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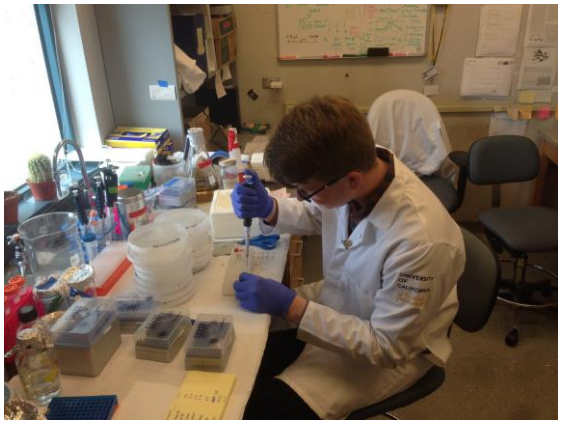
In July 2015 I had the exciting opportunity to spend two weeks in the Fischer Laboratory in the Plant and Microbial Biology Department of the University of California, Berkeley. I worked under the supervision of Dr. Jennifer Frost, a postdoctoral research associate, who has worked for Professor Robert Fischer for the last four years.

In plants, imprinting (expression of certain genes depending on their parent-of-origin) is mostly confined to the endosperm of the developing seed. DNA demethylation at specific locations is an important factor in the control of this process. As such, DNA demethylation is essential during plant development. DNA glycosylases are involved in base excision repair, where damaged bases in DNA are removed and replaced. A subset of glycosylase proteins act in this pathway to remove 5'-methylcytosine, and replace it with unmodified cytosine, hence demethylating the DNA.

The Fischer laboratory identified a DNA glycosylase called DEMETER, which acts to demethylate DNA in plant tissues. During my time in California I was involved in a research project 'investigating how the DEMETER DNA glycosylase finds its targeting sites'.

Genes necessary for female gametophyte development and function have been identified. Little is known about the molecular and genetic processes taking place in the female gametophyte, which influence the development of the embryo and endosperm. Experiments in the Fischer Laboratory involve inducing mutations in *Arabidopsis* to investigate target recognition of DEMETER to genomic DNA.

I was able to participate in many experiments, which allowed me to further improve many laboratory skills learned during my studies at The University of Dundee. This included PCR, agarose gel electrophoresis and restriction digestion to name a few. I was also able to learn new techniques, such as seed viability counting, design of both restriction digest and Gibson® reaction primers for bacterial cloning, and selection-mediated growth of transgenic plants. I am sure that this experience will come in useful during my university project and further studies.



My placement allowed me to gain first hand experience in leading-edge biological research. I was able to meet eminent scientists and attend laboratory meetings where complex biological processes involved in current research were explained. I was shown how bioinformatics plays a crucial role in interpreting experimental results, from absolutely vast amounts of data! Graphics allows these data to be presented in such a way that they are understandable, where informed discussion enables presenters to uncover ideas that they possibly may not have thought of themselves.

My RSB travel grant was crucial in allowing me to travel to Berkeley, to gain further experience in the academic research world. This is a trip I am thrilled to have done. During my trip to California I was also able to swim in the San Francisco Bay with the Dolphin Club, and walk the Golden Gate Bridge, experiences which will give me life long memories.