

Immune regulation through bi-directional interactions between subsets of Natural Killer cells and Dendritic cells

Project duration:	Three years
Description:	<p>This project will investigate interactions between two immune cell types: natural killer (NK) cells and dendritic cells (DCs). NK cells play an essential role in the early detection of infections or malignant transformation while DCs initiate and direct immune responses. Evidence for bi-directional interactions between NK cells and DCs has been provided in the early 2000s. Since then, our knowledge of NK cell and DC diversity has considerably increased. NK cells and DCs can no longer be considered as homogenous populations up to 30,000 phenotypic populations identified by mass cytometry in one individual while four main human DC subsets have been described: monocyte-derived DCs, plasmacytoid DCs and type 1 and 2 conventional DCs. Currently, we don't know which NK subset(s) interact with which DC subset(s).</p> <p>This project aims to provide a better understanding of the crosstalk between distinct NK cell and DC subsets. Specific interactions between human cell subsets in response to different stimuli will be investigated in vitro and in vivo. By addressing an important knowledge gap in the field, this project will lay the foundation for preclinical research in a wide range of pathologies including cancer, infectious diseases and autoimmune disorders.</p>
Expected outcomes and deliverables:	<p>The candidate will be enrolled in the PhD program at the University of Queensland and should complete the required UQ Milestones.</p> <p>https://future-students.uq.edu.au/study/programs/doctor-philosophy-7501?year=2020</p> <p>The candidate will receive a UQ PhD Scholarship. Stipend is valued at \$28k per annum for three years.</p> <p>The candidate will have access to state-of-the-art technology including high-parameter flow cytometry (BD Fortessa and BD FACSymphony analysers) as well as cutting-edge humanised mouse models.</p>
Suitable for:	<p>Please note that due to current travel restrictions, we will only accept candidates (Australian and international) who are currently in Australia.</p> <p>Applicants must hold a bachelor's—or equivalent science or medicine—degree with first-class Honours and/or a distinction in a</p>

research master's degree in a relevant discipline (e.g. Immunology, cell biology).

The candidate should have:

- excellent written and verbal English
- the proven ability to work both independently and as part of a team
- honours I (or equivalent) and/or master's degree with outstanding thesis grade or coursework master's degree with outstanding performance, particularly in research related courses
- demonstrated outstanding academic achievement as evidenced by high CGPA, rank within class, academic prizes and awards
- strong wet lab skills (e.g. cell cultures, assays such as ELISA, ELISPOT). Experience in flow cytometry and/or with mouse handling would be advantageous.

Primary Supervisor:

Camille Guillerey

Further info:

For further information, please contact Camille on camille.guillerey@mater.uq.edu.au