

# HERMINIO MANUEL GUAJARDO, PHD

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## PROFESSIONAL SUMMARY

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- Research Scientist with a demonstrated history of conducting and designing innovative in vivo-neurobehavioral pharmacological and electrophysiological studies, leading projects in the areas of in vivo behavioral pharmacology, electrophysiology, neurodevelopment, neurodegeneration, and pathophysiology of stress.
- Experience teaching undergraduates and mentoring graduate and undergraduate students in the laboratory. Expertise in implementing technology and innovative pedagogy to support teaching and learning. Experience in active learning techniques such as flipped classroom teaching, Team Base Learning/Problem Base Learning, and case studies.
- Efficient at working independently and within timelines, executing short- and long-term projects involving problem-solving. Expertise in experimental design, data collection, data interpretation, and communicating results to scientific and non-scientific audiences.
- Effective multi-tasking, learning new skills, and collaborating with different background researchers, including molecular biologists, bioengineers, and clinicians.

## EDUCATION

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<b>Harvard Medical School, Boston, MA</b>	2017-2019
Postdoctoral Fellowship in Neuroscience/Anaesthesia (T32 Postdoctoral Fellowship Program in Developmental Neurology)	
<b>University of Pennsylvania, Philadelphia, PA</b>	2011-2017
Doctor of Philosophy in Neuroscience (Awarded NIH-NRSA F31 Individual Fellowship)	
<b>University of Texas at Brownsville (UTB), Brownsville, TX</b>	2006-2010
Bachelor of Science in Biology ( <i>Cum Laude</i> )	
<b>Texas Southmost College, Brownsville, TX</b>	2004-2006
Associate in arts	

## PROFESSIONAL CERTIFICATES

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<b>Columbia University, Teachers College, New York City, NY</b>	2023-2024
<b>College Advising Certificate Program</b>	
Comprehensive knowledge in college admissions counseling, including ethical decision-making models, and developmental theories. Proficient in college matching, college and graduate entrance exams, and navigating financial aid. Familiarity with serving specific populations, such as first-generation students, students with disabilities, and students of diverse ethnic backgrounds.	
<b>Brown University, School of Professional Studies, Providence RI</b>	2023-2024
<b>Certificate in Applied DEI Strategies Program</b>	
Expertise in creating effective diversity and inclusion initiatives, including goal setting, action planning, and measurable success tracking. Improved communication and collaboration among diverse teams, prioritizing trust, and respect to strengthen the work environment. Acquired leadership skills in managing complex diversity-related challenges and conflict resolution. And to promote a more inclusive and equitable workplace.	

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**PROFESSIONAL EXPERIENCE**


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- **BMED Lecturer-I and BFRI Research Instructor** 2020 - Present  
**HHMI Inclusive Excellence Instructional Facilitator**  
**Health & Biomedical Sciences University of Texas Rio Grande Valley, Brownsville, TX**  
 Lecture first-year and second year BMED courses: Introduction to Medical Biochemistry, Cell Biology, Molecular Biology, and Independent Research I and III. Provide students with advice and the support needed to ensure academic success and student retention.  
 -Teaching research courses from the Biomedical Freshman Research Initiative (BFRI)-Edinburg Campus, mentoring ~50 students.  
 -Collaborating with Research faculty studying the neuroanatomy and neurotransmitter expression in the Gray-short tail Opossum (*Monodelphis Domestica*). Project funded by the Office of Faculty Success Seed Grant.
- **Research Fellow at the University of Texas at San Antonio** 2019 – 2019  
**San Antonio, TX.**  
 Investigated dopaminergic neuronal population in the ventral tegmental area (VTA) of wild type & transgenic mice (co-authored one scientific manuscript).
- **Associate Postdoctoral Fellow Harvard Medical School/Boston Children’s Hospital** 2017 – 2019  
**Boston, MA.**  
 Researched the developmental & functional characterization of a molecular subtype of brain serotonergic neuron (one scientific article published)
- **Graduate Research Fellow at the University of Pennsylvania, the Children’s Hospital of Philadelphia** 2011 – 2017  
**Philadelphia, PA**  
 Discovered sex differences in the endogenous opioid system of brain norepinephrine system relevant to stress-related diseases (three scientific publications published).
- **Visiting Graduate Student at Université Laval, Centre de Recherche du CHU de Quebec** 2015  
**Quebec City, Quebec, Canada**  
 Studied Sex differences in opioid receptors using radioactive in-situ hybridization.
- **Post Baccalaureate Research fellow at the University of Pennsylvania School of Medicine** 2010 – 2011  
**Philadelphia, PA**  
 Analyzed how thalamic and primary visual cortex neurons encode visual information (co-authored one scientific abstract for a national conference).
- **Undergraduate Intern at Weill Medical College of Cornell University,** 2009  
**New York City, NY**  
 Explored the effects of stress on female rats' hippocampal endogenous opioid system (Submitted one scientific abstract for a national conference).
- **Undergraduate Researcher at the University of Texas at Brownsville (UTB)** 2008 – 2010  
**Brownsville, TX**  
 Assessed medial septum neuronal neurodegeneration in a rat model of Alzheimer’s disease (co-authored one scientific publication).

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**OTHER HONORS AND AWARDS**


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- Brown University, School of Professional Studies Tuition Award 2023-2024
- UTRGV College of Health Professions Research Fellows Program 2023-2024
- University of Texas Rio Grande Valley Office of Faculty Success Seed Grant 2022-2023
- NIDA Diversity Supplement Grant (Harvard Medical School) 2018-2019
- Harvard Medical School/Boston Children’s Postdoctoral Fellowship Program in Developmental Neurology 2017-2019

- NIH-NIMH Ruth L. Kirschstein National Research Service Awards for Individual Pre-doctoral Fellowships to Promote Diversity in Health-Related Research (>90th percentile) 2014-2016
- Dorothea Jameson and Leo M. Hurvich Behavioral Neuroscience Travel Award 2014
- Training Program in Behavioral and Cognitive Neuroscience (UPenn) 2013
- Systems & Integrative Biology Training Grant (UPenn) 2011
- Alpha Chi National Honor Society 2010
- Texas Alpha Omicron Honor Society 2010
- First Place 12th Annual UTB Research Symposium 2010
- Rising to Challenge Grant (University of Texas) 2008-2009
- Generation Proud Scholarship Program (University of Texas) 2008-2009

## GRANT SUPPORT

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### Ongoing Research Support (UTRGV-Internal Seed funding)

**University of Texas Rio Grande Valley Office of Faculty Success Seed Grant.** (01/2023- 12/2023) Project: Neuroanatomy and neurotransmitter expression in the Gray-short tail Opossum (*Monodelphis domestica*).

**Role:** PI: Mario Gil, and **Co-PI: Herminio Guajardo** (\$10,000 1-year)

**University of Texas Rio Grande Valley COHP Research Fellows.** (11/2023- 10-2024) Project: Effect of systemic and chronic exposure of an opioid agonist on a cognitive flexibility task in rats (\$1,000 1-year).

**Role: Faculty Trainee.** Research Fellowship designed to support faculty members in preparing grant submission proposals. Appointments are determined by assessing the candidate's prior academic and research experience.

### Completed Research Support

**2R01DA021801-06A1** (09-2018- 09/2019) **"NIDA Diversity Supplement Grant" Parent Grant: Topography of Serotonin Dysfunction** (\$47,000 1-year)

**Role: Postdoctoral-trainee.** Supplement Training grant that supported postdoctoral research related to the parent grant.

**T32NS007473-18** (09/2017- 09/2018) **Training Program in Behavioral Developmental Neurology** (\$48,000 1-year)

**Role: Postdoctoral-trainee.** Training grant that supports postdoctoral fellows engaged in ground-breaking research into the molecular mechanisms underlying brain development.

**5F31MH105211-02** (09/2015– 08/2016) **NIMH Ruth L. Kirschstein National Research Service Awards for Individual Predoctoral Fellowships** (\$43,120 1-year)

**Role: Principal Investigator (PI).** To determine the neural basis for sex bias in stress-related neuropsychiatric diseases by studying sex differences in the regulation of a major brain stress response system by endogenous opioids.

**1F31MH105211-01** (09/2014 – 08/2015) **NIMH Ruth L. Kirschstein National Research Service Awards for Individual Predoctoral Fellowships** (\$42,676 1-Year)

**Role: Principal Investigator (PI).** To determine the neural basis for sex bias in stress-related neuropsychiatric diseases by studying sex differences in the regulation of a major brain stress response system by endogenous opioids.

**T32MH017168** (09/2013 – 08/2014) **Training Program in Behavioral and Cognitive Neuroscience**

**Role: Student-trainee.** Training grant that supports post candidacy exam students interested in the study of the neural basis of human and animal behavior. Appointments are made on the basis of prior academic and research excellence.

**T32GM007517** (09/2011 – 06/2013) **Systems & Integrative Biology (SIB) Training Grant**

**Role: Student-trainee.** Training Grant that supports years 1 and 2 of graduate school. Appointments are made on the basis of prior academic and research excellence and stated area of interest.

**R25GM065925 (09/2008-05/2010) MBRS RISE Program-University of Texas at Brownsville**

**Role: Student-trainee.** Training program for underrepresented minorities in biomedical sciences that wants to pursue doctoral studies in biomedical related fields.

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**SELECTED SCIENTIFIC PUBLICATIONS**

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**Guajardo HM**, Jessica Martinez-Guzman and Valentino RJ (2023). Sex Differences in Opioid Regulation of the LC: A Potential Determinant of Stress Vulnerability. *In preparation*

Alaniz E., Perez I., **Guajardo HM.**, VandeBerg J., and Gil M (2023). Oxytocin immunoreactivity in the hypothalamic paraventricular nucleus and supraoptic nucleus of the adult gray short-tailed opossum (*Monodelphis domestica*). *In preparation*

Curtis AL, Bates M, Arner J, **Guajardo HM**, Valentino RJ, Bhatnagar S (2023). Female Adolescent Social Stress: Enhanced Activation of Rat Locus Coeruleus, Generating Gamma Coherence with Persistent Theta Rhythm in the Prefrontal Cortex. *Neuropsychopharmacology Under Review.*

Yuan R., Lopez M., Normandin M., Thomas A., Uygun D., Cerda V., Grenier A., Wood M., Gagliardi C., **Guajardo HM**, Muzzio I. (2021). Differential effect of sleep deprivation on place cell representations, sleep architecture, and memory in young and old mice. *Cell Reports*. PMID: 34133936

**Guajardo HM**, Valentino RJ (2021). Sex differences in  $\mu$ -opioid regulation of coerulear-cortical transmission. *Neuroscience letters*: 135651. PMID: 33482313, PMCID: PMC7897314 (available on 2022-02-16)

**Guajardo HM**, Hatini PG, Commons KG (2021). The Mouse Dorsal Raphe Nucleus as Understood by Temporal Fgf8 Lineage Analysis. *The Journal of comparative neurology*. PMID: 33219573

**Guajardo HM**, Snyder K, Ho A, Valentino RJ (2017). Sex Differences in  $\mu$ -Opioid Receptor Regulation of the Rat Locus Coeruleus and Their Cognitive Consequences. *A NATURE JOURNAL: Neuropsychopharmacology: official publication of the American College of Neuropsychopharmacology* 42(6): 1295-1304. PMID: 27827371, PMCID: PMC5437881

**Guajardo HM** (2017). Sex Differences In  $\mu$ -Opioid Regulation Of The Rat Locus Coeruleus. <https://repository.upenn.edu/handle/20.500.14332/29735>

Perez-Cordova MG, Jaime S, **Guajardo HM**, Colom LV (2010). Selective lesions of medial septal GABAergic neurons disrupt Hippocampal Theta Rhythm Amplitude. *BMC Neuroscience* 11 (1): P125. PMCID: PMC3090827

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**ACKNOWLEDGMENT FOR TECHNICAL CONTRIBUTIONS IN PEER REVIEWED PUBLICATIONS**

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Grafe LA, Cornfeld A, Luz S, Valentino R, Bhatnagar S. Orexins Mediate Sex Differences in the Stress Response and in Cognitive Flexibility. *Biol Psychiatry*. (2017) Apr 15;81(8):683-692. doi: 10.1016/j.biopsych.2016.10.013. Epub 2016 Oct 18. PMID: 27955897; PMCID: PMC5359079.

Vigeland LE, Contreras D, Palmer LA. Synaptic mechanisms of temporal diversity in the lateral geniculate nucleus of the thalamus. *J Neurosci*. (2013) Jan 30;33(5):1887-96. doi: 10.1523/JNEUROSCI.4046-12.2013. PMID: 23365228; PMCID: PMC3711595.

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**AD-HOC REVIEWER**


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2021-Present Neuroscience Letters journal, ISSN: 0304-3940 (Elsevier Editorial)  
 2023-Present Physiology & Behavior journal, ISSN: 0031-9384 (Elsevier Editorial)  
 2023 - Present Heliyon, a Cell Press Journal, ISSN: 2405-8440 (Elsevier Editorial)

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**MENTORED UNDERGRADUATE STUDENTS**


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- ANDREW HOI (CURRENTLY RESIDENT PHYSICIAN AT UPENN)
- CLAIRE CARTER (CURRENTLY VETERINARY STUDENT AT CORNELL VET)
- MARIA ZILBERMAN (CURRENTLY MEDICAL STUDENT AT UNIVERSITY OF FLORIDA)
- KEVIN RODRIGUEZ (CURRENTLY MBA STUDENT AT HARVARD BUSINESS SCHOOL)
- MAIKO SUAREZ (CURRENTLY RESIDENT PHYSICIAN AT UPENN)
- MARY KATE SPINELLI (CURRENTLY MEDICAL STUDENT AT HARVARD)
- LAUREN FOX (CURRENTLY UNDERGRADUATE STUDENT AT DUKE UNIVERSITY)
- PAUL HATINI (CURRENTLY MASTERS STUDENT AT TUFTS UNIVERSITY)
- JESSICA MARTINEZ (Currently Undergraduate BMED Student-UTRGV)
- JUAN CARLOS MEJIA (Currently Undergraduate BMED Student-UTRGV)
- DYLLON DE LEON (Currently Undergraduate BMED Student-UTRGV)
- JESUS PATERNINA ((Currently Undergraduate BMED Student-UTRGV)

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**TEACHING EXPERIENCE-COURSES**


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-Introduction to Brain and Behavior	Pulmonary
-Neurochemistry	-Integrated Body Systems II: Gastrointestinal Systems
-Introductory Medical Biochemistry	-Integrated Body Systems III: Renal, Fluid and Electrolytes
-Introduction to Biomedical I Lab	-Integrated Body Systems IV: Endocrine and Reproductive Systems
-Introductory Cell Biology	-Medical Biochemistry
-Introductory Molecular Biology	-Integrated Body Systems V: Dermatology, Hematology and Musculoskeletal
-Introductory Medical Genetics	-Independent Research I- Research Methods
-Introductory Medical Neuroscience	-Independent Research II- Research Techniques
-Evolutionary Medicine	-Independent Research III- Neuroanatomy I Project
-Introductory Medical Physiology	-Independent Research IV- Neuroanatomy II Project
-Introduction to Biomedical II Lab	
-Gross Anatomy	
-Integrated Body Systems I: Cardiovascular and	

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**MEMBERSHIPS AND PROFESSIONAL AFFILIATIONS**


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2022-Present Committee Chair, TX South-Texas Penn Alumni Admission-Interview Program  
 2019-Present Member, South Texas-San Antonio Penn Alumni Association  
 2017-Present Harvard/Boston Children's Hospital Post-Doctoral Association  
 2014-Present Society for Neuroscience  
 2011-Present Fontaine Society at The University of Pennsylvania  
 2010-Present E.E. Just Biomedical Society at The University of Pennsylvania School of Medicine.  
 2009-Present The Leadership Alliance  
 2008-Present Society for the Advancement for Chicanos & Native Americans in Science (SACNAS)