

# Allison LaFuze

Human Biology Bachelor's of Science at University of California San Diego (UCSD)

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## LAB EXPERIENCE

### **Volunteer Research Assistant (J. Hasty) - Biocircuits institute and Center for Chronobiology**

2021 - Present

Design and perform experiments to develop a bacterial biosensor for cancer detection using recombinant DNA techniques and CRISPR technology. Skills in primer design, DNA recombination, bacterial culture growth and maintenance, DNA sequencing and data analysis.

### **Volunteer Research Assistant (D. Broide) - UC San Diego School of Medicine**

2021 - Present

Independent handling and husbandry of mouse colonies including expertise in breeding, weaning, and genotyping mice. Performed lung and organ removal dissections, bronchial isolation to grow smooth muscle colonies for experimentation and administered pulmonary function tests (PFTs). Advanced skills in qPCR, PCR, gel electrophoresis, data analysis and database maintenance.

### **Lab Assistant (J. Hasty) - Biocircuits institute and Center for Chronobiology**

2020 - Present

Facilitate and maintain the lab environment through preparation of lab solutions and media, organizing chemical stocks and lab supplies and sterilization.

### **Recombinant DNA Techniques Lab, UC San Diego**

2022 - Present

Developed and administered the experimental design of the DNA recombination of *ADE2* in *Saccharomyces cerevisiae* using CRISPR-Cas9 technology. Independently designed gRNA and HDR templates throughout the experiment and implemented the designs through the selective growth of *Saccharomyces cerevisiae* and *E. coli*. Additional skills in DNA sequencing and data analysis and interpretation.

### **Neurobiology Lab, UC San Diego**

April 2022 - June 2022

Coordinated a group approach to design and perform an experiment to test the effects of memory retention after Isoproterenol treatment on *Rutabaga* deficient *drosophila*. Organized the experimental data collection and data presentation of my cohort's design. Additional skills in intracellular and extracellular recording of a ganglion, EEG, and EMG.

### **General Chemistry Lab, UC San Diego**

September 2019 - December 2019

Skills in Titration, Spectroscopy, Analytical Chemistry, and basic lab techniques and procedures.

## SKILLS

Design and execution of scientific experimentation, data collection, and presentation. Advanced skills in PCR, qPCR, and gel electrophoresis. Expertise in breeding, weaning, and genotyping mice. Skills in mouse dissection and organ removal/isolation. Proficient in DNA recombination, CRISPR techniques and cell colony work.

Proficient in Microsoft Office

Proficient in HTML, CSS, and JavaScript

## AWARDS

**UCSD Provost Honors 2020**  
Academic excellence award for achieving a GPA of 3.5 or above during Winter 2020

**UCSD Provost Honors 2022**  
Academic excellence award for achieving a GPA of 3.5 or above during Spring 2022

**Golden State Seal of Merit Scholar 2019**  
Special recognition of unyielding dedication to academic achievement in six subject areas.

**Magna Cum Laude 2019**  
Graduating with a GPA above a 4.0.

## **General Biology Lab, UC San Diego**

September 2019 – December 2019

Skills in DNA Extraction, PCR, Gel Electrophoresis, Micropipetting, and basic lab techniques and procedures.

## **RESEARCH**

### **Independent Research (D. Broide) – UC San Diego School of Medicine**

Fall 2022 – Present

Independently studied the experimental question of whether LIGHT (TNFSF14) will increase *GDSMA* gene expression in normal human bronchial epithelial cells (HBEpic). The experiment was performed in vitro using qPCR techniques and human bronchial epithelial cell growth, collection, and stimulation. Skills in experimental planning, data collection, and presentation.

## **PUBLICATIONS**

Das S, Miller M, Weng N, LaFuze A, Pham AK, Doherty TA, and Broide DH. GSDMB, an epithelial cell-associated asthma gene is highly expressed in CD4 T cells and is associated with increased airway hyperresponsiveness. *Manuscript in preparation*

## **EDUCATION**

### **University of California, San Diego (UCSD), La Jolla, CA — Human Biology BS**

September 2019 – Present

### **Ramona High School, Ramona, CA — General Education**

August 2015–June 2019