *Society for Neuroscience.* URL

Harden SW and **Frazier CJ**. (2016) Oxytocin Receptor Activation Depolarizes Interneurons and Induces GABA Release in the Rat Olfactory Cortex. *Society for Neuroscience Meeting*. URL

Pati D, Smith J, Wang L, de Kloet A, Krause EG, and **Frazier CJ**. (2016) Oxytocin receptor mediated tonic inhibition of CRH synthesizing neurons in the PVN of male mice following acute salt loading. *Neurobiology of Stress Workshop.*

Pati D, Smith J, de Kloet A, Krause EG, and **Frazier CJ**. (2015) Oxytocin-mediated tonic inhibition

of CRF-synthesizing neurons of the hypothalamus and the amygdala following peripheral salt loading. *Society for Neuroscience Meeting.* URL

Harden S and **Frazier CJ.** (2015) Oxytocin receptor activation depolarizes spiny hilar interneurons and induces GABA release in the dentate gyrus of the rat hippocampus. *Society for Neuroscience Meeting*. URL

Kelly K, McQuail J, Hernandez C, Bizon JL, and **Frazier CJ**. (2015) Aging alters excitatory and inhibitory modulation of GABAergic interneurons in layer 2/3 of the rodent medial prefrontal cortex. Society for Neuroscience. 2015 Meeting. URL

McQuail J, Beas S, Simpson K, Kelly K, **Frazier CJ**, Setlow B, and Bizon JL. (2015) NR2A-containing NMDARs in the PFC are required for working memory and predict age-related cognitive decline. Society for *Neuroscience.* 2015 Meeting. URL

Moroz LL, Meredith G, Sun Y, Candelario KM, Dhingra D, Ianov L, Rani A, Harden SW, Kumar A, **Frazier CJ**, Steindler DA, Foster T, Kohn A (2014) Single-neuron RNA-seq: Genomic dissection of memory circuits and cell census in the brain. *Society for Neuroscience Meeting.* URL

Kelly KB, Carpenter HE, McQuail JA, Bizon JL, **Frazier CJ** (2014) Effects of age on excitatory inputs to pyramidal cells and interneurons in rat medial prefrontal cortex. *Society for Neuroscience Meeting.* URL

Pati D, Kelly K, McKelvey C, **Frazier CJ** (2013) The effect of cannabinoids on $GABA_A$ receptor dependent tonic inhibition in dentate granule cells. *Society for Neuroscience Meeting.*

Pati D, Smith J, de Kloet A, Krause E, **Frazier CJ** (2013) The effect of peripheral salt loading on central circuits that regulate stress. *Society for Neuroscience Meeting.*

Carpenter H, Kelly K, Bizon J, **Frazier CJ** (2013) Age-related changes in $GABA_B$ receptor mediated inhibitory tone in the medial prefrontal cortex. *Society for Neuroscience Meeting.*

Harden SW, Krause EG, **Frazier CJ** (2013) Identification and selective stimulation of hypothalamic corticotrophin releasing hormone containing neurons expressing light sensitive channelrhodopsin-2. *Society for Neuroscience Meeting (2013)*

Moroz LL, Harden SW, Kohn AB, Fodor A, Citarella M, Kumar A, **Frazier CJ**, Foster T (2013) The genomic portrait of hippocampal CA1 neurons: Identification and quantification of virtually all RNAs in single mammalian neurons using semiconductor sequencing. *Society for Neuroscience Meeting.*

Frazier CJ, Pati D, Hiller H, Nguyen D, Wang L, MacFadyen K, de Kloet A, Krause EG (2013) Acute hypernatremia reveals an oxytocinergic circuit mediating stress responsiveness and anxiety like behavior. *Society for Behavioral Neuroendocrinology (2013)*

Pati D, de Kloet A, Hiller H, Macfadyen K, **Frazier CJ**, Krause EG (2012) Acute osmotic dehydration stimulates oxytocin neurons, attenuates activation of the hypothalamic-pituitary-adrenal-axis, and decreases anxiety-like behavior. *Society for Neuroscience.*

Ongoing Research Support:

R01EY033620 Grant/de Lartigue/Frazier (MPI) 4/1/2023- 03/31/2027
Title: Brain-gut-retina axis in diabetic retinopathy
This project tests the hypothesis that diabetic induced loss of inhibitory SST neurons in the PVN results in increased autonomic input to the intestine promoting aberrant T-cell differentiation, activation, and trafficking to the retina, ultimately promoting the development of diabetic retinopathy.
Role: MPI, 10% FTE.

Alchem Contract Frazier (PI) 6/15/2021 – 3/1/2024
Title: Identification of novel reactivators of organophosphate inhibited acetylcholinesterase.
This project will develop an in vitro assay for cholinergic toxicity appropriate for rapid screening of novel AChE reactivators.
Role: PI, 5% FTE

1R01HL136595 de Kloet, Sumners (MPI) 4/01/2023-3/31/2028
Title: Angiotensin-sensitive neurons in the nucleus of the solitary tract mediate social stress induced hypertension.
This project evaluates the role of AT2R expressing neurons in the NTS in modulating blood pressure and autonomic function in mice with hypertension induces by chronic social defeat stress.
Role: Co-Investigator, 15% FTE.

R01DK125890-01 de La Serre / de Lartigue (MPI) 06/01/2020-05/30/2024
Title: Consequence and mechanism of diet-driven vagal remodeling on gut-brain feeding behavior.
This project tests the hypothesis that the vagal gut-brain axis is rewired in response to high-fat diet in a manner that further drives obesity.
Role: Co-Investigator, 5% FTE.

RF1AG067429 Setlow / Bizon (MPI) 05/01/2021-04/30/2026
Title: Mechanisms and therapeutic potential of vagus nerve stimulation in aging and Alzheimer's disease.
This project evaluates the effects of acute and chronic VNS stimulation on cognitive function in young and aged rats.
Role: Co-Investigator, 10% FTE.

1R01AG072714 Setlow/Bizon (MPI) 9/1/2021-8/30/2026
Title: Effects of cannabis on age-related cognitive decline and Alzheimer's disease.
This project evaluates the effect acute cannabis exposure on age-related cognitive deficits and uses well characterized transgenic mouse models to determine how cannabis affects AD-relevant neuropathology.
Role: Co-Investigator, 15% FTE.

Recently Completed Projects

R01AG060778, NIH/NIA Bizon/Setlow/Frazier (MPI) 9/1/2018-8/1/2023
Title: Decision making and basolateral amygdala dysfunction in aging.
This project evaluates the role or aging and pathological tau on decision making as regulated by efferent projections of the basolateral amygdala.
Role: MPI, 15% FTE.

Alchem Contract Frazier (PI) 1/1/2023 – 4/1/2023
Title: Evaluation of novel compounds potentially targeting central sigma receptors using both in vivo and in vitro assays.
This project will evaluate the ability of PRX-3140 and up to two analogs to produce sigma1 receptor mediated effects in vivo and in vitro.
Role: PI, McLaughlin Co-I (no salary support)

1R01HL145028-01 de Kloet (PI) 01/15/2019-10/31/2023
Title: Interrogating distinct angiotensin type-1 and type-2 receptor containing brain circuits to understand and alleviate hypertension.
This project tests the hypothesis that projections from angiotensin type I and type II receptor expressing neurons in the MnPO/OVLT, to the PVN and peri-PVN, provide coordinated regulation of perfusion pressure and hydromineral balance that is disrupted in some forms of hypertension.
Role: Co-Investigator, 9.4% FTE.

Recent submissions / grants under development:

R01MH122614 Frazier (PI)
Title: Mechanisms Governing Dendritic Release of Oxytocin in the CNS.
This project seeks to reveal specific effector systems that enable oxytocinergic magnocellular neurons to dynamically regulate the relationship between cellular activity and dendritic release of oxytocin into the CNS.
Role: Principle-Investigator, 30% FTE.

R01MH124693 McLaughlin/Frazier (MPI)
Title: Region specific central effects of HIV Tat underlie unique deficits in learning and memory.
This project tests the hypothesis that expression of HIV-1 Tat differentially alters intrinsic neuronal physiology and synaptic function in the prefrontal cortex and hippocampus, and that these changes contribute to neurocognitive and behavioral dysfunction associated with HIV.
Role: MPI, 15% FTE.

R01AA029269 Peris/Frazier (MPI)
Title: Sex Differences in oxytocinergic modulation of reward circuitry.
This project tests the hypothesis that sex differences in oxytocinergic modulation of glutamatergic neurons in the ventral tegmental area (that project to the nucleus accumbens) contributes to sex differences in binge ethanol intake.
Role: MPI, 15% FTE.

Earlier Research Support:

R01MH104641 2017-2021

Title: Neurons expressing angiotensin type 2 receptors in the NTS as an access point for cardiovascular control.
Source: NIH/NNHLBI
Role: Co-Investigator (Krause / Sumners MPI)

R01MH104641 2015-2020
Title: Novel aspects of central oxytocin signaling relevant to mood/anxiety disorders.
Source: NIH/NIMH
Role: Principle-Investigator

R01HL122494 2014-2019
Source: NIH/NHLBI
Title: Central Mechanisms Underlying the Stress Dampening Effects of Acute Hypernatremia
Source: NIH/NHLBI
Role: Co-Investigator (1.8 calendar months) /Krause PI

R21DA029828-01A1 2011-2014
Source: NIH/NIDA
Title: CB1R independent effects of cannabinoids on synaptic physiology in the CNS.
Role: Principal Investigator

Age Related Memory Loss Grant Program (UF) 2011-2014
Source: Evelyn F. McKnight Brain Research Grant Program via the University of Florida.
Title: The role of calcium activated potassium channels in geriatric memory dysfunction.
Role Principal Investigator

R01 DA019576 2005-2010
Source: NIH/NIDA
Title: Endocannabinoids and tonic GABA in the dentate gyrus.
Role: Principal Investigator

Opportunity Incentive Seed Fund 2007-2008
Source: UF Division of Sponsored Research
Title: Construction of the first two-photon based laser scanning epifluorescence microscope at the University of Florida: A cross-college and multidisciplinary effort.
Role: Principal Investigator

Research Grant Program 2005-2006
Source: Epilepsy Foundation of America
Title: Short-term plasticity of synaptic inputs to hilar mossy cells.
Role: Principal Investigator

Age Related Memory Loss Grant Program (UF) 2003-2004
Source: Evelyn F. McKnight Brain Research Grant Program via the University of Florida.
Title: Muscarinic modulation of intrinsic membrane properties and synaptic plasticity in the dentate gyrus.
Role: Principal Investigator

F32 NS10828 1999-2002
Source: NIH/NINDS
Title: Inactivation of Delayed Rectifier Potassium Channels.
Role: Principal Investigator

Graduate Training:

Ph.D. students trained in my lab:

Name	*College / Degree Program*	*Dates*
Nadine Alshakhshir	College of Pharmacy Pharmaceutical Sciences (PD)	2022-present
Jordan Howard	College of Pharmacy Pharmaceutical Sciences (PD)	2020-present
Todd Sahagian	College of Pharmacy Pharmaceutical Sciences (PD)	2020-present
Wanhui Sheng	College of Pharmacy Pharmaceutical Sciences (PD)	2017-2021
Sarthak Singhal	College of Pharmacy Pharmaceutical Sciences (PD)	2015-2019
Kyle Kelly	College of Pharmacy Pharmaceutical Sciences (PD)	2012-2017
Scott Harden	College of Dentistry DMD / PhD	2012-2016
Dipa Pati	College of Pharmacy Pharmaceutical Sciences (PD)	2010-2015
Haley Carpenter	College of Medicine IDP Neuroscience	2010-2014
Mackenzie Hofmann	College of Medicine IDP Neuroscience	2006-2010
Casie Lindsly	College of Medicine IDP Neuroscience	2006-2010
Chinki Bhatia	College of Pharmacy Pharmaceutical Sciences (PD)	2004-2009
Ben Nahir	College of Medicine IDP Neuroscience	2004-2009

Other Ph.D. Committee Memberships:

Name	*College / Degree Program*	*Dates*
Sabrina Zequeira	College of Medicine IDP Neuroscience	2023-present
Karley Caples	College of Pharmacy Pharmaceutical Science (PD)	2023-present
Mingxin Yang	College of Pharmacy Pharmaceutical Sciences (PD)	2021-present
Wonn Pyon	College of Medicine IDP Neuroscience	2020-present
Amy Alleyne	College of Pharmacy Pharmaceutical Sciences (PD)	2019-present
Jordan Bateman	College of Medicine Pharmacology	2018-2022
Benjamin Goolsby	College of Engineering Biomedical Engineering	2017-2021
Yuning Liu	College of Medicine Genetic and Genomics	2017-2021
Thomas Cirino	College of Pharmacy Pharmaceutical Sciences (PD)	2016-2020
Caesar Hernandez	College of Medicine IDP Neuroscience	2015-2019
Justin Smith	College of Pharmacy Pharmaceutical Sciences (PD)	2013-2016
Danielle Sambo	College of Medicine IDP Neuroscience	2013-2015
Kaley Macfadyen	College of Pharmacy Pharmaceutical Sciences (PD)	2011-2017
Christina Banuelos	College of Medicine IDP Neuroscience	2010-2014
Crystal Stephens	College of Engineering Biomedical Engineering	2006-2012
Rabia Zafar	College of Medicine IDP Neuroscience	2005-2010
Karthik Bodhinathan	College of Medicine IDP Neuroscience	2005-2010
Zhimin Li	College of Pharmacy Pharmaceutical Sciences (PD)	2004-2008
Alex Cadotte	College of Engineering Biomedical Engineering	2002-2004
Matt Shore	Engineering Biomedical Engineering	2010-2011
Jerimiah Mitzelfelt	College of Medicine IDP Neuroscience	2009-2011
Ignacio Sarria	College of Medicine	2006 -2007

	IDP Neuroscience	
Ping He	College of Engineering Biomedical Engineering	2003-2005

Master's students trained in my lab:

Name	*College / Degree Program*	*Dates*
Todd Sahagian	College of Medicine Medical Sciences Program	2017-2019

Master's Student Committees:

Name	*College / Degree Program*	*Dates*
Eric Atkinson	College of Medicine Dept. of Molecular Genetics/Microbiology	2012-2014

Undergraduate Training:

Name	*College / Degree Program*	*Dates*
Nathan Weinstock	University of Florida University Scholars Program	2004-2005

Classroom Teaching Experience:

2017-present Lecturer, UF COP PHA5080 – Patient Care VII

2016-present Lecturer, UF COP PHA5783 – Patient Care III

2015-present Lecturer, UF COP PHA5560 – Pathophysiology and Patient Assessment.

2003-present Lecturer, UF COP PHA6521C, Research Techniques in Pharmacodynamics.

2010-present Lecturer, UF COP PHA6936, Advanced Topics in Pharmaceutical Sciences.

2012-present Lecturer, UF COP PHA6509, Systems Physiology and Pathophysiology.

2004-present Course Coordinator, UF COP PHA7939, Journal Colloquy in Pharmacodynamics.

2014-2015 Lecturer, UF COP PHA5517, Pharmacological Basis of Therapeutics II

2003-2015 Lecturer, UF COP PHA5560, Physiological Basis of Disease.

2009-2015 Lecturer, UF COM GMS6022, Principles of Neuroscience II: Cell Signaling in the Nervous System.

2006-2009 Course Director, UF COM GMS6022, Principles of Neuroscience II: Cell Signaling in the Nervous System.

2001-2005 Lecturer, UF COM GMS6052, Ion Channels of Excitable Membranes.

2001-2005 Lecturer, UF COM GMS6022, Principles of Neuroscience II: Cell Signaling in the Nervous System.

2002-2004	Lecturer and Faculty Mentor, UF COM GMS6078, Advanced Topics - Synaptic Function and Plasticity.
1998-1999	Lecturer, Case Western Reserve University, PHOL470, Data analysis in Excel.
1999	Small Group Leader, Case Western Reserve University College of Medicine, Medical School Core Neuroscience Committee.
1998	Lecturer, Case Western Reserve University, NEURO406, Systems Neuroscience.
1997	Student Lecturer, University of Colorado Health Sciences Center, Advanced Topic Series, Synaptic transmission.

College and University Service:

2023 – present	Associate Chair, Department of Pharmacodynamics
2023 – present	Graduate Coordinator, Department of Pharmacodynamics
2023 - 2024	Chair, College of Pharmacy Tenure and Promotion Committee
2022-present	Member, College of Pharmacy Tenure and Promotion Committee
2020-preset	College of Pharmacy Faculty Governance Council
2023-present	Vice Chair, University of Florida Laser Safety Committee
2019-present	University of Florida Laser Safety Committee
2010-present	College of Pharmacy Academic Advisor
2009-present	College of Pharmacy Academic and Professional Standards Committee
2016-2019	Health Science Center Student Conduct Committee (also 2007-2008)
2012-2018	College of Pharmacy Graduate Studies Committee
2012-2018	College of Pharmacy Department of Pharmacodynamics Graduate Coordinator
2016-2017	College of Pharmacy Tenure and Promotion Committee
2014-2016	College of Pharmacy Research Committee
2012-2013	College of Pharmacy Tenure and Promotion Committee
2003-2007	College of Pharmacy Technology Committee

Professional Memberships:

1993-present	Society for Neuroscience.
2018-present	American Physiological Society
1998-2001	Biophysical Society.

Professional Service:

Ad-Hoc Manuscript Reviewer: Journal of Physiology, Journal of Neurophysiology, Neuropharmacology, Journal of Pharmacology and Experimental Therapeutics, Neurobiology of Aging, Neuropsychopharmacology, Brain Research, Experimental Neurology, Frontiers in

Synaptic Neuroscience, Frontiers in Cellular Neuroscience, Peptides, Synapse, Journal of Neurology, Journal of Neuroscience, eNeuro, Nature Reviews Neuroscience, International Journal of Molecular Sciences, and Pharmaceuticals, among others.

Ad-Hoc Grant Reviewer:

- NIH: CSR/NNRS (02-2017, 06-2017, 09-2017, 02-2018, 02-2019)
- NIH: Brain Initiative Special Emphasis Panel for review of large U-grants (2018)
- NIH: CSR/NMB, CEBRA. U.S. Civilian Research & Development Foundation (prior to 2017)

Editorial Service:

- Review Editor: Frontiers in Synaptic Neuroscience (2019-present)
- Review Editor: Frontiers in Systems Neuroscience (2020-present)