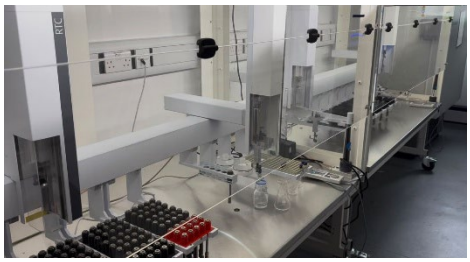
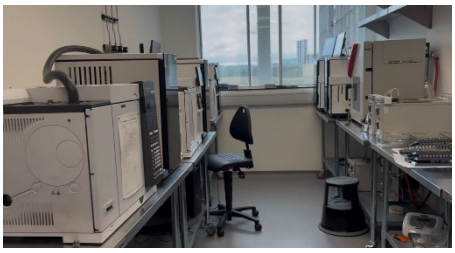
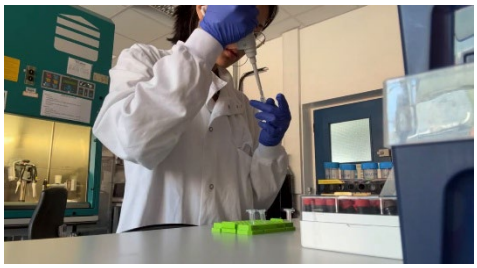
During the summer, I spent 7 insightful weeks in the Hanna Group at Imperial College London, where I gained hands-on experience in volatilomics and mass spectrometry. My project focused on developing a methodological framework for profiling volatile organic compounds (VOCs) from human plasma-derived extracellular vesicles (EVs) using gas chromatography-mass spectrometry (GC-MS). I was also introduced to selected ion flow tube mass spectrometry (SIFT-MS), broadening my understanding of the different analytical approaches available for studying volatile compounds.





A particularly valuable aspect of the placement was becoming more independent as a researcher. Alongside carrying out experimental work, I gained experience in untargeted analysis of GC-MS data using an established in-house pipeline and spectral libraries to assist with compound identification. I also developed my skills in R for data processing, statistical analysis and visualisation. This allowed me to gain a better appreciation of the complete research process, from experimental design and sample analysis through to interpreting complex datasets.



Before this summer experience, I viewed research as a relatively linear process: following a protocol, performing an experiment and analysing the resulting data. My experience in the Hanna Group showed me that research is much more dynamic. This was especially apparent because my project involved developing a methodological framework rather than simply following an established protocol, which required me to think creatively, explore different approaches and make decisions as the project progressed. Unexpected challenges such as instrument problems or delays in reagents, required me to adapt my plans and think creatively about alternative approaches. As a result, I became more flexible, organised and confident in approaching problems independently. I also developed my scientific communication skills through laboratory presentations and regular group meetings. This encouraged me to consider research beyond my immediate scope of my own project.



Being part of a large and multidisciplinary research group consisting of clinicians, analytical scientists, postdoctoral researchers, PhD students and Master's students gave me the opportunity to speak with researchers at different stages of their careers. Hearing different perspectives and receiving career advice was an invaluable experience.

Overall, my time at the Hanna Group strengthened both my technical and transferable skills and gave me a much more realistic understanding of scientific research. Most importantly, the experience increased my confidence as an undergraduate researcher and strengthened my interest in pursuing research in the future.