

School of Molecular Sciences

Biochemistry

La Trobe University
Victoria, 3086
Ph: +61(3) 9479 2196
Fax: +61(3) 9479 2467
Email: bioenquiries@latrobe.edu.au

Chemistry

La Trobe University
Victoria, 3086
Ph: +61(3) 9479 2524
Fax: +61(3) 9479 1399
Email: chemistry@latrobe.edu.au

Genetics

La Trobe University
Victoria, 3086
Ph: +61(3) 9479 1861
Fax: +61(3) 9479 2480
Email: genetics@latrobe.edu.au

Pharmacy and Applied Science

La Trobe University Bendigo
PO Box 199
Bendigo, Victoria, 3552
Ph: +61(3) 5444 7351
Fax: +61(3) 5444 7476
Email: pharmacy@latrobe.edu.au



Infinite Possibilities

La Trobe University
Victoria 3086 Australia
latrobe.edu.au/molsci

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School of Molecular Sciences
Annual Report 2007

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Head of School Report

The School of Molecular Sciences has continued to grow in its research activities. Research income has grown from \$6.5 million in 2006 to more than \$8.5 million in 2007.

Of particular note is the award of one of the prestigious NHMRC Australia Fellowships to Federation Fellow, Professor David Vaux. This award is \$4 million over five years, and has contributed to the growth of research staff in the School and postdoctoral fellows now number approximately 40. The cohort of postgraduate students is also very large: 70 full-time and 18 part-time. Overall, the School continues to make a significant contribution to the research effort of the University.

The constant expansion of research, although good for the reputation of the School and University, has placed considerable pressure on space and infrastructure. Although we were fortunate to be able to occupy newly refurbished labs and offices on level 4, Physical Sciences 4, and in the School of Pharmacy and Applied Science, the School at Bundoora remains dispersed over 5 buildings and most of its staff are still trying to carry out research and teach students in old, sub-standard facilities. However, planning for a new building to house research within the School is progressing very well and the eventual better co-localisation of its Bundoora based staff will provide significant benefits. Over the years, the School has done well out of the ARC LIEF funding scheme and other equipment funding schemes such as Ramaciotti Foundation, ANZ Medical Research and Technology Trust and CRC funding. Essentially, all new equipment in the School has been bought using a mixture of external funding and RIBG funding. The availability of the University's RIBG funds to departments continues to be significant in helping us to maintain state of the art infrastructure.

In order to provide the School with greater financial flexibility, we have embarked on a program to substantially increase the number of full-fee MSc students in Biotechnology and Bioinformatics from approximately 25 to 100. A substantial proportion of the full-fee income is being invested in teaching. The School is particularly fortunate to have staff who are very dedicated to teaching at the undergraduate and postgraduate level. Many classes are very large and to improve the educational experience for undergraduate students, we have embarked on a program of developing curriculum for small class teaching to allow us to break up large classes and provide more individualised instruction. To complement outreach programs already in place within the School, we have started a Year 9 Outreach Program with Ivanhoe Grammar School to have a more active engagement with schools in our area. We plan to expand this program in future years to other schools in the area.

Dr Elizabeth Johnson won a Dean's Award for teaching excellence and also won the prestigious teaching medal from the Australian Society for Biochemistry and Molecular Biology.

Dr John Christie and Dr Bruce James retired from the Chemistry Department after many years of service to their discipline and the University.

Dr Hamsa Puthalakath (formerly WEHI), who carries out research in apoptosis and its role in the immune system, joined the Department of Biochemistry with his own research program funded by external grants.



Professor Nick Hoogenraad

Staff

Academic Staff and Post Doctoral Research Staff

Biochemistry

Professor Nick Hoogenraad	Head of School
Professor Don Phillips	Professor
Professor Marilyn Anderson	Professor
Professor Leann Tilley	Professor
Professor David Vaux	Federation Fellow/ Australia Fellow
Dr Mick Foley	Associate Professor/ Reader
Dr Michael Ryan	Associate Professor/ Reader
Dr Elizabeth Johnson	Senior Lecturer
Mr Steve Jones	Lecturer
Dr Peter Cartwright	Lecturer
Dr David Dougan	QEII Fellow
Dr Kaye Truscott	QEII Fellow
Dr Christine Hawkins	RD Wright Fellow
Dr John Silke	RD Wright Fellow
Dr Suzanne Cutts	ARC Fellow
Dr Nick Klonis	ARC Fellow
Dr Matthew McKenzie	Peter Doherty Fellow
Dr Jacqueline Orian	USNMSS Fellow
Dr John Atwell	Principal Fellow
Dr Ann Frazier	Research Fellow
Dr Hamsa Puthalakath	Research Fellow
Dr Christopher Adda	Postdoctoral Fellow
Dr Akinola Adisa	Postdoctoral Fellow
Dr Afsar Ahmad	Postdoctoral Fellow
Dr Jonathan Aldridge	Postdoctoral Fellow
Dr Bernard Callus	Postdoctoral Fellow
Dr Jenny Carmichael	Postdoctoral Fellow
Dr Joanne Casey	Postdoctoral Fellow
Dr Hong Cheng	Postdoctoral Fellow
Dr Andrew Coley	Postdoctoral Fellow
Dr Kerry Dunse	Postdoctoral Fellow
Dr Lluís Duquez	Postdoctoral Fellow
Dr Pierre Faou	Postdoctoral Fellow
Dr Sarah Frankland	Postdoctoral Fellow
Dr Ian Gentle	Postdoctoral Fellow
Dr Eric Hanssen	Postdoctoral Fellow
Dr Tomohisa Horibe	Postdoctoral Fellow
Dr Amelia Johnston	Postdoctoral Fellow
Dr David Laine	Postdoctoral Fellow

Biochemistry cont.

Dr Fung Lay	Postdoctoral Fellow
Dr Jane Mooney	Postdoctoral Fellow
Dr Lonnie Swift	Postdoctoral Fellow
Dr James Vince	Postdoctoral Fellow
Dr Wendy Wei Lynn Wong	Postdoctoral Fellow
Dr Xuecheng Zhang	Postdoctoral Fellow
Em. Professor Bruce Stone	Emeritus Professor
Em. Professor Robin Anders	Emeritus Professor

Chemistry

Professor Robert Brownlee	Head of Department
Dr Andrew Hughes	Associate Professor/ Reader
Dr Bruce James	Associate Professor/ Reader
Dr Graeme Nyberg	Associate Professor/ Reader
Dr John Traeger	Associate Professor/ Reader
Dr John Christie	Senior Lecturer
Dr Jeffery Rowe	Senior Lecturer
Dr Belinda Abbott	Lecturer
Dr Conor Hogan	Lecturer
Dr Ian Potter	Lecturer
Dr David Wilson	Lecturer
Em. Professor Bob Catrall	Emeritus Professor
Em. Professor Jim Morrison	Emeritus Professor
Dr Terry Cardwell	Emeritus Scholar
Dr Maureen Mackay	Emeritus Scholar

Genetics

Dr Neil Murray	Head of Department
Dr Warwick Grant	Associate Professor/ Reader
Dr John Mitchell	Associate Professor/ Reader
Dr Mike Westerman	Associate Professor/ Reader
Dr Graham Flannery	Senior Lecturer
Dr Yvonne Parsons	Senior Lecturer
Dr Chee Kai Chan	Lecturer
Ms Tania Blanksby	Associate Lecturer
Dr Pam Hurst	Associate Lecturer
Ms Jodie Young	Associate Lecturer
Dr Matthew Crook	Postdoctoral fellow
Dr Neville White	Emeritus Scholar
Dr Benjamin Kear	Postdoctoral fellow

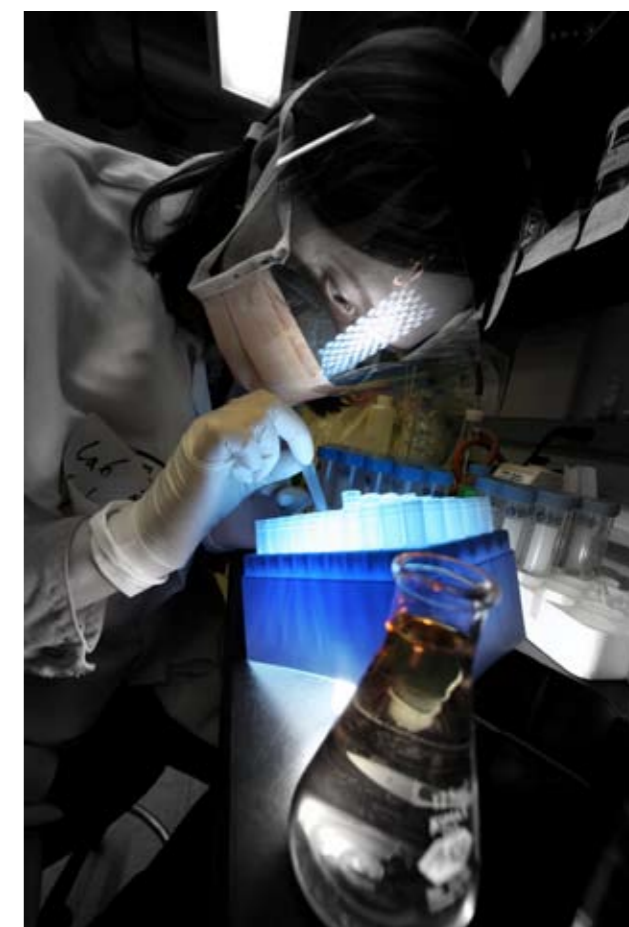


Pharmacy and Applied Science

Professor Kenn Raymond	Head of Department
Professor Robert Seviour	Professor
Dr Meeuwis Boelen	Associate Professor
Dr Jasmin Al-Rawi	Senior Lecturer
Dr Daniel Tillett	Senior Lecturer
Dr Michael Angove	Senior Lecturer
Dr Michelle Gibson	Lecturer
Dr David Morton	Lecturer
Dr Christopher Bradley	Lecturer
Ms Joy Spark	Lecturer
Dr Sabine Wilkins	Lecturer
Dr Ian Swift	Lecturer
Ms Christine Flens	Associate Lecturer
Ms Beth Seviour	Associate Lecturer
Dr Tom Burton	Emeritus Scholar
Dr Bruce Johnson	Emeritus Scholar
Dr Barbara McDougall	Emeritus Scholar
Dr John Wells	Emeritus Scholar

Academic Promotions

Dr Elizabeth Johnson	Biochemistry	Senior Lecturer
Dr Yvonne Parsons	Genetics	Senior Lecturer
Dr David Wilson	Chemistry	Lecturer



Management

School Executive Committee

The School Executive Committee meets every two months.

Members are:

Professor Nick Hoogenraad	Head of School, Head of Biochemistry
Professor Bob Brownlee	Head of Chemistry
Dr Neil Murray	Head of Genetics
Professor Kenn Raymond	Head of Pharmacy and Applied Science
Professor Don Phillips	Biochemistry
Dr Anne Evans	School Manager
Dr Debbie Del Frate	Academic and Personnel Manager
Ms Renee Alford	Finance Manager

School Research and Graduate Studies Committee

The School Research and Graduate Studies Committee meets bi-annually.

Members are:

Professor Leann Tilley	Chair, Biochemistry
Professor Nick Hoogenraad	Head of School, Head of Biochemistry
Dr John Traeger	Chemistry
Dr Daniel Tillet	Pharmacy and Applied Science
Dr Chee Kai Chan	Genetics
Dr Debbie Del Frate	Academic and Personnel Manager

School Teaching and Learning Group

The School Teaching and Learning Group runs an email forum and occasional meetings.

Members are:

Dr Elizabeth Johnson	Convener, Biochemistry
Mr Steve Jones	Biochemistry
Dr Peter Cartwright	Biochemistry
Dr John Silke	Biochemistry
Dr Andrew Hughes	Chemistry
Dr Belinda Abbott	Chemistry
Dr Ian Potter	Chemistry
Dr Conor Hogan	Chemistry
Dr Chee Kai Chan	Genetics
Ms Jodie Young	Genetics
Dr Pam Hurst	Genetics
Ms Tania Blanksby	Genetics
Dr Sabine Wilkens	Pharmacy and Applied Science
Dr Debbie Del Frate	Academic and Personnel Manager

Departmental Staff Meetings

Each department holds regular staff meetings.



Teaching and Learning

Organisation of Teaching

The School of Molecular Sciences co-ordinates 5 undergraduate degree courses. The School delivers 30 units at the Bundoora campus and all units associated with the Pharmacy and Applied Science degrees at the Bendigo campus. Most units are taught by teams of staff with one or two staff responsible for co-ordination of each unit.

Teaching is primarily managed through the disciplines and the departments. Unit co-ordinators manage and develop teaching in individual subjects areas and course co-ordinators are responsible for the management of degree programs. The School Teaching and Learning Group provides a forum for discussion and development of teaching.



Review of Teaching

Each unit is reviewed annually by student evaluation and by staff teaching into the unit. Student evaluations are normally performed using questionnaires prepared by the unit co-ordinator with assistance from the La Trobe University Academic Development Unit. Results from the review of units show that the units taught through the School generally score above average responses to the mandatory Faculty questions for student questionnaires. Progression rates in courses at Bendigo (about 90-95%) are particularly pleasing.

In 2007, La Trobe University introduced a standardised online survey for second semester units. There were some problems with implementation of this system but it is expected to be running smoothly in 2008 and will provide more opportunities for benchmarking between disciplines. The Faculty of Science, Technology and Engineering is also trialling a standardised reporting system which should assist course co-ordinators to plan and monitor student performance across all components of a degree program.

New Teaching Initiatives

In 2007, several major new teaching projects were initiated in the School. Professor Bob Brownlee (Chemistry) was successful in obtaining funding from the Office of the Pro-Vice Chancellor (Academic) for curriculum development for first year Chemistry students. This is a joint project with Dr Tony Gendall (Botany) focussing on improving study skills during the critical transition from secondary school.

Ms Tania Blanksby (Genetics), together with unit co-ordinators from the School of Life Sciences, formed the First Year Biology Teaching and Learning Group. The group has been successful in obtaining funding from the Higher Education Equity Support Group (HEESP) to review the first year biology curriculum. This group was also the Faculty of Science, Technology and Engineering representative group contributing to a project on embedding graduate attributes with the Academic Development Unit. It is likely to provide the model for review of graduate attributes across the University.

Dr Peter Cartwright (Biochemistry) was successful in obtaining a grant from La Trobe University's Equity and Access Unit to develop a web site of resources for VCE biology students. The site will be primarily targeted at disadvantaged and rural students.

At Bendigo, School staff participated in a trial of electronic response technology to allow students to register responses to questions during classes. This is an important pilot for the Faculty of Science, Technology and Engineering and more broadly through the University. Other staff in the School of Pharmacy and Applied Science are also developing materials for online teaching.

Negotiations between the University and Masterskill of Malaysia continued during 2007 in an effort to establish the La Trobe Pharmacy course at Masterskill. Dr Chris Bradley and Professor Kenn Raymond made several visits to Malaysia, the course was negotiated, and all teaching materials prepared.



Teaching Workshops, Conferences and Prizes

A number of staff attended national meetings on University Teaching and Learning. Ms Tania Blanksby presented a paper at the Uniserve conference at the University of New South Wales in September and has been invited to chair a session in 2009. Dr Liz Johnson gave a presentation on teaching generic skills in biochemistry at the Australian Biochemistry and Molecular Biology Society (ASBMB) annual meeting, and led a workshop at the ASBMB Heads of Department meeting in December. At La Trobe University, staff from Biochemistry and Genetics attended and contributed to the Faculty of Science, Technology and Engineering workshop on writing skills co-ordinated by the Faculty Language and Academic Skills unit in November 2007.

In September, Dr Liz Johnson was awarded the Invitrogen Education Award by the Australian Society for Biochemistry and Molecular Biology and in December was awarded the Vice-Chancellor's Award for Teaching at La Trobe University.

Dr Elizabeth Johnson

Convenor, School Teaching and Learning Group

Students - Undergraduate

Undergraduate Units and Enrolments

Department	Enrolment
Biochemistry	
BCH2BMA	203
BCH2BMB	188
BCH31BMB	76
BCH32MCB	97
MED2IMM	29
MED3MCG	43
MED3NIC	38
BCH40HON	20
BNF3SEQ	15
MED4HNB	2

Department	Enrolment
Chemistry	
CHE1BAS	256
CHE1GEN	355
CHE1APL	451
CHE2CWQ	18
CHE2DEV	63
CHE2FND	82
CHE2NAN	11
CHE2RWD	10
ENV2AIR	not taught
CHE3ADA	45
CHE3SPA	19
CHE3EAA	8
CHE3EAB	2
CHE3LAP	9
CHE3ADB	43
CHE3SPB	13
ENV3SOZ	11
CHE3CLP	not taught
CHE4HNB	9
CHE2MEC	18



Department	Enrolment
Genetics	
BIO1GEN	535
CBE21C	40
CBE3AC	25
GEN2HMG	171
GEN2EEG	149
GEN3HMG	63
GEN3EEG	56
GEN4HNB	7

Department	Enrolment
Pharmacy and Applied Science	
BIO1CO	80
BIO2BMO	23
BIO2CES	31
PHA2PGA	50
BIO2ECO	30
BIO2IMB	89
BIO3OAE	13
BIO3CBC	16
BIO3CBH	45
BIO3MBT	19
CHE1C1A	79
CHE2ENV	16
CHE2PHC	66
CHE3CP	14
CHE3MCB	57
PHA11P	57
PHA2PTA	59
PHA3PGC	46
PHA3PPL	45
PHA4CM	42
PHA4HPA	8
PHA4PBT	36
PHA4PCA	45
PHA4PM	49
SCI2MI	17
SCI3MI	19
BIO3ABT	18
CHE2AQC	13
BIO2BPC	51



BIO3BMB	19
CHE2ENA	9
CHE3ENA	10
CHE1C1B	68
BIO3CHI	11
PHA3APP	44
SCI2FN	18
BIO2IAI	29
BIO2IMM	21
CHE2MCA	70
BIO2MES	17
BIO1OOS	47
BIO2OOS	33
PHA4PPM	43
PHA4PCB	44
PHA3PTB	53
PHA2PGB	53
PHA3PGD40	
PHA4HPB	8
PHA1PPA	57
PHA4PAC	44
PHA2PPB	53
PHA4PP	35
BIO2PE	11
CHE3PW	27
SCI3PRJ	18
SCI4SHA	1
SCI4SHB	2



School Prizes – Undergraduate

Biochemistry

Second Year Biochemistry Prize –Nhu Thuy

Awarded to the student who achieves the highest average mark in the two second year level units, Proteins, Enzymes and Metabolism and Cellular Regulation and Gene Expression.

Bruce Stone Third Year Biochemistry Prize – Tanja Schlosser

Awarded to the student who achieves the highest average mark in the third year level units, Biological macromolecules and Molecular Biology and Molecular Cell Biology.

Honours Prize – David Stroud

Awarded to the student who achieves the highest overall mark for thesis and coursework.

CSL Award for Medical Science – Elizabeth Valente

Awarded each year to the top student in Medical Science.

Chemistry

Professor Jim Morrison Prize for First Year Chemistry – Adam Kaucki

Awarded to the top student in first year Chemistry.

Trevor Broxton Prize for Second Year Chemistry – Nhu Thuy

Awarded to the top student in second year Chemistry.

Michael Grant Prize for Third Year Chemistry – Stacey Abbott and Sarah Laird

Awarded to the top student in third year Chemistry.

Max O'Connor Prize for Honours Year Chemistry – David Leaver

Awarded to the top student in Honours in Chemistry.

Genetics

First Year Genetics Prize – Luke Formosa

Awarded to the student who achieves the highest average mark in the first year unit Genetics, Human Biology and Evolution.

Third Year Genetics Prize – Rachel Hutchens

Awarded to the student who achieves the highest average mark in the third year level units Human and Molecular Genetics and Ecological and Evolutionary Genetics.

Pharmacy and Applied Science

David Nolte Pharmacy Oral Case History Award – Ebony Gallagher

Awarded to a fourth year student enrolled in the Bachelor of Pharmacy at Bendigo, who presents the best oral case history from first semester placements.

David Nolte Pharmacy Third Year Improvement Award – Stephanie Ericksen

Awarded to the most improved student in third year Pharmacy.

Kevin de Vries Pharmaceutical Care Award - Emma Austin

Awarded to the student with the highest average mark in the fourth year units Pharmaceutical Care A and Pharmaceutical Care B.

PDL First Year Pharmacy Award – Janelle Woodfine

Awarded to the student completing his/her first year with the highest average marks in the professional pharmacy units as defined by the course co-ordinator.

PDL Second Year Pharmacy Award – Tenay Rankin

Awarded to the student completing his/her second year with the highest average marks in the professional pharmacy units as defined by the course co-ordinator.

PDL Third Year Dispensing Award – Sarah Georgiardi

Awarded to the student with the highest average mark in the dispensing and calculation assessments included in the third year unit Pharmaceutics B.

PDL Third Year Pharmacy Legislation Award – Hannah Boyd

Awarded to the student with the highest average mark in the pharmacy law component of the third year unit, Practice and Legislation.

PDL Fourth Year Pharmacy Practice and Management Award – Emma Austin

Awarded to the student at the Bendigo campus with the highest mark in fourth year Pharmacy Practice and Management.

Pharmacy Guild of Australia Prize – Ebony Gallagher

Awarded to the student with the highest aggregate mark across all four years of the Bachelor of Pharmacy.

Pharmaceutical Society Gold Medal – Scott Bell

Awarded to the most outstanding honours student in the final year of the Bachelor of Pharmacy.

SHPA Clinical Pharmacy and Pharmacoepidemiological Research – Kypros Spiros

Awarded to the student with the highest mark in the third year unit, Clinical Pharmacy and Pharmacoepidemiological Research.

SHPA Pharmacy Practice and Advanced Counselling – Scott Bell

Awarded to the student with the highest mark in the fourth year unit, Pharmacy Practice and Advanced Counselling.

Therapeutic Guidelines second year Pharmacy Improvement Award – Madeline Weller/Breshna Wardak

Awarded to the most improved student in second year Bachelor of Pharmacy.

Australian Society for Microbiology Bendigo Group (book prize) – second year Sarah Stevenson, third year Lachlan Speirs

Awarded to the most outstanding microbiology students in the second and third year level of the Bachelor of Applied Science degree at the Bendigo campus.

Intervet Scholarship – Sarah Stevenson

Awarded to a student who is in the final year of the Bachelor of Applied Science course at Bendigo and who is undertaking major studies in biotechnology/microbiology. Awarded on the basis of academic achievement in second year biochemistry and microbiology units.

T.A. McLelland Memorial Award – Matthew Lawrance

Awarded to a student undertaking a chemistry major at the Bendigo campus with the highest average marks for second year chemistry units.

Science Staff Award – Simon Elvins

Awarded to the first year student with the highest average mark who is continuing in the Bachelor Science/Applied Science at the Bendigo campus.

Students – Postgraduate

Enrolment – Higher Degrees (Research)

Department	Full time	Part time
Biochemistry	40	2
Chemistry	15	3
Genetics	9	9
Pharmacy	6	4

Scholarships/Stipends

Department	LTUPRS/ Departmental
Biochemistry	34
Chemistry	7
Genetics	4

Completion of Higher Degrees (Research)

Degree	Number awarded
Masters	1
PhD	17

Achievements

Professor Leann Tilley and Dr Michael Ryan co-ordinated a meeting of the School's postgraduate students in July 2007. Sessions involved short talks on postgraduate procedures, career development, and break-out discussion sessions on thesis topics. Two former PhD students, Dr Paul Loria (now Regulatory Affairs Manager, Mayne Pharmaceuticals/ Hospital) and Dr Paul Umina (Lecturer, La Trobe University, CSIRO Research and Extension Office, and Director, CESAR Pty Ltd), also spoke at the meeting.

Biochemistry hosted the Melbourne Protein Group Meeting in July 2007: a one-day symposium that highlights exceptional scientific contributions by local students to the field of protein structure and function. Dr Kaye Truscott (Biochemistry) served as Chair of the organising committee. Approximately 100 students from across Melbourne attended the event. Amanda Gillon (Biochemistry) gave an oral presentation and Michael Baker, Laura Osellame and Brad Lowth (Biochemistry) were awarded poster prizes.

Maria de Pilar Crespo Ortiz (Biochemistry) was awarded a travel grant and made a presentation at the American Society for Tropical Medicine and Hygiene.

Greg Barbante and Ellen Reid (Chemistry) were awarded student poster prizes at the Aurora Conference, September 2007.

Sarah Frankland and Ross Weston (Biochemistry) were awarded student poster prizes at the 2007 Lorne Protein Structure and Function Conference, February 2007.

Karen Harris (Biochemistry) received the Nancy Millis PhD Excellence Prize for the most outstanding PhD thesis from the Faculty of Science, Technology and Engineering for 2006.

Katherine Jackson (Biochemistry) was awarded a writing up scholarship from the Institute for Advanced Studies.

Anna Lister (Genetics) was awarded a research grant by the Holsworth Wildlife Research Endowment.

Master of Biotechnology and Bioinformatics

Dr Peter Cartwright (Biochemistry) was appointed the co-ordinator of the Master of Biotechnology and Bioinformatics course in 2007.

The July intake for the course was 24 students (previous maximum of 15) and as part of the new growth strategy, a second intake in February each year will commence in 2008. It is predicted that this new entry opportunity for students will result in a significant increase of yearly enrolments into the course.

In 2007, there were 2 completions from the Master of Biotechnology and Bioinformatics course. Two students commencing the course in July 2007 received Industry Cadetships to work during the summer months, while 4 students accepted studentships within laboratories in Biochemistry or Genetics.

School Prizes - Postgraduate

Bruce Stone Postgraduate Travel Award – Christopher Verdon (Chemistry), Oliver Montagnat (Chemistry), Christopher Dunning (Biochemistry), Michael Lazarou (Biochemistry), Maria de Pilar Crespo Ortiz (Biochemistry), Ying Fu (Biochemistry), Amanda Gillon (Biochemistry), Monthida Raoarun (Chemistry), Pietro Barilla (Chemistry), Cintia Martinez (Genetics), Carly Tucker (Genetics), Phillip Strack (Biochemistry) and Anna Lister (Genetics).

Funds (up to \$500) to assist postgraduate students to attend national or international conferences at which they are making a presentation.

Research and Training

Grant Income

The School of Molecular Sciences received over \$18 million in income in 2007, including \$8.4m DEST funding, \$786.7K from full fee-paying students, \$508.4K in RIBG, \$2.47m in grants from the ARC (including funding for two Australian Research Fellows, two QEII Fellows and a Federation Fellow), \$1.95m in grants from the NHMRC (including funding for an Australia Fellow, two RD Wright Fellows and a Peter Doherty Fellow), \$273.7K from the US National Institutes of Health, \$195.4K from the US National Multiple Sclerosis Society, \$168.9K from the US Leukaemia & Lymphoma Society, \$843.8K from CRCs, \$648K as a research contract from Hexima Ltd, and over \$1m from other research grants and contracts.

Research Highlights

Australian Institute for Molecular Medicine (AIMM)

Professor Nick Hoogenraad and Professor David Vaux worked on a proposal to establish the Australian Institute for Molecular Medicine (AIMM), an Australian Institute encompassing the extensive research activities of the Biochemistry Department and focussing on innovative research, collaboration, and teamwork.

AIMM has two key missions: taking a leading role in further significant discoveries for the diagnosis and treatment of major diseases, and nurturing the next generation of senior biomedical researchers and laboratory heads.

Expansion plans involve the construction of a cost effective state-of-the art purpose built facility at the University in 2009-2010, dedicated to research in the molecular basis of human disease, including cancer and apoptosis, metabolic diseases and bioenergetics, malarial drug and vaccine development, biotechnology and molecular cell biology.

AIMM will also foster the training of mid-career scientists through the establishment of independent laboratories and collaborative activities with established scientists and those based in industry.

CRC for Biomarker Translation (CRC-BT)

In 2006, the Department of Biochemistry, in association with major Australian research bodies, clinical institutions and international pharmaceutical companies, was successful in obtaining funding for a new \$30m Federal Government medical Co-operative Research Centre (CRC) for Biomarker Translation. The Centre will be headquartered at the La Trobe University Research and Development Park on the main Melbourne campus at Bundoora. Partners include the Mater Medical Research Institute and Clinical Services in Brisbane, the Child

Health Research Institute and Institute of Medical and Veterinary Science in Adelaide, and the Burnet Institute in Prahran. BD Biosciences and Amgen will be commercial partners.

The establishment of the legal and operational framework for the CRC-BT was achieved in 2007. This involved complex negotiations between the partners to establish a Participants Agreement and the Constitution for the company TransBio Ltd which was established to run the CRC-BT. An independent Board for TransBio Ltd, chaired by Mel Bridges, formerly Chair of the Board on Peptech Pty Ltd, was established just before the end of the year, setting up the conditions for the CRC-BT to start its operation in 2008.

With the completion of negotiations, an allocation of \$850,000 towards the purchase of mass spectrometry equipment was made by TransBio. Together with a similar amount from ARC LIEF, the University purchased 4 new mass spectrometers and ancillary equipment including 4 micro and nano Liquid Chromatograms as well as robots to commence the establishment of one of the finest proteomics facilities in Victoria.

The plan is to have all projects in the CRC-BT commenced by the first quarter of 2008 to embark on the discovery of new biomarkers and to develop antibodies to test as therapeutic and diagnostic reagents for the treatment of autoimmune diseases and cancer.

CSIRO Collaboration

CSIRO Molecular and Health Technologies (CHMT) and the School of Molecular Sciences formed a new collaborative venture to strengthen Australian research in molecular science. The initiative focuses on greater collaboration in areas such as biomaterials and regenerative medicine, electro-active materials, biotechnology growth partnerships and medical imaging for early disease detection. It also provides joint access to critical infrastructure and postgraduate scholarships for national and international PhD students, jointly funded and supervised by La Trobe.

The collaboration was launched in March and held its inaugural 'Aurora Symposium' in September, emphasising research into malarial vaccines and diagnostic imaging. It was attended by more than 150 scientists and students.

Centre of Excellence for Coherent X-Ray Science

The Centre of Excellence in Coherent X-Ray Science (CXS) commenced activities in 2006, bringing together leading Australian researchers in the fields of X-ray physics, the design and use of synchrotron radiation sources, and the preparation, manipulation and characterisation of biological samples. Professor Leann Tilley (Biochemistry) is Deputy Director of the Centre and Dr Michael Ryan (Biochemistry) is Head of the Biological Sciences Program.

As part of CXS activities, Dr Michael Ryan's group is investigating the structural and functional basis of proteins involved in the biogenesis of mitochondria. This involves the purification and structural analysis of proteins and their complexes using state-of-the-art techniques. The group also works on undertaking novel image analysis of mitochondrial dynamics using confocal and electron tomographic techniques.

Professor Leann Tilley's group continued working with Physics-based colleagues from La Trobe University, Melbourne University and CSIRO to develop a number of novel imaging techniques. As a test system for cellular imaging, her lab is examining the malaria parasite, *Plasmodium falciparum*.

A major platform for Centre members is the development of coherent diffractive imaging (CDI). This is a method of lensless imaging that can be applied to any individual finite object. Members of the Tilley lab were involved in the development of electron tomographic imaging, X-Ray tomographic imaging and X-Ray diffraction. This research has involved work at a number of synchrotrons, including the Advanced Photon Source in Chicago, the Advanced Light Source in Berkeley and the Australian Synchrotron.

Australian Customs Service Collaboration

Dr John Traeger (Chemistry) continued working on a collaboratively funded project with the Australian Customs Service on the use of Mass Spectrometry in the detection of chemicals being imported into Australia.

Cell Achievement

Professor David Vaux's lab (Biochemistry) received widespread media coverage for collaboration research with the U.S. drug development company Tetralogics on the antitumor activity of a novel drug against an anti-apoptotic protein cIAP1, discovered in the lab.

Vince JE, Wong WW, Khan N, Feltham R, Chau D, Ahmed AU, Benetatos CA, Chunduru SK, Condon SM, McKinlay M, Brink R, Leverkus M, Tergaonkar V, Schneider P, Callus BA, Koentgen F, Vaux DL, Silke J (2007) IAP antagonists target cIAP1 to induce TNFalpha-dependent apoptosis. *Cell*, vol. 131, issue 4, pp 682-693.

The article is one of only 30 primary papers in *Cell* from an Australian lab in the last 20 years.

Conference Highlights

A Fluorescence Imaging Mini-Workshop was held at La Trobe in October 2007. Professor David Finlay (Dean, Faculty of Science, Technology and Engineering) formally opened the Confocal Microscopy Facility followed by tours of the Fluorescence Microscope and Electron Microscope Facilities.

Dr Jasim Al-Rawi (Pharmacy and Applied Science), Synthesis Symposium, Bio 21, Melbourne, Australia, December 2007.

Professor Marilyn Anderson (Biochemistry), plenary lecture, 10th International Union of Biochemistry and Molecular Biology (IUBMB) Conference, Salvador, Brazil, May 2007.

Dr Meeuwis Boelen and Ms Christine Flens (Pharmacy and Applied Science), 7th IBRO World Congress of Neuroscience, Melbourne, Australia, July 2007.

Dr Meeuwis Boelen (Pharmacy and Applied Science), European Association for Clinical Pharmacology and Therapeutics, Amsterdam, Netherlands, September 2007.

Professor Bob Brownlee (Chemistry), Department of Primary Industries, Melbourne, Australia, May 2007.

Professor Bob Brownlee and Dr David Wilson (Chemistry), Science Teachers Association of Victoria, February 2007.

Dr David Dougan (Biochemistry), 7th International Conference on AAA+ Proteins, Cirencester, United Kingdom, September 2007.

Dr Michael Foley (Biochemistry), 4th International Peptide Symposium, Cairns, Queensland, Australia, October 2007.

Dr Michelle Gibson (Pharmacy and Applied Science), Australasian Society of Clinical and Experimental Pharmacologists and Toxicologists Conference, Adelaide, Australia, December 2007.

Dr Christine Hawkins (Biochemistry) served as Chair of "Yeast models for human disease and ageing" session, XXIIIrd International Conference on Yeast Genetics and Molecular Biology, Melbourne, Australia, July 2007.

Dr Andrew Hughes (Chemistry) served on the organising committee for the inaugural Aurora Symposium, hosted by La Trobe University, September 2007.

Dr Elizabeth Johnson (Biochemistry), Education Symposium, ComBio 2007, Sydney, Australia, September 2007.

Dr David Laine (Biochemistry), Trafficking I Eukaryotes Symposium, ComBio 2007, Sydney, Australia, September 2007.

Dr Jacqueline Orian, (Biochemistry) IBRO International Congress of Neuroscience, Melbourne, Australia, July 2007.

Dr Jacqueline Orian, (Biochemistry) Multiple Sclerosis Research Australia meeting on 'Progress in Multiple Sclerosis Research', Melbourne, Australia, November 2007.

Professor Don Phillips (Biochemistry), 12th World Congress on Advances in Oncology, Crete, Greece, October 2007.

Professor Kenn Raymond and Ms Joy Spark (Pharmacy and Applied Science), APSA: Australian Pharmaceutical Society Association Conference, Sydney, Australia, December 2007.

Professor Robert Seviour (Pharmacy and Applied Science), Microbiological Society of Korea Annual Conference, Pyong Cheung, Korea, May 2007.

Professor Robert Seviour (Pharmacy and Applied Science), 14th International Symposium of the Biology of Actinomycetes, Newcastle, United Kingdom, August 2007.

Professor Leann Tilley (Vice President) and Dr Michael Ryan (Program Committee) (Biochemistry) served on the committee of the Lorne Protein Structure and Function Conference, Lorne, Victoria, Australia, February 2007. Dr Kaye Truscott (Biochemistry) served on the Lorne Protein Student Initiatives Committee.

Professor Leann Tilley (Biochemistry) served on the organising committee of the ARC Fluorescence Applications in Biotechnology and Life Sciences workshop, Bio21 Institute, Melbourne, Australia, February 2007.

Professor Leann Tilley (Biochemistry), Trafficking in Disease Symposium, ComBio 2007, Sydney, Australia, September 2007.

Professor Leann Tilley, Dr Michael Ryan and Ms Emma Duglas (Biochemistry) served on the organising committee of the ARC Centre of Excellence for Coherent X-Ray Science workshop, "Facilitating X-Ray Biophotonics - Physicists and Biologists Working Together," Bio21 Institute, Melbourne, Australia, April 2007.

Professor David Vaux (Biochemistry), 1st World Conference on Scientific Integrity, Lisbon, Portugal, September 2007.

Awards and Achievements

Ms Tania Blanksby (Genetics) was awarded a commendation from the Dean for excellence in teaching.

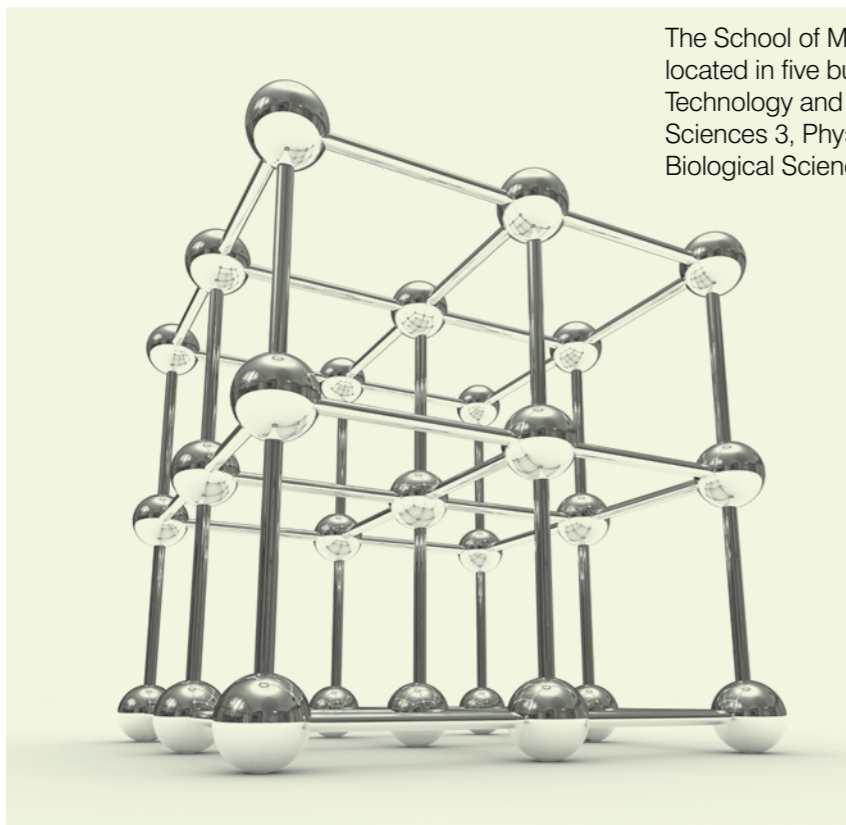
Dr Chee Kai Chan (Genetics) was awarded the 2007 Faculty Citation Award for contribution to Teaching and Learning.

Dr Elizabeth Johnson (Biochemistry) was awarded a prestigious Invitrogen Education Award from the Australian Society for Biochemistry and Molecular Biology. The Invitrogen Education Award is awarded annually to a biochemist or molecular biologist in recognition of outstanding contributions to education in biochemistry or molecular biology in Australia, with a special focus on innovation and creativity.

Dr Christine Hawkins (Biochemistry) was appointed to the editorial board of *Apoptosis*. She was also appointed as Victorian Representative of the Australian Society for Biochemistry and Molecular Biology (2008-2010).

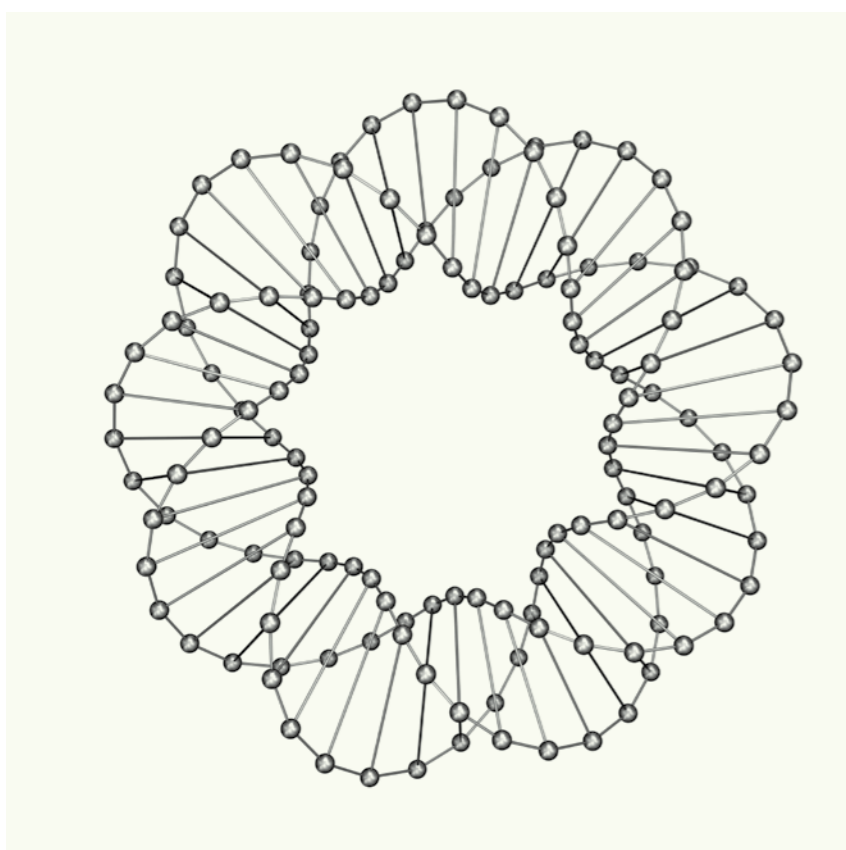
Professor David Vaux (Biochemistry) was one of nine top medical researchers awarded the nation's newest and most prestigious science award – an Australia Fellowship from the National Health and Medical Research Council. This fellowship is a five year award to assist David to expand his research activities, and was designed to ensure that Australia stays at the forefront of world health and medical research.

Refurbishment



The School of Molecular Sciences at Bundoora is located in five buildings within the Faculty of Science, Technology and Engineering precinct, namely Physical Sciences 3, Physical Sciences 4, Biological Sciences 1, Biological Sciences 2 and R.L.Reid Buildings.

The Faculty is continuing a program of refurbishment to enable compliance. After refurbishment, efficient design and use of space will allow consolidation of the School into Physical Sciences 3 and Physical Sciences 4 buildings.



Projects Completed in 2007 Biochemistry

Refurbishment of Level 4, Physical Sciences 4 was completed. Works included new laboratories, offices and cell culture facilities in a similar design to Level 3. Total cost of the project was \$2.5 million, including a new roof.

Refurbishment of rooms on Level 1, Physical Sciences 3 to house Mass Spectrometers and other equipment associated with the CRC-BT and LIEF grant was completed.

Pharmacy and Applied Science

The ground floor of the Applied Science I building was refurbished and opened in 2007. The refurbishment included the building of 3 new research laboratories to accommodate research in Medicinal chemistry, microbiology, genetics, cell biology and physiology.

Projects in Planning and/or Design

Draft plans for refurbishment of Levels 1 and 2, Physical Sciences 4 have been made.

Regional and Community Engagement



School Outreach Programs

Ivanhoe Grammar Year 9 Program

Dr Peter Cartwright (Biochemistry) worked with staff across the University to co-ordinate an innovative program for secondary school students in partnership with Ivanhoe Grammar School. Year 9 students spend one day each week at the Bundoora campus working on projects using University resources supervised by Ivanhoe Grammar teaching staff. Academic staff from all faculties act as a resource for the students to answer questions about their area of expertise.

Chemistry Outreach

Dr David Wilson co-ordinated the Year 11 and Year 12 Chemistry program, which supports units in the VCE Chemistry curriculum. This program has created a long-term relationship with many secondary schools. Chemistry also contributed to the Siemens Science Experience in November.

Pharmacy and Applied Science Outreach

In Pharmacy and Applied Science, several staff were involved in school visits, bringing secondary students to the campus for activities such as VCE science demonstrations and lectures; advertising, and demonstrating the range of research projects and activities that occur within the School.

Genetics Outreach

Dr Chee Kai Chan participated in the "Scientists in Schools Program" at Waverley Christian College. As part of the ASISTM (Australian School Innovation in Science, Technology and Mathematics) program: "Emerging Sciences with Middle Years Students," Dr Chan also conducted professional development workshops for teachers from Balwyn Primary, Balwyn Secondary and Balwyn High School, and organized and implemented a school based biotechnology workshop and school project for students.

Ms Tania Blanksby co-ordinated outreach sessions on gel electrophoresis for VCE Biology students at Greensborough Secondary College and Year 10 students at Northcote High School. A session at Northcote High School was filmed by DET and sent out as a DVD to all schools as an example of innovative activities that can be done in schools. Ms Blanksby also co-ordinated the biology session as part of the Discovery Day offered to Year 10 and 11 students by the Faculty where both students and their parents extracted DNA from strawberries.

Other Achievements

Dr Meeuwis Boelen (Pharmacy and Applied Science) served as Ministerial Appointment on the Chinese Medicine Registration Board, Victoria.

Dr Meeuwis Boelen (Pharmacy and Applied Science) served as Ministerial Appointment on the Board of the Rochester and Elmore District Health Services, and has been elected Treasurer.

Professor Bob Brownlee (Chemistry) presented a workshop with Rohan Griffiths, "Use of Molecular Graphics in Teaching New Chemistry" at the STAV ICT Conference at Northcote High School, August 2007.

Dr Jacqueline Orian (Biochemistry) hosted a visit to La Trobe University by the Multiple Sclerosis Society Ambassadors' Programme, for past and current LTU laboratories funded by Multiple Sclerosis Research Australia.

Professor Don Phillips (Biochemistry) was appointed to the Medical and Scientific Committee of The Cancer Council Victoria.

Dr Sabine Wilkens (Pharmacy and Applied Science) served as editor of the regional Field Naturalists publication The Whirrakee.

Professor David Vaux (Biochemistry) participated on the panel of the Kids Questions Forum at Melbourne Museum during National Science Week.

Publications

Publications are listed in alphabetical order according to the DEST primary author categorisation requirements.

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