Health means the world to us.

BAKER HEART RESEARCH INSTITUTE

ANNUAL REPORT 2004

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
Obesity
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

The Baker leads the fight against heart disease. Cardiovascular disease is Australia's leading health problem as over 3.6 million Australians suffered from cardiovascular disease in 2001. Over the last decade the prevalence of cardiovascular disease rose by more than 18%, and at a cost of 7 billion dollars each year, it demands 11% of Australia's total health care expenditure.

By operating the country's most comprehensive heart research program our scientists are considered to be amongst the very best. The Baker is recognised internationally as one of the world's leading medical research centres.

In the past, Baker scientists have discovered the medical knowledge that we now take for granted. For example, Baker scientists proved that exercise lowers blood pressure and they discovered the plasma protein that distinguishes between Type I and Type II diabetes. In the future, it is the Baker's vision to eradicate heart disease. The Baker boasts 3 major divisions, 24 research laboratories and more than 220 staff. We focus on both basic and clinical research, a unique and effective combination.

The major areas of research at the Baker are:

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

The Baker is a World Health Organisation Centre for Cardiovascular Research & Training. Although we are one of the best research facilities in the world, we recognise that the fight starts at home. The Baker is actively involved in the local community and sets it sights on becoming a household name.

During the last 78 years we have come a long way, but still have much more to achieve. It's the expertise and enthusiasm of all our dedicated staff members that will ensure we continue to make a difference. After all, health means the world to us.

A WORD FROM OUR PATRON

Sir Laurence Muir

I was fortunate to be introduced to the Alfred Hospital and soon after the Baker Heart Research Institute by Sir William Philip and John Habersberger over 40 years ago. For me it has been an inspiring and stimulating experience to serve with intelligent and highly motivated scientists and administrators who are dedicated to solving health problems and helping others.

The skill of our research workers has earned for the Baker a world wide reputation and the partnership with the Alfred is a model in applied research.

I remember with gratitude my first stress test on Garry Jennings' (current Director of the Baker) bicycle. Urged on by then Director Paul Korner, I pushed toward my limit only to have the machinery go haywire. Garry stopped the proceedings, did lots of chart analysis and then wired me up for 24 hours.

Thanks to his care and concern everything settled down and there have been no further 'incidents' in my 80 years.

On the journey back from the UK about 20 years ago I read in the QANTAS magazine about pets as therapy. With the help of my son-in-law Dr Edward Donelan and some other vets we set up the Delta Society to encourage pets as companions.

Dr Warwick Anderson, then at the Baker, spent 2 years in researching the effect of companion animals on our heart patients. The results were very favourable and the veterinarians are continuing to alert the community to these advantages.

The Baker is not only a world leader in medical research; it is peopled and led by warm and caring Australians.

PRESIDENT'S REPORT

Norman O'Bryan

I retire from the Baker Board this year and so this will be my last President's Report. I thought I should do something a little different and take the opportunity to review not only aspects of the year just past, but also to give you a few thoughts about the Baker's progress in the last decade, where I think it is now and where I hope it will be heading in the future.

Annual Reports are hard work for all involved, but a very necessary discipline which is sensibly imposed upon most public organisations so that they may render an account of themselves, both financially and in terms of performance, by explaining what they have been doing in the past year and what they plan to do in the near future. But it is also a good idea from time to time to take a wider perspective on the organisation and I shall endeavour to do this in some measure here. The space allotted for me in this report is insufficient to give you a full survey of all of the Baker's activities, and anyway Garry Jennings will tell you about most of the exciting happenings of 2004 and what they portend for the future.

When I first arrived at the Baker in the late 1980's it was located in its old home in Baker Lane in quite worn-out buildings, some of which were constructed in the very early part of the 20th Century when the Baker was founded. The "Old Baker Building", as our former home is now officially called, was a quaint and serviceable collection of buildings which did not inspire anyone by their architectural qualities and did not provide a stimulating or efficient working environment. One of the 'Old Baker' building's chief drawbacks, as I perceived it, was the fact that it did not encourage collaboration of any sort because all of the laboratories were physically constrained and quite separate from one another. I regarded it as a key priority to get the Baker housed in better premises because I have always believed in the motive power of architecture to inspire human creativity and productivity. There is ample physical and intellectual evidence of this in Egypt, Greece, Rome, China and all across Europe.

Probably the most exciting event that has occurred in my time on the Baker Board is the planning, construction and the move into our new building. It is the ideal home for an Institute like the Baker in every respect. It is open, bright, cheery and uplifting as soon as you walk in the door. It also actively encourages scientific and social interaction, because people can see one another and the spaces are large enough to enable research partnerships and collaborations to form naturally, as they should do in an organisation dedicated to the pursuit of scientific and medical discovery in all of its multifarious dimensions. It is a perfect environment in which to indulge one of humankind's greatest aspirations: the pleasure of finding things out.

Despite the fact that we are now well and truly settled into this still very new home, I think the challenges for the Baker remain essentially the same as those which I identified when I first became associated with the Institute. However, our approaches to managing and overcoming them are now quite different. I am pleased to say that I regard our approach to problem solving and strategic planning for the Baker's future as much more sophisticated and efficient than it was when I first arrived. This is due in no small measure to the combined talents and professionalism of Garry Jennings and our senior scientists, Erica Hughes and her administration team and our Board members. This is my last public opportunity to applaud them, which I do wholeheartedly.

Resources

The most valuable and the scarcest resource for the Australian medical research community is money. When I arrived at the Baker it was a block funded Institute of the NHMRC and could rely upon a fixed sum, slightly adjusted in each of the 5 years of the quinquennia by which the NHMRC block funded the 5 major Australian medical research institutes. I recall, when it was first mooted that block funding might disappear, that this was thought to be potentially the end of some of those Institutes. They are all still with us, and all bigger and stronger than before. The Baker in particular has flourished in the post-block funded era. It has done this by remaining intensely competitive and very successful in its quest to win peer-reviewed grant funding, both within Australia and from overseas, to fund its research. Our ability to attract peer-reviewed competitive grants of the scale we now win is very impressive.

But the annual cycle of grant applications, reviews and funding requests is a heavy burden for Australian medical researchers and a distraction from their work of discovery. So the Baker Board has striven throughout this period to raise additional monies which would provide a pool of discretionary funds in the hands of the Director to devote to projects which for various reasons do not attract sufficient funding from public sources. It is of the very essence of independent medical research that some "blue sky" projects undertaken by very talented researchers should be funded within Institutes like the Baker, even when no outside funding source can be found for them. The Board rightly considers that we must have the confidence and provide the wherewithal to back the Director's judgment in such matters from time to time.

I regret to say that we have not as yet achieved the objective of providing the Baker with a sufficiently large corpus of capital from which we can reliably earn income sufficient to ensure that we can support science that we believe in but otherwise will not be funded. This, I think, is the major challenge that the Baker now faces. Like the challenge of new premises a decade ago, I am sure it can be overcome. I was struck during the Tsunami Appeal earlier this year at how generous Australians are when faced with cataclysmic world events like the Indian Ocean Tsunami. The work that we do at the Baker will ultimately save more lives than were lost in the Tsunami, but because that salvation cannot be illustrated in the graphic and dramatic fashion that occurred in the Tsunami Appeal, it does not resonate with the Australian public sufficiently loudly to attract the funds on the scale given to disaster relief.

One of our great present and future challenges is to convey the importance and urgency of our fundraising needs to the Australian community to ensure that they recognise the significance to our people and to the rest of humanity of the work we do. Whilst the Baker has a much higher public profile now than when I first arrived at the Institute, I still perceive this as probably the Baker's most urgent need upon my departure. If you can assist Erica, Kristen and our fundraising team in any way, I would urge you to do so. Ours is a most worthwhile cause.

Our human and material resources to undertake our vital research are better than they have ever been. Garry Jennings is managing to attract, retain and inspire some of the world's leading researchers in their respective scientific fields. An example of this is the recent appointment of Dr Karlheinz Peter to head the Baker's Centre of Thrombosis

and Myocardial Infarction. Karlheinz came to the Baker from the University of Freiburg in Germany and is an outstanding example of an international physician-scientist who was attracted to the Baker because of its unique ability to translate basic scientific research across the spectrum of medical treatment and the testing of new discoveries. Karlheinz is a scientist of whom I am sure we will hear much more in the years to come.

Also during 2004 we significantly upgraded the human and material resources which the Baker dedicates to its Proteomics and Genomic Research facility. This facility operates in the Clive and Vera Ramaciotti Centre in the Baker and is under the joint command of Professor Greg Rice and Dr Gert Talbo. They and their very talented staff deliver core proteomic services to scientists operating at the Baker and on the AMREP campus generally, but also offer translational proteomic services which provide new discovery platforms for the testing of medical research hypotheses and the development and the evaluation of new clinical diagnostics. With the existing and brand new equipment which the Baker has acquired in the last 12 months (thanks to the Ramaciotti Benefaction), we believe that some major breakthroughs will be achieved in this new facility.

Our senior scientific faculty has many stars, some of whom have been already recognised as standing at the peak of their profession (Garry Jennings, Murray Esler, David Kaye and Mark Cooper come immediately to mind), others of whom are knocking at the door of recognition which we are confident they will soon receive (they are too numerous to mention, but "they know who they are"!). People are the most valuable resource of any institution like the Baker, the value of which is ultimately measured in its intellectual endeavour and output. Garry Jennings, who was recognised by the award of the Order of Australia in January, is a truly great leader of this team. I hope that he will stay with this organisation for a very long time to complete his vision for the Baker as a leading international cardiovascular research institute at the hub of a major medical research and creative centre of excellence on the Alfred campus.

We also have an excellent operations and management team under Erica Hughes' capable leadership. Again, space does not permit me to mention them all here, but their efforts are greatly appreciated. We are lucky indeed to have an extraordinarily good humoured and hard working team of administration and support staff, all of whom understand that their mission is to assist in all possible ways the progress of the Baker's science. I am constantly struck by their energy and dedication to this task. Unlike the scientists there are no significant external rewards for them in terms of recognition or achievement and so it is important that we recognise their excellent efforts in publications such as these and that they understand how much we appreciate their efforts.

Last, but by no means least, I want to pay tribute to my fellow Board members. They are a cheerful and tireless bunch, who never refuse even my sometimes unreasonable requests for their precious time and analytical resources. I know Rob Stewart will prove an excellent successor and that the Baker is in the safest and most capable hands.

Norman O'Bryan

DIRECTOR'S REPORT

Garry Jennings

The end of 2004 completed a period of transition for the Baker. This fine and gracious lady well into her seventh decade has metamorphosed into the new Baker, ready to take on the world. Norman O'Bryan, our President provided the stewardship for this well administered dose from the fountain of youth and it is with enormous, albeit reluctant gratitude that we note his intention to stand down from this role in the course of 2005. He has given us good governance with formidable vision, style, intelligence and that altogether uncommon grace, common sense. He constructed an outstanding and vigorous Board of Management, a legacy that will serve us well as we go forward. As Sir Laurence Muir, our distinguished Patron can testify we have a way of keeping past Presidents involved and we hope this will be the case with Norman as he progresses an already stellar career in the law, public, and family life.

The key elements in our makeover have involved physical infrastructure, new technology, the recruitment of outstanding scientists, the implementation of the new National Health and Medical Research Council funding model, and the introduction of new systems in finance, human resources, IT, commercialisation and the other important functions that are integral to our pursuit of outstanding research. Our 3 major scientific themes are prevention of heart, stroke and vascular disease with a special focus on diabetes and other risk factors, heart failure, and the nexus between heart, stroke and vascular disease and the nervous system.

Building work has now been completed. Not only do we have the wonderful amenity of the new Baker building and its linkage to the Alfred & Baker Medical Unit but also two large new floors in the adjoining building of the research precinct. These house the Australian Centre for Blood Diseases, a Monash group led by Professors Hatem Salem and Shaun Jackson. Their research on thrombosis is very complementary with the work of the Baker addressing coronary disease and atherosclerosis. The other new floor has a clinical trials platform serving the Alfred campus, Monash, and other triallists in Victoria and beyond. Through Clinical Trials Victoria and the Centre for Clinical Studies we are now able to conduct, facilitate and support clinical trials ranging from the very first time a new therapy is given to people to large community outcome studies. Hopefully we will soon be testing new treatments developed by our own scientists, or by the excellent biotechnology companies based at the Baker. Even more gratifying than the new facilities however is the cooperation, collaboration and goodwill of the disparate groups from Institutes, University, hospital and industry that occupy the precinct. These have led to joint projects, sharing of resources, ideas and expertise and this will undoubtedly increase as we get to know each other even better.

New technologies introduced this year and the search for new scientists are aligned with our overall objective of matching major areas of human need with our Baker strengths and opportunities. We target only the highest impact journals to report our work.
The Clive and Vera Ramaciotti Centre for Proteomics and Genomics Research had a major upgrade with new, highly sensitive equipment for protein detection and analysis. We have been extremely fortunate to attract a whole new team, experienced in the applications of proteomics with Associate Professor Greg Rice and skilled mass spectroscopist Dr Gert Talbo. This gives the Baker a world-class analytical capability to match other flagship capabilities in clinical and translational research, integrative physiology, and molecular signalling.

The community is becoming increasingly aware and concerned about the burgeoning increase in risk factors for heart, stroke and vascular disease in the young. Diabetes and metabolic risk factors are of particular concern and the Baker has built up its already substantial efforts in the area, particularly through the work of Mark Cooper's colleagues in the Diabetes Complications laboratory and the Wynn Department of Metabolic Cardiology led by David Kaye. Bronwyn Kingwell, Peter Little and Dmitri Sviridov all had high impact publications, reflecting significant scientific advances in the field of diabetes and metabolism in the course of this year. Bronwyn's studies showed the process in which exercise causes glucose to be taken from the blood into skeletal muscle for energy production, revealing a whole new list of possible approaches to lowering blood glucose in people with diabetes. Peter's group have found a new effect of an oldish group of drugs in preventing atherosclerosis associated with diabetes. Dmitri has a novel insight into HDL (the 'good' cholesterol) and its production by our muscles. Mark and his team have identified a new AGE (advanced glycation end product). These seem to be involved in the damage to arteries that is characteristic of diabetes. They are also leading world wide testing of cross link breakers - new therapies for diabetes that prevent damage to the arteries without affecting sugar levels. Murray Esler, Gavin Lambert and their colleagues are tackling the obesity problem from a different perspective and have unique results showing that about one quarter of the body's production of leptin occurs in the brain. Previously it was thought that fat tissues produced this hormone as a mechanism of warning the brain that we have eaten enough during a meal. Murray's group have also been productively investigating their longstanding interest in the key links between the brain and the heart that characterise depressive illness, panic disorder and other major affective disorders.

Our community is also acutely aware of the rising costs of health care, particularly with an aging community. Heart failure along with other consequences of heart, stroke and vascular disease is the greatest contributor to the cost of health care in the elderly, as well using up hospital beds and expensive and sophisticated therapeutic devices. More importantly it is responsible for many premature deaths and a huge amount of disability. Our research this year on the mechanisms of heart failure and hypertension led to the identification of a new target for therapy (the arginine transporter), and David Kaye has identified a lead compound for further testing. Geoff Head has another new compound to test for potential usefulness in heart failure and this work, in collaboration with IMBS has progressed to be the basis of one of a number of new companies recently formed to commercialise Baker research. Another highlight for our Heart Failure and Molecular Cardiology Division in 2004 was the first patient implant of their invention that treats leaking mitral valves. The device is inserted using a catheter, obviating the need for surgery.

These are selective vignettes from a large body of scientific achievements at the Baker in the last year. Much more can be found in the accompanying 2004 Research Report, which is published on our website www.baker.edu.au. Formal analysis of Baker scientific publications performed during the year shows considerable increase in productivity with average impact factor (a measure of quality) increasing to just below 5 at the same time as the number of peer reviewed publications increased. The average number of scientific manuscripts/ senior scientists published was over 6 – a 50% increase since 2002. Success rates in

competitive peer review grant applications continued to exceed national averages and importantly there was an increase in revenue from overseas peer review research grants, which more than doubled over the previous year. The establishment of a joint Alfred and Baker Research Office enabling Heather Gallichio to provide us with a highly efficient level of professional support and grant administration has hugely facilitated these results from the labs. One interesting and popular initiative from Murray Esler and Heather and her team has been the introduction of a monthly research prize to the laboratory with the highest impact publication.

An extensive international search led us to identify Professor Karlheinz Peter, an interventional cardiologist as one of the outstanding figures in translational research on thrombosis. Karlheinz joined the Baker at the end of 2004 and will establish a new Centre, which will develop novel methods of preventing thrombosis and its consequences. We thank the Helen MacPherson Smith Trust for supporting the acquisition of Professor Peter. Other new arrivals at the end of 2004 include Julie McMullen who has been working on normal and abnormal growth of the heart at Harvard University.

Sal Pepe hosted a satellite meeting of the 18th World Congress of the International Society for Heart Research, which drew a coterie of internationally renowned heart researchers to the Institute in August. Three of which are introduced in the following pages: Professor David Kass, Professor Edward Lakatta and Professor Roberto Ferrari. Many other distinguished visitors graced our Institute during the year and we hosted a number of other scientific meetings including the Australian High Blood Pressure Research Council annual scientific meeting.

We are engaged in a people business and much of Erica Hughes' effort on the operations side was directed towards revising and renewing our approaches to staff related matters such as classifications, remuneration, conditions, payroll and policies. At the same time we have had major projects in IT and in Occupational Health and Safety. Fundraising is not getting any easier with so many worthy causes to support but Kristen Boschma and her team have been laying the foundations for a major capital raising effort.

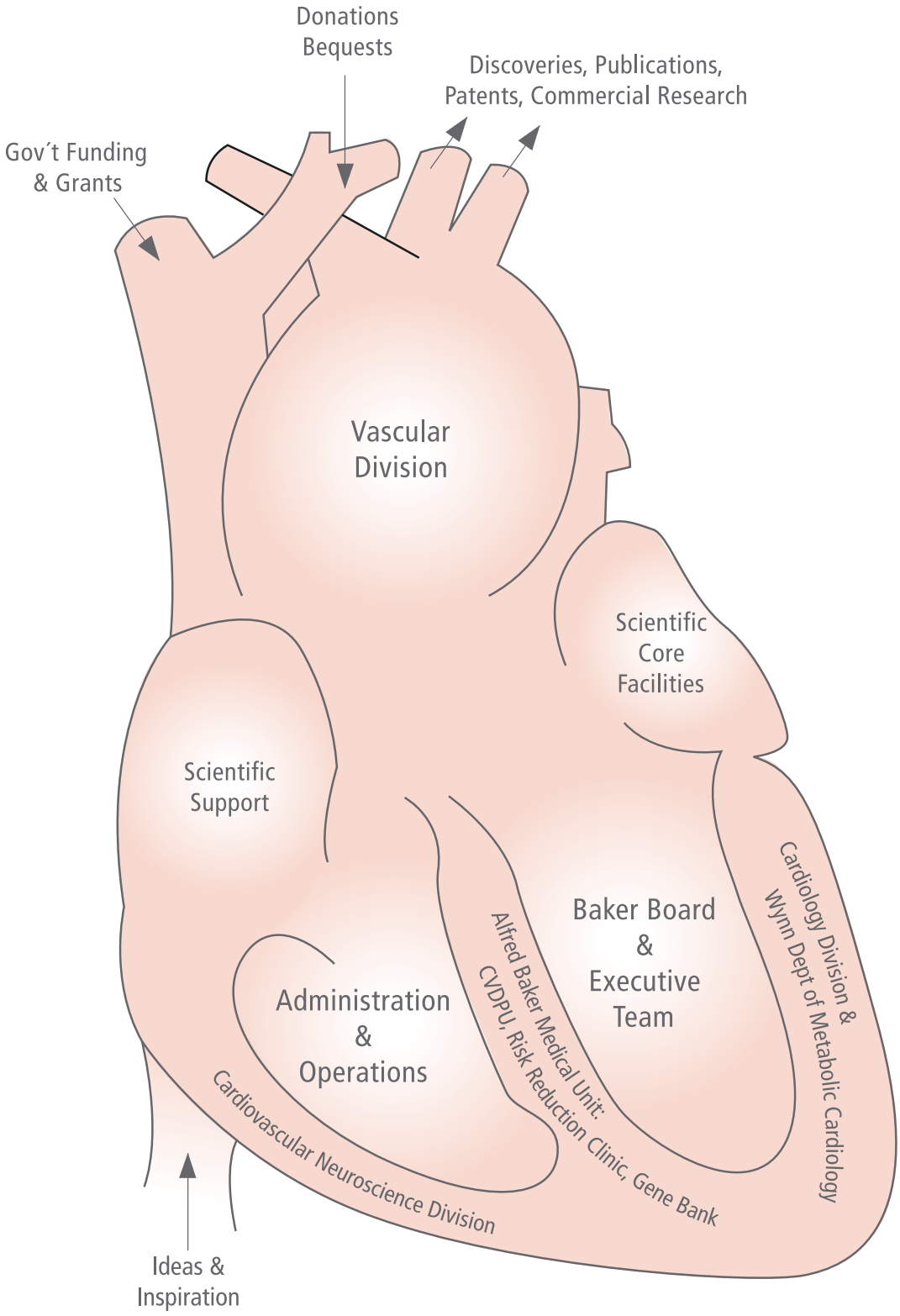
Commercialisation opportunities have increased manifold as illustrated by a number of start up companies initiated by the Baker and referred to above. There have been hard yards in all of these projects but they will all reap huge future benefits.

As always, our success has been utterly dependent on the efforts of many volunteers. Within the Institute these include members of various committees such as Scholars (Chair Walter Thomas), Equipment (Chair Phillip Kantharidis, who also runs our excellent seminar program), Grants (Chair Colin Johnston) and Science Council (Murray Esler). However, there are many more volunteers who in the cause of scientific excellence contribute extra time and hard work on our behalf. Our President and Board provide us not only with good governance but also a whole lot more advice and support, skill, energy and tolerance. We are grateful to all our staff, supporters, volunteers, stakeholders and allies who make it all possible.

Garry Jennings

ORGANISATION CHART

AS REPRESENTED BY THE HUMAN HEART



Although the heart health of people in Melbourne and Australia remains the main focus for the Baker, it is important to acknowledge that the fight against heart disease is a global one.

The Baker Heart Research Institute is regarded internationally as a vital component in the progress made towards the prevention of heart disease world wide. Its contributions have been many and significant and its science is sought after in the pursuit of new and innovative research methods. While groundbreaking revelations have often placed the Baker in the limelight, it is the long term commitment and consistent development that has earned the Baker its reputation as a leader in cardiovascular research.

The drive for Baker scientists comes from the belief and knowledge of their potential to improve people's quality of life. Together with the best researchers in the world they continue to strive towards an eventual eradication of the world's leading cause of death.

PROF. DAVID A. KASS M.D.; F.A.H.A

U.S.A

- Abraham and Virginia Weiss Professor of Cardiology
- Professor of Biomedical Engineering
  Johns Hopkins Medical Institutions

"The John Hopkins Hospital, where I am, halfway around the world from Melbourne, is very familiar with the leadership role that's gone on here at The Baker Heart Research Institute. Many of the members of The Baker have played pivotal roles, particularly in our understanding of arterial disease, hypertension, heart failure, and diabetes."

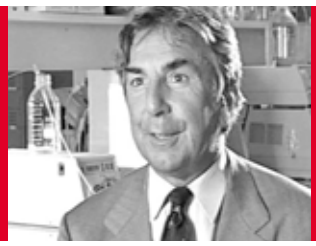
PROF. EDWARD G. LAKATTA M.D.

U.S.A

- Senior Investigator
- Chief, Laboratory of Cardiovascular Science and Chief, Cardiac Function Section
  Gerontology Research Center, National Institute on Ageing, National Institutes of Health, Baltimore, USA

"For us to conquer heart disease we have to understand about the aging of hearts and blood vessels, and that's what's being done in such a superb way by the investigators here in Melbourne's Baker Heart Research Institute."

PROF. ROBERTO FERRARI



ITALY

- Professor and chairman, Department of Cardiology,
  University of Ferrara, Italy

"I'm really honoured to be associated with the Baker Institute because we are aware of their research in Europe and I'm sure we'll have a future relationship in (our quest) to prevent heart attacks in human beings."

HEART

David Kaye

Cardiology Division

The Cardiology division brings researchers with a diverse range of skills together to study the heart in health and in disease. The division, headed by Wynn Professor David Kaye, spans molecular cardiology labs who conduct basic research into the 'nuts and bolts' of how the heart works, through to clinical researchers working with patients awaiting heart transplant.

Key molecular mechanisms of hypertension, heart cell death and cardiac hypertrophy are being investigated by Dr Wally Thomas and Associate Professor Liz Woodcock.

At a more clinical level, Dr Jaye Chin-Dusting investigates changes occurring in aging arteries, work of special relevance to Australia's aging population. Dr Sal Pepe investigates novel surgical techniques, and Dr John Power conducts applied cardiovascular research into devices to assist with heart failure. Highlights this year include the first patient implants of a percutaneous mitral annuloplasty device, a device to fix leaky mitral valves, and the formation of a Baker start-up company, V-Kardia, to develop a device to deliver targeted gene therapy treatments to the heart.

Some members of the division cross traditional scientific boundaries, such as Dr Assam El-Osta, whose human epigenetics laboratory has ongoing projects with other division members to look at the role of structural changes to genes in a number of processes in health and disease. Likewise, the experience with small animal models and microsurgical skills of Dr Xiao-Jun Du are being applied to projects across the entire division and the larger institute as a whole. Dr Rebecca Ritchie also acts to connect the cardiology division to other researchers within the institute with her work looking into the effects of diabetes on the muscle of the heart.

The Cardiology division brings together such diverse groups in order to address the 'big issues' in heart research - diseases such as heart failure, arrhythmia and heart attack, which require a major public health focus and are a leading cause of years lost to morbidity and mortality in our society. The Cardiology division harnesses the talents of each of its members to work toward the larger goal of preventing cardiovascular disease in Australia and around the world.

To this end, the Cardiology division has benefited greatly from the very generous support of Professor Victor Wynn and the Atherosclerosis Research Trust (based in the UK). Such support has allowed considerable progress to be made in our extensive program of research directed at understanding the metabolic basis for heart failure and its underlying causes.

For more detail on our research, please go to www.baker.edu.au for our research report.

BRAIN

Murray Esler

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.

Our research findings support the importance of psychological mechanisms and mental stress in heart disease and high blood pressure.

- Investigating the neurobiology of Obesity-Related Hypertension

This research aims to find a rational basis for the treatment of Obesity-Related Hypertension through ongoing studies into the way in which the development of obesity causes blood pressure elevation. Significant discoveries in this area include the finding that leptin, a hormone known to be secreted by fat tissue, is also produced in the human brain. Leptin release from the brain is markedly increased in human obesity, accounting for more than 25% of whole body leptin release. This discovery is highly important because leptin is an important regulator of body weight, making it the focus of a lot of attention in the fight against obesity worldwide.

- Investigating the role of the sympathetic nerves in renal hypertension

There is increasing evidence that sympathetic (stimulant) nerve activity is important in the development of hypertension, heart failure and renal failure. We have shown that the relative role of the renal sympathetic nerves in causing angiotensin-dependant hypertension diminishes with the development of the disease.

- Analysis of the neurobiology of 'neurogenic' essential hypertension

We have previously shown that this form of high blood pressure is initiated and sustained by overactivity of the sympathetic nervous system. In collaboration with Professor Graeme Jackson of the Brain Research Institute at Austin Health, we will apply functional Magnetic Resonance Imaging (MRI) methodology of selected regions of the brain to investigate neural mechanisms of this form of hypertension.

- Studying the neural pathophysiology of Postural tachycardia syndrome (POTS)

This common but enigmatic disorder is characterised by sufferers displaying a racing heart and blackouts upon standing. The cardiovascular neuroscience division is investigating the control mechanisms of the brain circuitry involved in POTS. Research focuses on the role of noradrenaline, one of the brain's 'messenger chemicals' or neurotransmitters. Significant discoveries in this area include the discovery of an epigenetic abnormality in the noradrenaline transporter gene in POTS patients, which may be the cause of the disorder.

- Exploring the mechanisms of heart risk in depressive illness

It has long been known that depressive illness materially increases heart risk, yet the precise mechanisms by which this occurs are yet to be fully explained. The cardiovascular neuroscience division has found that in approximately 40% of

depressive patients, the level of activity in the sympathetic nerves of the heart is markedly elevated to the level seen in patients with terminal heart failure. This discovery may yield an explanation for how depressive illness constitutes a risk factor for heart disease.

- Investigating the neurophysiology of panic disorder

Abnormalities in the gene which codes for the noradrenaline transporter have also been described in patients suffering panic disorder. Our work adds to the growing knowledge of the mechanisms of how panic disorder contributes to increased cardiovascular risk. Part of this increased risk may be mediated by adrenaline, second neurotransmitter of the sympathetic nervous system.
We have recently shown neurobiological abnormalities in adrenaline signalling in sympathetic nerves in patients suffering panic disorder. Work is ongoing investigating the effects on heart risk of two different treatments for panic disorder, cognitive behavioural therapy and selective serotonin reuptake inhibitor (SSRI) medication.

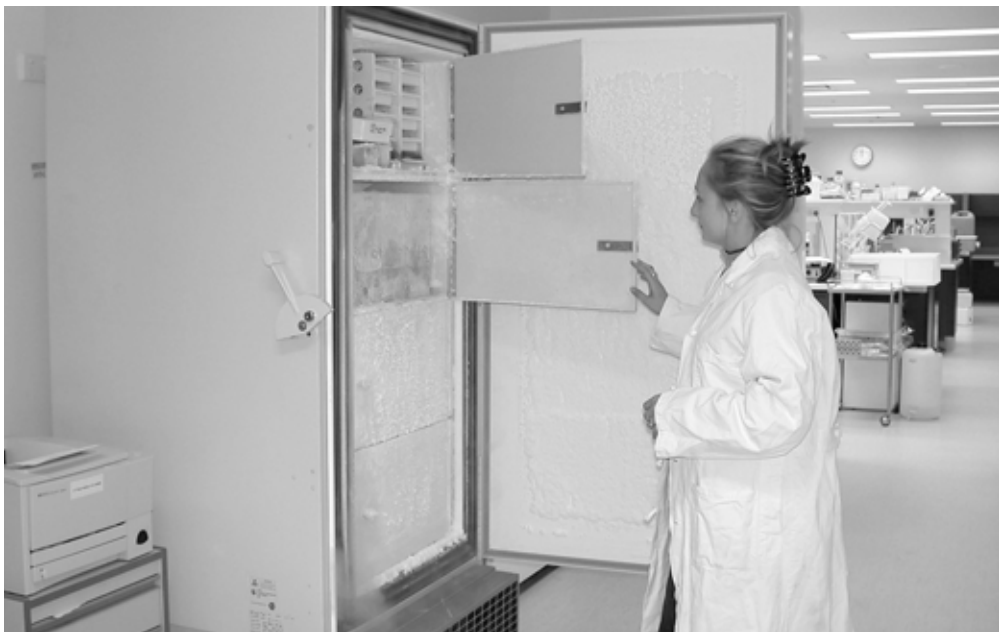
As well as having a global impact on the understanding of the interactions between the brain and the heart, the work of this division also extends to the local community. Sufferers of panic disorder are often unaware that they have a relatively common treatable illness, believing that they are either "going mad" or in grave danger of sudden death. By volunteering for studies such as those into the biology of panic disorder, sufferers in the local community often gain a better understanding of the causes of panic disorder, the level of heart risk (which in the majority of patients is, in fact, negligible) and potential ways to deal with the condition.

The cardiovascular neurosciences division has benefited from collaborations with The Institute For Molecular Bioscience in Queensland, studying novel peptides isolated from snake venom as a potential treatment for heart failure. We have established a Baker spin-off company, ElaCor, to develop these novel therapies.

INTERNATIONAL COLLABORATIONS

Associate Professor Geoff Head's lab hosted Dr Elena V Lukoshkova from the National Cardiology Research center in Moscow, Russia. Dr Gavin Lambert's lab hosted Dr Klemens Fellner from the Faculty of Mathematics, University of Vienna, Austria. International collaborators include Dr Phil Gold, a distinguished depressive illness researcher from the National Institutes of Health, USA, and Professor Mona Soreq, an international figure in neurogenetics, based at the Hebrew University, Jerusalem.

For more detail on our research, please go to www.baker.edu.au for our research report.



VESSELS

Mark Cooper

Vascular Division

The Vascular Division is a diverse group of laboratories that are all engaged in the exploration and identification of the causes, processes, effects and new treatments of vascular disease.

The major grouping in the division studies diabetes, and in particular, its vascular complications. This group is headed by Professor Mark Cooper who leads a team of over 20 researchers focusing on the vascular, renal and cardiac complications that occur in diabetes. With the growing number of obese people and lack of exercise, people who develop Type II diabetes are now doing so earlier, whilst middle aged. This has created an increasingly important public health problem in Australia and throughout the world.

However most people with diabetes, both Type I (juvenile) and Type II (adult), nowadays do not die from the metabolic abnormalities of diabetes but from cardiovascular-related complications. This group has a longstanding international reputation in diabetic nephropathy which leads to kidney failure and over the last year have developed new treatment strategies to slow the progression of diabetic renal disease. This group has also expanded their interests to the vasculature, examining why diabetes leads to accelerated atherosclerosis. Indeed, up to 70% of people with diabetes die from cardiovascular disease, mainly from heart attacks and strokes. In a model of experimental diabetes-associated atherosclerosis, which develops spontaneous fatty streaks and plaques in the vessel, this group has identified that specific treatments useful for the kidney are also helpful in retarding atherosclerosis.

The Clinical Physiology section, led by Associate Professor Bronwyn Kingwell, has two major areas of interest. Diabetes, particularly late onset or Type II diabetes, is a major health problem, as outlined earlier. It is well known that exercise improves blood glucose control in diabetes and this laboratory has now unravelled the mechanism by which this occurs. This understanding will allow us to develop drugs that mimic the action of exercise. The second area of interest of this laboratory involves the assessment of the compliance or stiffness of large arteries. As one ages, one's arteries get stiff and it is now known that this is a risk factor for subsequent heart disease.

Several years ago this group demonstrated for the first time that this vascular stiffness aggravates coronary artery disease leading to heart attacks. This group has recently shown that there are certain genetic factors, particularly variations in genes 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 ultimately coronary artery 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. Such studies may ultimately lead to either 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. They continue to explore, in large clinical studies, the role of plant sterols (which are available in foods) in lowering cholesterol. 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 high glucose levels in diabetes leads to specific irreversible chemical reactions between the excess sugar and proteins such as haemoglobin and other structural proteins. This process is called advanced glycation, and results in the accumulation of these glucose modified proteins at many sites such that there is disruption of normal tissue structure and function. The Glycation and Complications group has shown that these molecules not only cause structural changes but also 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 sticky proteins, and is currently translating these exciting laboratory results to the clinic.

Dr Little's group explores particular structural proteins within the vessel wall known as proteoglycans and how they are altered by diabetes.
This group has shown that certain drugs modify the blood vessel properties and this has potential applications for reducing diabetes-related vascular complications.

This research into diabetes is part of a major centre grant recently awarded by the Juvenile Diabetes Research Foundation International, based in New York.

For more detail on our research, please go to www.baker.edu.au for our research report.

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 2004 were:

- The ongoing development and upgrading of the Clive and Vera Ramaciotti Centre for Proteomic and Genomic Research facility. A Bruker Autoflex MALDI TOF mass spectrometer, suitable for rapid protein identification, has been commissioned. This instrument is currently providing peptide finger printing analysis service and PSD sequencing. In addition, a Bruker HCT Plus ESI- Ion Trap mass spectrometer has been purchased to increase the Centre's ability for protein/peptide identification and de novo sequencing. The existing GE Healthcare robotic spot handling workstation and Ettan MALDI mass spectrometer both have undergone significant upgrades to enhance high-throughput functionality. To complement the Centre's proteomic capacities, a Bruker ClinProt platform has been installed. This magnetic bead-based system allows rapid fractionation of sample proteomes and analysis by direct mass spectrometer. The platform will greatly increase the Centre's biomarker discovery capacity.

- The AMREP Education Centre was a busy venue for the Baker Institute's regular scientific and organisational meetings in 2004. Situated between the Ian Potter Library and the 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 diverse range of Baker research seminars and other meetings were held in the Centre during the year, many involving invited international speakers, such as the 'Aging Heart and Vessels' meeting in August 2004. This high profile satellite meeting to the 18th World Congress of the International Society for Heart Research allowed the Baker to benefit from hosting world-renowned scientists and clinicians during the 3-day meeting.

- 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, especially the use of the electronic services provided to staff and students. Extensive training has been provided to library users to encourage and support the use of these web-based resources.

- An important support service is the Precinct Animal Centre (PAC) under the leadership of Debbie Ramsey and David Spiteri. 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 encompasses many types of microscopy. The core imaging system is our confocal microscope which enables scientists to visualise live cell activity in three dimensions and observe changes through time. The system has contributed to a number of recent publications. 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.

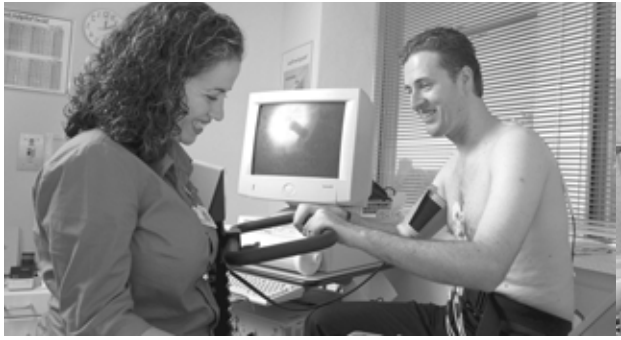
- The Adenovirus/Gene Delivery Core Facility provides expertise and amenities to allow Baker scientists, as well as external collaborators, the capacity to generate and purify adenoviral constructs. Adenoviruses and adeno-associated viruses are unique tools for infecting difficult to transfect cells both in culture and in vivo and have particular utility for cells and tissues of the cardiovascular system. The facility includes a self-contained, state-of-the-art cell culture suite on the 2nd floor of the Baker Tower with biosafety cabinets, cell culture incubators and fluorescent microscopy. Expertise is available in strategy, cloning, recombination, production and purification of adenoviruses. This year saw the successful production and purification of an adeno-associated virus, the production and purification of adenoviruses for six external collaborators, as well as an increased number of internal users of the facility.

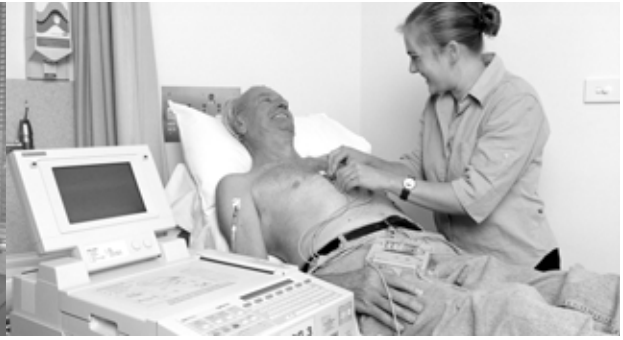
- The Baker has stayed abreast of recent advances in cardiovascular research with our Mouse Surgery/Cardiology Core Facility. The selective use of genetically manipulated animals allows us to determine the role of significant genes and proteins in cardiovascular physiology and disease. Because the mouse is the common choice of species for this type of research, determining mouse heart and vascular function and reproducing cardiovascular diseases in small animals have become important research approaches. The Mouse Cardiology Core Facility has been providing collaborative support to other groups at the Baker in conducting cardiovascular research using mice. A range of functional and microsurgical methodologies have been up and running at Experimental Cardiology Laboratory, which via the Mouse Cardiology Core Facility, makes these demanding methodologies available to other laboratories. During 2004, this Core Facility via Experimental Cardiology continued to provide collaborative support by performing microsurgery and determining cardiovascular function as well as methodology training for groups including Molecular Cardiology, Human Genetics, Cell Biology and Vascular Pharmacology.

COMMUNITY PROGRAMS

- The Alfred Baker Medical Unit (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 Baker was the first Australian World Health Organisation Collaborating Centre for Research and Training in Cardiovascular Diseases.

- The Cardiovascular Disease Prevention Unit (CVDPU) 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. A number of large international clinical trials were conducted at the Baker in 2004 including REACH and ON TARGET studies. Numerous smaller clinical trials were also carried out. The CVDPU was 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. As a result of its demonstrated effectiveness in 2004, the program has expanded with other national centres joining the Baker in using these models to predict outcomes after cardiac surgery.

- 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.

- 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.

- 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 4000 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 on the ABMU, the Risk Reduction Clinic or the Gene Bank please call (03) 9276 2000.

GRADUATING STUDENTS

JULIE NIGRO –
Project Summary
The role of PPAR-alpha ligands (fibrates) in the regulation of vascular smooth muscle proteoglycan synthesis and structure

Elevated LDL ("bad") cholesterol and triglycerides (fats) in the blood contribute to fatty deposits in the blood vessels of the heart. This process is called atherosclerosis or "hardening" of the arteries. Atherosclerosis begins when the cholesterol is trapped in the blood vessel by "sticky" molecules called proteoglycans.

My research aimed to determine whether or not fenofibrate (a new drug which is prescribed to patients with diabetes to control blood lipids) has direct effects on proteoglycans produced by cells in the blood vessel, separate from the actions on triglycerides and cholesterol. I have published my findings with gemfibrozil (a similar drug to fenofibrate) and more recently with fenofibrate showing that these drugs alter the biochemical properties of the proteoglycans making them less "sticky" and the result is reduced attraction or binding to LDL.

My work makes a significant contribution to the field of diabetes and atherosclerosis because this is the first demonstration of a regular prescription drug preventing atherosclerosis by reducing proteoglycan binding to LDL and my future work will aim to extend this to the discovery of new agents specifically targeted at this process.

NINA EIKELIS –
Project Summary
Investigation of the Biology of Adipocyte, Brain and Cardiac Leptin and of the impact of Leptin on the Sympathetic Nervous System.

During my PhD candidature, I have been involved in experimental work, aimed at elucidating the role of leptin in obesity and obesity-related disorders. This work has involved both clinical and basic-science research encompassing tissue-based techniques and the use of animal models.

Leptin is a hormone produced primarily by adipocytes (fat cells), which in rodents is thought to play an important role in body energy balance. Leptin acts in the brain to inhibit appetite and to promote thermogenesis, in part by activating the sympathetic nervous system which stimulates bodily functions. In a major rethink of established medical teaching, we now know that leptin is produced in sites other than adipose tissue. This was a particular focus of the research during my PhD candidature, where I studied leptin production in the human brain and heart.

Traditional wisdom holds that leptin resistance exists in human obesity and that this is a consequence of failure of leptin to enter the brain, its principal site of action. When I tested this proposition directly, by looking at the amount of leptin in the blood as it enters and leaves the brain, I found that there was net release of leptin from the brain, rather than the expected uptake from the blood. This finding provided impetus to study leptin expression in the human brain. In a study conducted with the assistance of the Victorian Institute of Forensic Medicine I have shown that the leptin gene is expressed in the human hypothalamus, the area of the brain which controls bodily functions. Leptin resistance has been claimed to be a major cause of obesity in humans. A major component of this resistance has been suggested to be likely due to an impaired transport of leptin across the blood-brain barrier. However, our observation of leptin production by the brain itself makes untenable this notion, and may lead in future to major advances in the prevention and treatment of obesity.

STEPHANIE DE DIOS –
Project Summary
Anti-Atherogenic Actions of Thiazolidinediones on Human Vascular Smooth Muscle Cells

The focus of my PhD studies was directed on the actions on the blood vessels of the newest class of glucose lowering agents for the treatment of Type 2 diabetes. These drugs are called thiazolidinediones (TZDs) and may have atherosclerosis-reducing properties on the smooth muscle cells in blood vessels. The studies investigated the effects of TZDs on the proliferation and migration of vascular smooth muscle cells regarding restinosis, the

scarring that occurs in an artery after a scaffold-like stent is inserted to maintain blood flow past a plaque. Studies were also carried out on proteoglycan biosynthesis and proteoglycan/LDL binding, which investigated the production and binding of cellular proteins (proteoglycans) produced by human vascular smooth muscle cells to low density lipoproteins (LDL or cholesterol) in relation to atherosclerosis.

DONE ONAN –
Project Summary
Cardiovascular and Regulatory Aspects of the Urotensin-II Receptor

In September 2004 , I completed my PhD candidature under the supervision of Dr Walter Thomas in the Molecular Endocrinology Laboratory at the Baker Heart Research Institute. My thesis focused on the recently discovered urotensin receptor system, which comprises a hormone which has effects on blood vessels, urotensin II, and the molecular machinery by which urotensin works in the cell, via its G protein-coupled receptor, GPR14 (or UT-R). Using molecular and cellular approaches, I investigated two major aspects of this system – 1) its capacity to cause growth of heart cells (cardiac hypertrophy), which may explain the relevance of urotensin to heart failure and death in humans; 2) the signalling and regulatory processes activated by urotensin via the UT-R. I developed a model system of cultured neonatal cardiomyocytes infected with an adenovirus expressing the UT-R to allow rapid and robust measures of urotensin mediated cardiac hypertrophy and related signalling pathways.
I showed for the first time that urotensin potently causes hypertrophy of cardiomyocytes and identified the various post-receptor signals involved; this research lead to two high impact papers, one in Circulation Research (impact factor, 10.1) and the other in Molecular Endocrinology (impact factor, 5.7). The novelty of this work was also recognised by an invitation to write a review article for the prestigious Trends in Endocrinology and Metabolism (impact factor, 7.9) and acceptance to present this work at national and international meetings. I also delved even deeper into the subcellular mechanisms by which urotensin acts, studying receptor phosphorylation and internalization of UT-Rs. I made the key observation that the UT-R is surprisingly recalcitrant to the generally accepted mechanisms of ligand-induced receptor deactivation, offering a possible explanation for the very strong and prolonged actions of urotensin observed in the body.

MERLIN THOMAS –
Project Summary
The growing epidemic of diabetes will ultimately affect more people that any other disease in the Western World. Over a million adult Australians currently have diabetes and twice that number again are at high risk of developing diabetes in the next 5–10 years. Diabetes – and, more importantly, the complications arising from diabetes - are set to become one of Australia's most costly and significant public health issues.

Despite the clear and present danger of diabetes, our understanding is severely limited of the mechanisms that contribute to organ injury resulting from diabetes, such as blindness, amputations, kidney failure and heart disease. My research has concentrated on the formation of Advanced Glycation End products or AGEs as they are significantly called. These are formed by a reaction between proteins and sugars within the body, and the longer-lived the protein is, the more likely it will become AGE-modified. This reaction leads to a change in the shape and function of AGE-modified proteins. An example of this is the AGE modification of collagen that results in a tissue having reduced solubility, flexibility and a lower breaking point. This may be readily appreciated by everyone when they consider the toughness of an old sheep compared with the tenderness of lamb. Although AGEs contribute to some of the physiological changes that we recognise as signs of ageing in the human body (such as cataracts and stiffness), the excess of sugars in diabetes hastens the reaction, meaning that not only are long-lived proteins more heavily modified but also that shorter-lived molecules become targets for advanced glycation. The importance of AGEs in diabetes is best illustrated by the fact that it has been possible to block the formation of AGEs in experimental diabetes and prevent irreversible organ damage, without having to control sugar levels. Indeed, when AGE-modified proteins were infused into animals many of the changes of diabetes and ageing were generated - without elevated sugars. For the millions who struggle to try to control their sugars every day, an understanding of this pathway will provide an important adjunct to their care.

COMMERCIALISATION AND BUSINESS DEVELOPMENT

Commercialisation involves taking our research to the market, be it through undertaking clinical trials, licensing our inventions to biotechnology or pharmaceutical companies or establishing businesses, which will further develop our research inventions through to drug development. The year 2004 was very exciting and rewarding in the Commercialisation Office with several commercialisation 'firsts'.

Licensing and start up company formation are two pathways typically utilised to exploit and commercialise our intellectual property.

In 2004, the Baker concluded negotiations for licensing agreements with two major global pharmaceutical companies. Discussions regarding a third licensing agreement with a U.S. biotechnology company were initiated in 2004, and finalised in early January 2005.

In August 2004, the Baker, in conjunction with the Institute for Molecular Bioscience (IMB), formed our first "spin-off" company, ElaCor Pty Ltd. The rationale for this activity was to provide a commercialisation vehicle to support a research collaboration between Associate Professor Geoff Head of the Baker Heart Research Institute and Professor Paul Alewood of IMB. Working together, these scientists have described the effect of natriuretic peptides on blood pressure and heart rate. This research has potential commercial implications for the treatment of hypertension and congestive heart failure.

Since incorporation, ElaCor has successfully attracted $250,000 funding from the AusIndustry Biotechnology Innovation Fund (BIF) and an $80,000 ISUS grant from the Queensland State Government for non-scientific costs.

Also in 2004, the Baker signed a patent acquisition agreement with Dia-B Pty Ltd, a company formed as a vehicle for research into diabetes and obesity. Dia-B will fund its research portfolio via capital raisings, and listed on the Australian Stock Exchange (ASX) via an Initial Public Offering (IPO) on 24 January 2005. The agreement with Dia-B will provide almost $500,000 over a two-year period to advance the CDA1 project, which is supervised by Dr Zhonglin Chai.

Finally, the Cardiac Devices Development Group funded through the Baker's commercialisation seed fund and under the leadership of Dr John Power, continued their work on the development of a range of interventional cardiac devices. Several patent applications have been subsequently filed to protect this IP, and the year concluded with the incorporation of another new start up company, V-Kardia Pty Ltd, to commercialise these developments. In December 2004, V-Kardia successfully entered into a research and collaboration agreement with a US based biotechnology company to further develop a gene therapy delivery system targeted at the treatment of heart disease.

The Baker continued its association with two clinical trial businesses. The first, Clinical Trials Victoria is a consultancy company that provides services to members, biotechnology and pharmaceutical companies in the areas of regulatory support, quality assurance, data management and marketing. The Baker is also a part owner of the Centre for Clinical Studies, a business that specialises in undertaking clinical trials for industry and academic partners. In April 2004, the Centre opened its new 24-bed Phase 1 clinical trial facility at the Baker's premises. This state of the art facility is the first in Victoria and one of the major centres in Australia undertaking specialise phase one drug trials.

THE BAKER RESEARCH FOUNDATION

YOUR HEART IS IN THE RIGHT PLACE

We would like to thank each and every one of our supporters who made a gift in 2004. The Baker has a very committed and loyal group of 'friends' who have been a part of our family for many years. In addition, we welcome everyone who has recently become involved with the Baker.

We are fortunate to have a group of 123 very special friends who have chosen to leave a gift in their Will. It is wonderful that we are getting to know them all in their lifetime. No matter how you have chosen to support the Baker, you are helping our scientists find the answers to cardiovascular disease.

During 2004 we held several special events, which gave our supporters the opportunity to meet our scientists, learn more about our work and in many cases simply enjoy themselves. Here are a few of those events:

THE GREAT DEBATE

Mark Mitchell compered a very entertaining debate between our male and female scientists in March 2004. The topic tackled was "That women are healthier than men" and it provided a most stimulating and enjoyable evening for all who attended.

PROFESSIONALS BY THE BOTTLE

Our inaugural Professionals by the Bottle event was held in July and was a great success. Fifteen generous winemakers from the medical, legal and business professionals provided their wine for the event. James Cuthbertson of Murrindindi Winery was voted the Baker Winemaker of the Year.

WINE LOVER'S DINNER

This event, held at the Melbourne Club, continues to be a highlight of our event calendar. This was a record year for attendances and whilst our guests enjoyed fine food and wine in beautiful surroundings, they also made it a record year for fundraising.

PETER BROCKLEHURST CONCERT

A sell-out crowd enjoyed an evening of delightful music from Peter Brocklehurst and Margaret Orr – accompanied by Maestro Vladimir Vais on piano. Held at Christ Church in South Yarra, it was a most enjoyable event. Peter and Margaret sang wonderfully and our guests all agreed it was a special night.

BAKER VOLUNTEERS

Our loyal volunteers assisted the Baker with more than 600 hours of their time in 2004. They opened wine, filed, did data entry, stocked our bandages, were always helpful, manned the lift, greeted guests, tracked our chemicals, were always welcoming, counted Christmas cards and spoons, served tea and coffee, shredded paper and photocopied. We thank them all for their time, their smiles, and their commitment to the Baker.

By supporting our research, through attending events, making financial contributions, or volunteering, you are all helping to make a difference.

We thank you – all your hearts are in the right place.
For details on how you can support The Baker see page 39.

Peter Brocklehurst

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Ms Paula Campbell-Tuckfield

BAKER SUPPORTERS

Here is one young man whose heart is very much in the right place. Neil Waters (from Gippsland) headed off on the Kokoda Trail with nine mates in August 2004. Before he left, he held a Golf Day in Wonthaggi and a Black Tie Dinner Auction – all to raise money for the Baker. Neil had a quadruple heart by-pass at just 33 years of age and took this opportunity to show his appreciation to the researchers who helped save his life. He raised more than $21,000 for the Baker. Thank you again Neil – we hope you know how special you are.

All the people listed below are special too. From all of us at the Baker – thank you for your support in 2004.

The Institute is grateful for major contributions from:

- Atherosclerosis Research Trust of the UK
- Australian Rotary Health Research Fund
- Baker Foundation
- Juvenile Diabetes Research Foundation
- National Heart Foundation
- National Health & Medical Research Council
- Victorian Government

Baker Research Foundation (Founding Members)

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- Estate George F Little Settlement
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- George Thomas & Lockyer Potter Trust
- Emily Elsie Elizabeth Stewart

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- Munz Family Fellowship
- Heartbeat Alfred & Baker Scholarship
- Joanna Middows Fellowship
- John T Reid Fellowship
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- The Cybec Foundation Scholarship
- VEADA Scholarship
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- William Angliss (Vic.) Charitable Fund
- Anonymous

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Barkala Ridge Vineyard
Booroola Winery
Brian Chalmers Leask
Casella Wines
Chanter's Ridge Winery
Cheviot Bridge Vineyard
Chinatique
Christ Church SouthYarra
Delatite Winery
De Giorgio Family Wines
Earl's Ridge Vineyard
Harvey Publicity
Heathcote Estate
Hellenic Cheese Farm
Ian Loftus & Lofty Connections
Langham Hotels International
Majella Wines Coonawarra
Melbourne City Jaguar
Mercury Advertising and Design
Milawar Cheese Company
Mirvac Properties
Moorooduc Estate
Mt Charlie Winery
Murrindindi Vineyards
Noone Imagewear
Octane Espresso
Palace Cinemas
Penbro Estate Winery
Pettavel Winery & Restaurant
Pfeiffer Rutherglen Estate
Random House Books
Shantell Wines
Simply Sensational Catering and Events
Strathewen Hills Vineyard
Yarra Brook Estate
Wesley College

Bequests

- Estate Frances Hilda Parkinson
- Estate E W Wortley
- Estate Eric W Tobin
- Estate George Llewellyn Jones
- Estate Gwendoline Margaret Dodgshun
- Estate Jeanie McAlpine Robertson
- Estate Kathleen Mary Cunningham
- Estate Lieselotte Anna Adeline - Brumloop
- Estate Louise Elizabeth Jessie Fleming
- Estate Marion Borrett
- Estate Marjorie Frances Perry
- Estate Merna D Sheahan
- Estate Vernon Charles Burgess
- Estate Violet M Lowe
- Estate Wilma Ella Dimsey
- Estate Jadwiga Maria Bytomski

Volunteers

Robert & Jan Ashe
Denise Bailey
Marian Bannister
Paula Barry
George & Betty Bird
Ida Joyce Bourke
Elaine Callow
Bev Cohen
Adrienne Dickson
Margot Dixon
David & Audrey Doig
Jim & Margaret Fairbairn
Laurie & Sandra Feldman
Alan & Flora Fellows
Nita Fone
Joyce Fuller
Vern & Shirley Gilbert
Jan Goodwin
Ron Hancock
John Harcourt
Heather Heath
Lyall & Betty Jarman
Lindsay & June Jenkins
Philip & Dawn Keast
Fred & Kathleen Kidd
Gwen Kieseker
Christine King
June Lawrence
Han-Shin Lee
Bill & Betty Ling
Jill Louden
Enda Markey
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
Heather Rolls
Patricia Singleton

STAFF

Director
Professor Garry Jennings AM - MD, MBBS, FRCP, FRACP, FAHA

Associate Directors
Professor Mark Cooper - MBBS, FRACP, PhD, FAHA, FASN
Professor Murray Esler - BMedSci, MBBS, FAAS, PhD

Associate Directors ABMU
Professor Alexander Bobik - Bpharm, MSc, PhD
Professor Anthony Dart - BA, Dphil, BMBCh, FRCP

Division Heads
Professor Mark Cooper - MBBS, FRACP, PhD, FAHA, FASN
Professor Murray Esler - BMedSci, MBBS, PhD
Professor David Kaye - MBBS, PhD, FRACP, FACC

SENIOR FACULTY

Senior Principal Research Fellows
Professor Alexander Bobik - Bpharm, MSc, PhD
Professor Mark Cooper - MBBS, FRACP, PhD, FAHA, FASN
Professor Anthony Dart - BA, Dphil, BMBCh, FRCP
Professor Murray Esler - BMedSci, MBBS, PhD
Professor Colin I Johnston AO - MBBS, MD (Hon), FRACP, FAHA
Professor Paul J Nestel AO- MD, FTSE, FRACP, FAHA

Principal Research Fellows
Associate Professor Geoffrey Head - BSc (Hons), PhD
Associate Professor Zygmunt Krozowski - BSc (Hon), PhD
Associate Professor Elizabeth Woodcock - BSc (Hons), PhD

Honorary Professors
Dr Peter Little - B Pharm, M Sc, Ph D, ASIA
Dr Franklin L Rosenfeldt - MBBS, MD, FRCSE, FRACS

NHMRC Fellows
Dr Xiao-Jun Du
Dr Jaye Chin-Dusting
Professor Mark Cooper
Professor Anthony Dart
Professor Murray Esler
Associate Professor Geoff Head
Professor David Kaye
Dr Bronwyn Kingwell
Associate Professor Zyg Krozowski
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
Karin Jandeleit-Dahm

SCIENTIFIC DIVISIONS

Translational Proteomics Lab - Head
Gregory Rice - Phd, Grad Dip Management, Master Health Administration

Professional & Technical staff
Karen Oliva - Dip App Sci

Visiting Scientists
Clyde Riley - The Royal Women's Hospital
Nuzhat Ahmed - The Royal Women's Hospital
Marhta Lappas - Mercy Hospital for Women

Admin Staff
Judi Herschell - Research Awareness and Education Leader

Clive and Vera Ramaciotti Centre for Proteomics and Genomics
Proteomics Lab - Head
Gert Talbo - PhD

Scientific Staff
Mustafa Ayhan - PhD

Professional & Technical staff
Vincent Strangis - BSc (Hons)

Cardiology Division
Head
Professor David M Kaye - MBBS, PhD, FRACP, FACC

Administrative
Kate Knight - Personal Assistant

Wynn Department of Metabolic Cardiology
Head of Department
David M Kaye - MBBS, PhD, FRACP, FACC

Senior Scientific Staff
Rebecca Ritchie - BSc (Hons), PhD
Nagesh Anavekar - MBBS, FRACP
Wei-Zheng Zhang - MSc, PhD
Zhiyong Yang - BSc, MSc, PhD

Professional & Technical Staff
Samara Finch - BSc (Hons)
Tanneale Marshall - BSc (Hons)
Belinda Smirk - BscMedSci (Hons)
Anh Cao - BSc (Hons)
Claire Gollogly - RN, BSc
Carla Enriquez - BSc (Hons)

Visiting Scientists
Dr Melinda Parnell - University of Otago Med School, New Zealand

Students
Paul Gould - PhD (Monash)
Ruchi Patel - PhD
Christine Goh - Honours
Justin Mariani - PhD (Monash)
Greta Meredith - Honours
Helen Rancie - Honours

Cardiac Surgical Research Laboratory
Head - Myocardial Metabolism Research
Salvatore Pepe - PhD, BSc (Hons), PGrad Dip Health Counsel

Senior Scientific
Alicia Calderone - BbiomedSc (Hons)
Rachel Denver - BSc (Hons) (until June 30, 2004)
Christine Egan - DipAppScVet
Jee-Yoong Leong - MBBS, FRACS
Silvana Marasco - MBBS, MSurg, FRACS
Takahiro Oto - MD, PhD
Deahne Quick - BSc (Hons)
Juliana van der Merwe - BNursing, RN, MPhil (from November 2004)

Head - Clinical Research
Franklin L Rosenfeldt - MBBS, MD, FRCSE, FRACS
See also page 31 for collaborating surgeons

Visiting Scientists
Lea M. Delbridge - PhD, Associate Professor, Dept Physiology, Melbourne University
Lloyd Einsiedel - MBBS, PhD, Macfarlane Burnett Institute for Medical Research
Takahiro Oto - MD, PhD, Okayama University, Japan

Students
Freya Sheeran - PhD student
Olivier van den Brink - PhD student
Jee-Yoong Leong - MS student
Wendy Ip - Honours student

Cellular Biochemistry Laboratory
Head
Elizabeth A Woodcock - BSc (Hons), PhD

Senior Scientific Staff
Lynne Turnbull - BSc (Hons), PhD

Professional & Technical Staff
Bronwyn Kenney - Dip BiolSc
Huy Huynh - BApplSciBiotech

Students
Tam Pham - MSc, (Monash University)
Oliver Vasilevski - PhD (Swinburne University of Technology)

Experimental Cardiology Laboratory
Heads
Xiao-Jun Du - MBBS, M Med, PhD
Anthony M Dart - BA, BMBCh, Dphil, FRACP

Senior Scientific
Helen Kiriazis - BSc (Hons), PhD
Shirley Moore - MBBS, Grad Dip Med Sc, PhD
Xiao-Ming Gao - MBBS, MD, MUNZ Fellowship
Qi Xu - MBBS, PhD

Professional and Technical
Yidan Su - MBBS, PhD

Visiting Scientists
Aisling McMahon - PhD, Research Fellow, Victor Chang Cardiac Research Institute, Sydney
Ishtiaq M Ahmed - MBBS, Research Fellow, Victor Chang Cardiac Research Institute, Sydney
Jie Niu - Beijing, P R China

Students
Karen Fang - PhD Melbourne University
Edna Bajunaki - PhD Melbourne University
Geoffrey Wong - Advanced Medical Science, Melbourne University
Kemble Wang - Advanced Medical Science, Melbourne University
Chenyi Lo - Advanced Medical Science, Melbourne University

Molecular Endocrinology Laboratory
Head
Walter G Thomas - BSc (Hons), PhD

Senior Scientific
Hongwei Qian - PhD (West Virginia)
Diem Dinh - BSc (Hons), PhD, Peter Doherty Fellow

Professional & Technical
Thao Pham
Luisa Pipolo - AssDipAppSc

Visiting Scientists
Angelo D'Amore - PhD Candidate, Monash University

Students
Done Onan - PhD (Monash University) – thesis submitted
Nicola Smith - PhD (Melbourne University)
Hsiu-Wen Chan - PhD (Monash University)
Cristina Oro - PhD (Monash University)
Enzo Porrello - PhD (Melbourne University)

Molecular Hypertension Laboratory
Head
Zygmunt Krozowski - PhD

Senior Scientific
Zhonglin Chai - PhD

Professional and Technical Staff
Varuni Obeyesekere - BSc (Hons)
Michelle Cinel - Cert Vet Nursing, AssDipAppSci (Animal Tech)

Visiting Scientists
Genevieve Escher - PhD, Berne Switzerland

Students
Sally Penfold - Honours (La Trobe)

Applied Cardiovascular Research
Head
John Power - BVSc (Hons), PhD

Professional & Technical Staff
Adam Bilney - BE (Hons)
Francis Fitzpatrick
Paul Horton
Anka Smolic - BScHons, B.App.Sc

Students
Justin Mariani - PhD (Monash)

Human Epigenetics
Head
Assam El-Osta - BSc (Hons), PhD

Staff
Emma K Baker - PhD
Harikrishnan KN - MSc, PhD
Sahar Bassal - PhD

Students
Daniella Brasacchio - PhD (Monash)
Maggie Chow - PhD (Melbourne)
Lisa Chang - MBS (Monash)
Stanley MH Chan - PhD (RMIT)

Vascular Pharmacology Laboratory
Head
Jaye Chin-Dusting - BSc (Hons), PhD

Senior Scientific
Kevin Woollard - PhD

Professional & Technical Support
Ann-Maree Jefferis - BSc
Margaret Vincent - AssDipAppSci
Emma Jones - BSc (Hons)

Students
Nathan Connelly - PhD (Melbourne)
Ngan Ngoc Huynh - PhD (Monash)
Rajesh Nair - Masters Prelim (Monash)

Cardiovascular Neuroscience Division
Head
Professor Murray Esler - BMedSci, MBBS, PhD

Human Neurotransmitter Laboratory
Head
Gavin Lambert - PhD

Senior Scientific
Marlies Alvarenga - PhD
Deepak Haikerwal - MBBS, PhD
Jacqueline Hastings - BSc, PhD
Elisabeth Lambert - PhD
Kazuko Masuo - MD, PhD
Glen Wiesner - PhD

Professional & Technical
Jeanette Bourke
Celia Brenchly - B App Sci (Psychology)
Nina Eikelis - BSc (Hon)
Ling Guo - MD
Elodie Hotchkin - BSc (Hons)
Flora Socratous - BSc

Visiting Scientists
Klemens Fellner - PhD, Faculty of Mathematics, University of Vienna, Austria

Students
Jake Anderson - Honours (Monash)
David Barton - MBBS
Tye Dawood - PhD (Monash)

Neuropharmacology Laboratory
Head
Geoffrey A Head - BSc (Hons), PhD

Senior Scientific
Dmitry N Mayorov - BSc (Hons), PhD

Professional & Technical
Sandra L Burke - BSc (Hons), MSc
Luisa La Greca - BBiol Sci (Hons)

Visiting Scientists
Dr Elena V Lukoshkova - National Cardiology Research Center, Moscow, Russia

Students
Scott Maxwell - RMIT University

Vascular Division
Head
Professor Mark Cooper - MBBS, FRACP, PhD, FAHA, FASN

Cardiovascular Nutrition Laboratory
Head
Paul Nestel - AO, MD, FTSE, FRACP, FAHA

Senior Scientific
Nora Straznicky - BPharm, PhD, MPH

Professional & Technical
Marja Cehun - BEd, RN

Visiting Scientists
Lei Zhang - MD, Peoples Republic of China
Akihiko Fujii - BS, MS Pharmacy, Tohoku University, Japan

Cell Biology Laboratory
Head
Alexander Bobik - BPharm, MSc, PhD

Senior Scientific
Alex Agrotis - BSc (Hons), PhD

Professional & Technical
Peter Kanellakis - BSc
Gina Kostolias - BSc (Hons)
Giovanna DiVitto - BSc (Hons)

Visiting Scientists
Natalia Kalinina - PhD, Institute of Experimental Cardiology, Cardiology Research Centre, Moscow, Russia

Students
Tina Raj - Honours (Monash)
Michael Ditiatkovski - PhD (Monash)
Kelly To - PhD (Monash)

Cell Biology of Diabetes Laboratory
Head
Peter J Little - B Pharm, M Sc, Ph D, ASIA

Professional & Technical
Melanie Ivey - B Appl Sci
Karen Frontanilla - B Appl Sci (Pharm Sci 3rd year)

Danielle Alberti Memorial Centre for Diabetes Complications (JDRF – Melbourne)
Head
Mark E Cooper - MB BS, PhD, FRACP

Administrative
Laurel Ring

Senior Scientific
Terri Allen - BSc, PhD
Zemin Cao - MB BS, MD
Josephine Forbes - BSc, PhD
Karin Jandeleit-Dahm - MD, PhD
Phillip Kantharidis - BSc (Hons), PhD

Scientific
Melinda Coughlan - BSc (Hons), PhD
Philip Koh - BSc (Hons), PhD
Belinda Davis - BSc (Hons), PhD
Chris Tikellis - BSc (Hons), PhD
David Long - BSc (Hons)
Vicki Thallas - BAppSci
Craig Smith - BSc (Hons)
Josefa Pete - BSc (Hons)
Katarzyna Bialkowski - BSc (Hons)

Professional & Technical
Maryann Arnstein
Wendy Cao
Gavin Langmaid
Sandra Miljavec
DipApplSci
Sheree Purcell

Visiting Scientists
Markus Lassila - BSc, Msc, PhD, Finland
Geoffrey Boner - MB ChB, South Africa
Guorong Ma - MD, Nephrology, China
Xiao Li Zhang - MD, Endocrinology, China
Kei Fukami - MD, Nephrology, Japan

Students
Vishal Boolell - AMS (Melbourne)
Wendy Burns - PhD (Melbourne)
Anna Calkin - PhD (Monash)
Brooke Harcourt - BSc, Hons (Monash)
Yen Pham - Honours (Monash)
Georgia Soldatos - PhD (Monash)
Kwee K Seah - AMS (Melbourne)
Merlin Thomas - PhD (Melbourne)
David Chung Kiet Tong - AMS (Melbourne)
Louis Teo Loon Yee - AMS (Melbourne)

Clinical Physiology Laboratory
Head
Bronwyn Kingwell - BSc (Hons), PhD

Senior Scientific
Barbora de Courten - MD PhD (Senior Research Officer)

Professional & Technical Staff
Melissa Formosa - BSc
Alaina Natoli - BSc(Hons)
Brian Drew - BSc (Hons) (0.2 EFT)
Ying Fu - MSc (0.5 EFT)

Students
Graduated 2004
Christopher Tefft - BSc(Hons) (Monash)

Current students
Anthony White - MBBS PhD (Monash)
Anna Ahimastos - BBiomedSc(Hons) PhD Monash
Darren Henstridge - BSc(Hons) PhD (Monash)
Brian Drew - BSc(Hons) PhD (Monash)

Lipoproteins and Atherosclerosis Laboratory
Head
Dmitri Sviridov - BSc (Hons), MBBS, FAHA, PhD

Professional & Technical
Anh Hoang - BSc (Hons)
Ying Fu - MSc
Genevieve Escher - PhD
Urbain Tchoua - PhD

Visiting Scientists
Michael Bukrinsky - MD, PhD, George Washington University, Washington DC, USA

Students
Chris Tefft - BScHons (Monash)
Amy Gatt - BscHons (Deakin)

Human Vascular Biology Laboratory
Head
Stephen Duffy - MB, BS (Hons), PhD, FRACP, MRCP

Professional & Technical
Lovisa Dousha - BSc (Hons)

Students
Swati Mukherjee - PhD (Monash)
Darren Henstridge - PhD (Monash)

Alfred Baker Medical Unit - NHMRC Centre for Clinical Research Excellence
Head
Garry Jennings - MD, MBBS, FRCP, FRACP, FAHA

Deputy Director
David M Kaye - MBBS, PhD, FRACP, FACC

Assoc Directors
Anthony Dart - BA, DPhil, BMBCh, FRCP
Murray Esler - BmedSci, MBBS, PhD
Alexander Bobik - Bpharm, MSc, PhD

Chief Investigators
Garry Jennings - MD, MBBS, FRCP, FRACP, FAHA
Christopher Reid - BA, DipEd, MSc, PhD
Murray Esler - BmedSci, MBBS, PhD
David M Kaye - MBBS, PhD, FRACP, FACC
Bronwyn Kingwell - BSc (Hons), PhD
Jaye Chin-Dusting - BSc (Hons), PhD
Anthony Dart - BA, DPhil, BMBCh, MRCP, FRCP

Senior Scientific
James Cameron - BEElec (Hons), MengSc, MBBS, CPEBiomed
Stephen Duffy - MD, BSc (Hons), PhD, FRACP, MRCP, DipRACOG
Christoph Gatzka - MD
Jane Thompson - MD, MBBS
Laurence Schneider - MBBS

Professional & Technical
Elizabeth Dewar - BSc
Sally Kay - SRN, BBm
Jenny Starr
Jane McPherson
Donna Vizi - Nurse

Visiting Scientists
Dr Jie Niu - MD, PhD (Beijing University)

Alfred & Baker Gene Bank
Staff
Bernadette Chiodi

Cardiovascular Disease Prevention Unit
Head
Monica Robotin - MBBS, FRACS, M Appl Epid, MBA, M Int Health

Senior Scientific
Christopher Reid - BA, DipEd, MSc, PhD

Professional and Technical
Anne Bruce - SRN
Kathryn Murphy - SRN
Ann Nadonza - B Sc
Claudia Retegan - Dip Sc, BA
Jessele Vinluan - BA

Students
Jessica Chellappah - PhD (Monash)
Mehernaz Sadafi - Pharmaceutical Sciences (RMIT)

Risk Reduction Clinic
Nurses
Janis Jennings - SRN
Virginia Cable - SRN
Elizabeth Jenkins - SRN
Marijke Tress
Di Wilson

Administration
Amanda Coats - BA

Core Facilities
Clive and Vera Ramaciotti Centre for Proteomic and Genomic Research
Greg Rice

Adenoviral Gene delivery Gene Sequencing
Walter G Thomas

Morphology
Mouse Physiology
Xiao-Jun Du

Clinical Trials
Christopher Reid

Clinical Research Laboratories
Anthony Dart

Precinct Animal Centre
Debra Ramsey
David Spiteri

Imaging Applications Department
AMREP Library & Education Centre
Adam Clark

Operational, Administrative & Support Staff
Chief Operating Officer
Erica Hughes - BA, ASIA

Finance and Administration
Anita Furnell - Director, BComm, ACA
Ronald Mak - Senior Accountant, BBS, CA, MIMS
Gary Loetsch - Accountant, BEc (Acc), CPA, DipOD
Helen Green - Finance Officer
Ally Noble - Payroll Officer
Sharon Kalbstein - Receptionist

Commercialisation
Tina Rankovitch - Head of Commercialisation, DipDiagRad, GradDipMgmt, AIMM, AMAMI (to Dec 04)

Julia Hill - Head of Commercialisation, BSc (Hons), PhD, MBA (Current)

Human Resources
Barbara Kaye - Human Resources Manager
Kylie McNair - Human Resources Officer

Occupational Health & Safety
Tracey Oakes - Project Officer, B Applied Sc (Nursing), SRN, Grad Dip OHS Management
Noel Tresider - Chemical Project Officer, Assoc. Dip Chem, Assoc Dip Chem Eng, CIH

Information Services Group
Ian Briggs - Information Technology Manager
Damian Lee - Support Officer

Imaging Applications
Alan Hibbs

Marketing and Fundraising
Kristen Boschma - Head Marketing & Communication, BBus, AMFIA, AIMM
Bobbie Renard - Manager Community Relations, MFIA
Trish Roath - Fundraising Manager, MFIA
Elizabeth Veal - Fundraising Projects Manager, MFIA
Viv Talbot - Donor Liaison & Planned Giving Officer
Brooke Keast - Marketing & Event Coordinator, BComn
Kylie Nelson - Database & Donor Liaison Officer

Building Infrastructure Management
Steve Droste - Building Infrastructure Manager BEng

Biomedical Engineering
Philip Carruthers-Bleasdale - Electronic Engineer

Operations
Simon Neil - Scientific Projects Officer, MSc
Valerie Saunders - Personal Assistant to the Director, BSSc

Precinct Animal Centre
Debra Ramsey - Animal Services Manager, AppSc (Animal Tech) BHIT
Susan Mooney - Operations Manager
David Spiteri - Operations Manager, AppSc (Animal Tech) WMCT
Kylie Aquilina - Technical Assistant Production, AppSc (Animal Tech) VUT
Josephine Balzan - Support Technical Assistant Experimental, AppSc (Animal Tech) BHIT
Claire Doran - Technical assistant, App Sci(Animal Tech) BHIT
Rhianna Hoyle - Experimental Services Technical Assistant
Samantha Hulme - Experimental Services Technical Assistant, AppSc (Animal Tech)
Mia Ibrahim - Technical Assistant
Fiona Keurentjes - Technical Assistant, AppSc (Animal Tech)
Kirsty Lee - Technical Assistant
Rajani Jasti - Admin officer, MSC (Animal Sci)
Hayley Aisbett - Technical Assistant
Xin Du - Technical Assistant
Laura Beaumont - Theatre/Animal Technician, DipAppSc (Animal Technology)
John Crawford - Technical Assistant PAC
Lynda Bonning - Veterinarian, BVSc Hons
Kenny Scicluna - Technical Assistant PAC
Michelle Kirk - Technical Assistant PAC

Committees
International Scientific Advisory Board 2004
Ralph Bradshaw - Department of Physiology & Biophysics, College of Medicine, University of California, USA

Ken Chien - UCSD Institute of Molecular Medicine, University of California, USA

Gianni Gromo - Head, Discovery Research, F Hoffman-La Roche, Basel, Switzerland

Animal Ethics Committee
David Anderson (Acting Chair)
Carol Bear
Lynda Bonning
Roy Burrows
Paul Dover
Lindsay Herbert
Patricia Keith
Helen Kiriazis
Denise Noonan
Leonie Poulter
Deb Ramsey
Rachel Spiby
Carole Webb
David Spiteri

Scholars Executive Committee
Jaye Chin-Dusting
Rodney Dilley
Murray Esler
Phillip Kantharidis
Cathy LeMoignan
Rebecca Lew
Bobbie Renard
Walter Thomas (Chair)
Viccy Wootton

Equipment Committee
Anita Furnell
Assam El-Osta
Elizabeth Dewar
Geoff Head
Patricia Roath
Phillip Kantharidis (Chair)
Simon Vergers
Steve Droste
Zygmunt Krozowski

Grants Committee
Tony Dart
Assam El-Osta
Anita Furnell
Heather Gallichio
Geoff Head
Colin Johnston (Chair)
Peta McLaughlin
Greg Rice
Walter Thomas
Elizabeth Woodcock

Associates
Alfred Hospital Colleagues
Cardiac Surgery
Donald Esmore
Jee-Yoong Leong
Silvana Marasco
Justin Negri
Michael Rowland
Robert Salamonsen
James Anderson
Kate Kingsford-Smith
Robyn McEgan
Mark Mennen
Arthur Preovolos

FINANCIAL REPORT

BAKER MEDICAL RESEARCH INSTITUTE
Statement of Financial Performance for the year ended 31 December 2004

	2004 $	2003 $
Revenue from ordinary activities	21,665,415	22,462,778
Expenses for building works	(1,895,018)	(3,958,932)
Employee benefits expense	(12,151,775)	(11,668,728)
Laboratory consumables	(3,380,071)	(2,472,703)
Depreciation and amortisation expenses	(1,179,143)	(1,278,636)
Building overheads	(621,616)	(869,282)
Borrowing costs expense	(35,552)	(64,171)
Laboratory support expenses	(1,000,458)	(1,659,138)
Other expenses from ordinary activities	(1,536,463)	(992,443)
Deficit from ordinary activities before income tax expense	(134,681)	(501,255)
Income tax expense	-	-
Deficit from ordinary activities after income tax expense	(134,681)	(501,255)
Net profit attributable to outside equity interest	50,019	309,642
Total changes in funds	(84,662)	(191,613)

BAKER MEDICAL RESEARCH INSTITUTE
Statement of Financial Position as at 31 December 2004

	2004 $	2003 $
ASSETS		
Current assets		
Cash assets	2,743,367	5,250,339
Receivables	3,098,570	2,558,073
Other	90,753	136,204
Total current assets	5,932,690	7,944,616
Non-current assets		
Investments accounted for using the equity method	381,459	331,440
Investments	6,901,515	3,239,535
Plant & equipment	4,513,798	4,551,523
Total non-current assets	11,796,772	8,122,498
TOTAL ASSETS	17,729,462	16,067,114
LIABILITIES		
Current liabilities		
Interest bearing liabilities	-	292,897
Payables	4,169,277	2,303,567
Prepaid grants	1,661,852	1,361,390
Provisions	1,727,578	1,752,963
Total current liabilities	7,558,707	5,710,817
Non-current liabilities		
Interest bearing liabilities	-	84,334
Provisions	241,123	257,669
Total non-current liabilities	241,123	342,003
TOTAL LIABILITIES	7,799,830	6,052,820
NET ASSETS	9,929,632	10,014,294
FUNDS		
Accumulated funds		
Operating fund	(8,958,011)	(9,013,751)
Capital fund	17,969,865	18,159,608
Specific purpose fund	536,319	536,997
TOTAL BAKER FUNDS	9,548,173	9,682,854
Outside equity interest	381,459	331,440
TOTAL FUNDS	9,929,632	10,014,294

BAKER MEDICAL RESEARCH INSTITUTE
Statement of Cash Flows for the year ended 31 December 2004

	2004 $	2003 $
Cash flows from ordinary activities		
Receipts from granting bodies	9,193,008	10,946,558
Donations, bequests and commercial activities	9,844,572	9,262,642
Receipts for building works	450,000	460,000
Payments to suppliers & employees (inclusive of goods and services tax)	(18,769,539)	(20,072,337)
Dividends received	288,629	327,279
Interest received	191,645	1,003,311
Rent received - Baker building	417,988	483,357
General income	89,269	430,539
Borrowing costs	(35,552)	(64,171)
Net cash inflow from ordinary activities	2,255,343	2,191,855
Cash flows from investing activities		
Payment for investment securities	(5,856,551)	(1,425,302)
Proceeds from sale of investment securities	2,575,918	5,883,740
Payment for property, plant & equipment	(1,264,789)	(1,009,580)
Proceeds from sale of property, plant & equipment	-	80,735
Net cash outflow from investing activities	(4,545,422)	3,529,593
Cash flows from financing activities		
Principal repayments under finance leases	-	(30,509)
Net cash outflow from financing activities	-	(30,509)
Net cash increase in cash held	(2,290,079)	5,690,939
Cash at beginning of the financial year	4,998,710	(672,509)
Effects of exchange rate changes on cash held in foreign currencies	34,736	(19,720)
Cash at the end of the financial year	2,743,367	4,998,710

The summary financial information provided above and in the preceding two pages, being a statement of financial performance, statement of financial position and statement of cash flows, has been extracted from the audited financial statements of the Baker Medical Research Institute. The summary financial information does not include all the information and notes normally included in a statutory set of financial statements. A full set of statutory financial statements can be obtained from our website at http://www.baker.edu.au.

The statutory financial statements (from which the summary financial information has been extracted) have been prepared in accordance with generally accepted accounting principles in Australia and relevant Australian accounting standards. The statutory financial statements were qualified by the auditors in respect to the Institute's policy to expense capital works undertaken on the buildings which the Institute utilises. Full details of the audit qualification are contained in the statutory financial statements.

PUBLICATIONS

Journal Articles

Agrotis A, Kanellakis P, Kostolias G, Di Vitto G, Wei C, Hannan R, Jennings G, Bobik A. Proliferation of neointimal smooth muscle cells after arterial injury: Dependency on interactions between fibroblast growth factor receptor-2 and fibroblast growth factor-9. J Biol Chem 2004;279:42221-9.

Ahlers BA, Parnell MM, Chin-Dusting JP, Kaye DM. An age-related decline in endothelial function is not associated with alterations in L-arginine transport in humans. J Hypertens 2004;22:321-7.

Allen TJ, Cooper ME, Lan HY. Use of genetic mouse models in the study of diabetic nephropathy. Curr Ather Rep 2004;6:197-202

Allen TJ, Cooper ME, Lan HY. Use of genetic mouse models in the study of diabetic nephropathy. Curr Diab Rep 2004;4:435-40.

Anderson R, Dart AM, Starr J, Shaw J, Chin-Dusting JP. Plasma C-reactive protein, but not protein S, VCAM-1, von Willebrand factor or P-selectin, is associated with endothelium dysfunction in coronary artery disease. Atherosclerosis 2004;172:345-51.

Angus PW, Vaughan RB, Chin-Dusting JP. Responses to endothelin-1 in-patients with advanced cirrhosis before and after liver transplantation. Gut 2004;53:773.

Baker EK, El-Osta A. MDR1, Chemotherapy and Chromatin Remodeling. Cancer Biol Ther 2004;3:819-24.

Ballinger ML, Nigro J, Frontanilla KV, Dart AM, Little PJ. Regulation of glycosaminoglycan structure and atherogenesis. Cell Mol Life Sci 2004;61:1296-306.

Barton DA, Dawood T, Lambert GW. Depression and its impact on heart disease development and prognosis. Directions in Psychiatry 2004;24:81-8.

Berardi P, Russell M, El-Osta A, Riabowol K. Functional links between transcription, DNA repair and apoptosis. Cell Mol Life Sci 2004;61:2173-80.

Berry KL, Cameron JD, Dart AM, Dewar EM, Gatzka CD, Jennings GL, Liang YL, Reid CM, Kingwell BA. Large artery stiffness contributes to the greater prevalence of systolic hypertension in elderly women. J Am Geriatr Soc 2004;52:368-73.

Boak L, Chin-Dusting JPF. Hypercholesterolemia and endothelium dysfunction: role of dietary supplementation as vascular protective agents. Curr Vasc Pharmacol 2004; 2:45-52.

Bobik A. Aspirin, superoxide anions and development of hypertension. J Hypertens 2004;22:681-2.

Bobik A. Hypertension, transforming growth factor-beta, angiotensin II and kidney disease. J Hypertens 2004;22:1265-7.

Boesen EI, Lambert GW, Anderson WP, Kett MM. Pre-weaning carvedilol treatment attenuates hypertension development in SHR. Eur J Pharmacol 2004;486:183-8.
Brasier G, Tikellis C, Xuereb L, Craigie J, Casley D, Kovacs CS, Fudge NJ, Kalnins R, Cooper ME, Wookey PJ. Novel hexad repeats conserved in a putative transporter with restricted expression in cell types associated with growth, calcium exchange and homeostasis. Exp Cell Res 2004;293:31-42.

Burrell LM, Johnston CI, Tikellis C, Cooper ME. ACE2, a new regulator of the renin-angiotensin system. Trends Endocrinol Metab 2004;15:166-9.

Byrne MJ, Kaye DM, Mathis M, Reuter DG, Alferness CA, Power JM. Percutaneous mitral annular reduction provides continued benefit in an ovine model of dilated cardiomyopathy. Circulation 2004;110:3088-92.

Cameron JD, Stevenson I, Reed E, McGrath BP, Dart AM, Kingwell BA. Accuracy of automated auscultatory blood pressure measurement during supine exercise and treadmill stress electrocardiogram-testing. Blood Press Monit 2004;9:269-75.

Camm EJ, Harding R, Lambert GW, Gibbs ME. The role of catecholamines in memory impairment in chicks following reduced gas exchange in ovo. Neuroscience 2004;128:545-53.

Campbell DJ, Zeitz CJ, Esler MD, Horowitz JD. Evidence against a major role for angiotension converting enzyme-related carboxypeptidase (ACE2) in angiotensin peptide metabolism in the human coronary circulation. J Hypertens 2004;22:1971-76.

Candido R, Allen TJ, Lassila M, Cao Z, Thallas V, Cooper ME, Jandeleit-Dahm KA. Irbesartan but not amlodipine suppresses diabetes-associated atherosclerosis. Circulation 2004;109:1536-42.

Cao Z, Li Y. The chemical inducibility of mouse cardiac antioxidants and phase 2 enzymes in vivo. Biochem Biophys Res Commun 2004;14:1080-8.

Cao Z, Li Y. Potent inhibition of peroxynitrite-induced DNA strand breakage by ethanol: possible implications for ethanol-mediated cardiovascular protection. Pharmacol Res 2004;50:13-9.

Chan JC, Wat NM, So WY, Lam KS, Chua CT, Wong KS, Morad Z, Dickson TZ, Hille D, Zhang Z, Cooper ME, Shahinfar S, Brenner BM, Kurokawa K; Reduction In Endpoints in NIDDM with Angiotensin II Antagonist Lostartan Study Investigators. Renin angiotensin aldosterone system blockade and renal disease in patients with type 2 diabetes: an Asian perspective from the RENAAL study. Diabetes Care 2004;27:874-9.

Chin-Dusting JP, Boak L, Husband A, Nestel PJ. The isoflavone metabolite dehydroequol produces vasodilatation in human resistance arteries via a nitric oxide-dependent mechanism. Atherosclerosis 2004;176:45-8.

Chin-Dusting JPF, Rasaratnam B, Kaye DM, Jennings G and Dudley F. Can de-bugging the system prevent complications of cirrhosis? The answer may be NO. Gastroenterology 2004;126:928. Author's reply.

Clifton PM, Noakes M, Ross D, Fassoulakis A, Cehun M, Nestel P. High dietary intake of phytosterol esters decreases carotenoids and increases plasma plant sterol levels with no additional cholesterol lowering. J Lipid Res 2004;45:1493-9.

Clifton PM, Noakes M, Sullivan D, Erichsen N, Ross D, Annison G, Fassoulakis

Chronopoulos A, Cehun M, Nestel P. Cholesterol-lowering effects of plant sterol esters differ in milk, yoghurt, bread and cereal. Eur J Clin Nutr 2004;58:503-9.

Cole TJ, Solomon NM, Van Driel R, Monk JA, Bird D, Richardson SJ, Dilley RJ, Hooper SB. Altered epithelial cell proportions in the fetal lung of glucocorticoid receptor null mice. Am J Respir Cell Mol Biol 2004;30:613-9.

Cooper M, Boner G. Dual blockade of the renin-angiotensin system in diabetic nephropathy. Diabet Med 2004;21:15-8.

Cooper ME. Gastrointestinal function in diabetes mellitus. Intern Med J 2004;34:659.

Cooper ME. Importance of advanced glycation end products in diabetes-associated cardiovascular and renal disease. Am J Hypertens 2004;17(12 Pt 2):31S-38S.

Coughlan MT, Permezel M, Georgiou HM, Rice GE. Repression of oxidant-induced nuclear factor-kappaB activity mediates placental cytokine responses in gestational diabetes. J Clin Endocrinol Metab 2004;89:3585-94.

Coughlan MT, Vervaart PP, Permezel M, Georgiou HM, Rice GE. Altered placental oxidative stress status in gestational diabetes mellitus. Placenta 2004;25:78-84.

Dart AM, Gatzka CD, Cameron JD, Kingwell BA, Liang YL, Berry KL, Reid CM, Jennings GL. Large artery stiffness is not related to plasma cholesterol in older subjects with hypertension. Arterioscler Thromb Vasc Biol 2004;24:962-68.

Davis B, Forbes JM, Thomas MC, Jerums G, Burns WC, Kawachi H, Allen TJ, Cooper ME. Superior renoprotective effects of combination therapy with ACE and AGE inhibition in the diabetic spontaneously hypertensive rat. Diabetologia 2004;47:89-97.

De Zeeuw D, Remuzzi G, Parving HH, Keane WF, Zhang Z, Shahinfar S, Snapinn, S, Cooper ME, Mitch WE, Brenner BM. Albuminuria, a therapeutic target for cardiovascular protection in type 2 diabetic patients with nephropathy. Circulation 2004;110:921-7.

De Zeeuw, Remuzzi G, Parving HH, Keane WF, Zhang Z, Shahinfar S, Snapinn S, Cooper ME, Mitch WE, Brenner BM. Proteinuria, a target for renoprotection in patients with type 2 diabetic nephropathy: lessons from RENAAL. Kidney Int 2004;65:2309-20.

Dilley RJ. A novel inhibitory role for CREG-mediated signalling in cardiac hypertrophy. J Hypertens 2004;22:1469-71.

Dilley RJ, Rizkalla B, Bertram JF. Cardiovascular hypertrophy in one-kidney, one-clip renal hypertension is resistant to heparin. J Hypertens 2004;22:767-74.

Dinh DT, Qian H, Seeber R, Lim E, Pfleger K, Eidne KA, Thomas WG. Helix I of {beta}-arrestin is involved in post-endocytic trafficking, but is not required for membrane translocation, receptor binding and internalization. Mol Pharmacol 2004;67:375-82.

Douglas GC, O'Bryan MK, Hedger MP, Lee DK, Yarski MA, Smith AI, Lew RA. The novel angiotensin-converting enzyme (ACE) homolog, ACE2, is selectively expressed by adult Leydig cells of the testis. Endocrinology 2004;145:4703-11.

Drew BG, Fidge NH, Gallon-Beaumier G, Kemp BE, Kingwell BA. High density lipoprotein and Apolipoprotein AI increase eNOS activity via direct protein association and multisite phopshorylation. Proc Natl Acad Sci USA 2004;4:6999-7004.

Du XJ. Gender modulates cardiac phenotype development in genetically modified mice. Cardiovasc Res 2004;63:510-9.

Du XJ. Role of extracellular matrix in cardiac pathophysiology: recent findings from studies using mice. Chinese J Pathophysiology 2004;20:2369-71.

Du XJ, Fang L, Gao XM, Kiriazis H, Feng X, Hotchkin E, Finch AM, Chaulet H, Graham RM. Genetic enhancement of ventricular contractility protects against pressure-overload-induced cardiac dysfunction. J Mol Cell Cardiol 2004;37:979-87.

Du XJ, Feng X, Gao XM, Tan TP, Kiriazis H, Dart AM. If channel inhibitor ivabradine lowers heart rate in mice with enhanced sympathoadrenergic activities. Br J Pharmacol 2004;142:107-12.

Eikelis N, Lambert G, Wiesner G, Kaye D, Schlaich M, Morris M, Hastings J, Socratous F, Esler M. Extra-adipocyte leptin release in human obesity and its relation to sympathoadrenal function. Am J Physiol Endocrinol Metab 2004;286:E744-52.

El-Osta A. The rise and fall of genomic methylation in cancer. Leukemia 2004;18:233-7.

El-Osta A. Understanding the consequences of epigenetic mechanisms and its effects on transcription in health and disease. Cancer Biol Ther 2004;3:816-8.

El-Osta A. Coordination of epigenetic events. Cell Mol Life Sci 2004;61:2135-6.

Esler M. An explanation of the unexpected efficacy of L-DOPS in pure autonomic failure.Clin Auton Res. 2004;14:356-7.

Esler M, Lux A, Hastings J, Socratous F, Lambert G. Rilmenidine sympatholytic activity preserves mental and orthostatic sympathetic response and epinephrine secretion. J Hypertens 2004;22:A7-8.

Esler M, Lux A, Jennings G, Hastings J, Socratous F, Lambert G. Rilmenidine sympatholytic activity preserves mental stress, orthostatic sympathetic responses and adrenaline secretion. J Hypertens 2004;22:1529-34.

Esler M, Parati G. Is essential hypertension sometimes a psychosomatic disorder? J Hypertens 2004;22:873-6.

Fang L, Wei HM, Mak KH, Xiong ZW, Song J, Lim YL, Chatterjee S. Markers of low-grade inflammation and soluble cell adhesion molecules in Chinese patients with coronary artery disease. Can J Cardiol 2004;20:1433-8.

Ferrier KE, Nestel P, Taylor A, Drew BG, Kingwell BA. Diet but not aerobic exercise training reduces skeletal muscle TNF-alpha in overweight humans. Diabetologia 2004;47:630-7.

Forbes JM, Thallas-Bonke V, Cooper ME, Thomas MC. Advanced glycation: how are we progressing to combat this web of sugar nomalies in diabetic nephropathy. Curr Pharm Des 2004;10:3361-72.

Forbes JM, Thomas MC, Thorpe SR, Alderson NL, Cooper ME. The effects of valsartan on the accumulation of circulating and renal advanced glycation end products in experimental diabetes. Kidney Int Suppl 2004;92:5.302.

Forbes JM, Yee LT, Thallas V, Lassila M, Candido R, Jandeleit-Dahm KA, Thomas MC, Burns WC, Deemer EK, Thorpe SM, Cooper ME, Allen TJ. Advanced glycation end product interventions reduce diabetes-accelerated atherosclerosis. Diabetes 2004;53:1813-23.

Forbes JM, Yee LTL, Thallas V, Lassila M, Candido R, Jandeleit-Dahm K, Thomas MC, Burns WC, Deemer E, Thorpe SR, Cooper ME, Allen TJ. Role of advanced glycation end products in diabetes associated atherosclerosis. Diabetes 2004;53:1824-30.

Fu Y, Hoang A, Escher G, Parton RG, Krozowski Z, Sviridov D. Expression of caveolin-1 enhances cholesterol efflux in hepatic cells. J Biol Chem 2004;279:14140-6.

Fukami K, Ueda S, Yamagishi S, Kato S, Inagaki Y, Takeuchi M, Motomiya Y, Bucala R, Iida S, Tamaki K, Imaizumi T, Cooper ME, Okuda S. AGEs activate mesangial TGF-beta-Smad signaling via an angiotensin II type I receptor interaction. Kidney Int 2004;66:2137-47.

Hastings JA, Morris MJ, Lambert G, Lambert E, Esler M. NPY and NPY Y1 receptor effects on noradrenaline overflow from the rat brain in vitro. Regul Pept 2004;120:107-12.

Head GA, Burke SL. Sympathetic responses to stress and rilmenidine in 2K1C rabbits: evidence of enhanced nonvascular effector mechanism. Hypertension 2004;43:636-42.

Head GA, Lukoshkova EV, Mayorov DN, van den Buuse M. Non-symmetrical double-logistic analysis of 24-h blood pressure recordings in normotensive and hypertensive rats. J Hypertens 2004;22:2075-85.

Head GA, Obeyesekere V, Jones ME, Simpson ER, Krozowski ZS. Aromatase-deficient (ArKO) mice have reduced blood pressure and baroreflex sensitivity. Endocrinology 2004;145:4286-91.

Head GA, Reid CM, Lukoshkova EV. Non-symmetrical double logistic analysis of ambulatory blood pressure recordings. J Appl Physiol 2004;[Epub ahead of print].

Headey SJ, Keizer DW, Yao S, Brasier G, Kantharidis P, Bach LA, Norton RS. C-terminal domain of insulin-like growth factor (IGF) binding protein-6: structure and interaction with IGF-II. C-terminal domain of insulin-like growth factor (IGF) binding protein-6: structure and interaction with IGF-II. Mol Endocrinol 2004;18:2740-50.

Honisett SY, Stojanovska L, Sudhir K, Kingwell BA, Dawood T, Komesaroff PA. Hormone therapy impairs endothelial function in postmenopausal women with type 2 diabetes mellitus treated with rosiglitazone. J Clin Endocrin Met 2004;89:4615-19.

Jennings GL. The left atrium in hypertension: next to the chamber of power. J Hypertens 2004;22:1473-4.

Jennings GL, Kingwell BA. Measuring arterial function in diabetes. J Hypertens 2004:22 1863-65

Jerums G, Allen TJ, Campbell DJ, Cooper ME, Gilbert RE, Hammond JJ, O'Brien RC, Raffaele J, Tsalamandris C; Melbourne Diabetic Nephropathy Study Group. Long-term renoprotection by perindopril or nifedipine in non-hypertensive patients with Type 2 diabetes and microalbuminuria. Diabet Med 2004;2004:1192-9.

Johnston C. Hormones and the cardiovascular system. Trends Endocrinol Metab 2004;15:137-8.

Juhaszova M, Zorov DB, Kim SH, Pepe S, Fu Q, Fishbein KW, Ziman BD, Wang S, Ytrehus K, Antos CL, Olson EN, Sollott SJ. Glycogen synthase kinase-3beta mediates convergence of protection signaling to inhibit the mitochondrial permeability transition pore. J Clin Invest 2004;113:1526-8.

Kalinina N, Agrotis A, Antropova Y, DiVitto G, Kanellakis P, Kostolias G, Ilyinskaya O, Tararak E, Bobik A. Increased expression of the DNA-binding cytokine HMGB1 in human atherosclerotic lesions: role of activated macrophages and cytokines. Arterioscler Thromb Vasc Biol 2004;24:2320-5.

Kalinina N, Agrotis A, Antropova Y, Ilyinskaya O, Smirnov V, Tararak E, Bobik A. Smad expression in human atherosclerotic lesions: evidence for impaired TGF-beta/Smad signaling in smooth muscle cells of fibrofatty lesions. Arterioscler Thromb Vasc Biol 2004;24:1391-6.

Kanellakis P, Nestel P, Bobik A. Angioplasty-induced superoxide anions and neointimal hyperplasia in the rabbit carotid artery: suppression by the isoflavone trans-tetrahydrodaidzein. Atherosclerosis 2004;176:63-72.

Kanellis J, Levidiotis V, Khong T, Cox AJ, Stacker SA, Gilbert RE, Cooper E, Power DA. A study of VEGF and its receptors in two rat models of proteinuria. Nephron Physiol 2004;96:26-36.

Kang KB, Wang TT, Woon CT, Cheah ST, Lim YK, Moore XL, Wong MC. Celecoxib enhances brain tumor cell radiosensitivity leading to massive tumor necrosis. Ann Acad Med Singapore 2004; Vol 33 (Suppl) 5, S19.

Karagiannis TC, El-Osta A. Epigenetic changes activate widespread signals in response to double-strand breaks. Cancer Biol Ther 2004;3:617-23.

Karagiannis TC, El-Osta A. Double-strand breaks: signaling pathways and repair mechanisms. Cell Mol Life Sc 2004;61:2137-47.

Karagiannis TC, El-Osta A. siRNAs: Mechanism of RNA Interference, In Vivo and Potential Clinical Applications. Cancer Biol Ther 2004;3:1069-74.

Kaye DM, Mansfield D, Naughton MT. Continuous positive airway pressure decreases myocardial oxygen consumption in heart failure. Clin Sci (Lond) 2004;106:599-603.

Kaye DM, Smirk B, Finch S, Williams C, Esler MD. Interaction between cardiac sympathetic drive and heart rate in heart failure: modulation by adrenergic receptor genotype. J Am Coll Cardiol 2004;16:2008-15.

Kn H, Bassal S, Tikellis C, El-Osta A. Expression Analysis of the Epigenetic Methyltransferases and Methyl-CpG Binding Protein Families in the Normal B-Cell and B-Cell Chronic Lymphocytic Leukemia (CLL). Cancer Biol Ther 2004;3:[Epub ahead of print].

Kockx M, Rye KA, Gaus K, Quinn CM, Wright J, Sloane T, Sviridov D, Fu Y, Sullivan D, Burnett JR, Rust S, Assmann G, Anantharamaiah GM, Palgunachari MN, Katz SL, Phillips MC, Dean RT, Jessup W, Kritharides L. Apolipoprotein A-I-stimulated apolipoprotein E secretion from human macrophages is independent of cholesterol efflux. J Biol Chem 2004;279:25966-77.

Kompa AR, Thomas WG, See F, Tzanidis A, Hannan RD, Krum H. Cardiovascular role of urotensin II: effect of chronic infusion in the rat. Peptides 2004;25:1783-8.

Kule CE, Karoor V, Day JN, Thomas WG, Baker KM, Dinh D, Acker KA, Booz GW. Agonist-dependent internalization of the angiotensin II type one receptor (AT1): role of C-terminus phosphorylation in

recruitment of beta-arrestins. Regul Pept 2004;120:141-8.

Lambert GA, Hoskin KL, Zagami AS. Nitrergic and glutamatergic neuronal mechanisms at the trigeminovascular first-order synapse. Neuropharmacology 2004;47:92-105.

Lassila M, Allen TJ, Cao Z, Thallas V, Jandeleit-Dahm KA, Candido R, Cooper ME. Imatinib attenuates diabetes-associated atherosclerosis. Arterioscler Thromb Vasc Biol 2004;24:935-42.

Lassila M, Cooper ME, Jandeleit-Dahm K. Antiproteinuric effect of RAS blockade: new mechanisms. Curr Hypertens Rep 2004;6:383-92.

Lassila M, Seah KK, Allen TJ, Thallas V, Thomas MC, Candido R, Burns WC, Forbes JM, Calkin AC, Cooper ME, Jandeleit-Dahm KA. Accelerated nephropathy in diabetic apolipoprotein e-knockout mouse: role of advanced glycation end products. J Am Soc Nephrol 2004;15:2125-38.

Lee FT, Cao Z, Long DM, Panagiotopoulos S, Jerums G, Cooper ME, Forbes JM. Interactions between angiotensin II and NF-kappaB-dependent pathways in modulating macrophage infiltration in experimental diabetic nephropathy. Am Soc Nephrol 2004;15:2139-51.

Levidiotis V, Freeman C, Tikellis C, Cooper ME, Power DA. Heparanase is involved in the pathogenesis of proteinuria as a result of glomerulonephritis. J Am Soc Nephrol 2004;15:68-78.

Lew RA. HPLC in the analysis of peptide metabolism. Methods Mol Biol 2004;251:275-90.

Li HJ, Wang W, Huang XR, Oldfield M, Schmidt AM, Cooper ME, Lan HY. Advanced glycation end products induce tubular epithelial-myofibroblast transition through the RAGE-ERK1/2 MAP kinase signaling pathway. Am J Pathol 2004;164:1389-97.

Ling S, Dai A, Dilley RJ, Jones M, Simpson E, Komesaroff PA, Sudhir K. Endogenous estrogen deficiency reduces proliferation and enhances apoptosis-related death in vascular smooth muscle cells: insights from the aromatase-knockout mouse. Circulation 2004;3:537-43.

Ling S, Dai A, Williams MR, Husband AJ, Nestel PJ, Komesaroff PA, Sudhir K. The isoflavone metabolite cis-tetrahydrodaidzein inhibits ERK-1 activation and proliferation in human vascular smooth muscle cells. J Cardiovasc Pharmacol 2004;43:622-8.

Loeliger M, Briscoe T, Lambert G, Caddy J, Rehn A, Dieni S, Rees S. Chronic placental insufficiency affects retinal development in the guinea pig. Invest Ophthalmol Vis Sci 2004;45:2361-7.

Ma G, Allen TJ, Cooper ME, Cao Z. Calcium channel blockers, either amlodipine or mibefradil, ameliorate renal injury in experimental diabetes. Kidney Int 2004;66:1090-8.

MacIsaac RJ, Jerums G, Cooper ME. New insights into the significance of microalbuminuria. Curr Opin Nephrol Hypertens 2004;13:89-91.

Mansfield DR, Gollogly NC, Kaye DM, Richardson M, Bergin P, Naughton MT. Controlled trial of continuous positive airway pressure in obstructive sleep apnea and heart failure. Am J Respir Crit Care Med 2004;169:361-6.

Mayorov DN, Head GA, De Matteo R. Tempol attenuates excitatory actions of angiotensin II in the rostral ventrolateral medulla during emotional stress. Hypertension 2004;44:101-6.

McCrystal GD, Pepe S, McDonald P. Esmore DS, Rosenfeldt FL. The challenge of improving donor heart preservation. Heart Lung Circ 2004;13:74-83.

McGlennan A, Esler M, Stocks G, Pandit V. PFA-100 and regional analgesia in a parturient after ibuprofen overdose. Br J Anaesth 2004;92:776-7.

Medley TL, Cole TJ, Dart AM, Gatzka CD, Kingwell BA. Matrix metalloproteinase-9 genotype influences large artery stiffness through effects on aortic gene and protein expression. Arterioscler Thromb Vasc Biol 2004;24:1479-84.

Mifsud SA, Burrell LM, Kubota E, Jaworski K, Cooper ME, Wilkinson-Berka JL. Cardiorenal protective effects of vasopeptidase inhibition with omapatrilat in hypertensive transgenic (mREN-2) rats. Clin Exp Hypertens 2004;26:69-80.

Mogensen CE, Cooper ME. Diabetic renal disease: from recent studies to improved clinical practice. Diabet Med 2004;21:4-17.

Moore XL, Lu J, Sun L, Zhu CJ, Tan P, Wong MC. Endothelial progenitor cells' "homing" specificity to brain tumors. Gene Ther 2004;11:811-8.

Morris JB, Pham TM, Kenney B, Sheppard KE, Woodcock EA. UTP transactivates epidermal growth factor receptors and promotes cardiomyocyte hypertrophy despite inhibiting transcription of the hypertrophic marker gene, atrial natriuretic peptide. J Biol Chem 2004;5:8740-6.

Mucha GT, Merkel S, Thomas W, Bantle JP. Fasting and insulin glargine in individuals with type 1 diabetes. Diabetes Care 2004;27:1209-10.

Naughton MT, Mansfield DR, Kaye DM, Bergin P, Richardson M. Heart failure: how can we prevent the epidemic. Med J Aust 2004;2:143.

Nestel P. Metabolic complications of obesity. Asia Pac J Clin Nutr. 2004;13(Suppl):S35.

Nestel P. Nutritional aspects in the causation and management of the metabolic syndrome. Endocrinol Metab Clin North Am 2004;33:483-92.

Nestel P, Cehun M, Chronopoulos A. Effects of long-term consumption and single meals of chickpeas on plasma glucose, insulin, and triacylglycerol concentrations. Am J Clin Nutr 2004;79:390-5.

Nestel P, Cehun M, Chronopoulos A. A biochanin-enriched isoflavone from red clover lowers LDL cholesterol in men Eur J Clin Nutr. Am J Clin Nutr 2004;58:403-8.

Nestel PJ. Metabolic syndrome; the new cardiovascular target. Curr Opin Lipidol 2004;15:1-4.

Nigro J, Ballinger ML, Dilley RJ, Jennings GL, Wight TN, Little PJ. Fenofibrate modifies human vascular smooth muscle proteoglycans and reduces lipoprotein binding. Diabetologia 2004;47:2105-13.

Olchawa B, Kingwell BA, Hoang A, Schneider L, Miyazaki O, Nestel P, Sviridov D. Physical fitness and reverse cholesterol transport. Arterioscler Thromb Vasc Biol 2004;24:1087-91.

Onan D, Hannan RD, Thomas WG. Urotensin II: the old kid in town. Trends Endocrinol Metab 2004;15:175-82.

Onan D, Pipolo L, Yang E, Hannan RD, Thomas WG. Urotensin II promotes hypertrophy of cardiac myocytes via mitogen-activated protein kinases. Mol Endocrinol 2004;18:2344-54.

Parfyonova Y, Plekhanova O, Solomatina M, Naumov V, Bobik A, Berk B, TkachukV. Contrasting effects of urokinase and tissue-type plasminogen activators on neointima formation and vessel remodelling after arterial injury. J Vasc Res 2004;41:286-76.

Parnell MM, Chin-Dusting JP, Starr J, Kaye DM. In vivo and in vitro evidence for ACh-stimulated L-arginine uptake. Am J Physiol Heart Circ Physiol 2004;287:H395-400.

Pepe S, van den Brink OW, Lakatta EG, Xiao RP. Cross-talk of opioid peptide receptor and beta-adrenergic receptor signalling in the heart. Cardiovasc Res 2004;63:414-22.

Pittaway JK, Ahuja KD, Chronopoulos A, , Cehun M, Robertson IK, Nestel PJ, Ball MJ. The effect of chickpeas on human serum lipids and lipoproteins. Asia Pac J Clin Nutr 2004;13:S70.

Power JM, Sah P. Intracellular calcium store filling by an L-type calcium current in the basolateral amygdala at subthreshold membrane potentials. J Physiol 2004;562(Pt 2):439-53.

Rasaratnam B, Connelly N, Chin-Dusting JP. Nitric oxide and the hyperdynamic circulation in cirrhosis: Is there a role for selective intestinal decontamination?. Clin Sci (Lond) 2004;107:425-34.

Rehn AE, Van Den Buuse M, Copolov D, Briscoe T, Lambert G, Rees S. An animal model of chronic placental insufficiency: relevance to neurodevelopmental disorders including schizophrenia. Neuroscience. 2004;129:381-91.

Reid,CM, Rockell M, Skillington PD, Shardey GC, Smith JA, Yii, M, Seevanayagam S, Mohajeri M, Rowland M. Twelve months experience and analysis from the Australasian Society of Cardiac and Thoracic Surgeons - Victorian Database Project. Heart Lung Circ 2004;13:291-7.

Ritchie RH, Rosenkranz AC, Huynh LP, Stephenson T, Kaye DM, Dusting GJ. Activation of IP prostanoid receptors prevents cardiomyocyte hypertrophy via cAMP-dependent signaling. Am J Physiol Heart Circ Physiol 2004;287:H179-85.

Roebuck T, Solin P, Kaye DM, Bergin P, Bailey M, Naughton MT. Increased long-term mortality in heart failure due to sleep apnoea is not yet proven. Eur Respir J 2004;23:735-40.

Rosenfeldt F, Miller F, Nagley P, Hadj A, Marasco S, Quick D, Sheeran F, Wowk M, Pepe S. Response of the senescent heart to stress: clinical therapeutic strategies and quest for mitochondrial predictors of biological age. Ann N Y Acad Sci 2004;1019:78-84.

Rubis B, Grodecka-Gazdecka S, Lecybyl R, Ociepa M, Krozowski Z, Trzeciak WH. Contribution of protein kinase A and protein kinase C signalling pathways to the regulation of HSD11B2 expression and proliferation of MCF-7 cells. Acta Biochim Pol. 2004;51:919-24.

Samuel CS, Unemori EN, Mookerjee I, Bathgate RA, Layfield SL, Mak J, Tregear GW, Du XJ. Relaxin modulates cardiac fibroblast proliferation, differentiation, and collagen production and reverses cardiac fibrosis in vivo. Endocrinology 2004;145:4125-33.

Schlaich M, Lambert E. Hypertensive left ventricular hypertrophy. Cardiology Review 2004;21:31-5.

Schlaich MP, Ahlers BA, Parnell MM, Kaye DM. beta-Adrenoceptor-mediated, nitric-oxide-dependent vasodilatation is abnormal in early hypertension: restoration by L-arginine. J Hypertens 2004;22:1917-25.

Schlaich MP, Esler MD. Response: Neural Sympathetic Activity in Essential Hypertension. Hypertension 2004;[Epub ahead of print].

Schlaich MP, Lambert E, Kaye DM, Krozowski Z, Campbell DJ, Lambert G, Hastings J, Aggarwal A, Esler MD. Sympathetic augmentation in hypertension: role of nerve firing, norepinephrine reuptake, and Angiotensin neuromodulation. Hypertension 2004;43:169-75.

Schlaich MP, Parnell MM, Ahlers BA, Finch S, Marshall T, Zhang WZ, Kaye DM. Impaired L-arginine transport and endothelial function in hypertensive and genetically predisposed normotensive subjects. Circulation 2004;110:3280-6.

See F, Thomas W, Way K, Tzanidis A, Kompa A, Lewis D, Itescu S, Krum H. p38 mitogen-activated protein kinase inhibition improves cardiac function and attenuates left ventricular remodeling following myocardial infarction in the rat. J Am Coll Cardiol 2004;44:1679-89.

Sher LB, Woitge HW, Adams DJ, Gronowicz GA, Krozowski Z, Harrison JR, Kream BE. Transgenic expression of 11beta-hydroxysteroid dehydrogenase type 2 in osteoblasts reveals an anabolic role for endogenous glucocorticoids in bone. Endocrinology 2004;145:922-9.

Smith NJ, Chan HW, Osborne JE, Thomas WG, Hannan RD. Hijacking epidermal growth factor receptors by angiotensin II: new possibilities for understanding and treating cardiac hypertrophy. Cell Mol Life Sci 2004;61:2695-703.

Tannock LR, Little PJ, Tsoi C, Barrett PH, Wight TN, Chait. Thiazolidinediones reduce the LDL binding affinity of non-human primate vascular cell proteoglycans. Diabetologia 2004;47:837-43.

Taylor AJ, Bobik A, Berndt MC, Kannelakis P, Jennings G. Serotonin blockade protects against early microvascular constriction following atherosclerotic plaque rupture. Eur J Pharmacol 2004;486:85-9.

Taylor AJ, Bobik A, Richards M, Kaye D, Raines G, Gould P, Jennings G. Myocardial endothelin-1 release and indices of inflammation during angioplasty for acute myocardial infarction and stable coronary artery disease. Am Heart J 2004;182:e10.

Terra SG, Blum RA, Wei GC, Lew RA, Digenio AG, Rajman I, Kazierad DJ. Evaluation of methods for improving precision of blood pressure measurements in phase I clinical trials. J Clin Pharmacol 2004;44:457-63.

Thomas M, Tikellis C, Kantharidis P, Burns W, Cooper M, Forbes J. The role of advanced glycation in reduced organic cation transport associated with experimental diabetes. J Pharmacol Exp Ther 2004;311:456-66.

Thomas MC, Cooper ME. Blockade of the renin-angiotensin system: better late than never. Am J Kidney Dis 2004;43:1113-5.

Thomas MC, Johnston CI. Valsartan - a drug monograpgh. J Drug Eval 2004;2:1-35.

Thomas MC, MacIsaac RJ, Tsalamandris C, Molyneaux L, Goubina I, Fulcher G, Yue D, Jerums G. The burden of anaemia in type 2 diabetes and the role of nephropathy: a cross-sectional audit. Nephrol Dial Transplant 2004;19:1792-7.

Thomas MC, MacIsaac RJ, Tsalamandris C, Molyneaux L, Goubina I, Fulcher G, Yue D, Jerums G. Anemia in patients with type 1 diabetes. J Clin Endocrinol Metab 2004;89:4359-63.

Thomas MC, MacIssac R, Tslamandris C, Jerums G. Abnormal iron indices in patients with diabetes; a cross sectional survey. Diabet Med 2004;21:798-802.

Thomas MC, Tsalamandris C, MacIsaac R, Medley T, Kingwell B, Cooper ME, Jerums G. Low-molecular-weight AGEs are associated with GFR and anemia in patients with GFR and anemia in patients with type 2 diabetes. Kidney Int 2004;66:1167-72.

Thomas WG, Qian H, Smith NJ. When 6 is 9: 'uncoupled' AT1 receptors turn signalling on its head. Cell Mol Life Sci 2004;61:2687-94.

Tikellis C, Cooper ME, Twigg SM, Burns WC, Tolcos M. Connective tissue growth factor is up-regulated in the diabetic retina: amelioration by angiotensin-converting enzyme inhibition. Endocrinology 2004;145:860-6.

Tikellis C, Johnston C, Forbes J, Burns W, Thomas M, Lew R, Yarski M, Smith A, Cooper M. Identification of angiotensin converting enzyme 2 in the rodent retina. 2004;29:419-27.

Tikellis C, Wookey PJ, Candido R, Andrikopoulos S, Thomas MC, Cooper ME. Improved islet morphology after blockade of the renin- angiotensin system in the ZDF rat. Diabetes 2004;53:989-97.

Twigg SM, Cooper ME. The time has come to target connective tissue growth factor in diabetic complications. Diabetologia 2004;47:965-8.

Vaughan R, Angus P, Chin-Dusting JPF. Author's reply: Responses to endothelian-1 in patients with advanced cirrhosis before and after liver transplantation. Gut 2004;53:773. Author's Reply.

Widlansky ME, Biegelsen ES, Hamburg NM, Duffy SJ, Keaney JF Jr, Vita JA. Coronary endothelial dysfunction is not rapidly reversible with ascorbic acid. Free Radic Biol Med 2004; 36:123-30.

Wigg SJ, Tare M, Forbes J, Cooper ME, Thomas MC, Coleman HA, Parkington HC, O'Brien RC. Early vitamin E supplementation attenuates diabetes-associated vascular dysfunction and the rise in protein kinase C-beta in mesenteric artery and ameliorates wall stiffness in femoral artery of Wistar rats. Diabetologia 2004;47:1038-46.

Williams MR, Dawood T, Ling S, Dai A, Lew R, Myles K, Funder JW, Sudhir K, Komesaroff PA. Dehydroepiandrosterone increases endothelial cell proliferation in vitro and improves endothelial function in vivo by mechanisms independent of androgen and estrogen receptors. Clin Endocrinol Metab 2004;89:4708-15.

Wilson PA, Lubsen J, Kirwan BA, van Dalen FJ, Wagener G, Danchin N, Just H, Fox KA, Pocock SJ, Clayton TC, Motro M, Parker JD, Bourassa MG, Dart, AM, Hildebrandt P. Et al. Effect of long-acting nifedipine on mortality and cardiovascular morbidity in patients with stable angina requiring treatment (ACTION trial): randomised controlled trial. Lancet 2004;364:849-57.

Woodcock E. Editorial on: Human cardiac phospholipase D activity is tightly controlled by phosphatidylinositol 4,5-bisphosphate, T. Kurz, D. Kemken, K. Mier, I. Weber, G. Richardt. J Mol Cell Cardiol 2004;36:207-11.

Zhang WZ, Kaye DM. Simultaneous determination of arginine and seven metabolites in plasma by reversed-phase liquid chromatography with a time-controlled ortho-phthaldialdehyde precolumn derivatization. Anal Biochem 2004;326:87-92.

Zhang X, Lassila M, Cooper ME, Cao Z. Retinal expression of vascular endothelial growth factor is mediated by angiotensin type 1 and type 2 receptors. Hypertension 2004;43:276-81.

Book Chapters

Boner G, McNally PJ, Cooper ME. Antihypertensive treatment in NIDD, with special reference to abnormal albuminuria. In: The Kidney and Hypertension in Diabetes Mellitus. 6th Edition. CE Morgensen, Taylor and Francis Publishers. London UK; 2004. p. 579-610.

Cameron JD, Gatzka CD, Kingwell BA. Large Artery Function: Measurements, Methods, Mechanisms and Meaning. In: In Vivo Assessment of Vascular Function in Humans. Nova Science Publishers, Inc. New York, USA; 2004.

Candido R, Burrell LM, Jandeleit-Dahm K, Cooper ME. Vasoactive peptides and the kidney. In: Brenner and Rector's The Kidney, 7th edition. (Chapter 16); 2004. p. 663-726.

Esler M. Looking at the sympathetic nervous system as a primary source. In: Handbook of Hypertension: Hypertension Research in the Twentieth Century. Eds. Zanchetti A, Robertson JIS, Birkenhager WH. Elsevier, Amsterdam.; 2004. p. 81-103.

Esler M, Alvarenga M, Kaye D, Lambert G, Thompson J, Hastings J, Schwarz R, Morris M, Richards J. Panic Disorder. In: Primer of the Autonomic Nervous System. Eds. Robertson D, Low PA, Burnstock G, Biaggioni I. Elsevier, Amsterdam.; 2004. p. 391-394.

Kingwell BA, Jennings GL, Cameron JD. Non-pharmacological treatment for increased arterial stiffness and altered wave reflections. In: Handbook of Hypertension. Ed ME Safar and ME O'Rourke. Elsevier, UK; 2004.

Little PJ, Topliss DJ, Mudaliar S, Law RE. Proliferator-activated receptors and diabetic vasculature. In: Diabetes and Cardiovascular Disease: Integrating Science and Clinical Medicine.Eds and S. P. Marso and D. M. Lippincott, Williams and Wilkins Philadelphia USA; 2004. p. 75-91.

Medley TL, Kingwell BA. Large artery stiffness: Structural and genetic aspects. In: Progress in Atherosclerosis Research. Ed Frank Columbus. Nova Science Publishers, Inc. New York, USA.; 2004.

Safar ME, Kass D, Asmar R, Kingwell BA. Basis for a de-stiffening strategy of anti-hypertensive drugs. In: Handbook of Hypertension. Ed ME Safar and ME O'Rourke. Elsevier, UK.; 2004.

Sviridov D, Nestel P. Assessment of reverse cholesterol transport. In: Trends in Atherosclerosis Research: (LV Clark ed), Nova Science Publishers); 2004. p. 257-281.

Thomas MC, Cooper ME. Diabetic nephropathy. In: The Year in Renal Medicine. ed. Levy J. Clinical Publishing, Oxford UK.; 2004.

Thomas MC, Jerums G, Cooper ME. Advanced Glycation End Products in Diabetic Renal Disease. In: The Kidney and Hypertension in Diabetes Mellitus, 6th edition. In Mogensen CE, Taylor and Francis Publishers (ed) London UK; 2004. p. 303-322.

Book Reviews

Chellappah J, Chin-Dusting J. Book review: Systematic reviews to support evidence-based medicine (Khan KS) Royal Society of Medicine Press Ltd, London, 2003. Current Medical Research and Opinion; 2004;20:1329.

Connelly N, Chin-Dusting J. Book review: Key topics in Clinical Research (Gao Smith F, Smith JE) BIOS Scientific Publishers Ltd, Oxford, 2003. Current Medical Research and Opinion; 2004;20:127-128.

Esler MD. Book review: Metabolic syndrome and hypertension: what are the outstanding problems. Dialog Cardiovasc Med; 2004;9:167-172.

Huynh N, Chin-Dusting J. Book review: The Field Guide to MEDLINE: Making Searching Simple (Stave CD) Lippincott, Williams and Wilkins, Philadelphia, 2003. Current Medical Research and Opinion; 2004;20:129.

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