The Snow Centre for Immune Health

October 2023

Fact Sheet

Key Points

- The Snow Medical Research Foundation (Snow Medical) is partnering with WEHI to establish a centre for immune health with an initial commitment of $10 million per year over 10 years – one of the largest and longest running philanthropic investments in Australian history.
- Research at the Snow Centre for Immune Health (the Centre) will address the increasing "tidal wave" of immune disease in modern society:
  - Debilitating autoimmune disorders such as lupus and rheumatoid arthritis affect up to 10% of the population and are some of our most significant chronic health problems.
  - One-in-five Australians live with some form of allergic disease including anaphylactic food allergies.
  - 10% of Australians live with asthma.
- Co-led by WEHI and the Royal Melbourne Hospital, the Centre will bring together a team of leading Australian and international scientists in an ambitious long term research partnership with an initial commitment of $100 million over 10 years. The research program will decipher what factors give us good or poor immune health, transforming and accelerating personalised diagnosis and treatment for people suffering from immune diseases and dysfunction.
- The $100 million commitment more than doubles Snow Medical's investment in medical research from $100 million over the four years since 2019, to over $200 million today.
- The Centre will commence operation in early 2024, and is expected to employ more than 50 scientists, clinicians and staff within the first five years.
- Snow Medical has chosen to partner with WEHI to lead this initiative with national and international collaborators. The partnership acknowledges WEHI's leadership across important and broad dimensions. Built from strong philanthropic beginnings, WEHI has an outstanding track record in science and medical research, institutional leadership, and successful commercial development. WEHI's culture encourages scientific curiosity, develops young researchers, empowers high performing teams and the institute has been a sector leader in advancing equity and equality.
- This Centre continues the strong Australian, Melbourne and WEHI legacy in immunology:
  - Sir Frank MacFarlane Burnet: Nobel Prize 1960, WEHI Director 1944 – 1965
  - Sir Gustav Nossal: WEHI Director 1965 – 1996
  - Peter Doherty: Nobel Prize with Rolf Zinkernagel, 1996
  - Suzanne Cory AC: WEHI Director 1996 – 2009
  - Jacques Miller: Lasker Award 2019.
- The proposed model and scale demonstrates global leadership and has been endorsed following critical review by international experts. All consider the proposal compelling and differentiated from other international large-scale immunology research efforts. It is considered transformative for four reasons:
- **Addresses complexity:** The design of the Centre positions it to address the key 'rules' controlling how immune cells make decisions. This understanding will unravel the complex maze of genetic and environmental factors that cause the immune system to underreact or overreact.
- **Unprecedented scale and speed - Applying computational biology, machine learning and artificial intelligence:** Rather than relying solely on the analysis of individual genes or molecular pathways, we use a whole-of-system approach by directly extracting immune cells from blood samples from thousands of people (healthy and ill) and assessing their functionality. This shift enables us to measure the health of intricate immune processes across various scales and accelerate discovery of the causes of immune disease.
- **Human models, real patients:** To date, immunology research has generally focused on using animal models. At its basis, the Centre is positioned around people: patients living with immune disease and healthy participants.
- **Translation of research from bench to bedside:** The program targets rapid development of new diagnostics and therapies. This requires a dedicated team of researchers and clinicians to work side by side. At the outset there is strong clinical involvement and access to patients experiencing immune diseases through specialist clinicians at the Royal Melbourne Hospital. This will help focus the research and provides important avenues through which to design and conduct clinical trials. Beyond this, there will be strong support to commercialise research.

Further Information

Solving one of the greatest puzzles of the human body

The immune system protects every part of our body by sensing and eliminating threats, such as infection, toxins or cancer. It is incredibly complex, involving interconnected networks of cells and molecules, and is constantly alert to potential danger.

Most of the time our immune system responds appropriately, protecting our bodies from harm. But sometimes it gets things wrong, and as a community we are faced with a 'tidal wave' of immune-related diseases. Understanding how our immune system keeps the right balance between protecting against infections without causing disease is a grand challenge that the team is focused on solving.

The vast complexity of the immune system means we currently lack the tests to measure the dynamics of our immune health. Most treatments for many debilitating immune conditions are currently limited to blanket approaches, often with long term toxic side effects, or in some cases there are no treatment options at all.

The Snow Centre for Immune Health aims to make rapid breakthroughs to develop new tests of immune health. It aims to develop personalised medicine to improve the outlook for people living with a broad range of conditions including autoimmune diseases such as rheumatoid arthritis and lupus, as well as asthma and allergies.

Whole-of-system, whole-of-person approach

When we go to the doctor, we take it for granted that they will measure our health and intervene to improve it.

Taking the cardiovascular system as an example, doctors undertake a series of tests to assess an individual's heart health. These tests are undertaken when we are healthy, not just when we're ill.

While the immune system is central to our health, it is treated differently. The only time doctors measure the health of our immune system is when we're sick already, so we almost never prevent diseases of the immune system – at huge cost to patients and our community.

For the first time globally at a large scale, the Centre will look at immune health and the immune system from a whole-of-system perspective to deliver transformational impacts for patients living with chronic and often devastating immune diseases.

Accelerating science to change lives

The Centre has the ambitious aim of revolutionising healthcare by being able to integrate its research program together with clinical services. It will allow proactively predicting and preventing illness and immune disorders, instead of only reacting to and treating them.

It will do this by rapidly accelerating a new area in immunological research and doing it at a scale not seen anywhere else in the world.

The Centre's approach aims to make breakthroughs in treatment for a broad range of conditions which are directly impacted by our immune system, or where the immune system can play a role in treating the disease.

From lab bench to bedside

The Centre will be integrated with the Royal Melbourne Hospital, bridging the gap that can occur between research discovery and clinical application.

As part of their philanthropic investment, Snow Medical will fund Snow Research Clinics, initially at the Royal Melbourne Hospital before being rolled out progressively across Victoria.

The Snow Research Clinics will power new scientific discoveries and ensure that patients most at need can immediately receive the best and latest research treatments.

A world-class team

The Centre will bring together leading researchers from all over the world.

Led by Professor Phil Hodgkin (Joint Head of the Immunology Division, WEHI) and Professor Jo Douglass (Director of Research, Royal Melbourne Hospital), the Centre has established partnerships with leading Australian and international researchers.

The Centre will prioritise diversity, inclusion and mentoring of the next generation of talented scientists, policy makers and industry leaders.

The Centre team will be empowered to pursue bold and visionary work, with the goal of fundamentally changing how immunological diseases are treated.

Funding bold research

The Centre is a long term partnership between WEHI and Snow Medical, and is being funded by an initial commitment of $100 million by the Snow Medical Research Foundation – $10 million per year for up to 10 years. Further ongoing investments are expected beyond 10 years.

This substantial, long-term funding will allow researchers to collaboratively pursue a bold and far-sighted research program beyond the predominantly short-term research funding available in Australia.

This philanthropic investment will help the Centre move towards solving the grand challenges of immunology to stem the wave of immune-related diseases.

The $100 million commitment builds on the legacy of Snow Medical's Fellowship program and other research funding, more than doubling the Foundation's investment in medical research from $100 million over the four years since 2019 to over $200 million today.