

UROP Student Perspective

Undergraduate Student, Dept of Life Sciences

undertaken at the end of Year 2 of a three-year BSc

I had come to hear about the UROP Programme through peers and departmental faculty during my 1st and 2nd Year. I have had an interest in pursuing a research-based career in science from when I was young, so when I found out UROPs were a chance to gain insight into what real-world scientific research is like outside of the teaching lab over the summer, I was motivated to apply.

The idea of searching and studying a biological system to explore the intricacies of nature and life is exciting and mysterious and is what drew me to the field of life sciences for undergraduate studies.

Furthermore, an opportunity like this would be valuable in making more informed career choices, as well as providing supplementary experience for my personal and professional skills development. I had been keen to build on my confidence in performing lab projects and gain experience in more independent, results-oriented work, which would be useful in later projects such as during my upcoming 3rd Year.

To look for prospective supervisors, I used the departmental websites to browse the research areas and PIs in my fields of interest. With a shortlist of emails (and a prepared CV), I expressed my interest in undertaking a UROP project in their field of work and how it appealed to me and my future goals in research and academia. Professor Angelika Gründling at the Centre for Molecular Bacteriology and Infection (CMBI) was one of those who replied that was available to host me over the summer and arranged to meet with her to discuss my background experience, the expected duration, and the work that her lab group performs. After considering the proposed project and those of other supervisors, I decided to join her group to investigate LTA biosynthesis in *Bacillus subtilis*.

In preparation for the position, I was provided with some background reading to familiarise myself with *B. subtilis* in general, as well as specific studies related to the project area. Some general health and safety documentation was also provided to browse, to aid in my first day induction and training.

Initially, I was supervised and trained in the general workings of the lab and protocols that I would be using more frequently. I was then given some tasks to plan and complete on my own over a couple of weeks, and this made me understand how important preparation, planning and time management is in research projects.

It was also engaging to see how unexpected problems that arose were analysed and troubleshooted to find an effective solution. My project had a few unexpected results which required some discussion and re-structuring of the overall objectives, but this reflects the reality of scientific research. I must thank my supervisors for quickly being able to develop alternatives to allow the project to continue.

The lab members were very supportive of their peers and always willing to help me in the lab when I had questions, which was a welcoming environment to work in as an undergraduate.

Conversing with current PhD and postdoc members made me more aware of their perspectives and expectations when applying for postgraduate positions that I hoped to pursue myself, and I highly appreciate the suggestions and advice they offered.

During lab meetings and journal clubs, it was an opportunity to be exposed to different fields of study and practice scientific communication and presentations, especially when I had to summarise my overall results to the group at the end of my position, as only my supervisors knew my project area very well. It was a new experience to feel responsible for a research project but provided useful insight into what it's like to work in academia.

I feel I have gained more skill and awareness when it comes to time management and flexibility, experimental techniques, optimisation and forethought, and the utility of selectively searching the literature for specific information that can be useful in practice: whether it's methodologies to attempt for something you want to analyse or theoretical background to interpret results, there are some things you need to learn on the job.

In addition, I have a newfound appreciation for molecular cloning: what appears straightforward in theory from lectures and papers can be more challenging and time-consuming in practice!

Getting exposure to a variety of different projects from other lab members was fascinating and made me more aware of the diversity and scope of microbiological studies in general. From elucidating the structure of protein complexes to measuring changes in metabolic profiles, there often seem to be unique techniques that measure parameters you didn't know could be analysed. It has further piqued my interest in microbiology, infection and immunology as a field for future study and research careers.

Overall, this UROP has left me more experienced and aware of what it's like to work in a microbiology lab, and the range of topics that can be studied using a variety of techniques.

I would like to thank my supervisors and all other members of the lab for making my time at the CMBI an enjoyable and valuable learning experience, and the Imperial College UROP Bursary for supporting me over the summer.

Moreover, I feel more inspired and confident to pursue a career in research and have started planning towards postgraduate studies, with the hope of becoming a researcher in academia or industry.

Despite all the preparation and planning that goes into lab work, the excitement and curiosity of scientific discovery made this a rewarding summer project.