

# The Receptor for Advanced Glycation Endproducts (RAGE) Antagonism for Treatment and Prevention of Type 1 Diabetes

## Project Description

Project duration:	12 months
Description:	<p>Type 1 diabetes (T1D) is an autoimmune disorder affecting millions of people worldwide. Currently, there is no cure available and individuals with T1D rely on multiple daily injections of exogenous insulin for disease management. It is a T cell mediated disorder resulting from a loss of tolerance to self. The regulatory T cells (Tregs) are important regulators of tolerance and are defective in T1D. This leads to destruction of pancreatic insulin producing beta-cells by autoreactive CD8+ T cells.</p> <p>Receptor for advanced glycation endproducts (RAGE) is an immunoglobulin-like receptor implicated in a wide range of inflammatory conditions including T1D. We have previously shown that RAGE inhibition leads to increase in regulatory T cells (Tregs), decrease in pathogenic CD8+ T cells and delays disease development in mice.</p> <p>This project will build upon exciting data previously generated in our laboratory. It will aim will be to characterise phenotypic and functional properties of Tregs both <i>in vitro</i> and <i>in vivo</i> using transgenic mouse models of T1D, multi-parameter flow cytometry and microscopy.</p>
Expected outcomes and deliverables:	<p>The candidate will be enrolled in the Honours program at the University of Queensland and should complete the required UQ Milestones.</p> <p>The project will be performed in the laboratory of Prof Josephine Forbes in the state-of-the-art Translational Research Institute (TRI) facility. It will incorporate flow cytometry, microscopy, animal, and cell culture work. Previous flow cytometry and animal handling experience is advantageous but not necessary. All the required training will be provided.</p> <p>The applicant will gain experience in immunological techniques, flow cytometry, microscopy and animal handling. Therapies will be tested that target RAGE and this will provide insight into their efficacy to prevent type 1 diabetes in humans. Ample support and guidance will be given during written and oral components of the project. Regular meetings with supervisors and attendance at laboratory meetings will provide an opportunity for discussions and further support.</p>

Suitable for:

This project is suitable for an individual with a keen interest in immunology wishing to kickstart their career in research.

- Bachelor of Science, major in Immunology or Cell Biology is advantageous, but not necessary
- Excellent English verbal and written skills
- Outstanding academic achievement
- Demonstrated ability to work independently and as part of a team
- Willingness to work collaboratively in a busy laboratory environment

Primary Supervisor:

Dr Irina Buckle

Further info:

I am happy to be contacted directly on  
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