

Daniel A. Cambron

MARC U*STAR Affiliate & Provost Research Scholar – Florida International University
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GENERAL RESEARCH INTERESTS

Cancer biology - Enzyme inhibition potentiating drug effectiveness & oncolysis
Cardiovascular disease - Effect of mechanical forces on vesicle trafficking

EDUCATION

Bachelor of Science, Biological Sciences

Florida International University (August 2018 - May 2021)

Thesis Title: *The Role of Dynamic Mechanical Environments in Vesicle Trafficking*

Mentor: Dr. Joshua D. Hutcheson

RESEARCH EXPERIENCES

2020 Quantitative Methods Workshop

Massachusetts Institute of Technology (January 2020)

Participant

- A seven-day intensive workshop designed to introduce students to quantitative tools and programming languages used to analyze experimental data in biology and neuroscience.
- Introduces programming languages such as MATLAB
- Introduces experimental approaches and tools such as fMRI, MEG, and Calcium imaging used to generate experimental data
- Covers select topics in statistics, neuroscience, genomics, and cognitive science

Dr. Joshua D. Hutcheson's Cardiovascular Matrix Remodeling Laboratory

Florida International University (August 2019 – Present)

Undergraduate Researcher

- Dr. Hutcheson's lab focuses on the mechanisms through which tissues are built and maintained and the pathological changes that lead to disease, specifically cardiovascular disease
- Current work includes studying the effects of mechanical forces on the cell membrane and their impact on cardiovascular calcification
- Learned how to perform immunofluorescence imaging, western blotting, protein assays, culture smooth muscle cells, and extract extracellular vesicles

Life Sciences Summer Undergraduate Research Program (LSSURP)

University of Minnesota Medical School (June 2019 – August 2019)

Undergraduate Researcher & Observer

- Conducted research for 10 weeks in the University of Minnesota Medical School Department of Medicine under the tutelage of Dr. Blake A. Jacobson and Dr. Robert A. Kratzke
- Dr. Kratzke's lab studies non-small cell lung cancer and mesothelioma; working on various preclinical cancer projects such as testing new drugs on lung cancers and studying the effects of combination oncolytic virus treatments in vivo
- Utilized enzyme inhibitors and chemotherapy drugs in combination treatments for the purpose of sensitizing cancer cells to a topoisomerase II poison
- Observed a physician once a week and took part in weekly group meetings
- Presented poster titled "Tyrosyl-DNA phosphodiesterase 2 inhibition sensitizes chemoresistant mesothelioma cells to a topoisomerase II poison" at the end of the program
- Learned how to perform western blots, protein assays, culture cancer cells, and make lysates

Dr. Mauricio Rodriguez-Lanetty's Integrative Marine Genomics and Symbiosis Laboratory

Florida International University (September 2018 – June 2019)

Undergraduate Researcher

- Dr Lanetty's lab studies the symbiotic relationships between algae and coral using in vivo anemone models and molecular biology
- Previous work involved studying the phototaxis of *Exaiptasia* anemones and the impact of symbiodinium-host interactions to light
- Developed proficiency with DNA extraction, using PCR, gel electrophoresis, culturing symbiodinium, and coral and anemone husbandry

Science Education Alliance - Phage Hunters Advancing Genomics and Evolutionary Sciences Program (SEA-PHAGES)

Florida International University (August 2018 – May 2019)

Undergraduate Researcher

- The SEA-PHAGES program is a two semester long course-based research experience created and funded by the Howard Hughes Medical Institute and the University of Pittsburgh
- The nationwide research project aims to discover and identify marine bacteriophages to add to their database.
- The first semester is spent finding and isolating the bacteriophage from water samples; the second semester is spent annotating the genome of the newly discovered phage for addition to the NCBI database
- Developed proficiency in isolating bacteria, Gram staining, using PCR, gel electrophoresis, bacteriophage isolation, and learned how to use various bioinformatics and 3D modeling programs
- Presented poster and oral presentation titled “Phylogenetic and Structural Comparison of Minor Tail Proteins Among F Cluster Phages” at the Florida Regional SEA PHAGES Symposium; poster was presented at the national SEA PHAGES Symposium at the Howard Hughes Medical Institute

Dr. Miroslav F. Gantar’s Laboratory

Florida International University (August 2018 – December 2018)

Undergraduate Researcher

- Dr. Gantar’s lab focuses on screening cyanobacteria and microalgae for antimicrobial, antiviral, herbicidal, and antioxidant activities
- Previous work focused on controlling cyanobacterial growth using plant extracts
- Gained experience in isolating and identifying algae and cyanobacteria, making plant extracts, collecting field samples, and making media

CONFERENCE ORAL PRESENTATIONS

* indicates presenter

1. **Daniel Cambron***, Blake Jacobson, Zhengqiang Wang, Robert Kratzke. “Tyrosyl-DNA Phosphodiesterase 2 Inhibition Sensitizes Chemoresistant Mesothelioma Cells to a Topoisomerase II Poison”, McNair Scholars National Research Conference, Florida International University, FL (October 2019)
2. **Daniel Cambron***, Blake Jacobson, Zhengqiang Wang, Robert Kratzke. “Tyrosyl-DNA Phosphodiesterase 2 Inhibition Sensitizes Chemoresistant

Mesothelioma Cells to a Topoisomerase II Poison”, MARC U*STAR & QBIC Undergraduate Research Symposium, Florida International University, FL (October 2019)

- **Awarded 3rd place**

3. **Daniel Cambron***, Ana Ruas. “Phylogenetic and Structural Comparison of Minor Tail Proteins Among F Cluster Phages”, 5th Annual Florida Regional SEA PHAGES Symposium, University of South Florida, FL (April 2019)

CONFERENCE POSTER PRESENTATIONS

* indicates presenter

1. **Daniel Cambron***, Mohammad Shaver, Joshua Hutcheson. “The role of dynamic mechanical environments in vesicle trafficking”, Heart Day Symposium, Miami, FL (February 2020)
2. **Daniel Cambron***, Blake Jacobson, Zhengqiang Wang, Robert Kratzke. “Tyrosyl-DNA Phosphodiesterase 2 Inhibition Sensitizes Chemoresistant Mesothelioma Cells to a Topoisomerase II Poison”, Annual Biomedical Research Conference for Minority Students, Anaheim, CA (November 2019)
3. **Daniel Cambron***, Blake Jacobson, Zhengqiang Wang, Robert Kratzke. “Tyrosyl-DNA Phosphodiesterase 2 Inhibition Sensitizes Chemoresistant Mesothelioma Cells to a Topoisomerase II Poison”, McNair National Research Conference, Florida International University, FL (October 2019)
4. **Daniel Cambron***, Blake Jacobson, Zhengqiang Wang, Robert Kratzke. “Tyrosyl-DNA Phosphodiesterase 2 Inhibition Sensitizes Chemoresistant Mesothelioma Cells to a Topoisomerase II Poison”, Summer Undergraduate Research Symposium, University of Minnesota, MN (August 2019)
5. **Daniel Cambron**, Ana Ruas, Karina Gonzalez*. “Phylogenetic and Structural Comparison of Minor Tail Proteins Among F Cluster Phages”, 11th Annual SEA Symposium, Howard Hughes Medical Institute, VA (June 2019)
6. **Daniel Cambron***, Ana Ruas. “Phylogenetic and Structural Comparison of Minor Tail Proteins Among F Cluster Phages”, 5th Annual Florida Regional SEA PHAGES Symposium, University of South Florida, FL (April 2019)

MEDICAL EXPERIENCES

Dr. Robert Kratzke, Thoracic Oncologist

Observer (June 2019 - August 2019)

- Observed physician during patient visits and documentation, and attended department meetings at the University of Minnesota’s Masonic Cancer Center

COMMUNITY & ACADEMIC INVOLVEMENT

British Ecological Society Podcast

Speaker (December 2019)

- Created a podcast published in the British Ecological Society's Journal of Animal Ecology
- The purpose was to discuss a scientific paper in a manner that can be understood by an audience of any education level and promote the communication of science to the public
- The podcast can be found here:
<https://soundcloud.com/besjournals/audio-abstracts-episode1?in=besjournals/sets/audio-abstracts>

Warriors Blind Soccer

Volunteer (October 2019)

- The Warriors Sports Club is an organization dedicated to looking past disabilities and focusing on the enjoyment of sports. "The enjoyment of the game comes not from what we see, but what we feel."
- National Blind Sports Day is October 5th and soccer clinics were held at Broward College, the event was hosted by Lighthouse of Broward and the United States Association of Blind Athletes
- Assisted players with soccer drills and guiding them during games

STEM Saturday

Volunteer (September 2018 - Present)

- STEM Saturday is a monthly event where children aged 5-15, from local schools, participate in group activities relating to scientific topics such as learning physics with model rockets or dissecting kidneys
- Helped lead and supervise group activities with the children

The Sheridan Story

Volunteer (July 2019)

- Food packing event for students who are struggling with hunger so they can eat on the weekends when they are not in school and during the summer
- Total of 3,000 meals were packed during event

Panthers on the Bay

Volunteer (April 2019)

- Participated in an all day clean up of Biscayne Bay on the FIU Biscayne Bay campus
- Collected trash and removed invasive plant species from the mangroves

Relay for Life

Volunteer (January 2019 - March 2019)

- Served on the FIU M.E.D.S. Relay for Life committee and assisted with planning fundraising events for the event.

EXTRACURRICULARS & LEADERSHIP ROLES

EXTRACURRICULARS

FIU S.C.U.B.A. Club

Risk Management Officer & Founder (April 2019 - April 2020)

- Organize and conduct reef clean ups
- Organize certification classes, dive trips, and meetings
- Network with others passionate about diving and the underwater world

FIU Conserving Our Reefs at Artificial Levels Club

Vice President & Founder (March 2019 - December 2019)

- Organize and conduct beach clean ups and reef clean ups
- Promote environmental awareness and education
- Set up and maintain coral propagation tanks

FIU Medically Engaged Diverse Students Club

Member (August 2018 – Present)

- Participate in fundraisers
- Volunteer in STEM Saturday events
- Planned and prepared for events while on the Relay for Life committee
- Herbert Wertheim College of Medicine Q&A Panel
- Pre-health advising workshops

LEADERSHIP ROLES

FIU S.C.U.B.A. Club

Risk Management Officer & Founder (April 2019 - April 2020)

- Founded an intramural sports club for students interested in diving and dive related activities

- Serve as the primary care provider for any injuries
- Responsible for planning, leading, and supervising all dives and dive activities

FIU Conserving Our Reefs at Artificial Levels Club

Vice President (May 2019 - December 2019)

- Assist in organizing events and planning future directions for the club
- Assume the role of president when they are unavailable

Treasurer & Founder (March 2019 - April 2019)

- Founded an environmental conservation club focused on promoting sustainability and environmental restoration
- In charge of the budgeting and accounting for the club
- Responsible for submitting purchase request forms and annual budgets

FIU Medically Engaged Diverse Students Club

Chair of Fundraising & Public Relations (August 2018 – April 2019)

- Improved communication skills by recruiting new members during tabling events
- Fundraised doing bake sales and networking with local businesses

HONORS & AWARDS

Maximizing Access to Research Careers Undergraduate Student Training in Academic Research (MARC U*STAR) Affiliate & Provost Research Scholar

Florida International University (2019 - Present):

- A two year biomedical research fellowship conducting a thesis while receiving a monthly \$1,000 stipend
- Provides opportunities to present research in symposiums, attend RCR sessions, participate in career development workshops, and conduct research 20 hours per week

Quantifying Biology in the Classroom (QBIC) Scholar

Florida International University (2018 - Present):

- QBIC is an intensive four-year biology program at FIU which involves a rigorous curriculum, helps nurture students' interest in research and medicine, and allows its scholars to become more demanding in the world of research through journal clubs
- It provides a \$1,000 semesterly stipend and opportunities to present research at conferences

Presidential Premier Scholar Award

Florida International University (2018 - Present):

- A merit scholarship covering 100% of tuition, fees, and books

Bright Futures Florida Academic Scholar Award

Florida Department of Education (2018 - Present):

- A merit scholarship covering 100% of tuition

Social Behavioral Sciences and Human Services (SBSHS) Pursuit of Excellence Award in Psychology

Broward College (2017 - 2018):

- A professor nominated award given to students showing academic excellence in the SBSHS field

CERTIFICATIONS

- PADI Divemaster, Member No. 435542, (06/10/2019 - Present)
- PADI Rescue Diver, Certification No. 19030J0292, (03/10/2019 - Present)
- TDI/SDI Advanced Adventure Diver, Certification No. 943569, (02/24/2019 - Present)
- TDI/SDI Computer Nitrox Diver, Certification No. 848096, (01/03/2018 - Present)
- TDI/SDI Open Water Scuba Diver, Certification No. 709691, (05/01/2016 - Present)
- American Red Cross Water Safety Instructor, Certificate ID 16HTN7, (08/08/2017 - Present)

WORK EXPERIENCE

Happy Swimmers

Contracted Pool Party Lifeguard (February 2017 - April 2019)

- Treated first aid situations
- Interacted with clients
- Utilized Microsoft Word and Excel for filing and payments

City of Hollywood

Senior Pool Lifeguard (June 2017 - February 2019)

- Served as both a lifeguard and swimming instructor teaching those aged 6 months - 60 years old
- Created lesson plans for swim classes
- Held water safety education classes for various elementary schools
- Scheduled and collected payments for swim classes and admissions fees

David Posnack Jewish Community Center

Lifeguard (May 2016 - June 2017)

- Maintained safety and surveillance of the pool area
- Performed life-saving rescue maneuvers
- Interacted with members and answered aquatics questions

STUDENTS MENTORED

Emilia Stoain, BA, St. Olaf College undergraduate in Kratzke Lab 2019

Rohin Gurumurthy, High school summer student in Kratzke Lab 2019

Anya Patel, High school summer student in Kratzke Lab 2019

Jans Dorta, BS, Florida International University undergraduate in Lanetty Lab 2018

Genesis Vera, BS, Florida International University undergraduate in Lanetty Lab 2018