Imperial College
London

UROP: Undergraduate Research Opportunities Programme

A Personal Perspective by Ella Stubley

Ella had just completed the first year of an undergraduate degree in Biomedical Sciences, and embarked on an UROP research experience in the summer of 2014 under the supervision of Dr Pradeep Luther (National Heart and Lung Institute).

Placement Title: Electron microscopy of muscle M-band

During my first year of studying Biomedical Sciences I had greatly enjoyed learning about the human body and the impact of research on modern medicine. I was very interested in a career in research but wanted to try it out first to be sure that this is what I wanted to do as well as gaining more experience in a lab.

First of all I searched the internet for summer placements and discovered that most were only available to second year students or graduates. After no success with looking online, during a practical the lecturer advertised an available place for the summer in his lab working as a UROP student. Naturally I jumped at the opportunity. I was very interested in muscle and the location and timing of the placement was perfect. To secure the placement I was required to send in a CV, a letter explaining why I wanted the placement and attend an interview.

The project was very interesting to me because being interested in sport I was looking forward to learning more about the structure and function of muscle. I had enjoyed our lectures on muscle filaments and contraction that we had had throughout the year and was excited to get started.

The first week involved a lot of reading papers and learning about the more recent discoveries in muscle research. My project was involving the M-band therefore I particularly focused on the M-band, myomesin and the general principles of cryosectioning and electron microscopy. During the first week there were a few new people in the lab and we were all learning how to use the equipment so we read papers while we were waiting for our time on the machines.

We learnt most of the skills for the project in the first week. I quickly realised that research requires a lot of accuracy, precision and patience. There were many steps to ensuring that you had a good sample that would be clear under the electron microscope and a small mistake at one stage could cause nothing to be on the grid. After a few weeks I began to gather some good grids that I could examine under the microscope and started to spend most of my time either cryosectioning to produce more samples to examine or looking at the grids on the microscope and analysing them.

The project has taught me a great deal about life in a lab. I have learnt how to use many machines such as the carbon coater and electron microscope. I have learnt how to create accurate solutions, how to dissect a fish, how to create a film and many more useful skills. Not only have I learnt skills specific to the lab but I have learnt how to work with others and time management skills as not everyone can use the equipment when they want to. Creating summaries of papers and producing PowerPoints for journal club has taught how to analyse papers written by other people. Every Monday morning everyone from the lab would come together and discuss what they have done in the last week. We would then be able to ask each other questions on the projects. Doing this has improved my presentation skills and has given me an idea of some other possible areas of research that are available. I am still very interested in research as a career plan after this placement and feel that the placement has given me the skills necessary to pursue this aspiration. I have really enjoyed the last few weeks and would recommend a UROP placement to anyone interested in research.