



COLLABORATIVE RESEARCH UPDATE 2012

Our Vision, Mission and Values

Prostate Cancer Foundation of Australia (PCFA) is the peak national body for prostate cancer in Australia. We are dedicated to reducing the impact of prostate cancer on Australian men, their partners and the wider community.

We do this by:

- Promoting and funding world leading, innovative research into prostate cancer
- Implementing awareness campaigns and education programs for the Australian community, health professionals and Government
- Supporting men and their families affected by prostate cancer; through evidence-based information and resources, support groups and Prostate Cancer Specialist Nurses

PCFA receives government funding for specific projects and relies on the generosity of individuals, the community and partnerships, such as those with The Movember Foundation and Commonwealth Bank, to carry out our essential work.

Author

Dr Miranda Xhilaga, Director, Research Programs PCFA

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2012 MARKS THE 5TH ANNIVERSARY OF PCFA'S RESEARCH PROGRAM. FROM ITS INCEPTION IN 2007, IT HAS EVOLVED TO BEING RECOGNISED AS A WORLD CLASS PROGRAM THAT SUPPORTS THE VERY BEST AUSTRALIAN RESEARCH INTO PROSTATE CANCER.

Our Research Program has now funded 136 prostate cancer research projects and is recognised as one of the leading prostate cancer research funding sources in the country. Through the program, Movember has generously invested nearly \$32M into prostate cancer research in Australia. In 2011 alone, \$5M was allocated to 15 research projects that aim to discover better diagnostic tools, new therapies, and improved ways of delivering treatments.

I am delighted that this support has enabled our researchers to pursue their ideas, patent their discoveries, and progress clinical trials. Their work has made a major contribution to prostate cancer knowledge worldwide. It is particularly pleasing to see that our Movember Young Investigators

have, in a relatively short time, become independent and successful scientists. Earlier this year, our Board of Directors and Research Advisory Committee brought together experts in prostate cancer research, consumers and other stakeholders to review our funding priorities and consider how best PCFA can respond to the changing research landscape. We are now focused on delivering a new five-year priority-driven Prostate Cancer Research Plan, with the continued wonderful support of the community.



Dr Anthony Lowe
Chief Executive Officer

136
TO DATE, PCFA'S
RESEARCH PROGRAM
HAS FUNDED MORE
THAN 136 PROJECTS



PCFA Senior Research Coordinator Anne Maerz (left) and Dr Miranda Xhilaga, Director, Research Programs (right).

IN FULFILLING ITS MISSION TO SUPPORT THE BEST SCIENTIFIC TALENT IN PROSTATE CANCER NATIONALLY, PCFA'S RESEARCH PROGRAM PROVIDES A LOGICAL, CONSISTENT AND TRANSPARENT FRAMEWORK FOR THE SUBMISSION, REVIEW AND SELECTION OF APPLICATIONS FOR FUNDING.

The allocation of funds through our Research Program is guided by a clear strategic focus and priorities based on identified deficits in research, and is overseen by an independent Research Advisory Committee. The program has had many important impacts in the community, leading to:

- a high level of innovation and an increased Australian prostate cancer research profile
- a place for prostate cancer research on the policy agenda, and raised community and philanthropic awareness
- increased research capacity through seed funding, which has created more opportunities for the development of novel therapies
- greater opportunities for Australian prostate cancer research results to be readily applied locally

Please see page 14 for a list of the program's most important research achievements to date.

In recognition of the community's generous support through the Movember campaign and other strategic funding partnerships, PCFA's Board of Directors and independent Research Advisory Committee felt it was appropriate to conduct a formal review of our investment in prostate cancer research. After a series of consultations with key stakeholders, we are now working towards a new priority-driven National



Prostate Cancer Research Plan, which will provide strategic guidance over the next five years.

Professor John Mills,
Chairman Research
Advisory Committee

WE ARE FORTUNATE TO HAVE AN OUTSTANDING GROUP OF SCIENTISTS ON OUR RESEARCH ADVISORY COMMITTEE, RESPONSIBLE FOR DEVELOPING THE RESEARCH STRATEGY OF PCFA'S RESEARCH PROGRAM, AS WELL AS ASSISTING IN ITS IMPLEMENTATION AND REGULAR REVIEW.

PROFESSOR JOHN MILLS (CHAIR)

is a specialist physician, medical scientist and businessman. Actively involved in patient care since 1966, he retains a clinical practice at the Alfred Hospital as well as professorial appointments at UCSF, Monash University and RMIT. He has authored more than 200 peer-reviewed publications, has been on the editorial board of several journals, and is the recipient of a number of prestigious awards. Since 1992, Prof Mills has been involved in biomedical business. He is currently a director of TissuPath P/L, a specialist histopathology practice, Chairman of Swedish biotechnology company Cavid AB, and a non-executive director of GBS Venture Partners Pty Ltd. Prof Mills is also a Director of PCFA.

PROFESSOR 'FRANK' ROBERT GARDINER AM

is an academic urologist with the University of Queensland and a consultant urologist at the Royal Brisbane and Women's Hospital. He is Chairman of the Medical and Scientific Committee of the Cancer Council Queensland, the Viertel Centre for Research in Cancer Control, and the Pathology subcommittee of the Royal Australasian College of Surgeons. In addition to his membership of the Board of Directors of the Cancer Council Australia, the Advisory Board of Andrology Australia and the Advisory Board of the Asian Pacific Prostate Society, he has appointments on the editorial boards of five international journals. Prof Gardiner is an author on more than 130 peer-reviewed publications and the recipient of numerous research grants. He is also a Fellow of the Urological Research Society.

FROM 2007 TO 2011
PCFA'S RESEARCH
ADVISORY
COMMITTEE HAS
REVIEWED NEARLY
470 APPLICATIONS
FOR FUNDING





Associate Professor
Mary Haines (left)
with PhD student Bea
Brown (Sax Institute)
and Dr David Brown
(Cancer Council
NSW)

PROFESSOR SUZANNE CHAMBERS

heads the Department of Preventative Health at Griffith Health Institute, Griffith University. Since 2006 she has been a member of the Griffith Psychology Health Research Centre. Prof Chambers was Director of Research at the Cancer Council Queensland from 2006-2011, and is currently leading two NHMRC funded trials into psycho-education, decision support and couples-based interventions for men with prostate cancer.

ASSOCIATE PROFESSOR HOWARD GURNEY

is Director of Clinical Research, Medical Oncology at Westmead Hospital. He has a strong track record in clinical and translational research, particularly in anti-cancer drug disposition, novel methods for dose calculation and new therapies for prostate and genitourinary cancers. He has been an investigator on more than 70 clinical trials and has more than 60 peer-reviewed publications to his name.

DR BRUCE KYNASTON (CONSUMER REPRESENTATIVE)

was Director of the Queensland Radium Institute and, as a radiation oncologist, treated many men for prostate cancer. He served on the NHMRC and its Medicine Advisory and Radiation Health Committees, as well as the Federal Government's Ionizing Radiation Advisory Committee. Since his diagnosis of prostate cancer in 1985, Bruce has been an active member of several patient support groups, and regularly offers advice on prostate cancer testing and consumer issues.

ASSOCIATE PROFESSOR SUSAN HENSHALL

is a Union for International Cancer Control (UICC) Advocacy Director located at Cancer Council Australia. She has previously headed the Prostate Cancer Group at the Garvan Institute of Medical Research and has held positions as a Cancer Institute NSW Fellow, with conjoint appointments at the University of NSW and Georgetown University, USA. She was one of PCFA's first Post-Doctoral Fellows.

ASSOCIATE PROFESSOR RICHARD PEARSON

is Head of the Protein Chemistry Laboratory and Co-Head of the Cell Growth and Differentiation Program at the Peter MacCallum Cancer Centre. He is also an NHMRC Senior Research Fellow and Principal Fellow in the Department of Biochemistry and Molecular Biology, University of Melbourne. His research focuses on the molecular basis of ribosome biogenesis regulation, protein synthesis and cell growth.

ASSOCIATE PROFESSOR LISA HORVATH

is Head of the Department of Medical Oncology at the Sydney Cancer Centre, a visiting post-doctoral scientist at the Garvan Institute for Medical Research, and a senior lecturer at both the University of Sydney and the University of NSW. She has an active clinical practice and is involved with a large number of clinical trials in prostate, lung and colorectal cancers.

PROFESSOR PETER LEEDMAN

is Deputy Director and Head of the Laboratory for Cancer Medicine at the Western Australian Institute for Medical Research. He is also an endocrinologist and Director of Research at Royal Perth Hospital. His research focuses on the mechanisms of hormone action in breast and prostate cancers, and the development of novel therapeutics.

DR MIRANDA XHILAGA (COORDINATOR OF PCFA RESEARCH COMMITTEE)

is a physician and adjunct senior lecturer at Monash University. Prior to joining PCFA as Director, Research Programs, she was a research scientist at Monash Institute for Medical Research. In recognition of her research, she has received several prestigious awards including a NHMRC CJ Martin Postdoctoral Fellowship and the US National Institutes of Health Fellows Award for Research Excellence.

DR ANTHONY LOWE, PCFA CEO

is an ex-officio member of the research advisory committee. He is Chief Executive Officer of PCFA. He is an actuary with a particular interest in health policy and health economics. Prior to joining PCFA, he was Chief Operating Officer at the National Breast Cancer Foundation.



RESEARCH PROGRAM ACHIEVEMENTS

PCFA's Research Program has achieved a number of important outcomes since its inception in 2007:

- The increased profile of prostate cancer research nationally and internationally has helped to ensure that prostate cancer research has a place on the policy agenda. Professor Mary Haines and her team at the Sax Institute are working towards improving evidence-based care for locally advanced prostate cancer via a randomised trial. Prof. Daniel Galvão has established the guidelines for all exercise assessment and prescription for cancer management in North America and much of the world.
- Recipients of PCFA research grants have lodged four patents pertaining to major scientific discoveries, two of which have since moved into clinical trials.
- PCFA grantees have published more than 170 papers in highly ranked peer review scientific journals.
- Research findings generated through the Research Program have been presented in numerous international and national forums, and have received major awards and prizes.
- PCFA's Research Program is listed in the Australian Competitive Grants Register. As a result, our grantees obtain an additional 20 cents for each dollar awarded by PCFA, to help pay for infrastructure costs.
- Over the last 5 years our grantees have secured more than \$23M in leveraged funding from other agencies, a return of approximately 25% of our total investment over that period.



DR JEFF HOLST
Head, Origins of Cancer Laboratory, Centenary Institute

Jeff obtained his PhD from the University of New South Wales in 2003, before moving to the USA to undertake a postdoc at St Jude Children's Research Hospital. He returned to Australia in 2006, shifting his focus from immunology to cancer research. In his own words: "the reason why I came back to Australia was to get into cancer research. I lost three grandparents to cancer, including my grandfather to prostate cancer". Jeff wanted to work on something that he felt connected with.

Jeff has maintained an exceptional level of productivity throughout his 8 years of postdoctoral work with 19 peer-reviewed papers published in some of the most reputable journals in the field such as Nature Immunology, Nature Methods, Nature Biotechnology, Nature Structural and Molecular Biology, Cancer Research and Molecular Cancer. Dr. Holst was awarded a Movember Young Investigator Grant in 2008. His project is related to the effect of diet on prostate cancer – he is examining what is happening inside the cell, how the cell regulates its supply of nutrient in order to grow and become a cancer. This work has been going on for four and a half years and the results obtained to date have recently been published in the Cancer Research journal.

Jeff has received Chief Investigator grants and fellowships totalling more than \$2.8 million over the past 5 years. He has received invitations to present his work in France, Italy and Canada, as well as presenting oral and poster presentations at various international and national conferences. As a successful young scientist Jeff is regularly sought by PCFA, Movember

Foundation, support groups and the Centenary Institute to present his work to the community.

Jeff has been an external assessor for NHMRC project and program grants, NBCF concept and postdoctoral fellowships and PCFA Young Investigator and Equipment Grants. Jeff also supervises and mentors young scientists in his laboratory. He has co-supervised three PhD students to award of their degrees and currently supervises four other students including an honours student. Jeff is on the Editorial Board of the American Journal of Cancer Research and reviews articles for a number of different biomedical journals.

Jeff is married to Belinda whom understands all too well the sacrifices Jeff has to make to be able to achieve his career goals and ultimately answer some hard questions relating to prostate cancer and how it can be better fought. Together they have a beautiful daughter, little Emily who is 18 months old. Whenever not in the lab, Emily keeps him on his toes at home.

young investigators update

DR GRANT BUCHANAN

Head, Cancer Biology Group, Freemasons Foundation
Centre for Mens Health

Basil Hetzel Institute for Translational Health Research

Grant completed his PhD in Cancer Research in 2002 that was jointly undertaken at the University of Southern California, USA and The Flinders University of South Australia. His postdoctoral research at Norris Comprehensive Cancer Centre in Los Angeles was in high-throughput technology and bioinformatics applied to hormone action in cancers. The award of a Movember Young Investigator Award enabled him to return to Australia in 2008.

At the time of prostate cancer diagnosis we are currently unable to predict or identify cells which have already spread, and we don't understand how this spread occurs. To find this out, Grant and his team is focusing not just on the cancer cells themselves, but on the surrounding 'architecture' of the prostate which they think plays a key role. It appears that the environment the cancer cells find themselves in is equally important as the cells themselves.

Grant thinks that the architecture is actually a key determinant of whether a patient will ultimately die from cancer because of its ability to either hold the cancer cells in place within the prostate, or enable movement of cancer cells to other areas of the body. One of the key players in the 'strength' of the architecture is testosterone. "Many cells in a man's body need testosterone, and we have found in the prostate that testosterone is being used to create a sticky matrix environment that captures normal and cancerous cells. When there is less testosterone around, this matrix is weakened allowing cancer cells to escape" explains Grant.

His aims are to understand how the architecture of the prostate is maintained, how it breaks down in lethal cancers,

and ultimately what we can do to stop the process.

In the 4 years that Grant was the recipient of funding from PCFA's Research Program he has gone from a postdoctoral researcher in a larger lab, to establishing his own research program and laboratory, and has generated nearly 2 million dollars of additional income from a variety of organizations. This includes three research grants as principal investigator and one fellowship. His research team currently numbers 7 individuals, with two adjunct university postdoctoral fellows providing additional input. In this time he has generated new approaches, skills and collaborations, 20 publications in peer reviewed journals such as Cancer Research, J Biol Chem, Clinical Cancer Research, Molecular Endocrinology, Prostate, PNAS, FASEB J etc. either accepted or under review, and is still accelerating his laboratories research capacity and productivity.

Grant believes that the stability of Movember funding through PCFA's Research program facilitated both capacity and flexibility in that genesis, in terms of employing staff, freeing funds for data generation and laboratory building, has increased his local and national profile, and facilitated his interaction with the broader community.

Grant is regularly invited to give talks and lectures in national and international fora. Over the last four years he has given 22 invited oral presentations at local, national and international meetings, institutional fundraising events, community organizations and cancer support groups.

He has been an invited chair at national meetings such as the 52th Annual Scientific Meeting of the Endocrine Society of Australia, Androgens and Nuclear Hormone Receptors. Adelaide, South Australia, Prostate Cancer Foundation of Australia National Meeting, Gold Coast and 2010 Australian Canadian Prostate Cancer Research Alliance International Meeting, Gold Coast.



Dr Grant Buchanan
and Professor Pam
Russell, recipients
of PCFA's Young
Investigator of the
Year and PCFA's
Senior Investigator
of the Year Award
(2010)

In the forefront of prostate cancer research: Dr Renea Taylor (right) and her mentor, Professor Gail Risbridger (left).



DR RENEA TAYLOR

Senior Research Fellow, Prostate & Breast Cancer Research Program, Monash University

Dr Taylor was awarded a Movember Young Investigator Grant in 2008, four years post her PhD graduation. The overall hypothesis of this funded project was that prostate cancer stem cells possess a unique molecular profile that is related to disease progression and determines their differentiation plasticity in selected stromal microenvironments.

Towards this, Renea has generated a body of work that describes the tumour potential of stem or progenitor cells (these are not the same as embryonic stem cells), isolated by their cell surface marker, CD133, under the influence of different stromal microenvironments. These results contribute to the current debate on the cancer-cell-of-origin in prostate cancer.

This young investigator grant has facilitated the development of several new experimental models that have been successfully translated into new grants or published data. In 2011 Renea was awarded another project grant through PCFA's Research program. This project focuses on improving our understanding of the biological events that lead to the development of advanced prostate cancer otherwise known as "castrate-resistant prostate cancer". Dr Taylor and her team believe that the cells surrounding the cancer cells, known as the stromal cells, respond to hormonal (androgen) withdrawal in a way that may actually help the tumour grow. Understanding how this process occurs may allow scientists to design hormone therapies that treat prostate cancer more effectively.

As a postdoctoral trainee, Renea was ranked in the top 10% of international researchers based upon her ranking and scores obtained in programmatic peer review of the Department of Defense research applications. Her international standing in Prostate Cancer is also reflected in 3 invitations to speak at the PacRim Breast and Prostate Cancer Meetings (participation

by invitation only; 300 attendees) and in Endocrinology by 2 invitations to Chair Symposium Sessions at the U.S. Endocrine Meetings (an international up to 5,000 delegates from around the world).

Renea has published a total of 28 articles over her career; 8 of which while supported by the Movember Young Investigator grant. She is by far one of the most competitive mid career prostate cancer researchers. Since 2008 Renea has secured more than \$3 million in leveraged funding through competitive government schemes. In 2012 Renea was awarded an NHMRC grant as a sole investigator.

She is regularly invited to review for journals including Cancer Research, Clinical Cancer Research, Endocrinology, Developmental Biology, Journal of Endocrinology, Journal of Andrology, Cell and Tissue Research and Tissue and Cell, Clinical and Experimental Metastasis, Molecular and Cellular Endocrinology, and has been selected as a member of the Grant Review Panel for NHMRC 3 times (2008, 2009, 2012) reflecting her National profile and respected expertise.

Renea is the mother of three gorgeous children, Anabelle (Grade 1), Will (Kindergarten) and Jasmine (at home). Her passion for both family and science has allowed her to foster a healthy work-life balance, ably supported her fabulous husband, Scott, who is a Sergeant of the Victorian Police force. In June 2012, Renea undertook a study visit to Los Angeles to further develop her scientific skills, and her family travelled with her to enjoy the experience of a new country and culture. Whilst she has developed a successful research career, she recognises the importance of teaching and mentoring the next generation of scientists, and her contribution to education is now paramount. She has a particular enthusiasm for nurturing young female scientists who will be the bright new stars of the future. To date she has mentored and supervised more than 16 students and continues to be a role model for the new generation of scientists.

PROFESSOR DANIEL GALVÃO
Director, Edith Cowan University Health and Wellness
Institute, Edith Cowan University

Professor Daniel Galvão is an exercise scientist at Edith Cowan University (ECU) in Western Australia where he also graduated with a PhD in Exercise Science in 2006.

His research examines the role of physical activity for cancer survivors across the cancer continuum with a focus on prostate cancer and the adverse effects from androgen suppression therapy. Daniel's research output remains consistently high, evidenced by publications as lead author in high quality peer-reviewed journals (e.g. Journal of Clinical Oncology 2005 & 2010) and (8) Category 1 nationally competitive grants since 2007 (2 as first named investigator) and a track record of successful national and international research collaborations, placing him at the forefront of exercise related cancer research in Australia.

Daniel was awarded a PCFA Young Investigator award in 2008. Shortly after, he was promoted to the Associate Professor level in 2010 and appointed Director of the University's Health and Wellness Institute where he has both, research and operational responsibility, an outstanding achievement for a Young Investigator.

Consequently, he has established a defined leadership role within the Institute's research group and activities, providing a link between clinical and basic science research that emphasises advanced biomedical clinical translational applications. During this 3-year period (August 2009-2012) Daniel has shown sustained leadership to a team of 22 staff (consisting of: 1 senior postdoctoral research fellow; 3 postdoctoral research fellows; 4 research assistants; 8 allied health clinicians; 2 senior managers and 4 administrative staff) and applied continuous innovation to a range of research projects by attracting 22 externally funded grants (21 as

Chief Investigator) including 8 category 1 grants and active mentorship to early career researchers.

The work by Daniel's team has facilitated the use of exercise as an important strategy to mitigate treatment side effects and improve the quality of life in prostate cancer survivors. His publication record to date includes 88 research outputs comprising 32 refereed journal articles (23 as first or senior author publications), 53 refereed conference proceedings, books and book chapters including 2 leading author publications in the prestigious Journal of Clinical Oncology from the American Society of Clinical Oncology.

His early work highlighted the important physiological and psychological benefits that are derived from exercise when undertaken during or after traditional cancer treatment. Daniel has published an influential exercise trial in the official Journal of the American College of Sports Medicine which demonstrated the clinical benefits of resistance training for improving physical and muscle function in prostate cancer patients undergoing long-term androgen deprivation. This was the first time that considerable musculoskeletal beneficial effects of resistance exercise in prostate cancer patients on androgen suppression were reported.

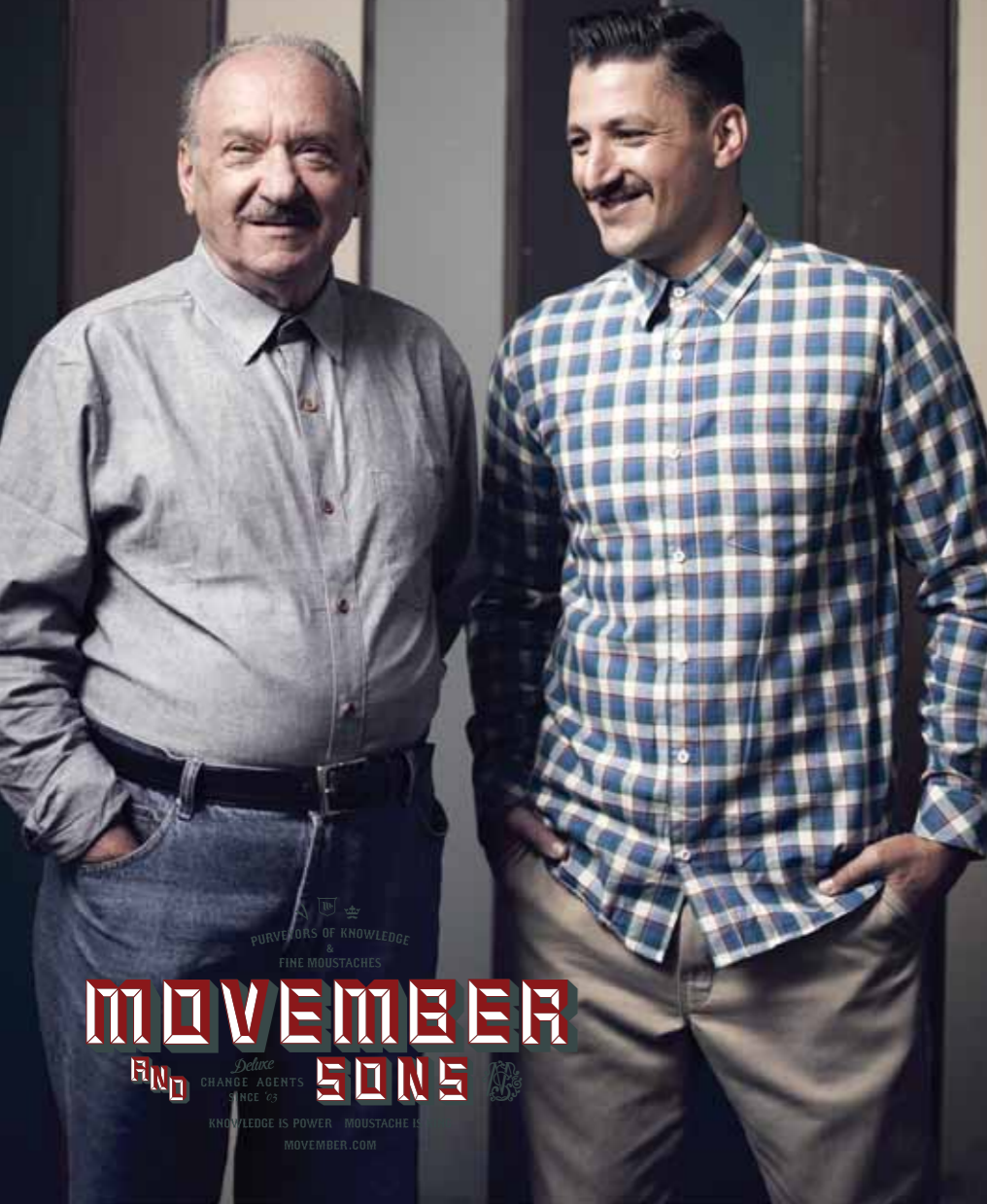
His team has also reported the rapid loss of bone and lean mass and increased total body fat following androgen deprivation for prostate cancer in an Australian cohort (Galvão et al. British Journal of Urology International).

Outside of research, Daniel enjoys spending time with his two children, a 4-year old son and a 4-month old baby girl. Playing tennis is one of his main recreational hobbies.



Professor Daniel
Galvão at work

movember



MOVEMBER
AND **SONS**
Purveyors of Knowledge & Fine Moustaches
Deluxe Change Agents Since '73
KNOWLEDGE IS POWER. MOUSTACHE IS...
MOVEMBER.COM

CHANGING THE FACE OF MEN'S HEALTH

During November each year, Movember is responsible for the sprouting of moustaches on men's faces around the world to raise awareness, support and funding for men's health issues: prostate cancer and male mental health.

Their vision is to have an everlasting impact on the face of men's health.

In order to achieve this, Movember has formed strategic partnerships with men's health organisations around the world. These partnerships enable Movember to respond to international trends in prostate cancer research, support and policy and foster collaboration amongst scientists, a key to successful research.

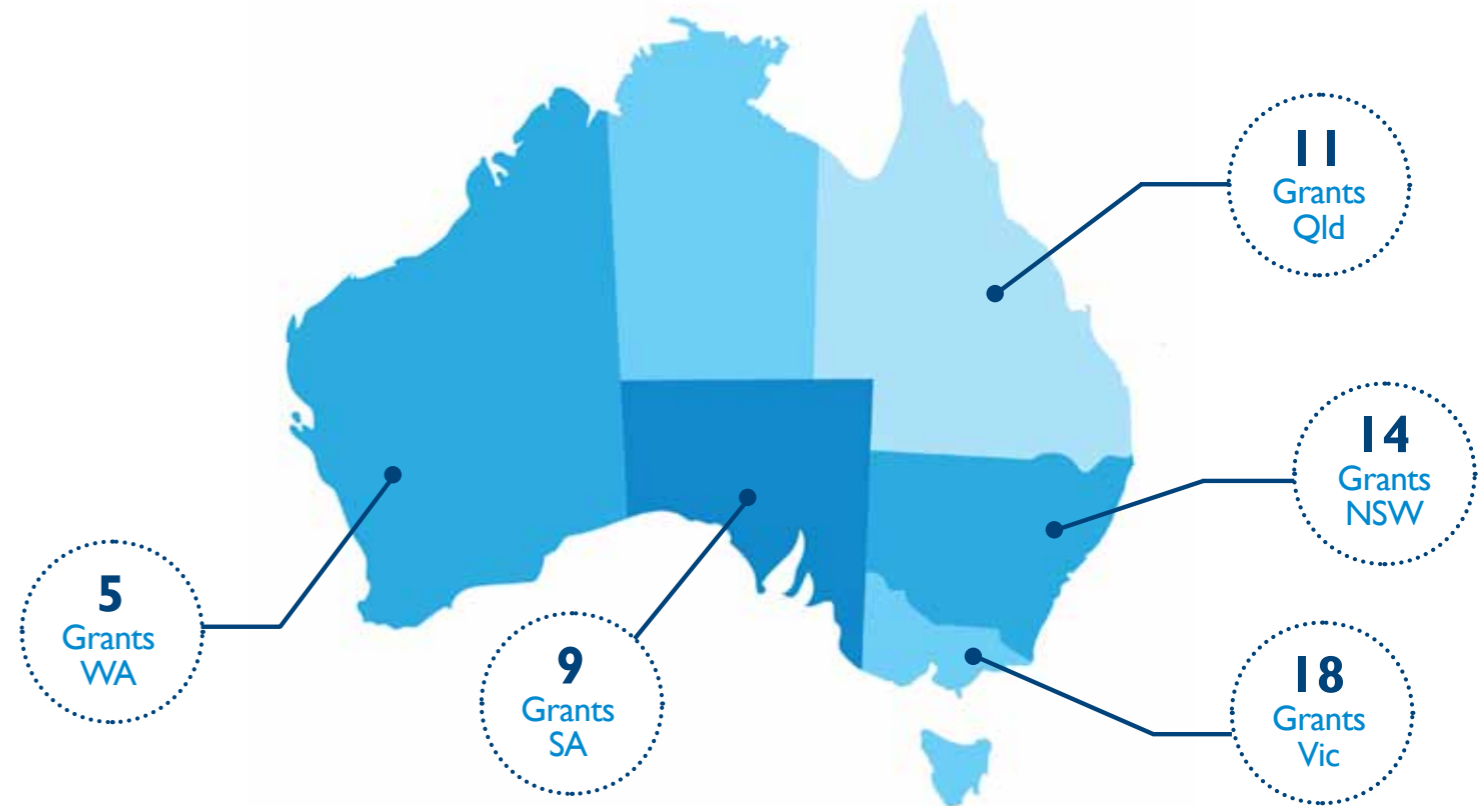
Together, we fund world class research programs. Movember is excited about the potential outcomes from PCFA's current research program. This program brings together some of the best researchers from around the country and ensures that prostate cancer remains a priority on the research agenda.



PCFA would like to recognise the Movember Foundation as a key funder of its National Research Program

2011/12
active
grants

FROM 2007-2011 MOVEMBER HAS INVESTED A TOTAL OF \$32M IN PROSTATE CANCER RESEARCH NATIONALLY. IN JANUARY 2012 PCFA'S ACTIVE GRANTS NUMBERED 57.





Professor Judith Clements, Director of the Bioresource (centre) and the Bioresource management team

research supported by PCFA

IN 2011 PCFA'S RESEARCH PROGRAM RECEIVED 86 NEW APPLICATIONS FOR FUNDING. ONLY THE TOP 22% MOST COMPETITIVE APPLICATIONS WERE FUNDED. THE FOCUS OF AWARDED PROJECTS RANGED FROM BASIC SCIENCE TO TRANSLATIONAL AND SURVIVORSHIP RESEARCH.

DR MITCHELL LAWRENCE

Research Fellow, Faculty of Medicine, Nursing & Health Sciences, Monash University

The behaviour of prostate cancer cells is regulated by their surrounding environment known as the stroma. The stroma has been proposed as a therapeutic target, but it is a diverse mix of cells that needs to be specifically targeted. Dr. Lawrence's new data show that not all stromal cells are equal; a subset of stromal cells exhibit features of adult stem cells and promote the formation of prostate cancer. Therefore, the goal of this project is to directly isolate this potent subpopulation of cells from tumour tissue and study their role in prostate cancer progression.

DR HELEN PEARSON, RESEARCH OFFICER

Cell Cycle and Cancer Genetics Research Images, Peter MacCallum Cancer Centre

Loss of cell polarity is a characteristic of cancer whereby the disordered orientation of cells results in unorganized tissue structures where cells have gained the ability to pile on top of each other or migrate away. The mechanism underlying this phenomenon remains unclear. Dr. Pearson has described a previously unrecognized role for genes that control cell polarity in prostate tumor formation and growth. She proposes that planar cell polarity proteins play a tumour suppressive role in the prostate. In this grant proposal, she describes experiments to test this hypothesis and to dissect the molecular mechanisms of this event, thus providing a novel route for therapeutic intervention and improving our understanding of prostate aetiology.

DR JASON DOWLING

Project Leader, CSIRO Australian e-Health Research Centre, Royal Brisbane and Women's Hospital

External beam radiation therapy is a major and successful treatment for prostate cancer. However treatment side effects can include rectal bleeding, rectal urgency, incontinence, erection problems and inflammation of the bowel. MRI allows the borders of the prostate, rectum and bladder to be identified with greater precision than CT scans. The aim of this project is to reduce treatment side effects by using MRI scans for treatment planning. Building on his previous work, Dr. Dowling will identify the boundaries of these organs from MRI scans with a very high level of accuracy and develop treatment plans based on the MR information alone. This is a first step towards next generation combined MRI-linear accelerator treatment machines.

DR JEFF HOLST

Head, Origins of Cancer Laboratory, Centenary Institute

Current prostate cancer treatments are not generally curative and new alternatives are needed. Dr. Holst's group will examine the role of protein pumps that control the amount of nutrients taken into and out of cancer cells. One such protein pump, POVI, is dramatically increased in prostate cancer and may be responsible for increasing nutrients and enhancing survival of the cancer cells. Understanding of its role may provide clues for dietary or drug therapy design "to starve the cancer" that are entirely novel. Jeff's recently accepted Cancer Research paper showed that prostate cancer cells coordinate the expression of LAT1 and LAT3 in order to maintain sufficient levels of leucine needed for mTORC1 signalling and cell growth. Inhibiting LAT function was sufficient to decrease cell growth and mTORC1 signalling in prostate cancer cells. Furthermore, the published results show how prostate cancer cells respond to demands for increased essential amino acids, by coordinately activating amino acid transporter pathways vital for tumour outgrowth.

PROFESSOR ROGER DALY

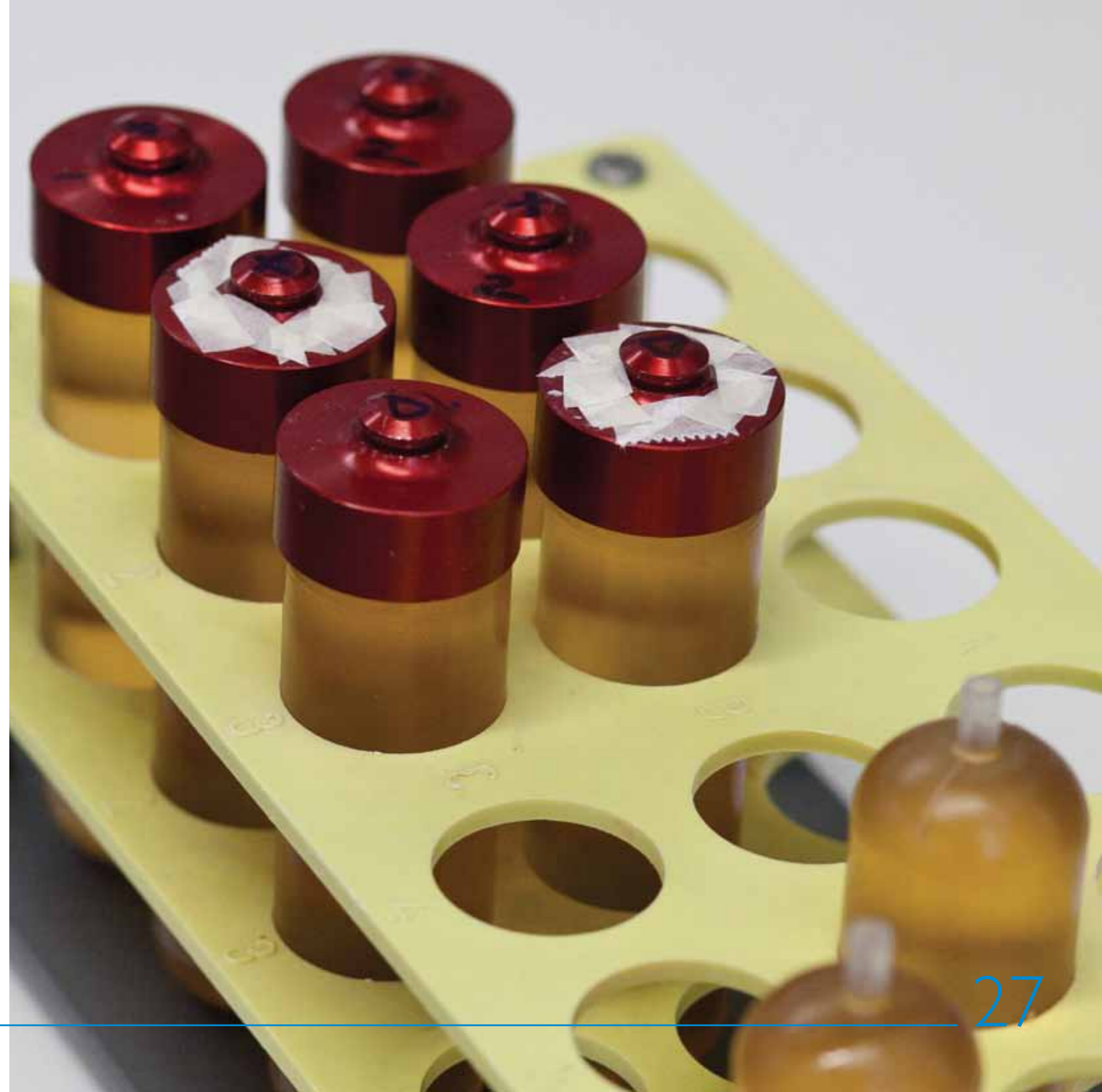
Senior Principal Research Fellow; Group Leader, Cancer Research Program, Garvan Institute of Medical Research; NHMRC Principal Research Fellow; Conjoint Professor, Faculty of Medicine, The University of New South Wales

A particular gene rearrangement is found in about half of all prostate cancers. This is known to promote prostate cancer development, but how this occurs is unclear. This project aims to resolve this issue by using a new, high-throughput technology that characterizes in a global fashion all of the regulatory signals within a cancer cell.

ASSOCIATE PROFESSOR LOUIS RENDINA

Head, Bioinorganic Medicinal Chemistry, University of Sydney; Deputy Head of School (Chemistry)

Very few options exist in the treatment and imaging of advanced prostate cancer, and the demand for new, tumour-specific drugs that can target malignant prostate cancer is increasing. This project will investigate the possibility of using a completely new class of drug for the targeting of a protein known as TSPO which is found in high abundance in prostate tumour cells and it also plays several important roles in the progression of the disease.





research
supported
by PCFA

ASSOCIATE PROFESSOR ROSS HANNAN

Group Leader, Growth Control, Peter MacCallum Cancer Centre

Despite advances in diagnostic and treatment strategies for prostate cancer, there is urgent need for new therapeutic approaches that improve survival and even cure the disease. The group has developed a completely new strategy for the treatment of cancer based on disruption of the cellular mechanisms that control protein synthesis. In collaboration with a drug company Dr. Hannan has developed the world's first small molecule selective inhibitor (CX-5461) of this process. This project aims to establish the efficacy of these inhibitors to treat prostate cancer in a pre-clinical setting. Such studies will lay the foundation for potential clinical trials of this novel therapeutic approach to treat prostate cancer. Furthermore, this project will enable Australian investigators to build on our internationally competitive position in the prostate cancer field and bring these novel therapies to Australian prostate cancer patients.

ASSOCIATE PROFESSOR WAYNE PHILLIPS

Principal Research Fellow and Head, Surgical Oncology Research Laboratory, Peter MacCallum Cancer Centre

Metastatic prostate cancer is currently poorly understood and as a result there is no known therapeutic intervention that can cure prostate cancer once it has metastasized. Activation of the PI3K signalling cascade is frequently activated in human primary prostate tumours and is almost always deregulated in metastatic prostate cancers. The aim of this project is understand the role of PI3K pathway activation in the biology of prostate tumour formation and metastasis and to develop a novel pre-clinical model for generating and testing new therapeutic strategies for the treatment of prostate cancer.

PROFESSOR IAN DAVIS

Head of the Eastern Health Clinical School at Monash University and Eastern Health

Prostate cancer is known to depend on male sex hormones but it also relies on other hormones including female sex hormones, which are also present in men. The effects of these hormones can have important effects on how the cancer behaves. Prof. Davis will use a novel scanning technology called PET to study how one of these female sex hormones attaches to prostate cancer cells in the test tube as well as in animal experiments. This could lead to better ways of scanning for prostate cancer in the future and might also suggest new ways of treating it.

Determining
tumour growth
in live animals.
Dr Holst,
Centenary Institute

PROFESSOR DANIEL GALVÃO

Director, Edith Cowan University Health and Wellness Institute,
Edith Cowan University

The presence of bone metastases has excluded participation of cancer patients in exercise programs because of concerns of bone fragility fracture. However, this group of patients often has developed significant physical impairments from prior and continuing hormone treatment that is increased by subsequent and more intensive interventions such as chemotherapy. This project will determine the safety and efficacy of a tailored exercise program in prostate cancer patients with bone metastases.

DR ELIZABETH WILLIAMS

Senior Research Fellow, Monash Institute of Medical Research, Monash University

Once prostate cancer progresses from localised disease it is essentially incurable. Dr. Williams will identify differences between cancers that only have a short response to anti-androgen therapy and those that will have prolonged response. This will provide evidence to underpin the development of new therapies for advanced prostate cancer.

DR LUC FURIC

Research Fellow, Department of Anatomy & Development Biology,
Monash University

To accelerate validation of new potential biomarkers and to assess the efficacy of new compounds to fight prostate cancer it is necessary to have a consistent imaging analysis platform that allows comparisons between samples and the capacity to quantitate rapidly changes in molecular markers. Dr. Furic and other investigators at Monash University are aiming to purchase an Aperio ScanScope CS (Digital slide scanner) with operating software and server.

PROFESSOR ROBERT NEWTON

Professor of Exercise & Sports Science, Edith Cowan University

Exercise is now well established as a medicine for prevention and management of prostate cancer. For example, men with existing prostate cancer who are physically active have a 49% lower risk of dying from any cause and 61% lower risk of dying from their prostate cancer. The Actigraph system is the gold standard for measurement of physical activity and will provide a valuable research tool to evaluate the effectiveness of programs designed to increase physical activity in prostate cancer patients. Prof. Newton is aiming to purchase an Actigraph Physical Activity Monitoring System, which he will share with Dr. Galvão and others in the course of an already funded project.



60%

OF ALL YOUNG INVESTIGATORS
FUNDED THROUGH PCFA'S
RESEARCH PROGRAM ARE NOW
INDEPENDENT SCIENTISTS HEADING
THEIR OWN LABORATORIES



PROFESSOR MARK FRYDENBERG AND DR DAVID MALOUF
Urological Oncology Special Advisory Group, Urological Society of Australia and
New Zealand

PRIAS (Prostate cancer Research International: Active Surveillance)

PRIAS presents a program in which selected men with early prostate cancer are managed by a follow-up strategy that includes several protocols. Candidates for this program are:

- Men fit for curative therapy
- PSA at diagnosis less than 10ng/mL
- PSA density (PSA/prostatic volume) less than 0.20
- One or two biopsy cores bearing prostate cancer (using a fixed volume dependent number of cores)
- Gleason score 3+3 and digital rectal examination T1c or T2

Active surveillance aims to individualize the management of early prostate cancer by selecting only those men with significant cancers for curative treatment. Patients on active surveillance are closely monitored using serum PSA levels and repeat prostate biopsies. The choice between curative treatment and continued observation is based on evidence of disease progression during this monitoring.

Active surveillance must be distinguished from watchful waiting, which for decades has described a policy of observation with the use of palliative treatment for symptomatic progression. Put another way in order to emphasize the differences between these two contrasting approaches, whereas watchful waiting involves relatively lax observation with late, palliative treatment for those who develop symptoms of progressive disease, active surveillance involves close monitoring with early, curative treatment.

PROFESSOR ROBERT NEWTON
Professor of Exercise & Sports Science, Edith Cowan University

Pharmaceutical suppression of testosterone is increasingly being used for treatment of prostate cancer. However, side effects include bone loss, increased body fat, loss of muscle, depression, distress and reduced quality of life. This project will determine if initiating exercise therapy at the same time as hormone therapy can reduce if not prevent these toxicities, ultimately resulting in reduced morbidity and mortality for men with prostate cancer.

research
supported
by PCFA

DR GRANT BUCHANAN

Head, Cancer Biology Group, Freemasons Foundation Centre for Mens Health
Basil Hetzel Institute for Translational Health Research

The prostate consists of ductal epithelial cells embedded in a supportive matrix. New evidence suggests that changes in the supportive matrix are a major component of prostate cancer progression. This project will investigate the prostatic structural matrix as a means of earlier diagnosis of prostate cancer progression and new ways to approach therapy.

93%

OF MEN DIAGNOSED WITH
LOCALISED PROSTATE
CANCER WILL BE ALIVE 10
YEARS AFTER DIAGNOSIS*

* Cancer Australia
<http://www.cancer.org.au/aboutcancer/cancertypes/prostatecancer.htm>
Last updated 20 June 2012

PLEASE HELP US CONTINUE THIS CRUCIAL RESEARCH

Your donation will help continue funding our world-class prostate cancer research and accelerate our ultimate aim: finding a cure.

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THANKS FOR YOUR SUPPORT

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