

Biographical Sketch

Robert J. Rabelo-Fernández

Current Status

Ph.D Candidate
Dept. of Biology, UPR-Rio Piedras

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Education

2006-2012	B.S. in Biology UPR-Humacao B.S. in Microbiology UPR-Humacao
2013-2017	M.S. in Biology UPR-Mayagüez
2017-present	(UPR-Rio Piedras)
2022	Ph.D in Biology UPR-RP (expected)



Current Research Interest:

RNA-binding protein with multiple splicing (RBPMS) belongs to a family of RNA-binding proteins characterized by the presence of an N-terminal RNA-recognition motif (RRM) sequence. RBPMS is a member of a family of proteins which bind to the nascent RNA transcripts and regulate their processing, including the pre-mRNA splicing and transport, localization, and stability of the RNA molecules. Alternative splicing results in multiple transcript variants encoding different RBPMS isoforms. RBPMSA, RBPMSB, and RBPMSC are the best described isoforms in the literature; and previous studies suggest that RBPMS is a critical repressor of AP-1 signaling. These transcription factor activator protein-1 has multiple roles in cellular behavior, including cancer cell growth, migration, invasion, and metastasis. Molecules in this pathway can be proposed as a strategy for cancer treatment. Until now, little is known about the biological function of RBPMS proteins in ovarian cancer and less is known about which isoform is related with cisplatin resistance. My dissertation project has focused in unraveling the role of RNA-binding protein (RBPMS) in ovarian cancer progression, metastasis and drug resistance in high grade serous ovarian cancer cells. The results of this research project will enhance our knowledge of the mechanisms of drug resistance and thus delineate more specific drugs for ovarian cancer patients.

Research Experience:

2018-present	Contribution of the RNA Binding Protein with Multiple Splicing (RBPMS) to the Cisplatin Resistance of Ovarian Cancer Cells. (Mentor: Pablo Vivas Mejía, Ph.D)
2018-present	Decreased Expression of Enolase-1 Promotes Cisplatin Resistance of Ovarian Cancer Cells. (Mentor: Pablo Vivas Mejía, Ph.D)
2015-2017	Enriching the Resistome using <i>Caracolus marginella</i> Microbiome. (Mentor:

2015-2017	Carlos Ríos-Velázquez, Ph.D) The genus <i>Paltostoma</i> (Diptera: Blephariceridae) in Caribbean and Description of the larva of a novel specie from Puerto Rico. (Mentor: Carlos Santos Flores, Ph.D)
2013-2015	Cultivable cellulose-degraders bioprospects from <i>Caracollus marginella</i> gut. (Mentor: Carlos Ríos-Velázquez, Ph.D)
2015-2016	Accessing the <i>Caracollus marginella</i> terrestrial snail Microbiome using Metagenomics. (Mentor: Carlos Ríos-Velázquez, Ph.D)
2013-2014	Annotation of <i>Amazona vittata</i> Genome. (Mentor: Juan Carlos Martínez Cruzado, Ph.D)
2011-2012	Characterization of a novel <i>Exiguobacterium sp.</i> from the Cabo Rojo Salterns. (Mentor: Lilliam Casillas Martínez, Ph.D)
2010-2011	Assays for antibiotic susceptibility in natural isolates cultivated from the microbial mats Lack of <i>eftA</i> in <i>B. subtilis</i> inhibits calcite precipitation, alters phospholipids membrane composition, sporulation frequency and flagellar formation. (Mentor: Lilliam Casillas Martínez, Ph.D)
2008-2011	Search for antibiotic resistance genes from metagenomic libraries derived from microbial mats at the Cabo Rojo Salterns. (Mentor: Lilliam Casillas Martínez, Ph.D)

Other Research Activities

Workshops:

March 2019	Understanding MS/MS Spectra for Targeted Mass Spectrometry Approaches
March 2019	Instrument Setup and Data Analysis for Targeted Mass Spectrometry Approaches
November 2018	Writing in Science Course Stanford
June 2018	Rat and Mouse Lecture and Wet Lab
April 2018	Working with the IACUC Investigators, Staff and Students
April 2018	Essentials for IACUC Members. IACUC Chairs, Members and Coordinators
April 2018	Working with Rats in Research Settings
April 2018	Working with Mice in Research Settings
April 2018	Taller: <i>C. elegans</i> , y sus usos en comportamiento y biología celular de la sinapsis
March 2018	CITI Good clinical Practice Course
March 2018	Biosafety Complete Training Series
March 2018	Biomedical Responsible Conduct of Research
Spring 2016	Fundación Dr. García Rinaldi Shadowing Program, Mayagüez Medical Center.
July 2012	Good Manufacturing Documentation Practice. BMS, Humacao Plant
July 2012	Fungal Identification Simplified, WebSeminar Course.
April 2012	Electron Microscopy Workshop, University of Puerto Rico at Humacao.
June 2010	Second Geomicrobiology Short Course. Collaboration between University of Puerto Rico at Mayagüez and University of Connecticut

- February 2009 Second Team Meeting for Geomicrobiology and Metagenomic Studies of Puerto Rican Soils USDA-CSRESS. University of Puerto Rico at Mayagüez.
- August 2008 First Short Course in the Generation and Monitoring of Metagenomic Libraries. University of Madison, WI.
- December 2008 Anaerobic Techniques for Microorganisms Grow Workshop. University of Puerto Rico at Humacao. University of Puerto Rico at Humacao.
- June 2009 High Impact Presentation Workshop. Centro de Competencias de la Comunicación. University of Puerto Rico at Humacao.

Teaching Experience:

- University of Puerto Rico at Rio Piedras, Teaching Assistant. Molecular Biology Laboratory
- University of Puerto Rico at Rio Piedras, Teaching Assistant. Biology Laboratory
- University of Puerto Rico at Mayagüez, Teaching Assistant. Metagenomic Laboratory
- University of Puerto Rico at Mayagüez, Teaching Assistant. Microbiology Laboratory
- University of Puerto Rico at Mayagüez, Teaching Assistant. Genetics Laboratory
- University of Puerto Rico at Mayagüez, Teaching Assistant. Biology Laboratory
- University of Puerto Rico at Mayagüez, Teaching Assistant. Biological Science Laboratory

Honors

- 2019 RISE Program Fellowship (University of P.R, Rio Piedras Campus)
- 2019 UPRAA-Ford Motor Company Fund STEM Award
- 2019 Travel Award Sponsorship, P.R. Science, Technology & Research Trust
- 2018 Robert Laurus Award, AAAS Caribbean Branch Second Place
- 2018 RISE Program Fellowship (University of P.R, Medical Science Campus)
- 2018 Travel Award, Biology Department, University of P.R.
- 2018 Travel Award, Graduate Studies and Research Dean, University of P.R.
- 2018 Yale "Ciencia" Academy Fellowship
- 2008 Recognition of outstanding merit and accomplishment, Who's Who Among Students in American Universities and Colleges
- 2012 Motion of Congratulations, Senate of P.R.

Presentations at Local Meetings

- ◆ Rabelo-Fernandez. R., Santiago-Morales, K., Morales Vale, L., and Rios-Velazquez, C. Unraveling the microbiome of snail *Caracolus marginella* using metagenomics. American Association for the Advancement of Science, AAAS, Caribbean Branch. Centro Criollo de Ciencias y Tecnología. Caguas, P.R. September 2018, Caguas, P.R.

- ◆ Rabelo-Fernández. R., Del Valle. L., Polanco. W and Ríos Velázquez, C. Enriching the resistome: Antimicrobial production by Functional Genomics. Amgen Educational Program Science: Heritage for Future Generation. BDTC, Mayagüez, P.R. September 2014
- ◆ Rabelo-Fernández. R., and Ríos Velázquez, C. Genetic Engineering. BETTeR-IC+ Summer Camp. University of P.R. at Mayagüez. July 2014, Mayagüez, P.R.
- ◆ Rabelo-Fernández. R., and Ríos Velázquez, C. Microbial Biotechnology and Bioprospects. BETTeR-IC+ Summer Camp. University of P.R. at Mayagüez. July 2012-2013, Mayagüez, P.R.
- ◆ Rabelo-Fernández. R., and Flores, C. Culture Media Harmonization and Viability Studies. Bristol Myers Squibb Internship Program. Bristol Myers Squibb at Humacao. July 2012, Humacao, P.R.
- ◆ Rabelo-Fernández. R., Delgado Marquez. L., and Casillas-Martínez, L. Climate Change and Health. Caguas P.R., September 2012, San Juan P.R.
- ◆ Rabelo-Fernández. R., Villafañe. A., Delgado Marquez. L., Nieves, D. and Casillas-Martínez, L. Characterization of a novel *Exiguobacterium sp.* from the Cabo Rojo Salterns. SACNAS 180 Transform your Future. University of P.R. at Mayagüez, March 2012, Mayagüez, P.R.
- ◆ Rabelo-Fernández. R., Villafañe. A., Delgado Marquez. L., Nieves, D. and Casillas-Martínez, L. Characterization of a novel *Exiguobacterium sp.* from the Cabo Rojo Salterns. Puerto Rico 7th McNair Research Symposium. Sheraton Old San Juan, May 2012, San Juan, P.R.
- ◆ Rabelo-Fernández. R., Villafañe. A., Delgado Marquez. L., Nieves, D. and Casillas-Martínez, L. Assays for antibiotic susceptibility in natural isolates cultivated from the microbial mats. Puerto Rico 6th McNair Research Symposium. Sheraton Old San Juan, May 2011, San Juan, P.R.
- ◆ Rabelo-Fernández. R., Villafañe. A., Delgado Marquez. L., Nieves, D. and Casillas-Martínez, L. Assays for antibiotic susceptibility in natural isolates cultivated from the microbial mats. NIH-RISE Annual Biomedical Symposium P.R. El Conquistador, April 2011, Fajardo, P.R.
- ◆ Rabelo-Fernández. R., Marvasi. M., Rodríguez, M.R., and Casillas-Martínez, L. American Lack of *eftA* in *B. subtilis* inhibits calcite precipitation, alters phospholipids membrane composition, sporulation frequency and flagellar formation. Society of Microbiology P.R., Branch 54TH, University of P.R. at Humacao, January 2010, Humacao, P.R.

- ◆ Rabelo-Fernández. R., Casanova. A and Casillas-Martínez, L. Search for antibiotic resistance genes from metagenomic libraries derived from microbial mats at the Cabo Rojo Salterns. Puerto Rico 6th McNair Research Symposium. Sheraton Old San Juan, May 2008, San Juan, P.R.

Presentations at National Meetings

- ◆ Rabelo-Fernández. R., Santiago-Sanchez. G., Garrafals. N., Santana. Y., Lozada. E., Quiñones. B., Reyes. J., Valiyeva. F., and Vivas-Mejía P. Decreased Expression of Enolase-I Promotes Cisplatin Resistance of Ovarian Cancer Cells. American Society for Biochemistry and Molecular Biology, ASBMB. Orlando Convention Center, Abril 2019, Orlando, FL.
- ◆ Rabelo-Fernández. R., Santiago-Sanchez. G., Baez. P. and Vivas-Mejía P. Contribution of the RNA Binding Protein with Multiple Splicing (RBPMS) to the Cisplatin Resistance of Ovarian Cancer Cells. American Association for Cancer Research and Japanese Cancer Association Meeting, AACR-JCA. Westin Maui Resort and Spa, Ka'anapali, Hawaii, February 2019, Maui, HI.
- ◆ Rabelo-Fernández. R., and Ríos-Velázquez, C. Microbiomes: “Knowing our microbes beyond the cultivable”. American Society of Microbiology, ASM. Georgia World of Congress, June 2018, Atlanta, GA.
- ◆ Santiago-Morales, K., Rabelo-Fernández. R., Morales Vale, L., and Ríos-Velázquez, C. Analysis of the tetracycline resistance in *Caracolus marginella* gut metagenomic library. American Society of Microbiology, ASM. Georgia World of Congress, June 2018
- ◆ Rabelo-Fernández. R., Santiago-Morales, K., Morales Vale, L., and Ríos-Velázquez, C. Enriching the resistome using *Caracolus marginella* Microbiome. American Society of Microbiology, ASM . Ernest N. Morial Convention Center, June 2017, New Orleans, LO.
- ◆ Rabelo-Fernández. R., and Santos Flores, C. The genus Paltostoma (Diptera: Blephariceridae) in Caribbean and Description of the larva of a novel specie from Puerto Rico. IX Caribbean Biodiversity Symposium, Universidad Autónoma de Santo Domingo, Dominican Republic February 2017.
- ◆ Ortíz-Loubriel. R, Rabelo-Fernández. R., and Rios-Velázquez, C. Cultivable cellulose-degraders bioprospects from *Caracolus Marginella* gut. American Society of Microbiology, ASM . Ernest N. Morial Convention Center, June 2015, New Orleans, LO.

- ◆ Rabelo-Fernández. R., Ortíz-Loubriel. R., and Ríos-Velázquez, C. Accessing the *Caracolus Marginella* terrestrial snail Microbiome using Metagenomics. American Society of Microbiology, ASM. Ernest N. Morial Convention Center, June 2015, New Orleans, LO.
- ◆ Rabelo-Fernández. R., Villafañe. A., Delgado Marquez. L., Nieves, D. and Casillas-Martínez, L. Characterization of a novel *Exiguobacterium sp.* from the Cabo Rojo Salterns National. Conference on Undergraduate Research (NCUR). Weber State University, April 2012, Ogden, UT.
- ◆ Rabelo-Fernández. R., Villafañe. A., Delgado Marquez. L., Nieves, D. and Casillas-Martínez, L. Characterization of a novel *Exiguobacterium sp.* from the Cabo Rojo Salterns. Annual Biomedical Research Conference for Minority Students (ABRCAMS). Saint Louis Convention Center, November 2011, Saint Louis, MO.
- ◆ Rabelo-Fernández. R., Casanova. A and Casillas-Martinez, L. Assays for antibiotic susceptibility in natural isolates cultivated from the microbial mats. Annual Biomedical Research Conference for Minority Students (ABRCAMS). Charlotte Convention Center, November 2010, Charlotte, NC.

Publications:

- ◆ Rabelo-Fernández. R., Santiago-Morales, K., Morales Vale, L., and Rios-Velazquez, C. (2018). The Metagenome of *Caracolus marginella* gut microbiome using culture independent approaches and Shogun Sequencing. *Data in Brief Journal*. Vol. 16, pp. 501-505 <https://doi.org/10.1016/j.dib.2017.11.043>
<https://www.sciencedirect.com/science/article/pii/S235234091730639X>
- ◆ Gut metagenome from *Caracolus Marginella*. National Center for Biothecnology Information, June 2017
<https://www.ncbi.nlm.nih.gov/biosample/?term=Caracoles%20marginella>
Biosample Num: SAMN07420447
Bioproject Num: PRJNA396071