



RAGAMS Newsletter February, 2023

"Rotarians can make a difference"

To help find a cure for MS Rotary Club of Gisborne and RAGAMS is partnering with Australian Rotary Health by providing top up funding for PhD Scholarship recipient Vivian Li to continue her research work at Florey Institute and will be completed 2023. Her project update follows:

AUSTRALIAN ROTARY HEALTH

Project update: Towards developing dendritic cell therapy for multiple sclerosis based on promoting Merck signalling

Dr Vivien Li

Multiple sclerosis (MS) is a neurological disease resulting from damage to the fatty insulating covering around nerve cells in the brain and spinal cord called 'myelin'. It occurs when the body's own immune system, which normally fights infections, starts to attack the myelin, leading to inflammation, cell damage and neurological symptoms.

MS usually begins with a relapsing-remitting phase (RRMS), with flare-ups of symptoms known as 'relapses' followed by complete or partial recovery. However, over time, a significant proportion of patients develop secondary progressive MS (SPMS), where there is steady worsening of symptoms and increasing disability without recovery. A smaller number of patients have primary progressive MS (PPMS), where they experience gradual decline from the beginning.

There are now many treatments available for people with RRMS. These reduce the frequency and severity of relapses. However, there has been limited progress so far in finding effective therapies for progressive MS. Many current therapies suppress the immune system broadly, which can increase risks of infection and cancers, and reduce responsiveness to vaccines.

Given these limitations, my research aims to develop a more potent therapeutic approach. Ultimately, the goal would be to take a blood sample from a patient with MS, from which immune cells are isolated in the laboratory and treated with certain signals specific to MS, so that upon re-administration back to the patient, they selectively target and dampen down the disease-causing parts of the immune system responsible for MS.

To achieve this, I have refined techniques to purify the relevant immune cells from blood samples collected from patients with MS. I have defined culture conditions that can modify the behaviour of these immune cells that normally process proteins associated with MS to assume characteristics that are protective/anti-inflammatory rather than disease-inducing/pro-inflammatory. In particular, dexamethasone has been identified as an important factor in altering the behaviour of immune cells. I have used computer assisted techniques to design peptides derived from a recently identified protein that appears to drive MS in a significant subset of people with this disease who carry a particular gene associated with immune system functioning (HLA-DRB1*1501). Amongst a library of peptides that was synthesised, I have identified certain peptides that appear to be preferentially taken up and presented on immune cells to activate the immune system, and this can be modified by dexamethasone.

There is accumulating research that certain genes influence the risks of developing and biological disease processes underlying MS. As such, I have collected blood samples from close to 200 patients with MS treated at the Royal Melbourne Hospital and performed gene testing on these



patients to identify those that carry a major risk gene and who may be future candidates for this therapeutic approach.

I have now begun the next steps of adding the disease-inducing peptides to immune cells grown in these anti-inflammatory conditions to determine whether that disease inducing capacity is reversed to a protective influence.

Vivien is needing extra time to finish her thesis, extension funding will be required.

RAGAMS Australia.

- Australian Rotary Health 3rd PHD Scholarship. Waiting for applicants.
- Collaborating with RAWCS (Rotary Australia World Community Services) for a project with RAGAMS (India). Considering resumption of Vocational Exchange with fledgling MS Society of India.

RAGAMS (India)

1. RAGAMS, India observed the India MS day along with Rotary clubs in Bangalore District 3190. India MS day is observed to bring about awareness of MS and also showcase the concerns of persons affected with MS to the Government to advocate for specific interventions in policies and support. RAGAMS partnered with MS Society of India and Rotary clubs and created an event in a shopping mall where we had close to 300 people attend the program and participate in an MS walk.

2. RAGAMS sponsored Dr. Gopi person with MS to participate in the Purple Fest - The Purple Fest 2023 is a first-of-its-kind inclusive festival for persons with disabilities, which was held in Panaji, Goa from the 6th to 8th of January 2023. A summary and photo will be provided in March 2023 Newsletter.

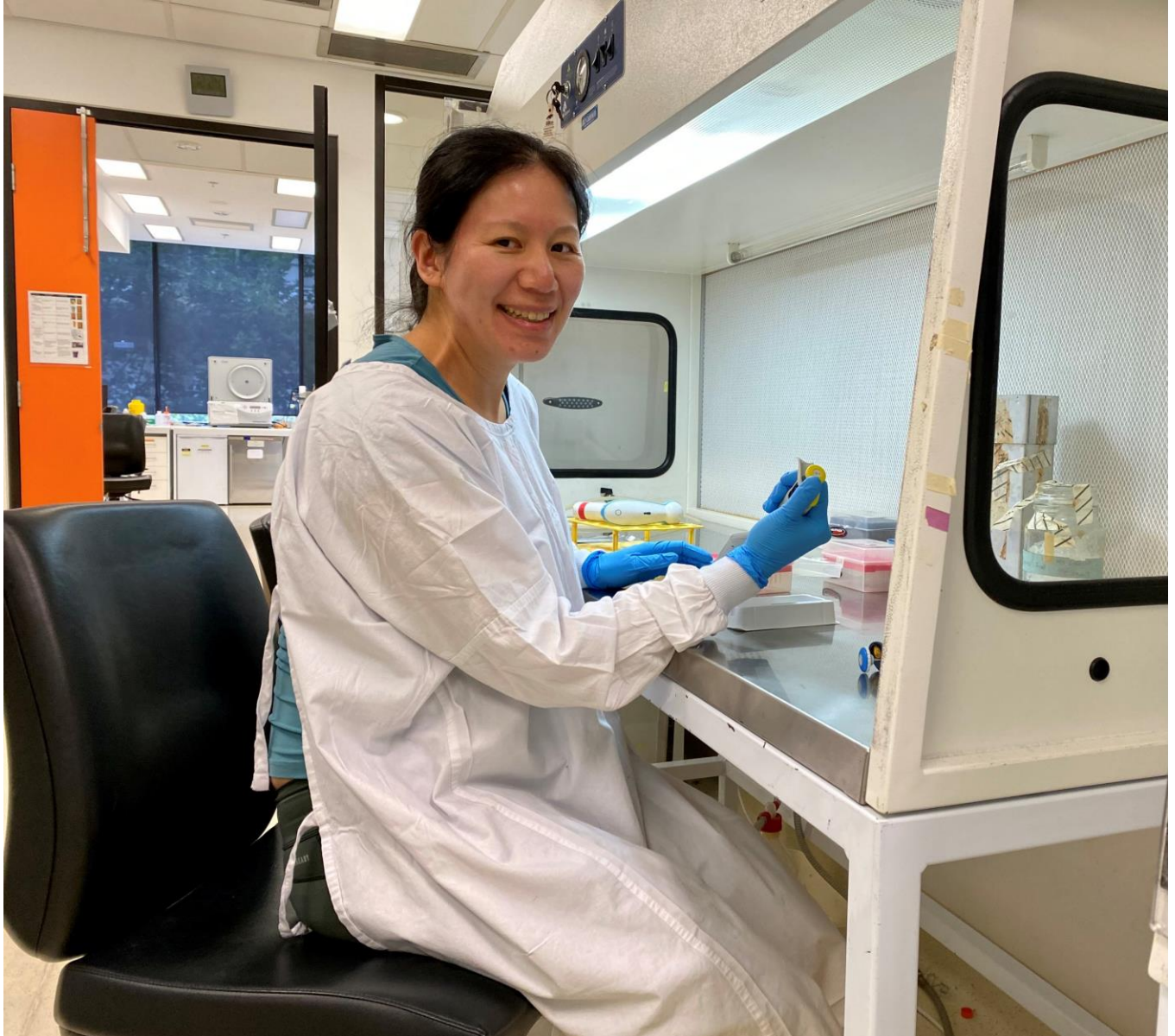
- RAGAMS (India) is considering how to improve Social media and website www.rotary-ragmsa.org.
- As India is a large country with more than 1.2 billion population we need to expand our reach to other counties and states. We are considering resource required.
 - We need to set a date for a Zoom meeting and discuss plans for next 6 months.

Melbourne Convention Hybrid Event May 27-31, 2023

- <https://convention.rotary.org/en>
- RAGAMS Real Time Exhibition Booth. Decision tba.
- RAGAMS Virtual Exhibition Booth (for paid up Convention Registrants only). Decision tba.
- RAGAMS "Break Out" Session application was not approved due to competition. Will book a room for general meeting to discuss plans for future.



Rotary  Rotary Action Group
Against Multiple Sclerosis



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