

Bianca N. Valdés Fernández
Ph.D. Candidate
University of Puerto Rico- Rio Piedras Campus
Department of Biology
Laboratory of Immunology and Molecular Parasitology
Phone [REDACTED]
Email: bianca.valdes@upr.edu

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

- Coordinator – Comité Ciudadano de Salud (CCS) COVID-19- **September 2020-Present**
- Co-Chair of the Puerto Rico Science Policy Action Network. **January 2020-Present**
- Secretary of the Puerto Rico Biophysical Society, University of Puerto Rico, Rio Piedras Campus. **2019-Present**
- Vocal of the Association of Microbiology of Puerto Rico, Medical Sciences Campus Chapter, San Juan PR. **2018-2019**
- 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. **2017-2019**
- Graduate Student Representative to the Board of Directors of the Molecular Sciences Research Center of the University of Puerto Rico, San Juan PR. **2017-May 2019**
- Secretary of the Board of Directors of the Molecular Science Research Center of the University of Puerto Rico, San Juan PR. **2017-May 2019.**
- 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.** Nature Scientific Reports, 9(1), 2275.
- Ruiz-Jimenez C, Celas D, **Valdés-Fernández B**, Ramos W, Cervi L, Espino AM. ***Fasciola hepatica* fatty acid binding protein induces apoptosis and tolerogenic properties in myeloid dendritic cells.** International Journal of Parasitology (Submitted)

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, Egf10 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- 24th 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- 60th 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- 61th 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
- **Valdes-Fernández, B.N** and Espino A.M. **Intracellular Localization of the Fasciola hepatica Glutathione S-Transferase (FhGST).** February 2019- AAAS Annual Meeting, Washington DC.
- **Valdes-Fernández, B.N.,** Carrasquillo K, Roche-Lima A, and Espino A.M. **Fasciola hepatica Glutathione S-Transferase (FhGST) Interaction with the Toll Like Receptor 8.** February 2020- AAAS Annual Meeting, Seattle Washington State.

AWARDS AND HONORS

- Gordon Conference Carl Storm Underrepresented Minority Fellowship (CSURM) 2020
- GRC Immunochemistry and Immunobiology Conference (Postponed due SARS-CoV-2)
- 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 Puerto Rico Biophysical Society, University of Puerto Rico Rio Piedras Campus. **2019-Present**
- Member of the Puerto Rico Science Policy Action Network (PR-SPAN). **2019-Present**
- 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 4th Research Meeting February 2018
- Outreach UPR Va Pa' Plaza at Plaza Las Americas. Biology Graduate Program. January 2018
- 24th 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 3rd 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

- Two-Electrode Voltage Clamp Workshop Seminar. **March 6th and 7th 2020**. Molecular Science Research Center. Neuroimaging and Electrophysiology Facility (NIEF)
- MiniCASE- Catalyzing Advocacy in Science and Engineering Workshop. **February 12th 2020**. AAAS 2020 Annual Meeting, Seattle WA.
- Fluorescent Light Microscopy Workshop Seminar. **January 31, 2020**. Molecular Science Research Center. Neuroimaging and Electrophysiology Facility (NIEF)
- Structural Biology with X-rays Workshop. **January 25th and 26th 2020**. Molecular Science Research Center. BioXFEL-NSF Science and Technology Center
- 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)