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Pharmville 3052: anything but a soap opera



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From the dean

The past 12 months have been significant for the faculty with the development of the Monash Institute of Pharmaceutical Sciences (MIPS). I am thrilled that Monash's internationally respected Drug Discovery Biology research group is moving to the Parkville campus as a new research theme within MIPS. This will open new opportunities for collaboration in drug discovery and development in accord with the MIPS tag line 'better medicines by design'.

Our staff have recently been recognised on a national level, securing several major research grants, and one of our MIPS researchers has been awarded the prestigious Grimwade Prize in Industrial Chemistry. You can read more about these stories and several of our educational innovations in this edition of *Alchemy*.

A key focus for us is to inform, educate and inspire our current undergraduate students about the possibilities that research can offer them. The education they receive here at the faculty is heavily research led – meaning that our research experts are also their teachers. To showcase this important aspect of our work, the successes of some of our recent PhD graduates are now highlighted in a major installation on the ground floor of the Scott

building. The installation shows the pathways that 13 of our PhD graduates have taken, and their journeys are impressive, to say the least. Next time you visit the faculty, please visit the research showcase – it really is inspiring.

William N. Charman

Professor William N. Charman
BPharm (1981), PhD



The Foundation – strength to strength

The Victorian College of Pharmacy Foundation is continuing a year of consolidation and growth, with the creation of a new executive position – director of the Foundation – and appointment of Anne Gribbin to that role.

Anne has worked in a number of senior management and fundraising roles in large not-for-profit educational and health organisations such as the University of Adelaide and The Alfred, and has led teams that have raised in excess of \$100 million.

In 2008, the Foundation raised more than \$700,000 from a mix of individual and corporate donations and through the Annual Appeal. The Foundation continues to work closely with the dean to identify scientific, research and operational issues that would be enhanced by Foundation funding.

Under the leadership of chairman Alistair Lloyd AO RFD ED (PhC 1956), the Foundation Board continues to develop mechanisms to connect and engage with alumni both locally and internationally.

It will identify individuals and groups interested in particular faculty projects and research, and work to form partnerships with donors interested in financially supporting this work.

The Foundation's interest groups continue to grow. More than 150 alumni and friends have taken tours of the faculty since this initiative was introduced in June 2008, and new visitors are always welcome.

The ongoing development of the Cossar Club is another focus for 2009. The Cossar Club acknowledges those who are prepared to support the faculty with a bequest. In recognition of the leadership of the Cossar family with previous and current appeals, the club is named after them.

Special interest groups such as the Retired Pharmacists group conducted a successful series of nine events in 2008 and already its 2009 schedule of meetings has attracted quite a crowd.

The thoughtful and passionate involvement of the volunteers associated with both the Cossar Club and the Retired Pharmacists group continues to be a mainstay of the success and growing interest of many alumni and friends of the faculty.

For more information contact Anne Gribbin, tel: +61 3 9903 9507 or email anne.gribbin@pharm.monash.edu.au.

Pharmville 3052: anything but a soap opera



Cast and crew of *Neighbours*... prepare to stand aside! The characters in Pharmville 3052 are poised to become an integral part of our students' university learning experience.

Pharmville 3052 is a fictitious community of 26 individuals, devised by faculty staff and introduced to undergraduate Bachelor of Pharmacy students in first semester 2009. The benefit of this innovative project lies in its capacity to bring 'real' people with 'real' problems into students' lives and learning experiences.

Each Pharmville 3052 character has a documented medical and social background that provides a distinctive platform and point of view for lecturers to illustrate disease states and their progression, physiological processes, and drug entities and groups.

Students are introduced to the families, encountering a human perspective to healthcare problems to increase their cultural awareness, confidence and preparedness for practice. Through the characters, students will also understand connections between the enabling science units and the practice based units in the course curriculum.




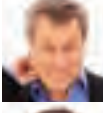
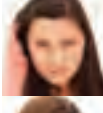


"Pharmville is an exciting initiative that provides context and relevance in our new curriculum," said Associate Professor Jennifer Marriott (BPharm 1971), director of the Bachelor of Pharmacy.

She explained that a lot of work has gone into the project and its impact on the students has been highly anticipated by staff.

"Initially, the students were intrigued," she said. "I believe they'll continue to enjoy the connection that Pharmville creates between different units in the course."

Images and videos of the characters will be embedded into the curriculum throughout lectures and tutorials as a tangible context for student learning. For example, drug molecules of the Pharmville 3052 characters' prescribed medication can be used to illustrate chemistry lectures and provide a concrete link from the molecular structure through to the end-user, the patient.

Introducing the Park family

	Name	Role	Age	Medical background	Social background
	Shirley	Paternal grandmother	68	Type 2 diabetes, arthritis and mild osteoporosis	Socially active, lives around the corner from her son and daughter-in-law.
	Kang	Maternal grandfather	73	High blood pressure, high cholesterol and shingles	Malaysian background, poorly compliant with medications and disinterested in his health.
	Mei	Mother	48	A little overweight	Exercises little, leads a reasonably sedentary lifestyle and works part-time in an office.
	Steve	Father	49	Overweight, suffers from hypertension and reflux	Highly stressful job, drinks approximately three standard drinks each evening.
	Emma-Lin	Daughter	21	Smoker, on low-dose contraceptive pill for period pain, suffers from seasonal hayfever and eczema	Exercises daily, no steady boyfriend but regularly dates different guys.
	Andrew	Son	16	Asthma	Very social, attends lots of late night parties.
	Tom	Son	10	Tonsils and adenoids removed at 8 years following long history of infections	Generally happy, enjoys playing sport and Xbox.

A wide range of characters make up the Pharmville 3052 community. They include an ethnically Malaysian grandfather with high blood pressure and cholesterol, a single mother who works part-time and has two boys, and a socially isolated 37 year old man with epilepsy who lives at home on a disability pension. The diversity is designed to represent the average Australian community, with its multi-racial members and variation in health attitudes and social supports.

One Pharmville 3052 family – the Park family – was selected for extended development. With a gallery of candid video footage and still images of the seven family members, the family forms the visible face and entry point into Pharmville 3052 for students and lecturers.

A 20-minute film introduces the characters and illustrates the multidimensional impact of social and personal circumstances on health. A production crew was on location to bring the project to the big screen, but the project also drew on the talents of Monash staff. Academic staff wrote scripts to depict the multilayered lives of the characters, actors were cast to match the bi-racial family dynamic, and tight management allowed the filming to run smoothly.

As an extension of the community's documented health and social history, the characters can also be explored in hypothetical scenarios to further study other health consequences and disease impacts. Lecturers can pose the many types of situations to students: *What if... Steve developed cardiac failure... Maria, who is breastfeeding, develops shingles... Jason doubled his phenytoin dose.* Students will then consider the impact of these changes in the context of the character's situation.

Importantly, if students are learning, for instance, about health and ageing, health promotion and socially isolated, illicit drugs and risk taking, or childhood immunisation, there are Pharmville characters suitable to use as an illustrative starting point. *Shane Bayer drinks heavily and takes antidepressants. What role does the community pharmacist have in this situation?... Sophia Tarantino is six months old. Which childhood vaccinations is she due for next?*

Other offshoot initiatives are also underway, harnessing the energy of the Pharmville project. Four Pharmville characters are being developed as virtual patient avatars for third and fourth year communication tutorials, and video footage of the Pharmville characters in prescription interaction scenarios has been created for use in the virtual practice environment (VPE) spaces.

So, will Pharmville 3052 be to the Faculty of Pharmacy and Pharmaceutical Sciences what the 5000+ episodes of *Neighbours* are to its band of supporters? It's unlikely that any of the Pharmville characters will become international superstars, but there is a vision that the Pharmville 3052 concept will become a highly successful teaching model, enthusiastically embraced by students.

Until then... it's Pharmville 3052, Act 1, Scene 1. Roll cameras!

A major new initiative: Drug Discovery Biology joins MIPS

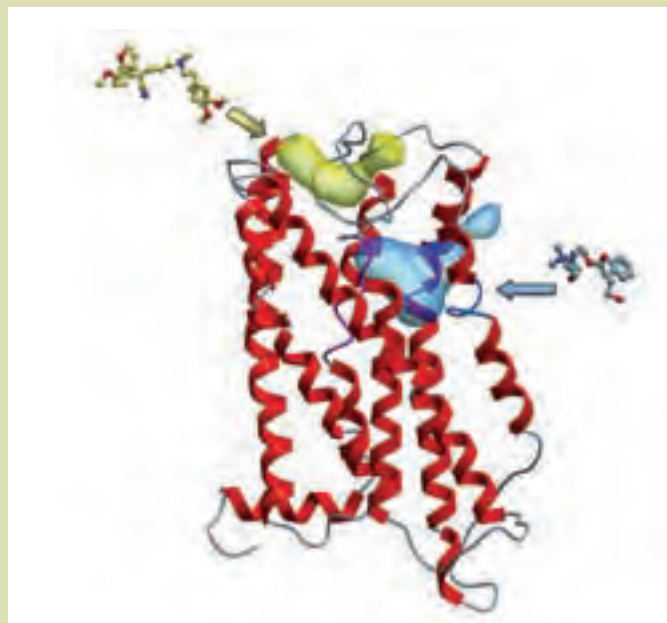
Drug Discovery Biology (DDB), the newest theme in the Monash Institute of Pharmaceutical Sciences (MIPS), will be established at the Parkville campus in July.

Professors Patrick Sexton, Arthur Christopoulos and Roger Summers, from the DDB theme, use a multidisciplinary approach to study the regulation of receptors to find novel molecules that can eventually become drugs.

Research currently focuses on understanding novel modes of regulation of G protein-coupled receptors (GPCRs) in an effort to identify novel targets or approaches for drug discovery. The function and health of living cells depend on how they respond to the many physical and chemical stimuli that continually bombard them. Most chemical cellular stimuli comprise hormones, peptides and neurotransmitters that impart their actions by binding to specific cell surface receptor proteins. GPCRs represent the largest superfamily of all receptors (around 2% of the human genome) and are the targets for nearly 30% of all currently used therapeutic drugs.

The work of the DDB theme encompasses investigation across virtually all levels of GPCR structure/function, including analysis of the functional significance of single nucleotide polymorphisms; alternate mRNA splicing; signalling via G proteins and downstream messenger systems; interaction of receptors with regulatory accessory proteins; novel allosteric GPCR binding sites; and mathematical and molecular modelling of GPCR-ligand interactions.

Currently within the Faculty of Medicine, Nursing and Health Sciences, the DDB's move to Parkville and integration within MIPS means increased synergy between Monash faculties and among the existing MIPS research themes. The DDB team's work focuses on the early phase of drug development, including target identification, target validation, hit discovery, mechanism of action, proof of concept and in some cases early preclinical animal models. Increased linkages with the Medicinal Chemistry and Drug Action theme and the other MIPS



Molecular model of a G protein-coupled receptor indicating potential binding pockets for novel classes of drugs.

themes means that the DDB team has a greater coverage of target and chemical space and an increased capacity to move promising candidates up the drug discovery pipeline.

"The move to MIPS and to Parkville is a real benefit to us. It increases the translational potential of what we do," said Professor Sexton.

"Being co-located with the three existing MIPS themes, we will have greater synergy and more translational opportunities to undertake higher impact, multi-disciplinary projects."

Professor Christopoulos said that the new infrastructure provided by the theme is applicable to other drug targets, outside the DDB area of speciality.

"This framework is transferable to other types of targets," he said. "It will also give us the opportunity to co-develop new types of infrastructure and to broaden our ability to engage with industry groups."

MIPS, which comprises the largest and most experienced group of pharmaceutical scientists in Australia, takes a lead role in drug discovery and development, pharmaceutical research and training.

"The establishment of MIPS is a great innovation," said Professor Summers. "Nowhere else in Australia can you go from the target to the molecule to an optimised preclinical drug candidate that may be ready for early phase clinical trials."

The new facilities, which comprise the entire third floor of the new fourth building at the Parkville campus, were designed specifically to suit DDB requirements. A purpose-built open-plan laboratory is supported by discrete spaces dedicated to specialist services such as receptor binding, cell culture, bacterial and yeast work, cell-based signalling assays, molecular modelling and protein chemistry.

The facilities will house the 35 team members and can accommodate 54 staff, allowing for eventual expansion of the DDB team or for staff from other MIPS themes to work cooperatively.

MIPS fosters knowledge, understanding and innovation and leverages expertise through collaborative translational research programs with academic and commercial partners.

The four MIPS themes are:

- Drug Discovery Biology
- Medicinal Chemistry and Drug Action
- Drug Candidate Optimisation
- Drug Delivery, Disposition and Dynamics.

"The integration of DDB into MIPS further improves cooperation between the faculties of Medicine, Nursing and Health Sciences, and Pharmacy and Pharmaceutical Sciences," said Professor Bill Charman.

"In most universities there would be myriad organisational and political reasons why such a unique and strategic collaboration would not happen. However, this is not the case at Monash, where the focus is on assembling leading teams to undertake high impact research in collaborative multi-disciplinary environments. MIPS is now uniquely placed in the GPCR field to undertake drug discovery and development – and is another terrific and tangible example of '*better medicines by design*', the MIPS tag line."

Professor Patrick Sexton, Professor Arthur Christopoulos and Professor Roger Summers were recently awarded a major National Health and Medical Research Council (NHMRC) program grant of \$6.5 million to fund their research work on receptor proteins. The aim is to improve the effectiveness of drug treatment for heart disease, mental illness, diabetes and obesity.



Professor Patrick Sexton

BSc(Hons) (1984), PhD (1988)

Professor of Pharmacology, NHMRC Principal Research Fellow

Career profile

Professor Sexton is a leading international researcher in the field of GPCRs. He is considered a leading world authority on Family B GPCRs and on the interaction of GPCRs with accessory proteins. His leadership responsibilities have included membership of eight international editorial boards, an IUPHAR nomenclature subcommittee and ad hoc review for 50 distinct international journals. Professor Sexton is considered one of Australia's leading pharmacologists and has served as a member or deputy chair of seven NHMRC Grant Review Panels in the discipline of pharmacology. He has been a chief investigator on more than 50 successful funding applications, attracting over \$20 million in competitive and industry funding. He has delivered over 100 invited international and national presentations and is an author of over 100 peer reviewed international journal articles.



Professor Arthur Christopoulos

BPharm (1990), PhD (1997)

Professor of Pharmacology, NHMRC Senior Research Fellow

Career profile

Professor Christopoulos has developed an international reputation in the field of GPCRs, the largest family of receptors in the human genome and the targets for the majority of drugs on the market. He is considered the leading world authority on the study of small molecule GPCR allosteric modulators as a novel approach to GPCR drug discovery. His leadership responsibilities included membership of eight international editorial boards and, over a five year period, he attracted over \$12.8 million of both competitive and industry funding. His other achievements include one international and five national science awards, over 90 invited international and national presentations, and over 100 peer reviewed international journal publications.



Professor Roger Summers

BPharm(Hons) (1965), PhD (1968), FBPharmacolS (2005), PhD (2006)

Professor of Molecular Pharmacology, Honorary Senior Principal Research Fellow at the Howard Florey Institute

Career profile

Professor Summers is a recognised authority in the understanding of novel modes of signalling of recently de-orphanised GPCRs and in the development of the concept of ligand-directed signalling. His work encompasses studies of virtually all levels of GPCR structure/function. His leadership responsibilities include membership of five international editorial boards and reviewer for more than 20 international journals. Recipient of numerous national and international awards, Professor Summers has served on 16 peer review panels and has been a member and chair of NHMRC Fellowship Panels. He has delivered over 90 invited international and national presentations, is author of over 250 peer reviewed international journal articles and has been cited more than 4500 times. He has attracted over \$17 million in competitive and industry funding.

Strengthening research links with China

Monash researchers, collaborating with scientists from Shandong University in China, have been awarded \$250,000 from the Australian Government to assist with two scientific research projects.

Senator Kim Carr, Minister for Innovation, Industry, Science and Research, awarded the funding to strengthen Australia's national research effort and boost the nation's innovation performance.

Professor Edwina Cornish, Deputy Vice-Chancellor (Research) said that she was proud that Monash was one of 12 Australian universities to attract funding.

"International collaboration in the name of research opens up a new world of opportunities for Monash researchers," she said. "By collaborating with China, our researchers can utilise global networks, technologies and infrastructure, leading to greater research outcomes and solutions."

One project, lead by the faculty's Dr Jian Li, aims to develop novel antibiotics against 'superbugs' (or multi-drug resistant bacterial infections) through the use of myxobacteria.

As a special class of soil bacteria, myxobacteria is becoming one of the world's best producers of novel antibiotics. This collaboration with Shandong University will provide Jian and his team with access to the largest myxobacterial bank in Asia.

"I'm confident that fostering international relationships will pave the way for even stronger global research links for Monash," said Professor Cornish.

Integrating the pharmacy curriculum

Following a substantial redevelopment effort, an improved and more integrated Bachelor of Pharmacy curriculum is now being delivered to first and second year students.

The new Bachelor of Pharmacy continues as a four-year course delivered predominantly through lectures, workshops, practical classes, tutorials and practical placements. The knowledge base and emphasis on skills development has been boosted, while the level of integration across course units and teaching departments has dramatically increased. The innovative use of new technology and teaching tools is another strong feature, as is the emphasis on independent learning.

"The redeveloped pharmacy curriculum will provide students with an excellent, high quality education, and with the knowledge, skills and attitudes they need for current and future practice," said Professor Peter Stewart, Associate Dean (Teaching).

"One of the unique aspects of the new course is the focus on generic skill development that will be embedded in the teaching program. This skill training will focus on oral and written communication, critical thinking, learning for life, numeracy and information literacy and leadership."

The course redevelopment was a carefully planned process that began in August 2007 and took place over a 10-month period. A Pharmacy Curriculum Planning Group managed the process, with various working parties revising everything from the aims and learning objectives to the specific content of the course units. Staff, students and external pharmacy stakeholders provided input and were kept informed throughout the process.

This is the first major redevelopment of the Bachelor of Pharmacy curriculum since the introduction of the four-year course in 1999.

	Units within study stream							
First year	●	●	●	●	●	●	●	●
Second year	●	●	●	●	●	●	●	●
Third year	●	●	●	●	●	●	●	●
Fourth year	●	●	●	●	●	●	●	●

Study streams

● Enabling knowledge base ● Drug delivery ● Pharmacy practice ● Integrated therapeutics ● Elective

The four major streams of the new course are:

- enabling chemical and biological sciences
- drug delivery, disposition and dynamics
- pharmacy practice
- integrated therapeutics.

The Practical Experience Placement program will continue to run as four three-week blocks.

One of the most innovative ways that the new course will provide a uniform teaching and learning context is via the Pharmville 3052 families (see page 4). This virtual community of families will be used as a teaching tool in many course units. Pharmatopia avatars and VPEs (see page 12) are other novel ways of immersing students in the practice experience.

"The most important change is the increased integration of ideas, skill development and application of knowledge across all four years of the new curriculum," said Bachelor of Pharmacy director, Associate Professor Jennifer Marriott (BPharm 1971).

She said the most externally obvious change to the course is the introduction of seven integrated therapeutics units and an advanced practice unit.

"Feedback from students and the profession had indicated that teaching of therapeutics should commence earlier in the course so that students could apply this knowledge during their placements," she explained.

The integrated therapeutics units combine pharmacology, medicinal chemistry and therapeutics into seven disease state management units. The first two units commenced in semester one 2009 and the others will be rolled out in 2010 and 2011.

"These units will focus on the management of disease states in the context of co-morbidities to develop students' critical thinking skills," said Associate Professor Marriott. "Case studies, problem solving and literature evaluation will be completed through group involvement to build teamwork, leadership and communication skills."

The advanced practice unit, taken in the last semester of fourth year, reviews all therapeutic areas and will develop the students' clinical skills to a more advanced level. As another new initiative, students will study real-life disease management cases in the small group case study tutorials that support this unit.

Professor Stewart said the curriculum continues to be built on a strong chemical and biological science base.

"The overall aim of the pharmacy course is to produce graduates who are able to apply the knowledge and skills gained to promote and contribute to the quality use of medicines and to the health of the community," he said.

Fighting the dragon with luck



Monash graduate Angelo Pricolo (BPharm 1987) aims to realign community and pharmacy attitudes to opiate replacement therapy (ORT) for treating drug addiction with his thought-provoking and emotionally resonating documentary *Fighting the Dragon with Luck*.

An estimated 40,000 Australians are currently on this type of ORT program, and the documentary tells the story of addiction through the eyes of six people in the inner Melbourne suburb of Brunswick. The stories share a common theme of hope that, despite the crippling realities of heroin addiction, a return to normal life is possible. The film takes its name from the tattoo of one of the central characters, a former Victorian heavyweight amateur boxing champion who is hoping soon to add a second tattoo that portrays his victory over the dragon.

Although widely recognised as the most effective treatment for heroin addiction, methadone is still subject to stigma that affects people's ability to recognise the difference between it and addiction. This often leads to a situation where people on methadone feel they are more alienated than those using heroin. This was highlighted at a recent showing of the documentary, where the audience answered a series of questions before and after the screening.

Angelo explained that the data from this survey clearly showed that even people who work in the industry do not have a real understanding of addiction and the best treatment available.

"Our screening was effectively an educational session that changed attitudes on treatment and perceptions of drug addicted people," he said. "The changes in responses after viewing the film were dramatic – we saw a definite shift towards a more positive attitude to treatment options."

"These attitudes also explain the poor involvement of pharmacies with ORT. Only one in three pharmacies in Victoria, and a very low percentage of doctors, are involved," he added. "Doctors and pharmacists are part of the community and often share the same views and stereotypes."

Producer and creator of the documentary, Angelo was awarded the Pharmaceutical Society of Australia (PSA) Pharmacist of the Year in 2008 for his 'passion, outspokenness and creativity, which triggered wide-scale changes to the way Australia is helping recovering drug users'. He has over 20 years' experience working with methadone ORT and his current masters research at the faculty aims to address the low uptake of the ORT program within pharmacies and improve the existing program and its negative image.

Angelo has called on the government to further subsidise the cost of ORT, believing that programs with little or no charge have a higher success rate. This has been reinforced by the recent RMIT University study by Dr James Rowe entitled *A raw deal: Impact on the health of consumers relative to the cost of pharmacotherapy*. As well as further establishing the effectiveness of ORT programs, the report found 'that the need to pay regular dispensing fees is an obstacle to entering, and remaining in, opioid maintenance treatment'.

As well as multiple screenings across the country, Angelo's documentary received a special mention and screening at the International Drugs and Harm Reduction Film Festival (Barcelona 2008). In March it was also screened at both the National Drug Treatment Conference in London and at a UNICEF film festival in New Delhi. Angelo is looking forward to the film screening in the US at The College on Problems of Drug Dependence Annual Meeting in June. Featuring original music by Clare Bowditch and Max White, it is a powerfully simple film that connects the audience with each character and allows for a sympathetic understanding of their stories. It reminds viewers that users of heroin are members of our community who need our support and that, without that support, ORT can only go so far.

To learn more about the film, visit www.fightingthedragonwithluck.com.



From the lab to the field

The reality of his PhD work came home to Dr Darren Creek when he travelled to Uganda for volunteer work on a project that investigated the impact of medications on malaria incidence.

Darren graduated with a Bachelor of Pharmacy (Honours) in 2002, winning the Pharmacy Gold Medal. He completed his internship year at the Royal Melbourne Hospital, then commenced his PhD in 2004 with Professors Susan Charman and Bill Charman at the Centre for Drug Candidate Optimisation, within MIPS. There he worked on the internationally-recognised peroxide antimalarial (OZ) project, funded by the Medicines for Malaria Venture (Geneva, Switzerland), which aims to design new antimalarials that are active, easy to use and affordable.

In 2007, Darren completed his PhD (which included seven publications in leading scientific journals and one international patent application) and in 2008 he took time out to travel around the world, a journey that included six months of volunteer work in Uganda. Here he explains his role in the Ugandan project.



Mothers wait for appointments in the grounds of Tororo District Hospital, where the HIV and malaria clinic is located.



"My work was based at a clinic in the rural Ugandan town of Tororo, and mainly dealt with HIV and malaria. The Tororo district suffers from very high malaria transmission, with an estimated 562 infectious mosquito bites per person and hundreds of children dying every year.

The clinic was operated by a research collaboration between Ugandan and US-based universities. It provided comprehensive care for a cohort of 350 infants, and collected data to investigate various aspects of HIV, malaria and interactions of the drugs used to treat these diseases. Malaria causes one million deaths per year, the vast majority of which are young children living in rural areas of sub-Saharan Africa. This is not the easiest demographic for facilitating collection of clinical data, underlining the important and challenging nature of our study.

International funding has improved access to HIV management in Africa, including distribution of anti-retrovirals and prophylactic antibiotics. This study was designed to investigate the impact of these medications on malaria incidence, treatment and the development of immunity.

Another major focus was to compare the effectiveness of two leading malaria treatments, and my major role was to initiate a pharmacokinetic study to evaluate these therapies. My background in pharmacy and pharmaceutical science was appreciated by the local doctors and nurses who, despite their excellent clinical skills in treating patients, were only just learning the importance of drug absorption, blood concentrations and the strict procedures required to generate quality research data capable of influencing future practice.

The scientific and clinical nature of the work made it very enjoyable, but the greatest sense of achievement was felt after we successfully implemented the logistical procedures required to run the study. Keeping hundreds of blood samples frozen in a town that has only sporadic electricity supply was not a simple task, but with the help of liquid nitrogen and many very rough five-hour journeys to Kampala (Uganda's capital), the study was successful.

Sadly, the eradication of malaria is not feasible in this environment in the short term, but treatment is possible. All 621 malaria cases I saw were successfully treated by following international guidelines that recommend artemisinin-combination therapy (ACT). Unfortunately, many Ugandans cannot access or afford ACT, and prefer to use older,

cheaper drugs such as chloroquine or Fansidar, that are ineffective in most cases because of the prevalence of drug-resistant parasites.

This is just one of the many frustrations I faced working in a developing country where poverty, inequality, poor infrastructure and limited education affect so many aspects of life. Thankfully, I had an opportunity to improve this situation in a small way, not only by direct contribution to healthcare and clinical practice in Africa, but perhaps more importantly through my PhD work with CDCO, which will hopefully lead to the availability of cheaper alternatives to ACT that would make treatment more accessible to those who need it.

Overall I had a great time in Uganda. The lifestyle and workplace was very relaxed (sometimes too relaxed!) and the impact that a few healthcare professionals could have on so many lives was visible and fulfilling."

Back in Melbourne in 2009, Darren has returned to the CDCO for a period of further research on the OZ project. His next role – a postdoctoral research position at the University of Glasgow, Scotland – will involve using modern metabolomics technology to investigate drugs for the *Trypanosoma* parasite that causes African sleeping sickness.

Blood samples are collected to check for malaria and drug concentrations.



Malaria causes one million deaths per year, the vast majority of which are young children living in rural areas of sub-Saharan Africa.

Virtual practice environments: preparation for the real world

The faculty's two VPEs are now in full operation, providing innovative teaching spaces where students can immerse themselves in a workplace environment and prepare for experiential practice placements.

Situated on the first floor of the Scott building, the VPE spaces replace the traditional model pharmacy, which served the faculty well for many years but was monofunctional and had become outdated. The VPEs have the unique capacity to create a virtual community pharmacy environment as well as other healthcare and industrial settings applicable to pharmaceutical science students.

The technology comprises two high-resolution screens in each space, creating a 10 metre wide by three metre high expanse for projecting video material and still images. Each space has three projectors capable of casting either a single 10 metre wide image across the room or three separate images, such as a PowerPoint presentation, video and a still image.

"Having a video image on the screen that almost fills your field of vision makes you feel like you're there," said Greg Duncan (BPharm 1981), a member of the project team. "Our students are generally young and healthy, so they may not have visited a pharmacy very often. And even if they have, they may not have noticed everything that occurs."

High resolution video cameras in the VPEs will allow teaching staff to capture students role-playing their responses to patient case studies. Students then view this footage to reflect on the effectiveness of their communication.

This year, the application of the technology has stepped up a notch. The faculty has worked with a post-production group at Monash's Faculty of Information Technology to develop 'green screen' technology, allowing actor patients to be brought into the pharmacy video.

In taking a patient history, rather than asking questions by rote, students can look up at the screen, check the physical appearance of the patient and then modify their questioning.



For example, if the patient looks to be an elderly female, the students can ask themselves if they need to enquire how old the patient is, or if she could be pregnant or breastfeeding.

"The VPE is a great way for students to experience a pharmacy environment. It allows them the freedom to make mistakes and learn from them in a way that doesn't put patients at risk," said Associate Professor Jennifer Marriott (BPharm 1971), director of the Bachelor of Pharmacy. "It's not designed to replace experience in real practice, but to be better prepared for their experiential placements and to deal with real people."

Learning experiences in the VPEs are not limited to pharmacy-specific examples. In the future, academic staff will use the rooms to teach the Bachelor of Pharmaceutical Science students. Virtual scenarios, such as industrial tablet manufacturing, will be used to put elements of the pharmaceutical science course into context.

Using the technology available in the VPE spaces, the teaching experience can be highly controlled. For consistency across small group

classes led by different tutors, the unit coordinator can be 'green screened' into the video, to set the scene and outline the objectives of the teaching session. As well as using medicines as props, tutors can open a window on the screen that shows students what the product looks like in its latest packaging.

The future application of the VPE spaces and technology seems unlimited. A current project under development will see medical students working with pharmacy students on case-based problems via videoconference.

"We can have pharmacy students here and medical students at a remote site working on a case that they'll share on the screen," explained Greg. "We could even have a remote facilitator, who is a clinical specialist either in pharmacy or medicine. As an example, we've been working on an inter-professional learning process centred on older patients who are taking multiple medicines."

The VPE teaching spaces are unique to the faculty and have generated much interest among pharmacy educators and professionals nationally and internationally.

"These spaces give the faculty the capacity to easily adapt to changes within the profession and to allow our students to experience those changes in a safe environment," said Associate Professor Marriott.

"The investment by the faculty in the design and construction of the two VPEs is approximately \$1.2 million and this represents a significant and strategic commitment to funding leading edge educational infrastructure within the faculty," said Professor Bill Charman.

"These major investments are not easy to make within the current higher education funding environment but we believe we must make them to provide a contemporary learning environment to support the provision of exciting new developments in our redesigned curricula. Leadership and innovation in education are not cheap. But the faculty is not prepared to accept the alternative of maintaining the status quo when we know there is a better way of providing education," he said.

Cancer drug discovery at MIPS

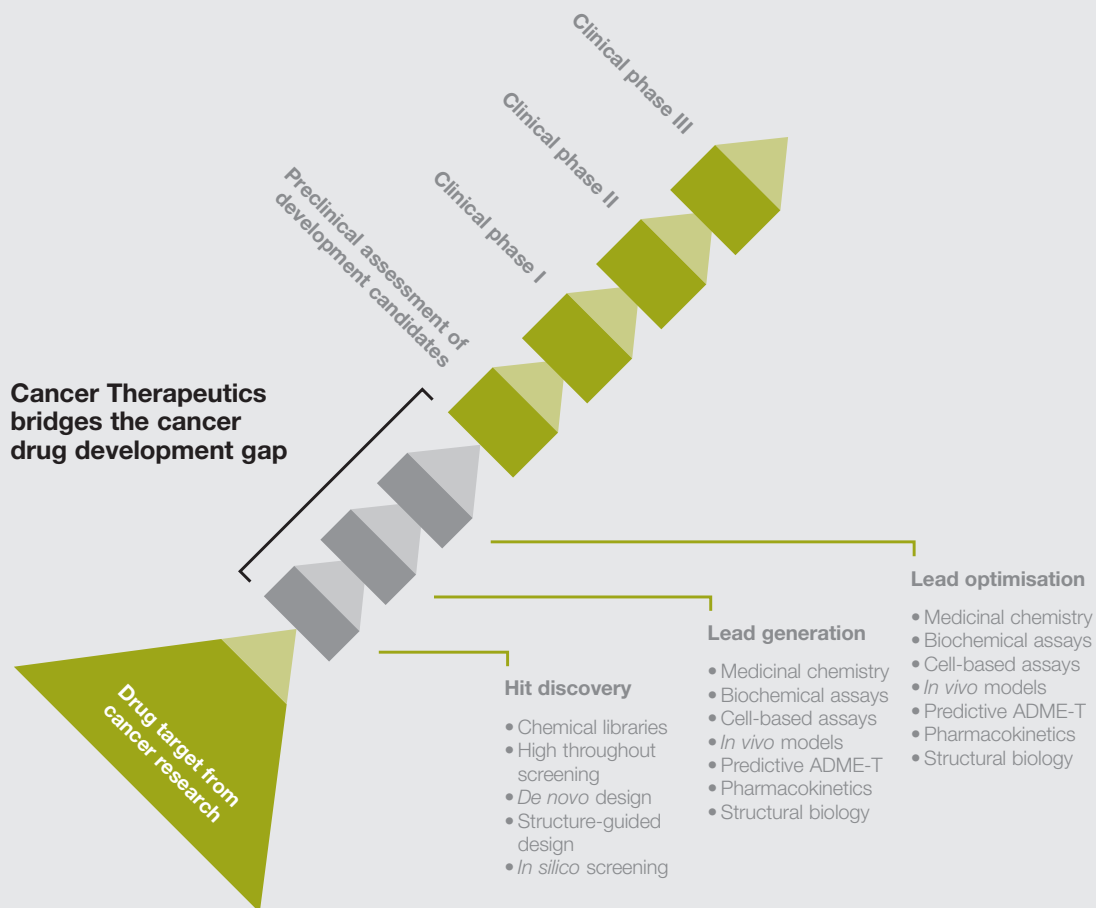
Cancer Therapeutics CRC Pty Ltd (CTx) is a pharmaceutical discovery and development company that works closely with scientists and their institutes to bridge the early discovery and development gap in the cancer drug development pipeline.

CTx has an \$148 million investment in cancer research over the next seven years, including \$38 million from the Australian Government's Cooperative Research Centres (CRC) Program and about \$110 million in investments from partners.

The gap that is frustrating Australia's cancer researchers in the standard model of drug development is a lack of early stage funding to take a promising new small molecule discovery to the regulatory pre-clinical stage. CTx works on the discovery and early development of small molecule drugs for the treatment of cancer. Its specific focus is small molecule cancer drugs or enabling therapeutics for single or co-therapy regimes – the next generation of global cancer therapies. CTx is well placed to do this, with internationally-respected expertise in molecular and cellular biology, drug discovery, pharmacology, drug candidate optimisation structural biology and medicinal chemistry and with global commercialisation partners in cancer therapeutics to take the successful drug candidates forward through clinical development and to the market.

"The cancer drug discovery opportunity at CTx/MIPS enabled MIPS to recruit Dr Ian Holmes from the UK where he had a very successful career as a drug discovery scientist at a leading UK pharmaceutical company," said director of MIPS, Professor Bill Charman. "We are thrilled to have attracted a scientist of Ian's international calibre to join MIPS in this key leadership role."

Cancer Therapeutics bridges the cancer drug development gap



Dr Ian Holmes, senior team leader MIPS/CTx, explained that Australia is one of the world leaders in basic research and science, currently spending around \$150 million a year on basic cancer research. But this is not getting to patients in the form of novel cancer therapies and novel cancer drugs.

"Over the last 10 years of production of novel cancer therapies, approximately 50% have come from academic sources around the world but none from Australia, despite our high levels of basic research," said Dr Ian Street, chief scientific officer at CTx. "That's where CTx

comes in – we want to bridge the gap. CTx is working closely with academic and research institutes to develop new drugs for clinical trials, assist them to develop their ideas, then partner with biotech and pharmaceutical companies for later stage development and introduction into the market."

Currently there are eight medicinal chemistry scientists employed full-time within the Medicinal Chemistry and Drug Action theme.

The location of a key CTx team within MIPS has real advantages, according to Dr Holmes.

"The team is currently working on an exciting new anti-cancer target and our research is going extremely well," he said. "Being part of MIPS means we have access to world-class facilities and expertise."

"Apart from analytical platforms and lab space, we benefit from in-kind support from the faculty. And co-location with the Centre for Drug Candidate Optimisation has enormous advantages. If we have any pharmacokinetic, physiochemical or stability issues, we can meet face to face to discuss them with the relevant staff and find rapid solutions to problems."

Grimwade Prize in Industrial Chemistry

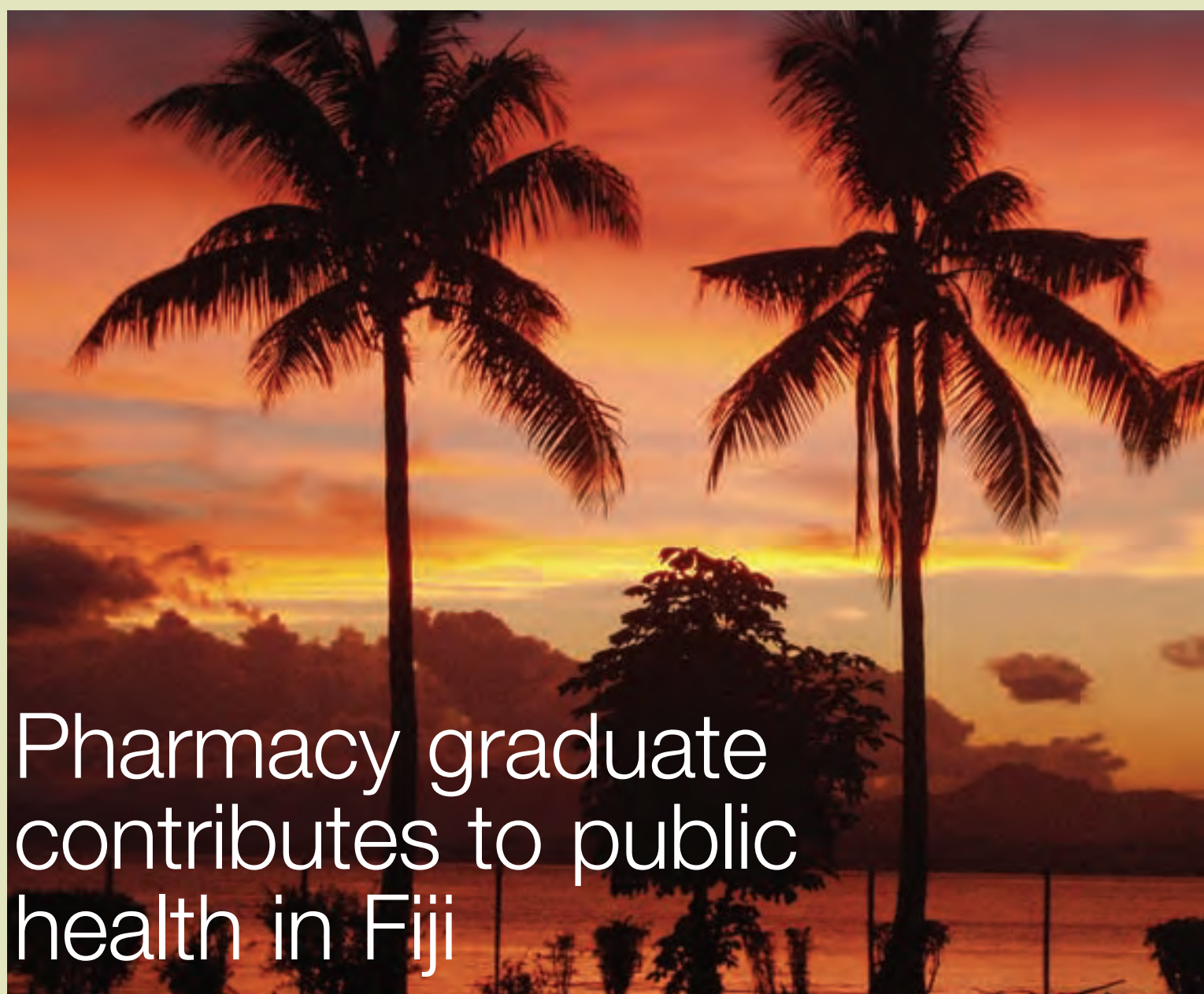
Dr Ben Boyd, a MIPS researcher, has been awarded the prestigious 2008 Grimwade Prize in Industrial Chemistry. Made through the Faculty of Science, University of Melbourne, the award is in recognition of a high degree of originality, chemical knowledge and scientific ability displayed in a branch of industrial chemistry, and comes with a substantial cash prize.

"Some of Australia's most outstanding chemists have received this major award during their careers, and for Ben, this award is high praise and external testament to the quality and innovation of his research programs," said Professor Chris Porter, Associate Dean (Research).

The prize was established in 1905 by the Honourable Frederick Sheppard Grimwade, a drug wholesaler and

part owner of Felton Grimwade & Co, later to become Felton, Grimwade and Bickfords Pty Ltd, the largest drug wholesaler in Victoria.

Ben received the prize for a body of work demonstrating progress towards the utilisation of self-assembled nanomaterials in novel pharmaceutical products.



Pharmacy graduate contributes to public health in Fiji

For pharmacy graduate Kara Milne, volunteering in Fiji is more than tropical beaches and ukulele serenades. As part of a 12-month assignment for the Australian Youth Ambassadors for Development Program (AYAD), Kara is helping establish Fiji's National Medicines Information Centre from the ground up.

At the Essential Medicines Authority, part of Fiji's Pharmaceutical and Biomedical Services, Kara's (BPharm 2004, GradCertPharmPrac 2006) pharmacy skills have been extended as she is working as a medicines information pharmacist, publishing a local *Pharmanews* bulletin, reviewing the country's rational use of medicines policy and physically helping to set up the new information centre.

"I've been involved in everything from organising the installation of power points, air conditioning and shelving into the room, to cataloguing current resources and stacking books on the shelves," Kara said.

Based in Suva, Kara lives and travels with other AYAD volunteers. She also works alongside another pharmacy graduate, Viki Lui (BPharm 2007), collaborating to improve medicines inventory management. While there are private pharmacies in Fiji, the community largely relies on the public health system. Pharmacists are employed at the hospital level, but not at health centres and nursing stations.

"Most of the pharmacy work that supports the system, such as medicine procurement, stock management, distribution and dispensing, is undertaken by pharmacy technicians or nursing staff," said Kara.

"Record keeping and inventory management are critical to maintaining a reliable supply of medicines," she explains. "When medicines are out of stock, they can't just be ordered in overnight. This issue is incredibly complex due to many factors, such as extended lead times, stock forecasting, the drug budget and geographical limitations such as over-sea deliveries and lack of road access to all health facilities."

To get a better sense of this, Kara and Viki plan to travel to Vanua Levu, the second largest Fijian island, to experience remote Fiji and gain an understanding of the work situation and challenges facing staff working in these facilities.

Access to current references that pharmacists may take for granted in Australia is something that Kara is working to create for health workers in Fiji.



Kara begins to set up the new medicines information centre at the Fiji Pharmaceutical and Biomedical Service in Suva.



Kara said that, to perform her work in Fiji, she has drawn on the knowledge and skills gained from her pharmacy degree and placements as well as her subsequent working experience.

"It's still a very steep learning curve and I'm particularly grateful to Beverley Snell, the Burnet Institute and to the AYAD Pre-Departure Training program for preparing us to live in a different environment and culture," Kara said. "As well as providing me with formal support, AYAD has also been a fantastic way to meet so many interesting people from different backgrounds."

At the local level, Kara said she has been lucky to have had the opportunity to learn Fijian, attend school musical and dance festivals, learn how to cook both Indian and Fijian dishes, wear traditional dress to work on Bula Fridays, and celebrate Diwali, the Hindu 'Festival of Lights'.

"I've also met people through a weekend bushwalking club here," she said. "Viki and I recently did a three-day cross-island walk with them. We stayed at villages and saw the most amazing scenery and parts of Fiji that tourists don't normally get to see."

As for her future plans, Kara said she is still undecided. "I'm just beginning to realise the scope that exists for us as pharmacists within public health."

For now, she's looking forward to her trip to Vanua Levu, followed by a short break during which she will, of course, visit one of those tropical, ukulele-serenading resorts.

For more information about this project or to learn more about volunteering contact Kara, email karamilne@gmail.com or visit www.ausaid.gov.au.



"I've been involved in everything from organising the installation of power points, air conditioning and shelving into the room, to cataloguing current resources and stacking books on the shelves."

"Therapeutic Guidelines very kindly donated hardcopy editions and an eTG as part of their Developing Countries Fund, which has been invaluable," she said. "I'm working towards developing a standard reference list to be held by all healthcare facilities so that they are able to readily answer drug queries."

Since graduating in 2004, geographic variation has been a theme in Kara's work experiences. Initially training at the Royal Melbourne Hospital, she spent time working in a community pharmacy in her home town of Mildura, Victoria, only to move further north to The Townsville Hospital in Queensland.

Kara attributes her time at Monash as having influenced her decision to take on her current assignment in Fiji.

"Our public health lectures really struck a chord with me," she said. "I decided that volunteering was something I wanted to do once I had some professional experience."

Alumni in profile

Jim Poynter – a life of achievement

Norman (Jim) Poynter (PhC 1939) was from a family of pharmacists – father, two uncles, sister and cousin. During his pharmacy studies he was apprenticed to Charles Skewes in Camberwell and, after graduating aged 21, he joined the staff at the Repatriation General Hospital in Caulfield.

S/Sgt Norman (Jim) Poynter (bottom) unpacking the first shipment of CSL penicillin at Morotai, 1945.



Not long after, Jim became the sole advocate representing female pharmacists in their claim for equal pay at the Commonwealth Court of Conciliation and Arbitration. The judge was disturbed to learn of the considerable disparity in pay and ruled that the rate should be raised from the existing 65% to 92.5%, in spite of strong objections from employers. This was a notable outcome.

In addition to being a practising pharmacist, Jim became a trainee signaller in the part-time militia at the outbreak of World War II. Despite pharmacy being a 'reserved occupation' he transferred to the Australian Imperial Force for further training at Wangaratta and Darley, later serving some months at No5 POW (Whorouly) with about 1000 Italian officer prisoners of war, which he describes as 'an enlightening experience, to say the least!'

After nearly a year at Adelaide River, near Darwin, Jim was posted as S/Sgt to ADMS Morotai in 1945 for the planned Borneo campaign. While stationed at Morotai, Jim was responsible for the handling and distribution of the first shipment of CSL Australian-made penicillin. This was an exciting and life-saving revolution in the treatment of serious infections.

After the war, Jim returned to the Repatriation General Hospital in Melbourne, then in 1949 was appointed Chief Pharmacist at the Royal Hobart Hospital. About 1963, he established the Central Medical Store in the newly refurbished mews of Captain Swanston's property at New Town, Hobart. This centralised the supplies of all pharmaceuticals to all Tasmanian government hospitals, district medical officers and the Royal Flying Doctor Service in Tasmania.

Later, Jim purchased one of Tasmania's oldest pharmacies at Battery Point and became an agency for Leica photographic supplies, giving him the opportunity to pursue a lifelong hobby that he still enjoys.

Jim retired in 1984 and, now aged 91, still cherishes happy memories of his four years at the college with A.T.S. Sissons, Byron Stanton, Cyril Tonkin, Norman 'Snowy' Coe and others.

Alumnus gets top role at Victorian PSA



Bill Suen (BPharm 1981) was recently appointed Branch Director of the PSA (Victorian branch).

Bill, who completed further qualifications in management after graduating from the faculty, has had a wide range of senior pharmacy management experience in the public and private sectors. He has worked in pharmacy, medical supply and IT, as well as in private and public hospitals, and was proprietor of his own community pharmacy.

A valued member of staff at Monash, Bill taught pharmacy management at both undergraduate and postgraduate levels from 2003 until his recent appointment. He became a council member of the PSA (Victorian branch) in 2005.

Bill sold his pharmacy in Thornbury last June before taking on his new role, which he says allows him to 'continue to serve and support the pharmacy profession with passion and dedication'.

Bill will remain a board member of the Pharmacy Board of Victoria and the unit chair in pharmacy management at Chifley Business School.

SHPA Fellowship



Anne Leversha (BPharm 1971), Director of Pharmacy at Latrobe Regional Hospital and senior lecturer at Monash, has been awarded a Fellowship of the Society of Hospital Pharmacists of Australia (SHPA) in recognition of her outstanding contributions to pharmacy education and the pharmacy community.

SHPA Fellowships recognise members across Australia who have demonstrated a high level of postgraduate academic achievement in areas relevant to the practice of hospital pharmacy, and have confirmed an active commitment to the profession. Recipients must also be acknowledged leaders in their profession whose opinions are recognised, sought and valued.

"I am delighted to be recognised by my peers and thrilled that they thought I was worthy of such an award," says Anne.

With over 30 years of experience in pharmacy education and clinical practice in Victoria, Anne has always maintained a strong focus on rural health. She has constantly promoted awareness and understanding of rural practices, and was instrumental in the establishment of compulsory rural placements for the faculty's pharmacy students.

Anne has also held positions with senior groups, including rural advisor to the SHPA and an invited member of the Victorian Medicines Advisory Committee.

Only three SHPA Fellowships were awarded in 2008. The other recipients were West Australian pharmacist Jennifer Benzie and Sue Kirsas (BPharm 1983, GradDipHospPharm 1995), Director of Pharmacy at Peter Mac.

Supporting Good Pharmacy Practice in developing countries



The International Pharmaceutical Federation (FIP) called on faculty academics to train pharmacists in the Asian Pacific region on how to instil FIP values for Good Pharmacy Practice in local pharmacy professionals.

The FIP's Good Pharmacy Practice standards document is endorsed by the World Health Organization (WHO) as a reference for countries to use in setting up national pharmacy services standards. It recommends standards for health promotion, the supply of medicines and devices, and pharmacist input into the optimum prescribing and use of medicines and devices.

To help implement the qualities of Good Pharmacy Practice in developing countries, the FIP asked Greg Duncan (BPharm 1981), who has a special interest in public health, to run 'train the trainer' seminars in the Western Pacific WHO region.

"As developing countries continue to establish themselves, they start to be able to go beyond the treatment of fundamental communicable diseases, to manage long term conditions such as diabetes and hypertension," Greg said. "In Australia we

have our Quality Use of Medicines strategy, which helps ensure that patients receive the most appropriate medicine and know how to use these medicines properly. In many parts of the world, pharmacists haven't had any training in how to talk to patients about their health and medicines."

An initial seminar held in Manila in 2004 resulted in around 160 further seminars being run by pharmacy professionals in their own countries. Since then, the Vietnamese government has changed its legislation so that the principles of Good Pharmacy Practice are now incorporated into the regulatory framework for pharmacy in Vietnam. To help Vietnamese pharmacists implement these changes, Greg and Associate Professor Kay Stewart were invited to run further seminars in Hanoi and Ho Chi Minh City in 2008. Within four weeks, attendees had run the seminars for about 1600 other pharmacists.

Greg said the feedback received from seminar attendees was very positive.

"The attendees were pleased that the seminars were culturally appropriate," he said. "We'd consulted with a number of people in our preparation and specifically designed them so that local leaders could facilitate additional seminars in their own language."

Rather than dictating practices to pharmacists in other countries, the Good Pharmacy Practice training offers pharmacists a framework that can be adapted to meet their own needs. The legislative change in Vietnam was an effective way of implementing change quickly. Attending these seminars helped local pharmacies to meet accreditation requirements.

Following this, the South East Asian Pharmaceutical Forum (including India, Sri Lanka, Thailand and Indonesia) began the process of exploring the implementation of GPP principles into their healthcare frameworks. With his background and knowledge of GPP, Greg was invited to facilitate the strategic planning meeting for country representatives in Jogjakarta, Indonesia, in August 2008 and has been invited to contribute to ongoing planning and development at a national level by a number of member countries.

For more information about Good Pharmacy Practice and its step-wise implementation in developing countries, visit www.fip.org.

Trifecta helps young student achieve pharmacy goal

Lee Ross could never be described as lacking ambition. The 18 year old from Strathfieldsaye, a rural suburb of Bendigo, joins Monash University this year as a first year pharmacy/commerce student and a recipient of three scholarships.

"I chose Monash because it's a really prestigious university and the course has many career options – plus I wanted to try living in the city for a while," said Lee, the eldest of five siblings.

"I'm from a big family, so the costs involved in study and moving from the country to the city mean that, without the scholarships, I would never have been able to come here."

Lee is the 2009 recipient of the Stan Robson Rural Pharmacy Equity Scholarship, a scholarship designed to assist students from a rural or isolated area intending to enrol in the faculty's pharmacy course.

The scholarship was established by Stan Robson's son Graeme, who says it was a way to acknowledge the generous and thoughtful support given to him by his father. Stan Robson was a very well respected and successful graduate of the Victorian College of Pharmacy in the 1930s, who went on to manage and own pharmacies around Victoria.

Lee has also been successful in obtaining a Commonwealth Accommodation Scholarship and support from the Pharmacy Guild.

"I always had a passion for chemistry, but I also wanted to be able to get out and talk to people," said Lee. "Eventually, my plan is to move back to the country and own my own pharmacy."

Lee will complete four years of study at the Parkville campus before completing his internship year and his final two years of study (commerce) at the Clayton campus.



IPSF meeting in Melbourne

The 60th International Pharmaceutical Students' Federation (IPSF) Executive held its board meeting in Melbourne at the end of last year, the first time the meeting has been held here.

Discussions included plans to roll out regional office arms in African and Eastern Mediterranean regions, 60th anniversary celebrations and formulating new public health databases and investment strategies with respect to today's economic climate.

The meeting was made possible by support from Pharmaceutical Defence Limited, the PSA (Victorian branch) and the faculty. Founded in London in 1949, IPSF is a non-profit, non-political and non-religious volunteer organisation that represents 350,000 pharmacy students and recent graduates worldwide in over 70 member countries. Two Melburnians currently hold key positions on the IPSF executive – John Nguyen (BPharm 2007) is President, and Mary Poon (BPharm 2008) is Secretary General.

Vale Denis Morgan

The faculty community was saddened by the recent death of Dr Denis Morgan. Denis joined the Victorian College of Pharmacy as a lecturer in 1978, after completing undergraduate pharmacy training in Hobart and a Master of Science and Doctor of Philosophy at the University of Sydney.

He rose through the academic ranks at the college, firstly to senior lecturer in 1985 and then to the senior academic position of reader in 1992. Denis was awarded his first NHMRC research funding in 1979 and over the next two decades, until just before his retirement, he and his research collaborators held no fewer than 10 NHMRC research grants. Over his academic career, Denis published about 170 scientific papers – an average of around eight

a year. In 1999, he was awarded a Doctor of Science degree by Monash University, a fitting recognition of his significant research contributions.

Denis retired from the college because of illness in 1999. Survived by his wife Isobel and daughters Fiona, Melissa and Amy, he will be sadly missed and remembered with great fondness.

50 year reunion

Preparations are under way for a 50 year reunion for the graduates of 1959 (students who completed their studies in 1958 are the graduates of 1959). Initial suggestions are for an event to be held in August.

Anyone who is interested in attending or getting involved should contact Mikaila Gaskell, tel: +61 3 9903 9087 or email alumni@pharm.monash.edu.au.

Where are they now?

What are you doing now?

We'd love to hear your story.

If you would like to be included here, email alumni@pharm.monash.edu.au with your name and a short description of what you've done since graduating.

50s

Since the 1960s, Brian Grogan (PhC 1960) and Maureen Grogan (PhC 1959) have owned several community pharmacies in the Geelong area. Brian was the Geelong delegate to the Pharmacy Guild of Australia (Victorian branch) in the 1970s and became a fellow of the Australian College of Pharmacy Practice in 1993. He joined the PSA immediately after graduating and has been a member ever since, holding positions at state and national level including roles on the National Council since 1999 and, up until last year, the position of National President. Maureen returned to study in the 1980s, graduating with a Bachelor of Arts from Deakin University. She became a Fellow of the Australian College of Pharmacy Practice in 1993 and is a Life Member of the PSA. Maureen helped coordinate several regional education conferences in the Geelong region, is involved in the PSA Offshore Conferences and is an occasional presenter at their re-entry course relating to S2/S3 medications. Maureen, along with a number of classmates, is this year helping to coordinate a 50 year reunion (for more information, see page 18).

60s

Toni (Pauline) Pusterla (BPharm 1962) went on to further study after graduating, completing her Bachelor of Arts at Monash University and Bachelor of Architecture at RMIT University. She now uses her own alpaca fleece to weave fabrics, from which she designs and creates items for exhibition. Last year, Toni held a joint exhibition at MAD Gallery in Lancefield. Her unique and stunning items were also part of the fashion parade at the inaugural World Alpaca Conference held in Sydney in March 2008.

70s

Since graduation, David Hosking (BPharm 1978) has found a very rewarding pharmacy practice niche in dermatology compounding. David has worked with many clients over the last 20 years, developing both practical diagnostic skills and a range of effective formulations. He was the reviewer of the first publication of Therapeutic Guidelines: *Dermatology*, and contributor of information on head lice treatment. David and wife Roslyn (BPharm 1979) have developed an online health advice site where people can seek advice on skin conditions through pictures and emails. The Hosking family tradition continues, with daughter Brinley currently undertaking studies at the faculty.

80s

Catherine Snell (BPharm 1989) has been employed in many positions and places since graduating. She worked in hospital pharmacy at the Austin Hospital and Peter Mac, and in locum positions across the UK during a working holiday that also involved work at GlaxoSmithKline and the Royal Naval Hospital, Gosport. She continued her military medicine working life back in Australia at 3 Combat Support Hospital (RAAF Richmond, NSW). Throughout her career, Catherine worked in community pharmacy in Portland, Sale, Echuca, Sunbury and the Melbourne metro area. During a hiatus to raise her two children, she also completed a Graduate Diploma in Clinical Epidemiology and hopes to build on this soon. Back in Melbourne, Catherine says her next move will largely depend on where the RAAF sends her partner!

90s

Scott McLaren (BPharm 1990) has been leading a double life since graduating. While practising as a locum pharmacist and owning his own pharmacy, he has had a very successful career as an AFL umpire. Scott made his umpiring debut in 1994 and has umpired over 300 games, including five Grand Finals, breaking the record of consecutive games umpired. Scott married another medically-minded person, in physiotherapist wife Catherine, and they have two children.

00s

Kimberlee Collins (nee Sanderson) (BPharm 2003) is now working in rural Victoria and NSW. In partnership with two other pharmacists, Kim reopened a pharmacy in Berrigan in southern NSW that had been closed for over 10 years and, in 2007, opened another pharmacy in Mulwala. Kim said she loves working in small rural towns and getting involved in her local community.

Pharmacy in Melbourne in the 1950s



Melbourne was a very different city 50 years ago, and pharmacy operated in a very different way to what it does today. Retired pharmacist Brian Cossar (PhC 1960) takes us down memory lane...

"Fifty years ago, Melbourne's population was 1.8 million, half what it is today. There were no drive-in shopping centres (Chadstone opened in 1960), cars were not as numerous and there were no parking meters.

League football was played only on a Saturday afternoon. There were 11 football clubs in Melbourne, plus Geelong. Players' salaries were tied to £8.00 (\$16.00) per match in 1957. Allan Woodley, who qualified as a pharmacist in 1959, played 130 games with Hawthorn over seven seasons, won a Best and Fairest award and represented Victoria. A player of his calibre would earn \$250,000 plus per annum if playing today.

Business was much more labour intensive, there were no computers, electronic tills or adding machines. Bourke Street was the retail centre, there was no mall, and traffic flowed freely along Swanston Street.

More than half the buildings from the 1950s have disappeared. City landmarks such as the Federal Hotel, Occidental Hotel, Carlyon's Hotel, Scott's Hotel, Menzies Hotel and Hotel Australia have disappeared. All the newsreel theatres, Tivoli Theatre, the Queen Elizabeth and Jessie McPherson hospitals, and Denyer's and Roper's surgical stores are gone. There is only one pharmacy left, the former Taits pharmacy opposite the Melbourne Town Hall (now trading as Mulqueeny Pharmacy), still on the same site. Henry Francis and Hood chemists, which had both traded for over 100 years, have disappeared.

The Spring Street end of Collins Street was where most of the doctors and dentists practised. Collins Street between Swanston and Spring Streets boasted seven pharmacies, including Martin & Pleasance, McGibbony & Beaumont, Henry Francis and Oggs. They are all gone now. Trading hours were weekdays and Saturday mornings, with no late night, Saturday afternoon or Sunday shopping.

Faulding, Sigma, Rocke Tompsitt (taken over by Faulding in 1983), Victoria Drug and Drug Houses of Australia all had substantial buildings in the CBD. Sigma and Faulding (now Symbion) are the only wholesalers of that group left.

City pharmacies were spoilt, because the wholesalers delivered ethicals two or three times a day. More urgent drugs would be picked up by the apprentice at the 'wait counter' of the wholesaler.

The Victorian College of Pharmacy, located at 360 Swanston Street, was originally a County Court building. Built in the 1850s, it is now part of RMIT University. The building served the profession for 75 years before the college moved to its current site in Parkville in 1960.

A pharmacy apprentice did a four year part-time course. First year apprentices went to the college two mornings a week and the rest of the time they worked in pharmacies. A first year apprentice award wage in 1956 was £2.13.00 (\$5.30). The male chemist award for a 40 hour week was £16.16.6 (\$33.65).

A pharmacy apprentice did most of the unpleasant and time-consuming jobs. The writer recalls polishing benches and cleaning windows on Saturday mornings. All staff wore white coats. Tills were manually operated and there was

no departmental analysis. Orders were given over the phone and large monthly orders were usually posted. Most pharmacies operated their own credit accounts and there were no credit cards.

Pharmacists sold their own brand preparations, usually prepared and packed by the apprentice. Aspirin, phenacetin and caffeine mixture (APC) was very popular. The suspending agent was compound powder of tragacanth and flavouring was orange syrup (6% Tr. Orange in simple syrup). The writer remembers making three gallons of APC duplex at a time. When required the mixture was diluted 1:1 with tap water and poured into 4oz and 8oz bottles, which sold for 2/6 (25c) and 4/6 (45c). Single doses were sold over the counter for 6 pence (5c).

The majority of prescriptions were extemporaneous preparations and many were mixtures of dubious efficacy. Apprentices were told not to discuss any prescriptions with a patient but to refer them back to the doctor. Eye drops were sterilised in an autoclave or pressure cooker but, if time was limited, 'aseptic' technique was used.

All prescriptions were recorded by hand in a special prescription book and given an identifying number. Most prescriptions were private. The National Health Service (NHS) commenced in 1949 after much doctor opposition and had a limited range of preparations, mainly of a life-saving nature. NHS prescriptions had to be manually coded.

The margin on NHS prescriptions was 33.3% on cost plus a bottle charge (if any) plus a small dispensing fee. NHS items were free until 1960, then a charge of 5 shillings (50c) for general prescriptions was levied. Pensioner and repatriation prescriptions remained free.

Penicillin was the most widely prescribed antibiotic. Phenoxymethyl penicillin (Abbocillin V) was the most popular, taken orally. Procaine penicillin (penicillin G) and benzathine penicillin (Bicillin) were used by injection. Erythromycin (Erythrocin) and chloramphenicol (Chloromycetin) were available. The latter's oral use was restricted when it was found that one in 100,000 patients suffered aplastic anaemia. Penicillin resistant strains of *Staphylococcus aureus* were already being encountered.

Tetracycline (Achromycin) was dispensed in packs of 16 and the pharmacist was paid £3.17.3 (\$7.72) – a very high priced prescription. Reserpine (Serpasil) was the main antihypertensive drug available. It was also prescribed for its sedative and calming action. Chlorothiazide (Chlotride) became available in a pack of 12 tablets with two repeats on the NHS.

Barbiturates were widely prescribed – phenobarbitone, amylobarbitone (Amytal) and pentobarbitone (Nembutal). Antihistamine such as promethazine (Phenergan) and diphenhydramine (Benadryl) were available. Dexamphetamine (Dexedrine) was taken as a stimulant by long distance truck drivers and by students cramming for exams.

Students of 50 years ago, although competent in compounding extemporaneous preparations, were very limited by the range of drugs available – and their knowledge of pharmacology was also limited. Over 50 years, things have changed markedly, for both pharmacists and for their customers!"

Alumni in profile

Sheridan Roth

Clinical pharmacist (emergency medicine and paediatrics),
Box Hill Hospital

When Sheridan Roth (BPharm(Hons) 2002) started studying pharmacy, she was working part-time in a retail pharmacy and had never considered a job in hospital pharmacy. But after completing her internship and enjoying it, she decided to stay in the hospital system.

As the point of contact for provision of drugs and information, Sheridan's role involves recording a medication taking history with patients when they first arrive in the emergency department and helping to clarify any initial medication issues. She advises patients on the best use of medicines and counsels them about any new or changed medicines. Her work also involves discussing patients and their medications with medical, nursing and other allied health staff.

"I like working as part of a team and it's great to see the benefit to the patient, for example you suggest a treatment to the doctor, it's given and the patient improves. While in retail pharmacy, the patient improves but you rarely get any feedback," she said. "I also feel that you use your in-depth clinical knowledge of pharmacokinetics and

pharmaceutics more in the hospital setting and I learn a lot about many things, not only drugs."

Sheridan's role also involves looking after paediatric patients in the hospital.

"This is challenging, as children and neonates require different treatment to adults," she said. "We need to take special care in checking that the doses prescribed are all correct for the child's age and weight."

Other aspects of Sheridan's job include dispensing prescriptions and preparing sterile products such as parenteral nutrition, certain antibiotics and antifungals, bulk products and iron infusions. Nurses make up many drugs on the wards, but Sheridan explained that pharmacists make up any drugs that involve multiple vials, complicated preparation regimens, drugs that are susceptible to error, and bulk batches.

She also prepares non-sterile products such as creams and mixtures, performs small studies, projects and audits, and assists in writing treatment protocols and other guidelines to ensure that treatment given to patients is consistent and aligned with current evidence.

"I really enjoy being part of the treatment decision making processes to achieve the best outcome for the patient," she said. "It's always rewarding to see that your contact with the patient, no matter how small, has improved their use or understanding of their medications."

"It's also very exciting to work in a fast-paced environment like the emergency department, as you never know what type of patient will turn up. I learn something new every day."

Sheridan is currently studying for a Graduate Diploma in Health Economics at Monash and plans to continue working in hospitals, perhaps branching out into another specialty area of pharmacy. In the future, she hopes to use her economics qualification to work in management or policy making within a hospital, industry or the government.



Virtually learning



Building on the success of the Pharmatopia project (profiled in *Alchemy* 15), the faculty is collaborating with three universities in the UK, as well as the Faculty of Medicine, Nursing and Health Sciences at Monash, to develop Aesclepiia, an adjoining virtual island on Second Life.

Aesclepiia, taken from the name of the Greek god of medicine and healing, will specifically focus on inter-professional learning opportunities in the health sciences. The first project will be the development of an aged care ward within the Aesclepiia hospital, where patients have various poly-pharmacy issues. Medical students and pharmacy students will learn together to solve the virtual patients' problems.

Both Pharmatopia and Aesclepiia are hosted on Second Life, an internet-based virtual world that is accessed through a free, downloadable client program. It enables users to assume an identity (avatar) and interact with each other. Avatars can explore, participate in individual and group activities, and create and trade items and services with each other. Communication and interaction occurs by using a keyboard or headphones.

While initially Aesclepiia will focus on opportunities for medical and pharmacy students, it is hoped that the scope will broaden and that other health science disciplines will take part in this shared practice approach to learning.

Exhibitions and awards for academic merit 2008

The Faculty of Pharmacy and Pharmaceutical Sciences would like to thank all donors who supported the 2008 academic prizes.

Bachelor of Pharmacy	Recipient	Donor
First year exhibition	Thanh Xuan Huynh	Pharmaceutical Defence Limited
Second year exhibition	Catherine Downey	Pharmacy Guild of Australia
Third year exhibition	Marianne Tran	Society of Hospital Pharmacists of Australia (Victorian branch)
Fourth year exhibition	Anna Khanina	Guild Group
Neil Naismith award	Sadegh Zargarbashi	Therapeutic Guidelines
Bachelor of Medicinal Chemistry		
Third year exhibition	Anna Truong	AMGEN
Bachelor of Pharmaceutical Science*		
First year exhibition	Michael Lee	CSL
Second year exhibition	Rohan Volpe	Australian Society of Cosmetic Chemists
Bachelor of Formulation Science*		
Third year exhibition	Leanne Capewell	Hospira
Gold Medallists		
Bachelor of Pharmacy	Sadegh Zargarbashi	Pharmaceutical Society of Australia (Victorian branch)
Bachelor of Medicinal Chemistry	Anna Truong	Monash Institute of Pharmaceutical Sciences
Bachelor of Formulation Science*	Leanne Capewell	ACCORD Australasia
Postgraduate awards		
Pharmacy Management Program prize	James Parsons	Pharmacy Guild of Australia
Monash Pharmacy Internship prize	Ebony Gallagher	Pharmaceutical Defence Limited
Masters of Wound Care prize	Sara Coats	ConvaTec
Master of Clinical Pharmacy prize	Peter Blewitt	Society of Hospital Pharmacists of Australia (Victorian branch)
Faculty Honours prize	Bradley Watmuff Bradley Doak	Symbion Pharmacy Services
Monash Jubilee Scholarship	Cindy Ling Jane Love Thomas Day	Monash University
Monash University Silver Jubilee Postgraduate Research Scholarship	Bradley Doak	Monash University
Dean's Commendation for Doctoral Thesis Excellence	Darren Creek	Faculty of Pharmacy and Pharmaceutical Sciences
2008 Mollie Holman Medal	Katherine Gray	Monash University

*Students enrolled in the Bachelor of Formulation Science during 2006 were offered the choice to graduate with either their original course name or the new course name, the Bachelor of Pharmaceutical Science. The 2008 Gold Medallist and third year exhibition winner, Leanne Capewell, has chosen to graduate with the Bachelor of Formulation Science.

Upcoming events

Research seminar series

All seminars will be held in lecture theatre 3, Faculty of Pharmacy and Pharmaceutical Sciences, 381 Royal Parade, Parkville. The seminars are free and all are welcome to attend. To RSVP contact Carolyn Fox, email carolyn.fox@pharm.monash.edu.au or tel: +61 3 9903 9622 if you would like to attend.

Friday 29 May 4pm–5pm

Associate Professor Ossama El-Kabbani

Monash Institute of Pharmaceutical Sciences

All in the family: Aldo-keto reductases as drug targets for the treatment of cancer and diabetes

Friday 21 August 4pm–5pm

Professor William Charman

Dean, Faculty of Pharmacy and Pharmaceutical Sciences and Director, Monash Institute of Pharmaceutical Sciences

Drug discovery for protozoan parasites – the essential P's

Friday 2 October 4pm–5pm

Dr Ian Holmes

Monash Institute of Pharmaceutical Sciences (Cancer Therapeutics CRC)

The design of CNS penetrant drugs – modified Lipinski parameters for CNS penetration

Friday 30 October 4pm–5pm

Professor David Winkler

Senior principal research scientist, CSIRO

Modelling complex biological systems – drug interactions, stem cells, biomaterials

Friday 27 November 4pm–5pm

Professor David Nichols

The Robert C. and Charlotte P. Anderson Distinguished Chair in Pharmacology, Purdue University, USA

Validating GPCR homology models constructed on an in silico activated beta adrenergic receptor template

Retired Pharmacists group

This is the perfect opportunity to catch up with classmates and colleagues and to make new friends. Meetings are held on the last Tuesday of the month (February to November inclusive). New members are always welcome. Attendance is open to pharmacists who are retired, semi-retired or over 50. Contact the alumni office on tel: +61 3 9903 9087 or email alumni@pharm.monash.edu.au if you would like to attend.

Tuesday 26 May 11am–1pm

Claire Hausler from Trust Company Limited will explain the importance of making a will and why an up-to-date will is one way to ensure peace of mind.

Anne Gribbin, director of the Victorian College of Pharmacy Foundation, will talk about her personal experiences with making wills and bequests.

Tuesday 30 June 11am–1pm

Christine Williams, Manager Education Programs at the Council on the Ageing, will discuss quality use of medicines in the community, relevant at a time when more than 70% of Australians are using medicines.

Val Constable will explain how pharmacists are supporting pharmacists through the Pharmacist Support Service, a listening ear to help pharmacists in times of stress.

Tuesday 28 July 11am–1pm

Join our trip to Melbourne's iconic National Gallery of Victoria and see the amazing artworks on display. Bookings are essential.

Tuesday 25 August 11am–1pm

Professor Michael Dooley, Director of Pharmacy at Bayside Health and a Professor of Clinical Pharmacy, will speak about the faculty's Centre for Medicine Use and Safety.

Tuesday 29 September 11am–1pm

Hear Allan Woodley speak about life as a pharmacist, osteopath and VFL footballer. During the 1950s he was an integral member of the Hawthorn Football Club starting line up, winning the 1959 Best and Fairest.

Tuesday 27 October 11am–1pm

Ralph Tapping, curator of the PDL Pharmacy Collection, will discuss the extensive collection of pharmacy artefacts on display in the foyer of the faculty's new building.

Professor Peter Scammells, co-theme leader Medicinal Chemistry and Drug Action, MIPS, will give an insight into the current 'gap' in funding for research.

Tuesday 24 November 11am–1pm

Associate Professor Louis Roller, a past student and staff member at Monash, will discuss the role of complementary medicines.

Christmas lunch and break up for 2009. Enjoy some early Christmas cheer.

Alchemy, the alumni magazine of the Faculty of Pharmacy and Pharmaceutical Sciences, Monash University, is published twice a year. The next issue is due for publication in October 2009.

The magazine is published for the faculty community, which includes alumni (both pre and post the Monash amalgamation), current and former staff, students and their families, and friends of the faculty.

To contact *Alchemy*, tel: +61 3 9903 9504, email alumni@pharm.monash.edu.au or write to *Alchemy*, Faculty of Pharmacy and Pharmaceutical Sciences, Monash University, 381 Royal Parade, Parkville VIC 3052.



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