

the
aikenhead
centre
FOR MEDICAL DISCOVERY



At the Centre of Discovery

The Aikenhead Centre for Medical Discovery will be Australia's first hospital-based biomedical engineering facility.

Located at St Vincent's Hospital Melbourne within a tertiary university health care service, the ACMD will be a medical epicentre of ground-breaking research, technology and solutions, all designed with the patient in mind.

This is a hub fusing medicine, engineering, science and industry to yield powerful economic, patient and health care outcomes.

Bringing together basic, translational and clinical research expertise from St Vincent's Hospital, five internationally recognised universities and four renowned medical research institutes in a purpose built centre, the ACMD will drive medical innovation to reduce the burden of chronic disease.

St Vincent's has an established track record in health and medical research and clinical trials. St Vincent's Hospital Melbourne clinicians and clinician researchers will inform

basic research with expert clinical insights, identification of unmet patient needs and also translate research findings to patients to drive improvements in clinical outcomes.

This will form the ultimate environment for medical innovation in a bedside to bench to bedside model, all centred around patient outcomes.

A unified vision

Our vision is to revolutionise how we approach medical solutions, to position Australia as a leader within this emerging global industry.

We approach the treatment and management of disease through collaboration between medical practitioners, engineers, researchers, scientists and industry experts in one hospital location.

The ACMD consortium will partner with national and international health and medical research leaders, innovators and industry to deliver the best health care solutions rapidly to a global market.

Evolving possibilities

Total limb reconstruction

At the heart of the proposed new Aikenhead Centre for Medical Discovery is a core team of people working on Advanced Limb Reconstruction to reconstruct any aspect of a human limb. The intention is to solve patient medical problems associated with:



- osteoarthritis
- trauma injuries from major car accidents
- joint replacement
- bone and soft tissue cancer
- inherited diseases

Treat cancer

Understanding stem cell regulation will enable us to develop new treatments for cancer.



Already, investigation of pathways controlling cell replication and maturation is providing insights into the causes of cancer. Further work in this field is vital to assist in the development of new

treatments for blood and bone cancers.

Treat psychiatric and neurological disorders

The Bionics Institute and collaborators will develop a complete deep brain stimulation system to treat disorders of the central nervous system for which no other effective therapies are available.



These disorders include severe psychiatric conditions (including OCD, severe depression), movement disorders (Parkinson's' disease, essential tremor) and other disabling conditions (chronic pain and epilepsy).

Nerve and muscle regeneration

Muscle regeneration has been a new area of focus in recent years, to



help with neuromuscular diseases like muscular dystrophy and spinal cord injuries.

This challenging and innovative multidisciplinary research is made possible through

collaboration of a range of skills and facilities.

With the technology and expertise both on site at St Vincent's, research projects like nerve and muscle generation can prosper under one roof.

Where the best in engineering, science and medicine meet



Experienced leading researchers

Enhancing innovation and industry links

Expertise in clinical translation

- Medical technology advancements
- Medical diagnostics
- Implantable devices

- Limb and tissue regeneration
- Medical bionics
- Drug design & discovery

- Translational research
- Clinical trials phase 1- 4
- Research Valet Service for governance

The 3D heel

Len Chandler was faced with losing his leg to cancer, until Professor Peter Choong at St Vincent's Hospital embraced 3D printing technology to develop a world-first solution. Len's right heel needed to be removed in a procedure which usually means leg amputation.

A titanium 3D heel bone was printed and fitted with the help of a team of medical staff and partners in science, engineering and industry, to help save Len's leg. This remarkable procedure and outcome has placed Melbourne at the forefront of bioengineering.



A cure for diabetes

140,000 Australians survive diabetes with daily insulin injections. Now, St Vincent's Institute has pioneered islet cell transplantation in Australia, giving people with unstable type 1 diabetes the prospect of a future without insulin injections.

By transplanting insulin-producing islet cells from a donor pancreas into the patient's liver, the patient can begin to produce their own insulin.



Seizure warning device

In a world first, a new trial device has been used to give people with epilepsy early warning of a seizure.

St Vincent's is the first hospital in the world to implant the device which works by conveying electrical signals from the brain to a pacemaker-like device in the chest, calculating the risk of a seizure and sending a risk rating to the patient.

Imagine if this could be combined with the release of drugs to prevent or treat the seizure.



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ACMD Partners

