

AL & VAL ROSENSTRAUSS FELLOWSHIP RECIPIENT

DR JOSHUA OOI

Dr Joshua Ooi is a Senior Research Fellow at the Centre for Inflammatory Diseases, School of Clinical Sciences, Monash University. His research focusses on understanding why the immune system sometimes targets self-proteins and causes autoimmune disease. He has identified the precise autoimmune targets in a rheumatic autoimmune disease known as ANCA-associated vasculitis and will use this Fellowship to translate that knowledge into new targeted therapeutics.

Research

ANCA-associated vasculitis is a severe autoimmune disease that causes the destruction of the kidneys and lungs. It has a high morbidity and high mortality rate, 40% in 5 years. Furthermore, current treatments for this disease are a combination of steroids and global immunosuppressants that wipe out most of the immune system leaving patients vulnerable to life-threatening infections. In recent years, Dr. Ooi has made significant breakthroughs in understanding the cause of disease as well as the specific parts of the kidneys and lungs that are “attacked” by the immune system. His work has been published in the top nephrology journal, *Journal of the American Society of Nephrology*, as well as in other prestigious medical and science journals including, *Proceedings of the National Academy of Sciences*, *The Journal of Clinical Investigation* and *Nature*.

Armed with this new knowledge, the overall aim of Dr. Ooi’s project is to increase the effectiveness of treatment by developing new therapies that shut down the part of the immune system that is attacking self-proteins, while leaving protective immunity against invading pathogens intact. One of Dr. Ooi’s recent discoveries, published in *Nature*, details how specific immune cells, known as regulatory T cells, that recognise proteins found in the kidneys and lungs can confer protection from autoimmune disease. Based on this finding, Dr. Ooi has developed new experimental therapies that can induce this protective cell type in patients. Dr. Ooi will use this Fellowship to translate his experimental findings into a clinical treatment.