4-year PhD Studentship Opportunity.

"Macrophage phenotypes in atherosclerosis during ageing and their modulation by statins."

Supervisors: Heather Wilson, Endre Kiss-Toth (Cardiovascular Science, University of Sheffield); Siew Cheng Wong (A*Star Singapore Immunology Network (SigN)).

A fantastic opportunity for a PhD student to work in both an Inflammation / Atherosclerosis group in Sheffield and an Immunology group in Singapore. We have already had one successful student, who has worked between these collaborative groups, and will complete a PhD in 2015 with several resulting publications.

The project: macrophages within the artery wall differentiate into foam cells in the presence of high lipid. These macrophages can exist as different phenotypes dependent on intercellular signalling. We have identified new markers and lipid handling profiles for these macrophage phenotypes; these will have a direct impact on plaque formation and stability within an artery and in turn cardiovascular disease burden. In this project you will use these markers to identify which type of macrophage predominates in human cardiovascular disease using patient bio-bank samples. You will identify differences in macrophage types according to age and their response to statin treatment with respect to lipid accumulation, allowing us to understand the biology underlying increased cardiovascular disease risk, and how we may develop improved treatments for the biggest global cause of death.

Skills acquired: exposure to two distinct international research groups will provide you with a strong CV for a future research career. You will learn different techniques according to the strengths of each research group. In Sheffield: immunostaining of biobank artery samples; monocyte isolation from human peripheral blood; foam cell formation assays; flow cytometry; immunoblotting; cholesterol flux assays; CRISPR /Cas9 knock out in human foam cell culture model. In Singapore: array and proteomic profiling of macrophage polarisation; antigen presentation assays. You will present your work at international conferences and aim to publish within the 4-year studentship.

If you are a strong student, committed to a PhD in biomedical research, and would like to apply for this studentship, please contact Heather Wilson: H.L.Wilson@sheffield.ac.uk

Available to UK/EU Nationals only.