

The Role of a Macrophage Protein in Restoring Bone Marrow After Stem Cell Transplant

UQ Winter Research Project Description - 2026

Project Title:	The Role of a Macrophage Protein in Restoring Bone Marrow After Stem Cell Transplant
Project duration, hours of engagement & delivery mode	<p>4 weeks during the UQ Winter Research Program (29th June – 24th July 2026)</p> <p>Hours of engagement must be between 20-36 hrs per week during the official program dates only.</p> <p>Applicant will be based in the Bones and Immunology Research group at Mater Research, at the Translational Research Institute, Woolloongabba, Brisbane.</p>
Description:	<p>Bone marrow tissue resident macrophages are specialised immune cells that support haematopoietic stem cells (HSC) within the bone marrow and play a critical role in promoting the success of bone marrow transplantation. These macrophages are long-lived and resilient to myeloablative pre-conditioning used to eliminate the recipient's HSC prior to delivery of the donor cell graft. These resilient, recipient-derived macrophages contribute to reconstitution of the haematopoietic niche and transplant success. RNASeq profiling has been used to identify a macrophage gene/protein that is upregulated in response to bone marrow injury (myeloablative pre-conditioning). Knockout mouse models are being used to determine whether this candidate protein is involved in post-transplant bone marrow recovery. This project will examine the frequency and phenotype of recipient-derived macrophages in post-transplant bone marrow.</p>
Expected outcomes and deliverables:	<p>Knowledge gain: Increased understanding of whether a candidate protein facilitates the role of recipient-derived macrophages in bone marrow recovery following haematopoietic stem cell transplantation.</p> <p>Skills gain: Histology, immunohistochemistry, microscopy and image analysis (including AI tools).</p>
Suitable for:	<p>Interested students need to be diligent, meticulous, inquisitive and self-motivated. Flexibility in working hours will be required. Knowledge of immunology and immuno-staining theory and/or hands on experience, are desirable. Project will be based at the Translational Research Institute in Woolloongabba.</p> <p>Participation is only open to currently enrolled UQ students who will remain enrolled throughout the program. Please note graduating students may not be eligible.</p>

Primary Supervisor:	Dr Susan Millard/Professor Allison Pettit
Further info:	<p>Please contact prior to submitting an application.</p> <p>e: susan.millard@mater.uq.edu.au</p> <p>Please note this Enquiry Form is not an official application for the UQ Winter Program. Official applications need to be lodged via the UQ StudentHub from 23rd March 2026.</p>