FRIENDS OR FOE?
THE ROLE OF T CELLS IN IMMUNE RESPONSES AGAINST PATHOGENS AND CANCER

https://www.lucianilab.net

F. Luciani E-mail: luciani@unsw.edu.au Dr Mandeep Singh, Dr Raymond Louie

School of Medical Science and Kirby Institute for Infection and Immunity, UNSW Australia

OUR PHILOSOPHY

Understanding individual **IMMUNE** cells to learn how the **SYSTEMS** work.

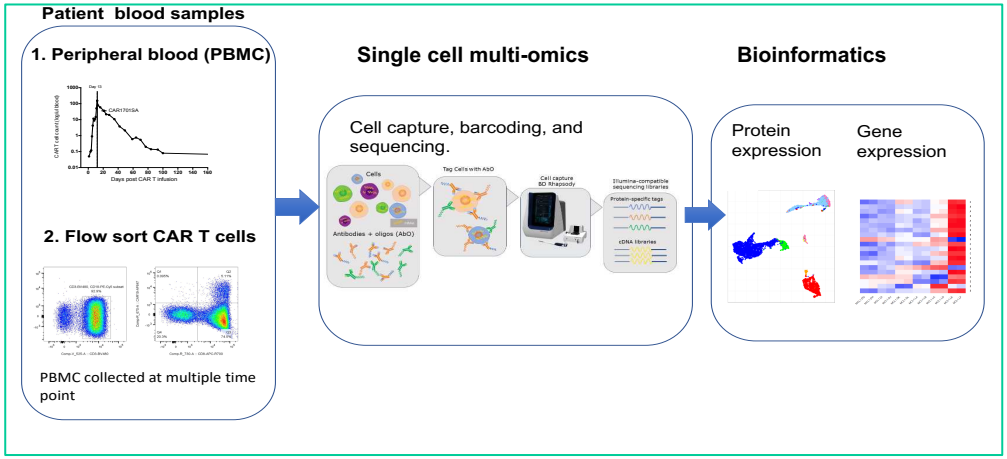
Skills you will learn

1. Understanding the molecular and phenotypic features of T and B cells
2. Learn and apply cutting edge single cell technologies to identify immune cells and their function, that drive successful immune responses.
3. Work in a team of researchers, students and across different disciplines

What will you do?

1. You will learn immunology and (if you are keen) bioinformatics elements
2. Work in a team and do what best fit for your skills

How do we solve the problem: Single cell technology, Immunology and Bioinformatics



Single cell genomics applied to immune cells: This schema outline the experimental approach that we adopt to study blood and tissue samples to uniquely identify molecular and functional features of disease. We use single cell multi-omics (transcriptomics, proteomics and immune receptor sequencing) to thoroughly identify immune cells.

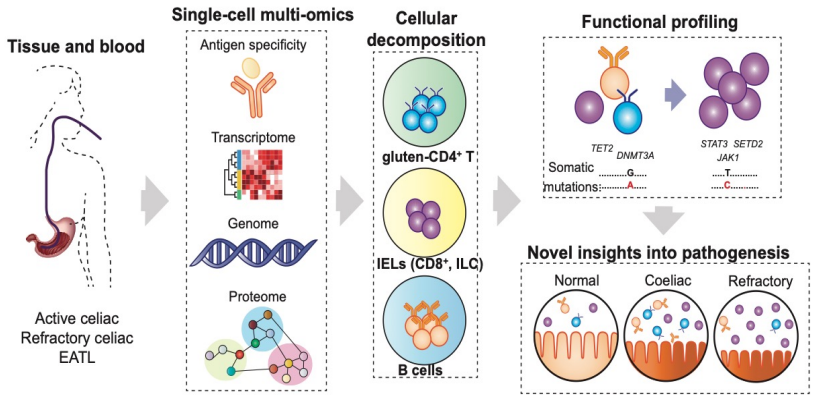
The team: PHD and Honours students are all welcome!

Dr Mandeep Singh, Garvan Institute

What are the research questions we focus on

1) What is that cause of autoimmunity (e.g., coeliac disease) ?
2) How do Chimeric Antigen Receptor (CAR) T cells kill cancer?
3) What can T Cell Receptors drive a highly specific immune response?

The landscape of somatic mutations driving coeliac disease



Publications

1. Rizzetto et al. *Bioinformatics 2018*
2. Koutsakos et al. *Nature Immunology* 2019
3. Samir et al. *BMC Medical Genomics*.
4. Singh et al. *Cell* 2020.

https://www.lucianilab.net