Neuroimmune crosstalk in the pathophysiology of chronic pain

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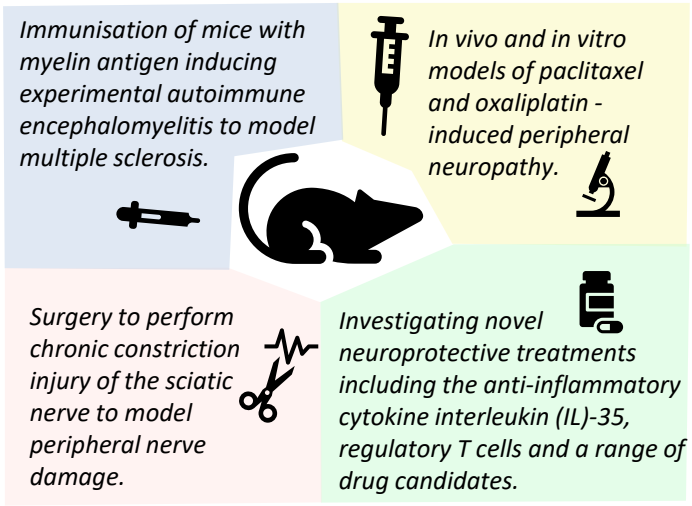
SPECIALISTS IN CHRONIC PAIN / NEUROIMMUNOLOGY RESEARCH

Background: The research group is part of the Translational Neuroscience Facility and is interested in neuroimmune interactions in health and disease, particularly in neuropathic pain, a form of chronic pain caused by a lesion or disease of the somatosensory nervous system. The goal is to identify targets and mechanisms for reducing pain and disability through immunomodulation.

Current research focuses on the role of immune cells and cytokines in neuropathic pain caused by peripheral nerve injury, autoimmune diseases of the nervous system such as multiple sclerosis, and chemotherapy-induced peripheral neuropathy.

Our research (pre-clinical):



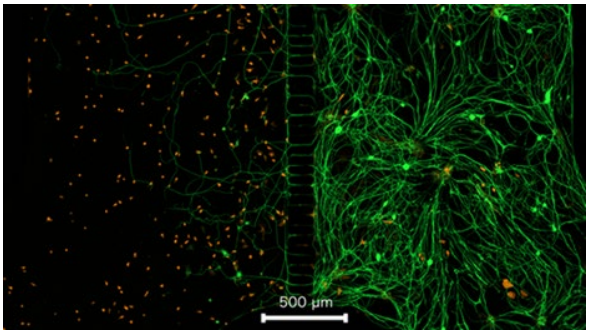
AVAILABLE PROJECTS

- Investigate the effects of regulatory T cells and anti-inflammatory cytokines (e.g. IL-35) on glial cell regulation in mouse models of neuropathic pain.
- Investigate sensory neuron and immune/glial cell interactions using *in vitro* primary cell cultures.
- Neuron-targeted nanoconjugates for modulating pain behaviours (with Prof Mao).

OUR TOOLS

Resources/Technologies available:

- Animal models of nervous system damage (peripheral neuropathy and multiple sclerosis)
- Using anti-inflammatory mediators and immune cell therapies *in vivo*
- *In vitro* culturing systems of dorsal root ganglion (DRG) sensory neurons (green; image), microglia (red; image), and regulatory T cells.



IMPACT / TRACK RECORD

- Understanding the role of neuroinflammation in chronic pain conditions.
- Testing of neuroprotective candidate drugs for the treatment of chemotherapy-induced peripheral neuropathy.
- Developing novel immunotherapeutic approaches for the treatment of multiple sclerosis and neuropathic pain.
- List of publications: https://research.unsw.edu.au/people/dr-gila-moalem-taylor/publications

OUR GROUP

The Neuropathic Pain Research Group currently consists of:
- 2 postdocs;
- 5 postgraduate students; and
- 3 honours students.