Since its inception in December 2009, the Health Innovations Research Institute (HIRI) has grown to more than 70 academic members spanning five schools across RMIT University. We have also invested in superb facilities and technologies, and have made key appointments. I’d like to extend a warm welcome to Professor David Pow (from University of Queensland), Professor Peter Little (from BakerID), Professor Jiming Ye (from Garvan Institute) and Dr Brett Cromer (from Florey Neuroscience Institutes). I would also like to welcome Dr Juan Molero-Navajas (from Deakin University) and Associate Professor Toby Allen (from University of California), who were awarded Vice Chancellor’s RMIT University Senior Research Fellowships, and Dr Ravi Shukla (from University of Missouri–Columbia), who was awarded an RMIT Research Fellowship.

One of HIRI’s key aims is to translate basic science discoveries into safe and effective therapeutic outcomes. HIRI takes an integrated approach to address the key health issues facing Australia in the twenty-first century, with research programs that examine how the human body functions at a molecular and cellular level. This research will inform innovative therapeutic strategies.

HIRI seeks to better connect the diverse communities around health enterprise, so they can more effectively address the changing needs of biomedical research and society. It uses RMIT’s existing strengths, collaborating with researchers and industry around the world to increase research in specific areas of socioeconomic health burden. These areas include cardiovascular disease; insulin resistance and diabetes; obesity; and chronic and neuropathic pain.

HIRI also provides a platform for state-of-the-art infrastructure and technologies, so that research and development capabilities can be shared with partners.

This newsletter will help to keep you up-to-date with everything HIRI-related – from research projects and collaborations, to events, publications and awards. It will also include regular profiles of our members.
The Academy signed a $2 million deal with RMIT University for various research collaborations, including joint research into chronic obstructive pulmonary disease (COPD). COPD is a growing international health problem that affects millions of people, particularly in China.

“The Academy signed a $2 million deal with RMIT University for various research collaborations, including joint research into chronic obstructive pulmonary disease.”
Forging industry partnerships at home and abroad

Industry partnerships are essential for translating research discoveries into better clinical outcomes for society. HIRi has been building exciting new national and international partnerships, some of which are outlined below.

- HIRi has been participating in the international corporate partnership program organised through the Australian Government’s Austrade. Last year was our first year of participation and we successfully attracted the attention of several major pharmaceutical companies. Professor David Adams held technical discussions with lead representatives in London, conducted site visits and met with key industry leaders. HIRi is active in the program again this year and aims to forge a major partnership. Professor David Adams and Dr Craig Neylon, HIRi’s Commercialisation and Industry Linkage Manager, have hosted several visits by representatives of pharmaceutical companies, who were impressed by HIRi’s facilities, research culture and world-class expertise. It is only a matter of time before HIRi’s drug discovery research is taken up by a large pharmaceutical company.

- Closer to home, Dr Craig Neylon has been working with local hospitals to form a hospital alliance with RMIT University. As part of this initiative, a research forum with Northern Health was held in March 2012 at HIRi. This forum identified a number of exciting opportunities for collaboration. A strong and productive partnership with Northern Health will greatly benefit our clinical research programs.

- In August 2011, Professor Jiming Ye and colleagues hosted the visit of Professor Jun Xu from Guangzhou, China. During the visit, Professor Ye, on behalf of HIRi, signed a partnership agreement with Professor Xu’s pharmaceutical company, KMS Meditech, to develop anti-diabetic compounds from natural resources.

- HIRi has entered into a new agreement with local biotech company Circadian Technologies and Monash University. As part of the agreement, HIRi’s Ion Channels and Transporters as Therapeutic Targets Program will develop a subclass of conotoxin derivatives. HIRi is a key player in the technical development, so we expect exciting things from this new partnership.

What do you hope to achieve at RMIT?
I arrived at RMIT in August 2011, after living overseas for 10 years. After spending time as a postdoc at Cornell University and then with my own research group at the University of California, Davis, I’d like to reintroduce myself into the Australian scientific scene. I’d like to add to (and exploit!) RMIT’s research strengths in the areas of membranes and ion channels. I’d also like to help build prominence in computational biophysics, using Victoria’s large investments in computational life science.

Tell us a bit about your research and what attracted you to this field?
My group provides quantitative descriptions of biological activity using physical and chemical principles. In particular, you can’t understand biological function without understanding the membranes that surround living cells. They are the gateways into cells and home to a range of proteins critical for life.

Things have changed rapidly in the past decade, with the emergence of high-resolution membrane protein structures opening the door to a multitude of unanswered questions – perfect for theoretical studies! At the same time, computational resources have grown to the point where quantitative predictions are now possible. The challenge is to use rigorous methods to make sure you get real answers to the most important questions.

I was drawn to this field because there are plenty of important questions where a theoretical/computational scientist can have an impact.

What do you like about RMIT?
RMIT is a small university, but is expanding its research, especially in areas of health, biomolecular and nanosciences. I like that the different disciplines are willing to interact – helped especially by HIRi.

Also, RMIT is in a great city, with friendly people and good food, coffee and culture (including cricket and footy, of course!).

Profile, HIRi researcher

Associate Professor Toby Allen, Vice-Chancellor’s Senior Research Fellow, School of Applied Sciences and HIRi
Selection of Grants received

**Professor David Adams** “New Conus-derived α-conotoxin analgesics for the treatment of chronic pain: structure, mode of action, delivery and disposition” (ARC Linkage with Polychip Pharmaceuticals, $450,000, 2012–2014)

**Associate Professor Toby Allen** “Electrochemical controls of membrane transport phenomena” (ARC Discovery, $320,000, 2012–2015)

**Dr Geza Berecki** “Elucidating the mechanisms of α-conotoxin-induced calcium channel inhibition via G protein-coupled receptors” (NHMRC, $404,833, 2012–2015)

**Professor John Hawley** “Optimising training adaptation by timed nutrition” (Australian Institute of Sport, $40,000, 2011–2012)

**Professor Peter Little** “Novel GPCR transactivation of serine kinases in vascular disease” (NHMRC, $373,382, 2012–2015)

**Professor Arnan Mitchell** “Development of an ultra high-speed spinning disk confocal micro-particle image velocimetry (PIV) platform for the investigation of cardiovascular disease” (ARC LIEF, $330,000, 2012)

**Professor Philip Poronnik** Representing the National Committee for Biomedical Sciences of the Australian Academy of Sciences “Collaborative University Biomedical Education Network (CUBENET),” a Discipline Learning and Teaching Network Proposal (Australian Learning and Teaching Council, $100,000)

**Associate Professor Samantha Richardson** and **Professor Gary Bryant** Part of an RMIT University and University of Melbourne team, “Advanced Biophysical Characterisation Centre (ABCC)” (ARC LIEF, $370,000, 2012)

**Professor Jiyuan Tu** “An integrated model for assessing health effects of nanoparticle inhalation” (ARC Discovery, $290,000, 2012–2014)

**Professor Charlie Xue** “Evaluation of Traditional and Scientific Evidence of Chinese Medicine” (Guangdong Provincial Academy of Chinese Medical Sciences, $3,050,000, 2010–2016)

**Dr Matthew Linden** “Using evidence to guide treatment of aspirin resistance in diabetes” (Diabetes Australia Research Trust, $58,407, 2012)

**Professor John Hawley** “Effect of dairy-based high-protein, variable-carbohydrate diets and exercise on muscle maintenance and movement” (Dairy Health and Nutrition Consortium, $520,000, 2012–2013)

Awards and recognition

**Dr Sandy Harper.** University of Dundee, Scotland, was awarded an RMIT Foundation International Research Exchange Fellowship to conduct research with Professor David Adams’ group. This research explores the effects of conotoxin (toxin from cone snails) on the heart’s vagus nerve, which helps maintain heart rhythm. It fits in well with HIRi’s Ion Channels and Transporters as Therapeutic Targets Program.

**Professor Dinesh Kant Kumar** was awarded a two-year Fellowship by the Coordenacao de Aperfeicoamento de Pessoal do Nivel Superior in Brazil.

**Professor Philip Poronnik** became Chair of the Organising Committee of the National Forum on Education. The forum was held on behalf of the Australian Academy of Sciences’ National Committee for Biomedical Sciences. It aimed to identify key issues and challenges facing biomedical science educators in the 21st century and form a national collaborative leadership network for the biomedical sciences.

**Associate Professor Samantha Richardson** was awarded a Scientific Visits to Japan Grant by the Australian Academy of Science, to visit the laboratory of Professor Kyoshi Yamauchi, Shizuoka University, Japan, and build collaborative links.

**Professor Charlie Xue** was appointed as Inaugural Chair of the Chinese Medicine Board of Australia by the Australia Health Workforce Ministerial Council. He was also re-appointed to the World Health Expert Advisory Panel on Traditional Medicine for a second four-year term.

**Professor Irene Yavorsky** was made a Fellow of the Royal Australian Chemical Institute.

“Professor Charlie Xue was re-appointed to the World Health Expert Advisory Panel on Traditional Medicine for a second four-year term.”
## Ion Channels and Transporters as Therapeutic Targets Program

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## Biophysics and Bioengineering Program

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## Traditional and Complementary Medicine Program

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Upcoming events

Health Innovations Research Institute Seminar Series 2012

**When and presenter**

29 May, 4 pm
with Professor Jamie Vandenberg, from the University of New South Wales, Sydney

26 June, 4 pm
with Professor Gary Housley, from the University of New South Wales, Sydney

17 July, 4 pm
with Professor Aimin Xu, from the University of Hong Kong, Hong Kong

31 July, 4 pm
with Professor Jon Adams, from the University of Technology, Sydney

28 August, 4 pm
with Professor Mary Collins, from the University of Sydney, Sydney

25 September, 4 pm
with Winthrop Professor Shaun P Collin, from the University of Western Australia, Perth

30 October, 4 pm
with Professor Kiaran Kirk, from the Australian National University, Canberra

27 November, 4 pm
with Professor Angela Dulhunty, from the Australian National University, Canberra

**Where**

Lecture Theatre,
Building 207, Level 2, Room 2
RMIT Bundoora West Campus
Plenty Road, Bundoora, VIC 3083

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