



Project Title: Does blood donation frequency influence the release of biological response modifiers from donated red cells during storage?		Code: CCS7
Host School / Institute: Central Clinical School	Address: Australian Red Cross Blood Service, 17 O'Riordan Street, Alexandria NSW	
Certificates & Clearances required: No		
Primary Supervisor: Dr Joanne Tan		
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Co-Supervisor/team: A/Prof Denese Marks , Co-Supervisor & Htet Htet Aung, Research Assistant		
Project Type: Laboratory based		
Project Category: Blood; Immunology & Infection		
Skills / Attributes of a successful student: The successful candidate will have a keen interest in translational research. They will work in a large dynamic laboratory team, with ample opportunity to learn a range of laboratory techniques, demonstrate their attention to detail and time management skills in the lab.		
Project Keywords: Red blood cells; Blood donation frequency; Biological response modifiers; Cell culture; Flow cytometry		
Project Description: Red blood cells (RBC) undergo a number of biochemical and biomechanical changes during storage that can result in reduced viability, impaired function and reduced effectiveness after transfusion in patients. We are investigating (in a larger study) whether the frequency of blood donation impacts the quality of the donated RBC after 42 days storage at 2-6 °C. The aim of this summer scholarship project is to determine whether blood donation frequency is associated with release of biological response modifiers (BRMs) from RBC during storage. These BRMs have been shown previously in our lab (in a different setting) to illicit an immunological response in an endothelial cell assay. The methods to be used in this study will include testing a selected panel of donor RBC supernatant samples on human umbilical vein endothelial cells in tissue culture as a model of cell activation. Endothelial cell surface activation markers will be measured by flow cytometry, and supernatants from tissue culture experiments will be tested using a flow cytometric bead array for secretion of selected cytokines/chemokines. This project will provide information to help the Blood Service to produce high quality products that meet clinical demand.		