ST VINCENT'S
CENTRE FOR APPLIED
MEDICAL RESEARCH

RESEARCH REVIEW 2016

CONTENTS

SERVING SOMETHING GREATER

MESSAGE FROM THE CEO

As we enter our 160th year, the St Vincent's Darlinghurst Campus continues to consolidate its position as a leader on the Australian healthcare landscape. This is largely on the back of our quality of care, the calibre of research undertaken and the breadth of our teaching endeavours - all driven by a central impetus; the Mission of the Sisters of Charity.

In late 2016, inspired by this Mission to respond to community need, we formalised the St Vincent's Integrated Healthcare Campus Clinical Services Plan – 2026/27 which builds on the strengths of the St Vincent's Campus today.

The Clinical Services Plan represents our future vision for the Campus to meet and adapt to the clinical, scientific, pastoral and financial challenges of 21st-century healthcare.

After extensive consultation with staff, our Campus partners and key stakeholders, we have formulated our Clinical Services Strategy which outlines six key strategic commitments:

1. Our future is precision medicine. We will provide innovative and personalised care through minimally invasive, targeted interventions, leveraging genomics, advanced imaging, microbiome and metabolic analysis.
2. We will establish new ambulatory models of integrated care. Patients will have access to coordinated, specialist interdisciplinary teams that treat the whole person and are fully integrated with primary care.
3. We will use telehealth and virtual care delivery to provide outreach services to patients and support to clinicians in remote and rural areas, ensuring all NSW patients can access specialist care.
4. We will be a destination for world-class treatment, research and training, with a Centre of Excellence in Heart Lung Vascular and a number of other preeminent clinical services.
5. We will continue to advocate for and deliver compassionate care and service for the poor and vulnerable in the spirit of Mary Aikenhead and the Sisters of Charity.
6. We will develop more cost effective models of care and leverage the capabilities of our co-located public and private healthcare campus.

All six of these key strategic commitments relate closely to our research endeavours. It is the research component, that to a large degree will not only enable us to meet these commitments, but lead the way in transforming the way we deliver healthcare: be it in a virtual setting, on the street with homeless clients or in a lab, delivering precision treatment.

The Plan provides a blueprint that identifies how we can deliver on these commitments, estimating our future activity profile and potential infrastructure requirements. The Clinical Services Plan will inform our case for future service and ongoing infrastructure development.

Currently there is significant momentum in relation to our Darlinghurst Redevelopment Plan as we select the best masterplan option to support our healthcare delivery, research and teaching endeavours.

In 2016, St Vincent's executed an MOU to join the Sydney Partnership for Health, Education, Research and Enterprise (SPHERE) – which is an integrated health science network of global significance in New South Wales.

SPHERE brings together three universities, two Local Health Districts, two Local Health Networks, seven Medical Research Institutes, and nine major teaching hospitals.

In joining SPHERE we are ensuring that St Vincent's continues to deliver the best quality healthcare services through research for our target populations. It allows for strategic growth with our partners and ensures the recruitment and retention of the best clinicians.

As we consolidate our future planning and partnerships for the Campus, I am delighted that we are positioning ourselves to ensure that our research endeavors are continuing the central role they've played throughout our history.

MESSAGE FROM THE DIRECTOR OF RESEARCH

St Vincent's has a long history and strong tradition of medical research. The research institutes on the St Vincent's Research Campus, including Garvan Institute of Medical Research, The Kinghorn Cancer Centre, Victor Chang Cardiac Research Institute and the St Vincent's Centre for Applied Medical Research have pioneered insights into some of the most widespread diseases affecting our community today.

The close physical proximity of these great Institutes reflects the strong working relationships of these organisations, with many core facilities being shared among UNSW, the Kirby Institute, VCCRI and Garvan. Together, we are committed to excellence in biomedical research, disseminating the results of our research widely to the medical and scientific community and to the general public, and providing the highest standards of diagnostic service and patient care.

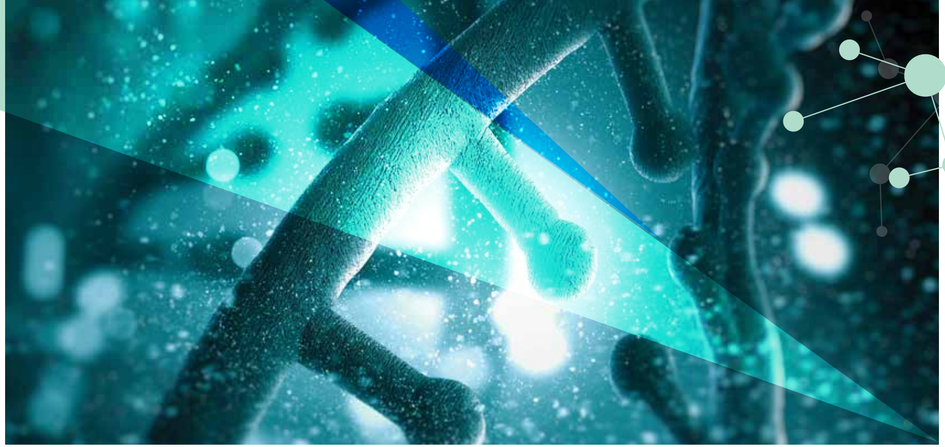
The St Vincent's Centre for Applied Medical Research (AMR) has a long and proud tradition of conducting research with the aim of improving outcomes for those with or at risk of disease. It was formed in 2008 when the Centre for Immunology and the Clinical Trials Unit from St Vincent's Hospital merged. The AMR conducts clinical, applied and translational research with a focus on immunology, HIV and infectious diseases, neurosciences, transplantation biology and cancer.

St Vincent's Centre for Applied Medical Research has realised many of the operational efficiencies that were anticipated through collocation and building critical mass with its partners, the Kirby Institute, HIV Immunovirology Program and the Clinical Research Program. Together these groups have implemented a model to efficiently manage their shared essential services. This includes centralising scientific stores and supplies, cryogenic stores, glassware and media preparation services, back-of-house services including waste management, engineering and maintenance services, medical grade gases and loading dock operations.

The recent development of the Translational Research Centre on the St Vincent's Research Campus has further broadened our healthcare research agenda. This will increase the presence of research in Darlinghurst, providing greater scope for our researchers to collaborate.

The St Vincent's strategy is to align its research strengths with its clinical flagships. Attaining adequate scale and financial sustainability are important and necessary goals for research flagships.

In March 2015 the St Vincent's Research Precinct launched a process to create a strategic plan that would establish the vision and direction for its research enterprise.

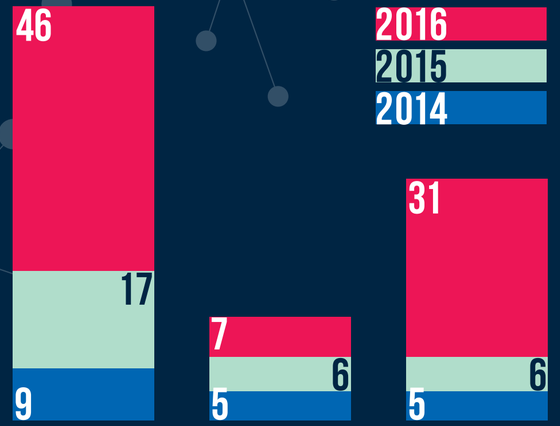


1. Research precincts which allow the potential for integrative, collaborative, and transformational research as well as providing the necessary scale and scope for collective investment in expensive and large scale technology platforms.
2. The St Vincent's Research Campus will be a renowned health and medical research precinct, with strong strategic partnerships, and a focus on translating research into improved health and clinical outcomes.
3. The St Vincent's Research Campus will provide a supportive research environment with a well-resourced infrastructure where scientists and clinicians can work collaboratively to contribute to research-informed healthcare.

In recent times, AMR has actively participated in the Darlinghurst campus capital master planning process. One of the major outcomes is the overwhelming need to realign and focus on the development of structures and processes to integrate all Darlinghurst-based research and teaching initiatives.

The Darlinghurst campus is one of Australia's largest and most successful bio-medical research hubs supporting translational research where there is an intersection of clinical and research expertise.

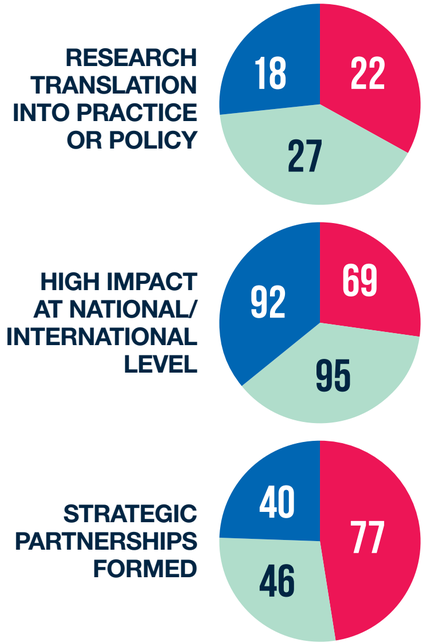
RESEARCH AT A GLANCE



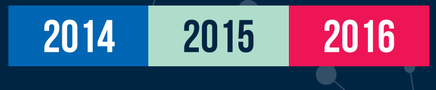
PROJECTS INVOLVING 2 OR MORE SVHA DIVISIONS

PROJECTS INVOLVING VIC/QLD/NSW SVHA COLLABORATION

MISSION FOCUSED PROJECTS

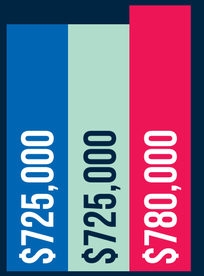


	2014	2015	2016
JOURNAL PUBLICATIONS	618	622	842
BOOK CHAPTERS PUBLISHED	28	16	15
UNDERGRADS (MEDICINE)	459	444	444
PRIZES/AWARDS (INSTITUTION & STAFF)	15	12	20
PHD STUDENTS	90	100	110
HIGHER DEGREE STUDENTS	40	45	48

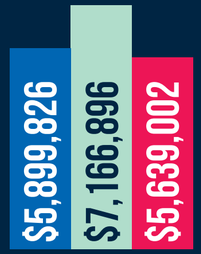


NHMRC/ARC GRANTS

NON-PEER REVIEWED GRANTS (NON-GOV AND OTHER GRANTS)



ST VINCENT'S CLINIC FOUNDATION GRANTS



TOTAL RESEARCH INCOME

OPERATIONS REPORT

St Vincent's Research Campus continues to grow. The progressive development of the Darlinghurst Research Precinct saw it physically co-locate and operationally integrate the shared infrastructure of the medical research institutes and health services provided on campus. This was the first stage in cementing our place as an internationally recognised research precinct.

Our primary flagship research enterprise, the Centre for Applied Medical Research was formed in 2008. It's then that we brought together our scientific researchers with our clinical researchers – those research staff involved with conducting clinical trials of new drugs, devices and procedures together under one umbrella. We continue to implement the five year Research Strategic Plan 'Developing Healthcare Research 2013-2018' which has guided our vision for the past 3 years.

Our most recent achievement was the redevelopment and opening of the Centre for Applied Medical Research Translational Research Centre (TRC), providing an environment that allows for future expansion of clinical research on the Darlinghurst campus. TRC houses the St Vincent's Research Office providing human research ethics and governance review for campus wide research projects and the Kirby Institute staff. It creates an interface with St Vincent's clinicians including speciality HIV inpatient and ambulatory services and the NSW State Reference Laboratory for HIV. The Centre was opened in November 2015 by the Hon Minister for Medical Research, Pru Goward MP.

At the same time, the St Vincent's Campus has been working on the Darlinghurst Redevelopment Master plan. The plan and its key elements represent a clear statement that informs our thinking about creating a unified approach. This is across everything we do, from embedding common values and treatment models to shared facilities, technology and research.

This planning statement clearly identifies some of the core principles that underpin the work we do. It sets the platform for effective and indeed efficient 'translation' of scientific breakthroughs as quickly as possible into practical results. One core principle of the St Vincent's Research Precinct is all about sharing infrastructure. Investment in core facilities that can be shared across the campus is not only efficient but creates operational excellence. We have brought together and harmonised our efforts in wet laboratory facilities with our medical research institute partners, biobanking and tissue banking facilities, research ethics and governance, clinical trial conduct and support. We have created a campus wide website, bringing together our research achievements and capabilities with those of our partners.

Transforming healthcare is what St Vincent's is all about. We believe that this fundamental step of bringing our bench scientists together with clinician researchers will mean we're well placed to take a leadership role in clinical research. In turn, accelarating the translation of new knowledge into leading edge practices, devices and tests, techniques and treatments.

While the St Vincent's Research agenda continues to evolve, AMR will continue to adapt and respond to the changing needs of the campus and continue to produce high quality work. Our family staff, students, visiting scholars and collaborators will continue to work closely together to contribute to the success of the vision. I would like to thank every member of our organisation for their contribution, particularly those who ensure our environment runs safely, smoothly and is a great place to work.

Associate Professor Philip Cunningham
Chief Operating Officer

WWW.SVRC.ONE

The St Vincent's Research Campus website was developed with funds from the NSW Office for Health and Medical Research (OHMR) to support the development of a Research Hub on the Darlinghurst campus. We were very pleased that the Hon Brad Hazzard MP, NSW Minister for Health and Minister for Medical Research, officially launched the website on his tour of the Research Precinct

The website captures the St Vincent's Research Precinct as a renowned health and medical research precinct, with strong strategic partnerships, and a focus on translating research into improved health and clinical outcomes. It provides a platform where scientists and clinicians from its member organisations can be informed about events, facilities and personnel to facilitate working collaboratively to contribute to research-informed healthcare.

RESEARCH OFFICE REPORT

The St Vincent's Hospital (SVH) Research Office manages the St Vincent's Hospital Human Research Ethics Committee (HREC) and is responsible for research governance across the St Vincent's Health Network Sydney (SVHNS), the Darlinghurst Research Precinct and the Mater Hospital. The Research Office also oversees intellectual property management and technology commercialisation and provides secretarial support to the New Interventional Procedures Assessment Committee (NIPAC). The office is increasingly involved in the broad facilitation of research across the Darlinghurst Research Precinct and beyond in accordance with Research Strategic Plan 2013-2018.

Research Office staff members have extensive experience preparing and reviewing submissions to the St Vincent's Hospital HREC and are able to provide advice and assistance with ethics and governance submissions. They regularly attend local and interstate events and conferences to keep up to date with the latest developments in clinical trials, health research policies and research ethics and governance initiatives and changes at a local, state and national level.

RESEARCH OFFICE METRICS 2016

	2015	2016
HREC full submissions	102	103
HREC Low/negligible risk submissions	129	84
Site Specific Assessment - full submissions	115	131
Site Specific Assessment for Low/Negligible Risk	111	80
Clinical Trials - new	54	61
Clinical Trials - continuing	222	217
Clinical Trials - completed	21	30
RO Gross Revenue	**$342,299.00**	**$340,647.95**

TECHNOLOGY COMMERCIALISATION

Commercialising intellectual property (IP) is about getting products or services into the market place. St Vincent's Hospital Sydney is a research-intensive hospital and has a wealth of experience in translating its groundbreaking research into solutions that benefit the community. The Research Office oversees the commercialisation of innovative research conducted at St Vincent's Hospital Sydney, and works closely with researchers at the hospital to identify ideas which have real commercial potential.

For example, by leveraging on the experience, expertise and intellectual property assets driven by Professor Samuel Breit and co-workers at St Vincent's Centre for Applied Medical Research, St Vincent's Hospital Sydney has entered into global license agreements with three major pharmaceutical companies to develop and commercialise Macrophage Inhibitory Cytokine (MIC-1, or GDF-15) related technology in therapeutic and diagnostic fields. Macrophage Inhibitory Cytokine (otherwise known as Growth Differentiation Factor-15 (GDF-15)) is a member of the Transforming Growth Factor-ß (TGF-ß) cytokine family.

IP AND COMMERCIALISATION METRICS

	2015	2016
New invention disclosures	5	2
Provisional patent applications filed	2	2
No. active patent families	17	18
No. license agreements executed	2	1
No. active patent families managed by SVH to licensed commercial parties	8	11
Gross Commercialisation Revenue (Cumulative)	**$2,128,600.00**	**$2,267,011.00**

RESEARCH SUPPORT

TRANSLATIONAL RESEARCH CENTRE (TRC) - AMR- CRP CLINICAL RESEARCH PROGRAM

The Applied Medical Research-Clinical Research Program (AMR-CRP) provides high quality clinical trials services on the St Vincent's Campus for the clinical implementation of academic, pharmaceutical, and investigator initiated clinical studies.

The areas of expertise in clinical trials at St Vincent's Hospital include Cancer services, Heart/ Lung, HIV, Immunology, Anal Cancer, Viral Hepatitis, Neurology, Stroke, Rehabilitation Medicine, Pain Management, Drug and Alcohol, and other specialties. Our vision is to broaden expertise and resources so we can collaborate more widely to appropriately support investigators and researchers across the campus.

In April 2016 we moved into the refurbished CFI building where we have created a collaborative centre for clinical research. The centre is also known as the Translational Research Centre. The centre has clinical consultation rooms, client interview rooms, meeting rooms and office space. The business model we use is that staff are allocated to appropriate trust fund, depending on time worked in specialty. Most trial staff now can work on more than one specialty which enhances collaboration.

Our clinical research team involves Medical Investigators, Project Managers, Study Coordinators, Clinical Psychologists, Occupational Therapists, Physiotherapist, Operations Manager, and Financial Administration Officer.

The aim of AMR CRP is to promote translational research, providing collaboration and applying discoveries to improve our patients' quality of life.

AMR CRP- CLINICAL TRIALS 2017

Specialty	Number of trials
HIV	21
NEUROLOGY	18
HIV ONCOLOGY	3
VIRAL HEPATITIS	17
REHABILITATION	14
ANAL DYSPLASIA	2

NEUROSCIENCE PROGRAM AND PETER DUNCAN NEUROSCIENCE UNIT

In the last year, clinical trials in Alzheimer's disease at the Translational Research Unit have increased dramatically. We are now screening several patients each week. Alzheimer's disease is thought to be related to the build up of amyloid in the brain but there are other potential mechanisms. There are eight trials currently available with another four in the coming months. They encompass phase I (early stage) through to phase III (later more definitive stage) and address amyloid and non-amyloid targets. In relation to amyloid we have trials inhibiting production, inhibiting binding to nerve cells and increasing disposal of amyloid. Non-amyloid trials focus upon tau and steroid metabolism. All the trials are international. We are the lead site in Australia for several of these studies. With such a significant expansion in trials targeting Alzheimer's disease from several different perspectives, it is hoped that an effective treatment will be found soon.

TRIAL SITE FOR NIH HIV MALIGNANCY STUDY – IMMUNOLOGY

St Vincent's plays a leading role in the care of patients with immune deficiencies including HIV. For these people, cancers are now a leading cause of moribidity and mortality. This year has seen significant progress in developing new trials for cancer prevention and treatment with a focus on developing new classes of medications that stimulate the impaired immune system to cancer.

The first is a prevention trial for people at high risk of later developing anogenital cancer. It is open to people with and without HIV with persistent high grade infection by human papillomavirus (HPV), the key risk factor for development of anogenital cancer. Participants will receive a new immune stimulating medication, pomalidomide, by mouth for up to six months. The goal is to enhance the immune response to HPV lesions, clearing them before they progress to cancer.

The second trial is an outcome of a new collaboration with the U.S. National Cancer Institute AIDS Malignancy Consortium, the peak clinical trial group for HIV-associated malignancies globally. Through this collaboration, Australian patients with HIV-associated cancers will be able to access innovative trials of new therapies for the first time. This is a treatment trial for patients with HIV infection and cancer whose

cancers have not responded to standard therapy. It uses two immune therapies, ipilimumab and nivolumab, together. These medications, also called checkpoint inhibitiors, are designed to releasing tumour inhibition of immune system to allow a vigorous immune response to cancer.

In addition to these new trials of treatments, 2016 saw the establishment of a clinical biobank of people with HIV and cancer (HI-C) to support future basic and translational research in the field. This is now open to patients at St Vincent's Hospital and several other sites around Australia.

GRANTS 2016

St Vincent's Centre for Applied Medical Research is a member of the Darlinghurst Research Hub and strives to support and develop the exceptional research talent on this campus. St Vincent's Hospital is recognised as one of Australia's leading technologically advanced teaching hospitals, providing healthcare which is informed by medical and health research.

The St Vincent's Centre for Applied Medical Research is committed to:

Excellence in biomedical research. The Centre engages in fundamental scientific research in the fields of immunology and cell biology with relevance to allergy, inflammatory disease, cancer and HIV/AIDS. Collaborative projects link these studies to clinical trials, in particular HIV/AIDS. Disseminating the results of this research widely to the medical and scientific community and to the general public. Undertaking undergraduate and postgraduate training and teaching. Providing the highest standards of diagnostic service and patient care in accordance with the Mission of St Vincent's Hospital.

AMR TRANSLATIONAL GRANTS

The aim of these grants is to promote translation research, particularly in its early phase. This is envisaged to support salary, equipment and research consumable costs to assist early stage healthcare researchers to participate directly in research projects as a component of their professional career. These grants are intended for early stage researchers to mobilise a translational research project to publication with a view to attracting further funding from other peer reviewed grant agencies (e.g. NHMRC, non-government organisations).

There are three grants intended to seed fund projects that have a clear project trajectory to improve clinical practice. There is a major grant ($50,000) and two additional grants ($25,000) per annum. Each grant is for one year's duration.

In 2016, the grants were awarded to :

- **Dr Tim Molloy**
  Clinical potential of an RNA transcriptional regulator as a prognostic marker and therapeutic target for acute leukaemia.
- **Dr Angelica Thompson Butel**
  Translational neurorehabilitation - a telehealth transfer package to integrate evidence based research into routine clinical practice post stroke.
- **A/Prof Clare Fraser**
  Functional and anatomical assessment of optic nerve function in patients with pituitary lesions: developing a protocol to predict those at greatest risk of irreversible vision loss.

AMR CLINICIAN BUY BACK GRANTS

The purpose of this scheme is to 'Buy-Out' protected clinical time to engage in research activities. This is defined as providing funding to clinicians to do research, by either obtaining time to spend on research by forgoing clinical work, or by substituting another practitioner to fulfil clinical duties with the hospital, so that research can be undertaken.

One of two 2017 AMR Clinician Buy-Back Grants is supporting an Australia-wide endeavor to introduce standardised data collection by lung cancer multidisciplinary teams (MDTs) and to explore its impact on lung cancer outcomes and team performance. Dr Emily Stone, chair of the St Vincent's Hospital Lung Cancer MDT, is leading this investigation as part of doctoral studies. The Clinician Buy-Back Grant for 2017 has funded extra staffing in the Department of Thoracic Medicine, giving Dr Stone protected time for this study, which has involved collaboration with leading lung cancer clinicians from around the country. Pipeline developments include submission for publication of standardized optimal data sets and the development of data feedback strategies to be piloted at multiple MDT sites. There is also potential to engage with international collaborators with a view to broader application of standardised data collection including assessment of program performance, patient reported outcomes and comparison studies optimised for the Australian setting.

DR WINNIE TONG - CLINICIAN BUY BACK GRANT RECIPIENT

"The advent of the AMR Clinician Buy Back Grant in 2016 has been instrumental in enabling me to continue my translational research post-PhD, as well as develop new skills in clinical translational research. I have been extremely fortunate post-PhD to find myself a busy clinician, seeing the range of immune diseases ranging from autoimmunity and allergy to both primary and secondary immunodeficiencies. Without this Buy Back grant, the current clinical environment does not allow clinicians any "thinking time" which is essential if we are to find better, safer and newer ways of diagnosing and treating immune diseases. Specifically, the grant is enabling me to continue further work stemming from my PhD in understanding how the immune system controls human papillomavirus induced anal precancers; and establish a new clinical research network, initially focusing on drug allergy testing and challenges. I have also been contributing to the Clinical Immunogenetics Research Consortium Australia (CIRCA) and scleroderma research in collaboration with the Garvan, whilst maintaining close links with the Kirby."

ST VINCENT'S CLINIC FOUNDATION GRANTS

The St Vincent's Clinic Foundation was established in 1992 to further educational and research development on the St Vincent's Darlinghurst Campus and the St Joseph's Campus (Auburn). The research that is funded covers a wide range of projects, with an emphasis on supporting upcoming researchers on the Campus.

St Vincent's Clinic Foundation passionately believes that quality research underpins quality clinical care. We also recognise the difficulty that some researchers have in securing funding for new projects and the importance of providing the opportunity for clinicians to be involved in research.

The Foundation has contributed more than $13 million in funding for research and education projects across St Vincent's. In particular, the Foundation aims to assist research programs so that they are eligible to apply for external grants (eg NHMRC grants), to underpin clinical excellence with quality research and to financially assist "up and coming" researchers.

In 2016, 21 research grants were awarded totalling $828,000. Since 2014, the Foundation's Scientific Committee has assessed grants for the Foundation, AMR and St Vincent's Private Hospital Sydney.

SVPHS LADIES' COMMITTEE SR MARY BERNICE RESEARCH GRANT - $150,000

Principal Investigator - A/Prof John Moore
Eradicating self-destructive immune cells in multiple sclerosis and regenerating a new immune system by blood stem cell transplantation.

ADULT STEM CELL RESEARCH GRANT - $100,000

Principal Investigator - Prof Richard Harvey
Enhancing heart repair after myocardial infarction by targeting cardiac-resident stem cells.

TANCRED RESEARCH GRANT - $50,000

Principal Investigator - A/Prof Jerrry Greenfield
A study to determine whether risk of fracture in obese humans is related to insulin resistance

K&A COLLINS CANCER GRANT - $50,000

Principal Investigator - Prof Reginald V N Lord
Discovery and validation of biological changes occurring in oesophageal adenocarcinoma and its precursor disease, Barrett's oesophagus, to identify biomarkers that can be used to develop a blood test for early cancer detection.

THELMA GREIG CANCER GRANT - $50,000

Principal Investigator - Prof Samuel Breit
A new treatment for obesity and cancer anorexia/cachexia.

FROULOP RESEARCH GRANT - $30,000

Principal Investigator - Prof Diane Fatkin
Role of the muscle protein titin in dilated cardiomyopathy, a common form of genetic heart failure.

ANNUAL GRANT 1 - $30,000

Principal Investigator - Dr Kazuo Suzuki
Development of novel laboratory assays for the identification of active and productive HIV-1 infection in patient cells from HIV-1 infected individuals on effective antiretroviral therapy.

ANNUAL GRANT 2 - $30,000

Principal Investigator - Prof David Ma
Using patient-derived stem cells to find the causes of Down syndrome-associated leukaemia.

ANNUAL GRANT 3 - $30,000

Principal Investigator - A/Prof Catherine Suter
Discovering the underlying cause of high blood pressure.

ANNUAL GRANT 4 - $30,000

Principal Investigator - A/Prof Mark Danta
Improvement in liver injury following successful HCV therapy and its impact on clinical care.

ANNUAL GRANT 5 - $30,000

Principal Investigator - Prof Bruce Brew
Investigation into the role of the BCL11b protein in multiple sclerosis.

ANNUAL GRANT 6 - $30,000

Principal Investigator - Dr Nicola Smith
A new player in an enlarged heart?

ANNUAL GRANT 7 - $30,000

Principal Investigator - Dr Melissa Baysari
Implementation of drug-drug interaction alerts: An investigation of burden on prescribers.

ANNUAL GRANT 8 - $30,000

Principal Investigator - A/Prof Kumud Dhital
Improving quality of DCD organs through ex-vivo perfusion.

MULTIDISCIPLINARY GRANT 1 - $25,000

Principal Investigator - Dr Jed Duff
Maintaining normoTHERMIa during SEDation: The THERMISED pilot study.

MULTIDISCIPLINARY GRANT 2 - $25,000

Principal Investigator - Ms Julie Labra
The impact of nutrition and swallowing on patients gastrostomy/PEG decision-making in Motor Neurone Disease (MND).

MULTIDISCIPLINARY GRANT 3 - $25,000

Principal Investigator - Ms Weihong Zhang
A transfer training program to reduce falls in cognitively impaired older adults with higher level gait disorders: a pilot study.

MULTIDISCIPLINARY GRANT 4 - $25,000

Principal Investigator - Miss Danielle Gately
A study evaluating the feasibility and acceptability of the Modified Kimberley Indigenous Cognitive Assessment (mKICA) to Aboriginal people attending an acute tertiary hospital.

MULTIDISCIPLINARY GRANT 5 - $23,000

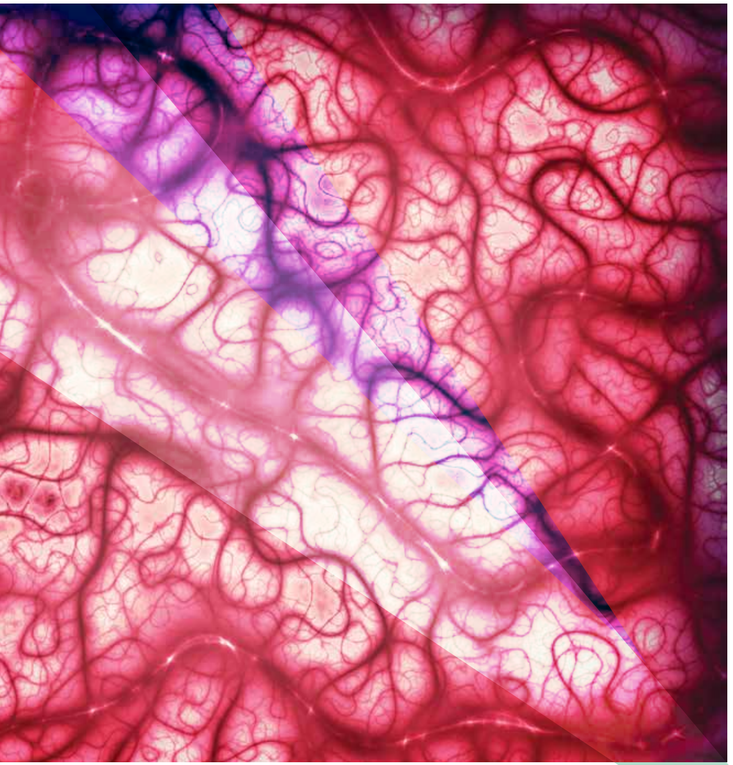
Principal Investigator - Prof Kim Walker
A prospective study assessing the incidence of Deep Venous Thrombosis (DVT) in low-risk patients with 6 weeks non-weight bearing period following elective foot or ankle surgery.

MULTIDISCIPLINARY GRANT 6 - $25,000

Principal Investigator - Ms Cindy Tan
A pilot study evaluating functional, cognitive and nutritional changes during the first 3 months posthaematopoietic stem cell transplant.

TRAVELLING FELLOWSHIP GRANT - $10,000

Principal Investigator - Dr Gayathri Kumarasinghe
Clinical fellowship in adult congenital heart diseases/pulmonary hypertension at Oxford University Hospitals, UK.



BIOSTATISTICS

In 2016 St Vincent's Centre for Applied Medical Research (AMR) announced the establishment of a core facility on the Darlinghurst Campus to provide biostatistics and clinical trials design advice to our research community.

In partnership with the UNSW Statistical Consulting and Collaboration Unit (Stats Central), our expert biostatisticians will provide one-on-one consultation and advice regarding the design and analysis of our research data.

Researchers obtain biostatistics and clinical trial design expert advice by attending a 'Clinic' where they review protocols and research data with a qualified medical biostatistician. During SVHNS Research Week held in September, the Biostatistics Support program offered a range of educative seminars on statistical methods and data analysis which have been valuable for students and research active clinicians to develop statistical skills.

The program has been an overwhelming success evidenced by many examples where research projects have been successfully published in high impact international journals. The program is generally oversubscribed but we aim to introduce a data management support group to assist our research and improve the integrity and quality of research data.

A/Prof Stephen Kerr is Head of Biostatistics at the Thai Red Cross AIDS Research Centre. He has been the lead biostatistician in over 35 International Randomised Trials and Cohort Studies, and is an epidemiology/statistical reviewer for the Lancet group of journals.

BIOBANKING

The St Vincent's BioBank was purpose built in 2010 to address many of the workplace health and safety issues with handling cryogenic fluids, pressurised gases and biospecimens which may be biologically hazardous eg. oncogenic, infectious microorganisms as well as genetically modified organisms (GMOs).

St Vincent's Hospital Sydney recognises the contribution that is made by those who donate human tissues and samples for medical research. We also observe the fundamental ethical principle of respect of the donor. This includes the provision of fully informed consent, professional collection of samples and secure storage of materials, whilst maintaining confidentiality and privacy.

The BioBank allows researchers and collaborators to store valuable samples in a centralised purpose built core essential facility which maximises sample integrity. Researchers from other institutions are attracted to store valuable samples at an off-site, well managed biorepository as a disaster recovery option. This facility provides researchers with high quality biological tissues and samples that will translate to better health outcomes for patients.

While many biobanks are traditionally focussed on solid tumour and cancer tissue, the St Vincent's repository also hold extensive collections of blood, tissue and derivative (plasma, serum, DNA, nucleic acid extracts, genetically modified organisms (GMO), reference materials, cell lines, (CSF, body fluids) from individuals participating in clinical research projects primarily with HIV, viral hepatitis or a range other emerging infectious diseases (influenza, tuberculosis, sexually transmissible infections) of public health importance.

Contributions to the BioBank are received through a growing number of investigators through a variety of established and recognised networks across multiple sites often associated with large scale multicentre and international observational, epidemiological and clinical research studies.

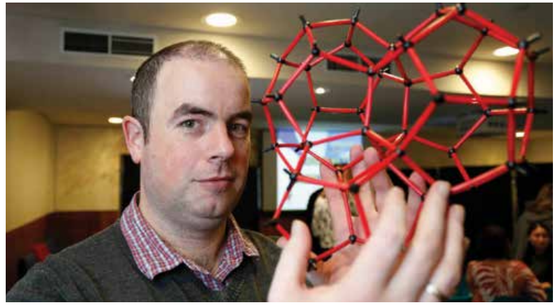
SEEING SOMETHING GREATER

RESEARCH WEEK 2016

Research Week was a celebration of the tremendous achievements of our researchers. St Vincent's Public and Private Hospitals joined with the Centre for Applied Medical Research, Garvan Institute of Medical Research, The Kinghorn Cancer Centre and Victor Chang Cardiac Institute to showcase their latest research. We also gave an oversight of the incredible medical breakthroughs being achieved each day on this amazing campus.

The week had a number of events on offer including:

- **Opportunity to meet our researchers** - The annual St Vincent's Research Week brings together world-renowned researchers and clinicians from around the campus to present their latest research through displays in the foyer of the public hospital and on the level 4 mezzanine. It was the chance to speak to incredible researchers from across the institutes and departments, learn more about their huge range of research that is being undertaken at St Vincent's and take part in their studies.
- **Hear more at educational seminars** – Numerous seminars on a variety of research topics were held throughout the week and it was a great way to learn more about our research. Our researchers hosted a five minute "pop up" seminar in the mezzanine during lunch time, which gave a snapshot of their work and studies.
- **Research Skills Workshops** -this was hosted by the Nursing Research Institute and Allied Health Research Unit to provide early stage researchers on the necessary skills to undertake high quality research.
- **Learn more at the St Vincent's Campus Research Symposium** Held on Friday 9th September, the Research Symposium brought together the brightest minds across the campus to share their research with peers.



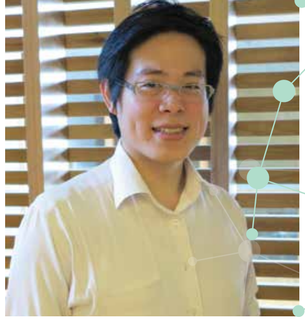
24TH ST VINCENT'S CAMPUS RESEARCH SYMPOSIUM 2016

The 24th Annual St Vincent's Research Symposium was the final event in the St Vincent's Research Week calendar. This special event is a celebration of the breadth of research across the campus.

This is an opportunity to recognise up and coming early career researchers with our "Rising Stars" session. In addition, distinguished invited speakers for this year's symposium include Professor Thomas Jack Martin (St Vincent's Melbourne) and Dr Mark Polizzotto.

The meeting was held in the Garvan Institute of Medical Research Auditorium which provided an opportunity to 'cross-pollinate' within the broader research community. And the coffee cart was a big success, facilitating an early morning caffeine fix while visiting the sponsor's booths.

AWARDS



2016 SHINE TRANSLATIONAL RESEARCH FELLOWSHIP – DR FRANK LIN

DATA MINING TO IMPROVE PERSONALISED CANCER CARE

St Vincent's Hospital, in collaboration with the Garvan Institute of Medical Research have awarded Dr Frank Lin the 2016 Shine Translational Research Fellow. As an advanced physician trainee in oncology, Dr Lin will undertake a novel data mining project to support personalised cancer care.

The Shine Translational Research Fellowship Program was jointly established by St Vincent's and the Garvan to support clinicians. It provides them with an opportunity to participate in research, and to facilitate the translation of research discoveries directly into clinical practice. Dr Lin's research will focus on unlocking important predictive information that is 'hidden' within medical records that could help guide how clinicians treat individuals with cancer.

"Not only is there an enormous amount of information encoded within electronic medical records (EMRs), but there are patterns within that information that can help predict likely outcomes for individual patients," says Dr Lin. "Those patterns can be difficult or impossible for clinicians to detect on a case-by-case basis – but by applying systematic text mining approaches to EMRs, we hope to uncover those hidden patterns and help guide therapeutic decisions in treating an individual with cancer."

"I am very grateful for this opportunity. The Fellowship has jump-started the possibilities for me to explore how best to use advanced computational methods to benefit patients in the clinic," he said.

2016 AUSTRALIAN ACADEMY OF SCIENCE – PROF STEVE VUCIC, ST JOSEPH'S HOSPITAL AND WESTMEAD

Professor Steve Vucic, Co-Director of the Motor Neurone Disease Service at St Joseph's Hospital and Westmead, has been honoured by the Australian Academy of Science with the 2016 Gottschalk Medal for his pioneering research on the pathogenesis, diagnosis and treatment of Amyotrophic Lateral Sclerosis. Professor Vucic is one of 17 innovators and leading thinkers recognised in the 2016 Science Academy awards, and one of only four in the field of human health. Congratulations Prof Vucic!

NOVEL SUITE OF WEB-BASED TECHNOLOGIES TO PIONEER THE WAY CARDIAC CARE AND EDUCATION ARE DELIVERED

In February 2016, St Vincent's Hospital Sydney launched a comprehensive website to pioneer the way cardiac education is delivered, reduce the incidence of heart disease and improve patient outcomes. St Vincent's Hospital Heart Health (SVHHH) website aims to tackle the global issue of poor attendance in cardiac rehabilitation.

This online approach has revolutionised the cardiac patient journey and improved outcomes by:

1) Providing early access to information - empowering all patients immediately pre and post procedure
2) Offering a flexible model for delivering cardiac education - assisting people in remote areas
3) Enabling patients to have access to lifesaving cardiac rehabilitation information - presented uniquely in the form of animations, videos and simplified written content.

Currently, 18 months following the launch, the SVHHH website has over 52, 500 users globally. The new portal has generated extensive feedback with 93% of users likely to recommend the website to others. The SVHHH website is modernising established practice and is positively influencing the way cardiac education and support is delivered.

SOCIAL JUSTICE RESEARCH

SVHA INCLUSIVE HEALTH STRATEGY

The SVHA Inclusive Health Strategy (IHS) aims to address inequity in health services and outcomes for vulnerable populations, driven by the wider SVHA preferential focus on the poor. To ensure we continue to grow our mission, the Inclusive Health Innovation Fund (IHIF) was established as part of the IHS. The Fund supports research, advocacy and service innovation to address the needs of the vulnerable.

The IHIF is available to support those working within SVHA services and also partner organisations. Consistent with SVHA's five-year strategic plan, *enVision 2025,* the IHIF is focused on improving the health outcomes of five population groups:

- People with mental health concerns
- People with drug and alcohol addiction
- People with health concerns who are homeless
- Aboriginal and Torres Strait Islander People
- People with health concerns who are prisoners

The IHIF was established in July 2015 with an initial commitment of $10.5 million over three years. To date, more than 30 clinician led IHIF funded projects have commenced. The aim of these projects is to:

- increase understanding of the prevalence and type of vulnerability across SVHA,
- improve wellbeing for vulnerable people,
- support meaningful partnerships between SVHA and key organisations,
- increase compassion and understanding experienced by vulnerable people attending SVHA and increase staff satisfaction and skills in working with vulnerable people, and
- change outcomes for vulnerable people through advocacy.

IMPROVING ACCESS TO HIV TESTING THROUGH INNOVATION – KEEPING THE MISSION ALIVE

Keeping the Mission alive, St Vincent's Centre for Applied Medical Research is taking an innovative approach to assist vulnerable populations at risk of HIV infection to improve rates of testing. The use of dried blood spots where a sample of blood is collected from a finger-prick and dried on a card means samples can be collected in the field, at home, in the clinic and simply transported to a testing laboratory, means more patients can be tested.

Collecting samples of blood in this format has been used for decades in screening programs aimed at newborn babies for a range of hereditary diseases. Every baby born in Australia in a hospital will have a sample of blood collected from a heel-prick within a few days of birth.

The NSW State Reference Laboratory for HIV has adapted this type of sample collection to a range of programs for HIV and hepatitis testing. Babies born to mothers with HIV infection can be tested and if HIV is detected may commence lifesaving treatment. This program has been so successful it is now routinely performed in the Southern Highlands of Papua New Guinea, Timor Leste, and the many countries of the Western Pacific, where limited laboratory testing facilities are available and logistics of refrigerated transportation of conventional blood samples is problematic. Since this program commenced the laboratory has tested more than 400 samples, with many infants being referred for treatment and care.

Increasing the rates of voluntary HIV testing is essential to Australia realising its goal of markedly reducing or virtual elimination of HIV transmissions by 2020. Increasing voluntary HIV testing is a key action area in the United Nations Political Declaration on HIV and AIDS 2011: "Significantly expanding and promoting voluntary and confidential HIV testing and counselling and provider-initiated HIV testing and counselling".

In response to these ambitious public health targets, our dried blood spot research has been expanded to reach people in New South Wales who may not consider themselves at risk of HIV infection and may not access clinics or community testing. The pilot program aims to increase access to testing by allowing participants to conveniently collect the sample of blood in the comfort of their own home with privacy and confidentiality. Participants register online and receive the collection kit by express post. Once the samples have been allowed to dry they are mailed back in a replied paid envelope to the laboratory and results are issued via a sexual health clinic nurse.

We believe these innovative HIV testing programs will supplement the range of testing options available in Australia and will improve the frequency and uptake of testing in vulnerable and marginalised populations that are at risk of HIV infection.

METHAMPHETAMINE TREATMENT - LISDEX STUDY

In 2016, SVH Alcohol and Drug Service completed the Lisdex Study. The study looked at a recently approved new medication for attention deficit hyperactivity disorder, lisdexamfetamine, and whether it would be safe at the higher doses that would likely be necessary to treat people who are dependent on methamphetamine.

Participants for this study attended the Rankin Court Treatment Centre daily to receive a mix of lisdexamfetamine and placebo that was slowly increased and then decreased over 8 weeks. They also participated in counselling at the Stimulant Treatment Program. With no withdrawals due to safety concerns, the results of the study provided essential data for the optimal dose of lisdexamfetamine in people who are highly dependent on methamphetamine. This greatly increases the chance of success in trials of this medication for this population. There were also promising improvements across measures of methamphetamine use and craving, and the study also included neuropsychological studies, an area of expanding interest in treatment of methamphetamine use disorders.

The results of this study have been key to the design of the LiMA study, a multi-site NHMRC funded randomised controlled trial led by St Vincent's, testing lisdexamfetamine for the treatment of methamphetamine dependence. This trial is set to begin recruitment in 2017 in Sydney, Newcastle & and Adelaide.

CLINICAL INFORMATICS AND RESEARCH CENTRE, ST VINCENT'S HOSPITAL SYDNEY AUSTRALIA

The Kinghorn Cancer Centre is a major new initiative of St Vincent's Hospital Sydney (SVH) and the Garvan Institute of Medical Research. The Kinghorn Cancer Centre aligns the Garvan's internationally acclaimed cancer research with the best practice cancer services at St Vincent's Hospital, one of Australia's leading teaching hospitals.

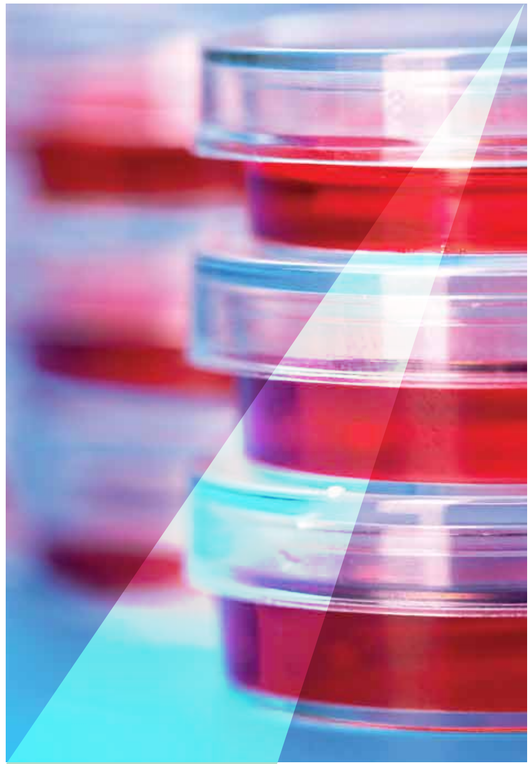
The vision of the Kinghorn Cancer Centre is to realise the promise of innovative personalised medicine for people affected by cancer. As a centre focusing on translational research and personalised cancer care, our mission is to align world-class cancer research with rapid translation to the clinic to improve outcomes for cancer patients by:

- building world-class facilities and strategic collaborations to enhance advances in science that translate into improved cancer diagnosis, treatment and prevention
- developing integrated, multi-disciplinary, multiinstitutional approaches to cancer research and patient care to reduce the impact of cancer in the community
- providing a holistic, compassionate approach to cancer care throughout the entire cancer
- journey, from diagnosis to full recovery where cure is possible, and supportive care and information to all, with preservation of patient dignity
- establishing world-class educational and training programs to develop high quality researchers and clinicians to optimise translational outcomes.

The Kinghorn Cancer Centre is placed as a major centre in Australia focused on the translation of research breakthroughs into novel diagnostic, prognostic, treatment and prevention options for a number of key National Health Priority cancers. These include: breast, prostate, GI (pancreas and colorectal) and non-Hodgkins lymphoma.

The Kinghorn Cancer Centre builds on its unique strengths to deliver targeted, cost effective, personalised therapies suitable for integration into larger nationwide cancer treatment services.

Bringing together researchers and clinicians onto a single site, The Kinghorn Cancer Centre fosters laboratory research directly driven by clinical challenges. A "bench to bedside" model, it enables research findings to be rapidly translated into clinical application for the diagnosis, treatment and prevention of cancer, with the prospect of improving cancer outcomes for all Australians.



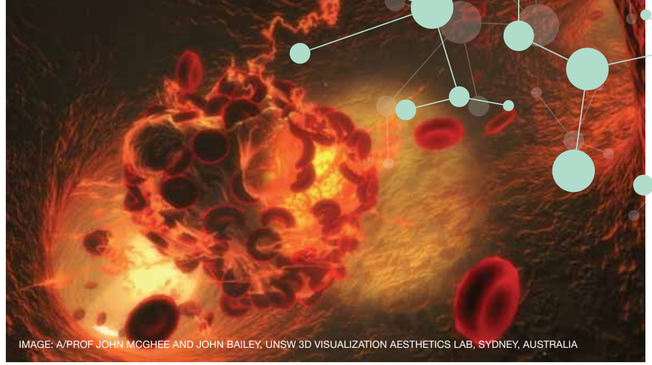


IMAGE: A/PROF JOHN MCGHEE AND JOHN BAILEY, UNSW 3D VISUALIZATION AESTHETICS LAB, SYDNEY, AUSTRALIA

3D VISUALISATION FOR POST STROKE EDUCATION

Education following stroke is essential to reduce secondary stroke risk and to improve management, mood and motivation for rehabilitation. However, traditional written or verbal approaches may not be suitable for all patients with varying degrees of language and cognitive ability, leaving many dissatisfied and confused. St Vincent's Hospital Sydney, in collaboration with St Vincent's Private Hospital and UNSW Art and Design have developed a new mode of delivering personalised stroke education through immersive 3D visualisation of patient's medical scans. This technique offers a more universal, visual medium to explain stroke to patients and their families.

In a world-first, we are trialling this novel technology at St Vincent's Hospital Sydney to deliver personalised stroke education sessions for patients and their carers. This technique has been extremely well-received by stroke survivors, who report high satisfaction, improved stroke knowledge, increased motivation and reduced anxiety following the intervention. Research continues into how best to translate this technique into wider clinical practice.

A/Prof Steven Faux[1,2,3], A/Prof John McGhee[2], Dr Pascal Bou-Haidar[4], Dr Angelica G Thompson-Butel[1,3,5], Dr Christine Shiner[1,3] and John Bailey[2].

1 St Vincent's Hospital, Sydney, NSW, Australia
2 University of New South Wales, Sydney, NSW, Australia
3 Centre of Research Excellence: Stroke Rehabilitation and Brain Recovery, Australia
4 St Vincent's Private Hospital, Sydney, NSW, Australia
5 Australian Catholic University, Strathfield, NSW, Australia

STRIVING FOR SOMETHING GREATER

Prof Breit graduated in Medicine from University of NSW, trained in clinical immunology and immunopathology at St Vincent's Hospital Sydney and was awarded an FRACP and FRCPA in 1981.

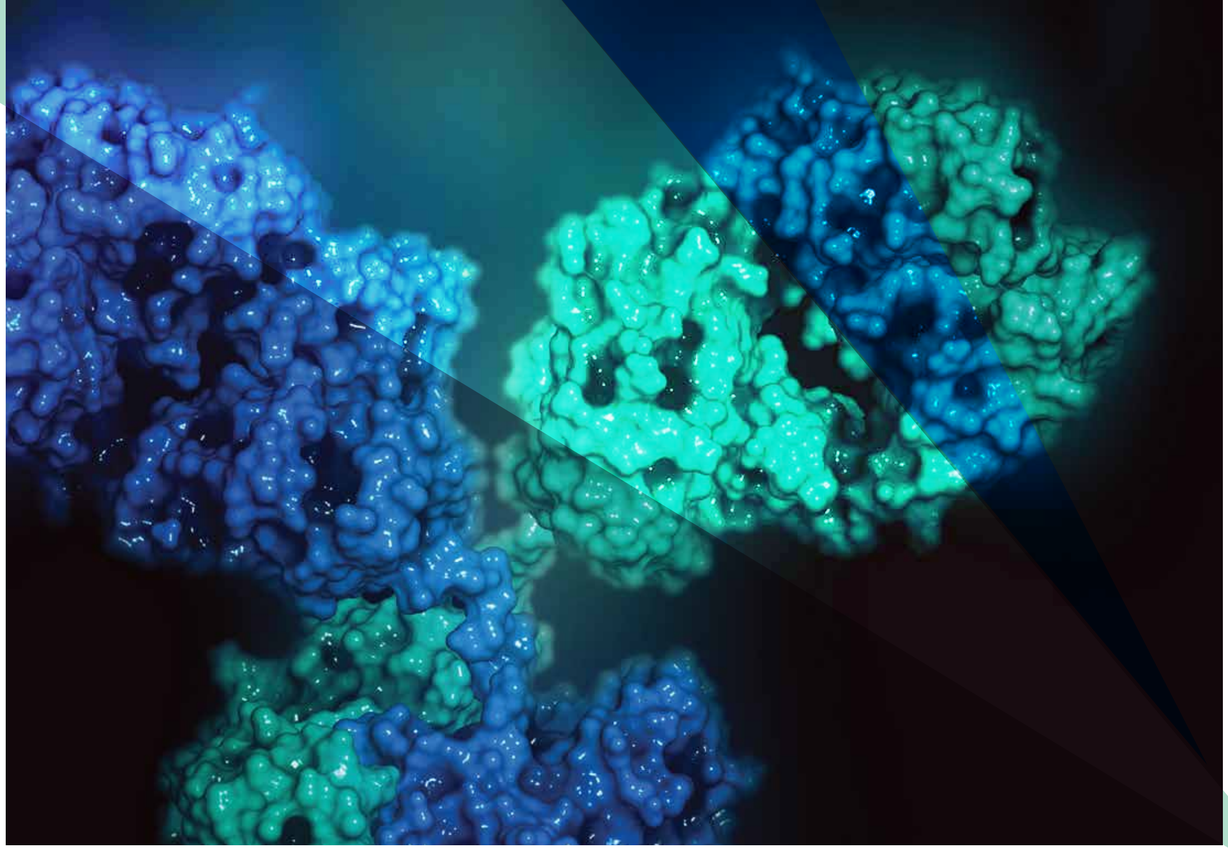
COMMERCIALISATION

In 1983 he completed an MD research degree after which he undertook further post-doctoral studies at the National Institutes of Health in Bethesda USA, funded by a fellowship from the NHMRC. He returned to Australia in 1985 and in 1987 was appointed a staff specialist in clinical immunology and immunopathology at St Vincent's Hospital and a senior lecturer at University of NSW. In 2002 Prof Breit was appointed Director of Immunopathology. Prof Breit's main clinical interests are the diagnosis and management of chronic inflammatory diseases. He is also actively involved in research and heads a Research Program at St Vincent's Centre for Applied Medical Research, which investigates immunological and inflammatory mechanisms and disease therapies. His research is mainly directed to elucidating the biology and involvement in disease pathogenesis of the TGF-b superfamily cytokineMIC-1/GDF15, first cloned and characterised in his lab in the late 1990s.

As a physician scientist, Prof Breit has wanted to achieve practical results for patients, and for this reason, his work has been commercialised for widespread clinical application. Prof Breit is one of a very small group of individuals who succeeded in fulfilling the "benchtop to bedside" paradigm. He has been able to take his very basic discoveries made at the lab bench, then through an evolving understanding of their biology and potential clinical application, move these discoveries into the clinical arena where they can be applied to patient diagnosis and therapy:

- To develop MIC-1/GDF15 as an appetite suppressant and anti-inflammatory substance has been licensed to Novo Nordisk, a Denmark based multinational pharmaceutical company specialising in protein therapeutics.
- To develop humanised monoclonal antibodies to MIC-1/GDF15 for therapy of anorexia/cachexia of cancer and other diseases has been licensed to Novartis, a large multinational pharmaceutical company.
- To develop and market an assay for blood measurement of MIC-1/GDF15 for the diagnosis and management of vascular diseases has been licensed to Roche Diagnostics, one of the world's largest diagnostics companies. This assay is available for diagnostic pathology use on Roche instruments in Europe.

As world leaders in the study of MIC-1/GDF15, the laboratory continues to investigate and publish extensively on the role of MIC-1/GDF15 in the biology of cancer, appetite regulation and inflammation. We believe the development of clinical applications though the exploitation of our technology will help improve disease diagnosis and therapy.



STORIES

CLINICAL GENOMICS UNIT

The Clinical Genomics Unit (CGU) has been in full operation since its opening in October 2016, providing a highly-integrated diagnostic genomics service to patients, both on campus and across NSW/ACT. Representing one of the few in the world and a stand-alone unit in Australasia, the CGU works closely with Genome.One at the Garvan. It provides a unique model of patient care that is centered around precision medicine, utilising whole-genome sequencing (WGS) as a clinical diagnostic tool.

In the first six months of operation, the CGU has formed several interdisciplinary partnerships, received more than 70 referrals and provided consultative service to close to 50 patients, approximately half of whom underwent genomic/genetic testing. In addition, the CGU has initiated several educational meetings, including the monthly Clinical Genomics Meeting, and the UNSW Genomics Lecture Series at the St Vincent's Clinical School.

The CGU has been engaging stakeholders in genomic policy development, and has provided feedback to the NSW Health Genomics Strategy Discussion Paper, as well as the National Health Genomics Policy Framework Draft. The CGU was one of the core group members involved in the Darlinghurst Campus Clinical Services Strategy development in Precision Medicine. Furthermore, the CGU has engaged and consulted bioethicists, both locally and internationally, regarding ethical issues surrounding WGS. The CGU participated at the Clinical Ethics Forum hosted by St Vincent's Hospital for the Ministry of Health in June 2017.

A/PROF ELGENE LIM – BREAST CANCER TKCC

A/Prof Elgene Lim, a clinician scientist, was recruited to the Garvan Institute in August 2015 to lead the Connie Johnson Breast Cancer Research Laboratory, funded through Love Your Sister, and the breast cancer services at the Kinghorn Cancer Centre. His research team includes nine talented young scientists, whose primary goal is to improve the outcomes of patients with breast cancer. Their research is patient focussed, and they engage patients as partners in this endeavour, through initiatives such as Project SHARE (Specimens Help All Research Efforts), whereby patients are asked to donate their breast cancer and metastatic tissue for research purposes. The breast cancer tissue bank is a major initiative, and used for the establishment of patient-derived tumour xenografts in mice. A major focus of his group is to identify novel therapies and to overcome resistance to endocrine therapies.

A/Prof Lim has assembled a large portfolio of breast cancer clinical trials, allowing our patients to access novel therapies. One of these is to investigate progesterone as an anti-cancer therapy in early stage breast cancer, an investigator-initiated trial funded by Cancer Council NSW. He was awarded the inaugural National Breast Cancer Foundation Endowed Chair in 2017, a 10 year $5 million fellowship.

PROF RIC DAY - CLINICAL PHARMACOLOGY & QUALITY USE OF MEDICINES

Richard Day is internationally and nationally recognised for his research focused on achieving safe, effective and cost-effective use of medicines in individuals and populations. Currently he is a chief investigator on an NH&MRC Programme Grant (2014-18) and a NH&MRC Partnership Grant (2015 – 19) that has allowed him to build on his clinical pharmacological and clinical trial expertise and continue pioneering work on innovative methods of individualising evidence-based pharmacotherapy. An important focus of his clinical research is improving the outcomes of the management of chronic illnesses, focussed on pharmacotherapy. His research has informed the evidence base, and impacted clinical practice, guidelines and policy across diseases (diabetes, arthritis, gout), mechanisms (inflammation), symptoms (pain) and health systems (eHealth), especially decision support tools. Day is recognised as one of the few Quality Use of Medicines (QUM) leaders and experts nationally and internationally. The framework for QUM is based on a systems approach and behaviour change has underpinned his research and translation efforts.

Contact information and acknowledgements
St Vincent's Centre for Applied Medical Research
Level 4 Lowy Packer Building
405 Liverpool St
Darlinghurst NSW 2010
P: +61 2 8382 4900
F: +61 2 8382 4901
www.amr.org.au

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