



PROJECT: Sensitising Liver Cancer Cells to Apoptosis through Targeted Inhibition of Fatty Acid Activation

'Winning the Falk Award is a great testament to the work that I have done and to the work that I continue to do. It has given me confidence by recognising an idea that I had and has inspired me to intercalate a PhD into my studies.'

'Additionally, it serves as a platform upon which I can pursue an academic route in medicine by giving me credibility in the field of research.'

Haarith Ndiaye has just completed a BSc in Clinical Sciences with University College London Institute for Liver and Digestive Health. In September, he takes up his 4th year medical studies at UCL University.

'Since studying cancer in my second year of medicine, I have been captivated by the intricate genetic and biochemical mechanisms by which malignancies subvert normal cellular and molecular biology. Thus, when the prospect of a research project on the topic of liver cancer arose I was keen to pursue it. Liver cancer is of particular interest to me as it is a rapidly rising cause of cancer-related mortality and a better understanding of the disease, especially at cellular and molecular levels, is required in order to develop more effective therapeutic agents.

'Two enzymes, ACSL3 and ACSL4, have been recently implicated in the progression and metastasis of cancer. However, their location in the cell remains undefined. Furthermore, one of these enzymes, ACSL4, has emerged as a critical mediator of a new form of cell death called ferroptosis. Linking these two themes together, this project focuses on understanding and targeting fatty acid activation in liver cancer cells as a novel strategy to treat liver cancer.

'Further, understanding the regulatory mechanisms of these enzymes is of importance as dysregulation of long chain fatty acids has been associated with metabolic diseases such as NAFLD, a cause of HCC.

'It is hoped that this research will provide proof of concept for a targeted, evidence-based approach for the selective induction of death in liver cancer cells. As these metabolic pathways preside in many other cancers, it is anticipated that these findings may very well be extended to encompass these too.'

Mr Ndiaye's Supervisor Dr Mark Waugh comments:

'I cannot speak highly enough of Haarith our star project student of 2017! Haarith joined our group with very little lab experience at the beginning of this year to work on a challenging and relatively understudied area of lipid metabolism with therapeutic potential in cancer. The study involved techniques such as subcellular fractionation, western blotting and confocal microscopy. He succeeded in mastering all of them within a few weeks.

'Furthermore, his experimental results are of such high quality that we are planning to publish them soon. Haarith's personal qualities: his work ethic, attention to detail and team spirit all help him to stand out and I'm hopeful of even greater achievements in the future.'