

imb

Institute for Molecular Bioscience

ANNUAL REPORT 2002

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Kellie Broderick, Executive Assistant (on leave)
Sam Cobb, Development Officer
Kim Flanagan, Administrative Assistant (on leave)
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Sam Modini, Team Secretary
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Katherine Nielsen, Manager, Intellectual Property & Business Analyst
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In 2002 IMBcom continued to work with IMB scientists to identify and develop projects with commercial potential. These projects will result in spin-offs, alliances and licensing opportunities with industry partners and underpin the growth of a biotechnology industry in Queensland and Australia.

The past year saw IMBcom dedicated to working with IMB to develop collaborations with a number of partners in industry and government.

An alliance between computing giant IBM and IMB has resulted in the development of a joint research program which shares bioinformatics knowledge and tools, and will result in the establishment of a world class bioinformatics hub at the IMB. This collaboration will advance bioinformatic research, aimed at harnessing technology to create more effective treatments for disease.

A Memorandum of Understanding has also been signed between



Academica Sinica and the IMB.

The close collaboration between business and science enabled a number of commercial licenses to be established with a range of national and international biotechnology industry leaders.

Additionally two new spin off companies, Cyclagen and Nephrogenix, were incorporated to be further developed during 2003.

An IMBcom initiative saw staff working with IMB scientists on NHMRC Development, ARC Linkage and Biotechnology Innovation Fund (BIF) grant applications. As a result IMB scientists had a 100 percent success rate in round one of the ARC Linkage funding process and established exciting industry collaborations involving natural products and new therapies.

In August 2002 approximately 20 PhD students along with the IMBcom team ventured to the Sunshine Coast on a Biobusiness Retreat for a series of seminars and workshops on intellectual property and business development.



SPIN-OUT COMPANIES

Cyclagen Pty Ltd

Cyclagen was established to exploit the potential of gene technology to create new insecticidal proteins for crop protection. Cyclagen was awarded a Biotechnology Innovation Fund (BIF) grant of \$250,000 in August 2002 and as a result was incorporated in December 2002. Further sources of pre-seed funding are being investigated.

Nephrogenix Pty Ltd

Nephrogenix Pty Ltd was established to commercialise the research of the Renal Regeneration Consortium comprising of researchers from IMB, UQ, Monash University, RMIT and Canberra Hospital. The consortium has obtained considerable funding to exploit recent advances in tissue engineering and growth factors, to develop novel therapeutics for patients with renal disease.

Protagonist Pty Ltd

Protagonist is focused on the discovery of drug candidates for targets previously resistant to small molecule discovery, and on designing and constructing arrays of molecules that sample biologically relevant regions of chemical diversity. Protagonist was awarded its second BIF grant of \$198,000 in August 2002. It is now in the early stages of preparing for a second round of major fund raising.

Nanomics Biosystems Pty Ltd

Nanomics Biosystems has a variety of high throughput screening technologies with applications in genomics, proteomics and combinatorial drug discovery. Nanomics was awarded a BIF grant of \$250,000 in March 2002. A management and technical team has been appointed to advance the technology development program.

Mimetica Pty Ltd

Mimetica is in the business of making molecules using a new technology that mimics the shape and function of biologically important peptides. Mimetica secured \$1 million from Biostart, BIF and a follow-on venture capital investor. Mimetica has appointed a management and technical team to advance the technology development program.

Promics Pty Ltd

Promics creates small molecules that reproduce or mimic secondary structural characteristics of proteins to make therapeutic compounds. It was awarded a BIF grant of \$216,800 in March 2002 and is progressing with development and clinical work on its lead compounds.

In addition IMBcom continued to support other IMB spin-off companies Kalthera and Xenome.



Highlights

2002

Built on the scientific excellence and the unfailing dedication of its staff, IMB research is at the leading edge of the worldwide quest to better understand human and animal biology. This culture of excellence is recognised by awards, discoveries and scientific grants. Following is a snapshot of some of the many IMB highlights during 2002

DISCOVERIES AND RESEARCH

Queensland team vital to genome discoveries

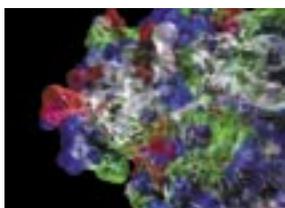
A team of researchers from the IMB led by Professor David Hume, Dr Rohan Teasdale, Dr Sean Grimmond, Dr Tim Ravasi, Mr Al Forest and Ms Christine Wells, played an integral role in the world-first mapping of the functional output of the mouse genome, or 'transcriptome', published in the prestigious science journal *Nature*.

Out muscling cholesterol

A new study by Dr George Muscat proved that muscle tissue plays a vital role in regulating cholesterol levels in the body with implications for diseases like atherosclerosis, cardiovascular disease, obesity, and diabetes.

'Nicotine vaccine' not for teenagers

One of the world's leading bioethics and public policy experts, Professor Wayne Hall cautioned against using a potential 'nicotine vaccine' to prevent smoking in teenagers saying it should only be considered after extensive testing on adult smokers.



"Vector Jelly" by Gerald Hartig.
First place in the 2002 Ångström Art "Expose Your Science" competition.

Queensland researchers leading their fields

The demonstrated research and development excellence of Queensland's IMB is a major driving force behind the State's rapidly expanding biotechnology industry, Professor Peter Andrews told guests at the Queensland Day breakfast.

New discovery may help prevent infections in Cystic Fibrosis

Professor John Mattick's research team has made a significant discovery with implications for the treatment of Cystic Fibrosis (CF). Published in the prestigious US journal *Science*, the scientists from the IMB and the Technical University of Denmark described a possible way of preventing a particular bacterial infection experienced by many CF patients.



John Mattick AO (Co-Director),
Wayne Hall (Director OPPE)
and Peter Andrews (Co-Director)

Human genetics goes to the people

Dr Rick Sturm and PhD student Helene Johanson commenced a genetic study to better understand human pigmentation disorders and improve the quality of life for South Pacific Islanders with albinism.

Cell structure under the microscope

Dr Ben Hankamer, a leading expert in protein structures has been lured to the IMB where he will use state-of-the-art cryo-electron microscopy facilities to continue his work with the potential to develop more efficient drugs.

Smart State welcomes bioinformatics brain

One of the world's foremost experts in genomics and bioinformatics, Professor Mike Waterman, spent quality time with scientists from the IMB mapping out a strategic plan for national biological research as part of his maiden visit to Queensland.

Alternative to heroin for trial

Professor Wayne Hall, a world leader in addiction studies, published a controversial paper in *Medical Journal Australia* calling for a trial using the legal drug hydromorphone in place of heroin.

AWARDS

New Fellow on the block

The election of IMB's Director of Public Policy and Ethics Professor Wayne Hall AM as a Fellow of Academy of the Social Sciences in Australia recognised his world-leading research on addictions, ethics, biotechnology and public policy.

Amgen awards IMB student honours

Academic excellence was recognised when IMB student researcher Ms Emily McGhie was awarded the prestigious Amgen Australia prize for her work on the causes of changes in protein function.

IMB scientist wins national award

IMB's Professor Peter Koopman was awarded the prestigious 2002 Amersham Biosciences Medal ahead of other distinguished Australian researchers. The Medal was awarded by the Australian Society for Biochemistry and Molecular Biology for his outstanding contributions to understanding the genetic processes involved in the development and growth of mammals.



Peter Koopman receiving the
Amersham Biosciences Medal

Student prize winner

IMB PhD student Mr Gabriel Kolle won the Australia New Zealand Society for Cellular and Developmental Biology Keith Dixon Prize in Developmental Biology at COMBIO conference.



IMBer - an honourable fellow

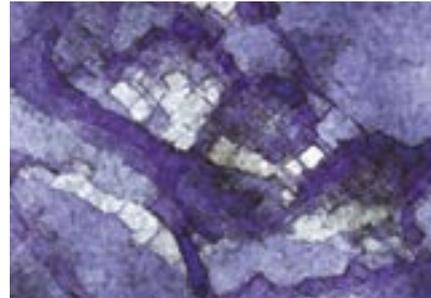
IMB Co-director Professor John Mattick AO was awarded a prestigious Honorary Fellowship of the Royal College of Pathologists of Australasia. This award recognised his research contributions made over the course of his career, and his early identification and unstinting promotion of the far reaching potential that genomic research has for the health of all Australians.

Building project wins Queensland award

The \$105 million UQ/CSIRO Joint Building Project and new home of the IMB which has created new jobs and contributed millions of dollars to local industry was Highly Commended in the 2002 Local Content Awards.

Sustained and outstanding research acknowledged

An outstanding research career investigating potential new drugs in the fight against diseases including cancer and chronic pain has been recognised with the awarding of the Adrien Albert Medal by the Royal Australian Chemical Institute to IMB's Professor Paul Alewood.



"Cellular Monet" by Daniel Sangermani and Darren Brown. Runner-up in the 2002 Ångström Art "Expose Your Science" competition.

GRANTS

Brisbane Foundation to fight the causes of brain tumours

The fight against brain cancer was further boosted with the awarding of the John Trivett Research Fellowship bursary to Dr Tammy Ellis to continue her work in the IMB with UQ's School of Medicine.

Queensland's contribution to fertility

Helping solve human fertility disorders, fighting testicular cancer and controlling feral pests are just some of the benefits the new Centre of Excellence in Biotechnology and Development involving an IMB research team led by Professor Peter Koopman.

Boost for Queensland medical research

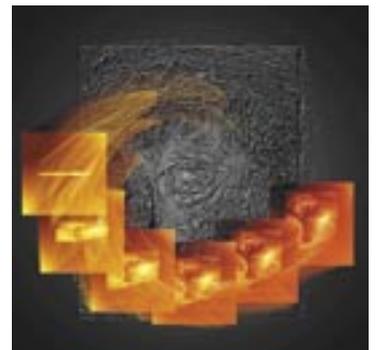
Queensland medical research received a massive boost with Associate Professor Melissa Little's chronic kidney disease research team, forming an integral part of the successful Biotechnology Centre of Excellence in Stem Cells and Tissue Repair.

IMB boosted by funding bonanza

With implications for drug design and development to combat many human ailments, IMB research received a welcome boost of approximately \$3.8 million in the latest round of Australian Research Council (ARC) Grants.

Grants help Australia's health

Professor Peter Koopman and Dr Josephine Bowles head up an IMB project to find and study the genes that control whether an embryo develops as a male or a female, which attracted \$720,000 funding from the National Health and Medical Research Council.



"Confocal Continuum" by John Lock. Runner-up in the 2002 Ångström Art "Expose Your Science" competition.



Left to right: The Hon. Ian Macfarlane, Minister for Industry, Tourism and Resources, Co-Director Peter Andrews, Architect Mark Roehrs and Co-Director John Mattick on site inspecting the building's progress.

Six degrees of biological separation

IMB Computational Biologist Dr Jennifer Hallinan was awarded the prestigious Steinmetz Fellowship by the Santa Fe Institute in the United States for her work on complex networks. These networks are somewhat akin to the social phenomenon 'six degrees of separation', which is used as a model to understand the inner working of cells and assist in the development of drugs with fewer side effects to combat many human diseases.

Science the winner in art competition

IMB swept the pool in the 2002 Ångström Art 'Expose Your Science' competition. First prize was won by Mr Gerald Hartig for his image 'Vector Jelly' while Mr Daniel Sangermani and Darren Brown, and Mr John Lock took out the Runners Up prizes.

Highlights

US awards Australia's kidney research

Australian scientists led by Associate Professor Melissa Little won a multimillion-dollar US grant from the National Institutes for Health, for research into kidney disease that will be used to spearhead new therapies and treatments for kidney failure in the longer term, by capturing the latest developments in tissue engineering and regenerative medicine today.



Head of the NIH grant
Melissa Little

IBM and IMB to focus on bioinformatics research leading to new treatments for disease

International computer giant IBM and IMB announced a \$3 million Shared University Research Grant to advance bioinformatic research aimed at harnessing technology to create more effective treatments for disease.

COMMERCIALISATION

Further funding for biotech spin-off

The latest IMB biotech spin-off company, Mimetica, received a quarter of a million dollar boost to drive the investigation and development of new molecules which have the potential to impact on a wide variety of human diseases.

Grant to boost commercialisation

Development of a new class of pharmaceuticals with applications in the fight against a wide range of human ailments by IMB spin-off company Protagonist, received a further boost with the announcement of a \$198,000 Biotechnology Innovation Fund (BIF) grant by the Federal Minister for Industry Tourism and Resources Ian MacFarlane.

Biotech grant fights insects

Reduced insecticide use and increased crop productivity are just two of the potential benefits that may result from the new biotech venture Cyclagen, which was awarded a \$250,000 BIF grant.

FACILITIES

Genomic speed limit raised by new machines

The Australian Genome Research Facility (AGRF) boosted Australia's leading role in the worldwide genomics revolution with the unveiling of two new DNA sequencing machines by Senator George Brandis.

Brisbane proteomics instrument an Australian first

The first proteinchip instrument in Australia was launched at IMB, giving scientists a powerful new tool in their fight against common human diseases such as cancer, Alzheimer's and diabetes.

CONFERENCES

World first in Brisbane

IMB secured a first to host the prestigious Intelligent Systems in Molecular Biology (ISMB) conference in 2003. This is the first time the conference has been held outside the United States or Europe

Microarray meeting attracting megastars

Leading Australian scientists will drive the international development of the next wave of bioscientific discovery following the IMB-organised Australian Microarray Meeting, which met at Queensland's Couran Cove Resort.



The signing of the Shared University Research grant by representatives of IBM and IMB

Workshopping development

IMB hosted some of Australia's leading scientists as they gathered to workshop the genetic basis of devastating diseases such as cancer and cystic fibrosis at the record Australian Developmental Biology Workshop.

Venomous creatures doing their bit for research

Analysing the venoms of poisonous creatures to develop new drugs and pharmaceuticals is the life-time passion of many of the world's leading scientists who converged on Queensland's Heron Island for the Venoms to Drugs conference coordinated by IMB.