

**Bianca N. Valdés Fernández**

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**EDUCATION**

- University of Puerto Rico, Rio Piedras Campus, San Juan PR. **2014-present: Ph.D. Candidate Biology.** Area of Specialization: Immunology and Parasitology.
- University of Puerto Rico in Bayamon. 2010-2014. Bachelor in Natural Sciences. Major: Human Biology.

**RESEARCH INTERESTS**

To study immunology aspects like inflammation and cellular phenotypes in both the innate and adaptative immune system in the context of infectious diseases through molecular and biochemical approaches.

**ONGOING FELLOWSHIPS AND RESEARCH SUPPORT**

Fellow of the Minority Biomedical Research Initiative for Scientific Enhancement (RISE) of the University of Puerto Rico, Rio Piedras Campus. NIH 5R25GM061151-17.

**RESEARCH EXPERIENCE**

*Doctoral Research:* University of Puerto Rico, Medical Science Campus. Research Advisor: Dr. Ana Espino 2018-Present

- ***Fasciola hepatica* Glutathione S-transferase as a Therapeutic Alternative to Limit Pathology and Proinflammatory Cytokines During DSS-Induced Ulcerative Colitis: A Role for Alternatively Activated Macrophages.**

*Doctoral Research:* University of Puerto Rico, Rio Piedras Campus. Research Advisor: Dr. José A. Lasalde Dominicci. 2014-2017.

- **Assessment of the Nicotinic Acetylcholine Receptor Detergent Complex Purity, Aggregation and Glycan Composition for Structural Studies.**

*Undergraduate Research:* University of Puerto Rico, Medical Science Campus. Department of Microbiology and Medical Zoology. Research Advisor: Dr. Ana Espino 2013-2014

- **Interaction of *Fasciola hepatica* Fatty Acid Binding Protein with TLR2: A preliminary study to understand the immunomodulation mechanisms that exert *F.hepatica* on the immune system.**

## TEACHING EXPERIENCE

Professor of General Biology Laboratory for Natural Science Students. Department of Biology. University of Puerto Rico, Rio Piedras Campus. August 2014-May 2015

## MAJOR ACADEMIC APPOINTMENTS

- Vocal of the Association of Microbiology of Puerto Rico, Medical Sciences Campus Chapter, San Juan PR. **2018-Present**
- Student Representative of the Biology Department to the Graduate Board of the Natural Sciences Faculty at the University of Puerto Rico, Rio Piedras Campus, San Juan PR. **2017-Present**
- Graduate Student Representative to the Board of Directors of the Molecular Sciences Research Center of the University of Puerto Rico, San Juan PR. **2017-Present**
- Secretary of the Board of Directors of the Molecular Science Research Center of the University of Puerto Rico, San Juan PR. **2017-Present.**
- Student Representative of the University of Puerto Rico, Rio Piedras Campus to the University Board, San Juan PR. **June 2017- November 2017**
- Student Representative at the Security Coordinating Board of the University of Puerto Rico, Rio Piedras Campus, San Juan PR. **2016-2017**
- Graduate Student Representative to the Graduate Studies and Investigation Council of the University of Puerto Rico, Rio Piedras Campus, San Juan PR. **2016-2017**
- Graduate Student Representative to de Biology Department at the University of Puerto Rico Rio Piedras Campus, San Juan PR. **2015-2016**
- Student Representative of the University of Puerto Rico at Bayamon to the University Board, San Juan PR. **2012-2014**
- Secretary of the American Medical Student Association (AMSA) University of Puerto Rico at Bayamon Chapter. **2012-2013**

## MAJOR COMMITTEE ASSIGNMENTS

- University of Puerto Rico, University Board Law and Regulation Committee. **2012-2013**
- University of Puerto Rico at Bayamon Academic Senate's Academic Affairs Committee. **2012-2014**
- University of Puerto Rico at Bayamon Academic Senate's Student Affair Committee. **2012-2014**
- University f Puerto Rico at Bayamon Academic Senate's Course Evaluation Committee. **2013-2014**
- University of Puerto Rico at Bayamon Academic Senate's University Reform Committee. **2013-2014**
- University of Puerto Rico, University Board Faculty Affairs Committee. **2013-2014**
- University of Puerto Rico at Bayamon Academic Senate's Search and Conference of the President of Puerto Rico Committee. **August 2013-November 2013**

## PUBLICATIONS

- Aguayo V, Valdés-Fernández B and Espino AM. **Assessment of *Fasciola hepatica* glutathione S-transferase as an antigen for serodiagnosis of human chronic fascioliasis.** Acta Tropica 186 (2018) 41-49.
- Aguayo, V., Valdés Fernandez, B. N., Rodríguez-Valentín, M., Ruiz-Jiménez, C., Ramos-Benítez, M. J., Méndez, L. B., & Espino, A. M. (2019). ***Fasciola hepatica* GST down regulates NF-κB pathway effectors and inflammatory cytokines while promoting survival in a mouse septic shock model.** Scientific Reports, 9(1), 2275. <https://doi.org/10.1038/s41598-018-37652-x>

## PRESENTATIONS

- **Valdes-Fernandez B.N, Afanador J., Almendro T., Quiñones K., & Rodríguez A. “Mutation in the tumor suppressor protein TP53 that causes the Li-Fraumeni Syndrome”.** November 2012 - University of Puerto Rico at Bayamon Bio Expo
- **Valdes-Fernandez B.N, Marzan N. & Maldonado A. “Transcription factors Barx1, Fgf10 and Bapx1 role in the stomach organogenesis** April 2013 - University of Puerto Rico at Bayamon Devo Expo
- **Valdes-Fernandez B. N & Vázquez S “Efectos patogenicos de *Escherichia coli* O157:H7 en el ser humano”.** May 2014- University of Puerto Rico at Bayamon Bio Expo
- **Valdes-Fernandez B. N., Mercado-Del Valle J., Quesada O. and Lasalde-Dominicci J. A. Assessment of Nicotinic Acetylcholine Receptor Detergent Complex Purity for Structural Studies.** December 2015- 24<sup>th</sup> Puerto Rico Annual Neuroscience Conference, San Juan Puerto Rico
- **Valdes-Fernandez B. N., Rosado-Millan I. D. and Lasalde-Dominicci J. A. Assessment of Nicotinic Acetylcholine Receptor Detergent Complex Purity and Stability for Structural Studies.** February 2016- 60<sup>th</sup> Annual Biophysical Society Meeting, Los Angeles California.
- **Valdes-Fernández B.N., Cruz-Lopez L.M., and Lasalde-Dominicci J.A. Purity Studies of the Nicotinic Acetylcholine Receptor Detergent Complexes using Microfluidic Capillary Gel Electrophoresis.** September 2016- Forward Research & Innovation Summit, San Juan Puerto Rico
- **Valdés-Fernández B.N., Wei A., Lopez-Cruz L.M., Reilly-Andújar F., Cobo-Torres B., González-Martínez O.G., Cordero-Villamil R., and Lasalde-Dominicci J.A. Preparation of Nicotinic Acetylcholine Receptor Detergent Complexes for Structural Studies: Assessment of Purity, Functionality and Aggregation Analysis.** February 2017- 61<sup>th</sup> Annual Biophysical Society Meeting, New Orleans.
- **Valdés-Fernández, B.N, Aguayo V., Jiménez-Ruiz C., Ramos M., and Espino A.M. *Fasciola hepatica* Glutathione S-Transferase (FhGST) conformational studies and its effect on the suppression of toll-like receptors stimulation.** April 2018- Experimental Biology Annual Meeting, San Diego California

- Valdés-Fernández, B.N, Aguayo V., Jiménez-Ruiz C., and Espino A.M. **Significance of Fasciola Hepatica Glutathione S-transferase glycans and conformation in the suppression of toll-like receptors stimulation.** June 2018- 93th Annual American Society of Parasitologists Meeting, Cancun México

### **AWARDS AND HONORS**

- Travel Award to the Second Annual Science Policy Symposium 2018
- Second Place Poster Presentation at the 93th Annual American Society of Parasitologists Meeting in Cancun Mexico 2018.
- RISE Program Fellowship Funding 2016-Present

### **ASSOCIATIONS**

- Member of the Association of Microbiology of Puerto Rico, Medical Sciences Campus Chapter. **2018-Present**
- Member of the Association of Biomedical Graduate Students, Medical Sciences Campus Chapter. **2018-Present**
- Member of the American Association for the Advancement of Science. **2018-Present**
- Member of the American Society of Biochemistry and Molecular Biology. **2018-Present**
- Member of the American Society of Parasitologists. **2018-Present**
- Member of the Biophysical Society. **2014-2016**
- Member of the Society of Neuroscience. **2014-2016**

### **OUTREACH EXPERIENCE AND EXTRACURRICULAR EXPERIENCES**

- Evaluator Judge of posters at the American Society of Biochemistry and Molecular Biology University of Puerto Rico, Rio Piedras Campus Chapter 4<sup>th</sup> Research Meeting February 2018
- Outreach UPR Va Pa' Plaza at Plaza Las Americas. Biology Graduate Program. January 2018
- 24<sup>th</sup> Fair of Graduate Schools at the University of Puerto Rico at Bayamon. November 2016
- Evaluator Judge of posters at the American Society of Biochemistry and Molecular Biology University of Puerto Rico, Rio Piedras Campus Chapter 3<sup>rd</sup> Research Meeting. October 2016
- Evaluator Judge of posters at the BioExpo at the University of Puerto Rico at Bayamon May 2016
- Evaluator Judge of posters at the BioExpo at the University of Puerto Rico at Bayamon May 2015

## **WORKSHOPS AND PROFESSIONAL IMPROVEMENT**

- Second Annual Science Policy Symposium. **November 10th 2018**. Rockefeller University, NY. Science and Education Policy Association (SEPA) and The National Science Policy Network (NSPN)
- Entrepreneurship & Innovation Workshop for Scientists in Puerto Rico. **May 26, 2018** Molecular Science Research Center. ACS Local Section Puerto Rico & ACS Technical Division Business Development & Management (BMGT)
- Nikon NIS Elements Workshop. **September 17, 2018**. Molecular Science Research Center. Neuroimaging and Electrophysiology Facility (NIEF)
- BIO 2017 I-Corps Bio-Entrepreneurship Workshop. **June 19-21 2017**. San Diego, California. National Science Fundation (NSF) & San Diego State University.

## **SKILLS**

- Flow Cytometry
- Molecular Biology: DNA and RNA isolation, nucleic acid electrophoresis, bacteria culture, Real Time PCR
- Protein: recombinant and native protein purification, immunofluorescence, protein gel electrophoresis, western blots, ELISA, affinity chromatography, crystallization, X-ray crystallography.
- Animal models: immunization, dissection, bone marrow extraction, peritoneal lavage.
- Cell culture.
- Computer Skills: Microsoft Office (Word, Excel, Power Point) Statistical Programs (GraphPad)