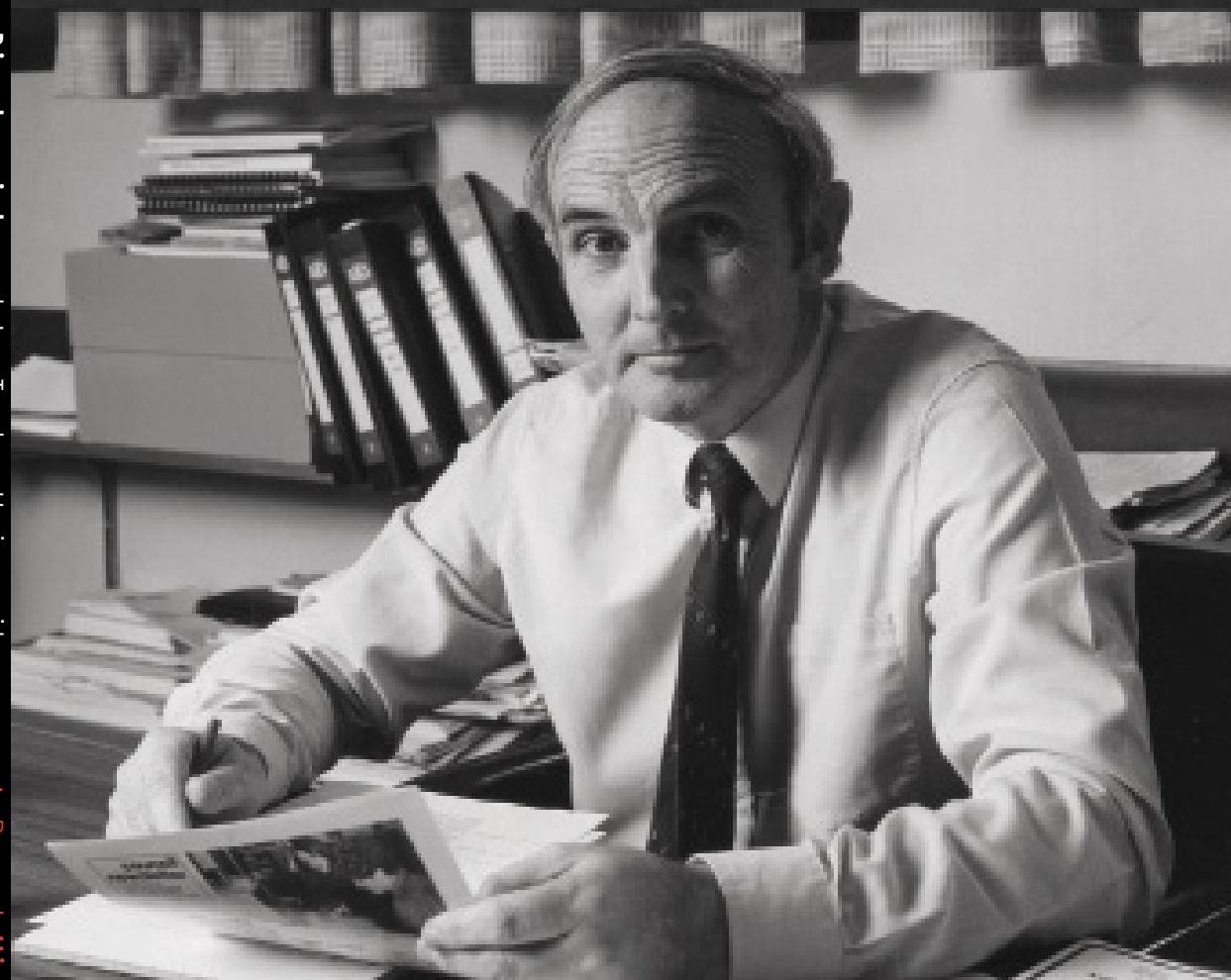


"Bruce built his department with a strong focus on research and from his staff demanded nothing but the best. A comment to a staff member seen arriving at work at 9:30am of "did you bring the Herald" was taken as more than a throw away line. He led the department from the front and the attitude of professionalism has remained with the department despite the substantial turnover and expansion of the department since."

- Nick Hoogenraad

Biochemistry at La Trobe University

A Proud History



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A Proud History

Nick Hoogenraad

*Published by the
Department of Biochemistry and Genetics
La Trobe University
2017*

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Authored by Nick Hoogenraad

Cover, internal design and layout by Fung Lay

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A Proud History

Nick Hoogenraad



Foreword

From the outset, the basis for this book lay with one of the Biochemistry department's most esteemed leaders, Nick Hoogenraad. An educator, researcher and administrator, Nick felt, and rightly so, that it was imperative to record the contributions and history of the people who were instrumental in establishing and shaping of what is arguably one of the finest biochemistry departments in Australia - lest it be lost in the abyss of time.

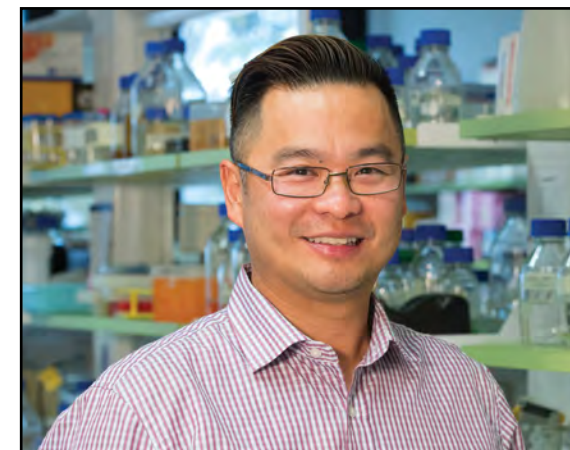
Expressed so eloquently in the Preface, Nick puts the history of the department in the broader context of what went on in the rest of the world of biochemistry. As will be evident from the pages of this book, the department has moved with the times from early work on gene cloning and monoclonal antibody production, to research on protein structure-function and the application of research outcomes for commercial translation. In this regard, Nick has himself made several important contributions to science advancement and technological innovation. For example, he was personally involved in developing the first modern-day Western blot apparatus, whilst on sabbatical in Stanford University in 1979. He was to bring this technology back to La Trobe the following year and many researchers from around Australia visited his lab in those early years to use his apparatus.

The reputation of the department has largely been driven by the strategic recruitment of excellent staff for its research and teaching pursuits. Together, they have trained a multitude of students and early career researchers. It is worth noting that the department has been under the stewardship of five passionate department heads in its time – Bruce Stone, Nick Hoogenraad, Mike Ryan, Andy Hill and most recently, Robyn Murphy – who have each made or are making their own indelible mark on the department's history.

As for my own association with the department, starting from an undergraduate science degree with a major in biochemistry in the early 90s, to Honours and PhD training and a continuing postdoctoral position within the department, I feel privileged to have lived a part of this department's history. As an enthusiast of photo taking from my days in Honours, I have inadvertently amassed a collection of photos that now form part of the collection in this book. Together with the contributions of other members of the department and those from the University's photo archive, this has allowed for the weaving of a complementary pictorial narrative to the stricter penned history that capture the people, events and the culture that make the department it is today. In pictorializing this book, it has been satisfying to reflect on how far the department has come.

On behalf of a grateful department, I would like to acknowledge the immense contribution Nick has made over many decades and allowing his work to be reimagined in this way. A big thank you also to Joan Hoogenraad and Don Phillips for their insightful discussions and assistance on this project, and to the Department of Biochemistry and Genetics 50th Anniversary Organising Committee (chaired by Kaye Truscott) for their enthusiastic support.

Fung Lay



"Just as light shining through raindrops at different angles can reveal the unseen colours of a rainbow, so too can illumination from scientific endeavour lead to the solving of global problems and improvement in the welfare of human societies. This is the vision of the La Trobe Institute for Molecular Science." - Fung Lay

Preface

As the University passes its 50th anniversary and the Biochemistry department approaches its 45th anniversary, it is worth considering this celebration in the context of the history of the biochemistry discipline. Biochemistry has its origins in the old disciplines of Chemistry and Medicine/Physiology. This origin dates back to the early years of the twentieth century when Otto Warburg discovered that cancer cells have a different metabolism from normal cells in that they are predominantly glycolytic and produce lactic acid, a process that has become known as the 'Warburg Effect'. Warburg won the Nobel Prize for Physiology and Medicine in 1931. Biochemistry itself moved along slowly for the next 20 years until Carl and Gertie Cori were awarded Nobel prizes in 1947 for their discovery of the enzymes which control glycogen synthesis and Hans Krebs, himself a former PhD student of Warburg, described the Citric Acid Cycle, and Fritz Lipmann discovered the role of Coenzyme A in intermediary metabolism, for which they won Nobel Prizes in 1953, just 20 years before the Biochemistry department was founded in 1972.

In parallel with developments in the Physiological aspects of biochemistry, the Chemical aspects developed. Linus Pauling produced his ground breaking research on bonds and bond angles, in the early 50's which formed the basis of our understanding of Protein Chemistry, work for which he won his first Nobel Prize in Chemistry in 1954. (His second prize was a Nobel Peace Prize). It is worth recalling, that Pauling's work, based on thermodynamic considerations, predicted the existence in proteins of α -helices and β -sheets, well before β -sheets had been identified as a major structural element in proteins. He also reported on the first genetic disease arising from mutations in haemoglobin. Other key advances were Fred Sanger's work on protein sequencing for which he won his first Noble Prize (in Chemistry) in 1958. His second for sequencing DNA was

won in 1980, the same year Paul Berg won the Nobel Prize in Chemistry for the first gene cloning experiments, both advances making the way for modern molecular biology. Thus, these key findings were made during the life of our Biochemistry department. I like to point out that when Sanger retired at age 65, he had won two Nobel Prizes yet his total publications were less than 100, making the best argument I know that quality should always take priority over volume.

We all recognise the importance of the relationship between protein structure and function. Indeed, from the early life of the Biochemistry department, we were associated with the Protein Structure and Function Conferences, started by Syd Leach from Melbourne University and held annually at Lorne since the mid-70s. A key aspect of these conferences was a recognition of the importance of solving protein structure via crystallography in helping us to understand protein function and this emphasis is epitomised by the production of a T-shirt for each Lorne conference displaying a new protein structure. Through these conferences, we also formed close ties with the CSIRO Division of Protein Chemistry in Parkville and later with the Biomolecular Research Institute (BRI), directed by Peter Colman and through collaborations with Peter Hudson, both long standing adjunct appointments of the department, we gained access for our research and training of students to structural biology. So it is worth looking back on the hallmarks in this area. We all remember the solution of the structure of DNA by Crick, Watson, Wilkins and Franklin for which Watson, Crick and Wilkins (but not Franklin) were awarded the Nobel Prize in Physiology and Medicine in 1962, the same year as Perutz, Kendrew and Dorothy Hodgkin won the Nobel Prize in Chemistry for their crystallography work. There are of-course more Nobel Prizes in more recent times, for some of the most spectacular structures of protein complexes.

So, comparatively, the Biochemistry department at La Trobe is not particularly young. The first Biochemistry departments in Australia were in Melbourne and Sydney

and they had their origins in the post-war years. Significantly, our Biochemistry department developed alongside the many major discoveries that were made in the last 30-40 years, with staff that were at the forefront of embracing new developments as they came along. The early cohort of staff members had access to very little technology. We started our protein sequencing using the basic Edman methods and made our first DNA probes on glass beads on sintered glass funnels. We embraced new technology with gusto, being early users of the monoclonal antibody technology for which Kohler and Millstein won the Nobel Prize in 1984.

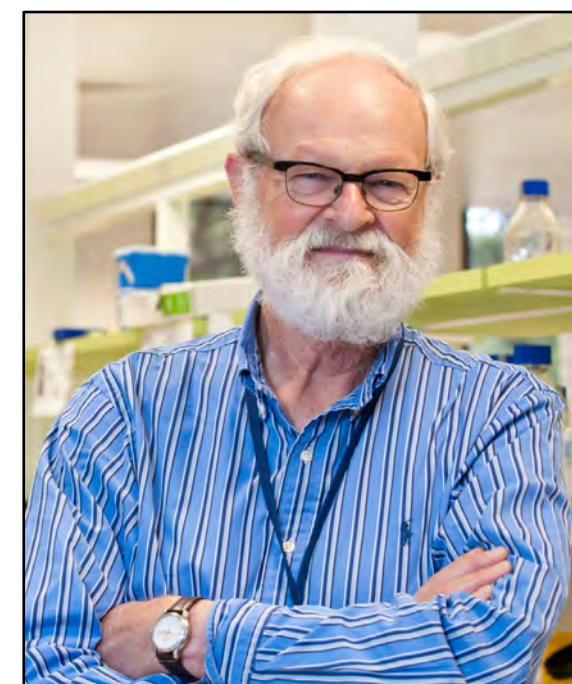
“Significantly, our Biochemistry department developed alongside the many major discoveries that were made in the last 30-40 years, with staff that were at the forefront of embracing new developments as they came along.”

Their work was published in Nature in 1976 and by 1980 we were making monoclonal antibodies at La Trobe. From the manual protein sequencing methods, in the early 1980s we rapidly installed new equipment as it became available such as protein sequencing, DNA synthesis and mass spectrometry. Because of this emphasis on embracing the latest technology and our inclination to collaborate with leading colleagues both in Australia and overseas, we were particularly successful in raising funds from granting agencies for equipment to support our research and it is worth reflecting on the fact that most of the funding for equipment and research was obtained from competitive funding sources.

Of course, it must be remembered that we are an academic outfit and that teaching has been a key part of our mission. At a time like this, it is particularly satisfying for us to look back on more than 40 years of teaching and on the many Honours and PhD students we have trained, and to see so many of them with satisfying careers and in senior positions in the country.

I was motivated to write this brief history of the department as I realised that all too soon, there will be no people left who have travelled the journey from the beginning to the present. My aim was to make sure we have a record of who served the department over the years: when they came and when & where they went. For accuracy, I have been assisted by Don Phillips, who unlike me was here from the start, and Geoff Fincher and Mike Ryan who also cast their eyes over this history. Thank you for your input. I owe a special debt of gratitude to Fung Lay for recording so much of our history through the eye of his camera: from lab photographs to happy snapshots of social functions such as the Christmas parties and annual football matches between the LIMS Lazars, WEHI and the Peter Mac. I have deliberately made as few descriptive comments as possible as I feel that I am too close to the core of the story to do it justice. So I will leave a more definitive account of the history of the department to some independent person. There certainly are some good stories yet to be told.

Nick Hoogenraad





La Trobe University (Bundoora campus) in 1973.

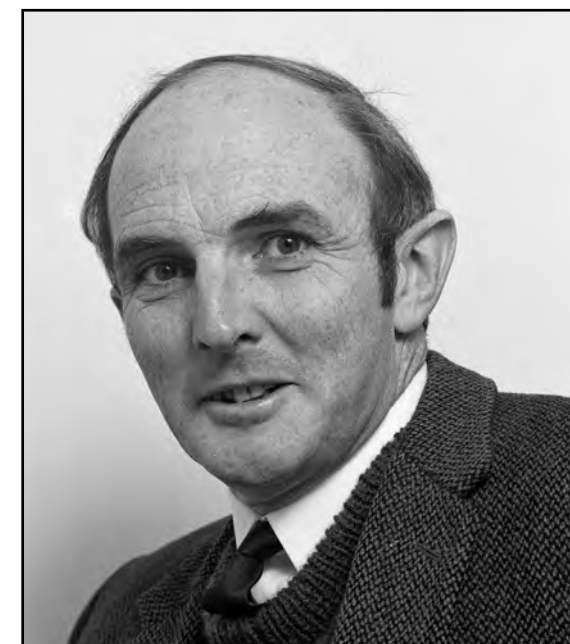
Although the University had its beginnings in 1967, the Department of Biochemistry was not established until 1972. The University began with the plan that the disciplines were to be organised into Schools and so in the beginning appointments made in the disciplines of Botany, Zoology and Genetics were in the School of Biological Sciences. Each appointee was allocated to one of the two residential colleges, Glenn and Menzies, and were expected to give lectures in their discipline and tutorials in the residential colleges. Likewise, appointees were expected to have their lunch with students in the college dining rooms. As a result of this model, the University, in the beginning, had no central Union and current facilities of the Agora were carefully crafted from very limited space in the centre of the University as the Master Plan did not envisage having a Union precinct in the centre of the University.

By the time the discipline of Biochemistry was added to the School of Biological Sciences, with the recruitment of Professor **Bruce Stone** from the University of Melbourne in 1972, the ambitions of the professors in the School had taken the effect of creating departments, which to a very large degree kept quite separate from each other, except for monthly School of Biological Sciences meetings, which were more competitive than cooperative. The sharp demarcation of the disciplines, at least in part, had its roots in the fact that the three original disciplines with their spanking new buildings, offices and laboratories did not want to share their facilities with the new upstart disciplines of Biochemistry and later, Microbiology. Indeed, until the new La Trobe Institute for Molecular Science (LIMS) building was constructed in 2012, the Department of Biochemistry was variously housed in space in the Agriculture building and later was spread out between the two Chemistry buildings, constructed at the beginning of the university to house the four chemistry departments that existed for the first 25 years of the University.

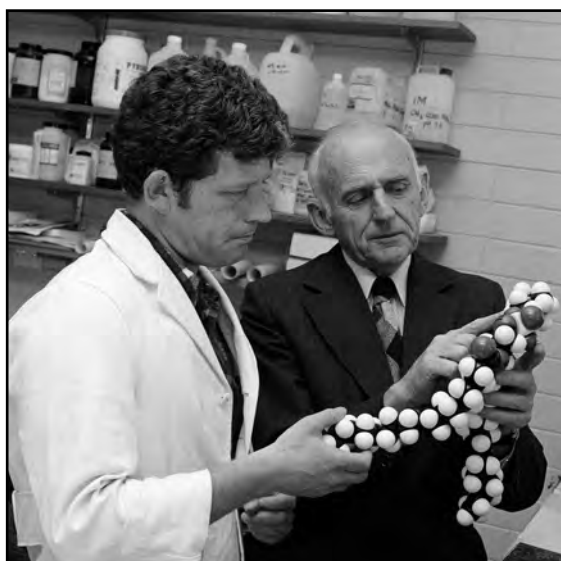
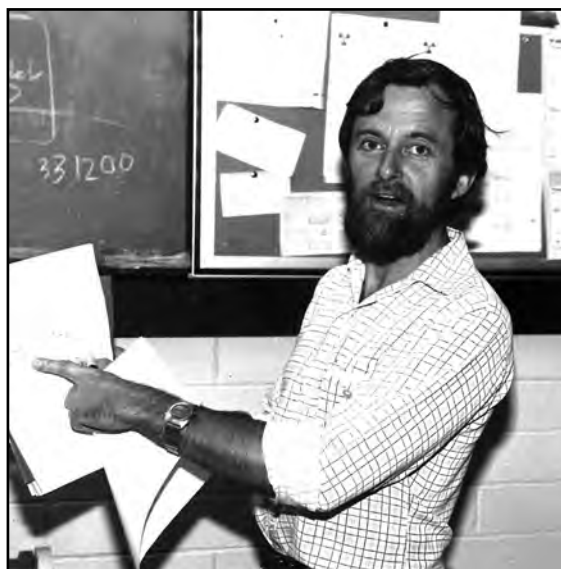
This splitting of the School of Biological Sciences into departments did have a strong influence on the creation of a fiercely

competitive Department of Biochemistry. The departments of the School of Biological Sciences each had a very distinct ethos, which reflected the attitudes and even personalities of the founding professors. This proved to be a powerful force in the development of excellent departments in the biological sciences with very strong commitments to teaching and even more passionate commitments to research.

The first appointment in the Department of Biochemistry was not Bruce Stone, but **Roger Holmes**, who was recruited from the University of Queensland in 1970 as the designated 'biochemistry lecturer' to cover the needs for teaching of biochemical aspects of botany, genetics and zoology. Bruce Stone brought with him a strong background in plant biochemistry, particularly the characterisation of the complex polysaccharide components of plant cell walls. He also brought with him **Ian Croker**, as the department's first laboratory manager in 1972 and who served the department with distinction until his retirement in 2010. Along with Ian, the department has been well served by a number of people who worked in our workshop, which in those early years was



Bruce Stone, Foundation Professor of Biochemistry in 1972.

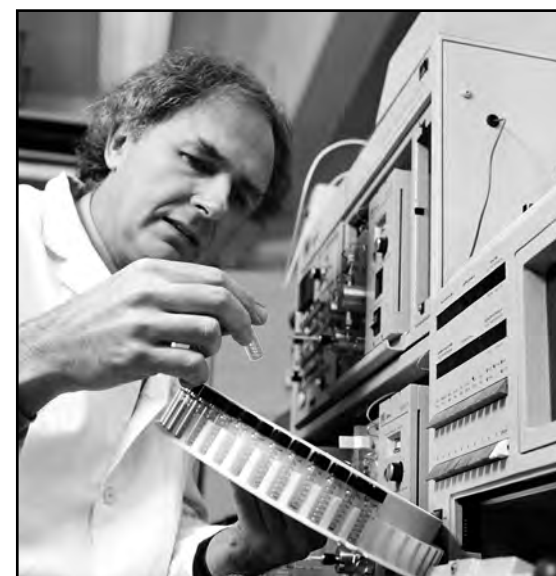


Foundation members of staff (from top left): Ian Croker, Don Phillips, Bob Scopes and Gideon Polya (pictured with Professor Sir Rutherford Robertson in 1978).

critical for repairing and manufacturing equipment. **David Bannon** joined the department in the early 80s. With his specialised interest in electronics, he played a key role in nursing the department through the early introduction of IT.

With the appointment of Bruce Stone as Foundation Professor of Biochemistry in 1972, three further appointments were made in quick succession: **Don Phillips** joined the nascent department from the University of Adelaide with research interests in physical biochemistry of the interactions of

anti-cancer drugs with DNA, **Bob Scopes** from CSIRO in North Ryde with a strong background in enzymology, specifically as applied to enzymes from bacteria useful for alternative fuel production, and **Gideon Polya**, also a plant biochemist interested in regulation of signal transduction pathways, from the Australian National University (ANU). **Nick Hoogenraad** was recruited in 1974 from Stanford University, USA to replace Roger Holmes who returned to Queensland (Griffith University) and who eventually became Vice Chancellor of Charles Darwin University for 6 months in



Nick Hoogenraad (1975) and Dick Wettenhall (1987).

1996 and Newcastle University from 1996 until 2004. Nick Hoogenraad's research interests were also in enzymology as applied to medical problems and in the function and biogenesis of mitochondria. The recruitment of staff to the foundation department of biochemists was completed with the appointments of **Dick Wettenhall** in 1976 from ANU, whose interests were around protein biosynthesis and **Geoff Fincher**, a former PhD student of Bruce Stone, in 1977 from McGill University, Canada with interests in the enzymology of plant cell wall biosynthesis.

All of the lecturing staff were passionate about teaching and perhaps surprisingly, given their even greater passion about research, there was fierce competition in discussions around the table in the professor's office on the division of lectures. We never seemed to have enough lectures to go around as we fought to teach students the latest discoveries in a field that was literally exploding with the impact of "the molecular biology" revolution, to which the staff of biochemistry was making significant contributions. No doubt another factor driving the teaching interests of staff was the drive to get the best students to join their labs as Honours students. The end result of this competition was that all the young lecturing staff in the department took their teaching responsibilities very seriously and indeed did attract a highly talented cohort of postgraduate students over many years.

"All of the lecturing staff were passionate about teaching and perhaps surprisingly, given their even greater passion about research, there was fierce competition in discussions around the table in the professor's office on the division of lectures."

Part of the reason for the strong research foundations of biochemistry at La Trobe was the fact that the department, when recruiting staff always put the greatest emphasis on appointing the person with the strongest research reputation rather than their specific field of interest. The staff strongly adhered to the principle that all members should be able to teach in all areas of the first level of biochemistry, which at La Trobe has always been in second year, and that it mattered less that we had limited coverage of the specialities at advanced years, than that the students should be taught about how discoveries were made and how new information was derived. In a sense, at second year level we taught 'text book' biochemistry whereas at third year level and Honours, we taught way beyond what any text book was able to cover.



From left: David Bannon (workshop), Klaus Lingelbach, Nick Hoogenraad, Ian Croker (lab manager), Linda Graf, Joan Hoogenraad and Peter McIntyre in 1998.



Geoff Fincher with research assistant Peter Lock examine results of DNA sequencing of the b-glucanase gene that they cloned at La Trobe University (1985).

During those early years of the Department of Biochemistry, some significant additional appointments were made to further strengthen the research of the discipline. **Geoff Howlett**, with interests in enzyme characterisation via analytical ultra-centrifugation, joined the department from UC Berkeley (USA) in 1976 and moved to the University of Melbourne in 1979, and **Ross Smith**, who came from the University of Canterbury, New Zealand, with expertise in the biochemistry of neurological problems such as multiple sclerosis, replaced Geoff Howlett in 1979 and moved to the University of Queensland in 1982.

The departmental academic staff complement was completed with the appointments of three staff whose primary responsibility was teaching, particularly in laboratory classes. **Steve Jones** joined the department from the University of Melbourne in 1991, as did **Sue Herd** after a post-doctoral fellowship with Nick Hoogenraad. **Liz Johnson** was appointed in 1991 after a post-doctoral fellowship



Teaching specialists (from left): Liz Johnson, Steve Jones, Sandra Stirling, Sue Herd and John Hamilton (1993).

with Bruce Stone. Liz was to become the deputy dean (Academic) and acting dean in 2012 and in 2013 took up the position Pro-Vice Chancellor (Teaching and learning) at Deakin University.

During the initial 10-12 years, the department earned a considerable reputation for its research strength as each of the research staff had essentially continuous funding from the Australian Research Council (and its forerunner, the Australian Research Grants Scheme) and from the National Health and Medical Research Council. One particular highlight was the award of an ARC Centre of Excellence for Protein and Enzyme Technology (CPET) in 1989, led by Bob Scopes, in recognition of the department's expertise in protein chemistry and enzyme technology.

Members of staff became active in organising conferences and serving as office bearers in various professional bodies such as the Australian Society for Biochemistry and Molecular Biology (ASBMB) and its predecessor, the Australian Biochemical Society (ABS). Indeed, Bruce Stone was the president of the ASBMB from 1989-1990, Nick Hoogenraad from 1997-1998, Mike Ryan from 2015-2016 and Leann Tilley from 2017-2018. Bruce and Nick also served on the Biology discipline panel of the Australian Research Council (ARC), Bruce from 1998-1990 and Nick from 1991-1994.

Having benefited greatly from a very stable staff base, in 1988 with the departure of Dick Wettenhall to become professor of Biochemistry at Melbourne University and eventually playing a critical role in the establishment of Bio21 (Dick was the Foundation Director), the department was ready for substantial change. In 1988, **Peter Høj**, whose background was plant biochemistry, joined the department after a period as a post-doctoral fellow following his training in the University of Copenhagen and soon joined Nick Hoogenraad in a collaboration on the role of molecular chaperones in mitochondrial biogenesis. Peter was to eventually move to the University of Adelaide to the Chair in Viticulture in 1995 and shortly after to



Peter Høj (2014).

the Directorship of the Wine Research Institute (1997-2004), CEO of the Australian Research Council (2004-2007) and then Vice Chancellor positions at the University of South Australia (2007-2012) and University of Queensland since 2012.

In 1991, **Leann Tilley** joined the department from the University of Melbourne after a period as a post-doctoral fellow in the Netherlands, bringing with her an interest in malaria, and in 1995 **Mick Foley** joined the department from the Walter and Eliza Hall Institute (WEHI) to join Leann in investigation of malarial parasites.

In 1993 after having established a very strong, research oriented department, Bruce Stone retired and was succeeded by Nick Hoogenraad. In the same year, Geoff Fincher moved to the University of Adelaide, where he was appointed Professor of Plant Science and was eventually instrumental in building one of the strongest centres at the Waite campus of the University of Adelaide for the study of the molecular biology of plants, and most specifically in cereal crops.

In 1995 **Marilyn Anderson**, a former PhD student of Bruce Stone, joined the department after a long stint as a Senior Research Fellow in the School of Botany at the University of Melbourne where she was a key researcher in the discovery of the molecular basis of self-incompatibility in flowering plants. In the same year, **Trevor Lithgow** returned

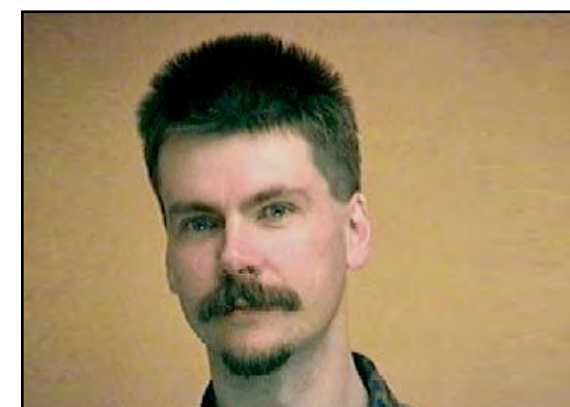


La Trobe University chemist Les Deedy with Mick Foley and Leann Tilley (1993).

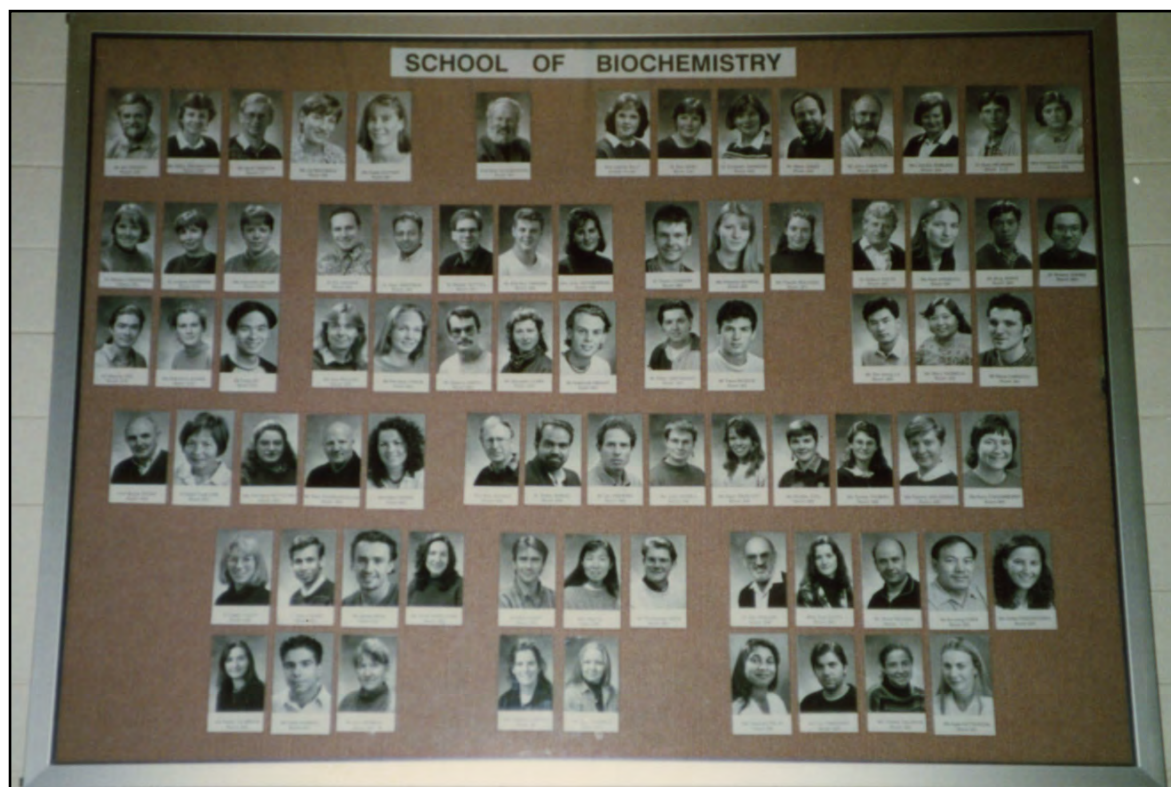
to the department where he did his PhD with Nick Hoogenraad after a long post-doctoral fellowship in the Bio-Centrum in Basel, Switzerland, and where he played a major role in deciphering the mechanism of protein import into mitochondria. Trevor moved to Bio21 at Melbourne University in 1999 and eventually to Monash University.

In 1999, **Claude Bernard** transferred his laboratory from the Department of Psychological Sciences to the Department of Biochemistry, bringing with him a strong background in immunology and research into multiple sclerosis. He took over the Chair in Genetics in 2003 and moved to Monash University in 2005. At this time **Jacqui Orian**, who had been a post-doctoral fellow in the laboratory of Claude Bernard, became an independent lab head, continuing the work on multiple sclerosis.

Robin Anders transferred from WEHI in 2000 and **Alex Maier** joined the department in 2008, also from WEHI bringing their substantial international reputation in malarial research to the creation of one of Australia's strongest malarial research programs with Leann Tilley and Mick Foley



Marilyn Anderson and Trevor Lithgow (1996).



The department's photo board of staff and students in 1996.

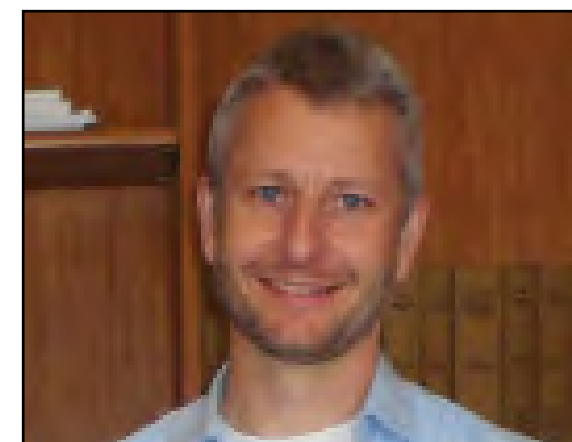
and the many fine post-doctoral and post-graduate students who were trained in their labs. Robin retired in 2012 and was made an Emeritus Professor and Alex moved to the ANU in 2012.

“Although maintaining a strong emphasis on basic research, the department embraced the importance of taking research through to a commercial outcome.”

All of these changes played a major role in revitalising the department, and although maintaining a strong emphasis on basic research, the department embraced the importance of taking research through to a commercial outcome. This was driven by 20 years association of members of the department with the Cooperative Research Centre (CRC) Scheme between 1995-2014. In 1995, Nick Hoogenraad and Peter Hudson (CSIRO, Parkville, adjunct member of staff) were part of a team who obtained funding for the CRC for Diagnostic Technologies, headquartered in QUT,

Brisbane (1995-2001), followed by further funding by the CRC for Diagnostics (2001-2007). Nick Hoogenraad, Leann Tilley and Mick Foley were active participants in these programs. With the move of Robin Anders from WEHI to the department in 2000, La Trobe became a member of the CRC for Vaccine Technologies, in which Robin was active. Nick served on the Board of Directors for all three CRCs and in 2008 was lead applicant for the CRC for Biomarker Translation, which was headquartered at La Trobe (2008-2014).

The work carried out by the CRC for Diagnostic Technologies and the CRC for Diagnostics led to the spinning out of start-up companies Evogenix Ltd in 2000 and AdAlta Ltd from the CRC for Diagnostics in 2007. With the eventual merger of Evogenix with Peptech Ltd to form Arana Therapeutics in 2001 and its sale to Cephalon Australia in 2008, yielded around \$2 million in income for La Trobe, which was allocated by the University to establish the LIMS Endowment Fund. AdAlta Ltd, scientifically led by Mick Foley also had a successful float on the Stock Exchange in 2016.



From left to right: Claude Bernard, Robin Anders, Jacqui Orian and Alex Maier.

When Marilyn Anderson joined La Trobe from Melbourne University in 1995, she brought with her the company she

established (later in 1998) with former La Trobe University Chancellor Adrienne Clarke and her former PhD student, Robyn Heath, Hexima Ltd. Her lab, in association with the lab of Mark Hulett, have carried out significant research at the commercial interface within the Biochemistry department. More recently, Nick Hoogenraad's group, with funding from the CRC for Biomarker Translation and its commercial entity, TransBio Ltd (2007-2013) discovered a cause for cancer cachexia and a potential therapy for this condition.

The association with the CRC program over this extended period of time provided a major source of funding for PhD studentships with its accompanying emphasis on development of intellectual property. It also helped in developing strong ties with other partner institutions, particularly the CSIRO division located in Parkville and the Biomolecular Research Institute (BRI), the first institute to become affiliated with La



Mick Foley, Chief Scientific Officer of Adalta Ltd with an article of the company's research in the Herald-Sun newspaper (2017).



The leadership group of Hexima in 2008: Adrienne Clarke, Mark Hulett, Robyn Heath and Marilyn Anderson.

Trobre University. This led to the joint training of post-graduate students with colleagues at CSIRO and BRI such as Peter Hudson and Ray Norton, which provided a strong focus on protein chemistry and structural biology in particular.

In 1998, the University underwent a major restructuring of academic units with the formation of Schools. Initially, the departments of Biochemistry and Genetics made up the School of Biochemistry and Genetics, but in 2000, the Schools underwent fine-tuning and the Department of Chemistry joined Biochemistry and Genetics to form a new School of Molecular Sciences. With this restructuring, **Anne Evans** was recruited to be School Manager in 2007 and from this time has played a major role in the building and running of the La Trobe Institute for Molecular Science (LIMS). In an attempt to bring together the research activities of all three departments of the School, in 2009, the Head of School, Nick Hoogenraad established LIMS with David Vaux as deputy director. A year later, the University was successful in obtaining \$65M from the Education Investment Fund to build the LIMS building. This iconic facility was completed in 2012 and brought together the undergraduate teaching of Chemistry, Biochemistry and Genetics and the research of the School of Molecular Sciences into a single facility. Within this facility and the refurbishment of the adjacent former Biochemistry building (now called LIMS 2), the departments of the School of

Molecular Sciences were able to expand their research activities further.



Mike Ryan, the third Head of Biochemistry from 2012-2014.

In 2000, **Mike Ryan**, a former PhD graduate from the department, rejoined the Department of Biochemistry following a post-doctoral fellowship at University of Freiburg where he made major contributions to understanding the basis of mitochondrial biogenesis. Mike was eventually to become the third Head of Biochemistry from 2012-2014, until his departure to Monash University in 2014. Other former PhD graduates from the department also returned as research fellows and many of these eventually became laboratory heads. **Suzi Cutts** joined the Phillips lab in 2001 after



Suzi Cutts.

a post-doctoral fellowship at the Murdoch Institute to work on drug-DNA interactions. **Kaye Truscott** and **David Dougan** returned in 2004 as ARC QEII Fellows, Kaye from the University of Freiburg where she also worked on mitochondrial biogenesis and David, from Heidelberg University where he developed his interest in proteolysis mechanisms.

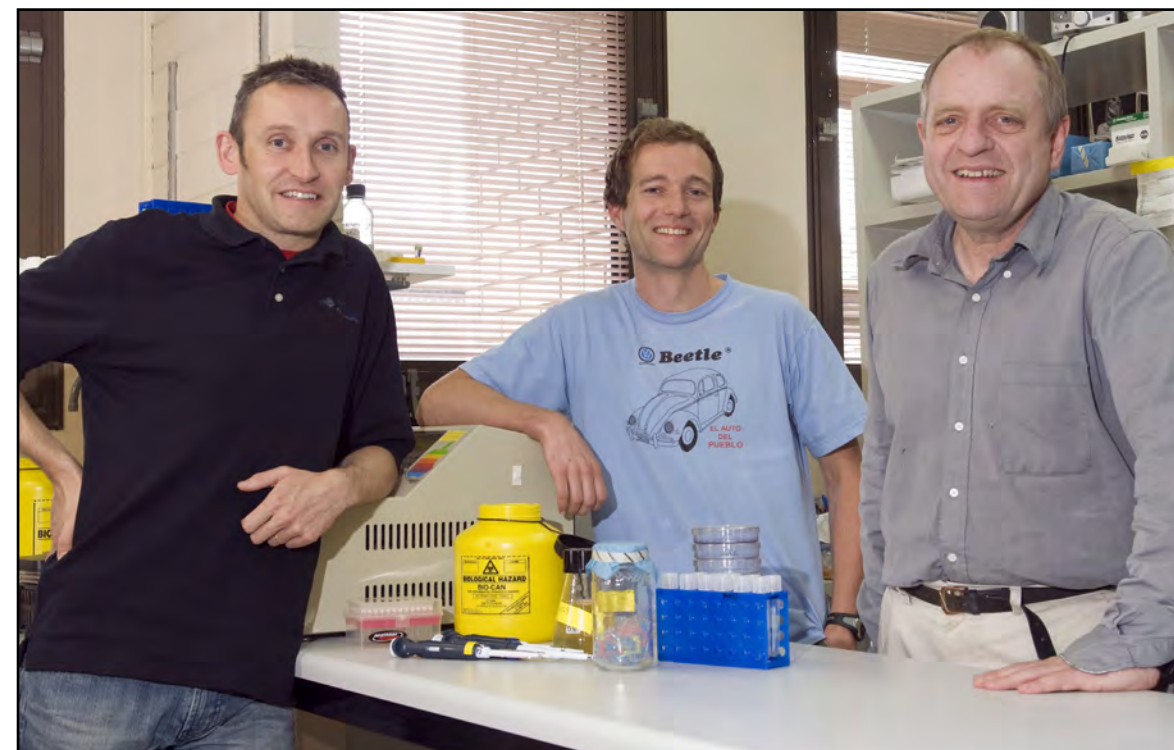
Bob Scopes retired in 1999, Gideon Polya in 2003 and Don Phillips in 2009, Bob and Don as emeritus professors. **Peter Cartwright**, a former PhD graduate from the department, joined the teaching staff in 2005 and as described below, took over the running of the Master's program in Biotechnology and Bioinformatics in 2007. By 2006, when **David Vaux** joined the department from WEHI on an ARC Federation Fellowship, with his large group including NHMRC Senior Research Fellow **John Silke**, the department was bursting at the seams and serious attempts were made to raise funds for a new building to house this large, world class research department in a single location. David Vaux was eventually to become one of the



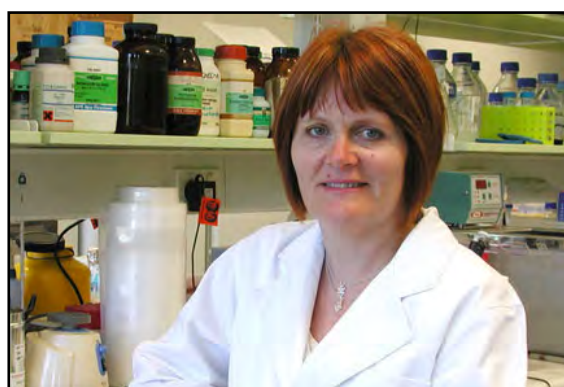
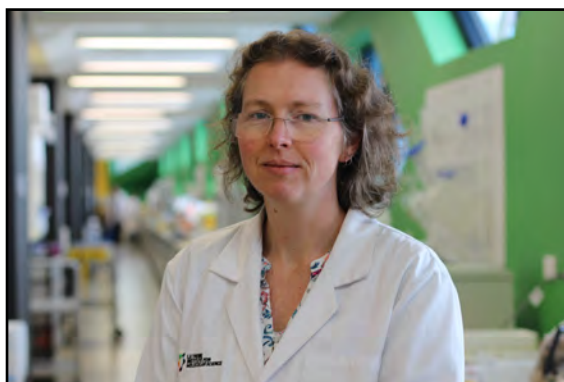
David Dougan and Kaye Truscott.

inaugural NHMRC Australia Fellows for his world leading research on programmed cell death and remained at La Trobe until his departure in 2010 to take up a Deputy Director position at WEHI. Both David and John have retained strong connections with the department in their capacities as Adjunct Professors of Biochemistry.

Chris Hawkins, a former PhD student of David Vaux, also joined the department in 2006 after post-doctoral experience



John Silke, James Vince and David Vaux.

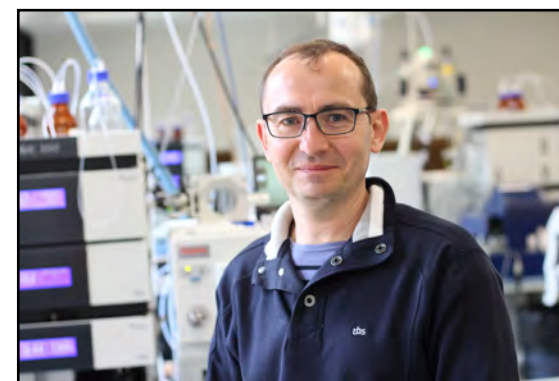
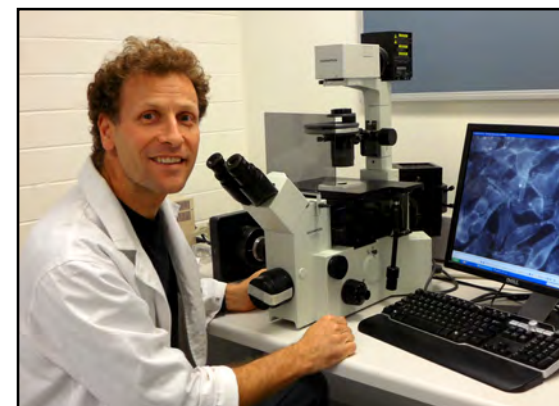


Chris Hawkins, Hamsa Puthalakath, Mark Hulett and Julie Atkin.

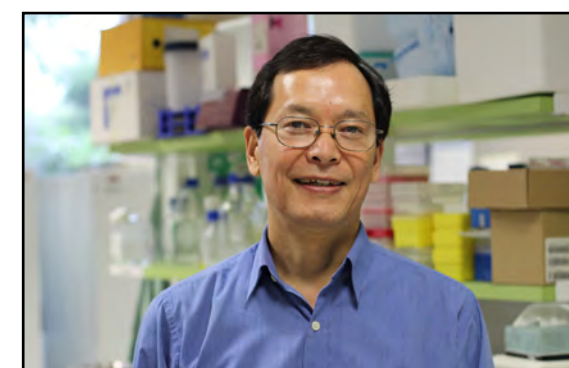
at Caltech University in California and the Murdoch Institute in Parkville as an NHMRC Fellow to continue her work on cell death regulation in cancer. **Hamsa Puthalakath** came in 2007 from WEHI on an NHMRC Fellowship, also with an interest in programmed cell death specifically as it related to sepsis. In the following year, **Mark Hulett** brought his interests in immunology, inflammation and tumour progression to La Trobe Biochemistry from the ANU John Curtin School of Medical Research, following a term as President of the Australian Society for Medical Research. The same year, **Fiona Carroll** was recruited from the Howard Florey Institute, followed in 2009 by **Julie Atkin** also from the Howard Florey Institute bringing with her an interest in the molecular mechanism of Motor Neurone Disease.

With the development of major infrastructure capabilities in the department, the running and management of these facilities, including training of internal and external users, was formalised with the appointment of **Peter Lock** in 2011 as the first Facilities Manager in LIMS, taking charge of the Microscopy Facility. Peter had joined the department in 2009 as an NHMRC senior research fellow. **Pierre Faou** became the manager of the LIMS Proteomics Facility in 2013 after several years as a post-doctoral fellow funded by the CRC for Biomarker Translation.

Julian Pakay was recruited from Bio21, University of Melbourne in 2010. The following year, **Marc Kvensakul**, a structural biologist with interests in programmed cell death, joined the department from Peter Colman's lab in WEHI and **Suresh Mathivanan**, with an interest in proteomics applied to colon cancer joined the department from the Ludwig Institute. Leann Tilley moved to Bio21 in 2011. The following year was a very active year for recruitment of staff to the Biochemistry department and into the newly completed facilities of LIMS: **Matt Perugini** was recruited from Bio21, bringing with him a background in physical biochemistry and rational drug design; **Richard Simpson**, from the Ludwig Institute in Parkville, with an international

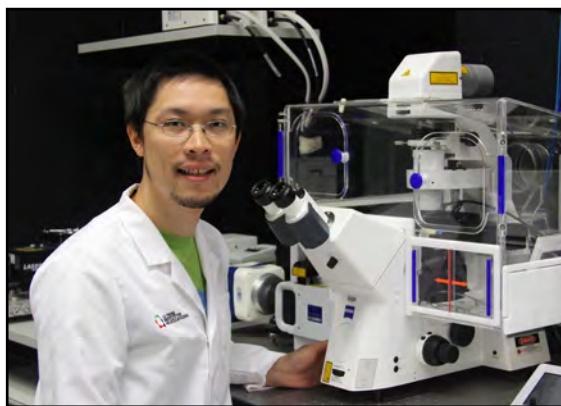


From top to bottom (Left): Peter Lock, Pierre Faou, Fiona Carroll and Julian Pakay. (Right): Suresh Mathivanan, Matt Perugini, Richard Simpson, Weisan Chen and Belinda Parker.

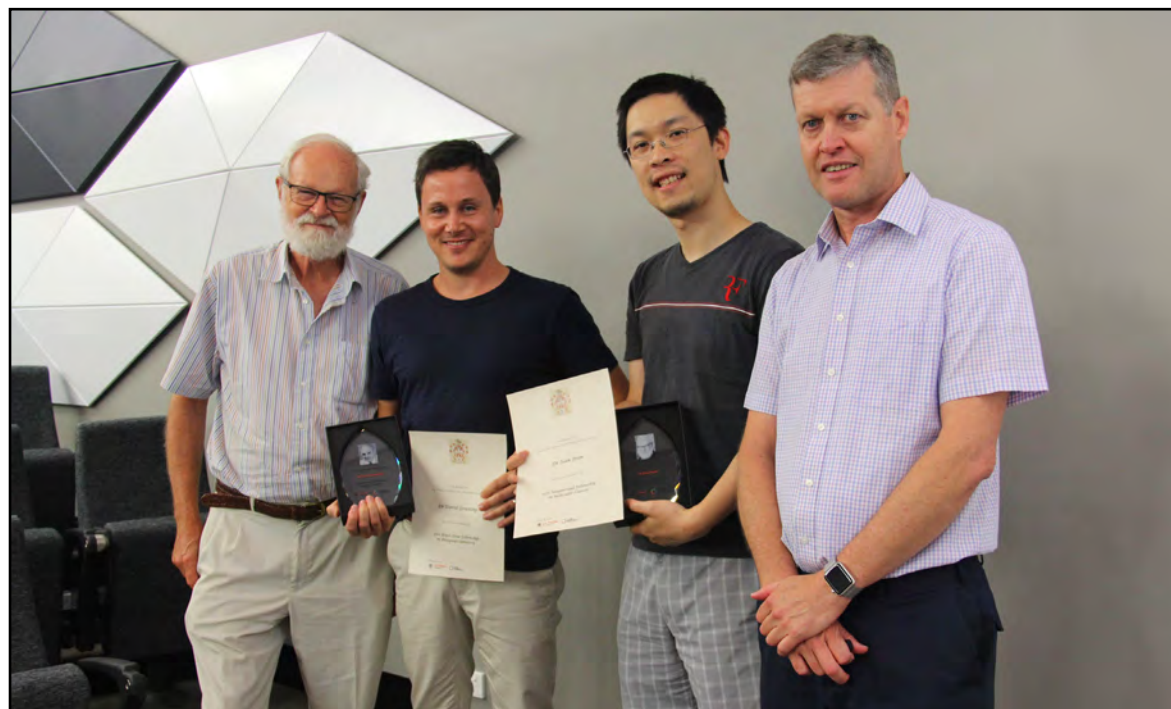


reputation in protein chemistry and proteomics; **Weisan Chen** from the Ludwig Branch at the Austin Hospital, bringing with him expertise in cellular immunology and influenza research; **Belinda Parker**, from the Peter MacCallum Cancer Research Institute, bringing her interests in the cancer microenvironment and cancer immunology; **Megan Maher**, from the Centenary Institute at the University of Sydney, bringing with her expertise in structural biology of membrane proteins and **Begoña Heras**, a structural biologist interested in bacterial virulence factors from the Institute for Molecular Bioscience at the University of Queensland.

In 2014, Julie Atkin transferred to Macquarie University and **Ivan Poon**, a former student of Mark Hulett, returned to the department after a post-doctoral fellowship at the University of Virginia (2011-2013) to establish his own laboratory to continue his work on apoptosis and cell clearance. He was the inaugural Nick Hoogenraad Fellow in Molecular Sciences (2015). **David Greening**, a post-doctoral fellow in the laboratory of Richard Simpson, was made the inaugural Bruce Stone Fellow in



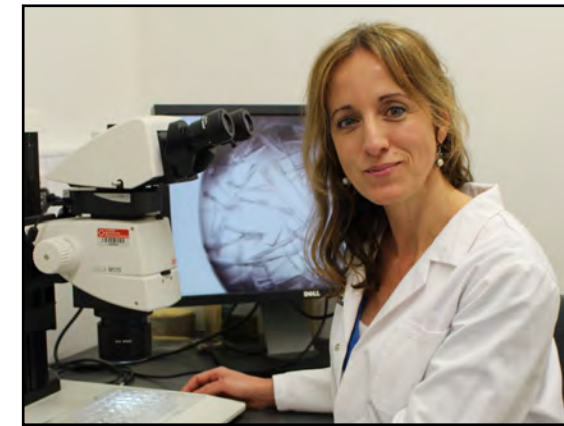
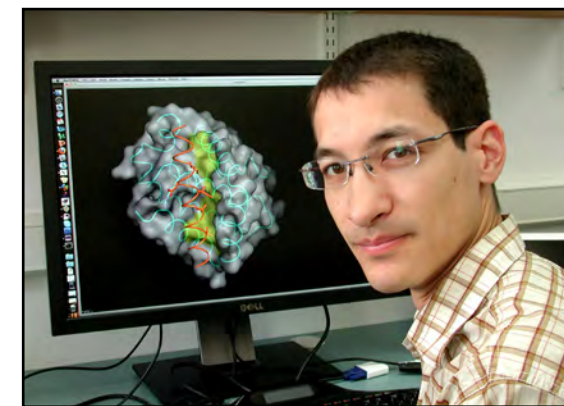
Ivan Poon and David Greening.



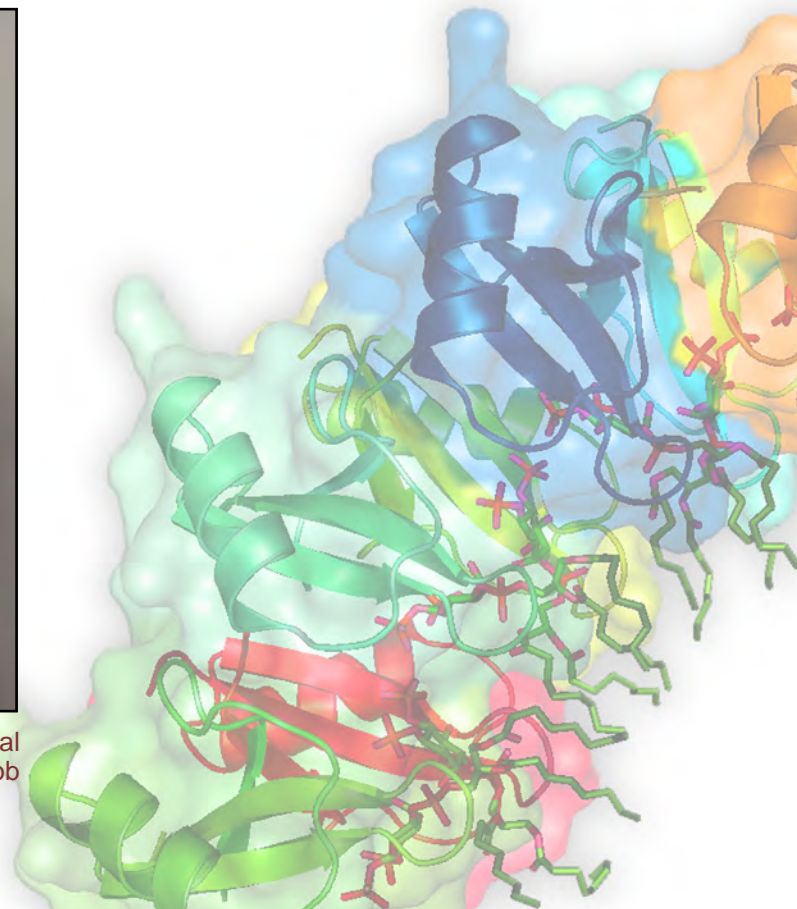
Nick Hoogenraad with inaugural LIMS Fellows David Greening (Bruce Stone Fellow in Biological Chemistry) and Ivan Poon (Nick Hoogenraad Fellow in Molecular Sciences) with LIMS Director Rob Pike (2015).

Biological Chemistry to continue his work on extracellular vesicles and cancer biology. With the recruitment of Marc Kvensakul, Begoña Heras, Megan Maher and **Mihwa Lee** with her interest in protein-nucleic acid complexes in 2014, the Department of Biochemistry established a strong focus on structural biology and gave us ready access to the new Australian Synchrotron.

In 2010, the Federal Government instituted the Excellence in Research in Australia (ERA) scheme to assess the quality of research performance in Australian universities, benchmarked against international research performance. In this first round of assessment, La Trobe University was the only university in the Biochemistry and Cell Biology discipline area in Australia to obtain the maximum score of 5. This ranking was confirmed in the subsequent ERA exercises in 2012 and 2015.

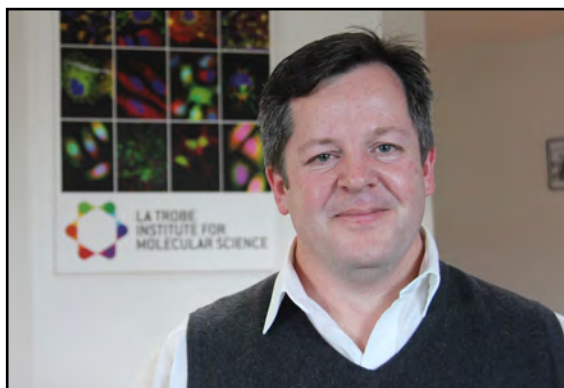


The department has a core of structural biologists including Marc Kvensakul, Begoña Heras, Megan Maher and Mihwa Lee.





From top: Rob Pike, Lakshmi Wijeyewickrema, Adam Hart and Jodie Young.



Andy Hill was the fourth Head of the Department from 2015 before becoming Director of LIMS in 2017.

At the end of 2014, Nick Hoogenraad retired and **Rob Pike**, with an international reputation in the enzymology of blood clotting, was recruited from Monash University to be the new Head of School and Director of LIMS. Rob's research group, now headed by **Lakshmi Wijeyewickrema**, became members of the department when he moved to LIMS. The same year, **Andy Hill** was recruited from Bio21, bringing with him a strong research presence in Alzheimer's, to become the Head of the Biochemistry department. At this time, the university underwent a major restructuring with the formation of Colleges of Science Health and Engineering (SHE) and Arts, Social Sciences and Commerce (ASSC). Along with this, there was a restructuring of the Schools and departments, with the School of Molecular Sciences now containing three departments: Biochemistry and Genetics, Chemistry and Physics, and Pharmacy and Applied Science (Bendigo campus). This brought **Adam Hart**, with an interest in the molecular regulation of stem cells and cancer and teaching staff member **Jodie Young**, into the new Department of Biochemistry and Genetics. **Robyn Murphy**, with a background in skeletal muscle biochemistry, transferred from the Department of Zoology and Helena Richardson, a fruit fly geneticist and Patrick Humbert, a cancer developmental geneticist, both joined the new department from the Peter MacCallum Cancer Institute.

In 2015, **Erinna Lee** and **Doug Fairlie**, from the WEHI, joined La Trobe University as



Robyn Murphy became the fifth Head of the Department in 2017.

independent lab heads. They were initially appointed to the Department of Chemistry and Physics, but in 2017, transferred to the Department of Biochemistry and Genetics. Doug holds a joint appointment with the Olivia Newton-John Cancer Research Institute (ONJCRI) whilst Erinna is a visiting scientist at the ONJCRI. Both have interests in understanding the molecular mechanisms underlying cell fate decisions dictated by the processes of apoptosis and autophagy, particularly in the context of cancer cells.

In late 2016, upon the retirement of the inaugural Pro Vice Chancellor for SHE, Rob Pike gave up his position in the School of Molecular Sciences to take on this position. With this change in management, Andy Hill took up the position of Director of LIMS and Robyn Murphy was subsequently appointed as Head of the Department of Biochemistry and Genetics.

A key to the research strength of the Biochemistry department has been the quality of its research students, who effectively do the bulk of the research. In the early years, some of the best students came from regional areas, attracted by the excellent, non-denominational, residential colleges at La Trobe University. These students enrolled into the BSc and BBiolSc degrees and the best of the Honours students subsequently went on with their PhDs in the department. With the Dawkins education reforms of the mid-70s, which gradually led to a massive expansion of the tertiary sector, the competition for the best students became intense. By the mid-90s, this competition led the new head

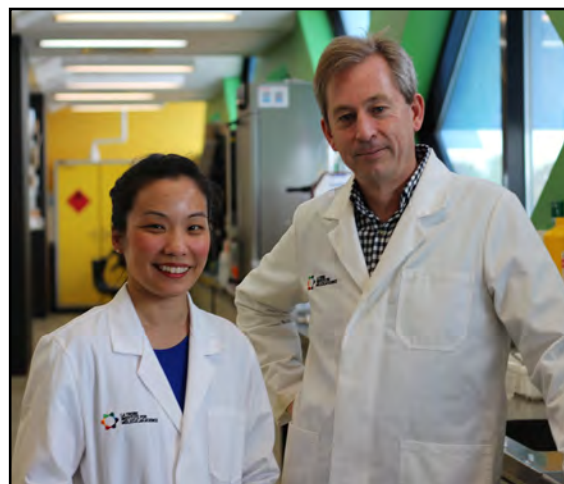


Rob Pike, Nick Hoogenraad and Andy Hill at the departmental Christmas party in 2014.



Helena Richardson and Patrick Humbert.

of the Department of Biochemistry, Nick Hoogenraad to establish a BBiomedSc degree. This had the immediate effect of attracting substantial numbers of excellent students to La Trobe University. Don Phillips ably led this program from its inception in 1997. To this day, this undergraduate



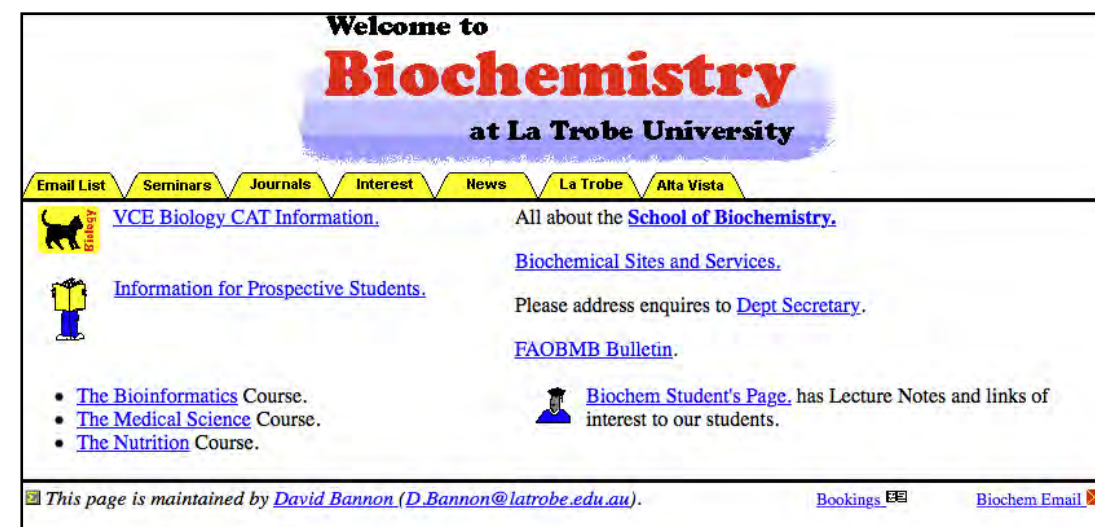
Erinna Lee and Doug Fairlie.

degree program still provides some of the best students who go on to higher degree programs in biochemistry.

In 2005, the Department of Biochemistry also started a degree program specifically for international students with the express



Masters of Biotechnology and Bioinformatics teaching staff (from left): Fiona Carroll, Deepti Varghese-Jose, Amany Gouda-Vossos, Jeff Yeoman, Peter Cartwright, Damian Spencer and Linda Ward (2011).



The department's website was home to the VCE CAT (Common Assessment Tasks) site that was created by Jenny Herrington (1997).

aim to generate more substantial income for the increasingly expensive research being carried out in the department. This Master's program in Biotechnology and Bioinformatics not only generated the requisite income, but also generated excellent students into the department's PhD program. This program was ably led from 2007 by Peter Cartwright and in time, as the numbers of students in the program increased from 10 to more than 100, a number of staff were specifically recruited to oversee this program. These included **Damian Spencer** (2007), **Linda Ward** (2010) and **Jeff Yeoman** (2011), all PhD graduates from the department. Although initially, the cohort of students in this program carried out their research in their own research space, eventually, the most promising students were recruited into the research labs and worked alongside the Honours students on their projects.

With a constant eye on improving the quality of the students recruited into the sciences at La Trobe, the Department of Biochemistry commenced an outreach program for year 9 students to provide them with an opportunity to begin thinking about eventually going on to tertiary studies. This program had its beginnings in 1997, when **Jenny Herrington**, senior science teacher at Caulfield Grammar, spent 9 months on secondment in the Department of Biochemistry. She created a CAT

(Common Assessment Tasks) site, which was explosively effective in reaching out to students and their teachers in regional areas. Indeed, Jenny did such a brilliant job in reaching out to students in Victoria and beyond that she was awarded the BHP Science Teacher of the Year award in 1998.

With a taste of the possibilities of stimulating the interest of students in the sciences, and particularly their interest in coming to La Trobe University, in 2007 the Department of Biochemistry moved from this experiment in outreach to a Year 9 Outreach Program with Ivanhoe Grammar School. In this program, the students spend a two-week block at La Trobe University to listen to talks on a range of science subjects and then prepare projects to present to parents at the end of the semester. In 2008, the department appointed **Francesca Calati** to a full-time position to coordinate this program that was rapidly expanding. Francesca was a senior science teacher at St Helena Secondary College who had developed an exceptional science program at the school for which she was awarded the Prime Minister's Prize for Excellence in Science Teaching in Secondary Schools in 2007.

Building on the long-running peer-mentoring In2Science Program, the G2Genes Program and the five-year pilot LIMS Science Outreach Program successfully developed within the Department of Biochemistry, the



Francesca Calati.

Faculty consolidated all science outreach activities under one umbrella in 2012, led by Francesca. By the end of 2014, 160 secondary schools and 14,325 secondary school students participated in these programs ranging from the original year 9 outreach concept through to VCE laboratory science experiences to bring these students into contact with technologies such as NMR and mass spectrometry, which are out of reach of any secondary schools.

Looking back on nearly 50 years of operation of the Department of Biochemistry, it is interesting to consider the exponential expansion of the department. In 1972, there were just 10 members of academic and technical staff. In 1974, the department graduated just 12 science students with majors in Biochemistry. In 2014, the department had more than 100 staff including more than 30 post-doctoral fellows and 25 research assistants, and graduated 122 students in the various undergraduate programs that Biochemistry was coordinating. The department now also has 20-25 Honours students, and more than 100 PhD students and 100 Masters students.

The department has become the largest contributor to the research income of the university, being \$7M in 2014. It provides facilities for two biotech companies, Hexima and AdAlta. The department has trained hundreds of post-graduate students, many of whom have gone on to be research and industry leaders in Australia and internationally. Most importantly, the department has been a place where many students and staff have formed friendships and played a major role in their development. In exchange, the department has been repaid with an incredible degree of loyalty from its staff over the years.



Third year biochemistry undergraduates in the practical class (2016).



The year 9 outreach program in action.

Photo Gallery

1972 - 2017

The following is a photographic snapshot of colleagues and friends of the Biochemistry department over the last five decades. We hope that they stir some fond memories of times past and highlight the bright future ahead.



Members of the department during a retreat to Phillip Island in 2011.

The Biochemistry department in 1972.

From left: Bob Scopes, Wayne Taylor, Terry Sutherland, Don Philips, Roger Holmes, Helen Remnant, Tony Ashton, Gideon Polya, Peter Sanders, Ian Bentley, Ian Croker, John Duley, Robin Anderson, Geoff Fincher and Bruce Stone. Front row: Catherine Guiver and Marilyn Anderson.

How we have grown





The Department of Biochemistry in 1981.



We are growing. Members of the department in 1993.



Members of the department joined by others from the School of Molecular Sciences on what would become the site of the LIMS 1 building (2010).



Department of Biochemistry
School of Molecular Sciences
Faculty of Science, Technology & Engineering
www.latrobe.edu.au/biochemistry



Biochemistry at La Trobe University

Studying the Molecular Basis of Biological Phenomena



Professor Robin Anders
Malaria Vaccines
"The research in my laboratory is focused on the potential vaccine antigens from the asexual blood stages of *Plasmodium falciparum*, the cause of the most severe form of human malaria."



Professor Marilyn Anderson
Plant-Pathogen Interactions
"We are interested in the structure, function & interaction of plant defence proteins with various fungal pathogens and insect pests. Our studies will aid in the development of new biocontrol proteins for exploitation in plant biotechnology."



Dr Suzi Cutts
DNA Lesions & Anticancer Drugs
"We are investigating the cellular responses to the combination of anthracyclines with formaldehyde-releasing agents as effective therapeutic approaches in the treatment of cancer."



Dr David Dougan
AAA+ Proteins & Protein Quality Control
"We are interested in the proteins responsible for proper maintenance of the cell. Our current research concentrates on defining the molecular basis of substrate selectivity for several different ATP-dependent processes."



Associate Professor Mick Foley
Antimalarial Therapeutics
"The main goal of our group is to understand, at the molecular level, the biology of infectious diseases including malaria & anthrax & to use this information to aid the development of new diagnostic & therapeutic approaches to these diseases."



Professor Nick Hoogenraad
Mitochondria & Stress Responses
"We study the import of proteins into mammalian mitochondria & the role of molecular chaperones in this process. We are also involved in research to identify changes in protein profiles of immune cells in response to disease."



Dr Nick Klonis
Malaria & Fluorescence Microscopy
"Using fluorescent lipid probes, we are developing imaging methods to examine the different membrane environments within an infected erythrocyte & to follow changes that occur during growth of the parasite. We are also studying oxidative-stress induced alterations of the host erythrocyte by the parasite during its growth."



Dr Jacqueline Orian
Neurodegenerative Diseases
"We study the inter-relationships between inflammation, demyelination, axonal damage & glial responses in the pre-clinical & onset stages of murine models of multiple sclerosis."



Professor Don Phillips
Anticancer Drugs
"We wish to elucidate the molecular & cellular responses to DNA-acting anticancer agents & to use that knowledge to devise strategies to enhance the anticancer activity of these drugs. We also wish to define the downstream molecular targets & signalling processes & to develop turnover-targeting procedures."



Dr Michael Ryan
Mitochondria Biogenesis & Disease
"Research in our laboratory focuses on mitochondrial biogenesis. In particular, we study how proteins are imported into mitochondria, how mitochondria grow, divide & move in the cell & the diseases that arise as a result of mitochondrial defects."



Emeritus Professor Bruce Stone
Polysaccharide Biochemistry
"Our research entails the biochemistry & chemistry of the cell walls of higher plants with special reference to cereals & grasses, & the structure-function relationships of wall polysaccharides & proteins."



Professor Leann Tilley
Malaria & Human Red Blood Cells
"Work in our laboratory aims to understand the interactions of the malaria parasite with the erythrocytes of its human host. It is hoped that these studies will lead to the development of new antimalarial strategies."



Dr Kaye Truscott
Adapting AAA+ Proteins
"We are interested in the proteins responsible for proper maintenance of the cell. Our current research concentrates on defining the molecular basis of substrate selectivity for several different ATP-dependent processes."



Professor David Vaux
Apoptosis
"Our laboratory investigates the way in which cells are induced to undergo programmed cell death, a process which is a critical component of normal cell development. By identifying components of the mechanism, we have discovered defects leading to cancer."



Anderson lab
Plant Innate Immunity Proteins



Atkin lab
Neurodegenerative Diseases



Hulett lab
Cancer, Angiogenesis & Inflammation



Hawkins lab
Cell Death Pathways & Cancer



Hoogenraad lab
Stress Response & Biomarkers



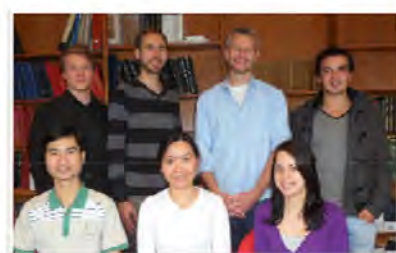
Foley/Anders lab
Anti-Malarial Therapeutics & Vaccines



Ryan lab
Mitochondrial Biogenesis & Disease



Puthalakath lab
Apoptotic Regulation



Maier lab
Malaria Pathogenesis



Orian lab
Multiple Sclerosis



Simpson lab
Colon Cancer Secretome & Exosomes



Truscott/Dougan lab
Protein Quality Control

Australia's Number 1 Uni in Biochemistry and Cell Biology

The Department of Biochemistry is recognised by the Excellence in Research for Australia (ERA) as the leading department in Biochemistry and Cell Biology with a rating of "well above world standard".

We are now in the midst of a major transformation in our history with the building of the \$94 million La Trobe Institute for Molecular Science.

There has never been a more exciting time to study and undertake research in Biochemistry and Cell Biology at La Trobe!

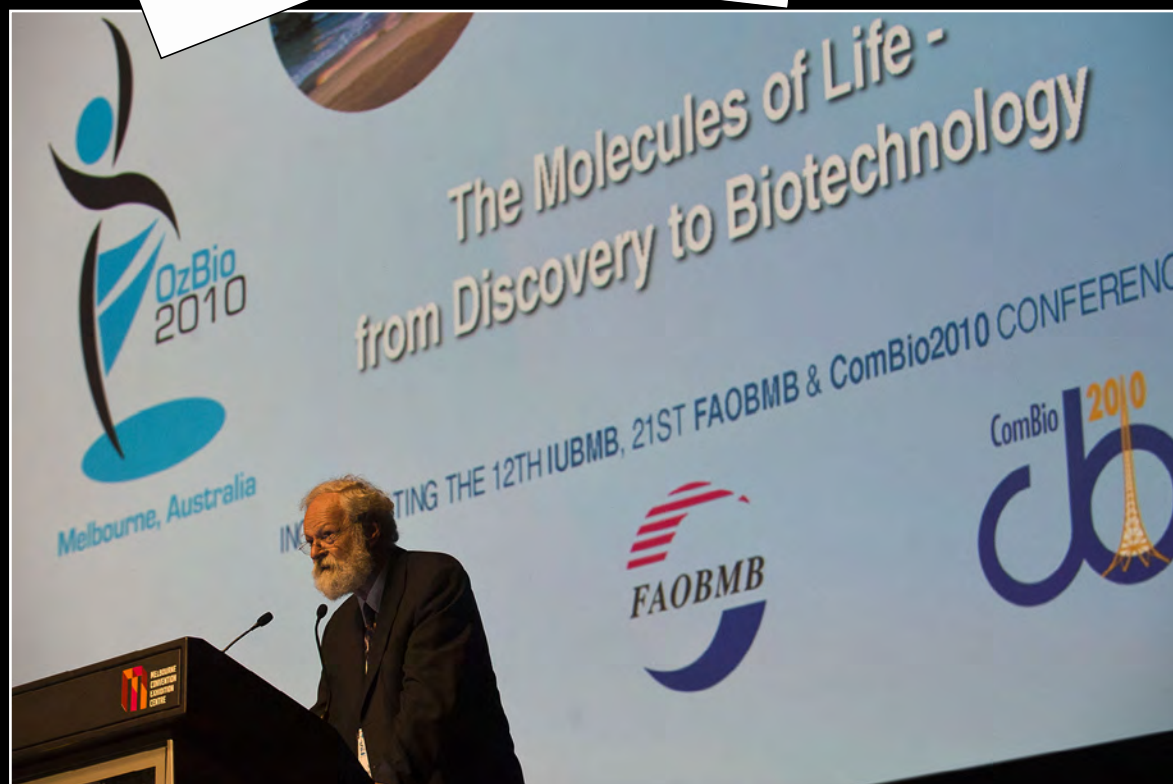
www.latrobe.edu.au/biochemistry

"Members of staff became active in organising conferences and serving as office bearers in various professional bodies such as the Australian Society for Biochemistry and Molecular Biology (ASBMB) and its predecessor, the Australian Biochemical Society (ABS)."

Conferences



Front covers of the La Trobe Record (1975) featuring reports from the ABS conference that was hosted at La Trobe University, and the ASBMB newsletter (May 1997 issue) featuring Nick Hoogenraad as the newly appointed ASBMB President.



Nick Hoogenraad opening the OzBio2010 conference as co-chair of the conference. La Trobe University was a major sponsor and members of the Biochemistry department were major contributors to the conference organisation and program.

The annual Lorne Conference on Protein Structure and Function is an annual meeting that has been well attended by members of the department, many whom have played important roles on committee and conference organisation, since its inception in 1976. In the tradition of this meeting, the best image representing work presented at the meeting is used to decorate the conference t-shirt. This has happened several times for research groups from the department. In 2017, the young investigator awards were named after Robin Anders. An expert on malaria, Robin was Chair of the conference for fifteen years (1985-2000), and attended all but the first meeting.

The department has a history of postgraduate students winning poster prizes at conferences and symposia. A snapshot of some of our winning students over the last two decades.

Year	Conference	Student poster prize winners (lab)
2017	Lorne Protein Conference	Mohd Ishtiaq Bin Anasir (MK)
	Lorne Cancer Conference	Hendrika Duivenvoorden (BP)
2016	Young Scientist Forum on Cell Death and Survival	George Mbogo (HP), Sarah Caruso (IP/MDH)
	Melbourne Protein Group Symposium	Ruchi Gupta (MAP), Mwilye Sikanyika (MM)
	ASMR Victorian Research Student Symposium	Krish Jayatilleke (MDH)
	Society of Crystallographers in Australia and New Zealand Conference	Mohd Ishtiaq Bin Anasir (MK)
	Lorne Cancer Conference	Krish Jayatilleke (MDH)
2015	EMBL Australia Student Symposium	Hendrika Duivenvoorden (BP)
	Australian Peptide Conference	Jen Payne (MAA)
	Japan Australia Meeting on Cell Death	Georgia Atkin-Smith (IP/MDH)
	ComBio2015	Jen Payne x 2 (MAA), Julieanne Vo (BH)
	ASMR Victorian Research Student Symposium	Georgia Atkin-Smith (IP/MDH), Stephanie Paone (MDH/IP)
	Int. Society for Human and Animal Mycology	Kathy Parisi (MAA)
2014	Lorne Protein Conference	Jyotsna Nagpal (DAD/KNT), Kristin Priebatsch (MDH/MK), Tamanna Saiyed (DAD/KNT)
	Melbourne Protein Group Symposium	Amy Baxter (MDH)
	EuroMit 2014	Boris Reljic (MTR)
	Viruses – Pathogenic nanomachines	Bevan Marshall (MK)
	Lorne Proteomics Symposium	Shashi Gopal (RJS), Alin Rai (RJS)
2013	Melbourne Protein Group Symposium	Viviane Richter (MTR/MK)
	Lorne Protein Conference	Viviane Richter (MTR/MK), Grant Mills (MDH/MK), Luke Formosa (MTR), Jyotsna Nagpal (DAD/KNT), Erica Brodie (DAD/KNT)
2012	Melbourne Protein Group Symposium	Jacinta Wubben (MAP), Ved Mooga (MTR)
	Lorne Protein Conference	Ralf Ottofuelling (DAD/KNT), Jen Payne (MAA), Tanja Kitevska (CJH)
2011	Melbourne Protein Group Symposium	Tanzeela Siddiqui (MAP)
	Lorne Protein Conference	Chew Bezawork-Geleta (DAD/KNT), Catherine Palmer (MTR), Jacinta Wubben (MAP), Martin Peverilli (MAP)
2010	ASBMB: 5th Garvan Signalling Symposium	Lahiru Gangoda (JS/DV)
	OzBio2010	Catherine Palmer (MTR), Jeff Yeoman (LMT)
	Melbourne Protein Group Symposium	Jacinta Wubben (MAP)
2009	Lorne Protein Conference	James Micevski (DAD/KNT), Stephanie Kralik (DAD/KNT), Tanzeela Siddiqui (MAP)
	Melbourne Protein Group Symposium	Ingo Brand (CJH), Rebecca Feltham (JS)
2008	Lorne Protein Conference	Rob Ninnis (DAD/KNT), Philip Strack (DAD/KNT), Micky Baker (MTR)
	Lorne Cancer Conference	Mia Miasari (JS/DV)
2007	Lorne Protein Conference	Brad Lowth (DAD/KNT), Philip Strack (DAD/KNT), Jackie Stevens (MAA), Laura Osellame (MTR), Kim Munro (MF)
	Melbourne Protein Group Symposium	Brad Lowth (DAD/KNT), Laura Osellame (MTR), Michael Baker (MTR)
	Fourth International Peptide Symposium	Nicole van der Weerden (MAA)
2006	Lorne Protein Conference	Ross Weston (MF)
	Melbourne Protein Group Symposium	Nicole van der Weerden (MAA)

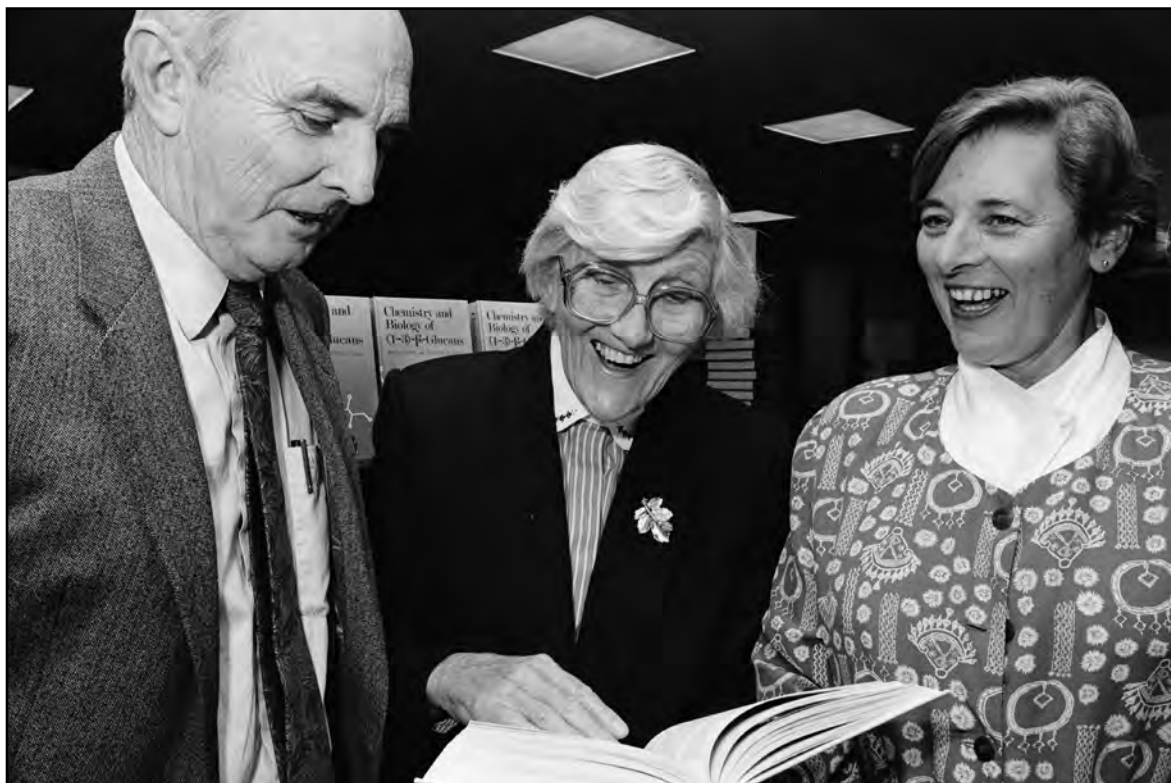
Year	Conference	Student poster prize winners (lab)
2006	Melbourne Protein Group Symposium	Nicole van der Weerden (MAA)
	International Plant Congress	Amanda Gillon (MAA)
	Lorne Protein Conference	Chris Dunning (MTR), Sarah Frankland (LMT)
2005	ComBio2005	Damian Spencer (DRP), Nicole van der Weerden (MAA)
	Melbourne Protein Group Symposium	Ross Weston (MF)
	Lorne Protein Conference	Karen Harris (MF), Michael Lazarou (MTR), Nicole van der Weerden (MAA)
2004	ComBio2004	Damian Spencer (DRP)
	Melbourne Protein Group Symposium	Karen Harris (MF), Sarah Frankland (LMT), Nicole van der Weerden (MAA)
2002	Lorne Protein Conference	Fung Lay (MAA)
2000	ComBio2000	Fung Lay (MAA), John Roinoitis (NJH)
1998	ComBio1998	Fung Lay (MAA)



Some of our student poster prize winners in more recent years.

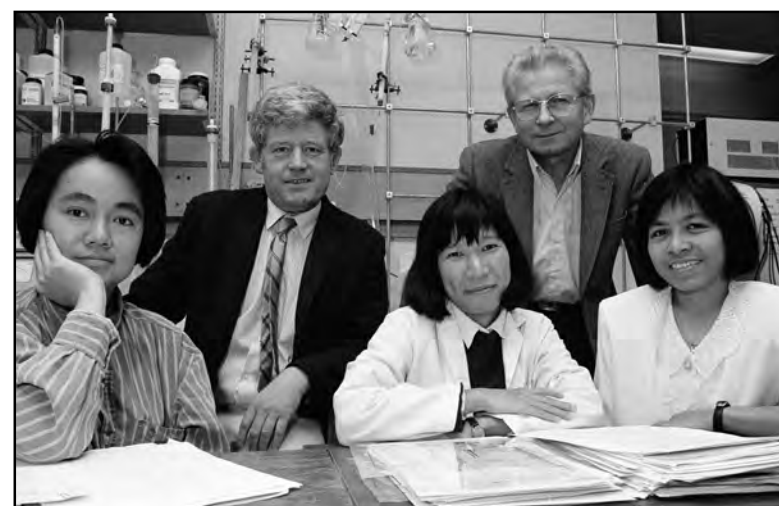


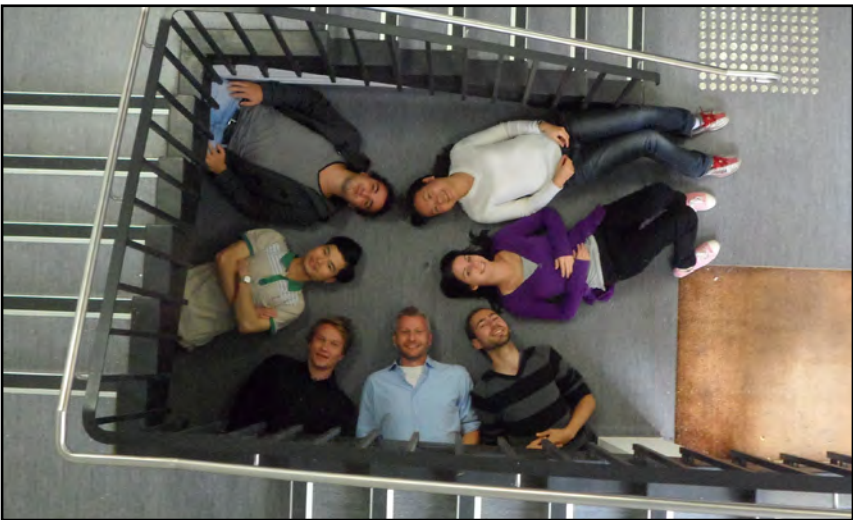
Sue Mullins has been associated with the department since 1980, having worked as a technical assistant in the Hoogenraad, Fincher and Stone labs, and now part of the technical team for the department. Pictured looking after cultures of rye grass endosperm cells for Bruce Stone (1986).

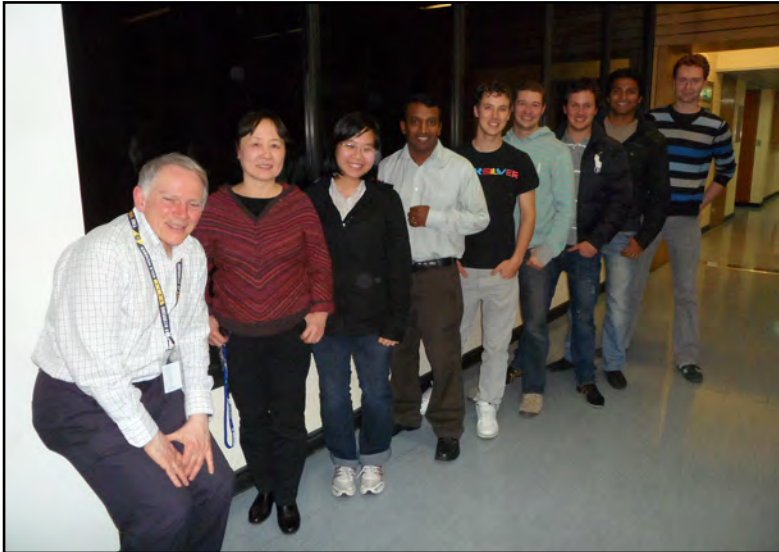
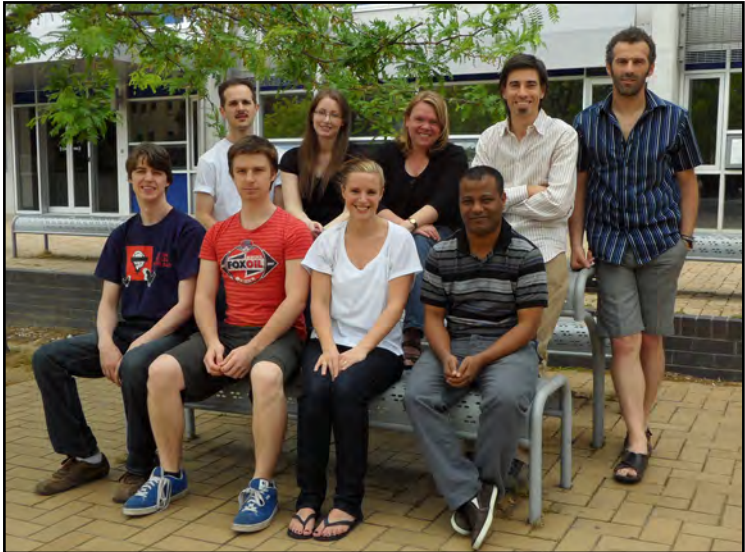
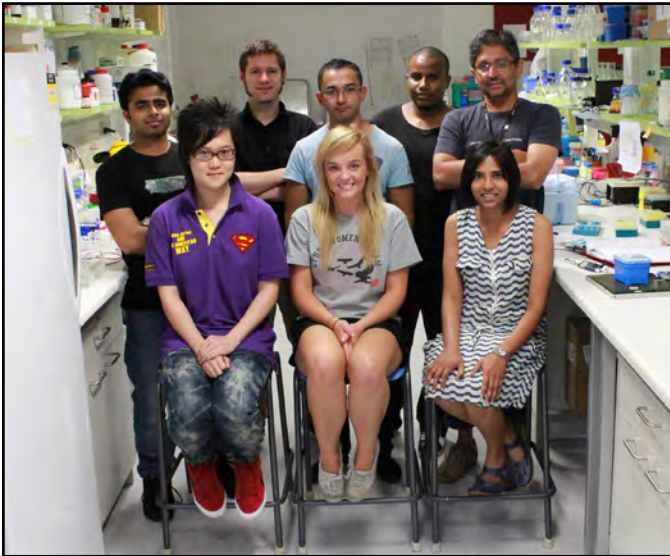
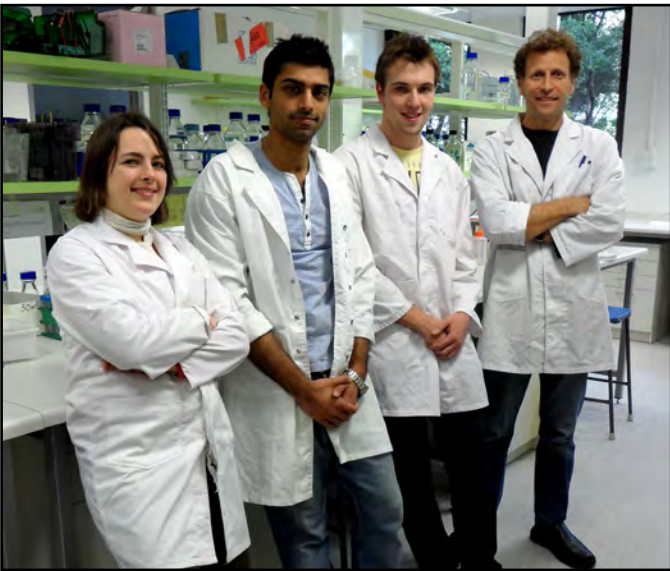


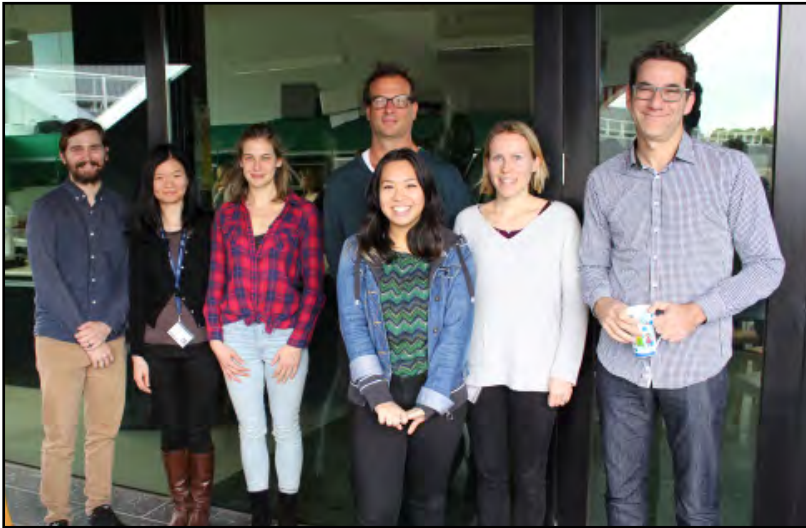
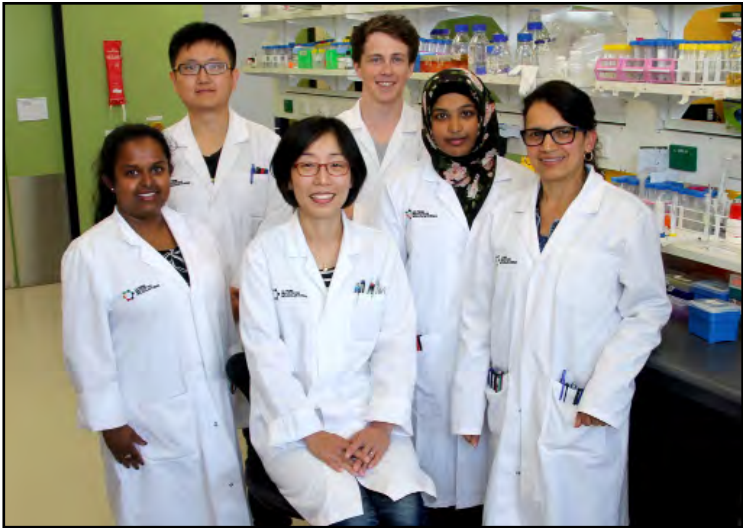
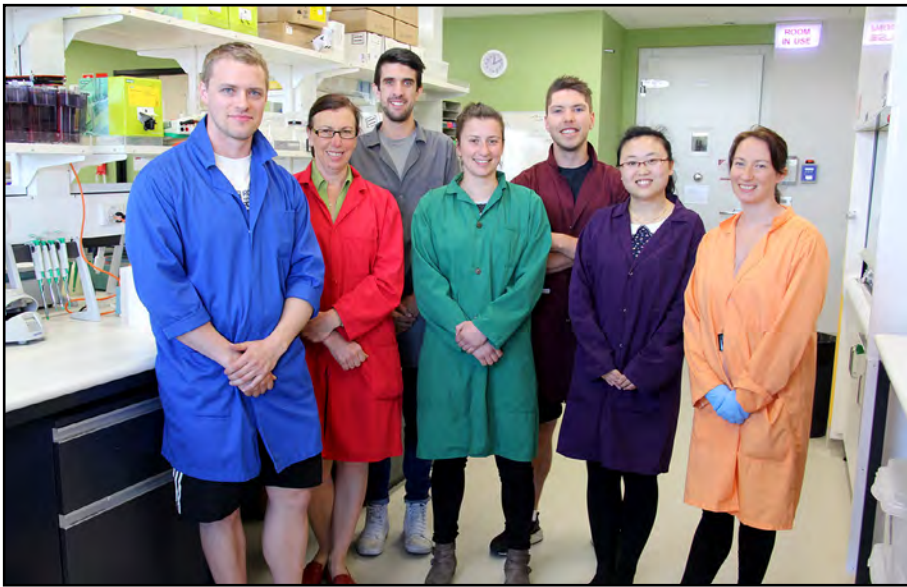
Bruce Stone and Adrienne Clarke at the launch of the first edition of their book with University Chancellor Nancy Millis, *Chemistry and biology of (1 → 3)- β -glucans*, published by La Trobe University Press (1993).

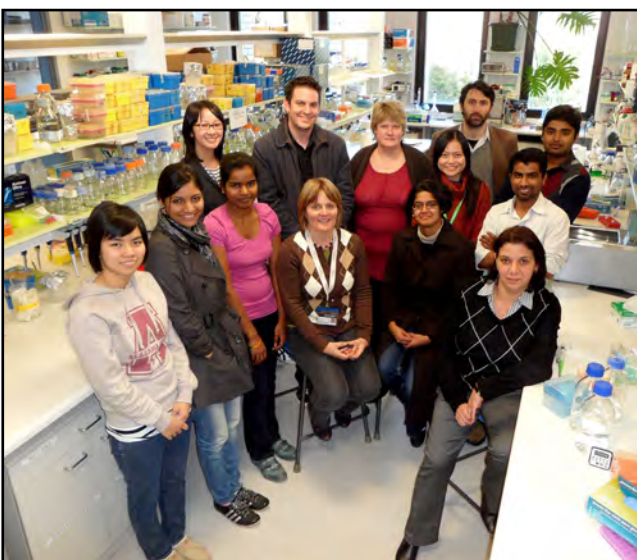
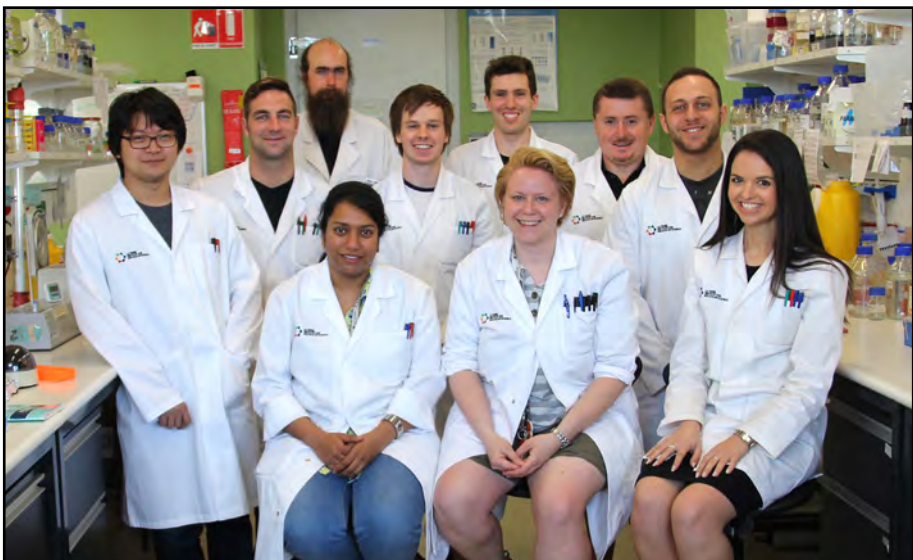
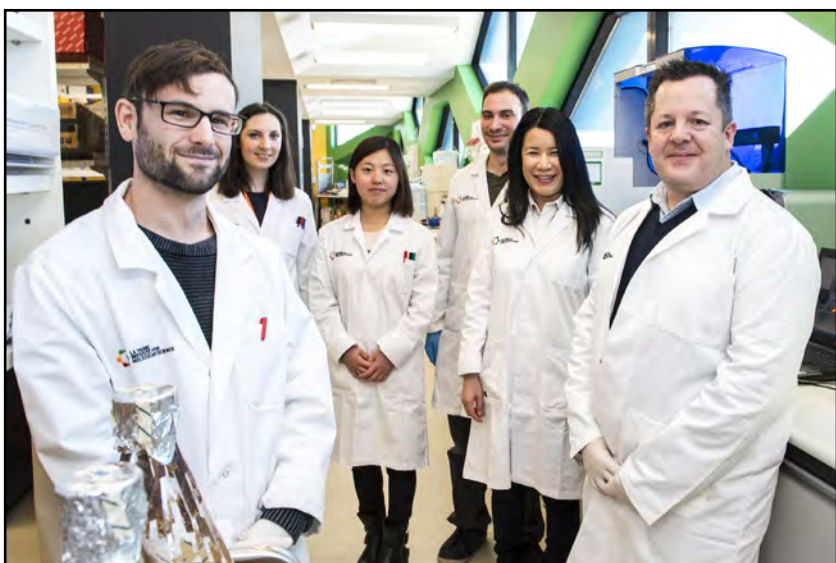
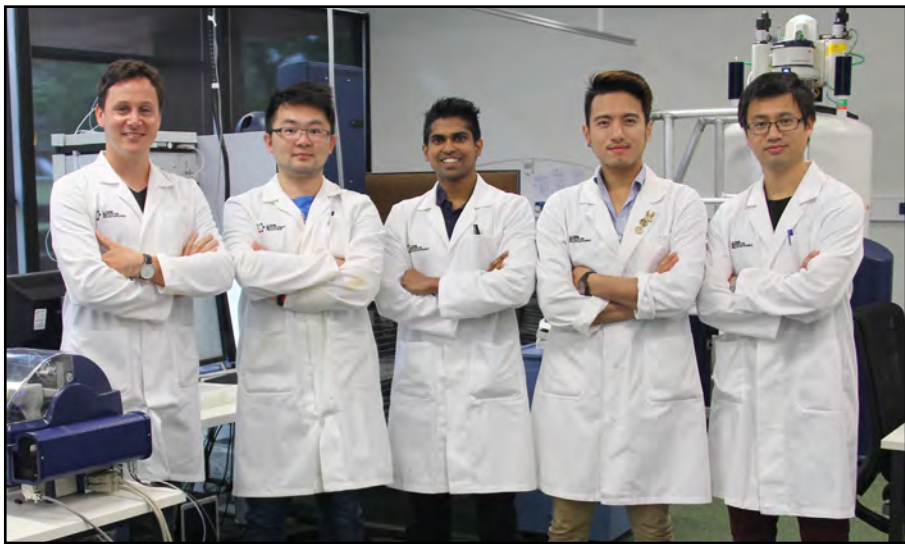
Our lab groups over the years













Members of the mass spectrometry and proteomics facility at LIMS in 2011 (Vita Levina, Fiona Durand, Ira Cook, Laura James and Gert Talbo) and 2017 (Matt Perugini, Pierre Faou, Rachael Downs and Harinda Rajapaksha).



The departmental Christmas parties were always a highlight on the social calendar. This was a time when colleagues, with their families, could share in good cheers. Nick and Joan Hoogenraad were fine hosts who lent their home out for such events over many years.

Social times





Melbourne Cup celebrations, complete with hats, has been a long-standing tradition in the department.



LIMS Lazers

WEHI Whites

Peter Mac Bloods



Inter-research institute football carnival has been contested between LIMS Lazers and WEHI Whites since 2012, before Peter Mac Bloods joined the competition in 2014.

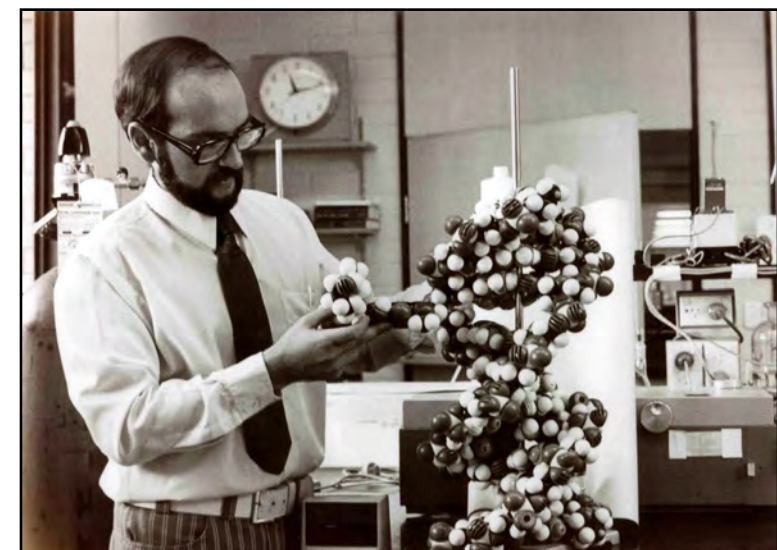
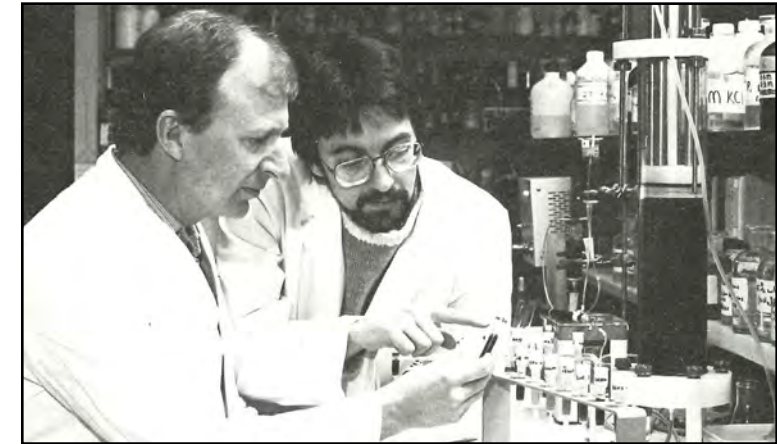


Members of the department having a ball at the LIMS Balls (2011-2016).



The postgraduate students and postdoctoral fellows in the department are active academically and socially. Both cohorts operate societies, the Biochemistry Society (established in the early 90s and renamed the BioGen Society in 2014 with the merge of the Biochemistry department with Genetics) for the postgraduate students, and the LIMS Fellows Society for the postdocs of LIMS and institutional partner, the Olivia Newton-John Cancer Research Institute.

End of an era, start of another



Foundation members of staff retire (from top to bottom): Bob Scopes in 1999, Gideon Polya in 2003 and Don Phillips in 2009. Don was appointed an Emeritus Professor and continues his work with his former student Suzi Cutts.



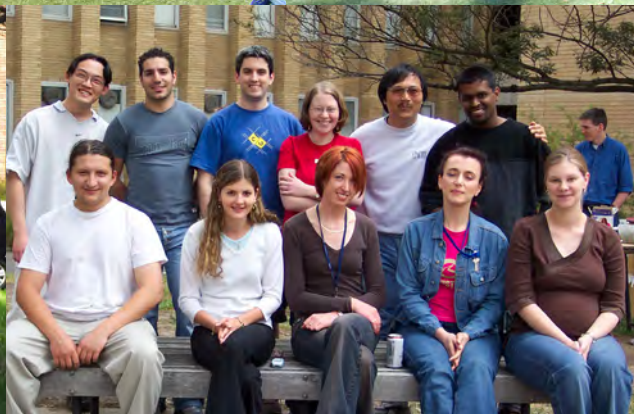
The department host a special morning tea to send off Nick and Joan Hoogenraad upon their retirement in 2014.



Speakers and chairs at Nick Hoogenraad's retirement symposium (2014).



A humorous take on Nick Hoogenraad and various members of the Department in the context of *Harry Potter* and *The Lord of the Rings*, that was delivered in a symposium talk by Mark Hulett.

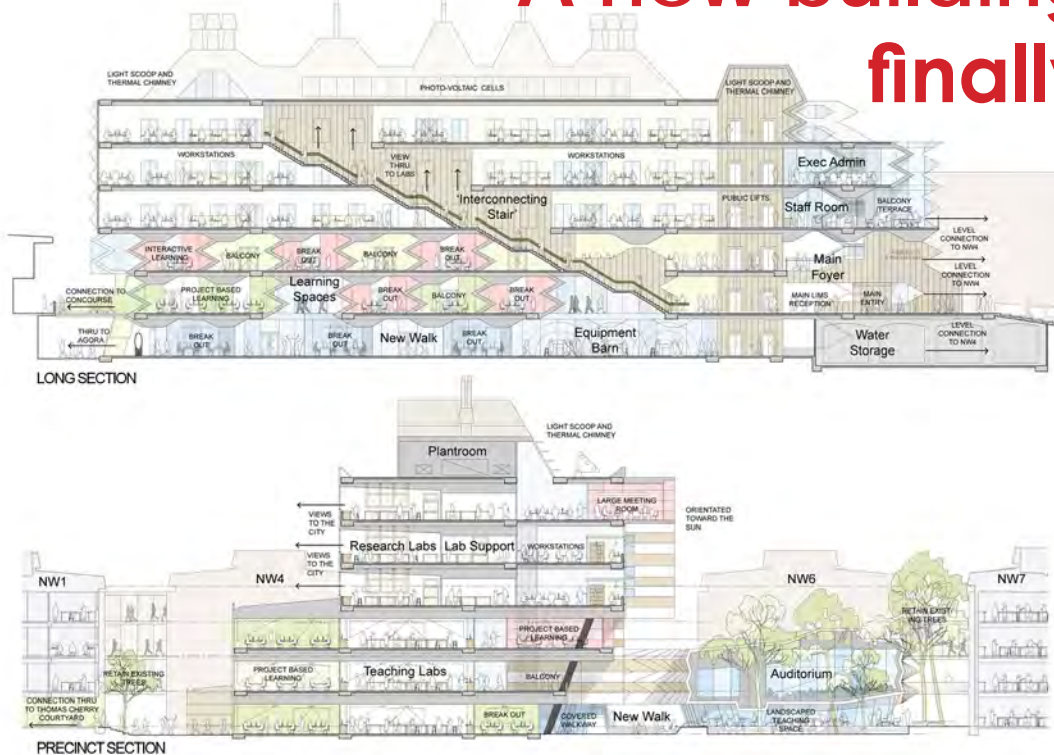


Honours and Masters cohorts over the last two decades.



Hundreds of undergraduate, Honours and PhD students have been trained through the Biochemistry department.

A new building, finally!



Elevation plan of LIMS 1 building by Lyons.

Damien Bonnise (LIMS Project Director) with Brian McGaw (Dean, Faculty of Science, Technology and Engineering), Carey Lyon (Lyons) and Nick Hoogenraad (Head, School of Molecular Sciences) at a LIMS construction briefing in 2010.



The official opening of the LIMS complex on 15 February 2013.



Nick Hoogenraad with his family outside the Nick Hoogenraad Auditorium that was named in his honour during the opening.





Members of the department enjoying an afternoon in the sun outside the LIMS complex (2017).



La Trobe University (Bundoora campus) in 2015