

CURRICULUM VITAE

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Education

- **2000-2003-** High School: Lola Rodriguez de Tió, San Germán, Puerto Rico.
- **2003-2008-** BS in Biology: Inter American University of Puerto Rico (IUPR), San German Campus. Minor: Education; *magna cum laude*.
- **2008-2016-** PhD in Anatomy and Neurobiology: University of Puerto Rico Medical Sciences Campus (UPR-MSC), Dept of Anatomy and Neurobiology. *magna cum laude*. Thesis project: Effects of Deep Brain Stimulation on Extinction of Morphine Place Preference. (Lab: Dr. Jennifer L. Barreto-Estrada).

Research/Job Positions

- **Jan-May 2008** – Postbaccalaureate: at Katharina Ribbeck Lab, Bauer laboratory, Systems Biology Department, Harvard University, Cambridge, Massachusetts. Project Focus: a) Mucus biophysical properties as an immunological barrier. b) Adsorption of Human Papillomavirus 16 to Live Human Sperm. (My contributions are highlighted in Perez-Andino et al., 2009).
- **2016- 2018-** Postdoctoral fellow: at Gregory Quirk Lab, UPR-MSC. NIMH, P50-MH106435-01 (Conte Center; PIs: Quirk; Haber) “Cingulate/prelimbic nodes mediating persistent avoidance. Optogenetics, Immunohistochemistry and behavioral approaches.
- **2018-present-** Postdoctoral fellow: at Eric Nestler laboratory, Department of Neuroscience, Icahn School of Medicine at Mount Sinai, New York. Project: Transcriptomic studies of addiction.

Other undergraduate research/internships experiences

- **2006** – Ronald E. McNair Program IUPR San German Campus, Biology Department. Project Title: The effect of the tentacle tissue of *Eupolyornia crassicornis* (Spaghetti Worm) in the heart rate of *Biomphalaria glabrata*
- **2006-2007** - Gulf of Mexico Community-based Restoration Partnership, IUPR San German Campus, Biology Dept. Project Title: The Impact of Artificial Reefs on Fish Diversity and Community Composition in Isla Ratonas, Western PR. (My contributions are highlighted in Sanders and Ruiz, 2007).
- **Summer 2007** - Chemosensory Perception Laboratory, Dept of Surgery (Otolaryngology), University of California, San Diego, CA. AMGEN Pharmaceutical Company. Project Title: Concentration-detection functions for the odor of homologous n-acetate esters. (My contributions are highlighted in Cometto-Muñiz et al., 2008).
- **Aug-Dec 2007** - IUPR, San German Campus and La Concepción Hospital Internship: rotations with Dr. Juan Padilla Neurosurgeon.

Teaching Experience

- **Aug-Dec 2010** - Teaching Assistant of the Medical and Dental Gross Anatomy Course (with cadaver and brain dissections). Anatomy and Neurobiology Dept. UPR-MSC.

- **Jan- May 2011** - Teaching Assistant of Medical and Dental Neuroanatomy Course (with cadaver and brain dissections). Anatomy and Neurobiology Dept. UPR-MSC.
- **May 2017-2018-** Learning theories lecture to Medical students. UPR-MSC.
- **Aug 2020-** Brain & Behavior and Anesthesia. Icahn School of Medicine at Mt. Sinai, NY.

Professional Organizations

- **2006-2008** - Pre-Medical Society (CADUCEUS), Treasurer (2006-2007) and President (2007) IUPR San German Campus
- **2011** - American Association of Anatomists (AAA)
- **2011-2015** - Graduate Student Association, UPR-MSC
- **2012-present** - Society for Neuroscience (SfN)
- **2017-present** – Neuroboricuas (www.neuroboricuas.org)
- **2020-present** – Organizing committee of Mount Sinai Neuroscience seminars (MSNs), Icahn School of Medicine at Mt. Sinai, NY.

Honors and Awards

- **2005-2008** - Research Excellency, R. McNair Program, IUPR, San German Campus.
- **2008** - John W. Harris medal Institutional award and the Ex-alumnus medal award to the most outstanding graduating student. IUPR San German Campus.
- **2011** - AAA travel award for late breaking abstract. Martinez-Rivera F.J., Brito-Vargas P., Huertas A., Natal E. and Barreto-Estrada J.L. The anabolic-androgenic steroid 17 α -methyltestosterone induced conditioned place preference but not psychomotor sensitization in adolescent mice
- **June 2011** - Travel award scholarship to participate to the Course in Molecular Neuroanatomy co-sponsored by the Allen Institute for Brain Science and the Okinawa Institute of Science and Technology in Japan, during October 9-22, 2011.
- **March 2012** - Travel award to participate to the NSF-Sponsored Satellite Educational Workshop Travel award to attend the Satellite Educational Workshop SW2: "Pathway Analysis in Transcriptomics, Proteomics and Metabolomics" that will be held on March 17 at Disney's Contemporary Resort, Orlando FL.
- **July 2012** - Travel Award to participate to the Cold Spring Harbor (CSH) Proteomic Course during July 7-22, 2012 at CSH, NY.
- **2009-2016:** Recognition by Outstanding average, highest average by class and outreach activities. Dept. Anatomy and Neurobiology, UPR-MSC.
- **June 2016-** PhD graduation recognitions by: leadership, outstanding anatomist, academic excellence, research excellence and neurobiology research excellence. Dept. Anatomy and Neurobiology, UPR-MSC.
- **2019-present-** Travel award SfN 2019-21. Neuroscience Scholar Program (NSP) Fellow.

Fellowships, Scholarships, Grants:

- **2005-2008** - Ronald E. McNair program member, IUPR San German, Campus. (P217A070146). PI: Maria Y. Pérez. Role: Undergraduate Student.
- **2009-2014** - MBRS RISE program University of Puerto Rico Medical Science Campus (R25-GM061838). PI Carmen Cadilla; Role: Graduate student.
- **2016-June 2018-** P50-MH106435-01 Conte Center; PI: Quirk, GJ; PD: Haber, S. UPR- MSC and Rochester University Role: Postdoctoral fellow.
- **June 2018-May 2019-** National Institute on Drug Abuse training program at Mount Sinai School of Medicine. 5T32DA007135. PI Devi, Lakshmi. Role: Postdoctoral fellow.

- **2019-2021-** Neuroscience Scholar Program (NSP); Society for Neuroscience (SFN); 5R25NS089462-04. PIs: Julio Ramirez & Gina Poe. Role: Fellow.

Publications

1. **Martínez-Rivera FJ**, Natal-Albelo EJ, Martínez NA, Orozco-Vega RA, Muñiz-Seda OA, Barreto-Estrada JL. The effect of the anabolic steroid, nandrolone, in conditioned place preference and D1 dopamine receptor expression in adolescent and adult mice. *Behav Processes*. 2015.
2. Martinez NA, Ayala AM, Martinez M, **Martínez-Rivera FJ**, Miranda JD, Silva WI. Caveolin-1 Regulates the P2Y2 Receptor Signaling in Human 1321N1 Astrocytoma Cells. *J Biol Chem*. 2016.
3. **Martínez-Rivera FJ**, Rodriguez-Romaguera J, Lloret-Torres Mario E, Do-Monte FH, Quirk GJ, Barreto-Estrada JL. Bidirectional modulation of extinction of drug-seeking by deep brain stimulation of the ventral striatum. *Biological Psychiatry*. 2016.
4. **Martínez-Rivera FJ**, Barreto-Estrada, JL. Reply to: Does High-Frequency Deep Brain Stimulation in Dorsal Regions of the Ventral Striatum Impair Extinction of Morphine-Induced Place Preference? *Biological Psychiatry*. 2017.
5. **Martínez-Rivera FJ**, Pérez-Laspiur J, Santiago-Gascot ME, Alemán-Reyes AG, García-Santiago E, Rodríguez-Pérez Y, Calo-Guadalupe C, Otero-Pagán I, Ayala-Pagán RN, Martínez M, Cantres-Rosario YM, Meléndez LM, Barreto-Estrada JL. Differential protein expression profile in the hypothalamic GT1-7 cell line after exposure to anabolic androgenic steroids. *PLoS One*. 2017.
6. **Martínez-Rivera FJ**, Bravo-Rivera C, Velázquez-Díaz CD, Montesinos-Cartagena M, Quirk GJ. Prefrontal circuits signaling retrieval and extinction of active avoidance. *Psychopharmacology Journal*. 2018.
7. **Martínez-Rivera FJ**, Martínez NA, Martínez M, Silva WI, Barreto-Estrada JL. Extinction of morphine place-preference and neuroplasticity transcript profile of the ventral striatum. *Neurobiology Learning & Memory Journal*. 2019.
8. **Martínez-Rivera FJ**, Sánchez-Navarro MJ, Huertas-Pérez CI, Greenberg BD, Rasmussen SA, and Quirk GJ. Prolonged avoidance training exacerbates OCD-like behaviors in a rodent model. *Translational Psychiatry*. 2020.
9. Dash S, Balasubramaniam M, **Martínez-Rivera FJ**, Godino A, Peck E, Patnaik S, Suar M, Calipari E, Villalta F, Nestler E, Dash C, and Pandhare J. Cocaine-regulated microRNA miR-124 controls Poly (ADP-ribose) Polymerase-1 expression in neuronal cells. *Scientific Reports*. 2020.

Manuscripts in preparation

1. **Martínez-Rivera FJ**, Pérez-Torres J, Velázquez-Díaz CD, Sánchez-Navarro MJ, Huertas-Pérez C, Dielh M, Haber SN, Quirk GJ. Persistent avoidance is gated by insular/orbital inputs to the rostral prelimbic cortex.
2. Browne CJ, Futamura R, Minier-Toribio AM, **Martínez-Rivera FJ**, Godino A, Ramakrishnan A, Torres-Berio A, Parise E, Walker D, Shen L, Nestler EJ. Transcriptional reprogramming of the brain reward system by heroin self-administration.

Participation in scientific meetings (Selected Presentations)

1. **Martínez-Rivera F.J.**, Brito-Vargas P., Huertas A., Natal E., Barreto-Estrada J.L. The anabolic androgenic steroid 17 α -methyltestosterone induced conditioned place preference but not psychomotor sensitization in adolescent mice. *Experimental Biology Meeting*. Washington DC. April 9-13, 2011.
2. **Martínez-Rivera F.J.**, Natal E., Orozco-Vega R.A., Muñiz-Seda O.A., Martínez-Alicea N.A., Barreto-Estrada J.L. Age-dependent effects of the anabolic steroid nandrolone in

conditioned place preference and anxiety. Society for Neuroscience Meeting. New Orleans, LA. Oct 13-17, 2012.

3. **Martínez-Rivera** F.J., Natal E., Orozco-Vega R.A., Muñiz-Seda O.A., Martínez-Alicea N.A., Barreto-Estrada J.L. Age differential effects of the anabolic-androgenic steroids (AAS) in conditioned place preference and anxiety. Society of Biological Psychiatry Meeting. San Francisco, CA. May 16-18, 2013.
4. **Martínez-Rivera**, F.J., Rodríguez-Romaguera, J., Do-Monte, F.H., Muñiz-Seda O.A., Quirk, G.J., Barreto-Estrada, J.L. Deep brain stimulation of the ventral striatum impairs extinction of morphine-induced conditioned place preference. Society for Neuroscience Meeting. San Diego, CA. Nov 9-13, 2013.
5. **Martínez-Rivera**, F.J., Rodríguez-Romaguera, J., Miranda-Fajardo, J, Muñiz-Seda, O.A., Do-Monte, F.H., Quirk, G.J., Barreto-Estrada, J.L. Deep brain stimulation of the ventral striatum for the extinction of morphine place preference. 2014 RCMI International Symposium on Minority Health and Health Disparities. Washington, DC. Dec 1-3, 2014.
6. **Martínez-Rivera**, F.J., Rodríguez-Romaguera, J., Lloret-Torres, Mario E., Miranda-Fajardo, J, Muñiz-Seda, O.A., Do-Monte, F.H., Quirk, G.J., Barreto-Estrada, J.L. Low frequency deep brain stimulation of the ventral striatum facilitates extinction of morphine place preference. Society for Neuroscience Meeting. Chicago, IL. Oct 17-21, 2015.
7. Lloret, M.E., **Martínez-Rivera, FJ**, Barreto-Estrada, J.L. Extinction of morphine place-preference and neuroplasticity transcript profile of the ventral striatum. Society for Neuroscience Meeting. San Diego, CA. Nov 12-16, 2016.
8. **Martínez-Rivera**, FJ, Sánchez-Navarro, MJ, Velázquez-Díaz, CD, Quirk, GJ. Avoidance over-conditioning impairs extinction of fear, induces persistent avoidance, and increases use of safety cues: implications for OCD. Society for Neuroscience Meeting. Washington, DC. Nov 11-15, 2017.
9. **Martínez-Rivera FJ**, Pérez J, Sánchez-Navarro MJ, Velázquez-Díaz CD, Huertas C, Quirk GJ. The role of orbital/insular outputs in a rodent model of persistent avoidance. Society for Neuroscience Meeting. San Diego, CA. Nov 3-7, 2018.
10. **Martínez-Rivera FJ**, Pérez-Torres J, Velázquez-Díaz CD, Sánchez-Navarro MJ, Huertas-Pérez C, Dielh M, Haber SN, Quirk GJ. Persistent avoidance is gated by insular/orbital inputs to the rostral prelimbic cortex. American College of Neuropharmacology (ACNP). Virtual, Dec 6-9, 2020.

Outreach

Open House for Graduate Studies visit to UPR-MS	17-Oct, 2014
Brain Awareness Week visit to UPR-MS	20-Mar, 2015
Open House for Graduate Studies visit to UPR-MS	07-Oct, 2015
Interamerican University (McNair Scholars Program) visit to UPR-MS	3-Aug, 2016
Visiting public schools (Vieques and San Juan); Quirk lab and Student Association, UPR	Spring 2017
Neuroboricuas activities (www.neuroboricuas.org)	2017-2018
Brain Awareness Week activities Mount Sinai School of Medicine	Spring 2019

Mentoring experience

Undergraduate students	Current position
Eduardo Natal	Orthopedic Surgery
Oscar Muñiz	Pediatrician
Janelle Miranda	PhD student at NYU
Mario Lloret	PhD student at UPR
Christian Calo	PhD student at UPR
Abner Alemán	Medical Student Caguas PR
Ryan Rivera	Medical Student Ponce PR
Marcos Sánchez	PhD student at UPenn

Coraly Velázquez	Medical Student UMHS-SK
José Pérez	PhD student UPR
Carlos Huertas	BS Student UPR
Solange Tofani	Postbac intern Mt. Sinai
Graduate students	
Hector Bravo-Rivera	Postdoc NIH
Angelica Minier-Toribio	PhD student at Mt. Sinai

Extracurricular activities

- Spend time with family
- Sports and games: basketball, ping-pong, and chess
- Movies, food enthusiast, diving/snorkeling and tourism