

Characterising T cell responses to *Ureaplasma spp* in pregnancy

Research overview

T cells play a critical role in protecting against infections. The role of T cells in the pathogenesis of preterm birth caused by intrauterine infection and inflammation remains relatively understudied.

Ureaplasma are one of the most common organisms found within the amniotic cavity and placenta of women who deliver preterm. We have previously shown that in early pregnancy (~20 weeks' gestation) T cells from Ureaplasma-colonised women appeared more responsive to a second stimulation with Ureaplasma than T cells from non-colonised women. This suggested that the immune system had developed some memory against these bacteria. This new project seeks to further clarify the role of T cells in determining pregnancy outcome (term or preterm birth) in Ureaplasma-colonised women.

Research highlights

We have begun collecting maternal blood and placentas at delivery from women attending the new King Edward Memorial Hospital Preterm Birth Prevention Clinic. We are isolating immune cells from the blood and placentas for future analysis and will be comparing T cell responses in high-risk women who deliver at term versus preterm.

We are utilising a state-of-the-art technology called multi-parameter (14-colour) flow cytometry which enables the rapid measurement of multiple characteristics of individual cells. We welcomed Dr Xiao Jian from the GuangXi University of Chinese Medicine in November 2014 to work on this project. He has been painstakingly optimising the required panel of 14 antibodies, all of which are conjugated to a differently coloured fluorescent molecule.

Research achievements

This project is still in a very early phase; we look forward to reporting on the outcomes into the future. In the meantime, Dr Ireland and Dr Jian have attended advanced training and professional development sessions on the use of multi-parameter flow cytometry and will attend the 2015 Annual Meeting of the Australasian Cytometry Society (Perth).

To support the development of this and other immunology projects within the UWA School of Women's and Infants' Health, Dr Ireland was awarded funding to purchase a 4-colour flow cytometer from the Channel 7 Telethon Trust. The instrument has now been installed and is ready for use.

THE TEAM

Chief Investigator

Dr Demelza Ireland PhD

Associate Investigator

Tracey Lee-Pullen BSc (Hons)

Researcher

Dr Xiao Jian, MD PhD

Sponsors

Women and Infants Research Foundation
Channel 7 Telethon Trust