



SCHOLARSHIP REPORT

This report should be completed by recipients of awards and scholarships from the Royal College of Physicians and Surgeons of Glasgow on completion of the activity for which they received their award or scholarship. Please complete all sections of the report form.

Please return your completed report via email to: **scholarships@rcpsg.ac.uk**

Or via mail to: **Scholarships Committee Administrator, Royal College of Physicians and Surgeons of Glasgow,
232-242 St Vincent Street, Glasgow G2 5RJ, UK**

Please use typeface when completing this form.

SECTION 1 PERSONAL AND AWARD DETAILS			
Title	Dr	PID	
Surname	Meeks	Forename(s)	Daveena
Scholarship/award awarded	College Travelling Fellowship	Amount awarded	

SECTION 2 PROJECT/VISIT DETAILS	
Name/Title	Biomarkers of inflammation in Sickle Cell Disease
Location	Sickle Cell Branch, National Heart, Lung, and Blood Institute, National Institutes of Health, USA
Aims and objectives	<p>To work at the Sickle Cell Branch as a special volunteer visiting researcher</p> <p>To gain research experience working with a world-renowned team devoted to sickle cell disease</p> <p>To identify a biomarker of inflammation in sickle cell disease</p> <p>To develop laboratory skills</p> <p>To engage in a cultural and academic exchange with faculty and staff</p> <p>To develop my research interests in work devoted to improving our understanding and outcomes for patients affected by sickle cell disease</p> <p>To develop my own personal growth by living abroad and immersing myself in the American culture</p> <p>To develop my understanding of academic medicine and conducting research in the USA</p>

<p>Summary</p> <p><i>Include methodology, results and conclusions if applicable</i></p>	<p>Sickle cell disease (SCD) is an autosomal recessive haemoglobinopathy characterised by painful vaso-occlusive crises (VOC), chronic haemolysis and inflammation. I worked as a special volunteer visiting researcher at the Sickle Cell Branch of the National Institutes of Health under the supervision of Professor Swee Lay Thein. The mission at the Sickle cell branch is to gain a better understanding of the pathophysiology of SCD and to develop novel therapies to improve outcomes for patients affected by SCD.</p> <p>Inflammation plays a major part in the complex pathophysiology of SCD. The most common clinical manifestation of SCD is VOC. VOC involves the obstruction of the microvasculature by sickled red blood cells, causing organ damage, pain and inflammation. SCD is characterised by chronic inflammation even during symptom-free periods (steady state), leading to multisystemic injury. Acute phase proteins are elevated in patients with SCD compared to healthy controls. Numerous biomarkers have been implicated in SCD, however, there isn't a statistically validated biomarker specific for SCD in clinical practice. C-reactive protein (CRP) is a widely used marker of acute inflammation, but is non-specific and is not a good marker of chronic inflammation.</p> <p>GlycA is emerging as a novel marker of inflammation in many chronic inflammatory disorders, including Cardiovascular Disease, Psoriasis, Rheumatoid Arthritis and Systemic lupus erythematosus. We explored the role of GlycA as a marker of inflammation in SCD. I spent time in the laboratory preparing plasma samples for the measurement of GlycA via nuclear magnetic resonance (NMR) analysis. I also performed centrifugation to separate the plasma component in whole blood samples. I performed data analysis and delivered oral presentations to the branch on the outcomes of the project.</p> <p>NIH has a rich academic culture and regularly delivers presentations, workshops, teaching and professional development activities. Alongside my duties in the laboratory, I attended many of these activities, including poster and oral presentations on emerging areas of research across disciplines within NIH.</p> <p>Outside of the laboratory, I immersed myself in the rich American culture. I attended the Washington D.C. Independence Day Parade which featured marching bands, floats, flag-waving and music. I visited the Smithsonian museums, sampled the diverse culinary scenes, attended a music festival and visited New York.</p>
<p>Learning outcomes</p> <p><i>Detail here how the aims and objectives were met</i></p>	<p>I worked full time as a special volunteer visiting researcher at the NIH Sickle cell branch. I worked on a laboratory-based project and developed laboratory bench skills. I performed data analyses and presented my work to a panel of leading experts. I spent my time on a project devoted to SCD. I developed my research, data analysis, presentation and communication skills. I engaged in a different setting both academically and culturally.</p>

Evaluation

How has this scholarship/award impacted on your clinical/NHS practice or equivalent?

My time at the NIH Sickle cell branch is one of my most enriching experiences to date. I thoroughly enjoyed gaining new skills, learning about new technologies, presenting my findings, working with people from diverse academic and cultural backgrounds, and further developing my research interest in SCD. Professor Swee Lay Thein is an internationally recognised leader in the field of SCD. It was an honour to work under the supervision of Professor Thein and her team. It was interesting to work in a research institute in a setting outside of the UK and to see the global relevance of the work of the Sickle cell branch.

This experience has further highlighted the positive impact academic clinicians and scientists have on improving clinical outcomes for patients. It was humbling to be part of work that may hopefully one day help to improve the lives of others. This scholarship has provided me with an opportunity to undertake full time research at a leading institute. Overall, I believe this scholarship has provided me with a solid foundation towards my aspiration to pursue an academic career and I hope to continue to foster my specialist interest in SCD.

I would like to express my immense gratitude to The Royal College of Physicians and Surgeons of Glasgow for making this research fellowship possible. I would also like to extend my appreciation to Professor Thein and her excellent team at the Sickle Cell Branch of the National Institutes of Health. My research fellowship was an invaluable experience that I will forever cherish. Thank you once again for your support and for providing me with this wonderful opportunity.

SECTION 3 | IMAGES

If available, please provide some images to support your report

SECTION 4 | EXPENDITURE**Breakdown of expenditures**

Please demonstrate how the scholarship/award funding was used to support your project/visit

Research consumable and travel expenses were kindly covered by NIH

SECTION 5 | PUBLICATION

Scholarship/award reports may be published in College News. Please tick here if you agree to your report being published.

I give permission for my report to be published in College News

If your report is selected for publishing, the editor of College News will be in touch to discuss this with you.

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