Funded by:	ARA Research Trust
Recipient:	Dr Athena Chin
Intended Department	Flinders Medical Centre, Rheumatology
Project:	Clonal Haematopoiesis of Indeterminate Potential (CHIP) in Rheumatoid Arthritis

Lay summary:

Overview:

Rheumatoid arthritis is a common autoimmune condition affecting up to 1% of the Australian population. Despite many advances in treatment, some patients still do not respond to treatment, and disease activity has significant impact on quality of life. In addition, patients with rheumatoid arthritis are more likely to develop other medical conditions such as heart disease and cancers.

Clonal haematopoiesis (CH) is when your white blood cells develop "clones" due to genetic mutations that you acquire throughout your life. These clones have been observed to increase inflammation, as well as increase risk of heart disease and cancers.

My study is focused on investigating the relationship between CH and rheumatoid arthritis, and how it may impact our patients' disease activity and outcomes including development of heart disease and/or cancers.

What problems did you try to solve, or gaps in knowledge did you try to fill?
At current, how CH may impact rheumatoid arthritis patient outcomes is unknown. I am trying to see if the presence of CH might predict poorer outcomes for rheumatoid arthritis patients – for example, if it predicts refractory (harder to control) disease or increases the risk of heart disease and cancers.

What did you discover during the course of the grant?

Preliminary data has suggested the rates of CH is higher in patients with rheumatoid arthritis compared to the general population. Based on our small cohort, when patients with rheumatoid arthritis also have CH, they may have increased risk of heart disease, as well as development of both organ and blood cancers.

How might the findings inform further research to help sufferers in the future?
These findings serve as a foundation for my PhD focusing on this area. With larger cohorts, I hope to support these findings, alongside assessing how CH may change (in size and type) over time in patients with rheumatoid arthritis. If factors are found that may predict the

presence of CH in rheumatoid arthritis patients, then we will be able to monitor these patients more closely for development of comorbidities.

Are you planning to continue the research?

Yes, this first year supported by this grant funded by the Australian Rheumatology Association Research Trust has allowed me to establish a foundation for and complete my confirmation of candidature for my PhD, that will focus more on CH in rheumatoid arthritis patients.