

## **Amy Danson - Cold Spring Harbor Laboratory, Summer 2013**

In the summer of 2013, I spent the 10 weeks at Cold Spring Harbor Laboratory (CSHL) on Long Island, New York (USA), taking part in their Undergraduate Research Program (URP). CSHL is one of the leading institutions for research in molecular biology, plant biology, neuroscience and cancer in the world. I was assigned a place in the lab of Dr. David Tuveson, whose work focuses on pancreatic cancer, specifically Pancreatic Ductal Adenocarcinoma (PDAC). This is a particularly lethal form of cancer and this is due to the insidious presentation of the disease, its aggressive metastasis, resistance to therapies and the inability of conventional imaging techniques to detect lesions until the advanced stages. There is, therefore, a dire need for better serological biomarkers for the early stages of the disease and this was the basis of my research over the summer

I began my project by optimising the growth conditions for a new 3-dimensional model system for PDAC, called pancreatic ductal organoids. I learned the valuable skills involved in cell culture, which was particularly challenging given the fragility and lack of knowledge regarding this new system. I then infected the organoids with an enzyme construct which would allow the investigation of the effect of the currently used serological biomarker, CA19-9, on organoid growth and potentially give insights into how the biomarker could be optimised in order to be more specific and sensitive. This would allow the biomarker to be improved so that it could be used in screens for pancreatic cancer, much like screens for breast or prostate cancer are performed today. A large part of my project was creating growth curves for both 2D and 3D cell cultures. Graphing and statistically analysing my data was made much easier by the use of GraphPad Prism6. This was widely used in the lab and I was highly recommended to purchase my own copy. I presented my results in numerous lab meetings throughout my stay in the lab and gave a preliminary and final presentation to my fellow 'URPs', as well as writing a final report. This was an extremely valuable experience and not only provided me with skills that I can use throughout my scientific career but also exposed me to the culture of a new country. I made a lot of new friends during my stay there and I am now considering doing further study in the US.