

The Current

Bionics Institute Newsletter

SPRING 2025



Honouring
loved ones

How you make a
difference

NEW

**Chronic Pain
Research**



**Bionics
Institute**

*Pictured is Bionics Institute researcher **Michelle Bravo** taking part in a charity run and raising funds for medical device research.*



A Word from our CEO

Welcome to the Spring 2025 edition of The Current.

So much has happened since our last update, it's been difficult to fit it all into one newsletter! Clinical trials with our devices in infants with hearing impairment, people with tinnitus, Alzheimer's, Crohn's and Parkinson's disease continue to progress well, and we have reached major milestones in our early-stage and established research programs. You can find out more in the next few pages, where our lead researchers summarise their recent achievements.

In March, we launched the Vagus Nerve Stimulation Centre of Excellence at our Preview Event, officially opened by the Victorian Minister for Health, The Hon. Mary-Anne Thomas. This exciting initiative will enable our researchers to investigate the viability of a unique method of vagus nerve stimulation as a treatment for a wide range of conditions including gastrointestinal disorders, neurological disorders, mental health conditions, and even cancer.

In April, the Institute was delighted to receive the news that Epiminder's Minder® device for epilepsy, pioneered by world-renowned neurologist Professor Mark Cook and Bionics Institute engineers, had gained FDA approval. This is an incredible testament to the commitment of a dedicated team of people, and we are all extremely proud that the technology was originally developed here at the Bionics Institute.

In this edition, I'm very proud to describe a PhD Scholarship set up in partnership with my siblings to support a truly amazing young researcher named in honour of our parents. It really is a wonderful way to support the career of a promising researcher, and I hope that you may be willing to consider similar types of support.

If you would like to find out more about supporting the Bionics Institute, I encourage you get in touch and arrange to come for a tour – it's fascinating!

As always thank you for your invaluable support, and I look forward to seeing you in our labs or at an event very soon.

Best wishes,

Robert Klupacs
Bionics Institute CEO

Alzheimer's disease

"Nearly 30 people have been enrolled into our clinical trial investigating the use of brain stimulation as a potential treatment for Alzheimer's disease out of a total of 132, and we are continuing to develop the technology with the aim of delivering highly personalised therapy."

1. Professor Kate Hoy

Balance disorders

"My team in the NeuroMovement Laboratory is working closely with Bionics Institute engineers to develop wearable sensors that collect real-time data on movement and coordination, allowing for a more accurate assessment of a patient's balance condition. It has the potential to detect early signs heightened falls risk, even before they become noticeable to the patient or healthcare provider."

2. Associate Professor David Szmulewicz

Chronic pain

"The Bionics Institute has been researching the use of a combination of light and electricity to improve cochlear implants. We recently started applying this technique to treat chronic pain, and early results are looking promising."

3. Professor Rachael Richardson

You can read more about this research on the back page.

The difference you make

Thank you! We couldn't do what we do without your generous support. Here's a roundup of the progress we have made with your help.



Crohn's disease

"The first patient in the clinical trial of our vagus nerve device to prevent inflammation in Crohn's disease has completed his 18 months in the trial and continues to feel fit and well. With the support of the Helmsley Charitable Trust we are continuing research into an innovative way to refine the device to provide adaptive stimulation."

4. Professor James Fallon
Chief Technology Officer



Rheumatoid arthritis

"In June this year, we launched our clinical trial to assess safety of vagus nerve stimulation and its potential benefits in reducing swelling and pain caused by rheumatoid arthritis. The Bionics Institute is the sponsor, and the trial is run in collaboration with our clinical team from St Vincent's Hospital and the Austin Hospital."

5. Associate Professor Sophie Payne



Epilepsy

"We recently published a scientific journal paper on our early research into the potential use of vagus nerve stimulation at abdominal level (aVNS) for neurological conditions. We have shown that aVNS activates the brain region important for alleviating symptoms of a range of neurological conditions, including mental health disorders and epilepsy."

9. Dr Tomoko Hyakumura



Hearing loss

"We are currently developing the process to manufacture a clinical grade drug delivery system for potential use in a clinical trial of our innovative therapy that aims to improve quality of life for people with hearing impairment."

8. Associate Professor Andrew Wise



Infant hearing

"We are engaging with leading clinicians world-wide to refine our EarGenie test of infant hearing so that, once approved for clinical use, it will fast track intervention for infants with hearing loss to optimise their language development. I am excited to be one of the Founders of a newly created company, EarGenie Pty Ltd, which is currently completing its early fund-raising activities, to be the vehicle to undertake ongoing engineering and clinical development and to ultimately market products to the audiology community throughout the world."

7. Professor Colette McKay



Tinnitus

"We are collaborating with several clinicians to use our tinnitus diagnosis technology to monitor potential tinnitus treatments under investigation, with the aim of finding new ways to relieve symptoms."

6. Associate Professor Mehrnaz Shoushtarian



What will your legacy be?

A gift in your Will to the Bionics Institute is a meaningful way for you to leave your legacy and help make the world a better place for future generations. You will be remembered for the values that define your life and enable our researchers to transform lives for people with debilitating conditions into the future.

Remembering the Bionics Institute in your Will is also a practical way of making a real difference in people's lives without affecting your independence and self-sufficiency today. No matter the size – your gift will support the development of innovative new treatments and help our researchers improve the lives of people like Sara, who has Crohn's disease.

"The Bionics Institute's research into innovative new treatments give people like me hope of a better future."

- Sara

To arrange a time to talk in confidence with our Head of Development Jo Crowston about leaving a gift in your Will, email: philanthropy@bionicsinstitute.org

Download our Legacy Pack here



A scholarship in memory of

Magdalena and Janos

Bionics Institute CEO Robert Klupacs is proud of his family's history. In 2023, he and his siblings approached the Bionics Institute with the idea of creating the "Magdalena and Janos Klupacs Memorial PhD Scholarship" to support a student who, like them, is the child of first-generation migrants to Australia.

They wanted to find a way to honour the memory of their parents Magdalena (passed away 2010) and Janos (passed away 1979), who arrived in Australia from Holland and Hungary in 1955 and 1950 respectively, to start a new life in Australia.

Robert says: "Like so many post war immigrants to Australia, life was very difficult for my parents in the early days in Australia. But they worked hard to give their seven children the best start in life. We all received the best possible education and have gone on to lead rewarding lives. We know that for many children of first-generation immigrants, education is cherished but financial support is often limited. We wanted to give a promising student some of the advantages given to us by our parents, Magdalena and Janos".



Robert and his siblings, Allyson, Christopher and Andrew have each jointly committed to give a combined \$20,000 a year over four years to provide top-up funding for Ella Trang, who is undertaking a PhD at the Bionics Institute in 3D histological imaging.

Ella says:

"I am very grateful for the support of the Klupacs Family, not only for the financial support, but also for the moral support for my studies. It's very special to receive a scholarship in memory of their parents".

Bionics Institute News

Run Melbourne 2025

In July, runners across Australia gathered at Melbourne Park to achieve their fitness goals and support the Bionics Institute. We're very grateful to our dedicated fundraisers who have helped to advance vital medical research by running 5.5km, 10km and half marathons.

First Concept Logistics Charity

Golf Day great success

Golfers enjoyed a nine-hole Ambrose game, networking, and a BBQ at Box Hill Golf Course in March while raising funds for the Bionics Institute. We're very grateful to guest speaker Nick Maxwell, who shared insights on leadership and corporate social responsibility.

A huge thank you to our sponsors: Concept Logistics, Canaccord Genuity, Brolec, Edgewise Insurance, Schetzer Papaleo Lawyers, The House of Golf, The Brand Workshop, Australian Women's Golf Network and Kieser.

Preview Event showcasing

vagus nerve stimulation

In March, the Bionics Institute held its second Preview Event, where Chief Technology Officer Professor James Fallon shared exciting progress on vagus nerve stimulation (VNS) research, and Professor Peter De Cruz gave an update on the clinical trial of VNS as a potential treatment of Crohn's disease.

Giving Day success

The Bionics Institute's Giving Day held in March raised over \$170,000 with the support of our Ambassador, singer-songwriter Vance Joy. Funds will accelerate the Cognitive Therapeutics Research Program led by Prof Kate Hoy with the aim of improving the lives of people with Alzheimer's. The day's success reflects the incredible generosity of our supporters, and we are deeply grateful for your continued kindness.

Read more news here



Hybrid light and electricity therapy to combat chronic pain

We've all experienced pain. But dealing with chronic pain day in and day out for years on end affects every aspect of your life...your work, your mood, your sleep.

Chronic pain affects a staggering 1 in 4 people worldwide, but there is still no reliable treatment. Opioids, commonly prescribed for pain conditions, give inconsistent and often inadequate relief of symptoms, and can lead to serious side-effects, addiction, and overdose.

Nerve stimulators are available as an alternative to medication. Placed on the spinal cord or peripheral nerves, they use electricity to mask pain signals. While they can be effective, for many people, they fail to provide long-term benefits.

One reason for this is that it is extremely difficult to give enough stimulation using electricity to relieve pain without causing unwanted activation of other nerve fibres.

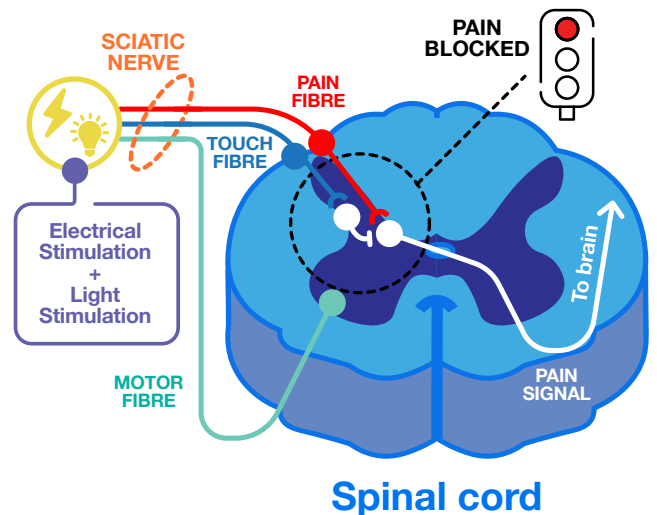
Bionics Institute researcher Professor Rachael Richardson and her team are investigating a potential treatment that combines the benefits of electrical stimulation with a novel, highly precise stimulus based on light that can be applied directly to the affected nerve. The combination of electrical and optical stimuli is called hybrid stimulation.

In their natural state, nerves cannot be stimulated by visible light, but Prof Richardson is a world leader in an emerging technology called optogenetics that uses a genetic modification in specific nerve fibres to make them sensitive to light.

The benefit of stimulating the nerve with light is that only the modified nerve fibres are activated while the other nerve fibres are completely unaffected, making the potential hybrid stimulation treatment much more precise.

Prof Richardson's team have had some excellent results from early research into this method and are now progressing this research to the next stage, which includes plans to:

- Measure the effectiveness of hybrid stimulation on varying levels of chronic pain
- Develop clinically relevant tools to modify the affected nerves locally so they respond to light
- Engineer a nerve stimulator that can apply light directly to the nerve
- Perform safety studies with the aim of progressing the therapy to clinical trials.



In the context of pain, the highly precise neural signals generated by this potential hybrid stimulation therapy are processed in the spine, effectively **giving pain signals a red stop light**, while other neural activity gets a green light, ensuring normal movement and sensation.

Prof Richardson says:

“Our aim is to develop a hybrid stimulation device that suppresses pain with greater precision than pain medications and allows greater masking of pain than electrical-only nerve stimulators, transforming the lives of people with chronic pain.”



Please give this spring at:

bionicsinstitute.org/donate

Join our incredible community of supporters and help us develop life-changing treatments for future generations.

We've moved!

**Mailbox 84, St Vincent's Hospital,
41 Victoria Parade, FITZROY
VIC 3065 AUSTRALIA**