East Bio REP Report

By Fergus Paterson

My EASTBIO REP project was to attempt to identify and isolate a multi-partite virus in two species of Drosophila (fruit fly) found in the UK. A multi-partite virus is a virus that is broken up into multiple smaller segments that must all be present at once to cause infection in a host. The virus we were looking for was a recently identified multi-partite virus called Vesanto Virus. There were two species of Drosophila that we used to try and identify the virus, these were Drosophila Melanogaster and Drosophila Subobscura.

My main goals for the project were to become more confident in the lab and build upon the skills I gained during my first two years of university. I also wanted to explore different areas of science that I had not previously encountered in my studies, while making a small but meaningful contribution to the research my lab was doing during my time there.

I spent the first week of the project learning how to identify and store Drosophila that I caught in the wild using banana bait. I was also tasked with learning how to use the programs Fast PCR and Bioedit so that I could design primers for each segment of the virus which we would later use to perform PCRs for the Drosophila we caught. The next few weeks were spent learning how to perform DNA extractions on the flies and the running gel electrophoresis on the DNA to prove that the extraction was successful. Once we had enough DNA samples, I had the opportunity to learn the full process of performing a PCR and design one myself that would work with the primers I designed during the first week. Throughout the project I also had the opportunity to through various articles to learn more about the other multi-partite virus’ that had been discovered in recent history.

The part of the project that I found the most beneficial was the chance to experience how a lab operates in a real work environment. Throughout my time at university, I had not had the chance to prepare my own reagents or operate complex technology without having a safety net to prevent my experiments from going wrong in any meaningful way. This placement gave me the chance to be responsible for the success of my experiments in the lab and the success of the project. I also acquired experience using a variety of technologies including older and newer models of PCR machines and a qubit fluorometer.

I believe that by the end of the project I successfully achieved all the goals I set myself. When I started work in the lab, I was extremely nervous which led me to make lots of avoidable mistakes. However, with the help and support from my supervisor and the lab technicians I became much more proficient in the lab which was reflected in the speed at which I was carrying out my experiment. Having this lab experience has increased my confidence which will be of great benefit going forward. I can cope with a much higher workload than I ever experienced before the placement while maintaining the same standard of quality. While we did not find Vesanto virus in any of the flies that I caught I still believe that the aim of the project was achieved as the negative results of the PCR provided valuable evidence that Vesanto virus is less prevalent in Edinburgh when compared to the average percentage of flies infected in the rest of Europe.

To conclude, my EASTBIO REP project was an invaluable experience that allowed me to work as part of a fantastic and welcoming team of professionals who allowed me to get some hands-on lab experience.