Curriculum Vitae
Emmanuel León Colón

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EDUCATION

University of Puerto Rico – Ponce, *Ponce, PR* **Graduated: May 2021**
B.S. in Biomedical Sciences

GRADUATE RESEARCH EXPERIENCE

University of Pittsburgh **August 2021-present**
Program in Microbiology and Immunology (PMI)
Thesis advisor: Timothy W. Hand, Ph.D.

UNDERGRADUATE RESEARCH EXPERIENCE

Idhaliz Flores' Laboratory at Ponce Health Sciences University **August 2020-June 2021**
Mentor: Idhaliz Flores, Ph.D. *Undergraduate Researcher*
Analysis of the Immune Microenvironment of Ovarian Endometriosis

- Given the virtual experience due to COVID-19, we are counting cells from immunohistochemistry in endometriosis and making a comparison with ovarian cancer.
- Skills acquired: Critical analysis of the scientific literature and counting cells labeled by immunohistochemistry in endometriosis, drafting paper manuscript.

In vitro effects of an estrogen-substituted ferrocenecarboxylate derivative on human endometrial and endometriotic cell lines

- Performed western blots to assess the differential expression of estrogen receptors ER-a, ER-b, and GPER-1 in endometriotic, ovarian cancer, breast cancer and healthy endometrium cell lines. The ER profile of these cell lines will shed light on how the ferrocene conjugate, 3-Fc-E2, specifically targets endometriotic cell lines to induce cellular death, with potential use in a clinical setting.
- Skills acquired: western blots, write scientific article, literature review

University of Minnesota **June 2020-August 2020**
Mentor: Tanya Freedman, PhD *Undergraduate Researcher*
Assessment and Confirmation of Infiltrating Immune Cells in Cancerous Tumor

- Given the virtual experience due to COVID-19, we carried out a literature search to confirm cellular markers on tumor-infiltrating monocytic myeloid-derived suppressor cells, eosinophils, T cells, and B cells. Identifying the cellular phenotypes within these cancerous tumors will provide insight if the cells are residents within the tumor or infiltrating from circulation by evaluating cellular markers.

- Skills acquired: created a hypothetical research project by writing a specific aims page, thorough literature research, created an informational video on immunotherapies available to treat advanced lung cancer.

University of Puerto Rico at Ponce **January 2020-May 2020**
Mentor: Edu Suarez, PhD *Undergraduate Researcher*
Biomarker Comparison between Asthmatic and Non-Asthmatic Participants

- Perform ELISAs to compare potential asthma biomarkers within asthmatic and non-asthmatic participants' plasma samples to develop a diagnostic tool for asthmatic patients.
- Skills acquired: ELISA, cell culturing smooth airway epithelial cells

Idhaliz Flores' Laboratory at Ponce Health Sciences University **August 2019-January 2020**
Mentor: Idhaliz Flores, Ph.D. *Undergraduate Researcher*
Validation of Putative Endometriosis Antigens in an in-vitro model

- Perform western blot and immunofluorescence assays to determine antigen expression on endometriotic, non-endometriotic, and ovarian cancer cell lines and evaluate their potential for immunotherapy. During my time in rotation, we confirmed the differential expression of 5 out of 9 putative targets.
- Skills acquired: western blotting, immunofluorescence, fluorescence microscope handling, cell culture techniques, protein extraction, and quantification (BCA and Bradford assays), and critical analysis of the scientific literature.

Scott Showalter's Laboratory in Pennsylvania State University **June 2019-July 2019**
Mentor: Scott Showalter, Ph.D. *Undergraduate Researcher*
Characterization of Methyltransferase PRDM9 toward Monomethylated Histone 3 Lysine 4 substrate

- Characterize PRDM9 protein methylation toward monomethyl Histone 3 Lysine 4 to understand its kinetic activity utilizing mass spectrometry. We observed their distinct mass peaks corresponding to the addition of one, two, and three methyl groups to the peptide, suggesting PRDM9 activity on unstudied sites. The findings of this project will provide an understanding of the regulatory mechanisms underlying human reproduction.
- Skills acquired: buffer/solution preparations, enzymatic reaction assays with the required conditions

Edu Suarez' Laboratory at the University of Puerto Rico at Ponce **August 2018- May 2019**
Mentor: Edu Suarez, Ph.D. *Undergraduate Researcher*
Comparison of Protease Activated Receptor Two (PAR2) Activity on Eosinophils Derived from Asthmatic and Non-Asthmatic Puerto Rican Participants

- Perform intracellular calcium assays to assess PAR2 activity in blood-derived eosinophils.
- Contributed to drafting a manuscript for this research project.
- Skills acquired: eosinophil isolation from a human blood sample.

ORGANIZATIONS AND SERVICE

Coalición Estudiantil Pro-Agricultura **November 2018-May 2019**

MedLife UPR Ponce Chapter **August 2017-May 2018**

HONORS & AWARDS

- **University of Puerto Rico in Ponce** **August 2017-present**
  - Honor Roll
- **Research Initiative for Scientific Enhancement Scholar** **August 2018- present**
  - Regular member of the program

SKILLS

Bilingual

- Fluent English Speaker and Proficient Writer; Spanish as the native language

Tutor for the following courses:

- Organic Chemistry
- General Biology
- General Chemistry

CONFERENCES ATTENDED

ABRCMS Online Experience **November 2020**

- **Annual Biomedical Research Conference for Minority Students**
  - Hosted Virtually due to COVID-19

UMN Annual Diversity Conference **October 2020**

- University of Minnesota Annual Diversity Conference
  - Hosted Virtually due to COVID-19

SACNAS **October 2019**

- Society for Advancement of Chicanos/Hispanics and Native Americans in Science
  - Honolulu, Hawaii

4th Puerto Rico Cancer Research Meeting **October 2019**

- Ponce Plaza Hotel & Casino
  - Ponce, Puerto Rico

38th Puerto Rico Interdisciplinary Scientific Meeting/53rd ACS JR Tech Meeting **April 2019**

- University of Puerto Rico at Mayagüez
  - Mayaguez, Puerto Rico

7th Annual Summer Research Internships Symposium **August 2019**

- University of Puerto Rico in Ponce
  - Ponce, Puerto Rico

SROP Symposium **July 2019**

- Summer Research Opportunities Program Symposium at the Pennsylvania State University
  - State College, Pennsylvania

26th Puerto Rico Neuroscience Conference 2018 **December 2018**

- Pontifical Catholic University of Puerto Rico
  - Ponce, Puerto Rico

6th Annual Summer Research Internships Symposium **August 2018**

- University of Puerto Rico in Ponce
    - Ponce, Puerto Rico

ABRCMS 2018 **November 2018**

- Annual Biomedical Research Conference for Minority Students
    - Indianapolis, IN

INTERNSHIPS ACCEPTED – OFFER DECLINED

- University of Michigan Summer Research Opportunities Program (SROP) **June 2020**
- University of Massachusetts Summer Undergraduate Research Program (SURP) **June 2020**

PRESENTATIONS

University of Minnesota Annual Diversity Conference **October 2020**

Summer Research Opportunities Program Symposium at the Pennsylvania State University

- The project presented: Characterization of Methyltransferase PRDM9 toward Monomethylated Histone 3 Lysine 4 substrate

39th Puerto Rico Interdisciplinary Scientific Meeting/54th ACS JR Tech Meeting **April 2020**

The University of Puerto Rico at Rio Piedras, San Juan, Puerto Rico

- Project to be presented: Characterization of Methyltransferase PRDM9 toward Monomethylated Histone 3 Lysine 4 substrate
    - The abstract was accepted but the conference was canceled due to the COVID-19 pandemic.

Undergraduate Research Course (BIOL3108-ADH) **November 2019**

The University of Puerto Rico in Ponce, Ponce, Puerto Rico

- Project presented: Characterization of Methyltransferase PRDM9 toward Monomethylated Histone 3 Lysine 4 substrate

7th Annual Summer Research Internships Symposium **August 2019**

the University of Puerto Rico at Ponce, Ponce, Puerto Rico

- Project presented: Characterization of Methyltransferase PRDM9 toward Monomethylated Histone 3 Lysine 4 substrate

Summer Research Opportunities Program Symposium **July 2019**

Summer Research Opportunities Program Symposium at the Pennsylvania State University

- Project presented: Characterization of Methyltransferase PRDM9 toward Monomethylated Histone 3 Lysine 4 substrate