

LIZ MARIE ALBERTORIO-SAEZ

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EDUCATION

- MSc.** University of Rochester, Microbiology May 2017
Thesis: Platelets as innate immune cells bridging the adaptive and innate immune systems.
Advisor: Dr. Craig Morrell
- BSc.** University of Puerto Rico Mayaguez, Biology May 2012

SELECTED SCIENTIFIC SKILLS

Animal Care (Mice):	General Laboratory
Handle, weigh and restrain Anesthetize Maintain and evaluate animal records Prepare for sterile surgical procedures Perform microsurgery Collect blood or other samples	Pipette Weigh Sterilize Filtrate Titrate Wash/Clean glassware
Immunology	Bacteriology
ELISA Flow Cytometry (Basic panel design) Cytotoxicity assays Primary and secondary Lymphocyte culture and maintenance. Osteoclastogenesis assay Bone erosion assays Wound healing assays (dermal fibroblasts)	Maintain and purify bacteria and cell culture stocks BSL-2 Cell and Tissue culture maintenance and management. Culture transfers and inoculation Prepare media and pour plates DNA Cloning (plasmid preparation and minipreps) Bacterial Transformations
Molecular and Biochemical	Programming/Databases/Statistics
Electrophoresis: agarose and acrylamide RNA, DNA and protein quantification Use of restriction enzymes PCR and q-PCRs Molecular Cloning Blotting techniques Ex: Western Blot	JMP PRISM8 SQL FlowJo Python R

PUBLICATIONS

Chiu, Y. H., Schwarz, E., Li, D., Xu, Y., Sheu, T. R., Li, J., **Albertorio-Saez, L.** et al. (2016). "Dendritic Cell-Specific Transmembrane Protein (DC-STAMP) Regulates Osteoclast Differentiation via the Ca²⁺/NFATc1 Axis". J Cell Physiol. 2017 Sep;232(9) 2538-2549

PUBLICATIONS

Edholm, E.S., **Albertorio-Sáez, L.M.**, Gill, A.L., Gill, S.R., Grayfer, L., Haynes, N., Myers, J.R., Robert, J. (2013) " Nonclassical MHC class I-dependent invariant T cells are evolutionarily conserved and prominent from early development in amphibians ." Proc. Natl. Acad. Sci. U.S.A 110, 14342-7

Boboila, C., Oksenysh, V., Gostissa, M., Wang, J. H., Zha, S., Zhang, Y., Chai, H., Lee, C-S., Jancovic, M., **Albertorio-Sáez, L-M**, Nussenzweig, M., Mckinnon, P., Alt, F.W., and Schwer, B. (2012). "Robust chromosomal DNA repair via alternative end-joining in the absence of X-ray repair cross- complementing protein 1 (XRCC1)". Proc. Natl. Acad. Sci. U.S.A. 109, 2473–2478

RESEARCH EXPERIENCE

North Carolina State University, Kannapolis N.C. May 2019- November 2019

Research Technician- Plants for Human Health Institute (40hrs/week, Temporary)

- Conducted *in-vitro* experiments, collected, and analyzed data related to the role of Açai fruit extracts, and Brassinosteroids in *in-vitro* immune modulation, cellular toxicity and dermal wound healing.
- Supervised BSL-2 tissue culture equipment and cell lines (murine RAW 264.7 and human HDFa).
- Provided operational support for laboratory activities, supplies and purchasing. Maintained analytical equipment. Analyzed and curated lab-wide experimental data. Drafted all lab protocols into Standard Operating Procedures (SOP) format.

University of Rochester School of Medicine, Rochester N.Y. 2012-2017

Graduate Research Scientist- (40hrs/week, grant funded)

Morrell Laboratory- Aab Cardiovascular Research Institute, 2016-2017

- **Project:** "*Platelets as innate immune cells bridging the adaptive and innate immune systems.*"
- Conducted murine platelets and bone marrow stem cells isolation protocols.
- Provided operational support for laboratory activities maintained analytical equipment and supplies. Provided technical support in analysis, preparation, and storage of the laboratory's research data.

Ritchlin Laboratory-Department of Medicine 2014-2015

- **Project:** "*Regulation of osteoclastogenesis by the ITIM on the Dendritic Cell-Specific Transmembrane Protein (DCSTAMP)*"
- **Paper:** "*Dendritic Cell-Specific Transmembrane Protein (DC-STAMP) Regulates Osteoclast Differentiation via the Ca²⁺/NFATc1 Axis*"
- Conducted and optimized protocols of osteoclast culture and resorption assays in a murine model of psoriatic arthritis.
- Maintained BSL-2 lab and cell cultures (RAW 264.7 & primary cell lines).
- Monitored and maintained laboratory analytical equipment and laboratory supplies.

- University of Rochester School of Medicine**, Rochester N.Y. 2012-2017
PREP Scholar- (40hrs/week, grant funded)
- Robert Laboratory- Department of Microbiology and Immunology 2012- 2013
- **Project:** “*Characterization of non-classical MHC-Class I-interacting T-cells expressing an invariant T-cell receptor in Xenopus laevis*”
 - **Paper:** “*Nonclassical MHC class I-dependent invariant T cells are evolutionarily conserved and prominent from early development in amphibians*”
 - Maintained pre-established Xenopus colonies, assisted with their surgical procedures. Maintained cell cultures including RAW 264.7.
 - Performed data collection, storage, and analysis, including operation, use of and troubleshooting of lab-specific equipment and software programs.
- University of Puerto Rico**, Mayaguez P.R. 2009-2012
Undergraduate Research Scientist- Laboratory of Genomic Diversity (10hrs/week)
- **Project:** “*The Local Genome Diversity Studies: Frequency of endometriosis related mutation in TLR4 gene in the San Germán municipality of Puerto Rico*”
 - Assisted in the island-wide collection of informed consents, volunteer samples, and molecular assays for the project “*Local Genome Diversity Studies in Puerto Rico*” supervised by Dr. Juan Carlos Martínez
 - Monitored and maintained laboratory analytical equipment and laboratory supplies. Trained 5 undergraduate students in all protocols, equipment and lab procedures.
- Johns Hopkins University**, Baltimore M.D. June 2011- August 2011
Undergraduate Scientist- Desiderio Laboratory (40 hours/week, Fellowship)
- **Project:** “*Deleterious Consequences of misregulated V(D)J recombination*”
 - Optimized a polymerase chain reaction-based assay for immunoglobulin kappa gene rearrangement *in vivo* and defined reaction conditions and primers that allow us to detect rearrangements to all four Jk segments in normal mouse spleen.
 - Monitored and maintained laboratory analytical equipment and laboratory supplies.
- Harvard Medical School Boston M.A. June 2010- August 2010
Undergraduate Scientist – Alt Laboratory (40 hours/week, Fellowship)
- **Project:** “*Identification of factors with roles in a novel DNA repair pathway*” supervised by Dr. Frederick Alt.
 - **Paper:** “*Robust chromosomal DNA repair via alternative end-joining in the absence of X-ray repair cross- complementing protein 1 (XRCC1)*”
 - Determined that B cells lacking DNA Ligase 3 and its cofactor XRCC1 appear to undergo class switch recombination normally, suggesting that they are not required for non-homologous end joining repair of double strand breaks.
 - Monitored and maintained laboratory analytical equipment and laboratory supplies.

TEACHING AND COORDINATING EXPERIENCE

U.S. National Whitewater Center, Charlotte N.C. 2019- Present
Environmental Educator- (15 hours/week, seasonal contract)

- Educator for all Ecology and STEM-related classes offered at the Center including team building activities and environmental debates.

Discovery Place Science, Charlotte N.C. 2019-2020
STEM and Coding Educator- (29 hours/week, private grant)

- Managed a \$50,000 grant to provide coding and computational thinking experiences to middle school students.
- Developed a programming curriculum with engaging technology and programming languages such as Python.
- Conducted after-school classes throughout the week, engaging over 25 middle school students.

Anne Springs Close Greenway, Fort Mill S.C. 2019
Environmental Educator- (15 hours/week, seasonal contract)

- Facilitated all curriculum-based programming both on and off the Greenway, including outreach programs, Girl Scout Programs, and recreation activities such as hiking and kayaking.

Discovery Place Science, Charlotte N.C. 2017-2018
Lab Educator- (40 hours/week, private grant)

- Facilitated classes, home schools, and workshops for children grades 3rd to 12 in various physical sciences, utilizing museum displays to augment standard teaching methods and adapting course content and complexity to ages and interests of students.
- Organized, cleaned, and prepped all lab materials, including ordering, fabricating, and inventorying of the classroom and other lab supplies. Maintained proper use and care of chemicals, 3D printers, and other lab equipment.
- Assisted live care department, lab coordinator, and lab manager in providing animal care for in-house animals. .

Rochester Museum and Science Center, Rochester, N.Y. 2016 – 2017
Volunteer Coordinator- (40 hours/week, full-time)

- Responsible for the recruitment, screening, selection, training, development, recognition, and management of over 300+ volunteers.
- Consolidated all volunteer-related tasks, databases and volunteer liaisons into a sustainable and easily transferable framework.
- Designed and programmed a volunteer database (valued at \$10,000) to organize volunteer information and track volunteer hours in- campus and remotely.
- Implemented policies and procedures to accommodate the different types of volunteers serving the institution.

University of Rochester, Rochester, N.Y.

2016

Nehrke Lab Outreach Co-coordinator- (10 hours/week, Grant)

- Designed science lectures and hands-on activities for 3rd graders at YMCA of Greater Rochester.
- Managed budget for the purchase of lecture materials as well as recruited and scheduled volunteers.

National Institutes of Health, Bethesda, M.D.

July 2015- September 2015

Hi-STEP Co-coordinator- (40 hours/week, Internship)

- Assisted director and coordinators in organizing all events and activities related to the High School Scientific Training and Enrichment Program (HiSTEP).
- Assisted program director in tasks related to the management of the program including data management and lecture content materials.

PRESENTATIONS AND INVITED LECTURES

Environmental Educators of N.C. Conference

September 2019

Gastonia, N.C.

Workshop Presenter: *“Colorful Electrophoresis: Connecting molecular biology with the outdoors.”*

New England Science Symposium

March 2013

Harvard Medical School. Boston, MA

Poster presentation: *“Characterization of nonclassical MHC-class I-interacting T-cells expressing an invariant T-cell receptor in *Xenopus laevis*”*

Second Biology Symposium at UPRM

May 2012

University of Puerto Rico Mayagüez. Mayagüez, PR.

Oral presentation: *“The Local Genome Diversity Studies: Frequency of the CCR5 Δ 32 deletion in Puerto Rico”*

New England Science Symposium

April 2012

Harvard Medical School. Boston, MA

Poster presentation: *“The Local Genome Diversity Studies: Frequency of endometriosis related mutation in TLR4 gene in the San Germán municipality of Puerto Rico”*

Research Initiative for Scientific Enhancement (RISE Program)

April 2012

Ponce, PR.

Poster presentation: *“The Local Genome Diversity Studies: Frequency of endometriosis related mutation in TLR4 gene in the San Germán municipality of Puerto Rico”*

Albertorio-September 2020

PRESENTATIONS AND INVITED LECTURES

Annual Biomedical Research Conference for Minority Students November 2011
St. Louis, MO.

Poster presentation: *“The Local Genome Diversity Studies: Frequency of endometriosis related mutation in TLR4 gene in the San Germán municipality of Puerto Rico”*

STEP-UP program Symposium August 2011
National Institutes of Health, Bethesda, MD

Oral and Poster presentation: *“Deleterious Consequences of misregulated V(D)J recombination”*

New England Science Symposium April 2011
Harvard Medical School. Boston, MA.

Poster presentation: *“Identification of factors with roles in a novel DNA repair pathway”*

STEP-UP Program Symposium August 2010
Atlanta, GA.

Poster and oral presentation: *“Identification of factors with roles in a novel DNA repair pathway”*

PROFESSIONAL AFFILIATIONS

American Society for Microbiology (ASM) 2020-Present

Environmental Educators of North Carolina 2019-Present

American Association for the Advancement of Science (AAAS) 2014-Present

PROFESSIONAL AND COMMUNITY SERVICE

Co-Organizer ComSciCon Cornell, Science Communication Conference, 2016

STEM Activities Facilitator, STEM Development Foundation, 2018

Proposed a workshop to provide District III biology teachers low-cost hands-on activities that they can bring to their classrooms. Grant approved by the foundation board for \$500 in collaboration with Kim Massey.

STEM Activities Facilitator, 4-H Science on the Move, 2018

Facilitated Biology hands-on activities to the Youth Science Team.

LANGUAGES

English: Bilingual Proficiency

Spanish: Native Language

FELLOWSHIPS AND AWARDS

STEMed Project Leaders Inclusivity Network (SPLINE) Radford University	2020
National Institute of General Medical Sciences, Post Baccalaureate Program University of Rochester Medical Center PREP program	July 2012- July 2013
Minority Biomedical Research Support, National Institute of General Medical Sciences RISE fellowship. University of Puerto Rico, Mayagüez	2011-2012
Scholarship for Quantitative Summer School in Immunology Boston University.	June 2013
Best Oral Presentation, Genetics. 2nd UPRM Biology Symposium	May 2012
ABRCMS Interdisciplinary Award	November 2011
National Science and Mathematics Access to Retain Talent Grant	2009-2011
Academic Competitiveness Grant	2007-2009