

Biographical Sketch

JOSUÉ ALEJANDRO RODRÍGUEZ-CORDERO

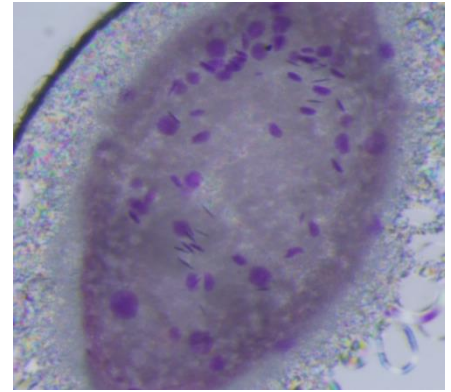
Current Status:

PhD Candidate
Dept. of Biology, UPR Rio Piedras

Email: josue.rodriquez50@gmail.com

Education:

2008-2013 BS Electrical Engineering, UPR Mayagüez
2016-Present PhD Biology, UPR Rio Piedras (expected 2021)



Current Research Interests: My research interests lie at the intersection of biophysics, instrumentation, and computing. The goal of my current research is the development of a method and an instrument to crystallize transmembrane proteins. My approach involves the application of an electric field that mimics the resting membrane potential of cells in order to obtain a homogeneous conformation in the sample, facilitating crystal nucleation and growth. My experience in research, together with my background in engineering make me particularly suited for this endeavor. I have worked in diverse research projects, traversing the spectrum from engineering, through bioengineering, to molecular biology. My professional experience includes work in automatic control systems, embedded systems, instrumentation, and programming. I am well equipped to design, build, and test analog/digital electronic systems. Coupled with my experience in protein production, purification, and crystallization, I will strive to use my skill set toward the completion of this project.

Research Experience:

2016-Present UPR Rio Piedras, Research Assistant/PhD Student (mentor Dr. José Lasalde-Dominicci)
2013-2012 UPR Mayagüez, Research Assistant (mentor Dr. Nanette Diffoot-Carlo)
2011 (Summer) Georgia Tech, Research Assistant (mentor Dr. Hang Lu)
2010-2011 UPR Mayagüez, Research Assistant (mentor Dr. Gladys Ducoudray)
2010 (Summer) UC Berkeley, Research Assistant (mentors Dr. Hien Vo, Dr. Lizdabel Morales)

Honors and Awards:

2019-Present NIH Research Initiative for Scientific Enhancement (RISE) fellow
2019-Present NSF BioXFEL Fellow
2018 NSF GRFP Honorable Mention
2017-Present UPR Río Piedras Honor Student
2016-2018 Fellow, NSF Louis Stokes Alliance for Minority Participation Bridge to the Doctorate
2013 Stefani Rafucci Award – UPRM 2013 Class Highest Academic Index
2013 Faculty of Engineering Award
2013 Georg Simon Ohm Award – Most Distinguished Electrical Engineering Student
2009-2013 UPR Mayagüez Honor Student

Teaching Experience:

2016, 2018 Biotechnology Laboratory, UPR Río Piedras

Work Experience:

2015-2016 Engineering Team Leader & Project Engineer at Accurate Solutions & Designs, Inc.
2014-2015 Project Engineer at Accurate Solutions & Designs, Inc.

Biographical Sketch

Professional Memberships:

2019-Present President, Puerto Rico Biophysical Society Student Chapter
2018-Present Member, Biophysical Society Student
- Member, Tau Beta Pi – Engineering Honor Society

Presentations:

J. Alejandro Rodríguez-Cordero, Adrián Muñiz-Sarriera, Orestes Quesada-González, José A. Lasalde-Dominicci. “High-Throughput Crystallographic Screening Method for Membrane Proteins at Resting Membrane Potential”. *COBRE 6th Annual Retreat*. Hotel El Convento, San Juan, Puerto Rico, May 2019.

Josué A. Rodríguez-Cordero, Adrián B. Muñiz Sarriera, José A. Lasalde-Dominicci. “Production of Bacteriorhodopsin from *Halobacterium salinarum* for Structural Studies”. *PR-LSAMP 2018 Junior Technical Meeting/PRISM*. Universidad del Turabo, Gurabo, Puerto Rico, April 2018.

Josué A. Rodríguez-Cordero, Yeidaliz García, Nanette Diffoot Carlo. “Seroprevalence of Parvovirus B19 in Puerto Rico”. *Third Undergraduate Research Symposium*. University of Puerto Rico, Mayagüez, May 2013.

Rafael Rivera, J. A. Rodríguez-Cordero, and Javier Rivera. “Near-infrared Sensor Design for Remote Sensing”. *PR-LSAMP 31st Puerto Rico Interdisciplinary Scientific Meeting/Junior Technical Meeting*. Inter American University, Bayamón, Puerto Rico, March 2011.

Josué A. Rodríguez Cordero, Carlos J. Malavé Vázquez, Guillermo Serrano. “Resting Metabolic Rate Measurer”. *Capstone Design Projects Presentation*. University of Puerto Rico, Mayagüez, Puerto Rico, September 2011.

Angélica Hernández, Samuel Matos, Javier R. Rivera, Rafael J. Rivera, Josué A. Rodríguez-Cordero, Gladys O. Ducoudray, Rogelio Palomera. “Hyperspectral Image Integrated Solution to Obtain Full Spectral Curves”. *22nd Industrial Affiliates Program Fall Meeting*. Darlington Conference Hall, Mayagüez, Puerto Rico, September 2011.

Josué A. Rodríguez-Cordero, Iván Cáceres, Hang Lu. “Optimization of System Software for Visual Screens Enabled by Microfluidics”. *SURE Presentations*. Georgia Tech, Atlanta, USA, August 2011.

Publications and Patents:

Manfredi B., Morales-Ortiz J., Díaz-Díaz L., Hernandez-Matias L., Barreto-Vázquez D., Menéndez-Pérez J., **Rodríguez-Cordero J. A.**, Villalobos-Santos J. C., Santiago-Rivera E., Rivera-Dompenciel A., Lozada-Delgado E, Kuchibhotla M., Carrasquillo-Carrión K., Roche-Lima A., Washington A. V., The Characterization of Monoclonal Antibodies to Mouse TLT-1 Suggests That TLT-1 Plays a Role in Wound Healing. *Monoclonal Antibodies in Immunodiagnosis and Immunotherapy*. 2018. <https://doi.org/10.1089/mab.2017.0063>

Cáceres I., Porto D., Gallotta I., Santonicola P., **Rodríguez-Cordero J.**, Di Schiavi E., Lu H. Automated screening of *C. elegans* neurodegeneration mutants enabled by microfluidics and image analysis algorithms, *Integr. Biol.*, 2018, 10, 539-548. <https://doi.org/10.1039/C8IB00091C>

United States Patent 10,155,221. High-throughput crystallographic screening device and method for crystallizing membrane proteins using a sub physiological resting membrane potential across a lipid matrix of variable composition.