MONASH University

GROUP OF EIGHT AUSTRALIA

Faculty of Pharmacy & Pharmaceutical Sciences

Alchemy

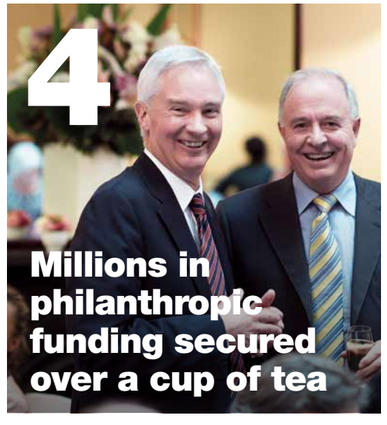
Issue 25/Winter 2014

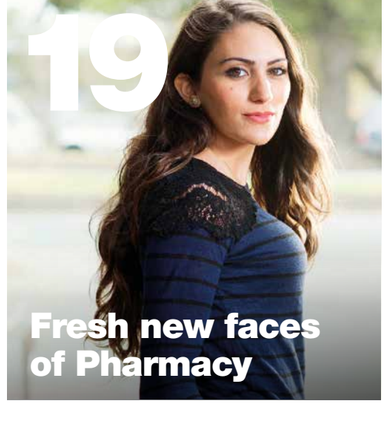
Profile: Patrick Sexton

Bio-nano ARC opens its door at Monash

Disposing of unwanted medicines

Contents





From the Editor

Welcome to the first edition of Alchemy for 2014. It's only halfway through the year and already the Faculty has co-hosted the Pharmaceutical Sciences World Congress, secured new philanthropic funding for a Translational Laboratory, completed the fit out of Level 4 to accommodate team members of the new Centre of Excellence in Convergent Bio-Nano Science and Technology, welcomed some 24 Brazilian study abroad students to Parkville and hosted a high tea at the historic Windsor Hotel to thank philanthropic supporters of the oxytocin project.

Planning is currently underway for a new initiative. Instead of opening the Parkville Campus on the usual Monash Open Day, the Faculty has elected to stage a Community Open House on 17 August and use the occasion to invite alumni to return and see the future of pharmacy, including launching two new documentaries about the history of the Faculty; encourage the community to find out what goes on behind the bland brick exterior; and to provide an opportunity for prospective students to visit and gain a better understanding of the study environment they'll enjoy if they enrol for their pharmacy and pharmaceutical science degrees at Monash.

The Faculty has also been grappling with the changes proposed to higher education funding under the new Federal budget and looking at the potential opportunities the establishment of a new Medical Research Funding body may deliver.

We have a number of interesting feature stories in this edition, including the NatRUM research results. We have also introduced a new column – From the Archives – provided by alumnus Alistair Lloyd, that highlights some of our history and information about Faculty artifacts.

I hope you enjoy this edition of Alchemy.

Margot Burke,
Managing Editor

Alchemy

Alchemy is produced by the Development Office, Faculty of Pharmacy and Pharmaceutical Sciences, Monash University.

Managing Editor: Margot Burke

Writers: Margot Burke, Allison Harding, Al James, Justin Laing

Photography: Paul Philipson

Design: Stokes Street Studio

Printer: Mercedes Waratah

Contact us
Margot Burke, Managing Editor
margot.burke@monash.edu

Iliana Findakakis, Production Manager
iliana.findakakis@monash.edu

Philanthropic funding secured over a cup of tea

A world-class translational pharmaceutical science laboratory to open at the Monash Institute of Pharmaceutical Sciences (MIPS) in Parkville will be the first of its kind in Australia.

The new research laboratory will directly support capacity building, skills growth and education development, and has been made possible by a landmark grant from the Helen Macpherson Smith Trust (HMSTrust).

The $1.2 million grant is one of the largest gifts to have come from the HMSTrust and will build on $1.1 million of in-kind contributions from industry partners Perkin Elmer and Shimadzu, to build state of the art facilities at the precinct.

MIPS Director Professor Bill Charman said the HMSTrust had shown foresight, generosity and vision in providing the funding to establish the new facility.

"These facilities and capabilities will support individual research projects to make the giant translational leap from a research project to a publicly available new medicine," said Professor Charman.

In the new facility, researchers will be able to support the development of new medicines that will improve global access to life-saving drugs while at the same time allowing the delivery of world-class, industry-standard training for the next generation of pharmaceutical scientists.

> PROFESSOR BILL CHARMAN AND DR MICHELLE MCINTOSH (4TH AND 3RD FROM RIGHT BACK ROW) WITH TRUSTEES OF HELEN MACPHERSON SMITH TRUST

"The new laboratory will be open access and allow all Victorian researchers to book into the laboratory to run complex tests including assessing the chemical and physical stability of potential pharmaceutical formulations that currently often have to be done off-shore," Professor Charman said.

Laboratory Director Dr Michelle McIntosh said the lab would be used as well to evaluate key parameters influencing stability such as storage conditions, humidity and packaging.

"It is a wonderful addition to Victoria's research infrastructure," she said.

HMSTrust Chairman Darvell Hutchinson AM said the Trust was honoured to give its support to MIPS for the Advanced Pharmaceutical Science Laboratory as part an ongoing partnership.

Mr Hutchinson said the Trust's support of MIPS began in 2007 with a grant of $50,000 to purchase a piece of equipment that would establish a key analytical capability.

"The Trust has enjoyed a long and productive relationship with Monash University over many years and this new grant takes our total support to in excess of $3.3 million," Mr Hutchinson said.

"This grant marks a special celebration for the HMSTrust. It is the first Social Impact Lead Grant in our Health Advancement Program of our new grant making policy.

"The Trust is thrilled that our grant of $1.2 million has enabled MIPS to secure a level of major international support that will establish the HMSTrust Laboratory as a unique resource for Victoria, Australia and beyond."

Research programs that will be conducted at the new facility include projects such as the Inhaled Oxytocin Project, which is developing a new medicine that could save the lives of tens of thousands of women in the developing world who die each year at childbirth from postpartum haemorrhage because of lack of access to oxytocin in a usable form.

Dr McIntosh said the research was investigating the effectiveness of inhaling oxytocin in a bid to overcome the challenges of storing oxytocin in refrigerated conditions, which is often not possible in low resource settings.

"An inhaled product would negate the need for cold chain storage, remove the risk of needle stick injuries and could be used at all levels of healthcare workers," said Dr McIntosh.

The Laboratory will officially open in early 2015.

Magical research celebrated

More than 200 guests attended the inaugural Monash Institute of Pharmaceutical Sciences high tea event held at the Windsor Hotel on 5 June.

A packed room welcomed MC Dave O'Neil, actor William McInnes, singer Madeleine Paige and local magician Cath Jamison who provided a fun and magical time for guests. Dr Michelle McIntosh spoke emotionally about the importance of ensuring mothers everywhere in the world have access to the gold standard of maternal health care – oxytocin – and outlined the changes her team were developing to the delivery of this drug to make it more accessible in developing countries.

The Dean of the Faculty acknowledged Cristina Re for her wonderful styling of the event and her dedicated support in getting the silent auction items donated.

Given the success of the event which enabled MIPS to thank its corporate, foundation and individual donors as well as build public awareness of a key research project in progress at MIPS – the Inhaled Oxytocin Project – it is planned to make the event a regular feature on the MIPS calendar.

Next Generation Pharmacist Project

Pharmacists in Australia are well positioned to implement new models of practice which offer benefits to patients, address demands within the health system and provide challenging and rewarding careers.

A new Faculty initiative, 'Project Pharmacist' aims to support these opportunities by improving the environment for professional models of practice to flourish in primary care settings in Australia.

Led by leading industry figure John Jackson, "Project Pharmacist" will identify the factors that make up the framework within which pharmacists practise in Australia, determine the dominant factors that have a bearing on the implementation of professionally-focussed models of practice in primary care, assess whether their impact is inhibitory or enhancing and map the interdependency of the major factors.

According to Mr Jackson, "with individuals living longer and with a greater number of chronic conditions treated with more complex and expensive medicines, huge demands are being placed on Australia's health care system."

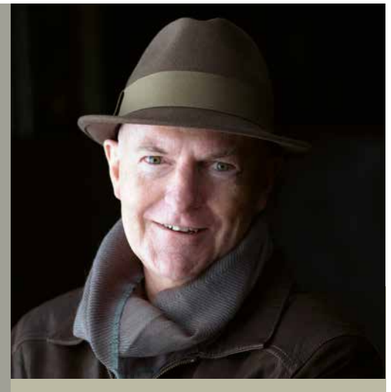
But Mr Jackson believes that enhanced primary care pharmacy services can help alleviate this demand. Already a number of patient-focussed models of practice have been proposed in recent decades.

This environment or 'framework' is made up of factors such as legislation and policies, funding arrangements, information and technology systems, consumer and stakeholder beliefs and the leadership, capabilities and attitudes of pharmacists themselves.

As part of this ambitious project, once an evidence-based framework has been validated, specific analysis will be undertaken of the dominant factors and recommendations made which should enable preferred models of practice to evolve and flourish."

Faculty Dean Professor Bill Charman, who gave the green light to the project, agrees. "The profession needs to recognise and address those aspects of the current framework which are holding it back.

"'Project Pharmacist' will help identify and address the inhibitors and facilitate changes which will enable current practitioners and new graduates to pursue professionally rewarding and sustainable careers and deliver the pharmaceutical care required by the community," he said.



> JOHN JACKSON

"The growing and ageing population which features individuals living longer with a greater number of chronic conditions treated with an increasing range of more complex and expensive medicines, is placing huge demands on Australia's health care system."

National award for research into asthma during pregnancy

A study uncovering new ways for pregnant women to better manage their asthma has been recognised at the 2014 National Medicinewise Awards.

The awards recognise outstanding Australian contributions to quality use of medicines and medical tests and are an opportunity to recognise the wide range of exciting and innovative quality use of medicines and medical test activities happening across Australia.

Monash researchers found a significant improvement in asthma control among pregnant women receiving a pharmacist-led model of care for asthma management involving education and regular monitoring in collaboration with the patient's general practitioner.

Women in the early stages of pregnancy and who had used asthma medications in the previous year received the pharmacist-led monthly intervention (MAMMA©) providing asthma education, monitoring, feedback and follow-up in the antenatal clinics of two major Australian maternity hospitals – The Royal Women's Hospital and Mercy Hospital for Women.

After six months of care, results demonstrated that the women receiving the intervention had clinically and statistically better control of their asthma when compared to a control group of pregnant women not receiving the intervention. In the intervention group, no asthma-related oral steroid use, hospital admissions, emergency visits or days off work were reported during the trial.

Lead investigator, Angelina Lim of the Centre for Medical Use and Safety, said the simple intervention showed promise for asthma sufferers and could be widely implemented in maternal health settings without incurring extra resources.

"With one in eight pregnant women suffering from asthma, this research is telling us we need to improve management during pregnancy by finding new strategies to improve education and awareness," Ms Lim said.

"Poorly controlled asthma during pregnancy is hazardous for the health of the mother and the baby and has been associated with an increased risk of preterm birth, low birth weight and pre-eclampsia.

"Proper asthma management among pregnant women should be regarded as a leading priority in antenatal care. This is a simple intervention that could be easily implemented in antenatal settings with minimal additional resources."

Ms Lim said larger studies were needed to demonstrate whether the improvements in asthma control led to improved maternal and perinatal outcomes.

Disposing of unwanted medicines

In 2013 Monash University audited Australia's world-first program designed to collect and dispose of unwanted and out-of-date medicines in the community. The findings revealed the program is a vital public health initiative.

At some stage, most people look into their own or a relative's medicine cupboard and are left wondering. What was that 2011 amoxicillin for? What about those over-the-counter eyedrops from 2010? And just what did that unlabelled cream treat?

Confusing piles of superseded and current prescribed and over-the-counter medications can put patients in danger. Drugs trashed in home bins can end up in the stomachs of children and pets or, more commonly, in landfill, while tablets and medicine flushed away contaminate waterways.

To combat the problem, the National Return and Disposal of Unwanted Medicines (NatRUM) program was introduced in 1998. The program provides specific bins in community pharmacies for the disposal of unwanted and outdated medications.

Pharmacies collect the medicines (including tablets, creams, suppositories and inhalers), which are then taken to EPA-approved incinerators at the main site in Victoria, Queensland and Western Australia.

Despite the program's 15-year history, no comprehensive audit had taken place until NatRUM and the Department of Health and Ageing commissioned Monash University to audit bin contents. The findings mean NatRUM and the Commonwealth department can now assess the program's efficiency, feasibility and sustainability.

RUM Project manager Simon Appel (Diploma of Pharmacy, Victorian College of Pharmacy, 1967) guided Monash University's audit of the bins. The audit, which was completed in February 2013, involved key researchers, a team of pharmacy students, supervisors and technicians, and a data entry team.

The quantitative study meant the audit team needed at least 377 RUM bins from community pharmacies from all states and territories except Western Australia, which was excluded for cost reasons.

The target was easily exceeded with the team auditing the contents of 686 bins at Bamganie Environmental Services in Lethbridge, Victoria.

Academic pharmacists worked with university Occupational Health and Safety to develop careful audit procedures, and a database was built to manage the complex information. A total of 24,400 individual items of medicine containing over 700 different named active ingredients were found in the audited bins.

The medicines were assigned to one of 14 Anatomical Therapeutic Chemical classes. The five most common classes of medicines returned for disposal were cardiovascular, nervous system, alimentary tract and metabolism, respiratory system and anti-infectives.

The bins contained mainly returned scheduled medicines with the top three categories of returned scheduled medicines matching the 2012 PBS dispensing data.

However, Mr Appel said, the number of discarded antimicrobials was a concern, given resistance to them is increasingly common and fewer new antimicrobials were being developed.

A small but important 3.6% of returned medicines were incorrectly labelled. This could mean that patient safety might have been compromised.

“The errors may mean that not all pharmacists are using scanners as legally required.

We recommend that key stakeholders such as the Pharmacy Board of Australia remind pharmacists of the importance of adhering to mandatory dispensing practices,” Mr Appel said.

“It was also interesting a low proportion of complementary and alternative over-the-counter medicines were returned, although we know they are very popular.”

Another concerning finding was that almost half of all returned medicines had not expired.

The reasons for this were not in the scope of the study but possibly include changes in medication, unwanted side effects, and a perception that anti-infectives were not needed once people felt better.

“The reasons really need further investigation so prescribers can encourage adherence and reduce wastage,” Mr Appel said.

Several high-cost PBS medicines were returned in large quantities, suggesting significant financial wastage. The audit estimated that wastage due to incineration of the 30 most frequently discarded medicines could be as high as $2 million.

“These medicines are used to treat national health priorities, so it’s vital that relevant departments and bodies work together to decrease the waste and the costs,” Mr Appel said.

The Director of the Faculty of Pharmacy and Pharmaceutical Sciences, Professor Bill Charman, said the audit findings provided important insights into the quantities and types of medicines returned for disposal, associated costs,

“These medicines are used to treat national health priorities, so it’s vital that relevant departments and bodies work together to decrease the waste and the costs.

adherence to NatRUM program protocols, and other issues such as labelling.

Professor Charman and Mr Appel agree that more research is needed into why consumers dispose of medicine, especially non-expired medicines, and why a low proportion of unscheduled medicines were returned.

“Many people are aware of the Project despite no large awareness campaigns,” said Mr Appel. “This suggests the community pharmacists do promote the program to their customers. However most continue to dispose of their medications in other ways and this definitely needs to be addressed, given the ageing population and the fact more people are on multiple medications.”

Professor Charman said the audit showed the return and disposal program was an important and vital public health initiative that should continue.

“The program offers the only safe method of disposal of unwanted and expired medicines from the community,” he said. Pharmacists have a pivotal role in optimising how medicines are prescribed and used in patients and in minimising wastage.

“The costs associated with the destruction of non-expired discarded medicines is a real burden on the system and could be better directed towards other public health efforts.”

At the Faculty’s Community Open House on 17 August, visitors will be able to learn more about the program – and even bring unwanted medicines.

Bio-nano centre forges a powerful alliance

The Monash Institute of Pharmaceutical Sciences is leading a collaboration between five Australian universities to form the ARC Centre of Excellence in Convergent Bio-Nano Science and Technology. The newly formed centre has secured $26 million in funding from the Australian Research Council.

Nanomedicine has the potential to revolutionise diagnosis and therapy in a wide range of diseases. The ARC Centre of Excellence in Convergent Bio-Nano Science and Technology comprises a multidisciplinary team focussed on research that seeks to understand and control the interface of materials with biological systems.

With $26 million in funding from the Australian Research Council over the next seven years, the centre will be the focus of bio-nano research activity in Australia.

It will unite universities, research agencies, institutes and industry in delivering state-of-the-art diagnostic and therapeutic tools.

The bio-nano centre is a collaboration involving five universities, with Monash's Professor Tom Davis as the Director. Monash will lead the collaboration with the Universities of Melbourne, Queensland, South Australia and New South Wales. Partner organisations include CSIRO and ANSTO and eight international institutions, including Warwick University. Professor Davis is the inaugural Monash-Warwick Professorial Fellow, appointed last year as part of the Monash-Warwick Alliance.

The Centre will exploit knowledge of the bio-nano interface to design materials that transport and deliver vaccines, drugs and gene therapy agents, and to design new diagnostic agents and devices.

Professor Davis said the centre will explore the full potential of nanotechnology in medicine. "We're investigating how cells or biological materials interact with nanoparticles," the director explains. "By better understanding this, we can develop new therapies and improve existing imaging techniques, such as MRI.

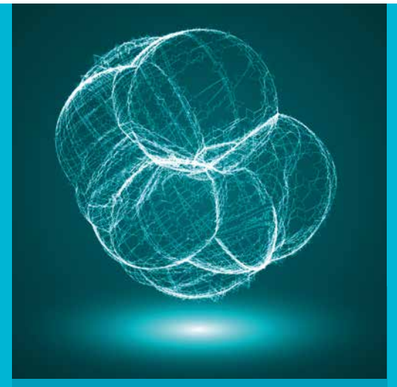
"At the moment, it's a very empirical science – you don't really know what your ideal material is. But if you understand the interactions that happen at the cellular level with nanoparticles, then you can rationally design materials to do certain jobs. So we're trying to get the fundamental rules there as a foundation for designing better therapeutic and diagnostic tools."

Building better tools – and a major industry

Cancer treatment is one area of vast potential. There is considerable interest in the development of novel delivery solutions to enhance cancer therapy. Professor Davis: "If we look at chemotherapy, for instance – which is one of the big applications globally in this field – it's delivered systemically. It works because it's more active against cancer cells than normal cells. But there are bad side effects.

"The aim with nanotechnology is to be able to change the bio-distribution of the drug in the body, to increase its therapeutic efficacy – so that people have a more effective cancer treatment with fewer side effects.
A lot of pharmaceutical companies have recognised the potential in this area."

The bio-nano centre is therefore working at the forefront of what is set to become a major industry.



"Given the huge range of research expertise in the centre, we'll be providing the next generation of PhD and postdoctoral researchers with collaborative opportunities that are not available anywhere else in Australia.

The market for nanomedicine-based oncology drugs is projected to grow to $12.7 billion by 2016 – more than doubling over a five year period.

Another area of considerable interest and potential, according to Professor Davis, is bio-imaging.

"With MRI scans, for instance, you again have an agent delivered systemically – in this case a contrast agent delivered intravenously that helps to create a better image of the tissue we want to see. The interest here is in developing this to better target certain tissues. And – in the case of the theranostics work we've been doing – perhaps also delivering a drug to a certain site in the body where it is released in the right place at the right time."

A unique alliance exploring promising new ground

Building on a longstanding interest in this research field, MIPS has strategically co-located chemistry, drug delivery and cancer biology researchers to provide an ideal environment in which to probe the complex interactions between drug delivery systems and the biological environment at the nanoscale relevant to drug therapy.

Furthermore, the new bio-nano centre represents a major advance in the institute's efforts to strategically align research expertise in polymer and material science with drug delivery and cell biology. The centre comprises 19 chief investigators with world-class expertise in diverse fields such as cell and cancer biology, nanotechnology, drug delivery, polymer science, immunology, pharmacology, systems biology and bioimaging.

Centre manager, Gaby Bright, said the bio-nano centre will provide a wealth of opportunities for new researchers at Monash.

"With $26 million in ARC funding over seven years, we'll be developing PhD programs with a range of interactions between Australian and international researchers," Gaby said.

"Given the huge range of research expertise in the centre, we'll be providing the next generation of PhD and postdoctoral researchers with collaborative opportunities that are not available anywhere else in Australia."

For Professor Davis, the bio-nano centre will provide great opportunities for the worlds of both pharmaceutical science and nanotechnology.

"This is exciting new territory for MIPS and for me as a polymer scientist and a nanotechnologist. Pharmaceutical science is a natural meeting place for chemists and biologists. MIPS is the top pharmaceutical sciences institute in the Asia Pacific Region. To combine that with leaders in polymer science and nanotechnology is a unique opportunity with remarkable potential.

"There are not many places where you get that close meeting of these two disciplines. The bio-nano centre promises to be a powerful alliance." ●

Professor Tom Davis

Professor Tom Davis is an internationally renowned polymer scientist and nanotechnologist.

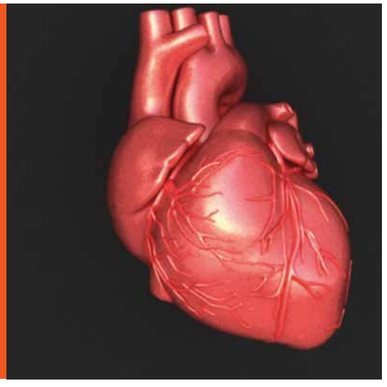
He has the distinction of being the most cited Australian scientist in the field.

Tom joined MIPS in 2013 as Professor of Medical Nanotechnology and Director of the ARC Centre of Excellence in Convergent Bio-Nano Science and Technology.

He is also the inaugural Professor in the Monash-Warwick Alliance and remains an Honorary Visiting Professor at the University of New South Wales where he spent the past 20 years.

Tom's move to Melbourne was motivated by the desire to drive a step change in the field of nanomedicine development via the new Centre of Excellence.

Scientists discover potential heart attack drug without the side effects



Melbourne scientists are a step closer to creating a new drug to stop a heart attack in its tracks and reduce the damage caused without any side effects.

The Monash University research, published in the journal *Proceedings of the National Academy of Sciences, USA (PNAS)* offers new hope to thousands of people who experience heart attacks and heart failure – one of the major causes of death worldwide.

Professors Arthur Christopoulos and Peter Scammells from the Monash Institute of Pharmaceutical Sciences (MIPS) led a team of scientists combining molecular pharmacology and medicinal chemistry to reveal new insights into a specific protein belonging to the family of "G protein-coupled receptors" (GPCRs). After successfully combining two molecules, they are a step closer to creating a brand new class of drug that is more targeted and could possess minimal side effects.

GPCRs play a role in virtually every biological process and most diseases, including cardiovascular disease, obesity and diabetes, neuropsychiatric disorder, inflammation and cancer.

Almost half of all current medications available use GPCRs to achieve their therapeutic effect.

GPCRs work either by fully activating or completely blocking receptors, treating the protein like a simple "on-off" switch. This new research discovered alternative recognition sites on GPCRs that can be targeted by drugs to fine-tune the behavior of the protein, basically converting the "on-off" switch into a "dimmer switch". It was this insight that enabled the new breakthrough, said Professor Christopoulos.

"When a heart attack strikes, heart cells die because of a lack of oxygen and nutrients. But even more damage is caused when the blood rushes back to the heart cells due to the release of inflammatory chemicals and damaging free radicals," Professor Christopoulos said.

Currently, drugs to minimise damage to the heart activate the adenosine A1 receptor, a GPCR found in the heart. However a major issue in activating the A1 receptor is that it can also slow down the heart, and too much activation can stop the heart.

"Correct dosage has been a serious challenge in clinical trials for A1 receptor drugs. The consequences are serious; a dosage that is too high can stop the heart from beating. Too low, and the drug fails to prevent cell damage. Getting this balance right has been a big problem," Professor Scammells said.

Professor Christopoulos said the Monash study focussed on finding new ways to activate the protein, to achieve the beneficial effects (protection) without the side effects (slowing the heart).

"We turned to our knowledge of alternative recognition sites on the A1 receptor and specifically designed a new class of molecule that contained two active components linked together, one binding to the main site on the receptor for activation and another binding to the alternative site for fine-tuning of the activity. Our "dimmer switch" strategy worked, resulting in a molecule that protected heart cells but did not affect heart rate at all – at least in our animal models".

Professor Scammells said, "The beauty of this protein is that if you activate it effectively, you minimize the heart attack and protect the heart cells, and that's something that's never been done before."

The findings will inform the next phase of the research to develop a new drug that could potentially be made available for use by clinicians and emergency paramedics. ●

PSWC fosters learning from each other

MELBOURNE'S International Pharmaceutical Federation World Congress was 'an information factory' that allowed important exchanges and networking, according to Professor Bill Charman.

He told delegates to the April congress that the answers to many of their questions lay with another delegate in the room or was just a phone call or email away.

"That is the power of information and networking," he said.

More than 1000 of the world's top pharmaceutical scientists travelled to Melbourne to participate in the International Pharmaceutical Federation (FIP) World Congress. The fifth FIP congress, held at the Melbourne Convention and Exhibition Centre, carried the theme 'Pharmaceutical Sciences beyond 2020 – The rise of a new era in healthcare'.

Delegates from countries including China, India, Japan, Korea, Nigeria, Thailand, China Taiwan, the UK, the USA, Singapore, New Zealand, The Netherlands, Indonesia and Germany, joined local participants.

Monash University was a major partner in organising the program. Session topics included breakthrough technologies and treatments, emerging markets, the Information Age and society's needs and demands.

The congress incorporated the annual meeting of the Australasian Pharmaceutical Sciences Association and Drug Delivery Australia.

The congress had a large focus on pharmaceutical students and future leaders, with many presentations from our post-graduate students while undergraduate students provided support for delegates.

FIP president Dr Michel Buchmann told the opening ceremony that collaboration between pharmaceutical scientists and pharmacists was crucial.

> ABOVE: PARTICIPANTS SHARE IDEAS
TOP RIGHT: PROFESSOR BILL CHARMAN

"The survival of the pharmaceutical profession relies on the growth of dynamic relationships between scientists and practitioners, with scientists supporting the profession and the practitioners informing the scientists on patients' and societal needs and thus serving the best interest of patients and society," he said.

Dr Buchmann said productive collaboration would take time and effort and that undergraduate and postgraduate curricula would need to change – as would the roles of scientists, educators and clinical pharmacists.

"In today's world, it takes multidisciplinary teams of researchers to progress step by step, from discovery to the production of a desired therapeutic agent," Dr Buchmann said.

Mr Craig Ondarchie, the Parliamentary Secretary to the Victorian Premier, was among other speakers at the opening. Mr Ondarchie said that between 2000 and 2015, the State Government would have invested more than $1.8 billion to boost Victoria into a world-leading centre for life sciences.

Dr Brendan Shaw, Chief Executive of Medicines Australia, praised the international audience for the great work already achieved. He called for more partnerships between industry, government and the scientific community in Australia and abroad.

The major sponsors of the congress were global pharmaceutical company AbbVie (Australia), not-for-profit Therapeutic Innovation Australia, French-owned Gattefosse, high-end manufacturer Shimadzu Australia, and capsule and drug delivery company Capsugel. The State Government of Victoria and the City of Melbourne also provided significant financial support. ●

MIPS students win congress awards

The FIP Board of Pharmaceutical Sciences awarded four of our faculty's students with awards for the quality of submitted abstracts.

We congratulate Stephanie Phan, Yijun Pan, Gemma Ryan and Gaurav Sharma.

Monash students were also well represented with student-based awards in both the APSA and DDA streams of the congress.

Gemma Ryan won the best APSA oral award, Sifei Han won the best APSA poster award, and Joan Ho won the DDA award.

PhD student named Victorian Young Achiever

> LORI FERRINS

Monash Institute of Pharmaceutical Sciences (MIPS) PhD student, Lori Ferrins, has won the Science and Technology prize in the 2014 Victorian Young Achiever Awards.

Ms Ferrins won the Award from a strong field of nominees and was one of seven category winners announced in front of 330 guests at the Medallion room at Etihad stadium.

Her PhD which focuses on the design of new drugs to treat human African trypanosomiasis, known as 'African sleeping sickness,' clearly impressed the judges and it is an illness Lori believes flies under the radar.

"This parasitic disease is devastating to many isolated communities across Africa and once a village is affected by the disease it is very difficult to prevent cross-infection and this leads to the eventual destruction of the entire community."

"The overarching goal of the project is to uncover a novel, safe and potent compound that could be used in the treatment and it is this goal that drives us to complete the research," she said.

While Lori is clearly a rising star, she is quick to heap praise on her colleagues from MIPS.

"I am truly honoured to have received this award, the quality of the work from the other finalists was exceptionally high and the fact that I have won is something I am really proud of.

"I am a part of a great team and I could not have achieved my research outcomes without the support and guidance of Dr Raphael Rahmani, a research fellow also working on the project," she said.

Lori's supervisor Professor Jonathan Baell described the accolade as a just reward for her commitment and hard work.

"Lori is a young researcher with a very bright future.

"This award acknowledges her research and it is great to see one of our up-and-comers singled out as one of the best," he said.

With less than twelve months before finishing her PhD, Lori has her eyes set on a future in medicinal chemistry and is hoping a career in research will lead her overseas.

"Once I have completed my PhD, I would like to gain further experience by travelling to do a post doc in Medicinal Chemistry."

For more information about research at MIPS, visit **www.monash.edu/pharm**

Fresh new faces of Pharmacy

For fourth year pharmacy student Halla Dadouch, sharing her story with potential students was an opportunity she couldn't resist.

Halla has joined graduate Alexander Bongers as the new 'faces of pharmacy' in 2014, a year in which the faculty hopes to lift numbers in the undergraduate pharmacy program.

"I think the experience students get at Parkville is quite special and I hope that sharing my story will assist in spreading that message to potential students", Ms Dadouch said.

Margot Burke, Director of Development, said sharing student stories and graduate outcomes was an important part of the student recruitment process.

"When prospective students are making decisions around study, there is much more to it than checking out the facilities and learning about the course."

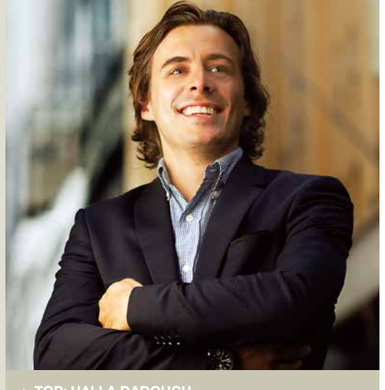
"They want to hear from students and because Halla and Alex are currently experiencing life as a student and recent graduate respectively, they are easy to relate to.

"Showcasing our graduate outcomes and sharing the experiences of our students is a crucial part of our student recruitment process and Halla and Alexander are great ambassadors for the course," she said.

While Halla has her sights set on completing her internship year in Singapore, Alex is settling in to his team leader role at an inner city pharmacy and has one clear message to future students.

"Studying with Monash is a no-brainer - the history and reputation of the Faculty puts its graduates ahead of the pack," he said.

"Studying with Monash is a no-brainer – the history and reputation of the Faculty puts its graduates ahead of the pack.



> TOP: HALLA DADOUCH
ABOVE: ALEXANDER BONGERS

Q&A

Professor Patrick Sexton

Professor Patrick Sexton leads a team at MIPS that is exploring G protein-coupled receptors—the largest family of cell surface receptors and the largest drug target family in the human genome.

What is the focus of your work?

There are two major areas of focus for the larger G protein-coupled receptor research group:

1. Understanding how different drugs acting at the same receptor can engender different outcomes—some of which may be beneficial to cellular function while others may be detrimental. This phenomenon is called "ligand-directed stimulus bias".
2. Discovering and understanding drugs that act at novel sites on receptors—sites other than those used by the body's natural activators.

These have the potential to enable more refined sculpting of cellular response or to give selectivity in cases of very closely related receptors.

What does your research mean for the future of medicine design?

It opens up new avenues for development of more selective drugs and drugs with fewer side effects. It also has promise for decreasing the rate of drug failure in the clinic, where this occurs from failure to understand the full spectrum of activity for individual drugs.

What diseases and conditions could this research impact?

The major therapeutic foci of the work in the laboratory are metabolic disease (particularly type II diabetes), neuropsychiatric disease (particularly schizophrenia and cognition) and cardiovascular disease. However, some of the concepts that are being explored have broad applicability for function and drug targeting of most G protein-coupled receptors.

How long have you been working in this field? What has drawn you to this point?

I've been working in this field for close to 30 years. I guess I ended up here by default. After I finished Honours, I was looking for an opportunity to undertake postgraduate study. The first project I applied for ended up being offered to another candidate but the host laboratory liked me enough to offer me an alternative project, which was to investigate some newly discovered receptors. I commenced my PhD in 1985 looking at where novel receptors were found in the body.

Why was this of interest to you?

I was always intrigued by the basic science—the ability to discover new things about how receptors work, starting with where they were found, before moving into characterisation of their signalling properties and then delving into the molecular basis of how they worked.

It's exciting that our laboratory can now investigate receptors from the fine molecular level (such as solving the 3D crystal structure) to how they behave at the whole organism level and their impact on disease and disease treatment.

When you were at school, what did you want to do when you grew up?

I had entertained notions about practising medicine. But I didn't get the marks so I ended up studying science, which was always of interest. This was probably for the best—I don't think I would have had a very good bedside manner.

How would you describe the MIPS environment and staff?

MIPS is an amazing place to be, combining world class facilities with incredibly smart and talented people who actively want to work together. What is particularly exciting for me is the number of brilliant, enthusiastic and young (well, young compared to me) scientists who are here and the vibrancy that this brings to our research. It is also really rewarding to see how the MIPS vision of bringing together the key disciplines in pharmaceutical sciences—which comprise the research themes of the institute—is enabling a truly integrated approach to drug discovery and development.

Where do you consider Australia sits on a global scale in pharmaceutical research and delivery?

MIPS is certainly a world leader in pharmaceutical research. This is exemplified by Monash's standing in this area—ranked seventh in the world—and the engagement we have with major industrial and academic partners.

How do you spend your time away from the lab?

Currently I swim most days. I also enjoying reading novels, drinking red wine and fine (or even not so fine) dining. ●

MIPS is an amazing place to be, combining world class facilities with incredibly smart and talented people who actively want to work together.

Student success rewarded

Talented university students are in high demand worldwide and I think people should be rewarded for their hard work and effort.

> ABOVE LEFT: MICHAEL HALPRIN AND ANNA DIEP
> BELOW: FATIMA COLLEGE OF HEALTH SCIENCES HEAD CONGRATULATED
> BOTTOM: PROFESSOR PHIL THOMSON AND DR CARL WHITE

The 2014 Faculty Prizes and Awards event was held on June 25, when 51 outstanding students were honoured for their academic achievements and 42 new scholarship recipients were also recognised.

A delegation from the Fatima College of Health Sciences located in the United Arab Emirates were also present on the night and Dean, Professor Bill Charman, took the opportunity to recognise the strong and positive working relationship Monash University and the College have established through a curriculum licensing agreement that spans across four disciplines and two faculties.

The event also provided an opportunity to thank the Faculty's generous financial supporters who provide the prizes and others whose philanthropic donations support scholarships. Several new donors joined the ranks of supporters this year and Pharmore Pharmacies CEO Pauline Rawlings was on hand to present the inaugural scholarship for a student enrolling in the Bachelor of Pharmacy.

"The Pharmore Pharmacies Scholarship was established as a way of giving back to the community and supporting the educational aspirations of future pharmacists," she said.

Another new scholarship donor, Michael Halprin was moved to provide a scholarship to help break down some of the barriers to starting a university degree.

"Talented university students are in high demand worldwide and I think people should be rewarded for their hard work and effort," Mr Halprin said. "A small financial reward is one way to acknowledge this."

The evening concluded with a keynote address from alumnus, Dr Craig Rayner, who inspired the prize winners, saying that "your mark in the world is as much about you and your talents, as it is about others who enable you to shine" and finished by urging the students to follow their passion, "as it will mean you will never need to find a job or a career".

2014 Exhibition and Award winners

Undergraduate exhibitions	Recipient	Donated by
Bachelor of Pharmaceutical Science First year exhibition	Serena Lee Yong Teo	Monash Institute of Pharmaceutical Sciences
Bachelor of Pharmaceutical Science Second year exhibition	Kenneth Lee	The Australian Society of Cosmetic Chemists
Bachelor of Pharmaceutical Science Third year exhibition	Julia Gabrielle Beveridge	Davies Collison Cave
Bachelor of Pharmacy First year exhibition	Rachel Jemimah Low	Pharmaceutical Defence Ltd
Bachelor of Pharmacy Second year exhibition	Yee Lyn Tan	Pharmacy Guild of Australia (Victoria)
Bachelor of Pharmacy Third year exhibition	Anne Marie Bradman	Society of Hospital Pharmacists of Australia (Victorian branch)
Bachelor of Pharmacy Fourth year exhibition	Suat Yong Kee	Guild Insurance
Rodney P. Cohen award	Anne Marie Bradman	The Cohen family
Neil Naismith award	Suat Yong Kee	Therapeutic Guidelines
Michael Keith Halprin Pharmacy Excellence award	Suat Yong Kee	Michael Keith Halprin
Faculty Honours prize	Mitchell McInerney	Shimadzu
Postgraduate exhibitions	**Recipient**	**Donated by**
Monash Pharmacy Internship prize	Janny Chi Fu	Pharmaceutical Defence Ltd
Master of Pharmacy Practice prize	Catherine Anne George	Pharmacy Guild of Australia (Victoria)
Master of Wound Care	Wendy Lee White	ConvaTec
Master of Clinical Pharmacy prize	Julian Nizette Lindsay	Society of Hospital Pharmacists of Australia (Victorian branch)
Vice-Chancellor's Commendation for Doctoral Thesis Excellence	Dr Wye Khay Fong	Monash University
Medals	**Recipient**	**Donated by**
Bachelor of Pharmacy Gold Medal	Suat Yong Kee	Pharmaceutical Society of Australia (Victorian branch)
Bachelor of Pharmaceutical Science Gold Medal	Gracia	GlaxoSmithKline
Mollie Holman Doctoral Medal	Dr Carl White	Monash University

Scholarship	2014 Recipient/s
Achieving Potential Scholarship	Li Ean Mah
	Yee Lyn Tan
Cyril Tonkin Scholarship	Jenifer Liang
Mathew Peck Travelling Scholarship	Jessica Florence Dayment
Michael Keith Halprin Scholarship	Anna Diep
Monash Dean's Scholarship	Thi Tina Thao Huynh
	Ann Li
	Minh Wayne Tat
	Anh Tu Ong
Monash Jubilee Honours Scholarship	Matthew Frith
	Linda Hong
	Rui Teng Wun
Monash Scholarship for Excellence	Rachel Jemimah Low
	Jordan Arthur Michaelis
	Ashley Shao Yi Ng
	Gavin Fei Xu
Monash Scholarship for Excellence and Equity	Yvonne Boutros
	Helen Chen
	Victoria Ling Fung Ip
	Anexsha Kalirajah
	Nhi Hong Phuong Le
	Theresa Mei Yeak Lim
	Ali Rezaiee
	Josephine Wen
Monash University International Scholarship for Excellence	Phuong Duy To
Monash Vice Chancellor's Honours-PhD Scholarship	Gracia
Pharmaceutical Sciences Advanced with Honours Scholarship	Cassandra Jay Hatzipantelis
Pharmaceutical Science Regional Scholarship	Kate Elyse Pilbeam
Pharmacy International Undergraduate Merit Scholarship	Marie Christine Tang Ya Lan Ah Sen
	Yan Wing Vanessa Cheung
	Hirudini Subasingha Kshsthriya Rajaputhra
	Ka Ho Leung
Pharmore Pharmacies Scholarship	Sanja Vukoman
Vice-Chancellor's Access Monash Scholars	Yvonne Boutros
	Helen Chen
	Anna Diep
	Anexsha Kalirajah
	Alina Denise Lam
	Thuy Vivian Lam
	Nhi Hong Phuong Le
	Theresa Mei Yeak Lim
	Nam Lu
	Vienna Ly
	Elonie Rose Morris
	Mubtasim Mohammad Murshed
	Anh Tu Ong
	Francis Quang Trinh
	Anagha Makarand Vaidya
	Sanja Vukoman
	Josephine Wen
Vaughan Scholarship	Kathy Sengmany
Victorian Chemists Golf Club Scholarship	Sarah May Short

Living history project to document a proud past

A project begun late last year aims to secure the history of pharmacy training in Victoria. The brainchild of alumnus Alistair Lloyd, the project will capture some of the Faculty's vital history on film.

Two films and a series of interviews with alumni will be used to portray the journey of the College from its beginnings in 1881 to the world-class Faculty it has become today.

The videos will also highlight the unique role the Faculty has played in the development of the profession over the years.

Project Manager Jenny McDowell said the first film will document stories of the Victorian College of Pharmacy, the current Faculty and the pharmacy profession generally.

"Infused with a sense of connection to people and place, the film will bring to life past achievements and will be an audiovisual companion to Bomford's 2006 book, Victorian College of Pharmacy: 125 years of History," she said.

> ALISTAIR LLOYD

"The film will also show what the faculty has achieved, the education and research innovations delivered by staff and also provide a glimpse of the future."

The interviewees tell tales of a vastly different educational approach, with stories of apprenticeship and Materia medica days, but also outline the development of the first three-year undergraduate degree, the behind-the-scene wrangling involved in the amalgamation of the Victorian College of Pharmacy with Monash University in 1990 and the current educational offerings that have lifted the prestige of the profession.

According to Jenny McDowell, "there is a consistent theme across all the generations of pharmacy graduates with their education marked by camaraderie, pranks and much hard work."

A second film will bring to life the extraordinary Sisson's Mural through detailed exposure of its elements via the camera lens.

Now in final stages of production, the film about the mural decodes the abundant mysteries painted into the fresco secco. The mural depicts the development of science, medicine and pharmacy throughout the ages, and the film promises to inspire a new appreciation of the overwhelming and elaborate story portrayed in the brushstrokes.

A special premiere showing of the films is planned for the Community Open House event scheduled at the Parkville Campus, August 17. Watch your email for information and a VIP invitation.

The films will subsequently be posted to the Faculty website. ●

Where are they now?

**What are you doing now?
We'd love to hear your story.
If you would like to be featured here, email vcp.foundation@monash.edu with your name and a short description of what you've done since graduation.**

Frances Ng

Growing up with a strong sense of social responsibility, Frances Ng (MPH, BPharm) graduated from her pharmacy studies in 2009 before completing her internship at The Alfred.

With the support and encouragement of a few key mentors, Frances went on to work as a clinical pharmacist at The Northern, servicing the multicultural population of one of Melbourne's key growth corridors.

It wasn't long before her keen interest in international health took her to the Pacific, under the Australian Volunteers for International Development program.

Her experience and training gained from the variety of hospital and community environments where she had practised were utilised to teach Fijian pharmacists the skills to practise evidence-based clinical pharmacy in one of the largest hospitals in the South Pacific.

Frances continued her studies with a postgraduate qualification in Public Health and, collectively, the knowledge, practice and skills gained from her tertiary education now contributes to shaping health system policy and regulation around the world.

As a Health Service Planner for TAHPI, the international branch of HPI, Frances works in collaboration with health architects and planners to advise public and private sector clients on the development and investment in health facilities.

"My work is extremely diverse yet focussed on health systems. One moment I am producing population and health service demand projections for a metropolitan region in Australia and the next I'm surveying hospitals and clinics in the Middle East to best inform their capacity planning."

Frances is excited at the prospect of gaining further experience and insight into many health systems around the world and works hard to develop techniques and mechanisms to maximise the positive impacts on the population from health facility developments.

Marysville

Sixty-two years after graduating, the surviving cohort of pharmacists from the graduation class of the Victorian College of Pharmacy 1952 gathered at the rebuilt Marysville resort EL Kanah for their annual getaway on May 6 and 7.

Starting as a convivial quarterly males-only dinner at the Oxford Hotel in 1953, the glass ceiling was broached to include first the wives then, later as the ranks of the men started to dwindle, the female graduates were included in the dinner invitations, and the venue varied to include some memorable events at the Danish Club and Airforce Club.

The annual get-togethers were started in the 1980s and have continued uninterrupted. Our previous visit to Marysville was about 12 years ago at the much-lamented Mary-Lynn Guesthouse.

We have also visited Lorne, Mount Buffalo,Warrnambool, Healesville and most other Victorian resorts as well as an expedition to the Gold Coast where several of our members had retired. Each year a different convenor and destination is selected but with due deference to our growing reluctance to change, next year we will return to Marysville, with arrangements to be managed by Ken Wanden and Valma Allaway[nee Adamson].This year was arranged by Graeme Campbell and Neil Hookey.

Our late-night dinners have been cut back to suit the age group. We now have a buffet lunch two or three times a year at the Vibe Savoy Hotel in Spencer St.

We believe we are unique among pharmacy alumni and would be interested to hear of any other such regular reunions.

Celebrating 60 memorable years

2014 marks the 60th anniversary of the Victorian College of Pharmacy's class of 1954 and, thanks to the organisational skills of Bev Gorr and Geoff Oscar, many graduates gathered to celebrate in style.

Sixty graduates and guests attended this year's special luncheon at Butleigh Wootton which was proudly supported by the Faculty, Pharmacists Defense Limited and Sigma.

As usual at these gatherings, which have been held at five year intervals since 1976, classmates regaled each other with funny or embarrassing stories.

Said Bev Gorr, "We hope to continue this proud tradition for many years to come."

In brief

ARC Linkage funds flow

The most recent ARC Linkage grant outcomes were announced in June and Monash had 19 new grants funded. As success in National Competitive Grants is a key performance indicator of our research progress, these new grants are most welcome.

New ARC funding coming to MIPS from these grants total $1,366,000 which is matched with a further $1,823,036 in cash and $857,000 in-kind from the project-based partner organisations.

New drugs to treat T. cruzi infection

Project Summary: New drugs to treat T. cruzi infection are urgently needed, however their design has been hampered by an incomplete understanding of complex host-parasite interactions, inadequate in vitro and in vivo tools to rigorously define activity during drug discovery, and a poor appreciation of concentration/effect relationships.

This project aims to develop new and much needed in vitro methods to better define the kinetic and dynamic activity of new drug candidates and will provide a rational basis for translating this information into lengthy animal models of T. cruzi infection. The outcome aims to be rationally designed drug candidates that are available in a shorter period of time and are suitable for further development.

Charman, Professor Susan A; Avery, Professor Vicky M; Kelly, Professor John M; Chatelain, Dr Eric; Keenan, Dr Martine; Best, Dr Wayne M

Total ARC cash funding: $507,000.00
Partner Organisations: Drugs for Neglected Diseases Initiative, Epichem Pty Ltd
Partner cash funding: $1,290,000
Partner in-kind: $39,000

Macromolecules therapeutics

Project Summary: Macromolecules therapeutics such as proteins, antibodies or polymer conjugates pose a number of pharmaceutical challenges. Where the dose is high, drainage of that dose from a subcutaneous injection site into the circulation poses a particular problem. Here, the project aims to explore how recombinant hyaluronidase, an enzyme that breaks down a structural component (hyaluronan) of the interatitium, can be used promote absorption into the draining blood and lymph capillaries.

The project aims to also explore the downstream effects of hyaluronidase on lymph nodes and evaluate whether the enzyme is able to temporarily disrupt the lymph node structure and promote drug penetration into the lymph node mass. This has significant potential for improved drug targeting.

Davis, Professor Thomas P; Whittaker, Dr Michael R; Prankerd, Dr Richard J; Donohue, Dr Andrew C; Tait, Dr Russell J

Total ARC cash funding: $450,000.00
Partner Organisation: PolyActiva Pty Ltd
Partner cash funding: $323,036
Partner in-kind: $528,200

New drug-carrier polymer devices

Project Summary: This project involves a comprehensive investigation of novel polyurethane based drug-polymer conjugates.

A variety of components will be scrutinised using a modular approach for assembling the drug conjugated devices, resulting in different polymer biodegradation characteristics, drug release rates and physical properties.

The project aims to provide key knowledge about the inter-relationships between the key elements so that each can be precisely tailored to meet the specific requirements of a particular biological site and drug. Ultimately, this study intends to lead to the production of new drug-carrier polymer devices suitable for the treatment of illnesses and diseases.

Davis, Professor Thomas P; Whittaker, Dr Michael R; Prankerd, Dr Richard J; Donohue, Dr Andrew C; Tait, Dr Russell J

Total ARC cash funding: $450,000.00
Partner Organisation: PolyActiva Pty Ltd
Partner cash funding: $323,036
Partner in-kind: $528,200

Faculty researchers get cited

Monash University academics have been recognised as among the world's most Highly Cited (HiCi) Researchers in a new list just released by Thomson Reuters.

Identified and honoured for their sustained research contributions placing them among the world's best in their field, Monash University's Professor Stuart Batten, Professor Arthur Christopoulos, Professor Patrick Sexton and Professor Dan Li have been recognised by Thomson Reuters as new Highly Cited Researchers.

In addition, Monash joint appointments Professor Donyuan Zhao, Professor Rinaldo Bellomo, Professor Lei Jiaing, Professor Paul Zimmet and Professor Jonathon Shaw are listed as new HiCis.

Highly Cited Researchers are those whose publications are most cited in academic journals in a respective field over a 10-year rolling period. Being acknowledged as a HiCi means their research has been published in papers that are in the top one per cent of most highly cited papers in their discipline over the past decade.

Inclusion in the HiCi list is a measure of the esteem and recognition of the researchers' influence on their field globally.

The HiCi performance is also one of the six indicators used to determine top research universities in the Academic Ranking of World Universities, compiled by the Shanghai Jiao Tong University.

New entry program has strong appeal

The new graduate entry pathway to Pharmacy has proved popular with the first cohort surpassing enrolment targets. 33 students were offered places and enrolled for the intensive summer workshops before starting the third year of the Pharmacy degree.

The new pathway allows applicants with an undergraduate degree in biomedicine, biomedical science, science or pharmaceutical science to complete the Bachelor of Pharmacy (Honours) in just two years.

Robert Jedwab, who completed a Bachelor of Biomedical Science at Monash University, said the program is perfect for recent science graduates looking for a new career.

"Like many of my friends, I was assessing my options after completing my degree and was having trouble identifying a clear path to a career in health care.

"When I found out about the graduate entry pathway, I looked in to it and saw that a career in pharmacy would still enable me to work with people. I was sold," he said.

Professor Carl Kirkpatrick said, "This pathway presents these graduates with a great opportunity to enter directly in to the third year of our course, but there is also a lot of work involved for the students."

"We had to squeeze a lot of content in to that summer period but we were pleased with how they handled it."

With the 2014 intake exceeding expectations and positive feedback from the first cohort, the recruitment targets for 2015 have been doubled and the faculty is optimistic about demand.

From the archives

Alumnus Alistair Lloyd tracks down the various symbols used over the course of the College/Faculty history.

1881-1889

Before adopting its own symbol, the identification of the College of Pharmacy in Victoria was that of the Pharmaceutical Society of Victoria, which founded the College in 1881.

This badge had the name of the Society in a circular garter surrounding a depiction of Hygeia, the Greek goddess of wellbeing, holding her bowl of medicinal potions from which is sipping a serpent entwined around a tree, representing Aesculapius, her father and the god of healing. This symbolism is used by many pharmacy organisations worldwide. Underneath her is a mortar and pestle, used in the extraction of active principles from herbal products and to prepare medicines, and, beside her, a glass retort used by chemists for distillation.

The motto CAVENDO TUTUS may be roughly translated, appropriately for pharmacists, as 'safety, through caution'.

1889 -1972

In 1899 a separate badge was developed for the College 'to foster friendship and esprit de corps among past and present students'.

The idea for the design was inspired by the front inner page of Redwood's Pharmacopeia. The original included a mortar and pestle in the centre but this was eventually replaced by the Rx symbol and the date 1881, the date of College's foundation. On either side of these are two sets of intertwined serpents, associated since Greek times with healing powers.

The motto Dum vivimus vivamus means, appropriately for students, 'while we live, let us enjoy life', inspired by a poem by Adam Lindsay Gordon.

This badge was also used by the Old Collegians Association, formed in 1915 to conduct social and sporting activities to develop friendships and forge a greater identification with the college and the profession, on a college blazer and 'straw boater' hat for men and women.

1972 – 1992

Shortly after the Professor Tak Higuchi sculpture, located high on the eastern wall of the Manning building, was unveiled in 1972, the college adopted a line drawing of that sculpture as its badge, on letterhead and other documents.

The sculpture consists of two parts – a lower disc surmounted by a rectangle.

The three ridges on the disc represent the main streams of knowledge in the pharmaceutical sciences. The heaviest, straighter ridge in the centre represents the biological sciences, with the physical sciences on the left and pharmaceutics on the right ridge. A fourth ridge appears on the left side of the rectangle to represent administrative pharmacy and pharmacy management.

The gap between the two parts indicates the time students spend in practice during and following the course, to gain vital experience.

The ridges fuse together in the rectangle to denote the competent pharmacist. This is when academic, practical and professional experiences become integrated into the whole and complete pharmacist.

The total design suggests an inverse mortar and pestle, and the symbolism is that of a heraldic academic medallion.

1992 – present

This symbol was used until 1992 when the College was amalgamated with Monash University, to later become the Faculty of Pharmacy and Pharmaceutical Sciences. The Faculty now uses the Monash style of identification.

MONASH University
Pharmacy and Pharmaceutical Sciences

The last word

The 2014 QS World University rankings have once again ranked pharmacy and pharmacology at Monash as number one in Australia, number one in the Asia-Pacific and in the world top 10.

Relevance, impact and excellence are key parameters against which we assess the education and research offerings of our Faculty. It is essential we continually refresh what we do, have an unrelenting focus on excellence, and make sure we are innovating and creating new ways to teach and undertake our research. There are many ways we do this – and one of them is to be a major contributor to national and international forums that address pharmacy and pharmaceutical sciences education and research.

An example of one such contribution was the Pharmaceutical Sciences World Congress held in Melbourne in April 2014 under the auspices of FIP (International Pharmaceutical Federation). The World Congress is held every 4 years, and Melbourne attracted a large and distinguished group of pharmaceutical scientists from around the world. Over 1100 scientists attended the Congress comprising large delegations from China, India, Japan, Korea, Europe, UK, USA and of course, Australia. The Congress had a fabulous scientific program and the overall meeting was viewed by the attendees as highly successful, effective and worthwhile.

A second example was The World Congress of Pharmacology held in Cape Town, South Africa in July 2014 where scientists from MIPS and CMUS were invited speakers to this four yearly event. Arthur Christopoulos gave an inspiring keynote presentation about the research his team at MIPS is undertaking into the biology and pharmacology of G protein-coupled receptors.

The NatRUM project, featured in this edition of Alchemy, is an outstanding example of the manner in which community pharmacy contributes to the health and environmental sustainability of healthcare provision. The findings from this world-first study are highly significant and I congratulate the NatRUM Board and the Monash staff involved in the project on their work and dedication to addressing the disposal of unwanted medicines.

The 2014 QS World University rankings have once again ranked pharmacy and pharmacology at Monash as number one in Australia, number one in the AsiaPacific and top 10 in the world. Rankings are a consequence of what our staff and students achieve, and I am thrilled that our programs are ranked within the elite group worldwide.
I sincerely thank the academic, research and professional staff within our Faculty for their dedication and excellence as we pursue our goals in education and research.

Faculty of Pharmacy and
Pharmaceutical Sciences
Monash University
381 Royal Parade
Parkville VIC 3052
T +61 3 9903 9635
F +61 3 9903 9581
E pharmacy.info@monash.edu
www.monash.edu/pharm

MONASH University
Pharmacy and Pharmaceutical Sciences

Where brilliant *begins*

GROUP OF EIGHT AUSTRALIA

Australia ■ China ■ India ■ Italy ■ Malaysia ■ South Africa