"The community is our lifeline.
People are our inspiration,
our reason for
doing what we do."

PROF. GARRY JENNINGS

BAKER HEART RESEARCH INSTITUTE
ANNUAL REPORT 2003

Mission

Cardiovascular disease is the leading cause of death and disability worldwide and is responsible for over 40% of deaths in Australia each year. The risk factors for cardiovascular disease are highly prevalent in the Australian community with 80% of all adults having one of the following risk factors:

Smoking
Inactivity
High blood pressure
Being overweight
Diabetes
Depression
Social isolation
High Cholesterol

At the Baker, our mission is to reduce death and disability from cardiovascular disease. We achieve this through activities ranging from research at the laboratory bench to clinical trials, patient care and education.

The major areas of research at the Baker are:

- **The risk factors and prevention of heart disease and stroke**
- **Coronary disease, heart attack and sudden coronary death**
- **Heart failure**
- **Diabetes and its complications**

The Baker Heart Research Institute is funded from a diverse range of government and private sources. We remain grateful for the continuing support of the corporate sector, trusts, foundations and individual donations.

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About the Baker

Medical research is a complex undertaking, but the fundamental aim of the Baker is simple: to stop people suffering from heart disease, stroke, and other vascular diseases.

Despite massive advances, heart disease is set to become the greatest cause of death and disability in both developed and developing countries. It is certainly Australia's number one health problem, being responsible for 40% of all deaths.

During its 77 years, the Baker has made a significant contribution to the local and international fight against heart disease. Baker scientists are amongst the best in the world in their specialised field.

But that's not enough. They have to be fundraisers as well. The Baker's top people can be working at the laboratory bench as scientists in the morning, and in the hospital as clinicians treating patients that afternoon. Then they must also find time to spend at their desks, preparing grant applications.

The Baker has the most comprehensive heart research program in Australia. Sourcing the vital funding it needs is the shared responsibility of many key people at the Institute, including the scientists.

It's all part of the Baker's total dedication and commitment to help eradicate heart disease this century.

Our Patron – Sir Laurence Muir

Sir Laurence's aim is to enlarge the partnership between the life-saving research at the Baker and the Australian community.

He has been associated with The Baker and The Alfred Hospital since 1970. At the invitation of the late Sir William Philip, he joined The Alfred Board that year and served for the next 10 years on the finance committee with great Alfred personalities like Mac Cuming, George Crowther, John Grimwade, Sir James Officer Brown, 'Tammy' Steel, James Guest, John Habersberger, Jim Gardener, Rod Andrew, Bill Philip (Jnr) and George Sterling.

In 1980 Sir Laurence became a trustee of the Baker, and under John Habersberger's leadership, he became a founding Board Member when the state government legislated to establish the Baker in its present form. He succeeded John Habersberger as Chairman and eventually handed over to John Moir AM, after which he became patron of the Baker Heart Research Institute.

Sir Laurence has enjoyed a successful career in business. After retirement from Ian Potter & Co in 1980, he served on many boards and supported numerous worthy community activities.

These include:

- The Anti-Cancer Council, now Cancer Council of Victoria, Appeals Committee (1970-1990)
- Microsurgery Research Institute (Patron)
- The Royal Flying Doctor Service

Apart from his active participation in these and many other important organisations, Sir Laurence is also driven by an intense enthusiasm for medical research. He is a passionate and articulate promoter of the Baker's outstanding work in heart disease research.

"I'd like to express that passion and support," Sir Laurence says, "in the form of a quotation, presented as a message from the Baker scientists to the people of this great country of ours."

'Please don't walk behind me
for I may not lead.
Please don't walk in front of me
for I may not follow.
Please walk beside me and
be my friend.'

President's Report

For those who understand the Baker and the nature and purpose of its work, it will come as no surprise to learn that we put our hearts into everything we do. The year just past was no exception. Garry Jennings has settled comfortably and most competently into his role as Director. The scientific output and other operations of the Institute continue to improve and to show the benefits of the greater productivity and efficiencies, which Garry, our COO Erica Hughes, and all the scientific and administrative staff of the Institute have achieved, in recent years.

Part of our huge improvement in administration at the Baker involved a complete and thorough audit of practically every process needed to keep the Institute running. This was an exhaustive task, and one that uncovered a few surprises. During 2003 the Institute discovered, through the internal audit, that it had been a victim of fraud committed by a former employee. All of the relevant stakeholders have been informed. The Institute is taking all reasonable steps to recover the amount defrauded and expects to do so in the future. Civil and criminal proceedings are underway, upon which I am not able to comment further here.

On a much more positive note, it is particularly pleasing to all the Baker family and to the Board that we are turning the corner financially and confidently expect to break-even in 2004. It is a major challenge to us all to make ends meet in an increasingly competitive and resource intensive scientific environment. National Health Medical Research Council (NHMRC) block grants are a thing of the past, but the cost of maintaining and continually improving our science continues to grow. Consequently the Baker and all its scientists are especially grateful to the many donors who give so generously to the Baker, some every year, others only occasionally but all thereby ensuring that our very valuable work will continue for the benefit of the present and succeeding generations.
Without you, the Baker would not exist at all and its major contributions to the health and welfare of all Australians could not continue to be made.

George Smorgon, one of the Baker's most generous benefactors, died on 2 January 2004, aged 82. We extend our deepest sympathy to his family and our ongoing gratitude for his extensive generosity. George was well known to all Melbournians as a philanthropist, business, football and racing identity.

We at the Baker are proud to have a perpetual reminder of the Smorgon family's support in our magnificent "George and Gita Smorgon Atrium". Bathed in the striking primary colours of the Piet Mondrian inspired stained-glass artwork, our four-storey atrium was officially opened and dedicated to George and Gita in October 2001.
At his last official duty, former Director of the Baker, Professor John Funder noted in his speech that the sparkling light in the atrium was a delight "even on a dull day".

Garry Jennings' report contains a valuable and enthusiastic summary of the wide range of the Baker's scientific activities, all directed to cardiovascular health and closely related subjects.
We are especially pleased that in 2003 the Baker's scientists were awarded 10 NHMRC Project Grants, 3 NHMRC Fellowships, 2 Heart Foundation Project Grants and a clinical fellowship.
We achieved a success rate of more than 40% in our NHMRC applications, which is twice the national average, and a tribute to the commitment and skills of the Baker's scientists as measured by the rigorous peer review of the NHMRC granting and promotions committees.

Nevertheless, in this highly competitive scientific environment the Baker can never afford to rest on its laurels and a very substantial number of project grant and fellowship applications are in preparation for 2004. As well, there are a substantial number of national and international grant applications currently in preparation.

A major achievement during 2003 was the opening of the Wynn Department of Metabolic Cardiology. Professor David Kaye was selected from an internationally competitive field to direct this prestigious new Department at the Baker, made

possible by the generous donation of the Atherosclerosis Research Trust through Professor Victor Wynn, doyen of Australian medical researchers resident in the UK. A successful launch and opening of the Wynn Department and the Wynn Domain on the 3rd floor of the Baker building took place in September 2003. We were very pleased to have both the Minister for Innovation, Science and Technology (Hon. John Brumby) and the Minister for Health (Hon. Bronwyn Pike) present at the opening. The speeches of welcome and thanks given at the opening included tributes to Professor Wynn and his family for making the generous grant which has provided the means for the Baker to pursue its research in the field of metabolic cardiology with proper resources and infrastructure under David Kaye's leadership.

David Kaye is a great example of what the Baker can produce. He did a summer scholarship with Garry Jennings in 1981 and came back a decade later to undertake his PhD, supervised by Garry and Murray Esler. Since then David has been continuously at the Baker, apart from 2 years post-doctoral work overseas. David was awarded the 2003 Eric Susman Prize by the Royal Australasian College of Physicians. This is the most prestigious award for an Australasian physician/scientist, and David joins the distinguished company of Professors Paul Nestel, Murray Esler and Mark Cooper as winners of the Susman Prize who are presently at the Baker. You may recall reading during the year about artificial hearts invented in Australia and successfully implanted into a number of heart failure patients by Alfred surgeons. Next we hope to see similar success in clinical trials with mitral valve repair devices developed by a team of Baker physicians and scientists including David Kaye, John Power and Melissa Byrne.

Many other Baker scientists also achieved great things in 2003. As mentioned in the following Director's report we congratulate Murray Esler, Fellow of the Australian Academy of Science; Bronwyn Kingwell, President-Elect of the Australian Society for Medical Research; Peter Little, National President of Diabetes Australia and Merlin Thomas, recipient of the inaugural Paul Korner Medal for outstanding achievement by a post-graduate student at the Baker. A number of the Baker's students also achieved high awards; we particularly congratulate Anna Calkin, Wendy Burns, Olivier Van den Brink, Stephanie DeDios and Julie Nigro for their awards during the year.

It is of course impossible in a short summary like this to congratulate and thank all of the Baker's scientists, administrative and support staff for their unstinting efforts during the year but we do salute them all for their outstanding achievements. I salute especially the Baker's administrative and support staff who do not make the headlines often (we hope!), but whose work is vital to the success of the Institute and its efficient operations. On a personal note, I wish also particularly to thank my fellow Board members who give up so much of their valuable time and contribute generously to the Baker in many tangible and intangible ways. Their work is greatly appreciated by all at the Baker and the wider community we serve. During the year the Baker farewelled a number of scientists and welcomed many others. This is a natural course of events, particularly in the modern era when research grants are portable and research institutes are focusing more and more closely upon their core areas of excellence. This naturally leads to the aggregation of specialist expertise in particular institutes, especially in Melbourne which remains Australia's medical research hub. We welcome this increasing concentration of resources and expect to continue to focus the Baker's activities on key areas of cardiovascular research and closely related fields, such as diabetes which plays such a major role in cardiovascular diseases in Australia and which is rightly seen as a major national health priority.

The Clinical Trials Victoria (CTV) joint-venture under the leadership of Professor Tony Rebuck is about to open for business across the quadrangle from us. It will be a great boost to the Baker to have CTV operating alongside the Centre for Clinical Studies (CCS) under the directorship of Professor Henry Krum. This will provide the Baker and the other Alfred Medical Research Education Precinct (AMREP) participants with unparalleled resources to undertake Phase I clinical trials of drugs and other treatments which are developed on this campus. We expect to benefit greatly from the presence of CTV and CCS on this campus which will demonstrate the tremendous synergies of the AMREP development to the Baker, medical research and the health of all Australians.

Norman O'Bryan
PRESIDENT, BAKER BOARD

Director's Report

This was a watershed year for the Baker as many new initiatives foreshadowed in the 2002 Annual Report took off and many other preoccupations of the past drew to a close.

Some examples of the former were the establishment and first year of activity of the Wynn Department of Metabolic Cardiology. This came about from a happy coincidence of interests. A key intention of the Baker is to respond to the advancing international epidemic of metabolic diseases leading to heart disease, vascular disease and stroke. Metabolic diseases include diabetes and obesity, which is so often associated. A common combination of adverse factors is known as the metabolic syndrome. Here the same person has some or the entire syndrome of abdominal obesity (i.e. a potbelly), high blood triglycerides, low HDL (the 'good' form of cholesterol in the blood), high blood pressure, and sometimes kidney damage. This little known syndrome occurs in about 15% of our population, 50% in some groups, and warrants public attention in the same way as other more fashionable international epidemics like SARS, and other new viruses.

The consequences of the unhindered growth of metabolic syndrome around the world perhaps threatens longevity and quality of life more than anything else on the international horizon.
At the same time Professor Victor Wynn and his fellow trustees of the Atherosclerosis Research Trust of the UK were seeking a home for the Wynn Department of Metabolic Cardiology. Professor Wynn, a distinguished clinical academic working in the UK for most of his career, has been a prominent advocate for the study of metabolic syndrome diseases and their contributions to heart, stroke and vascular disease. He and his trustees wanted a productive and internationally prominent department working in clinical research on metabolic cardiology. This vision is being realised on the 3rd floor of the Institute and adjoining clinical areas, thanks to a substantial grant from the Trust and the lively, energetic efforts of Professor Wynn himself. Professor David Kaye is the founding head and was appointed against a strong international field.

Following along the metabolic cardiology line we look forward to the International Diabetes Institute (IDI) high throughput genomics laboratory coming into the Baker building early in 2004. The synergies with a major cardiovascular institute like the Baker are great.

Another new initiative that has been off and running this year is Clinical Trials Victoria (CTV). Headquartered at the Baker, and established with a start up grant from the Strategic Technology Initiative of the Victorian Government, CTV has been established to allow Victoria to capitalise on the fastest growing area in biotechnology and pharma development at the present time, the conduct of clinical trials. We have outstanding investigators and a platform of excellent basic and clinical science in Australia and CTV will provide support to clinical trialists in the form of regulatory education training, and credentialling. Its founding members are a coalition of the Baker, Monash University and Bayside Health (Centre for Clinical Studies), Cancer Trials Australia, Neurosciences Victoria and Melbourne Health. Our founding CEO, Professor Tony Rebuck, was once Professor of Respiratory Medicine at the University of Toronto and more recently the Asian Pacific Regional Vice President for Medical Affairs for a major pharmaceutical company. I look forward to describing the first year of operations of the flagship activity of the Centre for Clinical Studies, a new 24-bed Phase I Unit (i.e. the first time a drug is administered to human subjects) once operations begin in the second quarter of 2004.

There were many research highlights evident in the publications list that follows later in this report.
The highest impact publication was the report of the major findings of the Australian National Blood Pressure Study 2 (ANBP2) which compared treatment with an ACE inhibitor to a diuretic in hypertensive patients. This

has attracted tens of thousands of hits on the New England Journal of Medicine website and many citations already. The study was conducted by the High Blood Pressure Research Council of Australia and funded by a coalition of industry and government bodies and coordinated from the study centre at the Baker by Chris Reid. The study has already been highly influential in the development of guidelines for the treatment of high blood pressure around the world and will continue to provide useful information in the years to come. Many other studies published this year by individual laboratories in the Baker have also been highly influential in their field.

Sam El-Osta, a newcomer to the Institute, has made a great impression with the application of his skills in epigenetics to various gene studies at the Baker. This is a highly topical and rapidly advancing field which helps explain why and how some genes are turned on or off in certain disease states. The switch that Sam studies which sometimes causes an apparently normal gene to stop functioning properly and cause disease is a minor chemical change called methylation. It is an interesting example of convergence in medical research as Sam brings skills developed in the study of Fragile X Syndrome, a rare genetic form of autism and in cancer research, to highly productive collaborations in the Baker with teams working on heart disease and diabetes.

Ian Smith and his team have our new Clive and Vera Ramaciotti proteomics facility humming. This high throughput facility is suitable for studying many important questions in health and disease as it allows characterisation of each protein produced by a gene. One line of investigation has been to develop new tools to study a newly discovered gene ACE 2. This has very different functions to the ACE gene we knew about and has a bearing on the effects of ACE inhibitor drugs referred to above in describing ANBP2. ACE 2 may have a major role in heart failure amongst other things. In another surprise, again illustrating convergence in medical research, ACE 2 seems to be a hook whereby the SARS virus latches on to the outside of cells in the body and infects them.

Murray Esler, Gavin Lambert, David Kaye and their colleagues showed that a proportion of people with hypertension have very high levels of noradrenaline released from sympathetic nerve endings and that the body clears this noradrenaline inefficiently. With Zyg Krozowski they have been looking for possible malfunctions of a specific transporter gene that is responsible for helping noradrenaline pass back into cells.

Mark Cooper's Diabetic Complications group continues to make new discoveries particularly in the field of advanced glycation. This is a biochemical process involving interactions of proteins, lipids and DNA with glucose leading to irreversible damage to blood vessels, the heart and kidney in diabetes. New therapies directed towards advanced glycation have been tested and shown to be very promising in preclinical studies and are currently being translated to the clinical context at the Baker.

Space does not allow me to describe all the interesting work in the Institute in 2003. At the end of this volume is a list of 251 publications, which have an average impact factor of 4.577. The research cognoscenti will know that this represents quite a substantial body of work appearing in high quality journals.

We congratulate all of our staff who received awards and prizes in the course of the year and many others who made a contribution to the broader community. Notable amongst these were Murray Esler who was elected Fellow of the Australian Academy of Science. As our only Fellow of the Academy Murray is our ranking scientist and this reflects a lifetime of fruitful investigation, particularly of the nervous system in cardiovascular disease. Bronwyn Kingwell was made President-elect of the Australian Society of Medical Research (ASMR). ASMR is our peak industry organisation, the main body providing advocacy in the political and general community for medical research on behalf of scientists. Peter Little was elected President of Diabetes Australia. Diabetes Australia plays a major role in bringing the problem of diabetes to the public attention, providing advocacy and education in the community. Ian Smith has just finished his term as President of the Australian Peptide Society, a successful and highly active scientific society. The Director usually gets a few odd jobs outside and I am President of the High Blood Pressure Research Council of Australia, Chair of the Heart Foundation's Cardiovascular Health Advisory Committee, its peak medical and scientific committee, a member of the National Board of the Heart Foundation and of the National Heart, Stroke and Vascular Health Strategies Group. I am also Chair of the Board of

Management of Clinical Trials Victoria. A number of our staff attained the rank of Professor this year. David Kaye is Professor of Medicine and Frank Rosenfeldt Professor in the Department of Epidemiology and Preventive Medicine and in Surgery of Monash University. Peter Little was made Adjunct Professor in the School of Health Sciences at RMIT.

As with any year in an organisation like ours there were significant comings and goings. Some of these have already been mentioned but a particularly significant new development has been the arrival of three Roche Fellows. This exciting post doctoral program driven by Jaye Chin-Dusting involves a collaboration with F.Hoffman La-Roche in Basel, Switzerland, whereby most of the project work takes place at the Baker but there is the opportunity for the fellows to work at Roche's major research facility in Basel, accessing expertise and facilities. The three projects are in thrombosis, HDL cholesterol metabolism and in diabetes. We were very fortunate to recruit Kevin Woollard from the UK, Urbain Tchoua from Africa and Chris Tikellis from our own Diabetes Complication laboratory to these positions. Other new arrivals include Judy de Haan who is studying a wonderful new transgenic model she developed which enables her to investigate oxidant and antioxidant mechanisms in the vasculature.

Another major endeavour of the year has been in the formulation of a longer-term strategic plan for the Institute. Assistance in doing this has come from many quarters but I should make particular mention of the members of our International Scientific Advisory Board who have visited the Institute and provided constructive critical evaluations of our science. This year they were Professor Ken Chien of the University of California, San Diego, Professor Ralph Bradshaw from the University of California, Irvine and Dr Gianni Gromo, Head of Drug Discovery, F. Hoffman La-Roche. Their input and that of others who provide external validation and assessment is of the utmost importance and value. Colin Johnston is particularly notable in this regard. He has a formal role as Chair of our Grants Committee, ensuring that the peer review grants submitted from the Institute are thoroughly worked up and scrutinised. Daily, however, he mentors and supports many of us in the Institute, drawing on good sense and his experience as a department head and an international research leader.

Doing good science requires good facilities, equipment, very good people and a lot of money. In this regard we are fortunate in having both an outstanding Board and Operations team at the Baker. The Foundation, despite a difficult external environment for fundraising, broke all records under Kristen Boschma and gives us great confidence going forward into the future. The Institute has been highly successful in the external peer review granting awards in recent years but there will be, for the foreseeable future, always a substantial gap between what can be obtained from government and what we need to do to stay at the forefront in international cardiovascular research. For this reason, successful fundraising and commercialisation are imperative to maintaining a competitive edge in science. As scientists we are most grateful to everyone that contributes to this, particularly our staff, volunteers, donors and supporters. Erica Hughes leads the Operations team and can take enormous credit for progress in a very short time. So can Anita Furnell who has done a complete renovation of our financial affairs. There are many other unsung heroes around the Institute and I thank them all. Some of the most important functions in the Institute, looking after our student program, various OH&S roles, running our core facilities, for example, are performed by volunteer committees. Specifically the Animal Ethics Committee chaired by Chris Reid, OH & S Committee chaired by Erica Hughes, Scholarship Committee chaired by Ross Hannan, Equipment Committee chaired by Phillip Kantharidis & Grants Committee chaired by Colin Johnston. I am conscious there are many more who contribute scientific excellence, extra time and hard work to the benefit of the Institute as a whole. I would particularly like to thank our President and Board who have guided us through challenging times with skill, energy and tolerance. We are grateful to all our staff, volunteers, supporters, stakeholders and allies who contribute.

Garry Jennings
DIRECTOR

Collective Excellence

The following Divisional overviews of research clearly show that the strategy of having larger groups to encourage more collaborative work has been successful. Research teams are bigger reflecting the way that modern biological and medical research now needs to be conducted. Each grouping can bring more resources and more sophisticated techniques to bear on their individual research hypothesis, investigations and problems.
This is shown by both the expanded publication list and the new staff that have been attracted to the Baker.

Most medical research involves either studying some aspects of genes or cell biology right through to clinical trials. The genetic studies have been highlighted in the Director's Report and increasingly in cardiological practice devices are becoming more successful and useful. John Power and colleages have been working for some years on a variety of devices both to try and correct irregularities of the heart beat and more recently a simple, non-invasive way to correct leaking valves in the heart which currently have to be corrected by open heart surgery. Many of you will have seen the publicity given to David Kaye and Don Esmore in the print media with their involvement in the development of a new Australian artificial heart. These are just two examples of how the Baker is pursuing translational research in cardiovascular diseases.

This does not mean that the Baker is not still actively pursuing excellent biological research and science.
A number of the groups have had a very successful year studying atherosclerosis from a range of different perspectives. Alex Bobik and his team study vascular biology and have a very interesting collaboration on stem cells with colleagues at the Walter and Eliza Hall Institute. Peter Little has shown that proteoglycans, chains of sugar molecules formed between cells in the walls of arteries could, depending on their length, be important in the development of atherosclerosis. Studies from the laboratory of Dmitri Sviridov have a novel approach to atherosclerosis. Atherosclerosis is the build up of fat and lipids in the vessel wall and there are well known processes that result in lipid passing into the cell. Equally there are processes that take the fat away from vessel walls. Dmitri studies High Density Lipoprotein (HDL) and reverse cholesterol transport, processes that remove fat from the cells and from the vascular wall. This approach offers enormous promise as an alternative form of therapy for atherosclerosis; if it can be understood and if one can accelerate the process for removing cholesterol from the vessels transporting it to the liver where it can be metabolised.

In mid 2002 Professor Mark Cooper's Diabetic Complications group was recruited to further develop research into other factors that may lead to cardiovascular disease. This group has particular interest in diabetes, which is a major cause of premature vascular complications and is a major epidemic. The addition of this strong scientific group to join other Baker research groups focusing on cardiovascular disease has resulted in some exciting collaborations.

Professor Cooper's team continues to make new discoveries particularly in the field of advanced glycation. This is a biochemical process involving interactions of proteins, lipids and DNA with glucose leading to irreversible damage to blood vessels, the heart and kidney in diabetes. New therapies directed towards advanced glycation have been tested and shown to be very promising in preclinical studies and are currently being translated to the clinical context at the Baker.

How, though, can the public judge whether an Institute such as the Baker is performing excellent research and providing value for money? One method has been mentioned in the Director's Report and that is by the quality and quantity of research publications. In 2003 the Baker published over 200 peer-reviewed publications, many in high impact journals. This equates to five to six papers per senior scientific staff. This may not seem a lot but when one realises it takes anywhere from three to six months to prepare a paper, submit it and have it accepted by a journal, in addition to performing the experiments, you can see it really is quite demanding. Another index that the public can judge is by the number

of peer-reviewed grants that an institute attracts. This year the Baker was awarded ten new National Health Medical Research Council (NHMRC) project grants, the most highly competitive grants for research. This was a success rate of 40%, nearly twice the national average success rate of 23%.

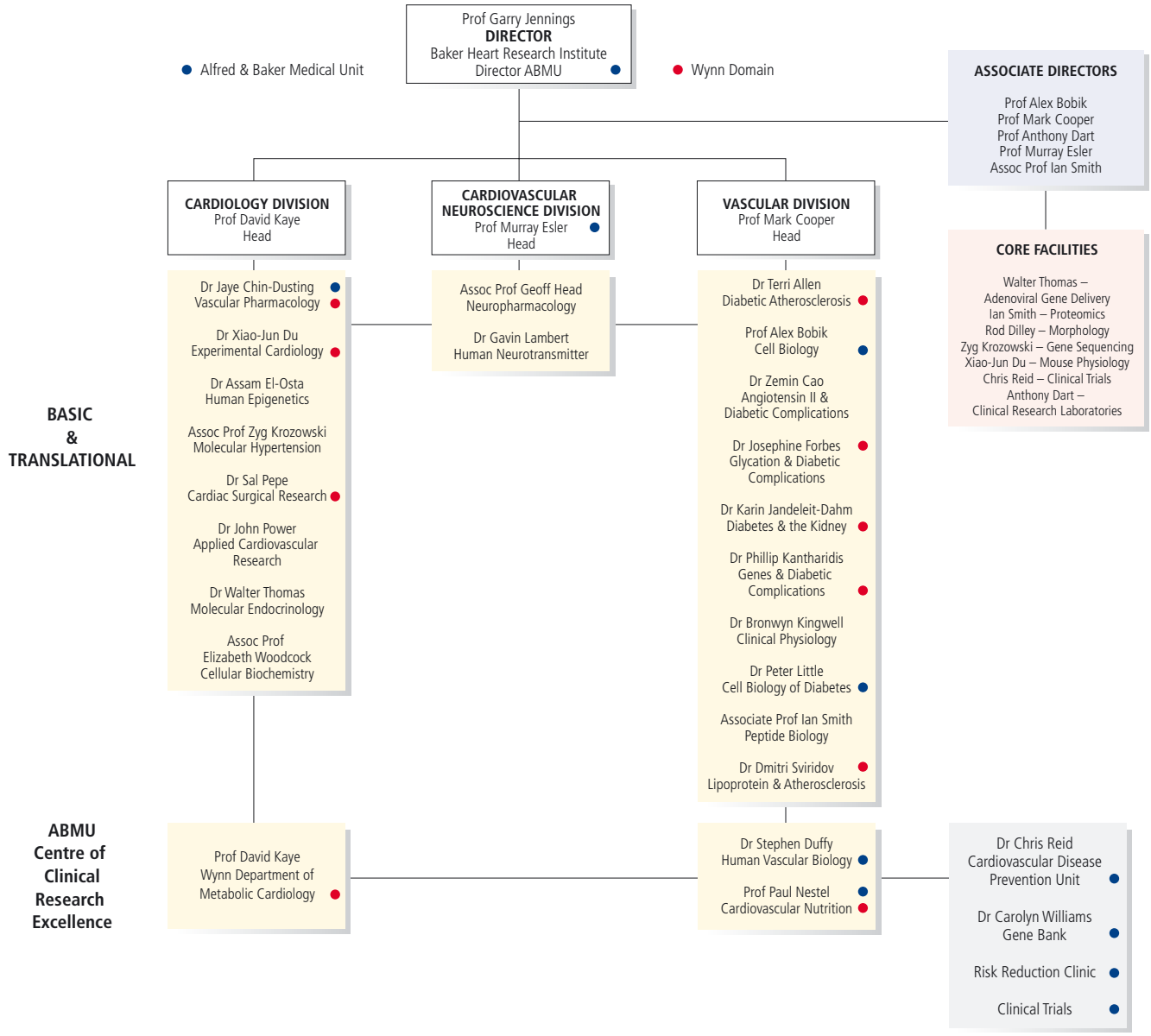
This again reflects that the quality of research at the Baker is very competitive at a national and at an international level. A third way that one can judge whether an institute is being successful is the number and quality of the people that are attracted to come and work at the Institute. Dr Fiona Warner, who has a brilliant academic record, 1st Class Honours and PhD thesis of the year from the University of New South Wales has spent the last two and a half years at Leeds in the UK performing research with an international eminent scientist. In late 2003 she returned to Ian Smith's group on a prestigious NHMRC CJ Martin Fellowship to pursue studies on a newly discovered enzyme important in cardiovascular metabolism of peptides. She was attracted to the Baker as a postdoctoral fellow because of the leadership, Ian Smith's expertise in modern proteomics and the exciting research. As a very keen traveller she knows where the best places are. Many overseas fellows have also chosen to come to the Baker to undertake research. Associate Professor Kazuko Masuo MD, PhD is from Osaka University Graduate School of Medicine. She is already a well-established independent researcher working on obesity and hypertension. She is an international figure in these areas and a physician/scientist who is Board certified in seven clinical specialities. She has come to join the Human Neurotransmitter Research Laboratory headed by Professor Esler, working on the genetic and nutritional causes of obesity, an increasingly important and difficult problem in the world. Interestingly, as a student she was a champion mathematician, top of all of Japan High Schools but decided to enter the medical faculty instead of proceeding with mathematics. She not only brings a delightful personality to the Baker but also added expertise. Another is Dr Markus Lassila, a pharmacist with a PhD who comes from the University of Helsinki in Finland. He chose to come and work with Professor Mark Cooper's group in diabetes, again an increasing problem in the western world and closely linked to obesity. Already, in the 12 months he has been here, he has completed a major study on diabetic atherosclerosis, which has been accepted into a high impact journal. Markus is a keen soccer and tennis player and will add to the sporting prowess of the Baker staff. These examples are quoted to show that the quality of the work is well known and excellent enough to attract international scientists of a high calibre to come and spend some time here at the Institute.

Above all other factors, people are the most important ingredient in the quality of research. That is why the Baker has an important role in educating and training the medical research scientists of the future. This is mostly achieved by postgraduate students enrolling for a PhD. At most Australian universities the PhD is a research degree and students pursue research full time with the aim of submitting a thesis. They are a vital part of the overall intellectual quantum of the Institute and they often bring new and fresh ideas.

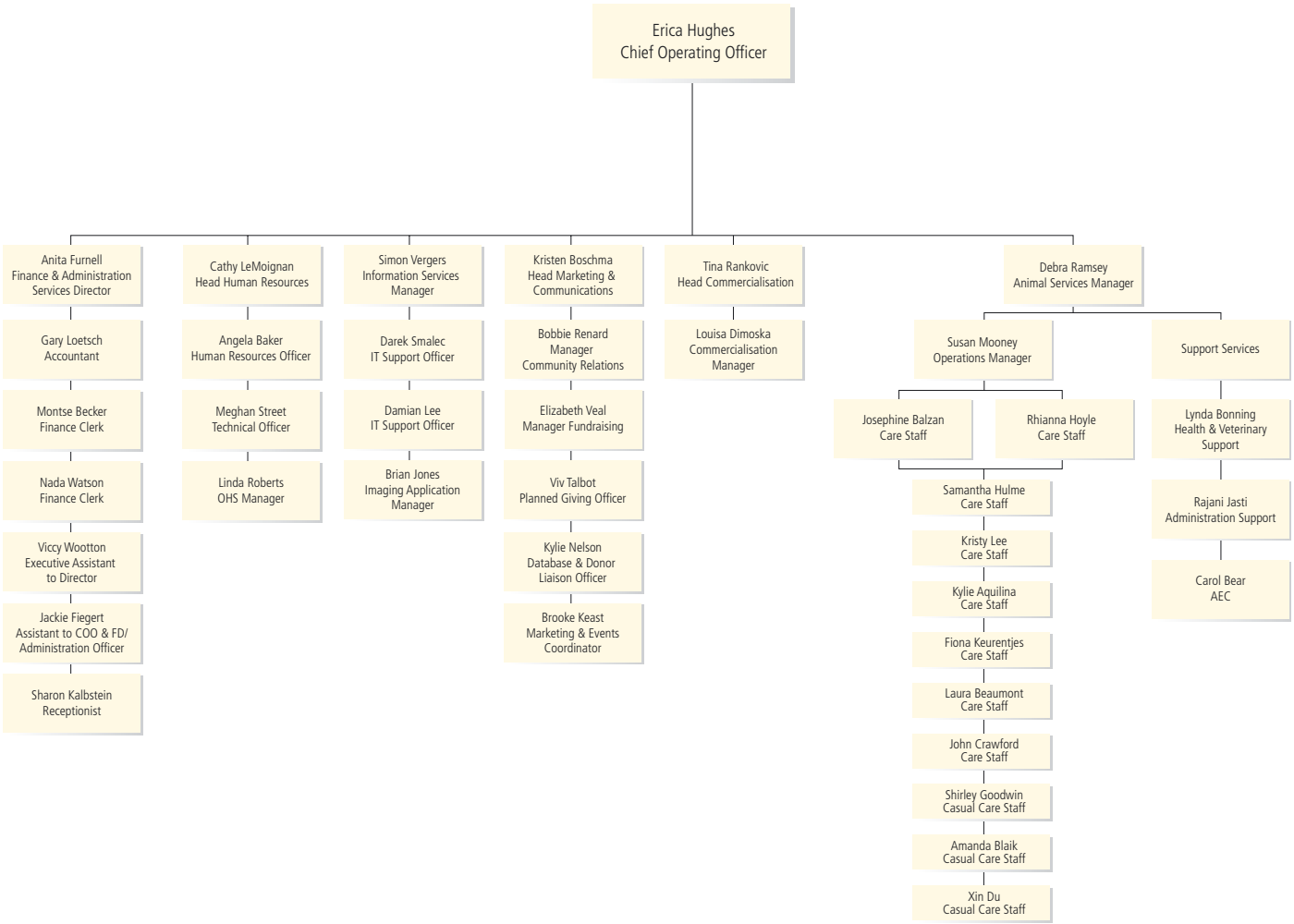
As well as this they are pivotal in helping to develop new techniques. Currently there are 48 postgraduates pursuing PhDs or MDs at the Baker Institute. In 2003, ten successfully completed, submitted and passed their PhDs. There were also 28 undergraduate students undertaking their Honours year researching at the Baker. What happens to these students? Many will go to other institutes or to universities and some will go to industry or overseas. However, two of our previous PhD students have recently returned to the Institute from overseas. Dr Andrew Taylor spent 18 months as a National Heart Foundation scholar at the Franz Volhard Clinic of the Humboldt University in Berlin conducting research with an MRI imaging the heart. He has now returned and successfully established this highly sophisticated technique in the Alfred Baker Medical Unit and the Cardiology Division at the Alfred Hospital. Another MD/PhD student, Dr James Shaw has spent the last two and a half years at Harvard pursuing vascular research and he has also chosen to return to the Baker to work with Professor Tony Dart. These stories highlight the high profile and reputation the Baker has for cardiovascular and translational research.

You will find in the Divisional reports a description of some of the individual research projects but you will find much more detail about the research being conducted at the Baker on the website **www.baker.edu.au**

Scientific Divisions



Operations Group Structure



Baker scientists are driven by a collective strength of purpose to improve people's quality of life. Together they possess a powerful combination of passion and intellect, reflected in the Baker's outstanding work in heart disease research. The following pages provide a rare insight into the hearts and minds of those at the frontline in the continuing battle to eradicate heart disease.



The scientists and clinicians at the Baker are inspired by the potential they have to make an enormous contribution to the health and well-being of the community.






HEARTS & MINDS










Enquiring minds and a fervour to find solutions to unanswered questions, ensure the Baker remains an excellent and productive environment for world class medical research.

"At a very young age I was interested in how things worked, and enjoyed taking them apart to find out."

The Enquiring Mind

"There's a thrill in making a new discovery and seeing something you've started go back into the hospital, and to the patient."

DAVID KAYE

"I see my childhood fascination with the way toys worked and my eventual career as a medical scientist, as a natural progression. In high school I was interested in biology… same sort of thing, wanting to know how the body worked.

The ambition came later. At the end of high school I decided to enrol in medicine.

I knew I had an enquiring mind… that was what drove me. Now I can apply it to science and medicine. I have the best of both worlds. I see patients in the hospital, which is interesting… helping people is one of the great rewards of my work.

Having the link to The Baker means my natural curiosity can be put to use. I can make an observation in a patient I'm seeing, ask myself, why is that?… and then try and do something about it by coming up with a solution to help them.

There are lots of interesting questions to be answered and puzzles to be solved. At the Baker we have the technology and tools required. But we don't always have the funding, of course. Finding the money to maintain our capacity to make vital advances in medical science is an important part of our day-to-day roles as well.

I've always believed that science should deliver something back to the community. Medical science - heart disease research in our case - is about improving the quality of life… and the length of life. That's what my enquiring mind is devoted to."

HEART

Cardiology Division

The Cardiology Division focuses on key issues around the way in which the heart functions under normal and abnormal situations using a very comprehensive range of experimental methods from cells to patients awaiting heart transplant. During this year the Cardiology Division has continued to evolve, growing into a major collaborative group that derives world-class talents from its individual members. Our group has seen a number of outstanding successes, not only in terms of scientific discovery, but also as judged by the award of a number of highly competitive NHMRC research grants.

The principal aim of our group continues very much to be directed at understanding the processes that control the metabolism and growth of the heart and its constituent cells under both normal circumstances and in the setting of major cardiovascular disease states, such as heart failure, arrhythmia and heart attack. To undertake these studies, members of the Division have employed many sophisticated techniques that have spanned the 'bench to bedside' realm of research activity.

Some of the internationally renowned techniques include the microsurgical skills Dr Xiao-Jun Du uses to study transgenic mice, the novel biochemical techniques Dr Sam El Osta uses to study the control of genes, and the facilities Dr John Power has used to study the development of new devices for the treatment of a range of cardiovascular diseases.

During this year, many key findings have been made. Working at the cellular level, studies in the laboratory of Dr Wally Thomas have made a series of important discoveries about how cell receptors communicate to the internal aspects of cells. In a similar manner Drs Ross Hannan and Liz Woodcock have made some very major international contributions on our understanding of how cardiac cells enlarge (hypertrophy). Associate Professor Zyg Krozowski continued to investigate the way in which hormones influence the structure and function of the heart, and published key findings in relation to the function and location of a new metabolic enzyme. Dr Sal Pepe has been investigating the role of a class of chemical compounds, enkephalins (typically thought of in the brain), in relation to heart function and heart failure. At a more 'clinical' level Dr John Power (with David Kaye) has developed a novel treatment for a common valvular problem.

Finally, my own laboratory has undergone a major change since the writing of the last Division report. In February, I commenced as the Wynn Professor of Metabolic Cardiology. Through the very generous support of Professor Victor Wynn and the Atherosclerosis Research Trust (based in the UK) I have been able to substantially expand my laboratory group. This has also been supplemented by the recruitment of Dr Rebecca Ritchie from the Howard Florey Institute. Together the Wynn Department of Metabolic Cardiology is undertaking an extensive program of research directed at understanding the metabolic basis for heart failure and it's antecedent causes.

PROFESSOR
VICTOR WYNN

Wynn
Department of Metabolic Cardiology

For more detail on our research please go to our website at **www.baker.edu.au**

"I like the creative challenge
that's a vital part of medical science...
it has always appealed to me."

A world of ideas

"The scientific method is a way of establishing whether certain things are true, and that's the first step in innovative advances."

MURRAY ESLER

"I remember our family GP as a white-haired, saintly kind of man. At the time I always thought I'd like to do what he was doing. Inevitably, sometime during high school I decided to become a doctor. Then about halfway through my medical course at university I found science appealed to me and I ultimately became both a doctor and a scientist.

My interest in science came from my interest in ideas. Science is part of the world of ideas. From the outside, science can be seen as a purely clinical endeavour, but creativity is a vital part of it.

Here at the Baker I enjoy the creative and intellectual challenges of science, as well as the vitality and life – the human dimension – of clinical medicine in my work as a cardiologist at the Alfred Hospital.

It's the chance to work in both science and medicine that makes The Baker such a stimulating and worthwhile place to work. There's basic research done here that has changed the practise of medicine in a few ways. One field is the medical applications of exercise. Another key advance achieved through the Baker is understanding a condition called heart failure where the heart fails as a pump, which leads to heart attacks.

The Baker is a world renowned institute of heart research, science and medicine. But it's also a world of ideas, and that's what makes it such an exciting, vital, and important place to be part of."

BRAIN

Cardiovascular Neuroscience Division

The brain-heart link is the primary focus of research for this Division, investigated both in humans and in experimental animals. The Division incorporates the Human Neurotransmitter Laboratory, under the leadership of Dr Gavin Lambert and the Neuropharmacology Laboratory, headed by Associate Professor Geoff Head.

In our recent research we have shown that activation of the sympathetic nervous system, an automatic stimulant component of the nervous system, is an important cause of high blood pressure. The Division has taken this story further:

- We have provided unequivocal evidence that in hypertension there is faulty reuptake of noradrenaline, the sympathetic neurotransmitter. This would lead to increasing sympathetic activity and thus higher blood pressure. To understand the reason for this defect we have initiated a genetic analysis of the Noradrenaline Transporter (NET) in hypertensive patients with Institute colleagues, Zyg Krozowsi and Assam El-Osta. The NET is the mechanism by which the transmitter noradrenaline is taken up by nerves and inactivated.
- We have independently confirmed that there is activation of the sympathetic nerves in essential hypertension by directly measuring the sympathetic nerve firing rate using microelectroneurography.
- Using the expertise of the cardiologists in the division we have been able to obtain blood samples from veins specifically draining the brain. We measured chemical messengers and their metabolites in the blood from the brain. This established that the neurons in the brain stem, the most primitive part of the brain, were driving the sympathetic activation in essential hypertension.

Adrenaline is a second neurotransmitter of the sympathetic nervous system and adrenal gland. It is known to be released from sympathetic nerve terminals and the adrenal gland by stress and like noradrenaline is taken back into nerves. We have now unequivocal evidence that adrenaline is released in increased quantities from the heart sympathetic nerves in patients with hypertension. This data strongly supports our hypothesis that chronic mental stress can result in high blood pressure. Our paper on this work provides the most explicit evidence to date that stress causes hypertension, and recently was the cornerstone for such a judgement published in the Government Gazette by the adjudicating Federal Government body, the Specialist Medical Review Council, which has just reviewed this thorny medico-legal matter. In future studies in collaboration with Professor Graeme Jackson of the Brain Research Institute at Austin Health, we will use functional Magnetic Resonance Imaging (MRI) of the brain stem and hypothalamus to further define the part of the brain responsible for high blood pressure.

Depressive illness materially increases heart risk, as recently summarised in the Medical Journal of Australia, in the position paper from an Expert Committee of the National Foundation of which Prof. Esler is a member. The mechanism by which depressive illnesses causes cardiac rhythm abnormalities and heart attacks has not been discovered. The Division will continue to investigate if activation of the cardiac sympathetic nerves in patients with depressive illness is the cause of their high cardiac risk.

In our animal research program we have also been exploring how the brain and sympathetic nervous system contributes to both hypertension and cardiovascular mental stress responses. The excessive blood pressure responsiveness to psychoemotional stressors is a risk factor in the development of cardiovascular disorders, including hypertension and coronary heart disease. To date, remarkably little is known about mechanisms that modulate the cardiovascular susceptibility to emotional stress. The critical neurons appear to be in the hind brain. However, experimental evidence for the importance of the hind brain in cardiovascular reactions to psychoemotional stress is elusive due to the difficulty in accessing this area in conscious, freely behaving animals. We have developed a method for making microinjections into the hind brain, and find that this area is a critical relay station in mediating the blood pressure response to environmental stress.

For more detail on our research please go to our website at **www.baker.edu.au**

"Here at the Baker, every day is different, and full of exciting potential to help people."

Stimulating Diversity

"Scientific research is a fascinating mix of the intellectual and the practical - there's patient care, biology, statistics, education, presentation, administration and travel."

MARK COOPER

"I was always going to be a doctor. A career in medical research wasn't part of my original plan – it just sort of evolved. Through the recommendations of mentors whose opinions I respected, I tried it and liked it. It's an interesting field. The more involved I became the more I enjoyed the work… it just got better and better and I stayed with it.

One of the great appeals of scientific research for me is its enormous diversity. Each day brings new challenges and opportunities to make breakthroughs and progress in treating the causes of heart disease, especially diabetes, which is my special area of interest.

Diabetes causes heart disease – it's the most common cause of death through heart disease. Researching diabetes here at the Baker, in a heart disease environment, increases our chances of making significant advances.

Technologically the Baker is state-of-the-art. It's also a superb new building providing very attractive surroundings in which to work, and to collaborate with some of the finest scientists in the world. It all stimulates the individual intellectual process, and inspires us collectively to continually aim higher in heart disease research.

In medical research you've always got to look up. You keep an eye on what's going on below and around you… but up is where our sights are permanently set. They have to be to achieve what our team is all about… we're trying to cure diabetes and its complications."

VESSELS

The Vascular Division is a diverse group of laboratories with three main subdivisions. All are engaged in the exploration and identification of the causes, processes, effects and new treatments of vascular disease.

The Vascular Biology group undertakes research on atherosclerosis and vascular changes caused by genes, hormones, diet, exercise, ageing, high blood pressure and drugs.
Atherosclerosis is the formation of lipid fatty deposits in the vessel wall. When this occurs in the coronary vessels it leads to heart attacks, when it occurs in the brain it can lead to stroke.
Deposition of cholesterol, the major component of the lipid plaques in the vessel is a result of an imbalance between delivery of cholesterol to the vessels and removal of excess cholesterol. Preventing the formation of cholesterol and therefore delivery of cholesterol to tissues has been the way that the group of drugs known as statins work to successfully lower cholesterol and prevent heart attacks.
The Lipoprotein and Atherosclerosis laboratory is aimed at determining pathways involved in removal of cholesterol from the vessel wall and looking for ways of enhancing its removal. This would provide an alternative to statin therapy or an additional drug to treat atherosclerosis.
Similarly the Cell Biology group are also trying to understand the development of the fatty lesions in blood vessels and the processes responsible for the progression of the lesions to the stage where they rupture and cause heart attack or stroke.
At a clinical level, the Cardiovascular Nutrition group is focussing on investigating nutrition and food related strategies that may contribute to cardiovascular health. Recently they showed, in a large clinical study that plant sterols which are available in foods, were safe and lowered cholesterol. They have also done a unique study in elite athletes which provides strong clues about the mechanisms through which physical activity raises blood high density lipoprotein (good cholesterol) levels.
Also at a clinical level the Experimental and Human Vascular Biology group are looking at the relationship between lipids, the endothelium (vessel lining) and atherosclerosis.

The Clinical Physiology section has two major areas of interest. Diabetes is a major health problem, particularly late onset or Type II Diabetes. It is well known that exercise improves blood glucose control in diabetes and their laboratory has now unravelled the mechanism by which exercise improves glucose control. Understanding this means that we may be able to develop drugs that mimic the action of exercise.
The second area that this laboratory is involved with is the compliance or stiffness of large arteries. As we age our arteries get stiff and it is now known that this is a risk factor for heart disease. In 2002 it was demonstrated for the first time that this stiffness aggravates coronary artery disease leading to heart attacks. They have recently shown that there are certain genetic factors, particularly variations in gene coding for the structural components or building blocks of artery walls that increase the risk of large artery stiffening leading to rises in systolic blood pressure and coronary artery disease.

The third grouping in the division studies the cell biology of diabetes and

its complications. This is headed by Professor Mark Cooper who transferred his large team of researchers from the University of Melbourne to the Baker to expand the program on diabetic complications. With the growing number of obese people and the lack of exercise, Type II diabetes which usually occurs in middle age and is not due to lack of insulin, is an important public health problem throughout the world. However most diabetics, both Type I and Type II, nowadays do not die from the metabolic abnormalities of diabetes but from cardiovascular and importantly atherosclerotic disease. The group has a longstanding international reputation in diabetic nephropathy which leads to kidney failure and over the last year have expanded the potential treatment strategies to slow the progression of diabetic renal disease. This group has also expanded their interests to understanding why diabetes leads to accelerated atherosclerosis and why 70% of people with diabetes die from cardiovascular disease, mainly heart attacks and strokes. In a new model of experimental diabetes associated atherosclerosis, which develops spontaneous fatty streaks and plaques in the vessel, they have identified that specific treatments useful for the kidney are also helpful in retarding atherosclerosis.

The high sugar levels in diabetes leads to specific chemical irreversible reactions between the excess sugar and proteins such as haemoglobin and other structural proteins. This process is called advanced glycation and prevents the ability of the human body to renew these proteins so that they accumulate in many sites causing disruption of normal tissue structure and function. The Glycation and Complications group has shown that these molecules not only cause structural changes but activate many harmful processes in the heart, kidney and blood vessels. The group has recently identified the role of a new treatment which dissolves these abnormal and stocky proteins.

This research into diabetes is part of a program recently renewed by the Juvenile Diabetes Research Foundation International, and the National Health & Medical Research Council of Australia.

An important group in the Vascular Division is the Peptide Biology Laboratory which not only undertakes research but runs the Clive and Vera Ramaciotti proteomics and genomics facility for the Institute. Although the gene and human genome project has received the most publicity and popular press, the importance of genes is that they code for proteins, the structural elements of the body. The major aim of the Peptide Biology Laboratory is to better understand the role of peptides and proteins in the regulation of cardiovascular function. They are especially interested in enzymes (peptidases) that generate or break down peptide substances that act on the heart and blood vessel. Knowing the processes enables one to more specifically design pharmaceutical compounds that will inhibit them and lead to restoring the balance. The group has recently developed and validated a novel platform technology to generate simply and quickly, specific inhibitors of these enzymes.

For more detail on our research please go to our website at **www.baker.edu.au**

ABMU & Centre for Clinical Research Excellence

CENTRE FOR CLINICAL RESEARCH EXCELLENCE AND THE ALFRED BAKER MEDICAL UNIT (ABMU)

The ABMU is a collaborative research unit between the Baker and the Alfred that has been established for over 50 years. The unit provides a unique smooth interface between medical research and clinical research. It is a bridge between "bench top to bed side". This division conducts the preclinical and clinical trials of therapies developed in this and other Baker divisions, as well as those commissioned from outside. The newly formed and funded Centre of Clinical Research Excellence (CCRE) is a clinical research division that operates from within the ABMU. The CCRE also directs the Alfred & Baker Gene Bank and the Risk Reduction Clinic.

The Baker was the first Australian World Heath Organisation Collaborating Centre for Research and Training in Cardiovascular Diseases.

CARDIOVASCULAR DISEASE PREVENTION UNIT

Dr Chris Reid heads the Cardiovascular Disease Prevention Unit (CVDPU).

This highly active centre is engaged in both domestic and international heart disease prevention projects.

The CVDPU also coordinates, conducts and analyses major state wide, national and international clinical trials:

- The ANBP2 (Australian National Blood Pressure) study was a joint venture between the Commonwealth Government, the pharmaceutical industry and the High Blood Pressure Research Council of Australia, which compared two types of treatment for high blood pressure – ACE inhibitors versus diuretics. More than half of the hypertensive patients enrolled in ANBP2 have also taken part in sub-studies, including the importance of left ventricular hypertrophy and ambulatory blood pressure monitoring in the management of hypertension. The study was successfully completed after seven years and the results have recently been published in the prestigious medical publication The New England Journal of Medicine.

- Other large clinical trials conducted or still in progress, coordinated nationally from the Baker include three international studies, OPERA, ON TARGET and OCTAVE.

- The CVDPU has been appointed by the Australian Society of Cardiothoracic Surgeons as a Data Management and Analysis centre for a project to identify key performance indicators for cardiac surgical outcomes.

THE RISK REDUCTION CLINIC

The Risk Reduction Clinic is one way in which our expertise in reducing the risk of heart disease is made directly available to the community. The service is free of charge and is conducted by highly trained clinical nursing and technical staff.

The staff at the Risk Reduction Clinic are involved in a broad range of research studies, including collecting samples for the Alfred & Baker Gene Bank, in addition to the critical role of recruiting subjects for ABMU studies.

Recently, the Clinic has studied the genetic causes of hypertension and audited secondary prevention

measures for heart attack and cardiac surgery patients. Research continues into better methods of defining risk in healthy subjects.

WHO COLLABORATING CENTRE FOR RESEARCH AND TRAINING IN CARDIOVASCULAR DISEASE

The Baker is a World Health Organisation (WHO) Collaborating Centre for Research and Training in Cardiovascular Disease. The appointment by the WHO to the Baker was the first of its kind in Australia. Currently, the Baker has two overseas projects with the WHO, one in Vietnam and one in Mongolia.

The occurrence of heart disease in these and many Asian countries has escalated in the past few years mainly due to the erosion of traditional lifestyles with the increasing pervasion of Western influences. The joint WHO and Baker projects involve assessing the prevalence of heart disease in these countries and providing medical research training. This will enable the provision of better heart disease prevention, treatment and education in these regional countries.

ALFRED & BAKER GENE BANK

The Alfred and Baker Gene Bank is an important research initiative of the Baker Heart Research Institute. The aim of the Gene Bank is to collect samples of blood or tissue in order to study the genetic determinants of cardiovascular disorders. This research may lead to important new discoveries in drug treatment and prevention of heart attack and stroke.

The Gene Bank relies on blood and tissue donations from healthy volunteer subjects in addition to people who have already had a heart attack, stroke or have high blood pressure, high cholesterol or other risk factors for cardiovascular disease, for example a family history of heart disease. Currently over 3500 volunteers have provided samples for the Gene Bank and it is well on the way to becoming an important resource for the discovery of new ways to treat and prevent heart disease.

If you would like further information please call **(03) 9276 2000**.

Baker Internationally

Medical research is an international affair and we consistently measure ourselves against international benchmarks and standards. Information travels around the world very quickly and our scientists are in day-to-day contact with collaborators and competitors, scientific journals and publishers. Nevertheless, attendance at international meetings, visiting laboratories, exchanging scientists and negotiating contracts still demand a physical presence and a fair degree of travel. This year Baker staff members were present and actively participating at a broad range of conferences around the world. Many were asked to give key lectures. These include:

- 11th Indian Society of Hypertension Meeting, India.
- 12th Congress of ASEAN Federation of Endocrinologists Society, Diamicron Symposium, Singapore.
- 13th European Meeting on Hypertension, Italy.
- 13th International Atherosclerosis Symposium, Japan.
- 18th Congress of the International Diabetes Federation, France.
- 19th Scientific Meeting of the International Society of Nephrology, Germany.
- 33rd Annual Meeting of Society for Neuroscience, USA.
- 4th Annual Conference on Atherosclerosis, Thrombosis and Vascular Biology by AHA, USA.
- 4th Superscript International Symposium on Agmatine and Imidazoline Systems, USA.
- 57th Harden Conference on Proteinase Structure and Function, UK.
- 5th Hyonam Kidney Laboratory International Symposium, Korea.
- 63rd Scientific Sessions of the American Diabetes Association (ADA), USA.
- 8th Symposium on Catecholamines and Other Neurotransmitters in Stress, Slovakia.
- American Heart Association Scientific Sessions, USA.
- Annual Meeting of Instituto Mexicanod de Investigaciones Nefrologicas (IMIN), Mexico.
- Annual Meeting of the Japanese Endocrine Society, Japan.
- Annual Scientific Meeting of the American Society of Nephrology, USA.
- City of Hope National Medical Center, Rachmiel Levin Symposium, USA.
- Conference on Genetics and Nutrition, Sardinia.
- European Association for the Study of Diseases (EASD)/ Juvenile Diabetes Research Foundation International (JDRFI) Workshop, UK.
- European Atherosclerosis Society Conference, Salzburg.
- European Diabetic Nephrology Study Group (EDNSG) Plenary Lecture, Denmark.
- European Society of Cardiology Congress, Austria.
- Federation American Society of Experimental Biology meeting, USA.
- Grand Rounds Presentation, South Western University, USA.
- Heart Failure/ISHR-ES 2003, France.
- High Throughput Proteomics in Health and Disease, International conference, Thailand.
- International Congress on Angiotensin Receptor Blockers, Monaco.
- International Life Sciences Conference, Singapore.
- Korean Congress of Cardiology meeting, Korea.
- Molecular Basis of Cardiac Arrhythmias, USA.
- National Institutes of Health (NIH) National Institute of Diabetes, Digestive & Kidney Diseases Symposium, USA.
- Satellite Meeting to the XIIIth International Symposium on Atherosclerosis - Vascular Remodelling in Atherosclerosis and Restenosis, Japan.
- The First International Cardiovascular Congress in North-Western China, China.
- Tohoku University Symposium, Japan.
- UCLA Max Martin Salick Visiting Professor, USA.
- University of Milan, Italy.
- World Congress of Nephrology (WCN), Germany.

In return many eminent scientists visited the Baker. These included:

- Alexander Kapustin (Institute of Experimental Cardiology, Russia)
- Andrew Kramer (Guidant Corp, USA)
- Do Doan Loi (Hanoi Heart Institute, Vietnam)
- Elena V Lukoshkova (National Cardiology Research Center, Russia)
- Eugene Koonin (NIH, USA)
- Genevieve Escher (University of Berne, Switzerland)
- Guorong Ma (Nephrologist, China)
- Jasper Jonhes (University of Amsterdam, The Netherlands)
- Linde John (University of Basel, Switzerland)
- Markus Lassila (University of Helsinki, Finland)
- Michael Bukrinsky (George Washington University, USA)
- Natalia Kalinina (Institute of Experimental Cardiology, Russia)
- Rich Van Bibber (Cardiac Dimensions, USA)
- Steve Bibevski (Cleveland, USA)
- To Thanh Lich (Hanoi Heart Institute, Vietnam)
- To Thi Mai Hoa (Hanoi Heart Institute, Vietnam)
- Tony Turner (University of Leeds, UK)
- Tumurtogoo Jadamba (Mongolia National University, Mongolia)
- Xiaoli Zhang (Endocrinologist, China)
- Zulgerel Dandii (Mongolia National University, Mongolia)

Our International Scientific Advisory Board, a panel of eminent people from different disciplines around the world, have willingly provided us with assessments and advice over the years. In 2003, Prof Ken Chien, Director, Institute of Molecular Medicine, UCSD, Dr Gianni Gromo, Head of Drug Discovery, F. Hoffmann-La Roche and Prof Ralph Bradshaw, Professor, Physiology & Biophysics visited the Institute. Their reports continue to significantly contribute to the development of overall Institute strategies.

Our exchange programs continue to flourish. Most are informal with international laboratories sending scientists for postdoctoral or other training at our Institute. Other overseas colleagues come to spend sabbaticals. One of the most successful and longstanding formal programs has been the exchange with Russia, coordinated by Alex Bobik on behalf of the Australian Government. This exchange has brought many collaborative projects and some uniquely talented scientists to the Institute. In 2003, our collaboration with the National Heart Centre in the Singapore General Hospital (SGH) was boosted with the success of two separate grants by Jaye Chin-Dusting and Bronwyn Kingwell. The program in Singapore has expanded to include collaboration with the A/Prof Wong Meng Cheong, Department of Neurology (SGH) and A/Prof Greg Dusting, Howard Florey Institute, Melbourne. We have a developing relationship with the Peking University Institute of Cardiovascular Sciences in Beijing and with the Institute of Molecular Medicine, San Diego.

In November Prof David Kaye visited the Department of Molecular Cardiology at the University of San Diego. Led by Prof Ken Chien the department is expert in the use of gene targeting strategies, microarray technology and viral gene delivery systems. Prof Kaye and Prof Chien continue to develop a research collaboration that will incorporate gene therapy as a potential treatment for heart failure. Prof Kaye also spent a month with Prof Joe Loscalzo at the Department of Medicine, Boston University Medical Centre. Prof Loscalzo is internationally recognised as a leader in vascular biology and his group is widely acclaimed for the work into reactive oxygen species (ROS) which play a major role in many cardiovascular disease processes including atherosclerosis, heart failure and the vascular complications of diabetes. These collaborations have already led to new novel experiments within the Wynn Department of Metabolic Cardiology at the Baker to address the question of endothelial cell metabolism.

Another exciting international initiative, launched by a visit to the Institute from Drs Jacques Mizrahi, Global Therapeutic Head, Vascular and Metabolic Diseases, and James Martin, Drug Discovery, F.Hoffmann – La Roche (Switzerland), was the Roche-Baker Post-doctoral exchange Program. The program sees the recruitment of three elite international scholars Drs Kevin Woollard (Birmingham, UK), Urbain Tchoua (Cameroon, Africa) and Chris Tikellis (Melbourne, Australia) to work in the labs of Drs Jaye Chin-Dusting, Dmitri Sviridov and Prof Mark Cooper respectively.

By the end of 2003 we had numerous scientists from Russia, Switzerland, Italy, China, Vietnam, The Netherlands, Finland, UK, USA and Sweden working in the Institute on sabbaticals, training or exchange programs.

As a WHO collaborating centre for research and training in Cardiovascular Disease we have a commitment to improving health and health systems in developing countries. This year we had visitors from Mongolia and Vietnam. In Vietnam Chris Reid provided expertise to design a study for the prevalence of heart failure in the community.

Core Facilities

The various Baker core facilities are crucial to the success of the scientific research programs running within the Institute. Access to these different facilities allows an efficient and cost effective mechanism by which Institute scientists receive essential scientific support for their research. Some highlights for 2003 were:

- The Clive and Vera Ramaciotti Centre for Proteomic and Genomic Research facility became fully operational. A new mass spectrometer was installed as part of our strategic alliance with the manufacturer that keeps us at the cutting edge of the technology. Already we boast a number of internal and external scientific publications that were a direct result of research performed using the proteomics facility. Four significant grants have been awarded with Dr Ian Smith as a chief investigator, each having a considerable proteomic component. A number of other successful grants, both from within the Institute and outside have the Clive and Vera Ramaciotti Centre for Proteomic and Genomic Research named as a collaborating partner.
- An important support service is the Precinct Animal Centre (PAC) under the leadership of Debbie Ramsey. This is a purpose built facility for breeding and housing laboratory animals used for medical research. The environmental conditions within the PAC ensures the highest standards of animal welfare and meets the varying needs of the Baker researchers as well as those of other Precinct partners. Furthermore they enable the Baker to maintain the highest standards and meet all the regulatory requirements. The PAC offers a number of advantages. The rooms were designed for flexibility in terms of the species that can be accommodated, and also readily adapts to projects using infectious or non infectious animal models under various levels of biocontainment.
- Advanced digital imaging at the Baker now encompasses many types of microscopy. The core imaging system being the recently acquired confocal microscope which enables scientists to visualise live cell activity in three dimensions and observe changes through time. The system is fully operational and has contributed to a number of recent publications. Also, a number of NHMRC grants were awarded in 2003, which include significant amounts of confocal microscopy in the studies. Other key microscopy systems and facilities allow for specialised and routine image analysis and for the preparation and editing of images for publication and presentation. Each system has been specially designed to offer Baker scientists the most effective options for their experimental questions and publication demands.
- The Library provides library and information services to staff and students of the Baker Heart Research Institute, The Alfred Hospital, The Burnet Institute and departments of the Monash University Central and Eastern Clinical School based at The Alfred. Use of the library has continued to grow, with over 105,000 patron visits made in 2003, and nearly 20,000 book loans provided. Electronic services provided to staff and students also have shown steady growth, this is indicated by use of the Library's website which topped 30,000 hits a month at certain times of the past year. Extensive training has been provided to library users to encourage and support the use of these web-based resources.
- The AMREP Education Centre was a busy venue for the Baker's regular scientific and organisational meetings in 2003. Situated between the Ian Potter Library and the new Baker building it consists of large seminar rooms, class rooms and smaller meeting rooms. It is a flexible arrangement, which has excellent audiovisual equipment available. A total of 90 Baker research seminars and other meetings were held in the Centre during the year, many involving invited international speakers.

Commercialisation

OVERVIEW

This report summarises the commercialisation activities of the Baker Heart Research Institute during 2003. The last year has been one of increasing the interest, awareness, education and activity levels related to commercialisation. While considerable progress has been made, we still strive towards our previously stated objective of achieving best practice in commercialisation in the medical research sector.

COMMERCIALISATION OUTCOMES 2003

The Baker Heart Research Institute monitors four key types of commercial revenue: intellectual property commercialisation, contract research services (including pre-clinical and clinical research), industry funded research projects and commercialisation grants, which provide pre-seed funding to demonstrate "proof of concept" for initial research. In addition, our commercial activities for 2003 have included the establishment of some exciting new ventures.

In 2003 we achieved some key highlights in the development of our commercial activities. Early in 2003 we finalised negotiations with F. Hoffman-La Roche Ltd for a three-year industry funded exchange program which has resulted in the appointment of three new post-doctoral fellows to manage separate projects. The year also saw us concluding negotiations for the Baker Heart Research Institute's first two licensing agreements, both with major global pharmaceutical companies. We also completed negotiations for a Heads of Agreement between the Baker Heart Research Institute and Dia-B Tech Pty Ltd for the provision of funding to continue research into a new protein, CDA1. An initial public offering (IPO) for Dia-B Tech Ltd is planned for early 2004.

The Baker, in partnership with Bayside Health and Monash University, was successful in obtaining funding from the Science, Technology and Innovation grant program of the Victorian Government to establish a new business dedicated to the conduct of clinical trials. The Centre will provide a fully equipped 24 bed inpatient facility to enable studies in healthy volunteers and specialised patient groups as well as the facilities required to perform Phase II – IV clinical trials. In addition, the Centre is part of the membership of Clinical Trials Victoria, which provides services such as marketing, regulatory support and quality assurance to its members across Victoria.

INTELLECTUAL PROPERTY

Identification, protection and exploitation are all necessary elements in the management and commercialisation of intellectual property (IP). An important first step in this process is to formally audit and evaluate IP in order to assess opportunities for commercial gain. The Baker Heart Research Institute, in conjunction with Biocomm Services Pty Ltd, conducted a comprehensive audit of Baker IP in 2003. One outcome of this audit was the formation of a Cardiac Devices Development Group, whose role it is to escalate research and development activities related to cardiac devices.

Other key IP activities in 2003 included the development and implementation of a patent portfolio management plan for pre-existing patents, the scheduling of IP researcher education and the identification of key performance indicators to measure and monitor IP commercialisation outcomes.

The results of the latter activity will shortly be documented in a study currently being undertaken by the Commonwealth Department of Education, Science and Training (DEST) and the Australian Institute for Commercialisation (AIC), which seeks to measure and benchmark national commercialisation outcomes for the public sector for the years 2001 and 2002.

Board of Management

By invitation
Anita Furnell
Finance & Administration Services Director.

By invitation
Erica Hughes
Chief Operating Officer.

From left to right:
Mr Norman O'Bryan
Mr Philip Munz
Mrs Carol Schwartz
Mr Rob Stewart
Ms Paula Dwyer
Professor Daine Alcorn
Professor Edward Byrne
Professor Garry Jennings

Absent:
Professor Richard Smallwood
Dr Michael Walsh
Dr Gerry Johnston

Staff

DIRECTOR
Professor Garry Jennings

ASSOCIATE DIRECTORS
Professor Mark Cooper
Professor Murray Esler
Associate Professor Ian Smith

ASSOCIATE DIRECTORS ABMU
Professor Alexander Bobik
Professor Anthony Dart

DIVISION HEADS
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Professor Murray Esler
Professor David Kaye

SENIOR FACULTY

Senior Principal Research Fellows
Professor Alexander Bobik
Professor Mark Cooper
Professor Anthony Dart
Professor Murray Esler
Professor Colin I Johnston AO
Professor Paul J Nestel AO

Principal Research Fellows
Associate Professor Geoffrey Head
Associate Professor Zygmunt Krozowski
Associate Professor Ian Smith
Associate Professor Elizabeth Woodcock

Honorary Professors
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Dr Franklin L Rosenfeldt

NHMRC Fellows
Dr Xiao-Jun Du
Dr Jaye Chin-Dusting
Professor Mark Cooper
Professor Anthony Dart
Professor Murray Esler
Dr Ross Hannan
Associate Professor Geoff Head
Professor David Kaye
Dr Bronwyn Kingwell
Associate Professor Zyg Krozowski
Associate Professor Ian Smith
Dr Dmitri Sviridov
Dr Walter Thomas
Associate Professor Elizabeth Woodcock

JDRF Fellows
Dr Josephine Forbes
Dr Zemin Cao

Career Development Fellows
Dr Terri Allen
Dr Stephen Duffy
Dr Gavin Lambert
Dr Rebecca Ritchie

SCIENTIFIC DIVISIONS

CARDIOLOGY DIVISION
Head

David M Kaye	MBBS, PhD, FRACP, FACC

Wynn Department of Metabolic Cardiology
Head

David M Kaye	MBBS, PhD, FRACP, FACC

Senior Scientific

Rebecca Ritchie	BSc (Hons), PhD
Wei-Zheng Zhang	MSc, PhD
Zhiyong Yang	BSc, MSc, PhD
Hongwei Qian	PhD

Professional & Technical

Samara Finch	BSc (Hons)
Tanneale Marshall	BSc (Hons)
Belinda Smirk	BscMedSci (Hons)
Anh Cao	BSc (Hons)
Claire Gollogly	RN, BSc

Administrative
Joanne Harwood

Visiting Scientist

Dr Melinda Parnell	University of Otago Med School, New Zealand

Cardiac Surgical Research Laboratory
Head: Myocardial Metabolism Research

Salvatore Pepe	PhD, BSc (Hons), PGrad Dip Health Counsel

Senior Scientific

Rachel Denver	BSc (Hons)
Christine Egan	DipAppScVet
Deahne Quick	BSc (Hons)

Head: Cardiac Surgery Clinical Research

Franklin L Rosenfeldt	MBBS, MD, FRCSE, FRACS

See also page 35 for collaborating surgeons

Visiting Scientists

Lloyd Einsiedel	MBBS, PhD, Infectious Diseases Unit, Alfred Hospital
Takahiro Ota	MD, PhD, Okayama University, Japan

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Dr Do Doan Loi	MBBS, Hanoi Heart Institute, Vietnam
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GRADUATING POSTGRADUATE STUDENTS

Belinda Davis	PhD, Melbourne Optimising renal protection in an experimental model of diabetes and hypertension.
Felicity Dunlop	PhD, Monash Structural and functional studies of human aldosterone synthase (CYP11B2).
Xiao-Ming Guo	MD, Monash Adrenergic mechanisms in cardiac pathophysiology: studies using gene-targeted mouse strains.
Robert Lew	PhD, Monash The effects of gonadal steroids on cardiac arrythmias and cardiac and cerebral neurotransmitter release.
Tanya Medley	PhD, Monash The genetic basis of large artery stiffness.
Ursula Norman	PhD, Monash The development and application of novel inhibitors to investigate the function and distribution of the neutral zink metalloendopeptidases 3.4.24.15 and 3.4.24.16.
Melinda Parnell	PhD, Monash L-arginine uptake in health and cardiovascular disease.
Brindi Rasaratnam	PhD, Monash The effect of selective intestinal decontamination on the hyperdynamic circulation of cirrhosis: role of nitric oxide.
Bishoy Rizkalla	PhD, Melbourne Role of endothelial receptor tyrosine kinases in diabetic vascular complications.
Andrew Taylor	PhD, Monash Mechanisms of microvascular obstruction in acute coronary syndromes.

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The Baker Research Foundation has had several very active and rewarding years since its inception in 2001.

It has continued to raise funds for Baker research through donor retention and acquisition, and managing its bequest program. Its original purpose to build on community and corporate support still drives the Foundation's activities and initiatives, an important part of which is to continue to raise the profile of the Baker through advertising, public relations and other endeavours.

One of the Foundation's most satisfying outcomes is its success in connecting our scientists and our donors.

A STIMULATING 12 MONTHS

The past year has seen some key goals achieved, and we ran several high profile events:

- Wear Your Heart on Your Sleeve: Cocktail fundraiser/friendraiser on Valentines Eve 2003.
- Rugby with Heart Breakfast with former Wallaby captain and Rugby Union legend, John Eales held at the Grand Hyatt Melbourne.
- Modern Heart Exhibition: An interactive discussion between our scientists and the public on advances in medical science and how they apply to modern life.
- Wine Lovers' Dinner at the prestigious Melbourne Club.

MANY WILLING CONTRIBUTORS

- John Eales was a significant contributor in raising the profile of the Baker.
- The Age, The Stonnington Leader and The Melbourne Weekly were all very supportive of us.
- The team at Mercury were amazing in their support, and helped raise awareness of what we do by providing us with outstanding advertising and design.
- Our team of volunteers who contributed 650 hours of unpaid work to the institute.
- Harvey Publicity helped us in PR matters and greatly improved our public profile.
- Grand Hyatt Melbourne generously hosted our John Eales breakfast.
- Our donors were again very generous and helped support our vital research in many ways; supporting a student, buying vital equipment or helping to keep the lights on.

Thank you again to everyone who helped us. Our science could not continue without your support. We have a busy calendar of events, tours and marketing activities planned for 2004 and invite everyone to participate in another enjoyable and rewarding year supporting the work of the Baker.

Baker Supporters

When George Smorgon passed away in January this year, we lost one of our greatest friends and supporters. George will never be forgotten for his outstanding commitment to the Baker by those of us who knew him and understood the magnitude of his contribution. Our splendid George and Gita Smorgon Atrium is a fitting tribute to the man and his wonderful generosity of spirit.

A stained glass tower of glowing colour and light, inspired by the vibrant geometric patterns of Piet Mondrian, the atrium aptly reflects George and Gita's enlightened and benevolent views.

The Baker, and the many people it touches, will be eternally grateful that George and Gita Smorgon chose us to be counted amongst their friends.

The Institute is grateful for major contributions from:

- Atherosclerosis Research Trust of the UK
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Melbourne International Comedy Festival
Melbourne Markets
Melbourne Theatre Company
Mercury Advertising
Milawa Cheese Company
Mojo Advertising
Moonlight Projects
Orlando Wyndham
Penguin Books
Pink Lady Chocolates
Plunkett's Winery
Re-Creation Health Club
Roses Only
Simply Sensational Catering & Events
Sotheby's Armadale
Stanton & Killeen Wines
Rutherglen
Stonier Wines Pty Ltd
Submit
The Age
The Melbourne Club
The Westin Melbourne
TRAD-TEX
Tyrells Wines
Universal Music
Victoria's Open Range Zoo at Werribee
Vixen
Volvo Australia
Who Weekly
Yalumba Wines
Zeiss

Bequests

Estate Charlotte M Anderson
Estate Nancy Barbara Dare
Estate Elizabeth Forward
Estate D A Galbraith
Estate Frederick C Harcourt
Estate of Thomas Geoffrey Hinds
Estate Violet M Lowe
Estate Joyce Mary Scarce
Estate Merna D Sheahan
Estate E W Wortley

Volunteers

Robert & Jan Ashe
Denise Bailey
Paula N Barry
Pieter Boschma
Ida Bourke
Ken Bracher
Frances Brown
Patricia Brown
Robyn Brown
Elaine Callow
Bob Clemmens
Bev Cohen
Margot Dixon
David & Audrey Doig
Dianne Dott
Alex Eberbach
Jim & Margaret Fairbairn
Laurie & Sandra Feldman
Alan & Flora Fellows
Nita Fone
Jo-Ann Denzil Fox
Joyce Fuller
Shirley E Gilbert
Keith Gillespie
Jan Goodwin
Ron Hancock
John K Harcourt OAM
Heather Heath
Lyall & Betty Jarman
Lindsay & June Jenkins
Fred & Kathleen Kidd
Gwen Kieseker
Heather Lanyon
June Lawrence
Catherine Leishman
Elsa Lindsay
Bill & Betty Ling
Jill Louden
Marjorie Marris
David Maxwell
Dot McCoy
Margit Meier
Wanda Nelson
Lana Newton
Keith Nicholson
Norm & Kay Nugent
Margaret O'Brien
Patricia O'Shaughnessy
Joy Parker
Lorraine Ratcliffe
Ken Rattray
Joan Riseley
Patricia Singleton
Denzil Smith
Tess Van Staveren
Marge Watson
Dan Webb
Leonisa Wenden

Supporting the Baker

HOW YOU CAN SUPPORT

The Baker Heart Research Institute relies on non-government sources, including donations from members of the public for a substantial part of its operating income. The Baker enjoys an international reputation for the high quality of its research into the causes of cardiovascular disease. It is an established centre for training in medical research, providing post-graduate education, and on the job training in specialised techniques. You can support our research and help us continue our work in this important area.

USE OF DONATED FUNDS

All donations are used to support the Baker's medical research program, and in particular to assist with attracting talented scientists, the purchase of equipment and maintaining laboratory supplies. We will happily discuss donation options with you, and are pleased to direct donations as requested.

ALL DONATIONS OVER $2 ARE TAX DEDUCTIBLE

THERE ARE MANY WAYS TO SUPPORT

Depending on the size and nature of your donation, it may be in your interest to obtain advice from your solicitor, accountant or financial adviser concerning taxation, probate and other financial matters.

- **Donation**
- **Bequests & Endowments**
- **Gift of Assets or Property**
- **Trust or Named Fund**
- **Scholarships**
- **Volunteering**

If you would like any further information on how you can support the Baker please contact us:

www.baker.edu.au

Telephone: **1300 728 900**

Mail: Baker Heart Research Institute
PO Box 6492, St Kilda Road Central
Melbourne 8008

Board Members' report

FOR THE YEAR ENDED 31 DECEMBER 2003

The Board of Management presents its report together with the financial statements of the Institute for the year ended 31 December, 2003 and the audit report thereon.

BOARD MEMBERS

The following persons were Board Members of the Institute during the financial year:

Mr N O'Bryan SC, President
Dr G P Johnston Vice President
Professor G L R Jennings
Professor D Alcorn
Mr P Munz
Professor R Smallwood AO
Mr R Stewart
Dr M Walsh
Mrs C Schwartz (from 12 February 2003)
Ms P Dwyer (from 13 April 2003)
Professor E Byrne (from 10 December 2003)
Dr P Habersberger (until 5 May 2003)
Professor N Saunders (until 8 August 2003)
Mr A Stockdale (from 12 February to 4 August 2003)

Dr G Johnston was honorary treasurer for the Institute until 13 April 2003 at which time Ms P Dwyer replaced Dr Johnston in this role.

PRINCIPAL ACTIVITIES

The principal activities of the Institute are to conduct medical research into the basic causes of cardiovascular disease, to use this knowledge to help prevent heart and vascular disease in the community, and to improve medical and surgical treatment. No significant change in the nature of these activities occurred during the year.

OPERATING RESULT

The financial result from research activities was a deficit of $729,472 (2002: deficit $1,907,292). After allowing for the capital and specific purpose funds, the Institute's result for the year was a deficit of $501,255 (2002: deficit $1,624,601). The consolidated deficit of $191,613 (2002: deficit $1,602,803) includes net profit attributable to an outside equity interest.

REVIEW OF OPERATIONS

A review of the operations of the Institute during the year is contained in the President's and the Director's reports. The Institute's activities continued to be dedicated to medical research into the basic causes of cardiovascular disease. The Institute is a body corporate formed by an Act of Parliament and has no share capital.

LIKELY DEVELOPMENTS

The Institute does not expect any significant changes to its operations in the coming year.

ENVIRONMENTAL REGULATIONS

The Institute complies with the Environmental Protection Act in respect of its operations.

EMPLOYEES

As at 31 December 2003 the Institute employed 180 staff (2002: 174).

INSURANCE OF OFFICERS

During the financial year, the Institute paid a premium of $18,793 to insure the Board Members and certain officers of the Institute. The liabilities insured include costs and expenses that may be incurred in defending civil or criminal proceedings that may be brought against the officers in their capacity as officers of the Institute.

STATE OF AFFAIRS

During April 2003, the fit out of the Institute's two floors in the Burnet Institute building commenced. One floor was completed early March 2004 and the other floor is due for completion in April 2004. The Institute has tenants for Level 7 and two thirds of Level 6. This will generate rental income in 2004 and future years.

EVENTS SUBSEQUENT TO BALANCE DATE

There has not arisen in the interval between the end of the financial year and the date of this report any item, transaction or event of a material and unusual nature likely, in the opinion of the Board of Management of the Institute, to affect significantly the operations of the Institute, the results of those operations or state of affairs of the Institute in subsequent financial years.

BOARD MEMBERS' BENEFITS

Since the end of the previous financial year, no Board Member has received or has become entitled to receive any benefit, other than salaries, by reason of a contract made by the Institute or a related corporation with any Board Member or with a firm of which a Board Member is a member or with an entity in which any Board Member has a substantial financial interest.

Dated at Melbourne this 31st day of March 2004

Signed in accordance with a resolution of the Board of Management

Norman O'Bryan SC
PRESIDENT

Garry Jennings
DIRECTOR

Financial Report

BAKER MEDICAL RESEARCH INSTITUTE

Statement of Financial Performance for the year ended 31 December 2003

	Note	2003 $	2002 $
Revenue from ordinary activities	3	22,462,778	16,721,266
Expenses for building works		(3,958,932)	(802,939)
Employee benefits expense		(11,668,728)	(10,940,461)
Laboratory consumables used		(2,472,703)	(2,371,329)
Depreciation and amortisation expenses	4	(1,278,636)	(1,129,122)
Building overheads		(869,282)	(603,160)
Borrowing costs expense	4	(64,171)	(41,067)
Laboratory support expenses		(1,659,138)	(1,408,001)
Other expenses from ordinary activities		(992,443)	(1,049,788)
Deficit from ordinary activities before income tax expense		(501,255)	(1,624,601)
Income tax expense	2(l)	–	–
Deficit from ordinary activities after income tax expense		(501,255)	(1,624,601)
Net profit from joint venture	8	309,642	21,798
Total changes in funds		(191,613)	(1,602,803)

The above statement of financial performance should be read in conjunction with the accompanying notes.

BAKER MEDICAL RESEARCH INSTITUTE

Statement of Financial Position as at 31 December 2003

	Note	2003 $	2002 $
ASSETS			
Current assets			
Cash assets	10	5,250,339	-
Receivables	11	2,558,073	2,669,514
Other		136,204	122,661
Total current assets		7,944,616	2,792,175
Non-current assets			
Investments accounted for using the equity method	12	331,440	21,798
Investments	13	3,239,535	7,589,498
Plant & equipment	14	4,551,523	4,892,020
Total non-current assets		8,122,498	12,503,316
TOTAL ASSETS		16,067,114	15,295,491
LIABILITIES			
Current liabilities			
Interest bearing liabilities	15	292,897	718,386
Payables		2,303,567	2,561,444
Prepaid grants	16	1,361,390	34,189
Provisions	17	1,752,963	1,448,221
Total current liabilities		5,710,817	4,762,240
Non-current liabilities			
Interest bearing liabilities	18	84,334	126,879
Provisions	19	257,669	200,464
Total non-current liabilities		342,003	327,343
TOTAL LIABILITIES		6,052,820	5,089,583
NET ASSETS		10,014,294	10,205,908
FUNDS			
Accumulated funds			
Operating fund	5	(9,013,751)	(8,284,279)
Capital fund	6	18,159,608	18,075,377
Specific purpose fund	7	536,997	393,012
TOTAL BAKER FUND		9,682,854	10,184,110
Joint venture	8	331,440	21,798
TOTAL FUNDS	9	10,014,294	10,205,908

The above statement of financial position should be read in conjunction with the accompanying notes.

BAKER MEDICAL RESEARCH INSTITUTE

Statement of Cash Flows for the year ended 31 December 2003

	Note	2003 $	2002 $
Cash flows from ordinary activities			
Receipts from granting bodies		10,946,558	7,718,807
Donations and bequests		9,262,642	7,859,890
Receipts for building works		460,000	2,357,044
Payments to suppliers & employees (inclusive of goods and services tax)		(20,072,337)	(15,291,461)
Dividends received		327,279	275,643
Interest received		417,988	23,269
Rent received – Baker building		483,357	294,693
General income		430,539	40,384
Borrowing costs		(64,171)	(41,067)
Net cash inflow from ordinary activities	22(b)	2,191,855	3,237,202
Cash flows from investing activities			
Payment for investment securities		(1,425,302)	(1,475,049)
Proceeds from sale of investment securities		5,883,740	834,592
Payment for plant & equipment		(1,009,580)	(1,965,892)
Proceeds from sale of plant & equipment		80,735	44,438
Net cash outflow from investing activities		3,529,593	(2,561,911)
Cash flows from financing activities			
Principal repayments under finance leases		(30,509)	(76,915)
Net cash outflow from financing activities		(30,509)	(76,915)
Net cash increase in cash held		5,690,939	598,376
Cash at beginning of the financial year		(672,509)	(1,267,762)
Effects of exchange rate changes on cash held in foreign currencies		(19,720)	(3,123)
Cash at the end of the financial year	22(a)	4,998,710	(672,509)

The above statement of cash flows should be read in conjunction with the accompanying notes.

1 Incorporation

The Thomas Baker, Alice Baker and Eleanor Shaw Medical Research Institute was incorporated as the "Baker Medical Research Institute" ("the Institute") under the Baker Medical Research Institute Act 1980. The Institute is domiciled in Australia.

2 Summary of significant accounting policies

This special purpose financial report has been prepared in accordance with Accounting Standards, other authoritative pronouncements of the Australian Accounting Standards Board and Urgent Issues Group Consensus Views, with the exception of AAS 4: Depreciation in respect of capital expenditure in relation to buildings. The Institute's policy in respect of capital expenditure in relation to buildings is set out in Note 2(h).

Set out hereunder are the significant accounting policies adopted by the Institute in the preparation of its financial statements for the year ended 31 December 2003. These policies have been consistently applied unless otherwise indicated.

a) Basis of accounting

The financial statements have been prepared on a historical cost basis and except where stated do not take into account current valuations of non-current assets.

The accrual basis of accounting has been used with revenues and expenses being recognised as they are incurred, and brought to account in the period to which they relate.

b) Revenue recognition

Amounts disclosed as revenue are net of returns, trade allowances and duties and taxes paid. Revenue is recognised for the major business activities as follows:

i) Grant income

Recognised when due and payable under terms and conditions of award. Where grant income is received in advance, it is carried forward to the relevant period as prepaid grants.

ii) Interest and dividend revenue

Recognised when received.

c) Fund accounting

The Institute operates on a fund accounting basis and maintains three funds: Operating, Specific Purpose and Capital Funds. The work of the Institute is financed from grants, investment income and donations of both general and specific natures. Income of a specific nature is used in accordance with the terms of any relevant agreements. The amount of grants received for specific purposes during the year but unspent at year end, is usually expended in the next financial year. The Institute's capital fund comprises the capital donations, bequests and receipts from fundraising activities carried forward.

d) Principles of consolidation

The Institute's accounts have been prepared on a consolidated basis. All inter-fund transactions have been eliminated on consolidation.

e) Recoverable amount

Non-current assets are written down to their recoverable amount when the carrying amount of the asset is greater than the assets' recoverable amount. Where a group of assets working together supports the generation of net cash inflows relevant to the determination of recoverable amount, the net cash inflows are estimated for the relevant group of assets and the recoverable amount test is applied to the carrying amount of that group of assets.

f) Plant and equipment

i) Cost and valuation

Plant and equipment are measured at cost.

ii) Depreciation

Depreciation is calculated on a straight line basis to write off the net cost or revalued amount of each item of plant and equipment (excluding buildings) over its expected useful life to the Institute. The following estimated useful lives are used in the calculation of depreciation:

- Plant and equipment (2-20 years)
- Furniture and fittings (5-10 years)

Profits and losses on the disposal of plant and equipment are taken into account in determining the result for the year.

g) Leased assets

A distinction is made between finance leases, which effectively transfer from the lessor to the lessee substantially all the risks and benefits incidental to ownership of leased non-current assets, and operating leases under which the lessor effectively retains substantially all such risks and benefits.

Assets acquired under finance leases are included as plant and equipment in the statement of financial position. Finance leases effectively transfer from the lessor to the lessee substantially all the risks and benefits incidental to ownership of the leased

property. Where assets are acquired by means of finance leases, the present value of the minimum lease payments is recognised as an asset at the beginning of the lease term and amortised on a straight line basis over the expected useful life of the asset. A corresponding liability is also established and each lease payment is allocated between the liability and finance charge. Operating lease payments are charged to the statement of financial performance in periods in which they are incurred, as this represents the pattern of benefits derived from the leased assets.

h) Buildings

The Institute has adopted the policy that, as the Institute does not own the properties, capital expenditure incurred in respect of the Baker and Burnet Institute buildings is written off against income during the year. Accordingly, the Institute's building and share of the Burnet Institute building are not included as assets in the accounts.

i) Inventories

During 2003, the Institute continued a shared services agreement with the Alfred Hospital to manage all supply functions on its behalf. Under this arrangement the Institute no longer carries a store of consumable supplies.

j) Cash

For purposes of the statement of cash flows, cash includes deposits at call which are readily convertible to cash on hand and are subject to an insignificant risk of changes in value, net of outstanding bank overdrafts.

k) Investments

Interests in listed and unlisted securities are brought to account at cost and dividend income is recognised in the statement of financial performance when receivable. Where the recoverable amount of securities is less than the carrying amount of the securities, the security is written down to its recoverable amount. The decrement in the carrying amount is recognised as an expense in net profit or loss in the reporting period in which the recoverable amount write-down occurs.

The recoverable amount of a security is the net amount expected to be recovered through cash inflows and outflows arising from its continued use and subsequent disposal.

l) Tax status

The income of the Institute is exempt from income tax pursuant to the provisions of section 50-5 of the Income Tax Assessment Act 1997. The Institute is also exempt from other government levies such as payroll tax but not fringe benefits tax.

m) Employee entitlements

i) Wages and salaries and maternity and annual leave

Liabilities for wages and salaries and maternity and annual leave are recognised, and are measured as the amount unpaid at the reporting date at pay rates expected to be paid when the liability is settled.

ii) Long service leave

A liability for long service leave is recognised, and is measured as the present value of expected future payments to be made in respect of services provided by employees up to the reporting date. Consideration is given to expected future wage and salary levels, experience of employee departures and periods of service. Expected future payments are discounted using interest rates on national government guaranteed securities with terms to maturity that match, as closely as possible, the estimated future cash outflows.

n) Foreign exchange transactions

The Institute maintains a bank account in the USA for the purpose of receiving grants and for the purchase of equipment and supplies. Foreign currency transactions are initially translated into Australian currency at the rate of exchange at the date of the transaction. Amounts receivable or payable in foreign currency at balance date are translated to Australian currency at exchange rates at balance date. Exchange gains and losses are brought to account in determining the operating surplus or deficit for the year.

o) Trade and other creditors

These amounts represent liabilities for good and services provided to the Institute prior to the end of the financial year and which are unpaid. The amounts are unsecured and are usually paid within 30 days of recognition.

p) Receivables

All trade debtors are recognised at the amounts receivable when they are due for settlement. Standard trade terms are 30 days. Collectibility of trade debtors is reviewed on an ongoing basis. Debts which are considered uncollectible are written off.

q) Borrowing costs

Borrowing costs are recognised as expenses in the period in which they are incurred. Borrowing costs include:

- interest on bank overdrafts and short-term and long-term borrowings
- amortisation of ancillary costs incurred in connection with the arrangement of borrowings
- finance lease charges, and
- certain exchange differences arising from foreign currency borrowings.

r) Comparative figures

Where necessary, comparative figures have been adjusted to conform with changes in presentation in the current year.

3 Revenue from ordinary activities

	2003 $	2002 $
Revenue from operating activities		
Government and Statutory Bodies	8,992,583	6,655,065
Baker Foundation	1,250,000	1,250,000
Revenue from outside the operating activities		
Fundraising, corporate & private support	9,966,617	7,288,424
Capital works campaign	460,000	333,000
Dividends	327,279	275,643
Interest	417,988	314,294
Rent - Baker building	483,357	294,693
Proceeds from sale of non-current assets	134,415	93,290
General income	430,539	216,857
Total revenue	22,462,778	16,721,266

4 Operating deficit

The deficit from ordinary activities before income tax expense includes the following specific net gains and expenses:

Net gains		
Net gain on disposal		
Motor vehicles	25,939	15,692
Investments	108,476	77,598
Foreign exchange gain	-	-
Expenses		
Borrowing costs		
Interest and finance charges paid / payable	75,249	114,859
Foreign exchange loss	19,720	3,123
	94,969	117,982
Less: Amount capitalised	(30,798)	(76,915)
Borrowing costs expensed	64,171	41,067
Depreciation – Plant and equipment	1,234,914	1,082,038
Amortisation – Motor vehicles under finance lease	43,722	47,084
Total depreciation and amortisation expenses	1,278,636	1,129,122
Write down of inventories to net realisable value	-	-
Employee entitlements	361,947	334,156
Rental expense relating to operating leases	88,973	207,988

5 Operating fund

Balance at beginning of year	(8,284,279)	(6,376,987)
Deficit for year	(729,472)	(1,907,292)
Balance at end of year	(9,013,751)	(8,284,279)

6 Capital fund

The Institute's capital fund comprises donations, bequests and receipts from fundraising activities. Each year the Board allocates a proportion of these funds to supplement the research operations of the Institute. The Fund also incorporates grants and contributions received towards the cost of the Institute building and the associated interest earned thereon. Funds received in respect of the Medical Research Institute, but not outlaid at 31 December 2003, are carried forward.

	2003 $	2002 $
Balance at beginning of year	18,075,377	17,887,164
Surplus for year	84,231	188,213
Balance at end of year	18,159,608	18,075,377

7 Specific purpose fund

The specific purpose fund comprises funds provided to the Institute for special purposes other than through normal fund-raising activities. The funds are used in accordance with the wishes of donors. Institute accounting records are kept so as to identify expenditure charged against income of these funds. All such income and expenditure is incorporated in the statement of financial performance.

The current fund balance is:

Balance at beginning of year	393,012	298,534
Surplus for year	143,985	94,478
Balance at end of year	536,997	393,012

8 Joint venture

The Institute's interest in the Centre for Clinical Studies (CCS) comprises a one third share. The principal activities of the Centre for Clinical Studies is to provide a world-class, secure, good clinical practice (GCP) clinical trial facility, with state-of-the-art infrastructure and equipment to perform phase I-IV clinical trials. CCS is an unincorporated joint venture with Bayside Health, Monash University and the Institute.

Balance at beginning of year	21,798	-
Surplus for year	309,642	21,798
Balance at end of year	331,440	21,798

9 Fund balances

Baker balance at beginning of year	10,184,110	11,808,711
Surplus / (Deficit) for year		
Operating fund	(729,472)	(1,907,292)
Capital fund	84,231	188,213
Specific purpose fund	143,985	94,478
	(501,256)	(1,624,601)
Baker balance at end of year	9,682,854	10,184,110
Joint venture	331,440	21,798
Consolidated balance at end of year	10,014,294	10,205,908

10 Cash assets (Current)

	2003 $	2002 $
Term deposits	5,250,339	-
Total term deposits	5,250,339	-

11 Receivables (Current)

Trade debtors	2,227,474	2,669,514
Other debtors	330,599	-
Total trade debtors	2,558,073	2,669,514

12 Investments accounted for using the equity method

Investment in unincorporated joint venture	331,440	21,798
Total investment in unincorporated joint ventures	331,440	21,798

13 Investments (Non-current)

Shares and debentures (at cost)	3,239,535	7,733,132
Less: Write down to recoverable amount	-	143,634
Total investments – at recoverable amount	3,239,535	7,589,498

The Institute's investments are shown at cost, with the exception of one unlisted security which has been written down to a nil recoverable amount. This has been done on the basis of the results reported in its annual financial statements. As at 31 December 2003, the market value of the Institute's non-current investments was $4,372,770 (2002: $8,678,036).

14 Plant and equipment (Non-current)

Plant and equipment (at cost or Board's valuation)	8,967,343	8,076,685
Less: Accumulated depreciation	(4,520,841)	(3,340,471)
	4,446,502	4,736,214
Motor vehicles under finance leases	178,067	254,489
Less: Accumulated amortisation	(73,046)	(98,683)
	105,021	155,806
Total plant and equipment	4,551,523	4,892,020

Reconciliations of the carrying amounts of each class of plant and equipment at the beginning and end of the current financial year are set out below.

	Plant & equipment	Motor vehicles	Total
Gross Carrying Value			
Carrying amount at 1 January 2003	8,076,685	254,489	8,331,174
Additions at cost	945,200	64,381	1,009,581
Disposals	(54,542)	(140,802)	(195,344)
Balance at 31 December 2003	8,967,343	178,068	9,145,411
Accumulated Depreciation			
Balance at 1 January 2003	(3,340,469)	(98,683)	(3,439,152)
Depreciation expense	(1,234,914)	(43,722)	(1,278,636)
Disposals	54,542	69,358	123,900
Balance at 31 December 2003	(4,520,841)	(73,047)	(4,593,888)
Net Book Value			
As at 1 January 2003	4,736,214	155,806	4,892,020
As at 31 December 2003	4,446,502	105,021	4,551,523

15 Interest bearing liabilities (Current)	2003 $	2002 $
Bank overdraft (Unsecured)	251,629	672,509
Lease liability (Secured)	41,268	45,877
Total current interest bearing liabilities	292,897	718,386
16 Prepaid grants (Current)		
Prepaid grants	1,361,390	34,189
17 Provisions (Current)		
Annual leave	645,760	519,333
Long service leave	1,096,355	928,888
Maternity leave	10,848	-
Total current provisions	1,752,963	1,448,221
18 Interest bearing liabilities (Non-current)		
Lease liability (Secured)	84,334	126,879
Total non-current interest bearing liabilities	84,334	126,879
19 Provisions (Non-current)		
Long service leave	257,669	200,464
Total non-current provisions	257,669	200,464
20 Lease commitments		
Finance lease commitments		
Finance lease commitments are payable as follows:		
Not later than 1 year	49,403	57,093
Later than 1 year and not later than 5 years	101,290	145,833
Minimum lease payments	150,693	202,926
Less: Future finance charges	(25,091)	(30,170)
Recognised as a liability	125,602	172,756
Representing lease liabilities:		
Current	41,268	45,877
Non-current	84,334	126,879
	125,602	172,756
Operating lease commitments		
Commitments for minimum lease payments in relation to non-cancellable operating leases are payable as follows:		
Not later than 1 year	48,763	60,759
Later than 1 year and not later than 5 years	36,725	15,014
	85,488	75,773

21 Related parties

a) The names of each person who held office as a Board Member of the Baker Medical Research Institute during the financial year ended 31 December 2003 are:

Mr N O'Bryan SC
Dr G P Johnston
Mr R Stewart
Dr M Walsh
Ms P Dwyer
Professor D Alcorn
Professor R Smallwood AO
Professor G Jennings
Mrs C Schwartz
Professor E Byrne
Mr P Munz
Professor N Saunders (resigned 8/8/03)
Dr P G Habersberger (resigned 5/5/03)
Mr A Stockdale (resigned 4/8/03)

b) No Board Member has received or has become entitled to receive any benefit, other than salaries, by reason of a contract made by the Institute or a related corporation with any Board Member or with a firm of which a Board Member is a member or with an entity in which any Board Member has a substantial financial interest.

22 Notes to the statement of cash flows

a) For the purpose of the statement of cash flows, cash includes cash on hand and in the bank and investments in money market instruments, net of outstanding bank overdrafts. The Institute has an unsecured overdraft facility of $330,000 in place with Westpac Banking Corporation in relation to its ongoing research operations. The unused bank overdraft facility at 31 December 2003 was $78,371.

Cash at the beginning of the financial year as shown in the statement of cash flows is reconciled to the related items in the statement of financial position as follows:

	2003 $	2002 $
Bank overdraft	(251,629)	(672,509)
Cash and term deposits	5,250,339	-
Total	4,998,710	(672,509)
b) Reconciliation of operating deficit after income tax to net cash from ordinary activities		
Operating (deficit) / surplus from ordinary activities	(501,255)	(1,624,601)
Effects of exchange rate changes on cash held in foreign currencies	19,720	3,123
Depreciation and amortisation	1,278,636	1,129,122
Write-down of investments to recoverable amount	-	143,634
(Profit) on sale of non-current assets	(134,415)	(93,290)
Changes in net assets and liabilities		
(Increase) / decrease in receivables	111,441	2,691,989
(Increase) / decrease in other current assets	(13,543)	(12,821)
Increase / (decrease) in payables	(257,877)	723,211
Increase / (decrease) in prepaid grants	1,327,201	(57,321)
Increase in provisions	361,947	334,156
Net cash inflow from ordinary activities	2,191,855	3,237,202

c) Non-cash financing activities

Motor vehicles

During the year the Institute provided motor vehicles for staff under salary sacrifice arrangements with a value of $178,067 by means of finance leases. These acquisitions are not reflected in the statement of cash flows.

23 Financial instruments

a) Significant accounting policies

Details of the significant accounting policies and methods adopted, including the criteria for recognition, the basis of measurement and the basis on which revenues and expenses are recognised, in respect of each class of financial asset, financial liability and equity instruments are disclosed in Note 2 to the accounts.

b) Significant terms, conditions and objectives of derivative financial instruments

The Institute does not enter into or trade complex derivative financial instruments.

c) Credit risk

The Institute does not have any significant credit risk exposure to any single counterparty or any group of counterparties having similar characteristics. The carrying amount of financial assets recorded in the consolidated statement of financial position, net of any provision for losses, represents the Institute's maximum exposure to credit risk.

d) Net fair value

The net fair value of the Institute's financial assets and financial liabilities is not materially different to their carrying amount in the financial statements, other than non-current investments. The net fair value of non-current investments is disclosed in Note 13 to the accounts.

e) Interest rate risk

The following table details the Institute's exposure to interest rate risk and the effective weighted average interest rates by maturity on financial instruments at balance date.

31 December 2003	Variable Interest Rate	Less than 1 Year $	1 to 5 Years $	More than 5 Years $	Non – Interest Bearing	Total
Financial assets						
Cash and term deposits	-	5,250,339	-	-	-	5,250,339
Receivables	-	-	-	-	2,452,110	2,452,110
Other	-	-	-	-	32,336	32,336
Investments	-	-	-	-	3,239,535	3,239,535
Total financial assets	-	5,250,339	-	-	5,723,981	10,974,320
Weighted average interest rate	-	5.09%	-	-		
Financial liabilities						
Bank overdraft	251,629	-	-	-	-	251,629
Payables	-	-	-	-	2,153,294	2,153,294
Lease liabilities	-	41,268	84,334	-	-	125,602
Security deposits	-	-	-	-	44,309	44,309
Total financial liabilities	251,629	41,268	84,334	-	2,197,603	2,574,834
Weighted average interest rate	7.01%	16.47%	15.55%	-		
Net financial assets / (liabilities)	(251,629)	5,209,071	(84,334)	-	3,526,378	8,399,486
31 December 2002						
Financial assets						
Receivables	-	-	-	-	2,669,514	2,669,514
Investments	-	-	-	-	7,589,498	7,589,498
Total financial assets	-	-	-	-	10,259,012	10,259,012
Weighted average interest rate	-	-	-	-		
Financial liabilities						
Bank overdraft	672,509	-	-	-	-	672,509
Payables	-	-	-	-	2,514,135	2,514,135
Lease liabilities	-	45,877	126,879	-	-	172,756
Security deposits	-	-	-	-	47,309	47,309
Total financial liabilities	672,509	45,877	126,879	-	2,561,444	3,406,709
Weighted average interest rate	12.24%	19.65%	13.00%	-		
Net financial assets / (liabilities)	(672,509)	(45,877)	(126,879)	-	7,697,568	6,852,303

24 Capital commitments

As at 31 December 2003, capital expenditure contracted for, in respect of completion of the building, at balance date but not provided for in the accounts of the Institute:

	2003 $	2002 $
Not later than 1 year	1,468,062	-
Total capital commitments	1,468,062	-

25 Superannuation

The Institute operates an accumulation type superannuation plan under which all employees are entitled on retirement, disability or death. Employees contribute to the plan at various percentages of their salaries. The Institute also contributes to the plan at rates related to employee contributions and pursuant to an award set down under a national wage case. Funds are available to satisfy all benefits that have been vested under the plan in the event of termination of the plan or voluntary or compulsory termination of employment of each employee.

26 Remuneration of auditors

Amounts received or due and receivable by the auditors of the Institute for:

- Audit of financial report	19,500	18,365
- Other services	2,270	-
	21,770	18,365

27 Segment information

The Institute operates in the medical research sector in the geographical area of Australia.

28 Reconciliation of net financial assets / (liabilities) to net assets

	Note		
Net financial assets	23	8,399,486	6,852,303
Non-financial assets and liabilities:			
Other assets		103,867	122,661
Investments accounted for using the equity method	12	331,440	21,798
Plant and equipment	14	4,551,523	4,892,020
Other liabilities	16	(1,361,390)	(34,189)
Provisions	17, 19	(2,010,632)	(1,648,685)
Net assets per statement of financial position		10,014,294	10,205,908

BAKER MEDICAL RESEARCH INSTITUTE

Board Members' Declaration

In the Board Members' opinion the financial statements and notes set out on pages 41 to 52:

a) comply with the accounting policies described in Note 2 to the financial report and other mandatory professional requirements; and

b) presents fairly the Institute's financial position as at 31 December 2003 and its performance, as represented by the results of its operations and its cash flows, for the financial year ended on that date.

In the Board Members' opinion there are reasonable grounds to believe that the Institute will be able to pay its debts as and when they become due and payable.

This declaration is made in accordance with a resolution of the Board of Management.

For and on behalf of the Board

Norman O'Bryan SC
PRESIDENT
Melbourne, 31 March 2004

Garry Jennings
DIRECTOR

Independent Audit Report

Independent audit report to members of the Baker Medical Research Institute

SCOPE

The financial report and Board Members' responsibility:

The financial report is a special purpose financial report and comprises the statement of financial position, statement of financial performance, statement of cash flows, accompanying notes to the financial statements, and the Board Members' declaration for Baker Medical Research Institute (the Institute), for the year ended 31 December 2003.

The Board Members of the Institute are responsible for preparing a financial report that presents fairly the financial position and performance of the Institute in accordance with the requirements of the Baker Medical Research Institute Act 1980. This includes responsibility for the maintenance of adequate accounting records and internal controls that are designed to prevent and detect fraud and error, and for the accounting policies and accounting estimates inherent in the financial report. The Board Members have determined that the accounting policies used and described in Note 2 to the financial statements are consistent with the financial reporting requirements of the Baker Medical Research Institute Act 1980 and are appropriate to meet the needs of the members. These policies do not require the application of all Accounting Standards and other mandatory financial reporting requirements in Australia. No opinion is expressed as to whether the accounting policies used are appropriate to the needs of the members.

The financial report has been prepared for distribution to the members for the purpose of fulfilling the Board Members' financial reporting requirements under the Baker Medical Research Institute Act 1980. We disclaim any assumption of responsibility for any reliance on this report or on the financial report to which it relates to any person other than the members, or for any purpose other than that for which it was prepared.

AUDIT APPROACH

We conducted an independent audit of the financial report in order to express an opinion on it to the members of the Institute. Our audit was conducted in accordance with Australian Auditing Standards in order to provide reasonable assurance as to whether the financial report is free of material misstatement. The nature of an audit is influenced by factors such as the use of professional judgement, selective testing, the inherent limitations of internal control, and the availability of persuasive rather than conclusive evidence. Therefore, an audit cannot guarantee that all material misstatements have been detected.

We performed procedures to assess whether in all material respects the financial report presents fairly, in accordance with the accounting policies in Note 2 to the financial statements, a view which is consistent with our understanding of the Institute's financial position, and of its performance as represented by the results of its operations and cash flows.

We formed our audit opinion on the basis of these procedures, which included:

- examining, on a test basis, information to provide evidence supporting the amounts and disclosures in the financial report, and
- assessing the appropriateness of the disclosures used and the reasonableness of significant accounting estimates made by the Board Members.

While we considered the effectiveness of management's internal controls over financial reporting when determining the nature and extent of our procedures, our audit was not designed to provide assurance on internal controls.

We performed procedures to assess whether the substance of business transactions was accurately reflected in the financial report. These and our other procedures did not include consideration or judgement of the appropriateness or reasonableness of the business plans or strategies adopted by the Board Members and management of the Institute.

INDEPENDENCE

We are independent of the Institute, and have met the independence requirements of Australian professional ethical pronouncements.

QUALIFICATION

As stated in note 2(h) to the financial statements, the Institute has written off to expense certain capital expenditure incurred in relation to the Baker Medical Research Institute and Burnet Institute buildings. In our view the application of AAS 4: Depreciation, which requires recognition of an asset with physical substance which is expected to be used during more than one financial year, is necessary to present fairly the financial position and financial performance of the Institute.

Had AAS 4: Depreciation been applied, in our opinion, costs amounting to $3,958,932 incurred in the current year (2002: $802,939) should have been recognised initially as capital works in progress and then transferred to property, plant and equipment on completion. Had this been done, the depreciation charge at a rate of 2% for the current year would have been $915,534 (2002: $458,000). Given that the current year expenditure relates to the fit-out of the Burnet Institute building, which was not complete at 31 December 2003, the current year expenditure would not incur depreciation. If these changes had been made the non-current assets would be $56,462,816 (2002: $57,800,236), total assets would be $64,407,432 (2002: $60,592,411), surplus from operating activities after income tax would be $2,542,143 (2002: deficit of $821,662), and accumulated funds would be $58,044,971 (2002: $55,502,828).

QUALIFIED AUDIT OPINION

In our opinion, except for the effects on the financial report of the matter referred to in the qualification section, the financial report of the Baker Medical Research Institute presents fairly, in accordance with the accounting policies described in Note 2 to the financial statements, a view which is consistent with our understanding of the Institute's financial position as at 31 December 2003, and of its financial performance as represented by the results of its operations and cash flows for the year then ended.

Ernst & Young

Ernst & Young

Stuart Painter
Partner
Melbourne
Date: 31 March 2004

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