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## Dr Falk/Guts UK Awards 2022

### MEDICAL STUDENT PRIZE WINNER: Mr Oluwatobi Adegboye

#### PROJECT: Does Disruption of the Circadian Clock System Advance Liver Fibrosis?



*Mr Adegboye is undertaking this research project whilst intercalating for his BSc in Anatomical Sciences at the School of Biological Sciences at the University of Manchester. In September he will return to his fourth year studies at the University of Manchester School of Medicine.*

#### Mr Adegboye explains:

'I have developed a keen interest in liver disease because it affects so many people across so many aetiologies. Further, liver disease is going to be one of the major health challenges of the future. Organ fibrosis occurs across all liver disease and so if we can find a method of treating fibrosis it would be of enormous benefit.

'Circadian Clock System (CCS) is a novel area of research for hepatic myofibroblasts in liver fibrosis which is now attracting some interest. Previous studies have shown that up to 10% of the transcriptome is under the control of the CCS, that it maintains energy metabolism both systemically and within the liver and that disruption to the CCS can driver metabolic disease including NFLD. However, a strong association between CCS disruption and liver fibrosis has yet to be made.

'This project aims to investigate whether CCS contributes to the advancement of progressive fibrosis in the liver. CLOCK is a protein coding gene which help to regulate CCS. This project studies injured CLOCK -deficient mice compared to control mice and then uses specific antibodies to identify key fibrotic markers to measure the extent of liver fibrosis.

'My role was to work on the processing and assessment of tissues from both cohorts of mice and to compare the effect that CCS disruptions may have on CLOCK mice compared to the control group. The results have been collated but are not yet announced.

'If our hypothesis is correct, it would suggest that CCS disruption advances liver fibrosis. This is clinically relevant as advanced fibroids is cirrhosis - a condition which is associated with most of the morbidity and mortality related to CLD. This may pave the way for the development of therapies to target the liver's circadian rhythms may be a way to halt or reduce fibrotic progress.'

#### Mr Adegboye's Project Supervisor Professor Karen Piper Hanley comments :

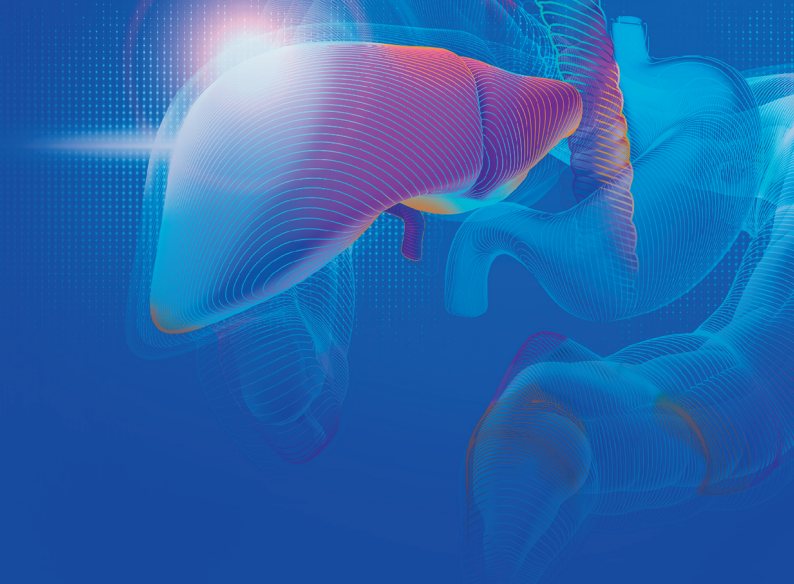
'Oluwatobi joined our lab as a medical student intercalating for a BSc. He was very interested in our lab's work on understanding the process underlying liver scarring (or fibrosis). We had an incomplete project to investigate how circadian biology can promote liver disease and particularly fibrosis and Oluwatobi was very enthusiastic about this. 'Oluwatobi has been a great student to have in the lab. His enthusiasm has been fantastic, and our collective lab have been delighted with both his intellectual and technical in-put into the project. His contributions will most certainly be recognised as we look to publish these findings.'

#### Mr Adegboye states:

'I am so pleased to have been awarded this prize. It provides validation of the work I have been doing and is a reward for all the hard work that has gone into this project, not just for me but for all the team. I am really interested in pursuing a career in clinical research and this is a very competitive are of medicine so this award will be really useful for my CV and to open some doors as I build my career.'



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