The Biochemical Society Summer Vacation Studentships offer stipends of £200 per week for 6–8 weeks, and up to £1,600 in total, to support an undergraduate student to carry out a summer lab placement. This scheme not only benefits the student as they get valuable research experience, but the supervisor also gains an extra pair of hands in the lab. Here, a selection of students share their experiences of summer 2017.

**Afra Aabdien supervised by Claire Thornton (King’s College London)**

I thoroughly enjoyed my six-week studentship and learned a multitude of laboratory techniques that have aided me in my experimental design methods, as well as my ability to successfully execute them and make sense of the results which I obtain. My most fond memory was having the opportunity to work with cell cultures and administering peptide drugs to them to test the effect of oxygen glucose deprivation on mitochondrial function. I got the opportunity to visualize treated C17.2 mouse cells on coverslips with confocal microscopy, enabling me to examine how mitochondrial morphology is affected during oxygen glucose deprivation, and whether they have undergone any fission. Two important protein components of mitochondrial fission, Fis1 and Drp1, were fluorescently tagged with secondary antibodies to observe their localisation in the cells.

**Dimitra Papatziamou supervised by Nick Robinson (Lancaster University)**

This internship went above and beyond my expectations; not only has it taught me practical skills and biochemical techniques, but most importantly it cultivated my critical thinking and my confidence as a future researcher. It also helped me reach the decision to pursue a research career in bioscience, as I’ve realised my passion for this field. During this placement I also had the opportunity to engage with other summer interns at Lancaster who also shared the same passion for research and with whom I also attended enjoyable social events. I was also fortunate enough to participate in my first international conference when my supervisor was a guest speaker at the ‘18th Frankfurt Meeting on Genome Function and Gene Regulation in Archaea’. Thanks to an additional travel scholarship from Fylde College, Lancaster University, I was able to attend this exciting meeting where I engaged with both PhD candidates and esteemed professors. This visit enabled me to expand my knowledge of the project beyond the practical work and put my new skills in the context of the latest scientific findings that were presented at the meeting. Overall, this was one of the most rewarding experiences of my life and I’d like to thank my supervisor Dr Nick Robinson for this amazing opportunity. I would recommend it to every student as a highly interactive and essential experience for any aspiring scientist.
Yasmin Rashid supervised by Ewan Main (Queen Mary, University of London)

This placement was an opportunity for me to gain an insight into a real research laboratory, beyond an undergraduate lab. In doing so, I was able to advance the skills that I had already gained from my previous lab experience, along with learning more sophisticated techniques such as large-scale centrifugation, Ni\textsuperscript{2+} affinity chromatography in protein purification, Size-Exclusion Chromatography and SDS-PAGE, among many others. In particular, I thoroughly enjoyed the process of growing the bacteria and expressing proteins from. Though I was initially unsuccessful in extracting and purifying one of the essential proteins, the translocator protein PopB, I was able to finally do so towards the end of my placement. As such, this was one of the highlights of my entire experience. This studentship was critical in affirming my passion for science and has definitely motivated me to further my studies. Although challenging at times, I found the experience highly rewarding and so would recommend this to any committed individual who has a thirst for knowledge and an avid interest in the research.

Abbie Guild supervised by Laura Spagnolo (University of Glasgow)

My favourite day of the project was in the final week when I was able to look at a protein that I expressed and purified using an electron microscope. My project was looking at Staufen protein which binds to the cytoskeleton through its Tubulin Binding Domain to transport mRNAs around the cell. As part of the experiment I made a complex of Staufen with microtubules to try and produce an image of the complex. Using the electron microscope, I could clearly see protein around the correct size bound to the microtubules which was so exciting. Not only did I get the opportunity to use a biophysical technique that I had learnt about but I was able to use it to look at a protein that I produced which was surreal. As someone who has been interested in science all my life to get the opportunity to use an electron microscope was a dream come true; it was such an exciting and interesting experience!

Joel Reader supervised by Leah Fitzsimmons (University of Birmingham)

Moving from the second to the third year of my genetics degree, I was becoming increasingly aware of the need to decide on what to do next. Thankfully I was able to spend 8 weeks in a research laboratory at the University of Birmingham Institute for Cancer and Genomics. I had previously had the chance to meet my supervisor, Dr Leah Fitzsimmons, and to try out a few relevant practical skills through short visits to the lab in previous years. The financial support from the studentship allowed me to gain a proper insight into academic life. My project aimed to improve our understanding of how the Epstein-Barr virus alters the survival of cancer cells. The range of techniques covered as part of this project was fascinating, especially seeing the ways that they could be combined. Seeing the lives of laboratory staff in person has played an important part in informing my plans after university and has changed them in ways I did not expect. Working on such a project can be challenging, but to any students considering summer studentships, I cannot recommend the experience highly enough.
Before applying for my summer studentship, I was interested in applying for postgraduate research programmes with the overall goal of becoming a research scientist. However, I was really daunted by the prospect of my final year, in particular my lab-based honours project.

I gained experience in very important biochemistry and molecular biology techniques and had the opportunity to be involved in original research with a supervisor and topic of my choice. I had the added benefit of moving to another university for my studentship, which gave me a feel of a different environment and a chance to meet different lecturers and learn about projects from other PhD students I would not otherwise have known about. I also got to attend university research days which was a great added bonus. Being trained in experimental techniques that I had never done, but had read about in my second year, was very exciting, and getting my first set of results was a great moment! I now have a realistic idea of what being a postgraduate student will be like, and have a good idea of which field of research I would like to go into. For anyone considering applying for Biochemistry/Molecular Biology PhDs or master’s programs in their final year of university, a Biochemical Society summer vacation studentship is ideal.

During the project, I learned about a range of practical techniques, and about myself. The protein expression, purification and interaction studies is just one part of the practical field open to my ‘dual’ degree, and whilst I enjoyed some of it, I quickly learnt that it may not be compatible with the time-management skills I currently have, which I will hopefully hone in on in the Masters year. Additionally, the experience has provided insight into the lifestyle (and also decisions) you need to take up if you want to carry on to do, and succeed in, a PhD. Research is hard work, the hours can be stretched out and you need to keep up the enthusiasm if you’re going to survive. I am looking, and still going to look, at PhDs being offered for students graduating in 2018, but I’m more aware about the decision process you go through to choose the right one for yourself. I’m convinced that I’d enjoy a more computational (bio)chemistry PhD (which may or may not involve peptides/proteins) that may relate to drugs so it is those PhDs I am looking out for in Sheffield and beyond.

Applications for the 2018 studentships are now open and can be accessed via the Biochemical Society website. The deadline for applications is 23 February 2018.

You can read more examples of student experiences at bit.ly/SVS-2017.