MANUEL J QUIÑONES-PÉREZ

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CAREER OBJECTIVE

Graduate student in the Biomedical Engineering Ph.D. program at Georgia Tech and Emory University with an interest to focus on Immune-Engineering. Experience has shaped me to become a better team player, fast learner, and critical thinker for both research and industry environment.

EDUCATION

University of Puerto Rico Mayagüez GPA: 3.89 May 2020
B.S. in Industrial Biotechnology, with High Honors

Georgia Institute of Technology and Emory University GPA: 3.82 Aug 2020 –Present
Ph.D. Student in Joint Biomedical Engineering Program

RESEARCH EXPERIENCE

Georgia Institute of Technology | Singh Immunotherapy and Cell Engineering Lab Aug 2020 – Present
Graduate Research Assistant / PI: Dr. Ankur Singh – Atlanta, GA
Engineering of an Immune-on-a-Chip Microfluidic System to Model Germinal Center Reactions

- Working on biomaterial characterization and microfluidic device design that will reconstitute B cell germinal center formation and affinity maturation process ex vivo.
- Evaluating the effect of lipids on B cell germinal center formation and plasma cell differentiation.

University of Texas Southwestern Medical Center | Gao Lab Jun 2019 – Aug 2019
AMGEN Scholar / PI: Dr. Jinming Gao– Dallas, TX
Characterization of Peptide Properties for Loading Mechanisms in Polymer Based Nanoparticles

- Participated as a scholar sponsored by the Amgen Foundation.
- Used a combination of computer modeling and experimental approaches to examine how peptide properties contribute to antigen delivery using polymer-based nanovaccines.
- Work was published in Journal of Controlled Release in 2020.

University of Puerto Rico Mayagüez | Micro and Nano Scale Bioengineering Lab Aug 2018 – May 2020
Undergraduate Research Fellow / PI: Dr. Maribella Domenech– Mayagüez, PR
Suitability Characterization of PDMS+PEO-SA for Cell Culture Applications Involving Small Hydrophobic Molecules

- Completed research to determine the effect of PDMS+PEO-SA's adsorption of hydrophobic molecules in cell-based assays.
- Performed mammalian cell culture assays as a biosensor for polymer hydrophobic molecule absorption.
- Work was published in Acta Biomaterialia in 2020.

University of Michigan | IREU in the Structure and Function of Proteins May 2018 – Jul 2018
Undergraduate Research Fellow / PI: Dr. Wei Cheng– Ann Arbor, MI
Encapsulation and Quantification of CpG in Non-Cationic Liposomes with Tailored Epitope Densities

- Evaluated the effect of CpG encapsulation in immune responses using liposomes with tailored epitope densities.
- Designed a method to quantify CpG encapsulation in liposomes using electrophoresis and fluorescence.
- Presented my results at Emerging Researchers National Conference and ABRCMS.

University of Puerto Rico Mayagüez | Tropical Aerobiology Laboratory Feb 2018 – May 2018
Undergraduate Research Student / PI: Dr. Sandra Maldonado – Mayagüez PR
Evaluation of Fungal Diversity in Air Hand Dryers in Puerto Rico

- Studied the fungal diversity obtained from bathroom air hand dryers by characterization of morphological traits of conidium and conidiophores.
- Identified 15 genres of fungi identified in hand dryers across 4 different locations.

University of Puerto Rico Mayagüez Oct 2015 – May 2016

Undergraduate Research Student / PI: Dr. Luis Rivera – Mayagüez, PR

Development of an Analytical Method for Detection of Biomarkers to Determine Severity of Dry Eye Syndrome

- Aided in the elaboration of a proposal for a fluorescence-based method to quantify protein biomarkers found in tears of Dry Eye Disease patients.

PROFESSIONAL EXPERIENCE

Lilly del Caribe Inc. | Technical Services/Manufacturing Sciences Jan 2020 – Jun 2020
COOP Student / Supervisor: Dr. Adolfo Plazaola
Optimization of Chromatography Purification Steps for Lispro Insulin

- Designed and executed lab scale experiments for the optimization of the Ion Exchange Chromatography employed in the purification of Lispro Insulin.
- Aided in the development of a lab scale model for the optimization of protein folding reactions involved in Lispro Insulin.
- Communicated my results in meetings with manufacturing site lead team.

AbbVie Biotechnology Ltd. | Technical Center Jan 2017 – Feb 2018
COOP Student / Supervisor: Mariana Álvarez, MS
Small Volume Parenteral (SVP) Manufacturing Technical Support

- Provided technical support to the Small Volume Parenteral (SVP) Manufacturing process by monitoring and performing statistical analysis on process parameters for thawing, compounding, aseptic fill and visual inspection.
- Performed technical evaluations for process parameter excursions and atypical process behavior.
- Designed bench-scale experiments for optimization of SVP Manufacturing process
- Authored and executed protocols with multifunctional teams for process optimization and new product introduction.

SKILLS AND TECHNIQUES

Laboratory Techniques: PDMS microfluidic devices, Hydrogel Synthesis, Nanoparticle Synthesis, Confocal Microscopy, Flow Cytometry, Fluorescence Microscopy, HPLC, Cell toxicity assays, Protein Purification, Dynamic Light Scattering, Mammalian Cell Culture, ELISA, Bacterial and Fungi Culture, Ion Exchange Chromatography, Size Exclusion Chromatography, Soft Lithography, PDMS Device Fabrication,
Computational Experience: MatLab, Minitab, GraphPad Prism, FlowJo, Pymol, Autodock, Clarity HPLC Management Software, Empower HPLC Analysis

WORKSHOPS

Quantitative Methods in Biology Jan 2019
Massachusetts Institute of Technology

- Learned on the application of MatLab to solve problems in neuro and cognitive sciences.

APO LEADS Aug 2017- Dec 2019
Alpha Phi Omega National Service Fraternity

- Series of workshops focused on leadership development, team development, effective communication and service to community.
- Successfully completed the sections: Launch, Achieve, Discover and Explore.

CONFERENCES AND SYMPOSIUM ATTENDED

Scientific Meetings and Conferences

BMES Cellular and Molecular Bioengineering Conference	*Rio Grande, PR*	Jan 2020
Annual Biomedical Research Conference for Minority Students	*Anaheim, CA*	Oct 2019
Lilly Academy Technical Forum	*San Juan, PR*	Oct 2019
UTSW Summer Research symposium	*Dallas, TX*	Jul 2019
AMGEN Scholar Symposium	*Los Angeles, CA*	Jul 2019
Emerging Researchers National Conference	*Washington DC*	Feb 2019
41st American Chemical Society Puerto Rico Senior Technical Meeting	*Guayanilla, PR*	Nov 2018
Annual Biomedical Research Conference for Minority Students	*Indianapolis, IN*	Oct 2018
IREU Summer Symposium	*Ann Arbor, MI*	Jul 2018

Leadership Conferences

Alpha Phi Omega Puerto Rico Sectional Conference	*Mayaguez, PR*	May 2019
Alpha Phi Omega National Convention	*Austin, TX*	Dec 2018
Alpha Phi Omega Puerto Rico Sectional Conference	*San German, PR*	May 2018
Alpha Phi Omega Puerto Rico Sectional Conference	*Cayey, PR*	May 2017
Alpha Phi Omega National Convention	*Pittsburgh, PA*	Dec 2016
Alpha Phi Omega Puerto Rico Sectional Conference	*Ponce, PR*	May 2016

PUBLICATIONS

- **Quiñones-Pérez M,** Cieza RJ, Ngo BKD, Grunlan MA, Domenech M. *Amphiphilic silicones to reduce the absorption of small hydrophobic molecules.* Acta Biomater. 2021 Feb;121:339-348. doi: 10.1016/j.actbio.2020.11.041. Epub 2020 Nov 30. PMID: 33271355.
- Wilhelm J, **Quiñones-Pérez M**, Wang J, Wang X, Basava VS, Gao J. *Antigen folding improves loading efficiency and antitumor efficacy of PC7A nanoparticle vaccine.* J Control Release. 2021 Jan 10;329:353-360. doi: 10.1016/j.jconrel.2020.11.056. Epub 2020 Dec 7. PMID: 33301836; PMCID: PMC7904583.

ABSTRACTS AND PRESENTATIONS

Poster Presentations

- **Quiñones-Pérez, M.,** Cieza, R., Domenech, M. (2020) *Suitability Characterization of PDMS-PEO-SA to Replace PDMS in Culture Devices for Assays Using Small Hydrophobic Molecules*. Poster presentation at CMBE BMES Conference, Rio Grande, PR
- **Quiñones-Pérez, M**, Cieza, R., Domenech, M. (2019) *Targeting PDMS Hydrophobicity for Study of Small Hydrophobic Molecule-Driven Cell Responses in Vitro*. Poster presented at Lilly Academy Technical Forum, San Juan, PR
- **Quiñones-Pérez, M**, Wilhelm, J., Gao, J. (2019) *Characterization of Peptide Properties for Loading Mechanisms in Polymer Based Nanoparticles.* Poster presented at UTSW Summer Undergraduate Research Fellows Symposium, Dallas, TX
- **Quiñones-Pérez, M.**, Chen, Z., Cheng, W. (2019) *Encapsulation and Quantification of CpG in Non-Cationic Liposomes with Tailored Epitope Densities.* Poster presented at ERN 2019, Washington D.C.
- **Quiñones-Pérez, M.**, Cieza, R., Domenech, M. (2018) *Targeting PDMS Hydrophobicity for Study of Small Hydrophobic Molecule-Driven Cell Responses in Vitro*. Poster presented at 41st ACS Senior Technical Meeting, Guayanilla, PR
- **Quiñones-Pérez, M.**, Chen, Z., Cheng, W. (2018) *Encapsulation and Quantification of CpG in Non-Cationic Liposomes with Tailored Epitope Densities.* Poster presented at ABRCMS 2018, Indianapolis, IN
- **Quiñones-Pérez, M.**, Chen, Z., Cheng, W. (2018) *Encapsulation and Quantification of CpG in Non-*

Cationic Liposomes with Tailored Epitope Densities. Poster presented at IREU in the Structure and Function of Proteins Summer Symposium, Ann Arbor, MI

Oral Presentations

- **Quiñones-Pérez, M.,** Cieza, R., Domenech, M. (2019) *Targeting PDMS Hydrophobicity for Study of Small Hydrophobic Molecule-Driven Cell Responses in Vitro*. Oral presentation at ABRCMS 2019, Anaheim CA.

SCHOLARSHIPS, HONORS AND AWARDS

NIH Cellular and Tissue Engineering Fellowship	June 2021-Present
Goizueta Fellowship	May 2020 - Present
Georgia Tech Presidential Fellowship	May 2020 - Present
Emory Centennial Scholar	May 2020 - Present
MARC U*STAR Fellowship National Institute of Health	2018 - 2020
Boy Scouts of America Council Venturing Leadership Award	Jan 2019
Emerging Researchers National Travel Award	Jan 2019
AbbVie Excellence Awards for "Agile and Accountable" and "All for One AbbVie"	2017 - 2018
Industrial Biotechnology Role Model Award	Sep 2016
UPRM Arts and Sciences Faculty Honor Student	2015 - 2020
UPRM Honor Student Tuition Fee Exemption	2015 - 2020
Brotherhood Recognition Award	Nov 2015
Industrial Biotechnology Role Model Award	Sep 2015

LEADERSHIP AND EXTRACURRICULARS

Georgia Tech Latino Association of Graduate Students (LOGRAS) Aug 2020 – Present

External & Internal Outreach Committee Member, Social and Cultural Co-Chair, External Outreach Chair

- Impacted more than 500 High School and Undergraduate students from Mexico, Puerto Rico and Atlanta with a strong interest in research careers through virtual workshops and panels.
- Organized social events such as hikes and picnics for the enjoyment of members from the association.

Asociación Estudiantil de Biotecnología Industrial (AEBI) Aug 2017 – May 2020

Member, Academic Manager

- Organized several workshops and activities for the academic development of our members including trainings in aseptic techniques and synthetic biology.
- Planned the Biotechnology week at the University of Puerto Rico Mayagüez with activities that included workshops, lectures and outreach to the community resulting in an impact of more than 150 students.
- Provided opportunities for the members to develop their interest in the various fields of Biotechnology through research lab tours and conferences.

Boy Scouts of America Puerto Rico Council Aug 2017 – May 2020

Venturing Officers Association Communications VP, Venturing Officers Association Associate Advisor

- Provided direct mentorship to the Puerto Rico Council Vice President of Communications in the development, promotion and implementation of effective communications methods.
- Organized multiple scouting events including Camporee (2019), Jamboree (2018) and Venturee (2016, 2017) with an estimate attendance of 200-300 scouts per event.

Alpha Phi Omega National Service Fraternity Aug 2015 – May 2020

President, Service Vice-president, Membership Vice-president

- Ensured that the Chapter operated in conformity with the principles, bylaws and policies stablished by the National committee, the University of Puerto Rico and the Upsilon Mu Chapter
- Participated, planned and carried out leadership development activities for the benefit of the Executive Committee and the Chapter as a whole.

- Contributed through multiple leadership roles that lead to awards at the National level including the H. Roe Bartle Award, Chapter of Excellence and Pledge Program of Excellence.

Boy Scouts of America Unit 411 Aug 2014 – May 2020

Assistant Scoutmaster, Associate Advisor

- Developed my leadership, outdoors and civic skills over the 9 years in the movement as a scout
- Earned the Eagle Scout Award in 2013 among many other leadership awards.
- Organized and executed trainings for adult and youth leaders in the organization in areas of leadership, outdoor skills and communications.
- Offered multiple Merit badges in the areas of science, nature, communications and civics.
- Mentored groups of approximate 10 scouts per year in the areas of communication, civic, outdoors and leadership skills to continue advancing in their goals.

EDUCATIONAL OUTREACH AND VOLUNTEERING

Atlanta Science Festival Presenter Mar 2021

- Offered talks to High School students on Immuno-engineering and STEM related careers.

Lab X Change mentor Aug 2020- Present

- Provide online mentorship to approximately 5 high school and undergraduate students who wish to pursue a STEM related career.

Science Fair Judge Aug 2019- Mar 2021

- Participated as judge in Science Fairs from Puerto Rico and Georgia.

Industrial Biotechnology Program Aug 2016 – May 2020

- Participated in recruitment events organized by the Industrial Biotechnology Program.
- Events included hands on workshops, demonstrations and orientations to High School Students.