Molecular Genetics: Molecular Cloning Lab

Dr Jon Cherry, December 2021

Cloning a piece of recombinant DNA is considered by some as a “dark art”, but it is possibly the most valuable process known to any scientist in a molecular biology lab. It is often the starting point for research and development in many disciplines, and over the years it has played a major role in the advancement of Molecular Genetics.

In the second year of the Medical Biology degree programme, our Molecular Genetics students get the chance to follow the process of cloning from beginning to end. By engaging in a set of 6 lab practical sessions, our students get hands-on experience of molecular cloning techniques such as DNA extraction, PCR, restriction digestion, and bacterial transformations to name but a few. Each student has the opportunity to work on an unknown gene of interest, and in the final session we analyse sequencing data that allows the students to find out what their own gene of interest was.

This series of labs really seemed to capture the students’ interest in molecular biology and went a long way to building their confidence in wet-lab skills. By the last session, the students were dying to see what gene they each had been working on, and successful PCR and sequencing results brought on a real sense of achievement and signified a job well done.