HILLARIE **ARELLANO**

Indianapolis, IN · (270) 723-0242
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Highly motivated and detail-oriented undergraduate researcher with 2.5 years of diverse lab experience spanning genetics, molecular biology, and preclinical and clinical research. Currently exploring the neural mechanisms of pain and inflammation, with a long-term focus on substance use disorders (SUDs) and pain management. As an honors student at Indiana University, I have honed advanced research skills and a passion for scientific inquiry. Eager to contribute to innovative research and collaborate with leading experts to advance understanding of neuroscience and its clinical applications.

EDUCATION

AUGUST 2018

ASSOCIATE IN SCIENCE, ELIZABETHTOWN COMMUNITY AND TECHNICAL COLLEGE

- General Education
- Cumulative GPA 3.737

IN PROGRESS – EXPECTED GRADUATION: FALL 2025

NEUROSCIENCE BS, INDIANAPOLIS UNIVERSITY - INDIANAPOLIS

- Honors Neuroscience major with a Psychology minor
- Cumulative GPA 3.930

RESEARCH EXPERIENCE:

JULY 2024 - PRESENT

RESEARCH ASSISTANT, DR. FLETCHER A WHITE LAB, INDIANA UNIVERSITY SCHOOL OF MEDICINE: DEPARTMENT OF ANESTHESIA

Lab Focus:

Investigating molecular and cellular mechanisms of inflammatory and chronic pain states, utilizing multidisciplinary techniques to develop novel therapeutics targeting inflammatory mediators and pain pathways.

Responsibilities:

- Perform mouse dissections, tissue collections, and immunofluorescent imaging to support molecular and cellular investigations, and assist with in vivo and ex vivo IVIS imaging.
- Measure pain behaviors using established methodologies, including Grimace and Von Frey tests.
- Conducted human behavioral testing as part of an ankle fracture study, collecting and managing data in REDCap system.
- Assist with ordering lab supplies to ensure seamless research operations.
- Prepare reagents and solutions for experiments, ensuring accuracy and consistency.

AUGUST 2022 – AUGUST 2024

RESEARCH ASSISTANT, DR. NATHAN VANDUSEN LAB INDIANA UNIVERSITY SCHOOL OF MEDICINE: DEPARTMENT OF PEDIATRICS

Lab Focus:

Investigating cardiac development and disease utilizing genome editing and genetic engineering techniques with a focus on transcriptional control of cardiomyocyte maturation to develop safer and more effective gene therapy strategies for cardiac regeneration and disease treatment.

Responsibilities:

- Performed molecular biology techniques, including PCR, restriction enzyme digestions, ligations, transformations, electroporation, and DNA purification.
- Cloned numerous plasmids and prepared large plasmid pools to support high-throughput functional genomics projects.
- Prepared over 30 samples for multiplexed next-generation RNA sequencing, ensuring accuracy and quality.
- Maintained, transfected, and imaged mammalian cell cultures for experimental applications.
- Recorded experimental procedures and results using LabArchives, ensuring thorough documentation and data reproducibility.
- Managed occasional inventory, cleaning, and preparation of reagents to support lab operations.

PRESENTATIONS

POSTER PRESENTATIONS

ELECTROACUPUNCTURE ATTENUATES INFLAMMATORY PAIN IN A VEGF-A MODEL OF INTERSTITIAL CYSTITIS, AUTHORS: **HILLARIE ARELLANO,** MICHAEL FLETCHER, ASHLYN COCHRAN, ANNA MALYKHINA, TYLER NGUYEN, AND FLETCHER WHITE

- Gill Symposium, Bloomington, IN | September 2024
- Neuroscience Institute Symposium, Indianapolis, IN | November 2024

THE ROLE OF NLRP3/CASPASE-1-RELATED INFLAMMATION IN INTERSTITIAL CYSTITIS/BLADDER PAIN SYNDROME (IC/BPS), AUTHORS: **HILLARIE ARELLANO,** MICHAEL FLETCHER, ASHLYN COCHRAN, KYLE MCCLURE, ALEXANDER J. LI, ANNA MALYKHINA, FLETCHER WHITE, TYLER NGUYEN

- Stark Summer Science Symposium, Indianapolis, IN | July 2025
- IU Undergraduate Research Conference (IUURC), Kokomo, IN | November 2025

RELEVANT COURSEWORK

PREVIOUS COURSES

- Physics
- Statistics
- Organic Chemistry
- Scientific Writing
- Calculus for Life Sciences
- Data Analysis w/Spreadsheets

CURRENT ENROLLMENT (FALL 2025)

- BIOL-K322: Genetics & Molecular Biology
- PSY-B 358: Intro to I/O Psychology
- PSY-B 365: Health Psychology
- SPEA-V 221: Nonprofit & Voluntary Sector
- NSCI-N 493: Independent Lab Research Capstone
- HON-H 496: Honors Senior ePortfolio

HONORS/ACCOLADES

DEANS LIST FALL 2022 (INDIANAPOLIS UNIVERSITY – INDIANAPOLIS)
SCIENCE SCHOLAR 2023 – 2024 (INDIANAPOLIS UNIVERSITY – INDIANAPOLIS)
HONORS COLLEGE MEMBER 2023 – PRESENT (INDIANA UNIVERSITY – INDIANAPOLIS)

SKILLS

- **Behavioral Testing:** Grimace, Von Frey, Quantitative Sensory Testing
- **Imaging Techniques:** IHC, IF, IVIS
- **Molecular Biology Techniques:** PCR, Plasmid Cloning, DNA/RNA Purification, Electroporation
- **Organizational Skills**
- **Cell Culture:** Maintenance, transfection, imaging of HeLa & 293T Cells
- **Data Management:** IU REDCap, LabArchives
- **Analytical Tools:** FIJI/ImageJ, Benchling, CellProfiler
- **Outstanding Communication**
- **Detail-Oriented**

ADDITIONAL WORK EXPERIENCE

JUNE 2021 – AUGUST 2022

SALES ASSOCIATE/LEAD ASSISTANT MANAGER, SPEEDWAY, LLC

Assisted the General Manager with various tasks including training and motivating staff, assisting with scheduling, entering invoices, managing inventory, handling customer complaints, and interpreting various reports.

JUNE 2016 – SEPTEMBER 2018

ADMINISTRATIVE ASSISTANT, READY TO WORK OFFICE AT ECTC

Maintained scheduling, greeted visitors or callers and their inquiries or directed them to the appropriate persons according to their needs. Helped organize events such as classes, presentations, etc. for participants in program. Created flyers and documents, assisted with filing, and data entry.