

**Medical Student Enrichment Program**

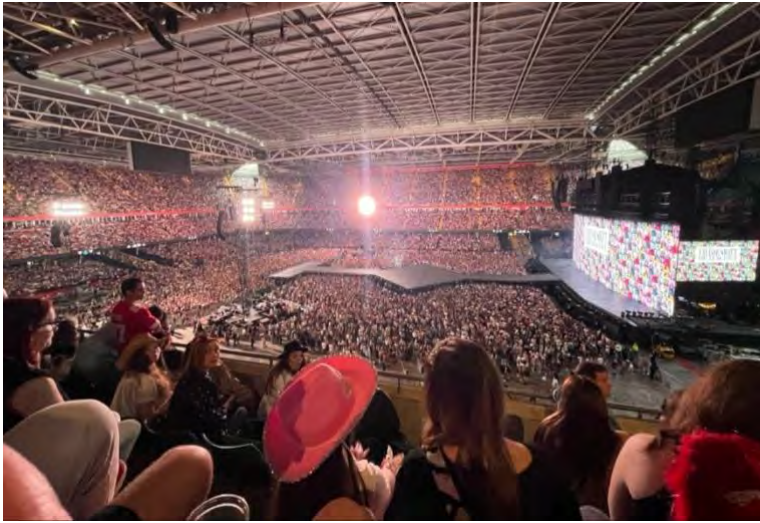
University of Alabama at Birmingham Heersink School of Medicine

**Clinical Elective:** Wales – Cardiff University**Date of Training:** June 3, 2024 – July 26, 2024**Student:** Alliyah Estrella, MS1**Date of Reflection:** August 23, 2024

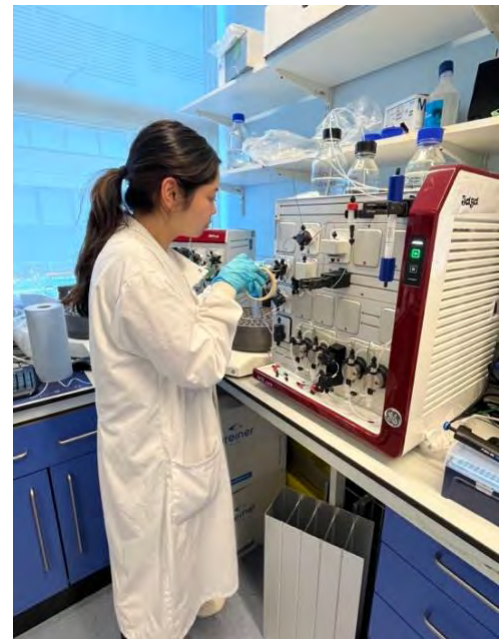
Traveling has been a passion of mine from a young age. At age 24, I have explored 20 different countries, and I'm always eager to discover new places. Despite my extensive travels, I have never experienced living abroad for an entire summer. The Medical Student Enrichment Program has offered me the chance to step out of my comfort zone, allowing me to learn how to be truly independent and discover more about who I am.

Cardiff, the capital and largest city of Wales, UK, has a population approximately 165,000 larger than that of Birmingham, AL. The city is not only rich in culture and history but is also known for its friendly and welcoming residents. Additionally, the city's public transportation made getting around incredibly easy. Living in the heart of the City Center, right across from Cardiff Castle and Bute Park made my stay very enjoyable. The City Center had a diverse selection of restaurants, offering nearly every type of cuisine, from Indian to Italian and more. Naturally, I had my fair share of classic British dishes, like fish and chips with curry sauce and jacket potatoes. I also frequented boba and ice cream shops. The Cardiff Bay, with a beautiful coastal view, was only about 15 minutes away. The city was incredibly lively and hosted sporting events and concerts during the summer. I even got to see Taylor Swift's The Eras Tour at Cardiff's Principality Stadium!





I had the honor of working in Dr. Bruce MacLachlan's lab in the Division of Immunity and Infectious Diseases of Cardiff University School of Medicine. I worked closely with Dr. MacLachlan, Oliver Scourfield (PhD student), and Keelan Jones (research assistant). During the first 3 weeks, I focused on learning various lab techniques, and with my research team's diligence and patience in training me, I was able to conduct experiments independently within a month of starting in the lab. The overall goal of my project was to understand how next-generation cancer-immunotherapies, specifically HLA-independent T cell (HIT) receptors, target tumors to refine and improve their rational design. We produced HIT receptors by transforming pre-formed plasmids into *E. coli*. I spent most of my time running experiments aimed at optimizing protein production and purification. During this process, I gained hands-on experience with Fast Protein Liquid Chromatography (FPLC) to purify the proteins and SDS-PAGE to assess purification – techniques I had studied in my biochemistry classes but was now applying for the first time in practice. By the end of the summer, we were working on crystallizing the proteins that we had successfully produced. Additionally, I attended weekly journal clubs and lectures given by scientists from different universities.



Taking a break from the lab, my team and I went out for coffee every Monday and Friday morning to discuss our progress with our projects, share personal stories, and talk about soccer (“football,” as they say), politics, music (mainly Taylor Swift), and more. We often discussed the differences and similarities of life in the UK vs the US. My mentor, Dr. MacLachlan, actually lived in Tuscaloosa, AL for a year, as his father used to work in the steel industry! I quickly acclimated to the work culture and felt welcomed by the lab.

While I worked on the weekdays, I spent the weekends travelling to different cities. My favorite destination was the French Riviera. I went to Nice, Villefranche-sur-Mer, Monaco, and Eze over 4 days. I explored the stunning coastline and enjoyed fresh seafood. As a solo traveler, I loved meeting new people from all over the world and trying new food, such as escargot (snails!). My close second favorite place was Edinburgh, Scotland. Its charming atmosphere and medieval architecture immediately captured my heart. There were people in kilts playing bagpipes in almost every corner. I walked through Victoria Street, which was the inspiration for Diagon Alley from Harry Potter, and took a hike up Arthur’s Seat to see a spectacular view of the city.

London was a must-see destination, as it was only a 2-hour train ride from Cardiff. I explored Camden Market, which was buzzing with unique shops and live music, and enjoyed the famous chocolate-covered strawberries at Borough Market. My trip included catching a performance of *Matilda* in the West End and taking a scenic walk along the River Thames to Tower Bridge. Other weekend excursions included Bath, Leamington Spa (where I attended a McFly concert), and Dublin.





Living across the Atlantic, far from my friends, family, and pets, was challenging at times. However, I constantly reminded myself of the privilege of experiencing this once-in-a-lifetime opportunity. Cardiff, the city and the University, had people that made my time so memorable. By stepping out of my comfort zone, I made life-long connections, immersed myself in new cultures, and expanded my scientific knowledge. The most valuable lesson I learned, which I will always carry with me, is to be comfortable with being uncomfortable.

*Alliyah Estrella*