



**Project: Regulation and the Functional Role of Tetraspanin CD151 in the Development of Chronic Liver Disease and Hepatocellular Carcinoma**

*'Winning the Dr Falk Core Student Bursary award is a huge honour. I have found this year's research extremely rewarding and I have enjoyed huge support from my supervisors. They supported my submission for the award and their confidence in my work as well as the winning of the award have led me to pursue further avenues to continuing my research now that my intercalation year has concluded.'*

*'This award has provided recognition of my time in research away from the standard medical curriculum and has also encouraged me to pursue an academic career path in the future.'*

*James Wadkin is a fourth year medical student currently undertaking an intercalated BSc in Clinical Sciences at the Centre for Liver Research, University of Birmingham.*

'Liver disease is the only major cause of death still increasing year on year in the United Kingdom, with twice as many people dying from liver disease now than did twenty years ago. Despite the growing global burden, treatment strategies rely upon removal of the underlying causative agent or transplantation for end-stage disease. Patients with cirrhosis, the end-stage of all chronic liver diseases, are also at a higher risk of developing a primary liver cancer.'

'The increased mortality associated with liver disease in the UK in the absence of effective treatment options, as well as the vast array of functions of the organ, initially attracted me to explore research projects associated with hepatology. My project has allowed me to acquire the skills to be able to perform a wide range of laboratory-based techniques whilst immersing myself in the world of liver and gastrointestinal research. My project also involved the study of cancerous tissue and, as cancer is a disease that affects almost everyone in their lifetime either directly or indirectly, this is an area of human disease that has fascinated me from my early days of medical school.'

'The aims of my project were to initially characterise the amount of a protein called CD151 in healthy control livers, chronic liver disease samples and liver cancer, before studying how this protein may drive liver disease through the recruitment of white blood cells into the organ; a process that is central to the establishment and progression of liver injury.'

'The amount of CD151 in diseased livers and tumour tissue was increased compared to that in subjects with normal, healthy livers. CD151 was found at key sites of immune cell recruitment in the liver and we showed that the protein was responsible for the migration of white blood cells into the liver. Crucially we demonstrated that this process could be inhibited by the addition of an antibody that blocks the function of CD151, raising the possibility that this protein may be a valuable target in the therapeutic treatment of inflammatory disease and cancer.'

***Mr Wadkin's Supervisors Dr Shishir Shetty and Dr Chris J Weston comment:***

'Since joining our team, James has driven this project forward by producing high quality preliminary data during the relatively short time he has spent in our laboratory. He is a highly motivated student a fast learner and has shown technical skill in picking up a range of scientific techniques including immunohistochemistry/fluorescence and molecular biology. In addition he has already mastered functional flow adhesion assays with T cell lines, a technically difficult assay, the use of which is a prerequisite for him to be able to test his current hypothesis.'