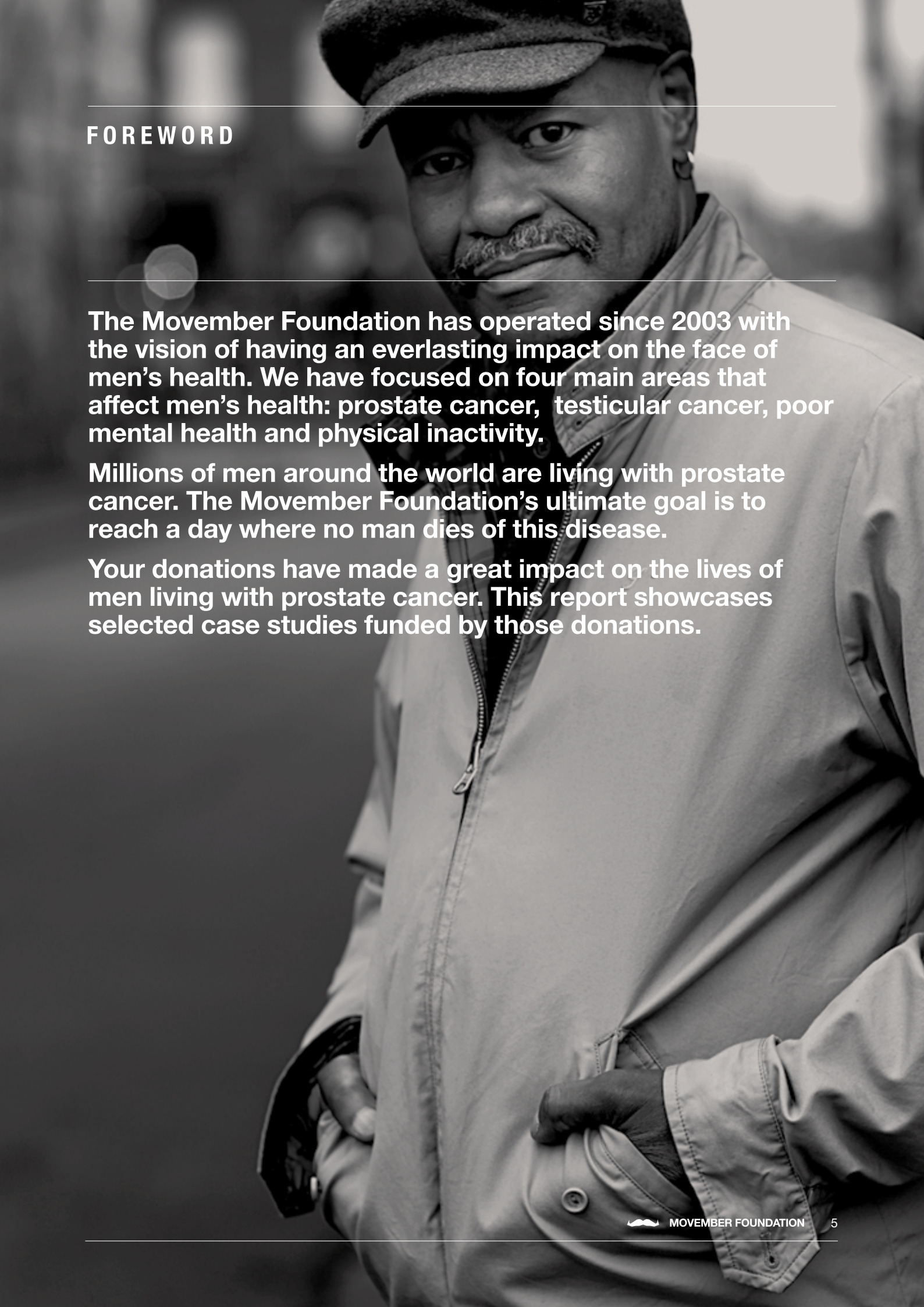
STRATEGIC PROGRAM INVESTMENTS

OUR IMPACT ON MEN LIVING WITH PROSTATE CANCER

CONTENTS



FOREWORD

The Movember Foundation has operated since 2003 with the vision of having an everlasting impact on the face of men's health. We have focused on four main areas that affect men's health: prostate cancer, testicular cancer, poor mental health and physical inactivity.

Millions of men around the world are living with prostate cancer. The Movember Foundation's ultimate goal is to reach a day where no man dies of this disease.

Your donations have made a great impact on the lives of men living with prostate cancer. This report showcases selected case studies funded by those donations.

GLOBAL UPDATE: PROSTATE CANCER

2ND

PROSTATE CANCER IS THE SECOND MOST COMMON CANCER IN MEN WORLDWIDE

15%

PROSTATE CANCER ACCOUNTS FOR ABOUT 15% OF ALL NEW CASES OF CANCER DIAGNOSED IN MALES

1.1 MILLION

MORE THAN 1.1 MILLION CASES OF PROSTATE CANCER WERE RECORDED IN 2012

6TH

PROSTATE CANCER IS THE 6TH LEADING CAUSE OF CANCER DEATH AMONG MEN WORLDWIDE

INVESTMENT STRATEGY FOR PROSTATE CANCER

The Movember Foundation seeks to make a significant contribution to reducing prostate cancer mortality, and improving the quality of life of men diagnosed and living with the disease, as well as their partners, caregivers and families.

To achieve this we invest in biomedical, translational, clinical, health services, care and education initiatives that:

- lead to avoidance of unnecessary treatment
- lead to interventions that reduce or cure side effects of the disease or its treatment
- lead to non or minimally invasive tests to monitor prostate cancer and its progress
- accelerate discoveries that lead to interception of lethal disease
- lead to tests, treatments and interventions that cure or slow progression of lethal disease
- lead to the development and evaluation of clinical interventions
- reduce variation and increase excellence in the quality of clinical treatment and care
- catalyse new models of care that can sustainably scale
- provide supportive care to men and their families where required
- educate men on when and how to take action.

The nature of the programs that we invest in take into account the clinical and scientific capacity and strengths in each country, as well as the level of funds raised.

These programs include capacity building of young clinical and scientific talent, new ideas, transdisciplinary team science, clinical registries, and TrueNTH, a program aimed at improving quality of life for men with prostate cancer.

The majority of donations channelled into prostate cancer are invested into national programs delivered through our men's health partners around the globe. Our men's health partners are:

- Prostate Cancer Foundation of Australia (PCFA)
- Prostate Cancer Foundation (PCF)
- Prostate Cancer Canada (PCC)
- Prostate Cancer UK (PCUK)
- MUZI PROTI RAKOVINE nadacni
- Hong Kong Cancer Fund (HKCF)
- Irish Cancer Society (ICS)
- Singapore Cancer Society
- Institute of Cancer Research
- Bundesverband Prostatakrebs Selbsthilfe (BPS)
- Nederlands Kanker Instituut (NKI)
- Dutch Cancer Society
- Norwegian Cancer Society
- Prostatakraeftforeningen
- CANSA
- LIVESTRONG

TrueNTH

The TrueNTH program, now operating across six countries, is the most significant global investment made to improve the quality of life for men with prostate cancer and their families. We have brought together over 300 leading experts around the world, across a range of health disciplines, to work with men in designing innovative solutions that tackle the key challenges. Solutions that work will then be scaled up nationally to reach all men.

GLOBAL ACTION PLAN

The Movember Foundation's Global Action Plan (GAP) takes an innovative approach to revolutionising prostate cancer and testicular cancer research. Through team-based research, performed across borders and with a strong collaborative mindset, we can avoid duplication of work and deliver innovation and knowledge sharing. This in turn leads to an acceleration of results, benefitting men diagnosed and living with prostate cancer and testicular cancer.

PERFORMANCE INDICATORS

To achieve its vision, Movember Foundation has put in place a set of performance indicators to support our assessment of progress being made via either in-house Movember Foundation programs or programs undertaken by our Men's Health Partners (MHPs) with Movember investment. Programs that are measured under these performance metrics include: 1) early-career programs
2) investigator-initiated programs (including Discovery/Creativity/New idea programs)
3) translational research programs and 4) knowledge exchange and collaboration programs.
These performance indicators are outlined in more detail in Appendix 1 of this report. These indicators are applied across all of our prostate cancer investments.

These measures take into account the reality that new tests and treatments often take between 8 to 10 years from discovery to benefitting patients. It is therefore important to put in place a set of indicators that recognise the different stages of progress, from publication of results, through to clinical trials and ultimately new tests and treatments that are publicly available.

Movember Foundation's portfolio of prostate cancer investments is relatively young. Substantial investments began in 2009, with most projects of three- to five-years duration. The majority of the projects we have invested in commenced after 2011. This means that it will still take a number of years to fully assess the progress and impact of our investments.

The purpose of this report is to provide Movember Foundation stakeholders with some early insights into progress of a number of prostate cancer projects. Most of these projects are biomedical or translational research projects, as our TrueNTH program is still in its early stages of implementation.

We will continue to keep all of our stakeholders informed of progress and outcomes, as more Movember Foundation funded projects are completed over the coming years.

WHY THIS REPORT WAS COMMISSIONED

Since 2005, the Movember Foundation has invested in biomedical and translational prostate cancer research in collaboration with its MHPs around the globe, and has been one of the leading non-government investors in prostate cancer research globally.

The Movember Foundation board holds itself accountable to the fundraising community, donors, and the general public. We track the progress of investments in order to provide appropriate accountability and feedback. With a significant number of these investments now completed, this report was commissioned to examine the impact and results of the programs that received funding from the Movember Foundation. Separate to this report, the Movember Foundation reviews the progress and performance of all research projects against agreed performance measures. We continuously monitor progress at a country level, and evaluate the performance of each program every three years.

Report cards outlining all our program investments are available at movember.com.

HOW THIS REPORT WAS PREPARED

The Movember Foundation commissioned a panel of independent globally respected clinicians and researchers who are experts in the prostate cancer field to prepare this report. Each project is shown as a case study in this report. There are key themes that you will see identified that are part of our approach to funding innovative projects.

The independent panel of expert interviewers included:

Dr Joshua Lange	University of Wisconsin, USA
Dr Gerhart Attard	Institute of Cancer Research and Royal Marsden Hospital, UK
Dr Ralph Buttyan	Vancouver Prostate Centre, Canada
Dr Lorelei Mucci	Harvard School of Public Health, USA
Professor James Monte	University of Michigan, USA
Dr Elizabeth Kessler	University of Colorado, USA

OUR APPROACH TO MAXIMISE IMPACT

CREATING AN IMPACT FOR MEN LIVING WITH PROSTATE CANCER

Prostate cancer is the second most commonly diagnosed cancer in men globally and yet research into this common cancer in men has lagged behind other cancers. For this reason, the Movember Foundation is committed to using disruptive approaches to achieve faster results that improve the health and lives of men with prostate cancer.

The Movember Foundation embraces a strategy of investing in research approaches that will achieve the greatest impact by:

- facilitating global collaborations involving thought leaders in a specific field
- working with world renowned clinical and research advisory committees to take measured but well-calculated risks by investing in novel approaches that address specific challenges in prostate cancer progression and treatment
- focusing on translating research into treatments and programs that improve men's health.

01
TRANSLATION OF KNOWLEDGE INTO ACTION

We use research findings to accelerate new ideas into practice, share information and encourage other organisations to do the same.

This process of knowledge translation aims to get the right information to the right people, at the right time and in the most effective way. This ensures that the best available evidence informs policies, programs and practice and improves health outcomes for men around the world.

02
CATALYST FOR CHANGE

The Movember Foundation stands for constructive change. We challenge the status quo, with the result of driving significant achievements from the conversations we generate and the funds we raise. Our targeted methods of bringing about change translate directly into our approach to see real outcomes the programs we fund.

03
CONNECT

The Movember Foundation cannot achieve the goal of men living happier, healthier and longer lives without building a movement, with partners at all levels of government, civil society, research organisations, academia, schools, workplaces and other organisations and across countries. Some of our most significant investments, such as the GAP, use global connection as a way of getting the best results.

04
INNOVATE

We understand that medical research will only progress with innovation, by delivering new approaches to solving real-world challenges.

05
ACCELERATE

We invest in programs that will accelerate an improvement in the health of men. We act as a disruptive but positive force for rapid progress and change.

"TRUE TO ITS CORE VALUES, THE MOVEMBER FOUNDATION'S APPROACH IS ONE OF CONSTRUCTIVE DISRUPTION – BEING PREPARED TO TAKE RISKS AND USE NOVEL APPROACHES TO SOLVING PROBLEMS – WHILE ACKNOWLEDGING THAT ACHIEVING REAL CHANGE AND IMPROVEMENT ACROSS A POPULATION REQUIRES THE SUPPORT OF MANY STAKEHOLDERS, INCLUDING THE CLINICAL COMMUNITY AND GOVERNMENTS."

PAUL VILLANTI, EXECUTIVE DIRECTOR, PROGRAMS AND ADAM GARONE, CEO AND CO-FOUNDER, THE MOVEMBER FOUNDATION

MOVEMBER FOUNDATION IMPACT

CUSTOMISING TREATMENT

Prostate cancer might sound like a single disease, but different genetic changes can give rise to different types of prostate tumour, even in the same person. Tumours can also change with time and treatment.

Some tumours grow slowly or become smaller with treatment, or are benign and do not need any immediate treatment. Others grow quickly or are unaffected by treatment.

Once a prostate tumour is diagnosed, men have to make difficult choices about whether to delay treatment and carefully monitor their disease, or begin active therapy. If doctors could better understand the characteristics of each man's prostate tumour, they would be better able to suggest a course of action that would give the best possible results for each individual situation.

The process of customising treatment is also known as 'personalised medicine' or 'precision medicine' and is a major goal of contemporary medical research.

The case studies in this section are examples of projects that impact the field of precision medicine for prostate cancer.

WHY DOES THE MOVEMBER FOUNDATION INVEST IN PRECISION MEDICINE APPROACHES?

The National Institutes of Health (NIH) defines precision medicine as an emerging approach for disease treatment and prevention that takes into account individual variability in genes, environment, and lifestyle for each person.

Precision medicine will allow men with prostate cancer to make more informed choices about their treatment based on more accurate information about their specific tumour. Importantly, it will lead to both improved treatments and a reduction of unnecessary treatment that can cause significant side effects for men.

The Movember Foundation invests in innovative projects to advance new personalised tests and treatments so that in the future, every man will have access to a the best possible treatment tailored to their genes, environment and lifestyle.

CASE STUDY

GLOBAL ACTION PLAN – GAP1 GLOBAL PROSTATE CANCER EXOSOME BIOMARKER INITIATIVE

For the GAP1 Exosomes consortium:
Dr Aled Clayton, Professor Pamela J Russell and Professor Guido Jenster

WHAT THIS PROJECT MEANS FOR MEN

This project has created a prototype device that could allow doctors to diagnose prostate cancer from a urine or blood sample. This would save men from having invasive biopsy procedures.

In the future, the researchers hope to further develop the device as a non-invasive way of determining whether a man has cancer that needs active treatment or a more benign form of disease that needs to be monitored. If successful this would allow men to avoid suffering and side effects from unnecessary treatments.

The Global Action Plan accelerates research by connecting clinicians and researchers from around the world to get the best outcomes for men living with prostate and testicular cancer. In an unprecedented level of global collaboration, researchers exchange critical knowledge and work together across borders on the highest priority clinical challenges to make sure that the global research effort is streamlined and integrated, and improves the lives of men across the world. Global collaboration allows the best scientific minds in the world to make innovative breakthroughs in our scientific knowledge.

THE PROBLEM

An important aspect of customising treatment is being able to develop better tests that detect biological differences among prostate tumours (biomarkers) so men can receive treatment that will be most effective for their specific tumour type.

A simple, non-invasive method to sample tumours does not exist without the need for aggressive surgery or biopsy.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

Prostate tumours release small packages of prostate tumour material into the blood and urine. These packages of material are called extracellular vesicles (EVs). The project team wanted to know if they could sample these EVs from blood and urine to assess whether the proteins and small molecules expressed by the prostate tumour (biomarkers) would help to determine the best treatment options.

A key feature of the GAP1 Exosomes project was to bring together a large collaborative team of respected prostate cancer scientists and physicians from around the world to solve this problem by integrating their research for the first time. Until the GAP1 Exosomes project was funded, these researchers had conducted their work in relative isolation at a national or regional level.

Rather than directly sample the prostate tumour, which can be invasive, the team worked on the idea that prostate tumours could be assessed by sampling blood or urine, without the need for a prostate biopsy.

HOW THE PROJECT PROGRESSED

The team worked together to develop simple and reliable methods to capture and purify EVs from the urine and blood of men with cancer. This has already been commercialised into a novel EV purification device that could be used in any hospital setting in the future.

The team also looked for biological markers that would allow them to classify EVs so they can identify tumours that threaten the life of the man living with prostate cancer. They found evidence that EVs captured from blood or urine could help to identify life-threatening tumours versus less dangerous tumours and may allow for better treatment decisions in the future.

More tumours need to be studied to confirm that using EVs will lead to a simple way to assess and personalise treatment for men with prostate cancer.

"EVERYTHING CHANGES WHEN WE ALL COME TOGETHER. BEATING PROSTATE CANCER IS A COLLABORATIVE JOURNEY THAT HAS NOW BEEN MADE POSSIBLE THROUGH THE MOVEMBER FOUNDATION. OUR WORK IS PIVOTAL IN IDENTIFYING LIFE-THREATENING TUMOURS, WHICH CAN HELP SAVE LIVES OF MANY MEN WORLDWIDE."
– PROFESSOR GUIDO JENSTER

CASE STUDY

UNDERSTANDING CHEMICAL CHANGES TO DNA TO IMPROVE PREDICTION OF AGGRESSIVE PROSTATE CANCER

Principal investigator: Dr Bharati Bapat, Mount Sinai Hospital, Toronto, Canada

WHAT THIS PROJECT MEANS FOR MEN

This project is working towards developing a urine test that would help to identify aggressive prostate cancers at diagnosis that need treatment. This would mean men would more accurately know if they need initial treatment at prostate cancer diagnosis or could go on active surveillance.

THE PROBLEM

Researchers need to develop a simple and non-invasive method to understand the characteristics of individual tumours and to predict which tumours will grow aggressively and are more likely to spread within the body (metastasise).

Detecting such differences would help to ensure men receive treatment that will be most effective for their specific tumour.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

Not all mutations involve changes to the DNA code of a cancer cell, some are chemical changes to the DNA that affects whether specific genes are turned on or off. These are known as epigenetic changes. This project looks at particular DNA modifications that could be associated with prostate cancer and the project has two sub-studies.

The first study showed chemical changes to DNA in 670 genes in prostate cancer cells. In a small number of men with prostate cancer, Dr Bapat's team assessed whether any of these genetic changes were linked with less aggressive or more aggressive forms of prostate cancer. When the results were checked in a second larger set of men, the team were able to link the chemical modifications in three genes with the degree of aggressive tumour growth with greater precision.

The second study is focusing on looking for genetic modifications in the urine of men living with prostate cancer and who are monitoring their cancer for signs that it is progressing to aggressive disease. Urine samples were collected from 300 men, with 164 of them having cancer that has progressed. Six potential genes were studied for chemical changes to DNA, and the team has preliminary evidence for genetic changes to two genes. Their detection in urine may increase cure rates in men with high-risk or aggressive) disease that currently cannot be detected.

HOW THE PROJECT PROGRESSED

This project is a great example of how global collaboration can drive a field into new and innovative areas. The work presented here strongly leveraged Dr Bapat's involvement in the Global Action Plan – Program 1 (GAP1) Urine Biomarker and Tissue Biomarker projects and helped to establish a strong and ongoing collaboration between Canada and Ireland. Dr Bapat was able to extend her search for epigenetic changes in urine as part of the GAP1 initiative and to access larger sample sizes to validate her team's work.

The scientific impact of this project is the identification of two or three epigenetic changes that may have future clinical use in detecting aggressive forms of prostate cancer. The ability to test these changes in urine samples would be a non-invasive and cost-effective method that will be a great improvement on testing invasive tissue biopsy samples.

"THE MAIN GOAL IS TO FIND A WAY TO IDENTIFY THE LEVEL OF RISK EARLY BY DETECTING AGGRESSIVE PROSTATE CANCER ACCURATELY. IN THIS STUDY, WE'VE USED LESS INVASIVE METHODS, AS A RESULT COMPLIANCE COULD INCREASE AND THIS WILL TRANSLATE BETTER TO CLINICAL SETTINGS. WE WILL BE MORE CONFIDENT IN KNOWING THAT WE WERE TARGETING THE RIGHT PATIENTS FOR SURGERY."
– DR BHARATI BAPAT

CASE STUDY

UNDERSTANDING GENETIC CHANGES IN PROSTATE CANCER TO MAKE TREATMENT MORE EFFECTIVE

Principal Investigator: Dr Yu Chen, Memorial Sloan-Kettering Cancer Center, New York, USA

WHAT THIS PROJECT MEANS FOR MEN

This project has developed a novel method to grow a sample of a man's tumour in the laboratory so it can be analysed for its genetic characteristics.

This will ensure men get treatment that is customised (or personalised) to suit their specific tumour and ensure they have the best possible health beyond their diagnosis.

Prostate cancer is a disease caused by multiple genetic changes within the cancer cell. Genetic changes in cancer cells vary from tumour to tumour, even within the same person. These changes accumulate and can cause abnormal growth and the ability of the cancer to spread to other tissues. Genetic changes can also make cancer cells insensitive to anti-cancer drugs.

THE PROBLEM

Researchers are looking for genetic changes that cause tumours to grow slowly or respond to anti-cancer drug treatment or, conversely, cause tumours to grow rapidly, spread to other tissues or become resistant to anti-cancer therapies.

Understanding these genetic differences would help the development of treatments that are personalised and targeted to give the best results for each man.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

This project explored the use of an innovative method to grow living cancer cells (called a cancer cell line) from patient biopsy samples so that genetic changes can be assessed and linked with how the tumour behaves.

Using this method, new cancer cell lines were generated from 19 different men. The team showed that different tumours had distinct types of genetic changes and that specific changes were linked to tumour resistance against certain anti-cancer drugs.

HOW THE PROJECT PROGRESSED

This work:

- increased the number of prostate cancer cell lines available for study
- showed that researchers can identify the genetic changes present in a prostate tumour by analysing the cancer cell line arising from that tumour
- showed that these cancer cell lines were useful when looking for genetic changes that might influence tumour behaviour in the person with prostate cancer.

The cancer cell lines represent living copies or 'avatars' of the original tumour. The avatars will greatly help the genetic analysis of the patient's tumours and will help to predict the potential for the tumour to spread or have resistance to drug treatment.

With this knowledge, doctors will be able to customise or personalise treatment and make better decisions about which treatments will be best for each individual.

"THIS RESEARCH IS SIGNIFICANT IN DEVELOPING CELL LINES TO INVESTIGATE THIS AND ULTIMATELY HELP DOCTORS MAKE THE BEST TREATMENT DECISION FOR THEIR PATIENTS. PROSTATE CANCER IS DIFFERENT FOR EVERY MAN SO WE NEED TO LOOK CLOSELY AT THE GENETIC CHANGES IN CANCER CELLS."
– DR YU CHEN

CASE STUDY

TOWARDS OPTIMISING PROSTATE CANCER TREATMENT WITH PERSONALISED MEDICINE

Principal investigator: Professor Robert Bristow, Princess Margaret Cancer Centre, Toronto, Canada

WHAT THIS PROJECT MEANS FOR MEN

This project is looking for genetic changes that will predict prostate tumour behaviour and help men make well-informed choices about what to do after a diagnosis. This work could help to identify which men can safely continue to monitor their cancer for signs it is progressing to aggressive disease, and which should receive more aggressive therapy.

THE PROBLEM

One of the fundamental challenges in prostate cancer treatment is identifying men who will benefit from surgery or radiation therapy alone, or who need more aggressive treatments because of the increased risk of hidden metastases. This is a critical issue because approximately one third of men develop recurring cancer despite treatment to remove the cancer.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

This project was the first to use analysis of genetic changes and the microenvironment in the tumours to predict which men would develop more aggressive cancer. Predicting which tumours will become aggressive will enable doctors to suggest treatments to suitable patients at diagnosis.

The team was able to identify genetic changes linked to more aggressive cancer. Many prostate tumours contain a number of cancer cell types (multi-focal cancer) and the team found that each focus of cancer contained different genetic changes that could be linked to levels of cancer aggression and treatment resistance. Future work will look at these genetic differences in more detail to see if they can also be used to predict aggressive forms of cancer.

HOW THE PROJECT PROGRESSED

This project has great potential to optimise and personalise treatment for men living with prostate cancer. Cost-effective tests to predict tumour behaviour would be a significant clinical advance.

Given the difficult choices men must make about whether to have more or less aggressive treatments, this work could provide a much needed guide inform their decisions.

This research has recently been published in the world-renowned international medical journal *Lancet Oncology* and will be a pivotal piece of work that other researchers can build on in the future.

"THIS RESEARCH IS A WORLD'S FIRST IN FINDING OUT HOW GENETIC AND MICROENVIRONMENTAL TOGETHER CAN PREDICT WHICH MEN WILL DEVELOP MORE AGGRESSIVE CANCER. THIS COULD OFFER HOPE TO THOUSANDS OF MEN DIAGNOSED WITH PROSTATE CANCER AROUND THE WORLD TO CHOOSE BETWEEN MORE AGGRESSIVE THERAPY USING NOVEL DRUGS IN ADDITION TO SURGERY OR RADIOTHERAPY. CLINICIANS WILL BE ABLE TO OFFER PATIENTS THE VERY BEST TREATMENT THAT IS PERSONALISED TO THEIR PARTICULAR CANCER."
– PROFESSOR ROBERT BRISTOW

CASE STUDY

DRUGS THAT TARGET DNA REPAIR OFFER NEW PERSONALISED MEDICINE APPROACHES FOR PROSTATE CANCER

Principal investigator: Dr Karen Knudsen, Thomas Jefferson University, Philadelphia, USA

WHAT THIS PROJECT MEANS FOR MEN

This project has led to the discovery of key differences in genetic repair processes in prostate cancer cells that can be exploited to make cancer cells easier to kill. The researchers targeted the genetic differences using a new type of drug in combination with other drugs. The genetic repair differences also have the potential to be used as biological markers of different types of prostate cancer.

The findings from this project are already being tested in clinical trials for men and more trials are currently in preparation.

Cells with damaged DNA will typically die, so it's not a surprise that in some prostate cancer cells there is an increase in DNA repair mechanisms, allowing cancer cells to grow and become resistant to treatment.

THE PROBLEM

Dr Knudsen's team wanted to determine if giving treatment to inhibit DNA repair in cancer cells would make the cell more susceptible to other types of treatment. The researchers focussed on those cells that target molecules that bind androgens such as testosterone (androgen receptors).

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

A protein called PARP1, which is involved in DNA repair, has been found to move to sites where androgen receptors are located. New drugs that inhibit PARP1 decreases DNA repair and halt cancer progression by stopping signals from the androgen receptors.

HOW THE PROJECT PROGRESSED

The fundamental advance of this project was to show that inhibiting DNA repair is a viable therapeutic strategy in prostate cancer, especially when combined with next-generation therapies that target androgen activity.

The team is now looking for genetic changes in the prostate tumour cells that are linked with the response to the inhibition of DNA repair. Once these findings are fully commercialised, doctors will use personalised approaches to test for men with tumours that will respond to this type of therapy. The findings from this project have already gone into a clinical trial for men, with more trials currently in preparation.

The coupling of these biological insights with therapeutic advances is a great example of translation of research results into potential clinical treatment for men with prostate cancer.

"THESE FINDINGS HAVE HUGE POTENTIAL FOR MEN LIVING WITH PROSTATE CANCER BY DEVELOPING A NEW TYPE OF DRUG, WHICH CAN TARGET GENETIC DIFFERENCES. WE'RE HOPEFUL THAT THE CLINICAL TRIALS WILL FURTHER SUPPORT THIS."
– DR KAREN KNUDSEN

CASE STUDY

EXPLOITING DEFECTS IN DNA REPAIR FOR TREATMENT OF PROSTATE CANCER

Principal investigator: Professor Freddie Hamdy, University of Oxford, UK

WHAT THIS PROJECT MEANS FOR MEN

This project will inform future clinical trials that will test optimised treatment combinations to give the best possible health outcomes for men with a specific type of prostate cancer.

The project team studied why some types of prostate cancer cells have changes in the genetic repair processes. These differences were used to look at ways of optimising treatment to give the best possible chance of killing the cancer cells.

THE PROBLEM

Some types of cancer cells have specific genetic changes in DNA repair pathways and are therefore potentially sensitive to drugs that inhibit DNA repair (e.g. PARP inhibitors). This is known as synthetic lethality.

Professor Hamdy's team explored if they could exploit this synthetic lethality to selectively kill prostate cancer cells that had defective repair of damaged DNA.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

Up until now, synthetic lethality has been poorly understood. Professor Hamdy's team identified a key molecule involved in DNA repair (Mre11). This molecule increases DNA repair and causes the cancer cell to live longer. Therefore inhibition of Mre11 could be a potential effective new treatment for prostate cancer.

Related to the understanding of DNA repair is the notion that radiation damages DNA and leads to cell death. If current treatments to disrupt male hormones (called androgen deprivation therapy or ADT) are given before radiation therapy, it has been shown that certain men with advanced cancer have a much better chance of survival. A better understanding of the biology underlying this observation could lead to improvements in the timing and duration of ADT combined with radiotherapy and lead to treatment optimisation.

HOW THE PROJECT PROGRESSED

Professor Hamdy and colleagues used a very elegant study design where men with prostate cancer were biopsied after radiation, either before or after ADT. They discovered that disruption of male hormones impairs a key process of DNA damage repair.

The results from this project are provocative and should lead to further investigations into how to optimise treatments with particular ADT drugs with careful timing and combinations of radiation therapy.

The original project proposal has not yet outlined translation of research findings into a clinical trial setting, but this approach has accelerated the research and is paving the way for early clinical trials.

"MEN LIVING WITH PROSTATE CANCER ARE CONFRONTED WITH MANY TREATMENT OPTIONS WHICH CAN BE VERY DAUNTING. OUR WORK LOOKS AT GENETICS DIFFERENCES THAT CAN HELP OPTIMISE TREATMENT GIVEN TO MEN SO THAT THEY HAVE THE BEST AVAILABLE OPTION."
– PROFESSOR FREDDIE HAMDY

MOVEMBER FOUNDATION IMPACT
CONTROLLING CANCER

Cancer cells have in essence lost the ability to control their own growth. With this loss of growth control, tumours can form and cells can undergo further changes and begin to spread throughout the body and invade other tissues, a process known as metastasis.

The case studies in this section showcase projects studying a variety of approaches to control cell growth. These approaches include attempts to increase the levels of a molecule known to block cell growth and strategies to stimulate a person's immune system to target cancers.

WHY DOES THE MOVEMBER FOUNDATION INVEST IN PROJECTS LOOKING AT WAYS OF CONTROLLING CANCER CELL GROWTH?

A key challenge in prostate cancer research is to understand why some cancers become aggressive and how best to treat these cancers. Researchers are beginning to understand the role that a man's genes play in his ability to either respond or be resistant to treatment. It is critical that methods and tests are developed that allow doctors and men with prostate cancer to make decisions that lead to the most effective treatment for each man at the right time.

When prostate cancer progresses from being localised and confined to the prostate to being more advanced and often spreading to other parts of the body, treatment options become more limited and a man will usually become sicker over time.

The Movember Foundation invests in critical research to better understand how to improve the control of cancer cell growth, as this is a critical component of disease progression. Understanding the biology of cancer growth will ultimately lead to better treatments for men.

"SOME PEOPLE WORRY ABOUT BEING INVOLVED IN CLINICAL TRIALS, BUT FOR ME IT WAS A GREAT EXPERIENCE WHICH HAS GIVEN ME HOPE THAT MEN WITH PROSTATE CANCER WILL BE ABLE TO TREATED BETTER IN THE FUTURE THANKS TO THE ADVANCES BEING MADE IN CLINICAL RESEARCH. THESE ADVANCES CAN REALLY ONLY BE MADE BY PARTICIPATING IN TRIALS AND LEARNING FROM THEIR RESULTS."
– MR JIM KIEFERT, PROSTATE CANCER SURVIVOR, USA

CASE STUDY

MANIPULATION OF A MOLECULE THAT INHIBITS PROSTATE CANCER CELL GROWTH

Principal investigator: Professor Charlotte Bevan, Imperial College London, UK

WHAT THIS PROJECT MEANS FOR MEN

Controlling the growth of prostate cancer cells would stop prostate cancer from becoming more aggressive. This project studied small molecules that have the potential to control growth of prostate cancer cells. The project team discovered a small molecule that worked well at controlling cell growth in mice and are continuing to develop this work with a view to conducting future clinical trials in men.

THE PROBLEM

A loss of growth control is associated with increases in proteins that stimulate prostate cell growth and corresponding decreases in proteins that block cell growth.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

The team sought to restore growth control to prostate cancer cells by increasing the levels of a specific protein called prohibitin. Under healthy conditions, prohibitin blocks prostate cell growth but the protein is lost when prostate cells become cancerous.

While it is technically very difficult to increase specific protein levels in tumour cells, Professor Bevan's team tested a novel strategy to 'trick' the prostate cancer cells by reducing the levels of a natural inhibitor of prohibitin called miR27a.

The team developed a novel small molecule that effectively blocks miR27a in prostate cancer cells and slows their growth. The researchers discovered that rather than simply restoring prohibitin levels in the cancer cells, the small molecule increased levels of other growth-suppressing proteins and slowed prostate tumour growth in mice with prostate cancer.

HOW THE PROJECT PROGRESSED

This project shows the potential value of blocking small molecules (known as miRs) to slow prostate tumour growth and showed that this was achieved using novel agents that can be applied in the clinic. Professor Bevan's team also found that a higher level of miR27a in blood was an indicator of more active prostate cancer in men. This could be useful in identifying men whose cancer is progressing so that these men can be given the best possible treatment earlier.

Ongoing work will continue to test this strategy as a means to stop prostate tumour growth in other animal models of prostate cancer, with the intent of ultimately trialling this treatment in men living with prostate cancer.

"OUR ULTIMATE GOAL IS TO USE OUR WORK ON BLOCKING SMALL MOLECULES THAT PROMOTE CANCER FROM GROWING TO LEAD TO BOTH NEW THERAPY AND TO IDENTIFYING MEN WHOSE CANCER IS PROGRESSING, SO POTENTIALLY IMPROVE THEIR SURVIVAL AND AVOID SIDE EFFECTS FROM UNNECESSARY TREATMENT."
– PROFESSOR CHARLOTTE BEVAN

CASE STUDY

MANIPULATION OF A MOLECULE THAT INHIBITS PROSTATE CANCER CELL GROWTH

Principal investigator: Dr Sophie Papa,
King's College London, UK

WHAT THIS PROJECT MEANS FOR MEN

A major goal in cancer research has been to find a way to coax a person's immune system to kill cancer cells. This approach has the potential to eliminate prostate cancer cells throughout a man's body.

This project uses an innovative approach to get immune cells to target and kill prostate cancer cells. The project team found it was successful in mice. They have been able to secure future funding and aim to begin clinical trials in men in the next four years.

THE PROBLEM

Therapies that aim to assist a person's own immune system to kill cancer cells are known as immunotherapies. This is an active area of current cancer research.

A key challenge is that prostate cancer inhibits the immune system and this presents an issue for the development of immunotherapy approaches to killing of tumour cells.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

This project represents a completely new approach to immunotherapy by attempting to overcome the inhibition of the immune system found in the environment around the prostate tumour. The goal was to develop complementary tools that could enhance the ability of the immune system to target and kill prostate cancer cells.

Future studies off the back of this work will generate critical new knowledge and will also leverage technologies developed in this proposal to find new combined immunotherapeutic approaches to tackle prostate cancer.

HOW THE PROJECT PROGRESSED

Dr Papa's team targeted two molecules, PSMA (prostate-specific membrane antigen) found in the prostate itself and FAP (fibroblast activating protein) found in cells surrounding the prostate.

Dr Papa produced a molecule targeting FAB4 that was fused with another molecule (interleukin-4) that stimulates the immune system. When given in combination with immune cells that target PSMA, the immune cells were able to destroy prostate cancer cells in mice.

The findings from this work have been instrumental for Dr Papa to move forward with other immunotherapies that could also target prostate cancer.

THE RESULTS

The long-term impact of this research is the development of a wholly new approach to combining immune-based treatments for prostate cancer.

The PSMA and FAB4 immunotherapies were found to modulate the environment in prostate cancer and support the anti-cancer effect of these immunotherapies. The ways in which prostate cancer inhibits the immune system could be targeted with these unique molecules.

The project has led to critical new funding designed to take this approach into clinical trials in the next four years.

"THIS WORK WILL BE PUSHING NEW BOUNDARIES IN IMMUNOTHERAPY AND HAS THE POTENTIAL TO SAVE LIVES OF MEN WORLDWIDE. WE'RE EXCITED THAT WE'VE DEVELOPED A TRULY NOVEL APPROACH TO COMBINE TREATMENTS WHICH TRIGGER A PATIENT'S IMMUNE RESPONSE AND HELP FIGHT PROSTATE CANCER."
– DR SOPHIE PAPA

CASE STUDY

TOWARDS A NOVEL ANTI-TUMOUR VACCINE FOR PROSTATE CANCER

Principal investigator: Associate Professor Kristen Radford, Mater Medical Research Institute, Brisbane, Australia

WHAT THIS PROJECT MEANS FOR MEN

A major goal in cancer research has been to find an 'anti-tumour vaccine' that supports a person's immune system to kill cancer cells and eliminate cancer cells throughout the body.

The project identified a molecule that could help target immune cells to kill prostate cancer cells without the need for invasive procedures to extract the cells from men. For this concept to proceed towards clinical trials, the project team developed a mouse model that mimics the human immune system so that various vaccine approaches can be tested.

Immunotherapy using specialised white blood cells (dendritic cells) is a promising new treatment for prostate cancer that has shown some effectiveness in clinical trials in men.

THE PROBLEM

Fundamental limitations of the current anti-tumour vaccines include the need for complex methods that require people with cancer to undergo invasive and expensive procedures to harvest immune cells.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

Associate Professor Radford's team developed a novel vaccine concept to modify a specialised type of immune cell (dendritic cells) that are most effective at fighting cancer. These anti-tumour vaccine approaches are called therapeutic vaccines because they aim to treat cancer rather than prevent it.

The team identified an important molecule on the surface of these cells (Clec9A) and are testing ways to use this molecule to kill cancer cells without needing to extract them from the patient.

HOW THE PROJECT PROGRESSED

During this study, Associate Professor Radford's team also discovered a novel prostate cancer protein that induces superior immune responses in men with prostate cancer compared to other proteins currently being used. They have integrated their molecular findings and technologies to show that targeting Clec9A is more effective at stimulating the immune system, providing strong justification to further develop this method towards a clinical trial.

The team has also validated a new mouse model to represent the human immune system and this will be used to further test their anti-tumour vaccine approach. Continued validation of this concept may ultimately allow men to be treated with these vaccines without needing invasive and expensive procedures.

"THIS HAS THE POTENTIAL TO SIGNIFICANTLY IMPROVE THE TREATMENT PROCESS FOR MEN BY OFFERING THEM THE TREATMENT NEEDED, WITHOUT THE NEED FOR INVASIVE PROCEDURES, WITH CAN BE TOUGH FOR BOTH THE PATIENT AND FAMILY."
– ASSOCIATE PROFESSOR KRISTEN RADFORD

CASE STUDY

DEVELOPING NEW DRUGS FOR TREATING DRUG-RESISTANT PROSTATE CANCER

Principal investigator: Professor Arul Chinnaiyan, University of Michigan, Ann Arbor, USA

WHAT THIS PROJECT MEANS FOR MEN

After standard treatment for prostate cancer, some men's cancer cells become resistant to that treatment. This means that if the cancer comes back, the treatment options are more limited.

This project looked for and found new compounds that could be used to kill cancer cells. The team is currently developing some of these compounds for clinical trials in men.

THE PROBLEM

A standard treatment for prostate cancer is to disrupt male hormones using androgen deprivation therapy (ADT). Some prostate tumours are less responsive or become resistant to this treatment.

Researchers have developed second-line drugs for ADT. These result in a marked improvement for men with advanced prostate cancer, but now resistance is developing to these drugs as well. This means that there is an urgent need to develop new therapeutic strategies to treat prostate tumours resistant to second-line drugs.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

Professor Chinnaiyan's team has worked on drug development of compounds that target novel regions of the molecules that bind male hormones (androgen receptors). By targeting a different area of the receptor, the team is hoping to reduce resistance or perhaps even reverse resistance.

The drug development program has identified compounds for further testing, with some being 10 to 50 times more potent than current compounds in prostate cancer cells.

HOW THE PROJECT PROGRESSED

These new compounds are in early clinical development and Professor Chinnaiyan's team have described how the compounds work to inhibit processes related to the androgen receptor. This drug development program is an important resource for the field, with the potential to accelerate innovation of new treatments. Several groups in the field, both in industry and academia, are now set to evaluate these compounds in drug-resistant prostate cancer models and in men with drug-resistant prostate cancer.

Professor Chinnaiyan's team is also in the advanced stages of identifying and preparing lead compounds for clinical trials in men.

"SOME MEN'S CANCER CELLS CAN BECOME RESISTANT TO TREATMENT, MEANING THAT IF THE CANCER RETURNS, TREATMENT OPTIONS ARE LIMITED. THIS PROJECT HAS POTENTIALLY FOUND A SOLUTION TO ADDRESS THIS ISSUE." – PROFESSOR ARUL CHINNAIYAN

CASE STUDY

STARVING CANCER CELLS: A NOVEL APPROACH TO TREATMENT FOR PROSTATE CANCER

Principal investigator: Associate Professor Jeff Holst, Centenary Institute, University of Sydney, Australia

WHAT THIS PROJECT MEANS FOR MEN

This is a highly innovative project that is aiming to develop novel therapies that starve prostate cancer cells of amino acid nutrients, thus inhibiting the growth and spread of cancer. The project team has identified potential compounds and are aiming to develop them for use in clinical trials in men in 2018.

Cancer cells rely on nutrients to fuel their uncontrolled growth. Amino acids (the building blocks of protein) are transported into the cell by specific transporter molecules. These transporter molecules are found in high levels on prostate cancer cells.

THE PROBLEM

Standard treatment of prostate cancer relies on disrupting male hormones using androgen deprivation therapy (ADT). Unfortunately, with time this treatment becomes less effective as the cancer progresses to more advanced disease.

Novel therapies that can limit the growth of cancer are urgently needed.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

Associate Professor Holst's team was the first in the field to show that prostate cancer cells were dependent on specific molecules that transport amino acids into the cell to enable growth. These transporters are known as L-type amino acid transporters (LAT1 and LAT3) and they transport the amino acid leucine into the cell. When the researchers eliminated LAT1 and LAT3 in cancer cells and transplanted them into a mouse, they decreased the tumour's ability to grow and its ability to spread to other tissues (metastasise).

The team have also shown that another transporter (called ASCT2) is increased in prostate cancer and plays a key role in regulating the uptake of an amino acid called glutamine.

HOW THE PROJECT PROGRESSED

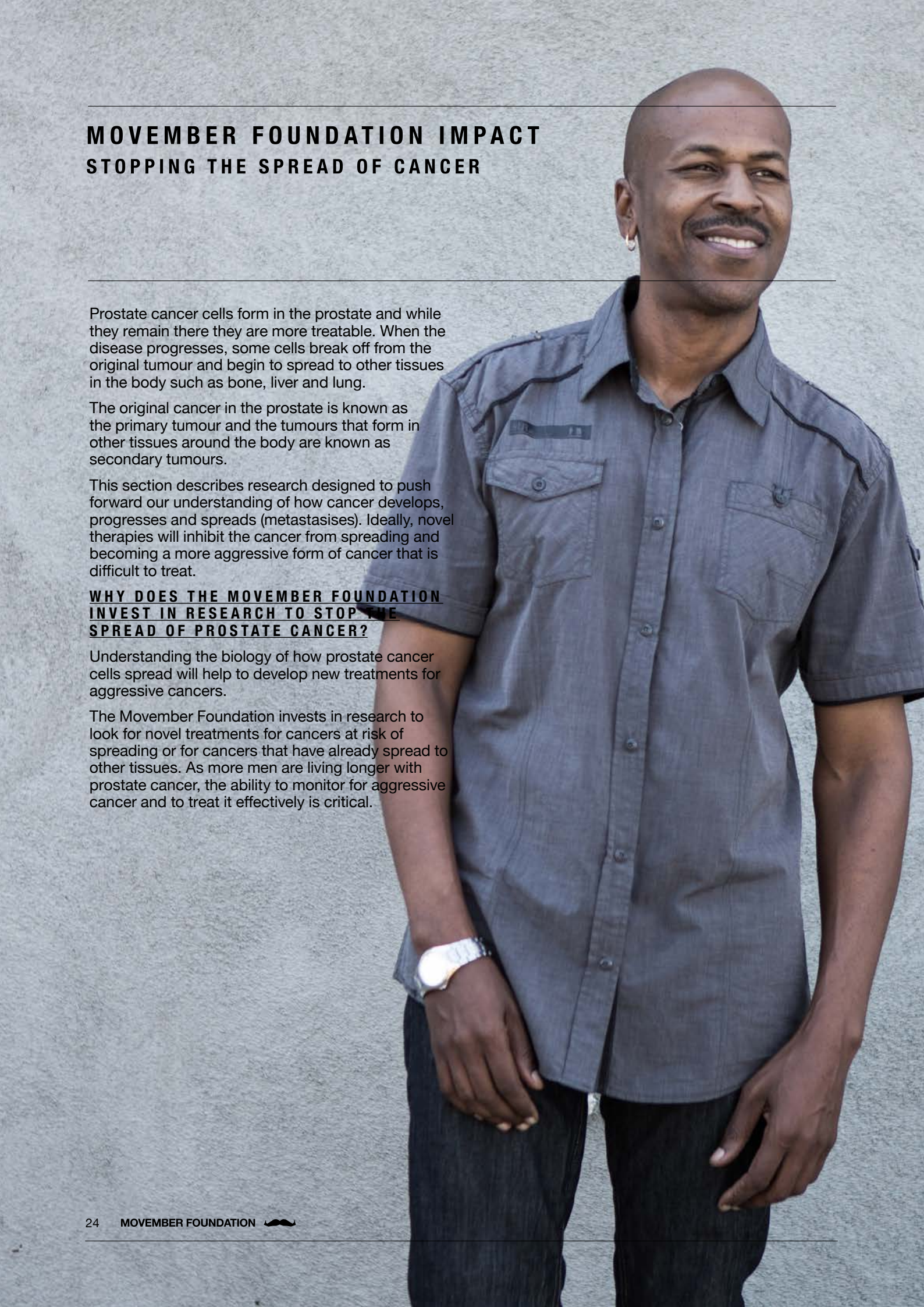
These findings are highly innovative and could lead to new therapies that target the amino acid transporters to inhibit growth and the spread of cancer. The team is currently identifying compounds that target the amino acid transporters and are developing them with an aim to begin clinical trials in men with prostate cancer in 2018.

The transporter molecules might also be useful markers of advanced prostate cancer and help doctors to make decisions about tailored treatment options (personalised medicine). An additional impact of this work is the extension of the findings into breast cancer, where Associate Professor Holst's team have shown that the same transporters can be targeted to slow down the progression of the disease.

"THIS IS INNOVATIVE, POTENTIALLY GAME CHANGING WORK. WE'RE LOOKING TO DEVELOP NOVEL THERAPIES THAT WILL HELP PATIENTS FOR WHOM STANDARD TREATMENT HAS BECOME LESS EFFECTIVE AS THEIR CANCER PROGRESSES TO MORE ADVANCED DISEASE."
– ASSOCIATE PROFESSOR JEFF HOLST

MOVEMBER FOUNDATION IMPACT

STOPPING THE SPREAD OF CANCER



Prostate cancer cells form in the prostate and while they remain there they are more treatable. When the disease progresses, some cells break off from the original tumour and begin to spread to other tissues in the body such as bone, liver and lung.

The original cancer in the prostate is known as the primary tumour and the tumours that form in other tissues around the body are known as secondary tumours.

This section describes research designed to push forward our understanding of how cancer develops, progresses and spreads (metastasises). Ideally, novel therapies will inhibit the cancer from spreading and becoming a more aggressive form of cancer that is difficult to treat.

WHY DOES THE MOVEMBER FOUNDATION INVEST IN RESEARCH TO STOP THE SPREAD OF PROSTATE CANCER?

Understanding the biology of how prostate cancer cells spread will help to develop new treatments for aggressive cancers.

The Movember Foundation invests in research to look for novel treatments for cancers at risk of spreading or for cancers that have already spread to other tissues. As more men are living longer with prostate cancer, the ability to monitor for aggressive cancer and to treat it effectively is critical.

CASE STUDY

EVALUATING A NOVEL ANTIBODY THERAPY TO TARGET PROSTATE CANCER

Principal investigator: Professor Andrew Scott, Monash University, Melbourne, Australia

WHAT THIS PROJECT MEANS FOR MEN

Treatment options become limited for men with advanced prostate cancer that has begun spreading to other tissues around the body. This project is working towards developing a novel treatment approach for advanced cancer.

The project team has produced a therapeutic protein (antibody) that can target prostate cancer cells and slow their growth and stop them from invading other healthy tissues. This new treatment is being tested on blood cells in early clinical trials with a view to future trials in men with advanced prostate cancer.

THE PROBLEM

Prostate cancer cells change as they develop the capacity to invade and metastasise. Changes also occur in the environment around the tumour, with low levels of oxygen (hypoxia) being a significant feature that supports cancer survival and invasion and reduces the effectiveness of radiation therapy.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

Professor Scott's team found that a protein called EphA3 was involved in the environment around a prostate tumour. EphA3 levels are high in a wide variety of cancers, including prostate cancer. Importantly, low oxygen levels also increase the levels of EphA3. Given the impact of hypoxia in resistance to radiation therapy, this protein has many potential roles in the development of novel treatments for advanced prostate cancer that has become resistant to previous treatment.

HOW THE PROJECT PROGRESSED

Professor Scott's team showed that in mice, a molecule (antibody) targeted to EphA3 slowed tumour growth by disrupting the interactions between the newly formed tissues and blood vessels around the tumour.

The investigators partnered with a pharmaceutical company to advance the development of this antibody into early phase clinical trials for cancer of blood cells. The information obtained from this trial will help advance the antibody therapy into clinical trials for men with advanced prostate cancer.

"THE PROJECT TEAM IS LOOKING AT TREATMENTS THAT CAN TARGET PROSTATE CANCER CELLS AND SLOW THEIR GROWTH, STOPPING THEM FROM INVADING OTHER HEALTH TISSUES. THIS NEW TREATMENT IS BEING TESTED ON BLOOD CELLS IN EARLY CLINICAL TRIALS WITH A VIEW TO FUTURE TRIALS IN MEN WITH ADVANCED PROSTATE CANCER."
– PROFESSOR ANDREW SCOTT

CASE STUDY

EVALUATING A NOVEL THERAPEUTIC COMPOUND THAT TARGETS EPIGENETIC CHANGES IN PROSTATE CANCER

Principal investigator: Associate Professor Fraser Hof, University of Victoria, British Columbia, Canada

WHAT THIS PROJECT MEANS FOR MEN

Treatment options become limited for men with aggressive prostate cancer that is resistant to standard treatment. This project is looking for new drugs that would help to 're-program' cancer cells so they are once more sensitive to treatment.

The project team identified genetic modifications that could lead to drug resistance and then began testing new compounds that could target these genetic changes to re-program the cells. The new compounds are currently being tested in animal models of prostate cancer.

THE PROBLEM

Highly aggressive forms of prostate cancer are typically resistant to treatment and spread rapidly through the body. Understanding why this occurs will help to develop new forms of treatment.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

Modification of DNA without affecting the genetic code is called epigenetics. Epigenetic changes are often a feature of aggressive forms of prostate cancer. One molecule involved in epigenetic modification of treatment-resistant prostate cancer is called EZH2.

This project aims to find new chemical compounds that target these particular molecules. The overall goal is to 're-program' prostate cancer to become more treatable.

HOW THE PROJECT PROGRESSED

The investigators developed the first chemical approaches to inhibit new targets associated with EZH2. The team showed these chemicals have the ability to enter a cell and inhibit the expected target. As such, this project has identified new ways to target epigenetic alterations in prostate cancer. The researchers have developed multiple compounds that are being tested in pre-clinical models of prostate cancer.

If successful, Associate Professor Hof's team will identify lead compounds that could go into advanced development for use in clinical trials. While still at an early stage, this project is critical to the development of new compounds to treat epigenetic changes in cancer.

"A SIGNIFICANT ISSUE FACING MEN WITH PROSTATE CANCER IS RESISTANCE TO THEIR TREATMENT, WHICH STOPS THEM FROM RESPONDING. OUR RESEARCH FOCUSES ON ELIMINATING THIS SO THAT CANCER CELLS CAN BE REPROGRAMMED AND RESPOND TO SUCH TREATMENT. WE'RE HOPEFUL THAT WE CAN DEVELOP A SERIES OF NEW COMPOUNDS BASED ON THIS PRINCIPAL FOLLOWING CLINICAL TRIALS."
– ASSOCIATE PROFESSOR FRASER HOF

CASE STUDY

TOWARDS REGULATION OF THE SPREAD OF AGGRESSIVE PROSTATE CANCER

Principal investigator: Professor Tim Skerry, University of Sheffield, UK

WHAT THIS PROJECT MEANS FOR MEN

To develop new treatments for men with advanced prostate cancer, more information is needed about how aggressive prostate cancer spreads throughout the body.

This early-stage project studied a molecule involved in the spread of aggressive cancer and found that eliminating this molecule from mice reduced the ability of the prostate cancer cells to spread. The project team will now look for drugs with the potential to block this protein in men with prostate cancer.

THE PROBLEM

Prostate cancer that remains confined to the prostate gland is potentially curable through surgery or radiation therapy. Once it spreads to other organs, however, a patient is thought to be incurable and faces the bleak prospect of dying of their disease.

New knowledge is urgently needed to understand how prostate cancer spreads so that novel therapies can be developed.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

The work in this study aimed to show that an important protein, called RAMP-3, is needed for the metastatic spread of prostate cancer.

Professor Skerry's team tested whether elimination of the RAMP-3 gene from mice affected the ability of metastatic (RAMP-3 high) prostate cancer cells to spread (metastasise) from an injection site. They also tested whether elimination of the RAMP-3 protein from metastatic prostate cancer cells affected tumour formation, tumour growth and tumour metastasis in mice with a normal RAMP-3 gene.

HOW THE PROJECT PROGRESSED

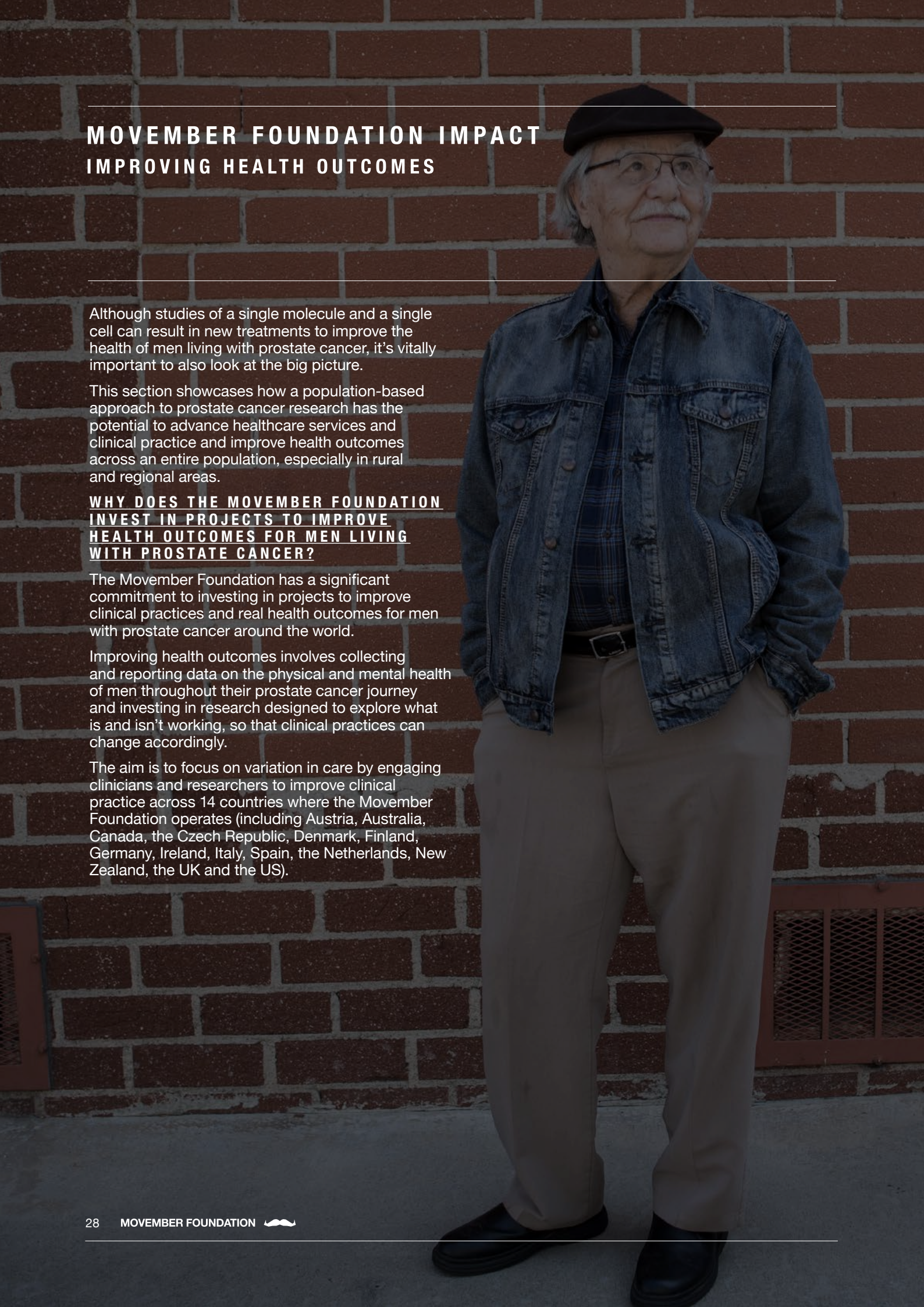
By eliminating RAMP-3, both of these experiments reduced the subsequent spread of prostate cancer to other tissues. This suggests that RAMP-3 acts both inside and outside the prostate cancer cell to enable metastasis to other tissues.

This finding is significant because it means that a molecule that blocks RAMP-3 on both prostate cancer and normal cells might be able to reduce metastatic spread of prostate cancer and reduce the risk of men developing metastases while they are waiting for surgical or radiation treatment.

Further work is needed to confirm these important results before they can be tested in clinical trials.

"WE HAVE PROVED THAT AN IMPORTANT PROTEIN RAMP-3 AFFECTS THE SPREAD OF PROSTATE CANCER AND OUR RESEARCH HAS MANAGED TO ELIMINATE THIS SO THAT WE CAN REDUCE THE RISK OF MEN'S PROSTATE CANCER FROM SPREADING. THIS COULD GREATLY IMPROVE SURVIVAL RATES IN MEN ONCE CONFIRMED BY CLINICAL TRIALS."
– PROFESSOR TIM SKERRY

MOVEMBER FOUNDATION IMPACT
IMPROVING HEALTH OUTCOMES



Although studies of a single molecule and a single cell can result in new treatments to improve the health of men living with prostate cancer, it's vitally important to also look at the big picture.

This section showcases how a population-based approach to prostate cancer research has the potential to advance healthcare services and clinical practice and improve health outcomes across an entire population, especially in rural and regional areas.

WHY DOES THE MOVEMBER FOUNDATION INVEST IN PROJECTS TO IMPROVE HEALTH OUTCOMES FOR MEN LIVING WITH PROSTATE CANCER?

The Movember Foundation has a significant commitment to investing in projects to improve clinical practices and real health outcomes for men with prostate cancer around the world.

Improving health outcomes involves collecting and reporting data on the physical and mental health of men throughout their prostate cancer journey and investing in research designed to explore what is and isn't working, so that clinical practices can change accordingly.

The aim is to focus on variation in care by engaging clinicians and researchers to improve clinical practice across 14 countries where the Movember Foundation operates (including Austria, Australia, Canada, the Czech Republic, Denmark, Finland, Germany, Ireland, Italy, Spain, the Netherlands, New Zealand, the UK and the US).

CASE STUDY

ESTABLISHING THE VICTORIAN PROSTATE CANCER CLINICAL REGISTRY

Principal investigators: Associate Professors Jeremy Millar and Susan Evans, Monash University, Melbourne, Australia

WHAT THIS PROJECT MEANS FOR MEN

This project has helped to reduce variation in standards of treatment among different hospitals in Victoria. The approach is now a template for the rest of the world, with prostate cancer clinical registries being developed in Ireland and New Zealand.

The project collected data from across the state about the health of men undergoing treatment for prostate cancer. This data was then used to identify hospitals that were under-performing so they can analyse their methods and ultimately improve education and treatment.

THE PROBLEM

Before this project was undertaken, there was no way to accurately understand how care and treatment for prostate cancer was affecting health outcomes for men in different parts of the country.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

The goal of the project was to establish a population-based registry, the Victorian Prostate Cancer Clinical Registry (PCR), to monitor patient results and report on quality and variation of care for men living with prostate cancer.

Understanding patterns and variations in results between different treatment centres can help to identify practices that are creating better (or worse) health outcomes. Healthcare providers can then benchmark their services against current best practice. Innovative treatments can also be tracked to see if they translate into improved treatment and patient care.

Key to the success of the initiative was the collaboration of the Victorian PCR staff with the Department of Epidemiology and Preventive Medicine at Monash University and the Cancer Council of Victoria.

HOW THE PROJECT PROGRESSED

The registry initially began with four institutions contributing cases. By the end of 2014, as the registry was able to gain more support, 33 hospitals were actively contributing data to the Victorian PCR. The aim is for the registry to expand to other states in Australia. Patient reported outcomes on urinary and sexual function after treatment with radiation therapy or surgery was collected through telephone calls at 12 and 24 months after prostate cancer diagnosis.

As a real example of the type of impact gathered from the project, one Melbourne hospital was found to have significantly worse patient results when compared to other hospitals. This hospital has now actively improved their processes and as a result is achieving better results for their patients with prostate cancer.

The data also identified that the Gippsland region has a higher death rate from prostate cancer than other parts of Australia because of a variety of reasons, including late diagnosis. The project is now looking at ways of improving tangible health outcomes in this region through better education of both general practitioners and men living in Gippsland.

Registries like the Victorian PCR have the potential to improve treatment for whole populations. Evidence of its success is that this model is being adopted to establish a prostate cancer registry throughout Australia and to develop other cancer registries in Victoria. Importantly, the Victorian PCR model is having an impact internationally and is now being used as a template for prostate cancer clinical registries in Ireland and New Zealand.

"INCREDIBLE AS IT MAY SEEM, BEFORE THIS PROJECT, THERE WAS NO WAY TO ACCURATELY UNDERSTAND HOW CARE AND TREATMENT FOR PROSTATE CANCER WAS AFFECTING HEALTH OUTCOMES FOR MEN IN DIFFERENT PARTS OF THE COUNTRY. WE WILL NOW BE ABLE TO DO THIS AND THERE'S NO QUESTION THIS WILL SAVE LIVES."
– ASSOC. PROFESSOR JEREMY MILLAR

MOVEMBER FOUNDATION IMPACT

LIVING WITH AND BEYOND CANCER

The case studies in this section outline approaches that can help men take some control over their own health after receiving a diagnosis of prostate cancer.

Self-help behavioural therapy and exercise are active areas of research in prostate cancer. For men living with prostate cancer, these approaches have the potential to significantly reduce the impact of side effects from treatment and improve their mental health.

WHY DOES THE MOVEMBER FOUNDATION INVEST IN INTERVENTIONS TO HELP MEN AFTER TREATMENT?

With improvements in treatment, each year more men are living with and beyond prostate cancer. More than four million men are currently living with their cancer after diagnosis and treatment. However, these men can experience significant ongoing side effects from treatment, including incontinence, lack of sexual function, bowel problems, anxiety and depression. As their cancer progresses, men can also experience pain, nausea and fatigue.

The Movember Foundation invests in novel projects that look at ways to significantly improve the lives of these men, as well as their partners, caregivers and families.

"I GOT TO MEET A WHOLE BUNCH OF AMAZING PEOPLE AT THE GYM, I MADE SOME TERRIFIC FRIENDS. I BECAME STRONGER, I BECAME FITTER, I FELT A WHOLE LOT BETTER AND THAT WAS ALL THROUGH THE EXERCISE PROGRAM. THIS HAS BENEFITTED ME IN NUMEROUS WAYS HEALTH WISE, PHYSICALLY, MENTALLY AND I'VE BEEN ABLE TO COPE WITH ALL THE ANXIETIES THAT GO WITH HAVING CANCER. THIS PROGRAM IS AN ABSOLUTE MUST FOR ANYONE GOING THROUGH PROSTATE CANCER."
– LEE, PROSTATE CANCER SURVIVOR, AUSTRALIA

CASE STUDY

POPULATION-BASED EXERCISE INTERVENTION FOR PROSTATE CANCER PATIENTS

Principal investigator: Professor Daniel Galvão, Edith Cowan University, Perth, Australia

WHAT THIS PROJECT MEANS FOR MEN

This project catalysed research showing evidence of the benefits of exercise among men with prostate cancer and empowers them to take control by adopting an exercise program to improve their own physical and mental health. Findings from this study led in part to the development of an international exercise intervention study among men with advanced prostate cancer.

THE PROBLEM

Men with advanced prostate cancer will often be treated with androgen deprivation therapy (ADT) as a first line of therapy. ADT increases survival for men with advanced disease, but at the same time has negative side effects including increased fat, loss of lean muscle and an increased risk of diabetes.

Prior work, including from Dr Galvão's team, suggested that short-term exercise intervention studies among men undergoing ADT could reduce the immediate negative effects of ADT, but before this project commenced, a multi-centre study of longer-term exercise had not been undertaken.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

The project's aim was to implement a 12-month, multi-centre, randomised clinical trial to explore resistance training and aerobic exercise among men who had been previously treated with ADT. The intervention included a home-based program of cardiovascular exercises and resistance training and was compared to a group of men who were given recommendations about physical activity but no formal program.

HOW THE PROJECT PROGRESSED

At the end of 12 months, compared to the men without a formal program, the men who undertook the formal exercise program showed improvements in several fitness, physical function and muscle strength indicators and had improvements in their cholesterol levels. The study also noted that the men in the exercise arm of the study had key improvements in some mental health indicators.

These studies show that exercise is acceptable and tolerable for men with advanced stage prostate cancer and that participation in physical activity programs can improve some of the negative side effects associated with ADT.

More broadly, the studies by Dr Galvão's team have contributed to greater awareness among physicians across the world of the importance of engaging their prostate cancer patients in conversations about exercise.

These pivotal studies have also helped to form the foundation of larger studies investigating the effects of exercise on prostate cancer survival, most notably the Movember Global Action Plan 4 Exercise Trial.

"THE MOVEMBER FOUNDATION IS UNIQUELY PLACED TO MOBILISE CLINICAL AND SCIENTIFIC LEADERS FROM AROUND THE WORLD TO EXPLORE THIS VITAL AVENUE OF RESEARCH AND STRIVE TO BREAK NEW GROUND IN THE GLOBAL FIGHT AGAINST PROSTATE CANCER. THIS PROJECT PROVIDES EVIDENCE OF THE BENEFITS OF EXERCISE ON PROSTATE CANCER AND EMPOWERS MEN TO TAKE CONTROL BY ADOPTING AN EXERCISE PROGRAM TO IMPROVE THEIR OWN PHYSICAL AND MENTAL HEALTH."
– PROFESSOR DANIEL GALVÃO

CASE STUDY
GUIDED SELF-HELP TO RELIEVE SIDE EFFECTS FROM PROSTATE CANCER TREATMENT

Principal investigator: Professor Myra Hunter, King's College London, UK

WHAT THIS PROJECT MEANS FOR MEN

The results of this project empower men to use a safe and effective behavioural therapy that can improve how they feel about side effects of treatment for prostate cancer.

Men in the study felt less bothered by hot flushes and night sweats while on hormone therapy and the side effects also occurred less frequently.

THE PROBLEM

Hot flushes and night sweats are experienced by up to 80 per cent of men undergoing androgen deprivation therapy (ADT) for prostate cancer. Men see these flushes as affecting their manhood and as a stigma related to their treatment.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

This cognitive and behavioural therapy looks at a person's cognitive appraisal of symptoms and behavioural reactions and works to harness helpful beliefs and coping strategies. This is based on Professor Hunter's previous work with women revealing that beliefs about hot flushes were the main predictors of symptoms and bother.

Professor Hunter also studied what was different about how men view the intervention in comparison to women. For example, she found that men had concerns about the impact of symptoms on their sense of masculinity, but were keen to have up-to-date information and practical strategies and therefore would be more driven by this self-help approach. In addition to reducing the negative feelings men associated with hot flushes and night sweats, the team also aimed to reduce how often they happened and their impact on daily life.

Professor Hunter's team randomly assigned men with hot flushes and night sweats after hormone therapy to one of two groups. The 'treatment as usual' group had access to clinical staff, as well as information and advice about hot flushes and night sweats. The second group of men was enrolled in a four-week guided self-help intervention.

The self-help intervention included a booklet with information about possible causes and triggers for hot flushes and night sweats, and about cognitive behavioural therapy and how it works. Men in this group were also given a CD of guided breathing and relaxation exercises to reduce stress. In addition, they received a phone call from a clinical psychologist half way through the intervention to provide support and discuss individual goals and progress.

HOW THE PROJECT PROGRESSED

All the men were asked to rate how problematic they considered their hot flushes and night sweats at the beginning of the trial, after six weeks and after 32 weeks. After six weeks, the intervention group reported that not only were their hot flushes and night sweats significantly less problematic than those in the 'treatment as usual' group, but they also occurred less frequently. There were still differences between the two groups at 32 weeks, although these were less pronounced.

These results show that this sort of guided self-help can be a safe and effective treatment for men who experience hot flushes and night sweats while on hormone therapy. The next step for this research will be to see if it is practical to roll out on a larger scale.

"AFTER SIX WEEKS, THE INTERVENTION GROUP REPORTED THAT NOT ONLY WERE THEIR HOT FLUSHES AND NIGHT SWEATS SIGNIFICANTLY LESS PROBLEMATIC THAN THOSE IN THE 'TREATMENT AS USUAL' GROUP, BUT THEY ALSO OCCURRED LESS FREQUENTLY. THIS IS A BRIEF AND LOW COST INTERVENTION THAT CAN RELIEVE SYMPTOMS AND HAVE A BENEFICIAL IMPACT ON MEN'S LIVES."
– PROFESSOR MYRA HUNTER

MOVEMBER FOUNDATION IMPACT
UNDERSTANDING PROSTATE CANCER

Understanding the basic biology of prostate cancer and its causes is essential to enable novel approaches to treatment. This is especially important as our understanding of the biology of prostate cancer has lagged behind our understanding of other conditions such as breast cancer.

The case studies in this section show how researchers have looked at unusual and unique aspects of prostate cancer cell biology with a view to finding totally novel treatments. These research approaches can be high risk but also have the potential to achieve highly novel and exciting outcomes.

WHY DOES THE MOVEMBER FOUNDATION INVEST IN HIGHLY NOVEL PROJECTS TO BETTER UNDERSTAND PROSTATE CANCER BIOLOGY?

Constructive disruption is a core value of the Movember Foundation's approach and this means being prepared to take risks and invest in novel approaches to solving problems.

Many of the great advances in medicine have occurred because creative and brave ideas were explored and nurtured, with some of these ideas famously shunned by government-funding agencies. Taking the safe road will not always deliver outstanding breakthroughs in treatment.

As an independent global men's charity, the Movember Foundation can make investment choices that other funding bodies are unwilling to make. We can choose to fund some innovative high-risk projects that have the potential to deliver much-needed 'first-in-field' treatments for patients faster.

Investing in research that allows a better understanding of the fundamental and underlying biology of prostate cancer will allow researchers to better understand why some cancers grow aggressively while others are indolent and grow slowly. This will lead to not only new drug discovery platforms but also allow for optimal sequencing of existing treatments based on a man's individual tumor biology.

"EVERY MAN'S JOURNEY WITH PROSTATE CANCER IS UNIQUE, WHAT WORKS FOR ME AS A TREATMENT WOULDN'T ALWAYS WORK FOR SOME OTHER MEN SO WE NEED TO KNOW MORE ABOUT HOW WE CAN IMPROVE TREATMENTS. OUR SUPPORT ENCOURAGES RESEARCHERS TO DEVELOP NEW AND CUTTING-EDGE TREATMENT WHICH CAN SAVES LIVES OF MANY MEN AROUND THE WORLD."
– MR WESTLEY SCHOLES, PROSTATE CANCER SURVIVOR, USA

CASE STUDY

NOVEL ANTI-TUMOUR DRUGS FOR THE TREATMENT OF PROSTATE CANCER

Principal investigator: Professor Des Richardson, University of Sydney, Australia

WHAT THIS PROJECT MEANS FOR MEN

Some prostate cancers develop resistance to standard treatments. Innovative treatment options will give new alternatives for men with advanced prostate cancer.

This project studied new compounds that could bind iron in cancer cells and slow the growth of prostate cancer cells. One of these compounds looked promising in animal models and the project team is developing a clinical trial scheduled in 2016 for men with advanced prostate cancer.

THE PROBLEM

Compared with normal cells, cancer cells have different nutrient needs that aid their uncontrolled growth. Professor Richardson's team had spent 10 years studying cell growth and discovered that cancer cells needed higher levels of iron to synthesise DNA for cell growth.

This raised the question as to whether new drugs that bind iron would slow the growth of, or even kill, cancer cells.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

Professor Richardson's team discovered novel iron-binding compounds and later found that these compounds increased the amount of protein produced from a gene called DRG-1. Data from other researchers had suggested that DRG-1 inhibits the spread of prostate cancer cells.

These iron-binding drugs could be active against prostate cancer and this could make them useful when hormone therapies and traditional chemotherapies have stopped working in men with advanced prostate cancer.

HOW THE PROJECT PROGRESSED

One compound that the team were researching showing anti-tumour activity in animal models is due to enter clinical trials in men in 2016. The first trial will most likely include men with drug resistant advanced prostate cancer.

This case study is a real example of a novel finding in the laboratory being developed and translated into a potential new treatment for men living with prostate cancer.

"THIS CASE STUDY IS A REAL EXAMPLE OF A NOVEL FINDING IN THE LABORATORY BEING DEVELOPED AND TRANSLATED INTO A POTENTIAL NEW TREATMENT FOR MEN LIVING WITH PROSTATE CANCER."
– PROFESSOR DES RICHARDSON

CASE STUDY

ESTABLISHING A TISSUE BANK OF PROSTATE CANCER SAMPLES

Principal investigator: Professor Tarek Bismar, Southern Alberta Prostate Cancer Centre, Calgary, Canada

WHAT THIS PROJECT MEANS FOR MEN

To develop new treatments for men with prostate cancer, researchers need to be able to test their ideas on as many prostate cancer samples as possible.

This project involves developing a large tissue bank containing different types of prostate cancer samples. Researchers in the prostate cancer community can use these samples to learn about prostate tumours. This resource has the potential to enable rapid progress of research towards new treatments for men.

THE PROBLEM

To find molecules involved in various aspects of prostate cancer cell biology, researchers need to be able to access a large number of prostate tissue samples. Knowing the accurate and detailed clinical background of the patient samples helps researchers to understand which molecules are linked to specific cancer cell behaviour, such as invasive growth and metastasis.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

Professor Bismar's team set out to collect a large number of different types of prostate tumours and incorporate them into a technology known as a tissue microarray (TMA) blocks. Also known as a 'lab on a chip' this technology involves placing many samples on a single chip so that researchers can rapidly detect molecules in many samples at the same time.

The different types of samples collected include:

- 1100 trans-urethral resection samples, with 550 so far placed on a TMA
- 250 radical prostatectomy samples, with 70 so far placed on a TMA
- samples from men under 50 years of age with prostate cancer, with 150 so far placed on a TMA
- samples from a type of prostate cancer derived from neuroendocrine cells, with 50 so far placed on a TMA.

Collecting these different types of samples on chips will allow researchers to look for different types of molecules, for example, molecules potentially involved in prostate cancer in men under 50 years of age. All those samples are linked with detailed clinical outcome information.

HOW THE PROJECT HAS PROGRESSED

High quality TMAs are a highly valuable resource for the prostate cancer research community that will further understanding of tumour biology, with the potential to accelerate translation of knowledge into treatments for men living with prostate cancer.

At this stage, the main impact of this project is the production of the high quality TMAs for use by the research community. However, Professor Bismar and external collaborators have already used the TMA resource to report a link between a molecule called Dynamin 2 and cell migration and invasiveness in prostate tumours.

"NEW TREATMENTS CAN ONLY BE DEVELOPED IF RESEARCHERS ARE ABLE TO TEST THEIR IDEAS ON AS MANY PROSTATE CANCER SAMPLES AS POSSIBLE. THIS PROJECT IS FOCUSED ON UTILISING SMART TECHNOLOGY TO STORE DIFFERENT TYPES OF PROSTATE CANCER SAMPLES. ALSO KNOWN AS A 'LAB ON A CHIP' THIS TECHNOLOGY INVOLVES PLACING MANY SAMPLES ON A SINGLE CHIP SO THAT RESEARCHERS CAN RAPIDLY DETECT MOLECULES IN MANY SAMPLES AT THE SAME TIME. THIS RESOURCE HAS THE POTENTIAL TO ENABLE RAPID PROGRESS OF RESEARCH TOWARDS NEW TREATMENTS FOR MEN." – PROFESSOR TAREK BISMAR

CASE STUDY

UNDERSTANDING POTENTIAL NOVEL TARGETS FOR DIAGNOSIS, PROGNOSIS AND TREATMENT OF PROSTATE CANCER

Principal investigator: Drs Susan Clark and Fatima Valdes-Mora, Garvan Institute of Medical Research, Sydney, Australia

WHAT THIS PROJECT MEANS FOR MEN

To develop new treatments for men with prostate cancer, researchers across the globe are looking at novel aspects of prostate cancer biology. This project looked at proteins that give DNA its structure, an important factor in genes turning on and off. The project team discovered a protein that was at high levels in prostate cancer samples and that might be a potential candidate for a new drug discovery program.

THE PROBLEM

Modifications of DNA can occur without changing the genetic code. These are called epigenetic changes and they are a feature of aggressive forms of prostate cancer. One way that DNA can be modified is by proteins that bind DNA and package it to give a unique structure to the genetic material.

These packaging proteins are called histones and their interactions with DNA have been shown to activate or supress genes in cancer cells.

The aim of this project was to look at changes to a specific histone called H2A.Z in prostate cancer cells.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

Drs Susan Clark and Fatima Valdes-Mora found that, in prostate cancer cells, when H2A.Z was chemically modified it interacted with genes known to be activated in cancer or it moved away from genes that are supressed in cancer. H2A.Z interacted with genes activated in prostate cancer such as oncogenes and genes that the male hormone binding protein (androgen receptor) regulates. The histone also interacted with other type of DNA changes.

HOW THE PROJECT HAS PROGRESSED

The team has begun to examine H2A.Z in men living with prostate cancer and, in preliminary results, have discovered that it is found at high levels in prostate tumour cells. The team will continue their work and also investigate whether higher levels of modified H2A.Z could indicate men who have more aggressive forms of cancer.

This project is increasing our understanding of the biology of prostate cancer. Epigenetic factors are ideal drug targets in cancer and understanding the epigenetic changes in prostate cancer is critical for the development of novel therapies that may also benefit other cancer types.

"AS RESEARCHERS, WE ARE CONSTANTLY INNOVATING BY LOOKING AT EVERY ASPECT OF THE BIOLOGY OF PROSTATE CANCER. OUR RESEARCH DISCOVERED A NEW PROTEIN THAT IS FOUND AT HIGH LEVELS IN PROSTATE CANCER CELLS AND CAN POTENTIALLY IDENTIFY MEN WHO HAVE MORE AGGRESSIVE FORMS OF CANCER."
– DR SUSAN CLARK AND DR FATIMA VALDES-MORA

CASE STUDY

UNDERSTANDING THE ROLE OF VIRAL INFECTIONS IN PROSTATE CANCER

Principal investigator: Associate Professor Gilda Tachedjian, Burnet Institute, Melbourne, Australia

WHAT THIS PROJECT MEANS FOR MEN

This project helped to exclude a mouse virus as a cause of prostate cancer. While this sounds like a negative result, this important research saved considerable downstream research funding and time across the world and has freed up researchers to follow alternative ideas that will help men living with cancer.

The project team was able to re-focus to another virus candidate and found that an extinct human virus was activated in some prostate tumours. If confirmed, these findings could suggest a role of these viruses in prostate cancer development and lead to a future drug that targets the virus in prostate cancer cells.

THE PROBLEM

Work published in 2006 by a US team of investigators suggested that a virus might be the cause of some prostate cancers. The virus is called xenotropic murine leukemia virus-related virus (XMRV) and the finding generated considerable scientific effort studying whether XMRV was a novel infectious agent in prostate cancer.

After the original finding in 2006, considerable financial and human capitol resources were expended looking at the biology of the virus and whether it was involved in prostate cancer. This remained an open question for some years.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

This high-risk and potentially high-reward project was to study the proportion of prostate tumours in Australia that contained XMRV. To follow up, the study was set to look at XMRV and whether it was linked to the progression of cancer.

Soon after the project began, scientists across the world were unable to replicate the findings of the initial 2006 study, and indeed Associate Professor Tachedjian was unable to detect XMRV in the Australian prostate cancer specimens. Associate Professor Tachedjian's work showed no evidence of XMRV in the tissue of Australian men with prostate cancer and this definitive result helped to put the hypothesis to rest and save many human and financial resources.

Instead, the project changed direction to look for any links between prostate cancer and another group of viruses called human endogenous retroviruses (HERVs). HERVs represent eight per cent of human DNA but are generally inactive.

HOW THE PROJECT HAS PROGRESSED

This project helped to disprove the hypothesis about XMRVs, ensuring that future time and resources are not spent following an incorrect hypothesis.

This project has enabled Associate Professor Tachedjian to leverage her expertise as a virologist to continue the project investigating the role of other viruses in the biology of prostate cancer. HERVs have been shown to become active in some cancers and Associate Professor Tachedjian is currently preparing a manuscript for publication describing the activation of one HERV in prostate cancer. HERVs are seen by the human immune system as foreign and could be a potential target for a novel therapy of the future.

CASE STUDY

UNDERSTANDING THE EFFECT OF VITAMIN D ON MALE HORMONES

Principal investigator: Dr Paul Thompson, University of Ulster, Northern Ireland

WHAT THIS PROJECT MEANS FOR MEN

Hormonal therapy is a standard treatment for men with an advanced prostate cancer but men often develop resistance to this treatment over time. This project is an innovative study that might give new options for men with advanced prostate cancer.

The project team found that, in prostate cancer cells, vitamin D could inhibit genetic changes that reduce the effectiveness of hormonal therapy used for prostate cancer. The team is currently looking for animal models that might be suitable for analysis of this type of approach in a living organism.

THE PROBLEM

A standard treatment for prostate cancer is to disrupt male hormones using androgen deprivation therapy (ADT). Some cancers are less responsive or become resistant to this treatment over time.

Dr Thompson's team researched the biology of prostate cancer cells to see if vitamin D might enhance the effectiveness of standard ADT.

HOW MOVEMBER FOUNDATION-FUNDED RESEARCH IS TACKLING THE PROBLEM

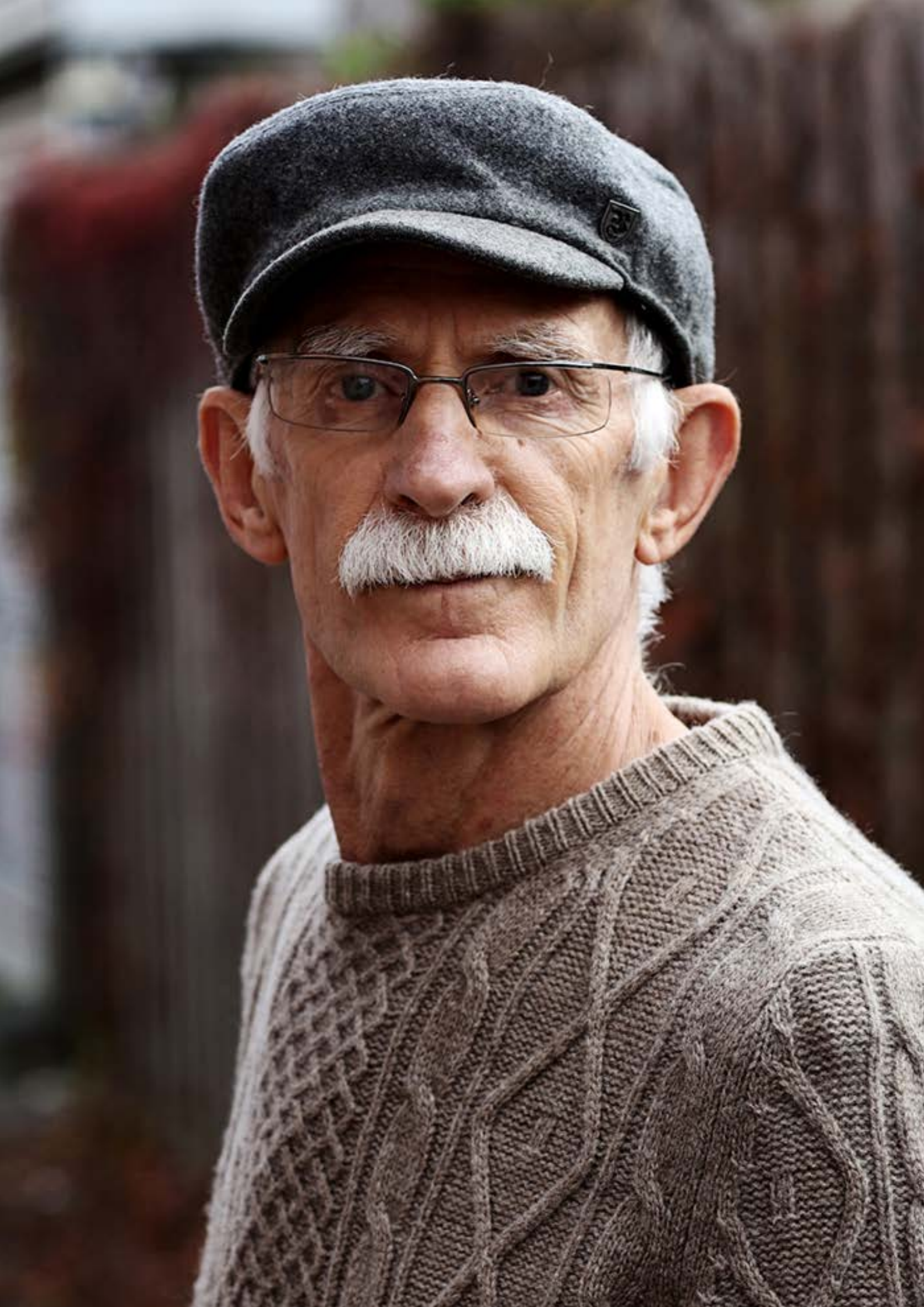
The underlying hypothesis was that vitamin D would inhibit androgen-related genes and change the way testosterone was processed by the body, and that this would reduce advanced prostate cancer recurring in men.

HOW THE PROJECT HAS PROGRESSED

Dr Thompson's team first showed that vitamin D caused testosterone to be processed by prostate cancer cells to a less active form. Next, the team tried the vitamin D treatment in a mouse model and found that although it did affect the mice, it did not affect the tumour. The reason for this result could be because the mice used in this experiment had low levels of testosterone in the first place.

Although the results were not conclusive, they suggest that further studies of vitamin D are worth pursuing in a different animal model.

The team established new collaborations and has helped to guide new thinking on this topic. The team is now planning to study the effects of vitamin D on male hormones more broadly.



SUMMARY OF MOVEMBER FOUNDATION IMPACT

The Movember Foundation seeks to make a significant contribution to reducing prostate cancer mortality and improving the quality of life of men diagnosed and living with the disease, as well as their partners, caregivers and families.

WE DO THIS BY INVESTING IN:

- biomedical and translational research that leads to new tests and treatments that distinguish between low risk and aggressive prostate cancer and slow or stop the progression of aggressive disease
- health services research that improves the quality of life of men diagnosed with prostate cancer by reducing variation in the quality of treatment and care and addressing the physical and mental side effects of treatment.

The case studies outlined in this report demonstrate that our investment strategy in the prostate cancer research field is having a positive impact and is progressing towards achieving our vision.

Of the 22 projects showcased here, 10 are already showing significant progress towards translating innovative research ideas into potentially lifesaving treatments or programs that will help men.

Five of the projects illustrate treatment approaches being studied in men or are actually being evaluated in human clinical trials, with the potential to lead to significant new therapies. Another four project teams are preparing promising treatments for clinical trials in the next few years.

The Victorian Prostate Cancer Clinical Registry has already improved clinical practice and health for men in Victoria and is now being implemented across Australia and internationally. We are confident that these initiatives will make a major contribution over the coming years in reducing variation in treatment quality, leading to a substantial improvement on a global scale in the quality of life for many men living with and beyond their disease.

These 22 projects demonstrate a multi-pronged approach undertaken by the Movember Foundation to address a diverse range of key clinical and scientific challenges in prostate cancer treatment and care.

As outlined in this report, the Movember Foundation supports a pipeline of innovative projects according to our key performance indicators, from early stage basic research into prostate cancer biology through to clinical trials.

Although we have made significant strides forward, the investment into prostate cancer research must continue in order for us to reach our vision. With the help of our Mo Bros and Mo Sistas and the wider Movember Community, the Movember Foundation will continue to invest in our priority areas. We will also continue to invest in driving the translation of research findings into clinical practice so that the men and families we serve get access to new treatments and services as quickly as possible.

APPENDICES

1: Movember Foundation Prostate Cancer Programs Strategy

2: Movember Foundation Key Performance Indicators

2: Researchers lists

3: Movember Foundation Impact Investment Strategy document can be found here.

4: Movember Foundation Knowledge Translation Strategy document can be found here.

VISION
TO HAVE AN EVERLASTING IMPACT ON THE FACE OF MEN'S HEALTH

PROSTATE CANCER
WHO WE SERVE: MEN DIAGNOSED AND LIVING WITH PROSTATE CANCER, THEIR PARTNERS, CAREGIVERS AND FAMILIES

A: THE RESULTS WE SEEK
MEN LIVING WITH AND BEYOND PROSTATE CANCER HAVE THE TREATMENT AND CARE NEEDED TO BE PHYSICALLY AND MENTALLY WELL

B: HOW DO WE MEASURE PROGRESS?

PROSTATE CANCER MORTALITY RATE

MEN LIVING WITH PROSTATE CANCER CAN SAY :

A My information, care, treatment and support needs have been met

- I had access to well-coordinated advice, treatment and care
- I made a well-informed treatment decision that I do not regret
- I had access to the treatment of my choice
- The practical support needs of my partner, family, caregivers and I have been met

B I am physically well

- I have fully recovered from any urinary dysfunction that I had
- My partner and I are satisfied with the level of sexual function I have
- I have fully recovered from any bowel dysfunction that I had
- My partner, family, caregivers and I are effectively managing any pain, fatigue, nausea and other symptoms experienced

C I am mentally well

- My partner, family, caregivers and I are not depressed or anxious
- My partner, family and caregivers and I know what to expect during and after treatment, including when and where to seek help if specific issues arise
- My partner, family and caregivers and I are able to live a meaningful life in the community of our choice
- I have accepted and am prepared for the possible consequences and possible outcomes of my cancer and my treatment(s)

C: WHERE ARE WE NOW?

PROSTATE CANCER MORTALITY RATES

LIVING WITH PROSTATE CANCER QUALITY INDICATORS

D: WHO ARE OUR PARTNERS

- Men living with prostate cancer and their partners/families/caregivers
- Clinicians and care teams
- Scientific and clinical researchers
- Men's Health Partners
- Non Governmental Organisations
- Hospitals
- Governments
- Medical technology companies
- Pharmaceutical companies
- Health Plans/Insurers

E: WHAT ARE WE GOING TO DO?

We will invest in biomedical, translational, clinical, health services, care and education initiatives that –

- lead to avoidance of unnecessary treatment
- lead to interventions that reduce or cure side effects of the disease or its treatment
- lead to non or minimally invasive tests to monitor prostate cancer and its progress
- accelerate discoveries that lead to interception of lethal disease
- lead to tests, treatments and interventions that cure or slow progression of lethal disease
- lead to the development and evaluation of clinical interventions
- reduce variation and increase excellence in the quality of clinical treatment and care
- catalyse new models of care that can sustainably scale
- provide supportive care to men and their families where required
- educate men on when and how to take action

F: HOW ARE WE GOING TO DO IT?

Biomedical, translational and clinical research

- Global biomedical, translational and clinical research collaboration (through our Global Action Plan)
- National biomedical, translational and clinical research – human capital, new ideas, trans disciplinary team science, (through our Men's Heath Partner programs)

Prostate cancer health outcomes programs

- Prostate Cancer Outcomes. National and International clinical quality initiatives
- TrueNTH – Scalable, sustainable interventions that significantly improve quality of life
- Annual Movember education campaign – preventative health, informed decision making, health action behaviour change

MOVEMBER RESEARCH PROGRAM PERFORMANCE METRICS

INTRODUCTION

- Indicators are both qualitative or quantitative
- Program performance metrics seek to identify Activity ('what did we do'), Quality of Activity ('how well did we do it') and Effect of Activity ('what did we achieve)
- It is acknowledged that some indicators will take time to measure and report
- It is acknowledged that data to measure some metrics will be difficult to immediately gather, and that an ongoing data development plan will be required to strengthen data over time

EARLY CAREER PROGRAMS

ACTIVITY

1. Number of Early Career applications received
2. Amount of $ invested by Movember Foundation in Early Career awards
3. Number of Early Career awards granted

QUALITY OF ACTIVITY

Number and % of ECs that contribute to the overall research system such as knowledge exchange via presentations at meetings and conferences, participation in peer review panels, contribution to funder awareness/education initiatives, advisory committee participation

EFFECT OF ACTIVITY

1. Number and % of ECs that receive follow up funding
2. Number and % of ECs that are participating in 'first in field' (FIF) projects due to Movember Foundation funding
3. Number and % of ECs that are participating in multi-institutional or trans-national collaborative projects
4. Number and % of total market ECs that Movember Foundation funds are supporting
5. Number and % of ECs that report that the service delivered by grant managers over the grant period supported career development
6. Number and % of Major Papers WOS (ISI) and Google Scholar Citation Indices at 12, 24, 36 months post publication

INVESTIGATOR INITIATED /DISCOVERY/ CREATIVITY/NEW IDEAS PROGRAMS

ACTIVITY

1. Number of applications received
2. Amount of $ invested by the Movember Foundation
3. Number of awards made

QUALITY OF ACTIVITY

1. Number and % of research investigators that contribute to the overall research system such as knowledge exchange via presentations at meetings and conferences, participation in peer review panels, contribution to funder awareness/education initiatives, advisory committee participation
2. Number and % of co-investigators contributing on new grants

EFFECT OF ACTIVITY

1. Number and % of Movember Foundation funded 'first in field' discoveries
2. If a Movember Foundation funded project is not FIF, did the results direct the entire scientific community forward in a promising direction or make a significant contribution to prostate cancer health outcomes[2] (ie Movember Foundation survivorship indicators)
3. Number and % of Major Papers WOS (ISI) and Google Scholar Citation Indices at 12, 24, 36 months post publication.
4. Number and % of new grants (peer reviewed, government and NGO) directly resulting from the funded work generated at 12, 24 and 48 and 60 months post completion of funding
5. Number and % of new research disciplines brought into the field of prostate cancer as a result of award

[2] Movember Foundation prostate cancer health outcomes are annexed to this document

TRANSLATIONAL RESEARCH PROGRAMS

ACTIVITY

1. Number of applications received
2. Amount of $ invested by the Movember Foundation
3. Number of awards made

QUALITY OF ACTIVITY

1. Number and % of research investigators that contribute to the overall research system such as knowledge exchange via presentations at meetings and conferences, participation in peer review panels, contribution to funder awareness/education initiatives, advisory committee participation
2. Number and % of co-investigators contributing on new grants

EFFECT OF ACTIVITY

1. Number of activated phase 1 and 2, trials and total number of prostate cancer patients participating where a hypothesis was tested, answered, and published
2. Number of clinical trials completed and published in peer reviewed literature
3. Number of phase 3 trials initiated based on the results of their research
4. Number of changes in clinical practice that have resulted in improved prostate cancer health outcomes[ii]
5. % reduction of men reporting ongoing side effects of treatment (asprostate cancer health outcomes)
6. If regulatory approved device or drug, number of prostate cancer patients treated/year by country, globally now getting the benefit of Movember Foundation accelerated research funds
7. Number of new patents issued
8. Major Papers ISI and Google Scholar Citation Indices at 12, 24, 36, 60 months post publication. % of papers with participation across 3+ Movember Foundation countries
9. Number of new approved diagnostic and imaging tests per annum initiated from Movember Foundation funding
10. Number of new approved diagnostic and imaging tests per annum initiated from Movember Foundation funding
11. Number of published collaborations per annum within a country
12. Number of published collaborations per annum across a national border
13. Number of grants obtained by collaborative (multi-institutional) teams
14. Number of new methods (eg SOPs) or resources (eg. biomaterials) that were shared or disseminated

[i] First in Field is research that has never been funded or done before with the potential to change everything afterwards. It is research that has not been published because its the first of its kind. It is research that is risky because the doubters can claim it has never been done; but if successful FIF research changes the course of history for the prevention, diagnosis, and treatment of human disease. The discovery of penicillin was First in Field and created the entire field of antibiotics. The curability of fatal childhood leukemia and testicular cancer are first in field team accomplishments. One aspect of FIF is that later it all seems so obvious but no one ever thought of it before one scientist or a group of scientists did and then did it.

[ii] Side effects data may be confidential until published and then public domain. In some countries access to population based clinical registry data or large population based cohort studies may be the most relevant data set.

AUSTRALIA
NATIONALLY FUNDED
PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2014	Dr Ian Vela Queensland University of Technology	Clinician Scientist Awards	Precision medicine in advanced and oligometastatic prostate cancer	AUD $450,000
2014	Dr Kate Mahon Garvan Institute of Medical Research	Clinician Scientist Awards	Docetaxel resistance in advanced metastatic prostate cancer	AUD $450,000
2013	Assoc Prof Lisa Butler University of Adelaide	Movember Revolutionary Team Awards	Exploiting alterations in lipid metabolism to improve diagnosis, treatment and molecular imaging of prostate cancer.	AUD $3,250,000
2012/ 2013	Prof. Peter Croucher Garvan Institute of Medical Research	Movember Revolutionary Team Awards	Prostate Cancer Bone Metastasis (ProMis): New Opportunities for Therapeutic Development	AUD $3,000,000
2012	Prof Colleen Nelson Australian Prostate Cancer Research Centre - Queensland	Movember Revolutionary Team Awards	Adaptive Response to Targeting the Androgen Axis: A Strategic Offensive on Resistance	AUD $4,250,000
2012	Prof Paul Keall University of Sydney	Cancer Australia (PdCCRS)	Hitting the Target: Real-Time Prostate Cancer Radiotherapy	AUD $171,852
2012	A/Prof Gillian Mitchell University of Melbourne	Cancer Australia (PdCCRS)	Identification of Men with a genetic predisposition to ProstAte Cancer: Targeted screening in men at higher genetic risk and controls – The IMPACT study	AUD $292,151
2012	Dr Michael Doran Queensland University of Technology	New Concept Grant	Engineering a High-Throughput Prostate Cancer Stem Cell Niche Mimic	AUD $125,000
2012	Prof Paul de Souza University of Western Sydney	New Concept Grant	A translational and pharmacokinetic study of a novel, orally-active, targeted treatment for hormone refractory prostate cancer	AUD $125,000
2012	Prof Kirill Alexandrov University of Queensland	New Concept Grant	Development of highly sensitive diagnostic test for active form of prostate specific antigen	AUD $150,000
2012	Prof Matthew Watt Monash University	New Concept Grant	Understanding how obesity causes prostate cancer progression	AUD $250,000
2012	Prof Dianne O'Connell Cancer Council – NSW	New Concept Grant	Epidemiological Modelling for PSA Testing and Management of Test-Detected Prostate Cancer	AUD $498,665
2012	Dr John Miles Queensland Institute of Medical Research	New Concept Grant	Isolating high-avidity prostate cancer-specific T cells using high definition allogenic pulldown	AUD $240,000
2012	Dr Qian (Kevin) Wang University of Sydney	Young Investigator Grant	Developing novel therapeutics targeting amino acid transport to inhibit metastasis in advanced prostate cancer	AUD $360,000
2012	Dr Hayley Reynolds University of Melbourne	Young Investigator Grant	Advanced image analysis for prostate cancer using functional imaging and histopathology	AUD $360,000
2012	Dr Shahneen Sandhu University of Melbourne	Young Investigator Grant	Poly(ADP-ribose) Polymerase Inhibitors in Patients with Advanced Prostate Cancer with Germline BRCA1 /2 Mutations and other DNA Repair Defects	AUD $360,000
2011	Prof Wayne Tilley University of Adelaide	Cancer Australia (PdCCRS)	Mechanism and targeting of castration-resistant prostate cancer	AUD $270,569
2011	Assoc Prof Lisa Butler University of Adelaide	Cancer Australia (PdCCRS)	A pharmacodynamic study of the heat shock protein 90 (Hsp90) inhibitor, AUY922, in high-risk, localised prostate cancer	AUD $229,431
2011	Prof Ian Davis Monash University	Equipment Grant	LI-COR Odyssey CLx Infrared Imaging System	AUD $32,000
2011	Assoc Prof Lisa Horvath St Vincent's Nuclear Medicine and PET	Equipment Grant	Eckart Zeigler 'Pharmatrace' radioisotope labelling box for GMP compliant production of F18 fluoromethycholine and other PET tracers for prostate cancer imaging	AUD $80,000
2011	Prof Paul de Souza University of Western Sydney	Equipment Grant	Veridex "CellSearch" machine for detection of circulating tumour cells	AUD $75,000

AUSTRALIA
NATIONALLY FUNDED
PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2011	Assoc Prof Patricia Livingston Deakin University	Movember New Concept Grants	Improving psychological and physiological outcomes for prostate cancer survivors	AUD $70,000
2011	Prof Jane Ussher University of Western Sydney	Movember New Concept Grants	Sexual Wellbeing and Quality of Life after Prostate Cancer for Gay and Bisexual Men and their Partners	AUD $288,013
2011	Dr Farshad Foroudi University of Melbourne	Movember New Concept Grants	A pilot Study of patients with Oligometases from Prostate cancer treated with Stereotactic Ablative Radiosurgery (POPSTAR)	AUD $189,790
2011	Dr Michael Doran Queensland University of Technology	Movember New Concept Grants	Engineering a High-Throughput Prostate Cancer Stem Cell Niche Mimic	AUD $150,000
2011	Dr Alexander Swarbrick Garvan Institute of Medical Research	Movember New Concept Grants	A functional genomic screen to identify microRNAs controlling prostate cancer chemo-sensitivity	AUD $300,000
2011	Prof Thomas Ratajczak Sir Charles Gairdner Hospital	Movember New Concept Grants	Targeting the regulation of androgen receptor signalling by heat shock protein 90 cochaperones in prostate cancer	AUD $298,000
2011	Prof Gail Risbridger Monash University	Movember New Concept Grants	Development of a new in vitro 3D model of prostate cancer as an alternative to xenografting	AUD $282,084
2011	Assoc Prof Andrew Katsifis Royal Prince Alfred Hospital	Movember New Concept Grants	Development and Evaluation of Novel TSPO Radiotracers for Imaging Prostate Cancer using Positron Emission Tomography	AUD $300,000
2011	Prof Susan Clark Garvan Institute of Medical Research	Movember New Concept Grants	Histone Variant H2A.Z in Epigenetic Gene Deregulation Plays a Key Role in Prostate Cancer	AUD $122,000
2011	Dr Rosetta Martiniello-Wilks University of Technology, Sydney	Equipment Grant	A QuantStudio 12K Flex Real-Time PCR system for the rapid (high throughput) validation of prostate cancer biomarkers	AUD $15,000
2011	Dr Puma Sundaresan University of Sydney	Young Investigator Grant	Evaluating the Utility of a Patient Decision Aid for Prospective Participants in the TROG RAVES Prostate Cancer Trial (TROG 08.03)	AUD $130,816
2011	Dr Margaret Centenera University of Adelaide	Young Investigator Grant	Using explant technology to discover markers of prostate cancer treatment response	AUD $450,000
2011	Dr Michael Cater University of Melbourne	Young Investigator Grant	Can copper be used to selectively kill prostate cancer cells?	AUD $311,473
2011	Dr Jennifer Gunter Queensland University of Technology	Young Investigator Grant	How does the metabolic syndrome contribute to prostate cancer progression and treatment resistance? Targeting hyperinsulinaemia in castrate resistant prostate cancer	AUD $251,108
2011	Dr Liesel FitzGerald Cancer Council - VIC	Young Investigator Grant	Identifying biomarkers associated with clinically significant and fatal prostate cancer through genome-wide mRNA expression and methylation analyses	AUD $198,908
2010	Prof Robert Newton Edith Cowan University	Cancer Australia (PdCCRS)	Can exercise ameliorate treatment toxicity during the initial phase of testosterone suppression in prostate cancer patients? Is this more effective than delayed rehabilitation and what is the time course and persistence of benefits?	AUD $148,759
2010	Dr Grant Buchanan University of Adelaide	Cancer Australia (PdCCRS)	Androgen receptor action in the prostate cancer microenvironment	AUD $287,792
2010	Prof Roger Daly Garvan Institute of Medical Research	Concept Grant	The impact of TMPRSS/ERG expression on the prostate cancer kinome	AUD $298,598
2010	Assoc Prof Louis Rendina University of Sydney	Concept Grant	A unique class of tumour-specific drugs for the potential treatment and imaging of advanced prostate cancer	AUD $299,119
2010	Assoc Prof Ross Hannan University of Melbourne, Peter MacCallum Cancer Centre	Concept Grant	Inhibition of Pol I transcription as a novel approach to treat prostate cancer	AUD $300,000
2010	Assoc Prof Wayne Phillips University of Melbourne	Concept Grant	The role of aberrant PI3K signalling in prostate cancer progression and metastasis	AUD $240,000

AUSTRALIA
NATIONALLY FUNDED
PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2010	Dr Luc Furic Monash University	Equipment Grant	Aperio ScanScope CS (Digital slide scanner) with operating software and server	AUD $50,000
2010	Prof Robert Newton Edith Cowan University	Equipment Grant	Actigraph Physical Activity Monitoring System	AUD $33,000
2010	Prof Pamela Russell Queensland University of Technology	New Direction Development Award	Simultaneous Imaging and Drug Delivery for Prostate Cancer Theranostics	AUD $100,000
2010	Prof Ian Davis Ludwig Institute for Cancer Research	New Direction Development Award	Development of novel sex steroid-based PET tracers for prostate cancer	AUD $213,000
2010	Prof Daniel Galvão Edith Cowan University	New Direction Development Award	Efficacy and safety of a modular multi-modal exercise program in prostate cancer patients with bone metastases: a randomized controlled trial	AUD $296,820
2010	Dr Elizabeth Williams Monash Institute of Medical Research	New Direction Development Award	How do castrate resistant prostate cancer cells escape dormancy?	AUD $300,000
2010	Assoc Prof Lisa Butler University of Adelaide	New Direction Development Award	Exploiting metabolic alterations to more accurately monitor prostate cancer therapy	AUD $299,817
2010	Mr Michael Nugara Urological Society of Australia and New Zealand	Project Grant	PRIAS (Prostate cancer Research International: Active Surveillance) – Active Surveillance Database	AUD $464,600
2010	Dr Mitchell Lawrence Monash University	Young Investigator Grant	Sorting Wheat from Chaff: Isolating Stromal Stem Cells from Prostate Cancer	AUD $269,000
2010	Dr Helen Pearson University of Melbourne	Young Investigator Grant	Investigating the role of planar cell polarity in prostate cancer	AUD $350,000
2010	Dr Patric Jan Jansson University of Sydney	Young Investigator Grant	Development of Novel Drugs for Prostate Cancer Treatment that Target the Lysosome	AUD $100,000
2010	Dr Jason Dowling CSIRO Australian e-Health Research Centre	Young Investigator Grant	Development of high precision MRI based prostate cancer radiation therapy	AUD $200,000
2010	Dr Jeff Holst University of Sydney	Young Investigator Grant	The role of nutrient amino acids in prostate cancer	AUD $100,000
2009	Prof Judith Clements Queensland University of Technology	Building Capacity Grant	PCFA support for the APCC Bioresource	AUD $1,000,000
2009	Prof Wayne Tilley University of Adelaide	Building Capacity Grant	PCFA support for the Adelaide Prostate Cancer Research Centre	AUD $750,000
2009	Prof Jeremy Millar Monash University	Cancer Australia (PdCCRS)	START: A Phase III Study of Active Surveillance Therapy Against Radical Treatment in Patients Diagnosed with Favourable Risk Prostate Cancer	AUD $299,382
2009	Prof Robert Pike Monash University	Concept Grant	The potential of serine protease inhibitors to inhibit cancer promoting effects of cancer associated fibroblasts in prostate cancer	AUD $232,306
2009	Assoc Prof Gilda Tachedjian Burnet Institute	Concept Grant	XMRV in Australian Prostate Cancer	AUD $300,000
2009	Assoc Prof Pamela Sykes Flinders University	Concept Grant	Whole-body low dose X-radiation treatment to delay or prevent the progression of prostate cancer to advanced stage disease	AUD $243,367
2009	Assoc Prof Nigel Waterhouse Mater Medical Research Institute	Concept Grant	Senitising Prostate Cancer Cells to Granule Induced Death by Cytotoxic T Lymphocytes is an Essential Step in Anti-Prostate Cancer Immunotherapy	AUD $250,000
2009	Prof Trevor Hambley University of Sydney	Concept Grant	Using PSA to Activate Anticancer Prodrugs in Prostate Cancers	AUD $249,435
2009	Prof Roger Daly Garvan Institute of Medical Research	Equipment Grant	TSQ Vantage Triple Quadrupole Mass Spectrometer System	AUD $75,000

AUSTRALIA
NATIONALLY FUNDED
PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2009	Prof Ian Davis Ludwig Institute for Cancer Research	Equipment Grant	FACSAria Cell Sorter	AUD $100,000
2009	Assoc Prof John Hooper Mater Medical Research Institute	Equipment Grant	BMG “POLARstar Omega” Microplate Reader	AUD $50,000
2009	Prof Des Richardson Bosch Institute, University of Sydney	Equipment Grant	xCELLigence Real Time Cell Analysis System for the Bosch Prostate Cancer Research Focus Group in the Multi-User Bosch Institute Molecular Biology Facility	AUD $85,000
2009	Assoc Prof Noel Whitaker University of New South Wales	Equipment Grant	Digital microscope camera system	AUD $50,000
2009	Prof Robert Newton Edith Cowan University	Equipment Grant	pQCT XCT 3000 Clinical	AUD $80,000
2009	Dr Ora Bernard St Vincent’s Institute of Medical Research	Equipment Grant	Mass Spectrometry Facility	AUD $18,707
2009	Prof Richard Turner University of Tasmania	Project Grant	Clinical Teaching Associate program for sensitive male examinations - Tasmania	AUD $52,380
2009	Dr Christine Fairbank University of Melbourne	Project Grant	Urological Teaching Associate (UTA) Program - Victoria	AUD $101,378
2009	Assoc Prof Patricia Livingston Deakin University	Partnership grant	Improving psychological and physiological outcomes for prostate cancer survivors	AUD $70,000
2009	Prof Mary Haines Sax Institute	Partnership grant	Improving evidence based care for locally advanced prostate cancer – a randomised phased trial of clinical guideline implementation through a clinical network	AUD $537,674
2009	Dr Renea Taylor Monash University	Project grant	Imbalance of Stromal Steroid Receptor Signalling Contributes to Prostate Cancer Progression	AUD $250,000
2009	Dr Nick Ferris University of Melbourne	Project grant	Prostate Bed Radiotherapy Margins Assessed With 3-Tesla Cine Magnetic Resonance Imaging	AUD $84,971
2009	Dr Kristen Radford Mater Medical Research Institute	Project grant	Targeted delivery of prostate cancer antigens to dendritic cells for immunotherapy	AUD $375,000
2009	Dr Grant Buchanan University of Adelaide	Project grant	Targeting chemokine signaling in prostate cancer	AUD $250,000
2009	Prof Andrew Brown University of New South Wales	Project grant	Exploiting Cholesterol Metabolism to Fight Prostate Cancer	AUD $250,000
2009	Dr Mika Jormakka University of Sydney	Project grant	Structural analysis of amino acid transporters that regulate the mTOR pathway	AUD $250,000
2009	Prof Judith Clements Queensland University of Technology	Project grant	PSA as a therapeutic target: an integrated systems biology approach to discover the pathways initiated by PSA activity in prostate cancer progression	AUD $373,352
2009	Prof Peter Leedman Western Australian Institute for Medical Research	Project grant	microRNAs that regulate erbB-2 and androgen receptor signaling pathways in prostate cancer	AUD $250,000
2009	Assoc Prof John Hooper Mater Medical Research Institute	Project grant	Next generation DNA sequence analysis of prostate tumour initiating cells	AUD $250,000
2009	Prof Andrew Boyd Queensland Institute of Medical Research	Project grant	Expression and function of Eph and ephrin proteins in prostate cancer	AUD $250,000
2009	Prof Susan Clark Garvan Institute of Medical Research	Project grant	Histone Variant H2A.Z in Epigenetic Gene Deregulation Plays a Key Role in Prostate Cancer	AUD $250,000

AUSTRALIA
NATIONALLY FUNDED
PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2009	Prof Colleen Nelson Institute of Health and Biomedical Innovation	Project grant cancer cells	Identification of RNA species regulated by YB-1 and G3BPs in prostate	AUD $250,000
2009	Prof Leonie Ashman University of Newcastle	Project grant	Identifying the mechanisms underlying altered expression and mode of action of tetraspanins CD151 and CD9 in metastasis: progression to targeted treatment for prostate cancer	AUD $375,000
2009	Dr Matthew Naylor Garvan Institute of Medical Research	Young Investigator Grant	Role of β1 integrin in prostate cancer	AUD $100,000
2009	Dr Luc Furic Monash University	Young Investigator Grant	Targeting the Eukaryotic Translation Initiation Factor 4E to treat Prostate Cancer	AUD $285,000
2009	Dr Xue Qin Yu Cancer Council New South Wales	Young Investigator Grant	Projecting prevalence by stage of care for prostate cancer and estimating future health service needs	AUD $219,644
2009	Dr Michele Teng Peter MacCallum Cancer Centre	Young Investigator Grant	Understanding immunosuppressive pathways in prostate cancer	AUD $374,257
2009	Dr Luke Selth University of Adelaide	Young Investigator Grant	microRNAs in prostate cancer: prognostic markers and therapeutic targets	AUD $356,093
2009	Dr Addie Wootten Melbourne Health	Young Investigator Grant	An Online Psychological Support Program for Men with Prostate Cancer	AUD $97,101
2008	Prof Colleen Nelson Queensland University of Technology	Building Capacity Grant	NIRAP- Support Australian Canadian Prostate Cancer Research Centre	AUD $300,000
2008	Assoc Prof Lisa Horvath Garvan Institute of Medical Research	Cancer Australia (PdCCRS)	Identifying and targeting Docetaxel resistance in hormone refractory prostate cancer	AUD $389,000
2008	Prof Ian Davis Ludwig Institute for Cancer Research	Cancer Australia (PdCCRS)	Mechanisms of abiraterone resistance in prostate cancer	AUD $393,000
2008	Prof Jeremy Millar Monash University	Cancer Australia (PdCCRS)	Pilot of a population-based prostate cancer clinical registry	AUD $197,625
2008	Assoc Prof Lisa Butler University of Adelaide, Hanson Institute	Cancer Australia (PdCCRS)	A combinatorial approach targeting androgen signalling for treatment of prostate cancer	AUD $291,844
2008	Assoc Prof Annette Haworth University of Melbourne	Cancer Australia (PdCCRS)	Translation of clinical and functional imaging data to brachytherapy treatment optimisation for prostate cancer	AUD $78,543
2008	Dr Benjamin Thierry University of South Australia	Career Development Award	Application of nanoparticle drug delivery in prostate cancer	AUD $225,000
2008	Dr Caroline Gargett Monash Institute of Medical Research	Concept Grant	Identifying progenitor cells in prostate tumour stroma	AUD $258,246
2008	Dr Patrick Humbert Peter MacCallum Cancer Centre	Concept Grant	A mouse model to investigate the role of BRCA2 in prostate tumourigenesis	AUD $210,000
2008	Prof Ronald Quinn Griffith University	Equipment Grant	Agilent Bravo Automated Liquid Handler	AUD $50,000
2008	Prof John EJ Rasko Centenary Inst.- Cancer Medicine & Cell Biology	Equipment Grant	IVIS Lumina 11 quantitative fluorescent and bioluminescent imager	AUD $40,000
2008	Prof Des Richardson Bosch Institute, University of Sydney	Equipment Grant	Luminex 200 Analysis system for the Bosch prostate cancer research focus group in the multi-user bosch institute molecular biology facility	AUD $50,000
2008	Prof Wayne Tilley University of Adelaide, Hanson Institute	Equipment Grant	Bio-Rad CFX384-Real time PCR Detection System	AUD $68,750

AUSTRALIA
NATIONALLY FUNDED
PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2008	Prof Pamela Russell Institute of Health and Biomedical Innovation	Equipment Grant	Syngene G Box Chemi XT unit	AUD $30,000
2008	Mr Peter Fisher Cancer Council Tasmania	Project Grant	PCFA/CCT prostate education project	AUD $150,000
2008	Prof Pamela Russell Institute of Health and Biomedical Innovation	Project Grant	Targeted nanoparticles for imaging prostate cancer	AUD $125,000
2008	Prof Gail Risbridger Monash Institute of Medical Research	Project Grant	Novel estrogen therapy for advanced prostate cancer	AUD $246,831
2008	Assoc Prof Ygal Haupt University of Melbourne	Project Grant	The involvement of the E6AP-PML regulatory pathway in the development of prostate cancer	AUD $249,875
2008	Assoc Prof Howard Gurney Cancer Care Centre, Westmead Hospital	Project Grant	Metformin in prevention of androgen deprivation therapy-induced insulin resistance and metabolic syndrome (MVENT-study)	AUD $90,610
2008	Prof Jiri Neuzil Griffith University	Project Grant	Targeting mitochondria for selective therapy of prostate cancer	AUD $150,000
2008	Assoc Prof Gianluca Severi Cancer Epidemiology Centre, Cancer Council VIC	Project Grant	Propionibacterium acnes infection and prostate cancer risk and prognosis: a molecular epidemiology study	AUD $250,000
2008	Prof Paul de Souza St George Hospital	Project Grant	A translational and pharmacokinetic study of a novel, orally-active, targeted treatment for hormone refractory prostate cancer	AUD $450,000
2008	Prof Peter Leedman Western Australian Institute for Medical Research	Project Grant	Functional role of a novel nuclear receptor coregulator in prostate cancer	AUD $250,000
2008	Dr Stuart Ellem Monash Institute of Medical Research	Young Investigator Grant	Defining the role of mast cells in prostatitis and prostate cancer	AUD $248,504
2007	Prof Mark Smyth Peter MacCallum Cancer Centre	Concept Grant	Cell death and mobilizing immunity for the treatment of established prostate cancer	AUD $300,344
2007	Prof Des Richardson University of Sydney	Concept Grant	Development of Novel Anti-Tumour Drugs for the Treatment of Prostate Cancer: Targeting the Drug-Induced Expression of the Tumour Metastasis Suppressor, Drg-1	AUD $150,000
2007	Assoc Prof Vicky Avery Griffith University	Concept Grant	Exploring the Third Dimension of Prostate Cancer Cytomics Through Imaging	AUD $280,704
2007	Prof Markus Seibel ANZAC Research Institute	Concept Grant	Vitamin D Deficiency and Prostate Cancer Metastasis to Bone	AUD $284,810
2007	Prof David Smith University of Western Australia	Concept Grant	Integrative systems modelling of prostate cancer bone metastases	AUD $279,845
2007	Dr Darryl Russell University of Adelaide	Concept Grant	Role of ADAMTS proteases in prostate cancer metastasis	AUD $180,482
2007	Prof Arthur Shulkes University of Melbourne	Equipment Grant	High Pressure Binary Liquid Chromatography System	AUD $50,000
2007	Prof Des Richardson University of Sydney	Equipment Grant	LightCycler 480 Real-Time PCR System for the Multi-Disciplinary Bosch Institute Prostate Cancer Focus Group for the Multi-User Bosch Institute Molecular Biology Facility	AUD $60,000
2007	Prof John Mills TissuePath	Project Grant	Does Rhoc expression in prostate cancer predict local invasion or metastases?	AUD $81,247
2007	Prof Gail Risbridger Monash Institute of Medical Research	Project Grant	Targeting prostate cancer stem cells with beta selective estrogen receptor modulators	AUD $93,743

AUSTRALIA
NATIONALLY FUNDED
PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2007	Assoc Prof Amanda Spurdle Queensland Institute of Medical Research	Project Grant	The Role of Kallikrein Gene Variants in Prostate Cancer Etiology, Detection and Disease Progression	AUD $249,847
2007	Prof Colleen Nelson Institute of Health and	Project Grant Metabolic Syndrome Induced by Androgen Deprivation Therapy	De Novo Steroidogenesis in Prostate Tumours Promoted by Insulin During	AUD $93,750 Biomedical Innovation
2007	Prof Robert ('Frank') Gardiner University of Queensland	Project Grant	The relationship between PCA3 and BMCC1 in prostate cancer development and detection	AUD $394,390
2007	Prof Peter Leedman Western Australian Institute for Medical Research	Project Grant	Functional role of a novel nuclear receptor coregulator in prostate cancer	AUD $114,750
2007	Prof Dianne O'Connell Cancer Council NSW	Project Grant	Use of complementary and lifestyle therapies by men with prostate cancer: a population-based study	AUD $137,766
2007	Dr Rosetta Martiniello-Wilks Centenary Institute - Cancer Medicine & Cell Biology	Project Grant	Tri-modal targeted stem cell gene therapy for prostate cancer metastases	AUD $94,000
2007	Dr Tanya Day University of Adelaide, Hanson Institute	Young Investigator Grant	Androgen receptor signalling in prostate cancer tumourigenesis	AUD $491,208
2007	Dr Jeff Holst Centenary Institute - Cancer Medicine & Cell Biology	Young Investigator Grant	The role of nutrient amino acids in prostate cancer	AUD $75,000
2007	Prof Daniel Galvão Edith Cowan University	Young Investigator Grant	Population based exercise intervention for prostate cancer patients - RADAR	AUD $476,025
2007	Dr Matthew Naylor Garvan Institute of Medical Research	Young Investigator Grant	Role of β1 integrin in prostate cancer	AUD $248,429
2007	Dr Stuart Ellem Monash Institute of Medical Research	Young Investigator Grant	Estrogens in prostatitis and prostate cancer	AUD $93,495
2007	Dr Michelle Hill Diamantina Institute for Cancer	Young Investigator Grant	A systems biology approach to elucidate the molecular mechanism of caveolin-1 and statins in prostate cancer progression and metastasis	AUD $497,046
2007	Assoc Prof Gianluca Severi Cancer Epidemiology Centre, Cancer Council VIC	Young Investigator Grant	Propionibacterium acnes infection and prostate cancer risk and prognosis: a molecular epidemiology study	AUD $93,431
2006	Prof Ian Davis Ludwig Institute for Cancer Research	Cancer Australia (PdCCRS)	Evaluation and application of PET scanning in the treatment of localised prostate cancer	AUD $100,000
2006	Assoc Prof Martin Lackmann Monash University	Cancer Australia (PdCCRS)	Preclinical and clinical evaluation of an antibody therapeutic targeting prostate carcinoma	AUD $329,504
2006	Prof Colleen Nelson Queensland University of Technology	Cancer Australia (PdCCRS)	MicroRNAs in Prostate Cancer: Novel Biomarkers and Potential Therapeutic Targets	AUD $400,000
2006	Prof Pamela Russell University of New South Wales	Cancer Australia (PdCCRS)	Preclinical evaluation of novel prostate-targeted nanoparticles for imaging primary and metastatic prostate cancer	AUD $293,763
2006	Dr Patrick Humbert University of Melbourne	Concept Grant	The role of polarity regulators in prostate cancer	AUD $73,500
2006	Prof Des Richardson University of Sydney	Concept Grant	Development of Novel Anti-Tumour Drugs for the treatment of prostate cancer: Targeting the Drug-Induced expression of the Tumour Metastasis Suppressor, Drg-1	AUD $150,000
2006	Assoc Prof Melissa Southey University of Melbourne	Equipment Grant	LightCycler 480 Real-Time PCR system	AUD $50,000

AUSTRALIA
NATIONALLY FUNDED
PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2006	Assoc Prof Sue Henshall Garvan Institute of Medical Research	Equipment Grant	DAKO Autostainer Plus	AUD $50,000
2006	Prof Dietmar Hutmacher Queensland University of Technology	Project Grant	Application of a human bone engineering platform to an in vivo prostate cancer model	AUD $291,920
2006	Dr Gillian Mitchell Peter MacCallum Cancer Centre	Project Grant	Identification of men with a genetic predisposition to prostate cancer. Targeted screening in BRCA1/2 mutation carriers and controls - The IMPACT Study	AUD $50,000
2006	Dr Sally-Anne Stephenson Institute of Health and Biomedical Innovation	Project Grant	EPHB4 as a target for anti-prostate cancer therapy	AUD $183,352
2006	Dr Jonathan Harris Queensland University of Technology	Project Grant	Inhibition of sex hormone binding globulin proteolysis by kallikrein-related protease 4; a potential target for prostate cancer therapy	AUD $253,854
2006	Dr Jarad Martin St Andrews Hospital Toowoomba	Project Grant	A randomised trial of a shorter radiation fractionation schedule for the treatment of localised prostate cancer (PROFIT: prostate fractionated irradiation trial)	AUD $100,000
2006	Dr Kristen Radford Mater Medical Research Institute	Project Grant	Potential of Human Killikrein 4 as a novel target for prostate cancer immunotherapy	AUD $240,000
2006	Prof Samuel Breit St Vincent's Hospital	Project Grant	Macrophage inhibitory cytocine-1 (MIC-1) for the prediction of prostate cancer outcomes	AUD $220,000
2006	Prof Pei Xiang Xing Burnet Institute/Austin Health	Project Grant	Preclinical studies on targeting a novel oncoprotein oncoprotein Cripto to treat prostate cancer using human anti-Cripto antibodies	AUD $140,375
2006	Prof Merlin Crossley University of Sydney	Project Grant	The regulation of E-cadherin expression and Tumour Metastasis in prostate cancer	AUD $296,359
2006	Prof Andrew Brown University of New South Wales	Project Grant	Cholesterol, Statins and Prostate Cancer	AUD $291,393
2006	Dr Rosetta Martiniello-Wilks Centenary Institute - Cancer Medicine & Cell Biology	Project Grant	Tri-modal targeted stem cell gene therapy for prostate cancer metastases	AUD $300,000
2006	Dr Renea Taylor Monash University, Monash Medical Centre	Young Investigator Grant	Molecular profiling and plasticity of prostate cancer stem cells with disease progression	AUD $300,000
2006	Dr Grant Buchanan University of Adelaide, Hanson Institute	Young Investigator Grant	A novel regulator of androgen receptor function in prostate cancer	AUD $70,000
2006	Dr Jeff Holst Centenary Institute - Cancer Medicine & Cell Biology	Young Investigator Grant	The role of nutrient amino acids in prostate cancer	AUD $400,000
2005	Prof Pamela Russell University of New South Wales	Project Grant	Preclinical evaluation of novel prostate targeted nanoparticles for imaging of primary and metastatic prostate cancer	AUD $100,000
2005	Prof Tom Reeve University of Sydney	Project Grant	Clinical Guidelines for Advanced Prostate Cancer	AUD $59,188
2005	Assoc Prof Ronnie Cohen Uropath	Project Grant	Prostate Biopsy Database	AUD $83,084
2005	Prof Mari Botti Deakin University	Project Grant	Patient outcomes after open and minimally invasive surgery for prostate cancer	AUD $191,575
2005	Prof Robert Newton Edith Cowan University	Project Grant	A randomized controlled trial of exercise to reduce co-morbidity in men receiving therapy for prostate cancer	AUD $244,328
2005	Assoc Prof Christopher Hovens Victorian Prostate Cancer Research Consortium	Project Grant	Bone marrow - derived progenitor cells as biomarkers of prostate cancer development, metastasis, and treatment response	AUD $460,000

CANADA
NATIONALLY FUNDED PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2013	Andrei Drabovich University Health Network	Movember Rising Star in Prostate Cancer Research	Bridging genomics and proteomics to identify protein biomarkers for stratification of prostate cancer aggressiveness	CAD $450,000
2013	Dominique Trudel Centre de Recherche du Centre Hospitalier de l'Université de Montreal	Movember Rising Star in Prostate Cancer Research	Intraductal carcinoma of the prostate: Imaging mass spectrometry for an in situ prognostic oriented characterization	CAD $360,921
2013	Lauren Walker University of Calgary	Movember Rising Star in Prostate Cancer Research	Prostate cancer and sexual recovery	CAD $334,205
2013	Aaron Ward University of Western Ontario	Movember Rising Star in Prostate Cancer Research	Multi-modality radiomics for personalized prostate cancer care	CAD $447,856
2013	Tommy Alain Children's Hospital of Eastern Ontario Research Institute	Movember Discovery Grants	Deciphering the fundamental implications of LARP1 in mTORC1-addicted prostate cancer	CAD $190,000
2013	Alice Dragomir Research Institute of the McGill University Health Centre	Movember Discovery Grants	Development of a clinical and economic model for evaluating new tests or strategies of diagnosis, treatment and management of prostate cancer	CAD $181,515
2013	Robert Hamilton University Health Network	Movember Discovery Grants	Molecular characterization and behavior of tumours arising in patients taking 5-alpha reductase inhibitors	CAD $199,961
2013	Cheryl Helgason BC Cancer Agency	Movember Discovery Grants	Functional analysis of PCAT18	CAD $184,000
2013	Stanley Liu Sunnybrook Research Institute	Movember Discovery Grants	MicroRNA as mediators of radioresistance in prostate cancer patients	CAD $87,567
2013	Julian Lum BC Cancer Agency	Movember Discovery Grants	Exploiting the immune effects of androgen deprivation and radiotherapy for the treatment of high-risk prostate cancer	CAD $188,500
2013	Ivan Topisirovic Jewish General Hospital	Movember Discovery Grants	Resolving gene expression landscapes in prostate cancer through ex-vivo modelling of stromal-epithelial cross-talk	CAD $87,567
2013	Michel Tremblay McGill University	Movember Discovery Grants	Characterization and prognostic potential of the prostate cancer genetic-susceptibility amplicon on chromosome 20q13 during tumour progression	CAD $197,322
2013	Dominique Trudel Centre de recherche du Centre Hositalier de l'Université de Montréal	Movember Discovery Grants	Adaptation of inelastic scattering detection technology for label-free molecular imaging to improve the reliability of prostatic biopsies	CAD $199,000
2013	Franco Vizeacoumar University of Saskatchewan	Movember Discovery Grants	Validating synthetic dosage lethal interactions of PLK1 in androgen-insensitive prostate cancer cells	CAD $87,567
2013	Jian Hui Wu Jewish General Hospital	Movember Discovery Grants	Development of human STING agonists for prostate cancer immunotherapy	CAD $200,000
2013	Alexander Wyatt University of British Columbia	Movember Discovery Grants	Circulating biomarkers of cabazitaxel response and progression in castration-resistant prostate cancer	CAD $197,000
2013	Roger Zemp University of Alberta	Movember Discovery Grants	Nano- and imaging platforms for prostate cancer personalized medicine	CAD $200,000
2013	Gang Zheng University Health Network	Movember Discovery Grants	Harnessing the microbubble to nanoparticle conversion for photodynamic therapy of recurrent prostate cancer	CAD $200,000
2013	Shabbir Alibhai University Health Network	Movember True NTH Survivorship Research	Toward personalizing care for older men with mCRPC - Princess Margaret Cancer Centre, University Health Network and predicting treatment toxicities (the TOPCOP study)	CAD $413,830
2013	Sylvie Lambert McGill University	Movember True NTH Survivorship Research	Reducing anxiety and enhancing quality of life among caregivers of prostate cancer survivors: Development and evaluation of a dyadic, tailored, web-based, psychosocial and physical activity self-management programme	CAD $434,040
2013/ 2011	Jennifer Jones University Health Network	Movember True NTH Survivorship Research Grants	Prostate Cancer Survivorship 360°	CAD $1,281,025

CANADA
NATIONALLY FUNDED PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2012	John Bell Ottawa Hospital Research Institute	Movember Team Grants	Development of a targeted oncolytic virus vaccine for the treatment of metastatic prostate cancer	CAD $4,990,498
2012	Christopher Ong Vancouver Prostate Centre	Translational Acceleration Grant	Therapeutic protein inhibitors of SEMA3C in treatment of advanced prostate cancer	CAD $122,660
2012	Jehonathan Pinthus McMaster University	Movember Clinical Trial in Prostate Cancer	Role of androgen deprivation therapy in cardiovascular disease - a longitudinal prostate cancer study (RADICAL PC)	CAD $3,449,136
2012	John Bartlett Ontario Institute for Cancer Research	Movember Team Grants	prostate cancer program project in rapid development of novel diagnostic markers for early prostate cancer (PRONTO)	CAD $4,995,400
2012	Tak W. Mak University Health Network	Translational Acceleration Grant	Clinical and translational development of novel mitotic kinase inhibitors, CFI-400945 and CFI-402257, in castrate refractory prostate cancer	CAD $1,377,340
2012	Bharati Bapat Lunenfeld-Tannenbaum Research Institute	Translational Acceleration Grant	Moving beyond discovery: validation of an integrated biomarker panel for detection of aggressive prostate cancer	CAD $1,500,000
2012	Stanley Liu Sunnybrook Research Institute	2014 Movember Rising Stars	microRNA: elucidating their biology and significance in prostate cancer	CAD $450,000
2012	Frédéric Pouliot Université Laval	2014 Movember Rising Stars	Integrative prostate cancer detection and prognostication by molecular imaging	CAD $403,232
2012	Paul Boutros Ontario Institute for Cancer Research	2014 Movember Rising Stars	Discovering general features of prostate cancer biomarkers	CAD $450,000
2012	Mathieu Lupien Princess Margaret Cancer Centre	2014 Movember Rising Stars	Identifying functional mutations in enhancers of prostate tumours	CAD $422,094
2012	Imed Gallouzi McGill University	Movember Discovery Grants	Elucidation of regulatory posttranscriptional mechanisms modulating STAT3 expression during prostate cancer-induced cachexia (muscle atrophy)	CAD $194,000
2012	Juan Ausio University of Victoria	Movember Discovery Grants	Examining the interplay between H2A.Z and EZH2 in androgen receptor dependent and independent signalling in prostate cancer	CAD $185,842
2012	Shawn Li Western University	Movember Discovery Grants	Therapeutic potential of targeting SET7/9 induced methylation of DNA-PKcs in androgen-resistant prostate cancer	CAD $187,000
2012	Jose Teodoro McGill University	Movember Discovery Grants	Role of the Pro-Renin receptor in the progression and diagnosis of prostate cancer	CAD $200,000
2012	Yuzhuo Wang University of British Columbia	Movember Discovery Grants	Identification of genes involved in development and progression of neuroendocrine prostate cancer	CAD $200,000
2012	Alexandre Zlotta Mount Sinai Hospital	Movember Discovery Grants	Advancing precision medicine for prostate cancer through transcriptomics	CAD $200,000
2012	Bharati Bapat Lunenfeld-Tannenbaum Research Institute	Movember Discovery Grants	Deciphering DNA methylome in metastatic prostate cancer	CAD $185,900
2012	Peter Black University of British Columbia	Movember Discovery Grants	Circulating tumour cells for risk stratification in men with localized prostate cancer	CAD $182,800
2012	Kim Chi University of British Columbia	Movember Discovery Grants	Genomic profiling of circulating tumour DNA (ctDNA) as a predictive biomarker for patients with castration resistant prostate cancer (CRPC)	CAD $199,300
2012	Warren Chan University of Toronto	Movember Discovery Grants	Designing controlled release DNA-based drug delivery systems	CAD $187,000
2012	Fernand Gobeil Université de Sherbrooke	Movember Discovery Grants	Inducible kinin B1 receptors as prostate cancer theranostic targets	CAD $200,000
2012	S.M. Mansour Haeryfar Western University	Movember Discovery Grants	NKT cell-based adjuvant immunotherapy of prostate cancer	CAD $188,068

CANADA
NATIONALLY FUNDED PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2012	Gerald Krystal British Columbia Cancer Agency	Movember Discovery Grants	Generation of mesenchymal stromal cells infected with oncolytic herpes viruses expressing immune modulators to treat prostate cancer	CAD $200,000
2012	Donald Poirier Université Laval	Movember Discovery Grants	An outstanding accumulation of a 17-beta-hydroxysteroid dehydrogenase type 3 (17b-HSD3) inhibitor in prostate cancer tumour opens the door to a specific treatment and imaging of prostate cancer using a radiolabeled 17b-HSD3 inhibitor	CAD $199,944
2012	Gurmit Singh McMaster University	Movember Discovery Grants	Prostate cancer-induced depression	CAD $198,685
2012	Xiao Yu Wu University of Toronto	Movember Discovery Grants	Hypoxia-modulating nanoparticles for enhancing radiation response of inoperable advanced prostate cancer	CAD $200,000
2012	Andrew Loblaw Odette Cancer Centre Sunnybrook Health Sciences Centre	Movember Discovery Grants	Single fraction HDR prostatic boost in the context of pelvic lymph node SABR (5 fractions) for high risk prostate cancer	CAD $159,650
2012	Andrew Matthew Princess Margaret Cancer Centre	Movember Discovery Grants	A randomized trial of conventional versus advanced pelvic floor exercises to treat urinary incontinence following radical prostatectomy	CAD $158,291
2012	Salaheddin Mahmud University of Manitoba	Movember Discovery Grants	The effect of antipsychotic medications on the incidence and aggressiveness of prostate cancer: a population based study	CAD $153,462
2012	Rodney Breau The Ottawa Hospital	Movember Discovery Grants	Improving quality of prostate cancer surgery by providing performance feedback to surgeons: a pilot study	CAD $194,777
2012	Naomi Matsuura University of Toronto	Movember Discovery Grants	Nanoscale oxygen transport carriers for radiosensitization of prostate tumours	CAD $197,656
2012	Rithwik Ramachandran University of Calgary	Movember Discovery Grants	Molecular regulation of TRPM8 in prostate cancer	CAD $199,735
2012	Vincent Fradet Université Laval	Movember Discovery Grants	Epigenomic control of prostatic inflammation	CAD $198,000
2012	Stephane Gobeil Université Laval	Movember Discovery Grants	Identification of new metastasis suppressor genes in prostate cancer	CAD $199,772
2012	Khalid Al-Nedawi McMaster University	Movember Discovery Grants	Regulation of androgen receptor through microvesicles	CAD $200,000
2012	Hon Leong Western University	Movember Discovery Grants	Developing a liquid biopsy format of Gleason scoring for prostate cancer prognostication	CAD $180,014
2012	Xuesen Dong University of British Columbia	Rising Star in Prostate Cancer Research	Androgen receptor signaling in castration resistant prostate cancer	CAD $450,000
2012	Anthony Joshua Princess Margaret Hospital, Toronto	Rising Star in Prostate Cancer Research	Exploiting autophagy for therapeutic gain in prostate cancer	CAD $449,996
2012	Hon Leong University of Western Ontario	Rising Star in Prostate Cancer Research	Prostate cancer microparticles in plasma as a fluid biopsy for screening of prostate cancer	CAD $450,000
2012	Eric Levesque Université Laval	Rising Star in Prostate Cancer Research	Novel prognostic markers of prostate cancer	CAD $340,000
2011	Ralph Buttyan Vancouver Prostate Centre	Team Grants	Tumour cell plasticity in treatment-resistant prostate cancer	CAD $5,000,000
2011	Robert Day Université de Sherbrooke	Translational Acceleration Grant	Clinical validation of PACE4 for an improved diagnosis of prostate cancer	CAD $1,492,000
2011	John Lewis University of Alberta	Translational Acceleration Grant	Blood based detection of the migration switch in prostate cancer to predict metastatic disease	CAD $1,492,864
2011	Peter Black University of British Columbia	Clinician Scientists	Circulating tumour cells in prostate cancer: the metastatic window	CAD $300,000

CANADA
NATIONALLY FUNDED PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2011	Girish Kulkarni Princess Margaret Hospital, Toronto	Clinician Scientists	Biopsy avoidance in patients at risk for prostate cancer and in patients with low risk prostate cancer: developing tools for personalized medicine	CAD $300,000
2011	Alison Allan University of Western Ontario	Pilot Grants	Circulating tumor cells (CTCs) in prostate cancer: are we finding the real “bad guys”?	CAD $149,758
2011	Robert Bristow Princess Margaret Hospital, Toronto	Pilot Grants	High-throughput discovery of prostate tumour initiating cells markers for prognosis and personalized medicine	CAD $150,000
2011	Michael Cox Vancouver Prostate Centre	Pilot Grants	Regulation of DNA methyltransferases (DNMTs) by Gli proteins and its effects on progression of prostate cancer	CAD $150,000
2011	Robert Day Université de Sherbrooke	Pilot Grants	The development of PACE4 Inhibitors for novel prostate cancer therapies	CAD $150,000
2011	Louis Lacombe Centre Hospitalier Universitaire de Québec	Pilot Grants	Immune score as a new possible approach to predict prostate cancer outcome after prostectomy	CAD $150,000
2011	Hon Leong London Health Sciences Centre	Pilot Grants	Non-invasive staging of prostate cancer: detection of circulating prostate microparticles using unique metastasis-specific antibody 1A5	CAD $150,000
2011	Anne-Marie Mes-Masson Centre de recherche du Centre hospitalier de l’Université de Montréal	Pilot Grants	Involvement of IKKe in castration resistance and prostate cancer progression	CAD $150,000
2011	Paulo Nuin Queen’s University	Pilot Grants	Meta-analysis of prognostic DNA copy number biomarkers for selection of unique combinations of FISH probes that correlate with aggressive CaP	CAD $150,000
2011	Paul Park Queen’s University	Pilot Grants	EMT-associated genes as prognostic biomarkers in Gleason score 3+3 biopsies of prostatic adenocarcinoma	CAD $150,000
2011	Frédéric Pouliot Université Laval	Pilot Grants	In Vivo prostate cancer transcriptional signature detection using integrative multigenic molecular imaging	CAD $150,000
2011	John Stagg Centre de recherche du Centre hospitalier de l’Université de Montréal (QC)	Pilot Grants	Targeting CD73 for treatment of prostate cancer	CAD $150,000
2011	Mark Trifiro Jewish General Hospital (Montreal)	Pilot Grants	Novel targeted abiotic therapeutics and imaging agents for prostate cancer	CAD $149,960
2011	Kishor Wasan University of British Columbia	Pilot Grants	Role of SR-BI-mediated cholesterol influx and intercellular synthesis as potential sources of cholesterol required for de novo steroidogenesis in castration-resistant prostate cancer	CAD $120,000
2011	Gang Zheng University Health Network, Toronto	Pilot Grants	Porphysome-enabled focal laser ablation of prostate cancer	CAD $150,000
2011	Amina Zoubeidi Vancouver Prostate Centre	Pilot Grants	Persistent androgen receptor activation after maximum androgen blockade	CAD $150,000
2011	Shabbir Alibhai, Toronto General Research Institute, University Health Network	Discovery Grants	A phase II RCT and economic analysis of three exercise delivery methods in men with prostate cancer on ADT	CAD $195,796
2011	Khalid Al-Nedawi McMaster University	Discovery Grants	The role of microvesicular-PTEN in prostate cancer: a diagnostic potential	CAD $194,000
2011	Artem Cherkasov Vancouver Prostate Centre, University of British Columbia	Discovery Grants	Selective targeting of DNA-binding domain of androgen receptor - a novel approach to treat castration-resistant prostate cancer	CAD $200,000

CANADA
NATIONALLY FUNDED PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2011	Colin Collins, Vancouver Prostate Centre, University of British Columbia	Discovery Grants	Discovery and functionalization of RNA editing in prostate cancer	CAD $184,446
2011	Pieter Cullis University of British Columbia	Discovery Grants	Targeted lipid nanoparticles for the treatment of advanced prostate cancer	CAD $200,000
2011	Charles Cunningham Sunnybrook Health Sciences Centre, Toronto	Discovery Grants	Hyperpolarized carbon-13 imaging of advanced metastatic prostate cancer	CAD $195,788
2011	Gregory Czarnota Sunnybrook Health Sciences Centre, Toronto	Discovery Grants	Prostate cancer microbubble antivascular enhancement of radiation	CAD $198,600
2011	Robert Day Université de Sherbrooke	Discovery Grants	Beyond PSA: PACE4 as a candidate biomarker for prostate cancer	CAD $73,500
2011	Gregory Dekaban Western University	Discovery Grants	Dendritic cell-based prostate cancer vaccine: development of in vivo dendritic cell migration by cellular MRI in humans	CAD $142,702
2011	Xuesen Dong Vancouver Prostate Centre, University of British Columbia	Discovery Grants	Investigation of the progesterone receptor in prostate cancer	CAD $200,000
2011	Alice Dragomir Research Institute of the McGill University Health Centre	Discovery Grants	Healthcare services use, clinical outcomes and economic burden in metastatic castration-resistant prostate cancer, determinants and trends: a population based study	CAD $194,800
2011	Guy Faulkner University of Toronto	Discovery Grants	RISEforTx: testing the feasibility of a web application for reduclng sitting during treatment for prostate cancer	CAD $164,102
2011	Antonio Finelli Princess Margaret Cancer Centre, Toronto	Discovery Grants	Active surveillance for low-risk prostate cancer: a population-level analysis of uptake, practice patterns and barriers to adoption	CAD $138,213
2011	Vincent Fradet Université Laval	Discovery Grants	Development of a non-invasive inflammatory profiling test for prostate cancer	CAD $189,800
2011	Yves Fradet Université Laval	Discovery Grants	Novel immunotherapeutic approaches for localized prostate cancer	CAD $200,000
2011	Larry Goldenberg Vancouver Prostate Centre, University of British Columbia	Discovery Grants	Quality of life outcomes in LHRH treated prostate cancer patients treated with supplementary transdermal estradiol: a randomised phase II trial	CAD $196,433
2011	Robert Hamilton Princess Margaret Cancer Centre, University Health Network, Toronto	Discovery Grants	The influence of genetic variation on the association between statin and metformin use and prostate cancer risk: towards discovering personalized chemoprevention	CAD $200,000
2011	Fraser Hof University of Victoria	Discovery Grants	Developing small-molecule antagonists of chromobox 7 (CBX7) as epigenetic therapies for aggressive prostate cancer	CAD $200,000
2011	Morley Hollenberg University of Calgary	Discovery Grants	Kallikrein-PSA signalling, proteinase-activated receptors (PARS) and prostate cancer development	CAD $197,836
2011	Subburaj Ilangumaran Université de Sherbrooke	Discovery Grants	Role of SOCS1 in pathogenesis of prostate cancer	CAD $200,000
2011	Thomas Kislinger Princess Margaret Cancer Centre, University Health Network, Toronto	Discovery Grants	Integrated genomics of tumour-derived exosomes for prostate cancer diagnosis and prognosis	CAD $200,000
2011	Eric Levesque Université Laval	Discovery Grants	Estrogens and prostate cancer progression	CAD $200,000

CANADA
NATIONALLY FUNDED PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2011	Rongtuan Lin Lady Davis Institute, Jewish General Hospital, Montréal	Discovery Grants	Combination oncolytic virotherapy for the treatment of prostate cancer	CAD $200,000
2011	Stanley Liu Sunnybrook Health Sciences Centre, Toronto	Discovery Grants	microRNA and prostate cancer radiation response	CAD $200,000
2011	Salaheddin Mahmud University of Manitoba	Discovery Grants	Role of metformin and other hypoglycemic medications in prostate cancer prevention: a population-based study	CAD $158,642
2011	Tak Mak Princess Margaret Cancer Centre, University Health Network, Toronto	Discovery Grants	Investigation of predictive biomarkers for first-In-class inhibitors of mitotic kinases in prostate cancer	CAD $200,000
2011	Andrew Matthew Princess Margaret Cancer Centre, University Health Network, Toronto	Discovery Grants	A multicentre, pilot randomized controlled trial to examine the effects of prehabilitation on functional outcomes after radical prostatectomy	CAD $176,069
2011	Ur Metser Princess Margaret Cancer Centre, University Health Network, Toronto	Discovery Grants	18F-FCH -PET/MR in high risk prostate cancer: a multiparametric approach	CAD $199,558
2011	Linda Penn Princess Margaret Cancer Centre, University Health Network, Toronto	Discovery Grants	Novel WINdow of opportunity trial to evaluate the impact of STatins to OPpose prostate cancer (Win-STOPca)	CAD $183,245
2011	Fred Saad Centre de recherche de centre hospitalier de l'Université de Montréal	Discovery Grants	Validation and use of a microfluidic platform to test prostate cancer response to targeted therapies	CAD $198,799
2011	Peter Siegel McGill University	Discovery Grants	CCN3 as a prognostic and therapeutic target in prostate cancer	CAD $197,000
2011	Hanadi Sleiman McGill University	Discovery Grants	Conditional siRNA delivery to prostate cancer cells using DNA cages	CAD $199,160
2011	Michel L. Tremblay McGill University	Discovery Grants	Deciphering the metabolic role of protein tyrosine phosphatase 1B towards improving prostate cancer prognosis and therapeutics	CAD $198,496
2011	Mark Trifiro Lady Davis Institute, Jewish General Hospital, Montréal	Discovery Grants	Androgen receptor-mediated translational regulation in prostate cancer	CAD $192,283
2011	Eva Turley Western University	Discovery Grants	The role of RHAMM/HMMR in prostate cancer progression	CAD $187,376
2011	Nawaid Usmani University of Alberta	Discovery Grants	A validated model to predict the risk of radiation toxicity after prostate radiotherapy	CAD $193,665
2011	Geoffrey Wood University of Guelph	Discovery Grants	Role of chronic inflammation and proteases in the emergence of castration-resistant prostate cancer	CAD $191,540
2011	Jian Hui Wu Lady Davis Institute, Jewish General Hospital, Montréal	Discovery Grants	Development of chemical inhibitors of ETS oncoproteins for the treatment of prostate cancer	CAD $197,000
2011	George Yousef St Michael's Hospital, Toronto	Discovery Grants	A non-conventional approach for personalized medicine in prostate cancer: investigating the role of miRNAs and their clinical utility in tumor progression and metastasis	CAD $192,000
2011	Roger Zemp University of Alberta	Discovery Grants	Ultrasound-stimulated release of exosomes as biomarkers	CAD $192,000
2010	Stanley Liu Sunnybrook Research Institute	Clinician Scientists	Notch inhibition and radiotherapy as a novel strategy for prostate cancer treatment: elucidation mechanisms of action and resistance	CAD $240,000

CANADA
NATIONALLY FUNDED PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2010	Jehonathan Pinthus Juravinski Cancer Centre	Clinician Scientists	Personalizing prevention strategies for prostate cancer using hair follicle and salivary glands oxidative stress status as surrogacy	CAD $240,000
2010	Robert Bristow Princess Margaret Hospital, Toronto	CPC-Gene	The Canadian Prostate Cancer Genome Network (CPC-GENE): A National Outcomes-Based DNA Sequencing Initiative	CAD $15,000,000
2011	Christina Addison Ottawa Hospital Research Institute	Pilot Grants	Regulation of prostate Cancer Metastasis and Response to therapy by Beta1 Integrins	CAD $149,887
2010	Bharati Bapat University of Toronto	Pilot Grants	Investigation of DNA methylation markers for improved prediction of aggressive disease in prostate cancer patients	CAD $92,040
2010	Peter Cheung York University	Pilot Grants	Deciphering the roles of the histone variant H2A.Z and Brd2 in prostate cancer	CAD $92,040
2010	Urban Emmenegger Sunnybrook Research Institute	Pilot Grants	Overcoming resistance to systemic prostate cancer therapy by autophagy modulation	CAD $92,040
2010	Gerardo Ferbeyre Université de Montréal	Pilot Grants	Cellular mechanisms of metformin action	CAD $92,040
2010	Bertrand Jean-Claude McGill University	Pilot Grants	A novel c-Met-based multitargeted approach for the treatment of advanced prostate cancer	CAD $92,040
2010	Patrick Lee Dalhousie University, Nova Scotia	Pilot Grants	Selective down-modulation of anti-reoviral immunity during reovirus oncotherapy to facilitate the eradication of prostate cancer stem cells	CAD $90,816
2010	John Lewis University of Alberta	Pilot Grants	Non-invasive imaging of prostate cancer using EGFL7-targeted nanoparticles	CAD $92,040
2010	Sylvain Meloche Institute for Research in Immunology and Cancer	Pilot Grants	Re-expression of Sef as targeted therapy for prostate cancer	CAD $92,040
2010	Maha Othman Queen's University	Pilot Grants	A pilot study of hemostatic parameters in prostate cancer patients: novel markers of venous thromboembolic risk and cancer progression	CAD $88,555
2010	Miltiadis Paliouras Lady Davis Institute for Medical Research	Pilot Grants	AR-mediate alternative RNA splicing- Impact on Prostate Cancer Progression	CAD $92,040
2010	Jehonathan Pinthus Juravinski Cancer Centre	Pilot Grants	Augmenting the Innate Adiponectin Tumour-suppressive Axis in Prostate Cancer	CAD $92,040
2010	Michael Pollak McGill University	Pilot Grants	Influence of insulin on androgen production	CAD $88,205
2010	Harvey Quon CancerCare, Manitoba	Pilot Grants	Randomized Phase II Study of 2 Extreme Hypofractionated Radiotherapy Schedules for Low- and Intermediate-Risk Prostate Cancer	CAD $91,695
2010	Yuzhuo Wang British Columbia Cancer Agency	Pilot Grants	A Potential Prostate Cancer Metastasis-Associated miRNA	CAD $92,040
2010	Vincent Fradet Université Laval	Pilot Grants	Development of inflammation and metabolic biomarkers of prostate microenvironment	CAD $91,791
2010	James Gleason McGill University	Pilot Grants	Hybrid antiandrogen / histone deacetylase inhibitors for prostate cancer treatment	CAD $92,040
2010	Fraser Hof University of Victoria	Pilot Grants	Small molecule disruptors of EZH2/H3K27me3/CBX7 signaling as targeted therapies for highly aggressive prostate cancer	CAD $92,040
2010	Leonard Luyt London Regional Cancer Program	Pilot Grants	Validation of the Ghrelin Receptor as a Target for the Molecular Imaging of Prostate Cancer	CAD $92,040

CANADA
NATIONALLY FUNDED PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2009	Bryan Donnelly/Tarek Bismar The Prostate Cancer Centre, Southern Alberta Institute of Urology, Rockyview General Hospital	Biobanks	Validation of markers for lethal disease: Support for establishing fresh and paraffin tissue tumour bank	CAD $500,000
2009	PROCURE	Biobanks	PROCURE Prostate Cancer Biobank	CAD $500,000
2009	Urban Emmenegger Sunnybrook Research Institute	Clinician Scientists	Metronomic chemotherapy in castration-resistant prostate cancer: overcoming treatment resistance	CAD $240,000
2009	Frederic Pouliot Université Laval	Clinician Scientists	DD3/PCA3 promoter-dependent molecular imaging of prostate cancer local recurrence after radical prostatectomy using adenoviral mediated amplification systems	CAD $240,000
2009	Juan Ausio University of Victoria	Pilot Grants	Role of histone H2A.Z in androgen receptor dependent and independent signalling in prostate cancer	CAD $92,087
2009	Richard Austin McMaster University	Pilot Grants	Signaling through cell surface GRP78 induces tissue factor expression/procoagulant activity: Implications in prostate cancer growth and metastasis	CAD $92,760
2009	Laurent Azoulay McGill University	Pilot Grants	Androgen Deprivation Therapy and the Risk of Stroke in Patients with Prostate Cancer	CAD $65,705
2009	Tarek Bismar University of Calgary	Pilot Grants	miRNA Predictors of Lethal Hormone Refractory Prostate Cancer	CAD $92,760
2009	Simone Chevalier McGill University	Pilot Grants	Validation of novel prostate cancer progression markers and investigation of their potential as therapeutic targets	CAD $92,760
2009	Mario Chevrette McGill University	Pilot Grants	The role of CD9 in establishing prostate cancer bone metastasis	CAD $92,760
2009	Yves Fradet Centre Hospitalier Universitaire de Québec	Pilot Grants	Characterization of MAGE-A11 for immunotherapy of prostate cancer	CAD $60,000
2009	Cheryl Helgason British Columbia Cancer Agency	Pilot Grants	Mechanisms of Immune Privilege Used by Prostate Cancer Stem Cells	CAD $92,760
2009	Jacques Lapointe McGill University	Pilot Grants	Role of PDK1 in prostate cancer progression	CAD $92,760
2009	Eric Levesque Centre Hospitalier Universitaire de Québec	Pilot Grants	Inherited genetic variations and prostate cancer recurrence after prostatectomy	CAD $92,760
2009	Ivan Robert Nabi University of British Columbia	Pilot Grants	Identification of Caveolin-1 Associated Regulatory Proteins in Prostate Cancer	CAD $92,760
2009	Damu Tang McMaster University	Pilot Grants	ABCC2 confers chemoresistance to docetaxel in hormone refractory prostate cancer	CAD $92,760
2009	Frank van Veggel University of Victoria	Pilot Grants	Early detection of prostate cancer with antibody-nanoparticle conjugates by MRI	CAD $92,760
2009	Vasundara Venkateswaran Sunnybrook Research Institute	Pilot Grants	Utilizing metformin to enhance the efficacy of androgen deprivation therapy in prostate cancer	CAD $92,734
2009	George Yousef St. Michael's Hospital, Toronto	Pilot Grants	Discovery of new markers for prostate cancer relapse through miRNA profiling: moving into the era of personalized medicine	CAD $89,295
2009	Jan Jongstra University Health Network, Toronto	Pilot Grants	The role of IL-6 and STAT3 in clonogenic prostate cancer cell growth	CAD $75,000
2008	Vincent Fradet Université Laval	Clinician Scientist	Molecular mechanism of drug and dietary intervention to prevent prostate cancer and reduce its progression	CAD $240,000

CANADA
NATIONALLY FUNDED
PROSTATE CANCER PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2008	Anthony Joshua Princess Margaret Hospital, Toronto	Clinician Scientist	Exploring autophagy in prostatic carcinogenesis	CAD $240,000
2008	Moulay Alaoui-Jamali Jewish General Hospital, Montreal	Pilot Grants	Targeting a novel heme oxygenase signaling pathway in prostate cancer and therapeutic applications	CAD $48,000
2008	Maxime Bouchard McGill University	Pilot Grants	Role of Gata3 in prostate cancer	CAD $48,000
2008	William Chu Sunnybrook Research Institute, Toronto	Pilot Grants	Functional Imaging of the Prostate Cancer Metabolome with Hyperpolarized Carbon-13 MRSI	CAD $47,616
2008	Gregory Czarnota Sunnybrook Research Institute, Toronto	Pilot Grants	Novel Ultrasound Antivascular Prostate Cancer Therapy	CAD $40,000
2008	Yves Fradet Centre Hospitalier Universitaire de Québec	Pilot Grants	In vitro model of human primary prostate cells for the assessment of anti-inflammatory properties of chemopreventive agents	CAD $48,000
2008	Bertrand Jean-Claude McGill University	Pilot Grants	A multitargeted strategy towards the development of temodar and related molecules into novel chemotherapeutic agents against advanced prostate cancer	CAD $48,000
2008	Thomas Kislinger Ontario Cancer Institute, Toronto	Pilot Grants	Proteomic profiling of prostatic secretions: Biomarker discovery and validation	CAD $48,000
2008	Andis Klegeris University of British Columbia	Pilot Grants	Use of mutasynthesis to create novel secondary actinomycete metabolites with potential antitumour activity	CAD $48,000
2008	Leigh Murphy CancerCare Manitoba	Pilot Grants	Differential role of the long and short form of estrogen receptor beta in human prostate cancer cells	CAD $48,000
2008	Michael Pollak McGill University	Pilot Grants	PTEN loss and energy metabolism in prostate cancer	CAD $48,000
2008	Paul Rennie University of British Columbia	Pilot Grants	The effects of inhibition of L-Dopa decarboxylase activity by Carbidopa on prostate cancer growth and progression to castration resistance	CAD $48,000
2008	Marianne Sadar British Columbia Cancer Agency	Pilot Grants	Proteomic investigation of a novel drug candidate for prostate cancer	CAD $48,000
2008	D. Robert Siemens Queen's University	Pilot Grants	Defining the role of Cyclic GMP Phosphodiesterase (cGMP PDE) and Drug Resistance in Prostate Cancer	CAD $46,858
2008	Samy Suissa Jewish General Hospital, Montreal	Pilot Grants	Metformin and the prevention of prostate cancer in patients with Type 2 diabetes	CAD $48,000
2008	Joan Sweet University Health Network, Toronto	Pilot Grants	Stromal Factors Promoting Prostate Cancer Progression	CAD $48,000
2008	Damu Tang McMaster University	Pilot Grants	Investigation of a novel metastatic factor in prostate cancer stem cells	CAD $48,000
2008	Theos Tsakiridis McMaster University	Pilot Grants	Pre-clinical evaluation of the role of AMP-activated Kinase (AMPK) in the response of prostate cancer (PrCa) to radiotherapy (RT). Evaluation of Metformin as an enhancer of RT response.	CAD $47,960

UNITED STATES
NATIONALLY FUNDED PROSTATE CANCER RESEARCH PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2014	Shaomeng Wang, MD Arul Chinnaiyan, MD, PhD University of Michigan	Movember Foundation - PCF Challenge Awards	Targeting the MLL complex for the development of new therapeutics for CRPC	USD $1,000,000
2014	Peter Nelson, MD Fred Hutchinson Cancer Research Center Phillip Kantoff, MD Dana Farber Cancer Institute Bruce Montgomery, PhD University of Washington	Movember Foundation - PCF Challenge Awards	Exploiting DNA Repair Vulnerabilities as a Precision Oncology Target in Metastatic Prostate Cancer	USD $1,000,000
2014	Phuoc Tran, MD, PhD Charles Drake, MD, PhD Kenneth Pienta, MD Martin Pomper, MD, PhD Theodore DeWeese, MD Mario Eisenberger, MD Johns Hopkins University School of Medicine Adam Dicker, MD, PhD Thomas Jefferson University	Movember Foundation - PCF Challenge Awards	Altering the Natural History of Metastatic Prostate Cancer using Stereotactic Ablative Radiotherapy and Immune Stimulation	USD $1,000,000
2014	Haojie Huang, PhD Manish Kohli, MD Mayo Clinic Scott Dehm, PhD University of Minnesota Martin Gleave, MD Vancouver Prostate Centre	Movember Foundation - PCF Challenge Awards	Targeting Aberrant AR-FL and AR-V Expression and Activity to Overcome Therapy Resistance in Metastatic Castration-Resistant Prostate Cancer	USD $1,000,000
2014	Mark Rubin, MD Weill Cornell Medical College Scott Tomlins, MD, PhD University of Michigan Ronglai Shen, PhD Memorial Sloan-Kettering Cancer Center	Movember Foundation - PCF Challenge Awards	Integrative Genomics of Prostate Cancer Progression	USD $1,000,000
2014	Adam Dicker, MD, PhD Thomas Jefferson University Lawrence Fong, MD University of California, San Francisco	Movember Foundation - PCF Challenge Awards	CARAVAN: Checkpoint-Radiation-Vaccine neoadjuvant trial for metastatic prostate cancer	USD $1,000,000
2013	Andrew Dannenberg, MD Weill Cornell Medical College	Movember Foundation - PCF Challenge Awards	Periprostatic adipose inflammation: A targetable mediator of prostate cancer progression	USD $1,000,000
2013	Kenneth Pienta, MD Johns Hopkins University School of Medicine	Movember Foundation - PCF Challenge Awards	Targeted Niche Therapy (TNT) to cure metastatic Prostate Cancer	USD $1,500,000
2013	Douglas McNeel, MD, PhD University of Wisconsin	Movember Foundation - PCF Challenge Awards	PD-1 Blockade with T-Cell Activating Therapy to Treat Metastatic Prostate Cancer	USD $1,500,000
2013	Suzanne Conzen, MD University of Chicago	Movember Foundation - PCF Challenge Awards	Use of Selective GR Antagonists in Castration-resistant Prostate Cancer	USD $1,000,000
2013	Howard Scher, MD Memorial Sloan-Kettering Cancer Center	Movember Foundation - PCF Challenge Awards	The Novel CYP17 Lyase Inhibitor VT-464 for Patients with Advanced Prostate Cancer Resistant to Enzalutamide: Use of Predictive Biomarkers during Drug Development Process Is Essential for Improved Patient Management and Time to Drug Approval	USD $1,000,000
2013	Andrew Armstrong, MD, MSc Duke University	Movember Foundation - PCF Challenge Awards	Development of Circulating Molecular Predictors of Chemotherapy and Novel Hormonal Therapy Benefit in Men with Metastatic Castration Resistant Prostate Cancer (mCRPC)	USD $1,400,000
2013	Matthew Freedman, MD Broad Institute of MIT and Harvard	Movember Foundation - PCF Challenge Awards	Charting the Epigenomic Landscape of Advanced Prostate Cancer in Human Tissue	USD $1,000,000
2012	Maha Hussain, MD University of Michigan	Movember Foundation - PCF Challenge Awards	Co-targeting the Cell Cycle and Androgen Signaling Axis via CDK4/6 Inhibition and Androgen Deprivation: A Novel Paradigm for treating Metastatic Hormone-sensitive Prostate cancer	USD $1,000,000

UNITED STATES
NATIONALLY FUNDED PROSTATE CANCER RESEARCH PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2012	Arul Chinnaiyan, MD, PhD University of Michigan	Movember Foundation - PCF Challenge Awards	Targeting BET Bromodomain Proteins: A Novel Therapeutic Strategy for Treatment Resistant Prostate Cancer	USD $1,500,000
2012	Josh Lang, MD University of Wisconsin	Movember Foundation - PCF Challenge Awards	Biomarkers of Therapeutic Response and Resistance to Androgen Receptor Signaling Inhibitors	USD $1,000,000
2012	Yu Chen, MD, PhD Memorial Sloan-Kettering Cancer Center	Movember Foundation - PCF Challenge Awards	Understanding the Role of Tumor Heterogeneity of Treatment Resistant Prostate Cancer Using Avataroid Technology	USD $1,000,000
2012	Peter Nelson, MD Fred Hutchinson Cancer Research Center	Movember Foundation - PCF Challenge Awards	Defining Therapeutic Approaches to Target AR Pathway-independent Prostate cancer (APIPC)	USD $1,500,000
2012	Omid Farokhzad, MD Harvard Medical School	Movember Foundation - PCF Challenge Awards	MYC RNAi Nanoparticles for Metastatic Prostate Cancer Treatment	USD $1,000,000
2011/ 2012	Stephen J. Forman, MD City of Hope	Movember Foundation - PCF Challenge Awards	Immunotherapy for Prostate Cancer Combining Targeted Inhibition of STAT3-mediated Immunosuppression with CAR-engineered T-cells	USD $1,000,000
2011	Eric Small, MD University of California, San Francisco Owen Witte, MD University of California, Los Angeles	Movember Foundation - PCF Challenge Awards: West Coast Dream Team	Targeting Adaptive Pathways in Metastatic Castration Resistant Prostate Cancer	USD $2,500,000
2011 / 2014	Karen Knudsen, PhD Thomas Jefferson University	Movember Foundation - PCF Challenge Awards	Interrogation of Aberrant DNA Repair in Sporadic Prostate Cancer	USD $1,500,000
2011	John Isaacs, PhD Johns Hopkins University School of Medicine	Movember Foundation - PCF Challenge Awards	First-in-Man Clinical Studies of Mesenchymal Stem Cell Based Therapy for Prostate Cancer	USD $1,000,000
2011	Rob Reiter, MD University of California, Los Angeles	Movember Foundation - PCF Challenge Awards	Preventing Treatment Resistance by Co-Targeting Androgen Receptor and SRC/MEK1-Dependent Epithelial to Mesenchymal Transition	USD $1,000,000
2010	Steve Cho, MD Johns Hopkins University School of Medicine	Movember Foundation - PCF Creativity Award	Evaluation of PSMA-based PET as functional imaging biomarker of primary prostate cancer	USD $300,000
2010	Steven Balk, MD, PhD Beth Israel Deaconess Medical Center Phillip Kantoff, MD Dana Farber Cancer Institute Peter Nelson, MD Fred Hutchinson Cancer Research Center	Movember Foundation - PCF Challenge Awards	Synergistic Targeting of AR and Androgen Metabolism in Prostate Cancer	USD $1,000,000
2009	Arul Chinnaiyan, MD, PhD Kenneth Pienta, MD University of Michigan	Movember Foundation - PCF Challenge Awards	Moleculary targeted therapies for prostate cancer: MIONCOSEQ (Michigan ONCOlogy SEQuencing)	USD $500,000
2009	Todd Golub, MD Levi Garraway, MD, PhD William Hahn, MD, PhD Dana-Farber Cancer Institute, Broad Institute of MIT and Harvard	Movember Foundation - PCF Challenge Awards	Discovery of inhibitors of TMPRSS2/ERG in prostate cancer	USD $500,000
2008	Memorial Sloan-Kettering Cancer Center	Clinical Trials	Prostate Cancer Clinical Trials Consortium (PCCTC)	USD $750,000
2007	Memorial Sloan-Kettering Cancer Center	Clinical Trials	Prostate Cancer Clinical Trials Consortium (PCCTC)	USD $500,000

UNITED KINGDOM
NATIONALLY FUNDED
PROSTATE CANCER RESEARCH PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2013	Dr Ananya Choudhury Christie Hospital, Manchester	Movember Translational Research Awards	Translating companion hypoxia response-predictive biomarkers into clinical practice in prostate cancer	GBP £331,429
2013	Prof Hing Leung University of Glasgow	Movember Translational Research Awards	Combined suppression of cholesterol bioavailability and androgen deprivation therapy to treat castration resistant prostate cancer	GBP £463,460
2013	Dr Dow-Mu Koh Royal Marsden Hospital	Movember Translational Research Awards	Development of response and prognostic imaging biomarkers using whole body diffusion-weighted MRI (WBDWI) for metastatic bone disease of patients with castrate resistant prostate cancer (mCRPC)	GBP £211,580
2013	Dr Hayley Whitaker University College London	Movember Translational Research Awards	Combining advances in imaging with biomarkers for improved diagnosis of Aggressive prostate cancer	GBP £450,112
2013	Professor George Baillie University of Glasgow	Project Grants and Pilot Awards	Investigating the role of PDE47 interactome	GBP £49,977
2013	Dr Victoria James University of Sheffield	Project Grants and Pilot Awards	Circulating microRNAs to act to promote a pre-metastatic niche within bone in prostate cancer patients	GBP £49,939
2013	Professor Hardev Pandha University of Surrey	Project Grants and Pilot Awards	Combining oncolytic viral therapy and immune checkpoint blockade to achieve optimal prostate cancer therapy	GBP £46,776
2013	Dr Ferdia Gallagher University of Cambridge	Project Grants and Pilot Awards	Investigating the metabolism of hyperpolarized carbon-13 labelled pyruvate in prostate cancer as a biomarker of tumour aggressiveness.	GBP £49,930
2013	Dr Alastair Lamb University of Cambridge	Project Grants and Pilot Awards	Establishing and validating prostate Patient Derived Xenografts (PDX) to advance understanding of the biology and treatment of prostate cancer	GBP £36,396
2013	Dr Nicholas Leslie Heriot Watt University	Project Grants and Pilot Awards	Improved transgenic target validation in prostate cancers lacking PTEN	GBP £300,626
2013	Dr Matthew David Lloyd University of Bath	Project Grants and Pilot Awards	AMACR targeted drugs for treating advanced prostate cancer	GBP £278,037
2013	Dr Hayley Whitaker University College London	Project Grants and Pilot Awards	Combining markers with imaging for improved diagnosis of aggressive prostate cancer	GBP £306,369
2013	Professor Elizabeth Grunfeld Coventry University	Project Grants and Pilot Awards	Risk and Resilience Factors Associated with Cognitive Changes Following Androgen Deprivation Therapy in Prostate Cancer Patients	GBP £505,853
2013	Professor George Lewith University of South Hampton	Project Grants and Pilot Awards	PROACTIVE: PROSTATE Cancer Support Intervention for Managing ACTIVE Surveillance: a multi-centre feasibility trial	GBP £230,892
2013	Professor Myra Olga McClure Imperial College London	Project Grants and Pilot Awards	Next Generation Sequencing to investigate a viral aetiology of prostate cancer in men of African and Afro-Caribbean origin and in families from these groups	GBP £74,867
2013	Professor Charlotte Bevan Imperial College London	Project Grants and Pilot Awards	Novel roles for nuclear receptors in stratification and therapy for prostate cancer	GBP £256,896
2013	Ms Ashley d'Aquino Royal Marsden University	Training Awards	Assessment of delivered dose to improve dosimetric constraints for prostate cancer radiotherapy	GBP £198,916
2013	Dr Jason Webber Cardiff University	Training Awards	Exosomal heparan sulphate proteoglycans drive disease progression in patients with prostate cancer.	GBP £679,601
2013	Dr Joaquin Mateo Valderrama Institute of Cancer Research	Training Awards	Predictive biomarkers of response to DNA repair targeting agents in sporadic prostate cancer	GBP £125,431
2012/ 2013	Institute of Cancer Research	Strategic and Major Awards	Movember - Prostate Cancer UK London Centre of Excellence	GBP £3,314,216
2012/ 2013	Prostate Cancer UK	Movember Foundation Prostate Cancer Outcomes programme	Life After Prostate Cancer Diagnosis	GBP £2,200,000
2012	Queen's University Belfast and University of Manchester	Strategic and Major Awards	Movember - Prostate Cancer UK Belfast-Manchester Centre of Excellence	GBP £3,147,368

UNITED KINGDOM
NATIONALLY FUNDED
PROSTATE CANCER RESEARCH PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2012	Mr Ghulam Nabi University of Dundee Ninewells Hospital	Project Grants and Pilot Awards	Multiparametric MRI characterisation and guided biopsy of the prostate in men suspected of having prostate cancer.	GBP £274,936
2012	Professor Rosalind Eeles Institute of Cancer Research	Project Grants and Pilot Awards	Identification of DNA Repair gene mutations as a predisposition to early onset and aggressive prostate cancer	GBP £205,703
2012	Professor Norman Maitland University of York	Project Grants and Pilot Awards	Functional analysis of the role of the Stem Cell Control Gene Latexin in prostate cancer invasion and metastasis	GBP £192,658
2012	Dr Amanda Swain Institute of Cancer Research	Project Grants and Pilot Awards	Identification of aggressive prostate cancer driver genes	GBP £220,818
2012	Dr Rich Williams Queens University Belfast	Project Grants and Pilot Awards	Development of Legumain based therapeutic for the treatment of advanced prostate cancer	GBP £384,126
2012	Dr Shonit Punwani University College London	Project Grants and Pilot Awards	Localising Occult prostate Cancer metastases with Advanced imaging TEchniques (LOCATE)	GBP £334,254
2012	Dr Tania Maffucci Queen Mary University of London	Project Grants and Pilot Awards	Role of phosphoinositide 3-kinase C2beta in prostate cancer	GBP £213,740
2012	Dr Charlotte Bevan Imperial College London	Project Grants and Pilot Awards	Evaluating androgen action in prostate cancer progression and therapy	GBP £211,800
2012	Professor Johann de Bono Institute of Cancer Research	Project Grants and Pilot Awards	CHD1 Deletion: Implications to Outcome and Treatment in Prostate Cancer	GBP £393,414
2012	Professor Gwyn T Williams University of Keele	Project Grants and Pilot Awards	The role of GAS5 lncRNA in the development and therapy resistance of castrate-resistant prostate cancer.	GBP £49,839
2012	Dr Christine Galustian King's College London	Project Grants and Pilot Awards	Mutation of Duffy Antigen Receptor for Chemokines (DARC) as an indicator of prostate cancer severity in Afro- Caribbean men	GBP £49,787
2012	Dr Hector Keun Imperial College London	Project Grants and Pilot Awards	Targeting microRNA regulation of metabolism in prostate cancer	GBP £49,995
2012	Dr Anna Gavin Queen's University Belfast	Project Grants and Pilot Awards	Understanding how to improve the lives of men living with prostate cancer.	GBP £109,148
2012	Mr James Stirling Mount Vernon Hospital	Training & Fellowships	Textural analysis of multimodality imaging data for the detection of recurrent prostate cancer	GBP £188,614
2012	Miss Alice Hartley Newcastle University	Training & Fellowships	Characterisation of the prognostic role of embryonic stem cell marker expression in circulating tumour cells from patients with metastatic cancer.	GBP £53,040
2012	Dr Wafa Al-Jamal University of East Anglia	Training & Fellowships	Novel Targeted Nanomedicine for Metastatic Prostate Cancer	GBP £749,218
2012	Dr Kelly Coffey Newcastle University	Training & Fellowships	Characterisation of androgen receptor epigenetic co-regulators as potential therapeutic targets in castrate resistant prostate cancer.	GBP £688,207
2012	Dr Amanda Noble University of York	Training & Fellowships	Phospholipase D as a target for drug design in advanced prostate cancer	GBP £65,000
2012	Dr Andrew Chantry University of East Anglia	Training & Fellowships	Targeting WW domain function in ubiquitin ligases overexpressed in prostate cancer	GBP £89,334
2012	Professor Michael Threadgill University of Bath	Training & Fellowships	Refinement of a polymeric system delivering super-potent cytotoxins to prostate tumours	GBP £99,730
2012	Dr Claire Edwards University of Oxford	Training & Fellowships	The role of Leukaemia Inhibitory Factor (LIF) in prostate cancer bone metastasis	GBP £100,000

UNITED KINGDOM
NATIONALLY FUNDED
PROSTATE CANCER RESEARCH PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2012	Professor Norman Maitalnd University of York	Training & Fellowships	An investigation of the role of the ets factor ELF3 in prostate cancer aggressiveness	GBP £99,910
2012	Prof David Elliott Newcastle University	Training & Fellowships	Characterisation of mRNA isoforms as potential clinical biomarkers and molecular drivers of prostate cancer	GBP £92,663
2012	Academy of Medical Sciences	Training & Fellowships	Starter grants and fellowships for clinical lecturers	GBP £180,000
2011	Prof David Elliott Newcastle University	Project Grants and Pilot Awards	Identifying novel mechanisms of androgen-mediated growth control as new targets for intervention and prognostic biomarkers in prostate cancer (PG12-34)	GBP £159,129
2011	Prof Marco Falasca Blizard Institute	Project Grants and Pilot Awards	Targeting ABC transporter autocrine loop in prostate cancer (PG12-23)	GBP £178,587
2011	Prof Rob Mairs University of Glasgow	Project Grants and Pilot Awards	Enhancement of targeted radiotherapy for prostate cancer using PSMA-seeking agents in combination with radiosensitisers (PG12-12)	GBP £204,590
2011	Prof Craig Robson Newcastle University	Project Grants and Pilot Awards	Investigating the regulation and effects on androgen receptor expression using culture models of castration resistant prostate cancer that induce embryonic stem cell gene expression (PG12-24)	GBP £209,648
2011	Dr Jenny Worthington University of Ulster	Project Grants and Pilot Awards	Advanced prostate cancer: does targeting hypoxic cells block malignant progression and metastasis? (PG12-02)	GBP £213,603
2011	Mr Ghulam Nabi Ninewells Hospital, Dundee	Project Grants and Pilot Awards	Quantitative shear wave elastosonography in the detection and characterisation of prostate cancer (PG12-39)	GBP £237,199
2011	Prof Alan Clarke University of Cardiff	Project Grants and Pilot Awards	Evaluating synergy between deregulation of the PI3-kinase, Wnt and Ras pathways in prostate neoplasia (PG12-16)	GBP £244,086
2011	Dr Gerhardt Attard Institute of Cancer Research, London	Project Grants and Pilot Awards	Using circulating plasma DNA as a multi-purpose biomarker to identify aggressive prostate cancer and mechanisms of drug resistance (PG12-49)	GBP £245,867
2011	Prof Simon Mackay University of Strathclyde	Project Grants and Pilot Awards	Development of a first-in-class preclinical drug candidate for the treatment of castrate-resistant prostate cancer (PG12-27)	GBP £249,289
2011	Dr Colin Cooper University of East Anglia	Project Grants and Pilot Awards	Developing a new targeted therapy for treatment of metastatic prostate cancer: synthesis and preclinical validation of sphingosine kinase inhibitor-docetaxel combination nanoparticles (PG12-14)	GBP £250,000
2011	Dr Anne Collins University of York	Project Grants and Pilot Awards	Targeting the tumour-initiating population in prostate cancer	GBP £187,426
2011	Prof Gary Cook King's College London	Project Grants and Pilot Awards	Imaging avb3 integrin expression in skeletal metastases from prostate cancer with 99mTc-maraciclatide single photon emission computed tomography (SPECT): staging and therapy monitoring (PA12-04)	GBP £49,900
2011	Dr Christine Galustian King's College London	Project Grants and Pilot Awards	Development of a novel cytotopic immunotherapeutic cocktail for targeted treatment of advanced prostate cancer (PA12-01).	GBP £49,932
2011	Prof Tim Skerry University of Sheffield	Project Grants and Pilot Awards	Role of Receptor Activity Modifying Protein-3 in regulation of lysyl oxidase-2 during tumour metastasis (PA12-12)	GBP £49,978
2011	Dr Sophia Papa Guy's Hospital NHS Trust	Project Grants and Pilot Awards	Prostate cancer immunotherapy using genetically targeted T-cells, guided by a stromal-specific immunocytokine (PA12-06)	GBP £50,000
2011	Dr Marco Gerlinger Barts Cancer Institute	Project Grants and Pilot Awards	Prostate cancer response assessment and treatment stratification through circulating free tumour DNA detection (PA12-15)	GBP £50,000
2011	Dr Simon Crabb, University of Southampton	Project Grants and Pilot Awards	Therapeutic inhibition of the Histone Demethylase LSD1 to attenuate androgen receptor signalling in prostate cancer (PG12-03)	GBP £112,802
2011	Dr Helen McCarthy Queen's University Belfast	Training and Fellowships	The use of a novel technology platform to create a DNA vaccine for Prostate Cancer (S12-006)	GBP £97,070
2011	Dr Mark Coles University of York	Training and Fellowships	Role of stroma microenvironments in prostate cancer cell migration and metastasis (S12-029)	GBP £99,136

UNITED KINGDOM
NATIONALLY FUNDED
PROSTATE CANCER RESEARCH PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2011	Dr Charlotte Bevan Imperial College London	Training and Fellowships	Development of a transcriptional repressor based approach for the treatment of prostate cancer (S12-026)	GBP £99,155
2011	Dr Klaus Pors University of Bradford	Training and Fellowships	Aldehyde dehydrogenases in prostate cancer (S12-027)	GBP £99,325
2011	Dr Claire Wells King's College London	Training and Fellowships	The FAS/AMPK axis as a determinant of prostate cancer progression (S12-008)	GBP £99,710
2011	Dr Gunnel Hallden Queen Mary University of London	Training and Fellowships	Identification and validation of novel therapeutic targets in prostate cancer by investigating the cell killing mechanisms of the oncolytic adenovirus Ad in combination with cytotoxic drugs (S12-021)	GBP £99,996
2011	Prof Craig Robson Newcastle University	Training and Fellowships	Characterising novel phosphatase enzymes important in regulating androgen receptor function in the progression of castrate resistant prostate cancer (S12-018)	GBP £100,330
2011	Dr Deborah Enting King's College London	Training and Fellowships	Influence of stage and therapy on the NKG2D axis in prostate cancer	GBP £239,204
2010	Dr Paul Loadman University of Bradford	Research	Development of tumour-selective therapeutics for advanced prostate cancer	Total funds for year: GBP £2,300,000
2010	Prof Hing Leung Beatson Institute, University of Glasgow	Research	Synergistic interaction between Sprouty2 loss and PI3K/AKT activation in prostate carcinogenesis	
2010	Dr Joanne Edwards University of Glasgow	Research	The role of IKKa and IKKb in prostate cancer progression	
2010	Dr Chris Parker Institute of Cancer Research	Research	A new approach to evaluating prostate cancer diagnostic markers in men with a raised PSA undergoing template mapping biopsy	
2010	Dr Dean Barratt University College London (UCL)	Research	Improving Prostate Cancer Diagnosis and Monitoring using 3D Ultrasound-Guided Biopsy	
2010	Dr Helen Sheldrake University of Bradford	Research	Development of dual β3 integrin antagonists as a anovel anti-metastatic therapeutic for castration-resistant prostate cancer	
2010	Prof David Neal University of Cambridge	Research	The role of autophagy in the initiation, progression and recurrence of prostate cancer	
2010	Dr Matthew David Lloyd University of Bath	Research	Targeting AMACR to treat castrate-resistant prostate cancer	
2010	Prof Kevin Prise Queen's University Belfast	Research	Optimal radiation targeting of PTEN deficiency in castrate resistant prostate cancer in combination with modulators of DNA damage	
2010	Prof Iain McEwan University of Aberdeen	Research	The Androgen Receptor Amino-terminal Domain: A Novel Drug Target for the Treatment of Castrate Resistant Prostate Cancer	
2010	Prof Myra Hunter King's College London (KCL)	Research	Development and evaluation of a guided self-help intervention to alleviate hormone treatment side effects (hot flushes and night sweats) for prostate cancer survivors	
2010	Prof Eila Watson Oxford Brookes University	Research	A pilot randomized controlled trial of a nurse-led psycho-educational intervention delivered in primary care to prostate cancer survivors	
2010	Dr Satoshi Hori University of Cambridge	Research	Role of the endogenous signalling regulator Similar Expression to FGF (Sef) in growth factor signalling in prostate cancer	
2009	Prof Terry Rabbitts Weatherall Institute University of Oxford	Research	Mouse modeling of prostate cancer through TMP-ETS family fusion genes	Total funds for year: GBP £2,150,000
2009	Prof Craig Robson Newcastle University	Research	The role of ubiquitin in androgen receptor function in prostate cancer	

UNITED KINGDOM
NATIONALLY FUNDED
PROSTATE CANCER RESEARCH PROJECTS

YEAR	RECIPIENT & INSTITUTION	PROGRAM	TITLE	AWARD
2009	Dr Paul Thompson University of Ulster	Research	A novel chemoprotective role for vitamin D in prostate cancer	
2009	Prof Freddie Hamdy University of Oxford	Research	Exploiting defects in DNA repair for treatment of prostate cancer	
2009	Dr Roberto Alonzi University College London, UCL	Research	A Phase Ib/II trial of Prostate Radiotherapy in Conjunction with Carbogen and Nicotinamide (PROCON)	
2009	Dr Anna Gavin Queen's University Belfast	Research	Living with and beyond Prostate Cancer: Does more investigation result in better health? A study of the impact on men of increased and variable investigation and treatment of prostate cancer in the Island of Ireland	
2008	Prof Clive Seale Queen Mary University of London	Research	The public face of prostate cancer in the UK	Total funds for year: GBP £800,000
2008	Dr Mandy Fader University of Southampton	Research	Trial of devices for intractable urinary incontinence following prostate cancer surgery	
2008	Prof Johann de Bono Institute of Cancer Research	Research	Identifying mechanisms of resistance to specific CYP17 inhibition with abiraterone acetate	
2008	Prof David Neal University of Cambridge	Research	Novel proteomic approach combined with an RNAi screen to identify AR co-factors	
2008	Dr Dmitry Pshezhetskiy Imperial College London	Research	Sphingosine kinase-1 signalling during prostate cancer cell motility, invasion and metastasis	
2008	Prof Stephanie McKeown University of Ulster	Research	Understanding prostate tumour response to bicalutamide can lead to improved treatment regimens	
2007	Prof Norman Maitland University of York	Research	DNA damage response in prostate cancer stem cells	Total funds for year: GBP £400,000
2007	Prof Colin Cooper Institute of Cancer Research	Research	A mechanism-based system of classification for human prostate cancer	
2007	Dr Axel Thomson University of Edinburgh	Research	Analysis of stromal signaling pathways in human prostate cancer initiation and progression	
2007	Prof Fouad Habib University of Edinburgh	Research	The use of nitric oxide in combination with radiotherapy as a new treatment for prostate cancer found under low oxygen conditions	
2007	Dr Lakya Buluwela Imperial College London	Research	Androgen Regulation of Methylation in Prostate Cancer	

GAP 1
GLOBAL PROSTATE CANCER BIOMARKER INITIATIVE

COUNTRY	GAP 1 PROJECT	RESEARCHER	INSTITUTION	AWARD
Australia	Exosomes	Assoc. Prof Chris Hovens	Royal Melbourne Hospital	AUD $58,400
Australia	Exosomes	Dr Rose Martiniello-Wilks	University of Technology Sydney	AUD $83,000
Australia	Exosomes	Prof Pamela Russell	Australian Prostate Cancer Research Centre	AUD $168,600
Australia	CTCs	Prof Colleen Nelson	Queensland University Technology	AUD $185,000
Belgium	Exosomes	Prof Johan Swinnen	University of Leuven	EUR €70,000
Canada	Urine	Dr Bharati Bapat	Mount Sinai Hospital, University of Toronto	CAD $152,848
Canada	Urine	Dr Rob Bristow	Princess Margaret Hospital & University of Toronto	CAD $78,788
Canada	Exosomes	Dr Simone Chevalier	McGill University Health Centre, Research Institute	CAD $105,000
Canada	Serum	Dr Ken Evans	Ontario Cancer Biomarker Network	CAD $287,301
Canada	CTCs	Dr Kim Chi	Vancouver Prostate Centre	CAD $211,970
Canada	CTCs	Prof Sabine Mai	University of Manitoba	CAD $67,210
Canada	CTCs	Dr Alison Allan	London Health Science Centre	CAD $62,040
Canada	Tissue	Dr Bharati Bapat	Mount Sinai Hospital, University of Toronto	CAD $141,794
Canada	Tissue	Prof Fred Saad	University of Montreal	CAD $141,794
Canada	Tissue	Assoc. Prof Tarek Bismar	University of Calgary	CAD $141,794
Canada	Tissue	Assoc. Prof Simone Chevalier	McGill University	CAD $141,794
Canada	Tissue	Assoc. Prof Jacques Lapointe	McGill University	CAD $141,794
Canada	Tissue	Prof Theodorus Van Der Kwast	Toronto General Hospital	CAD $141,794
Finland	Exosomes	Prof Kim Petterssen	University of Turku	EUR €75,000
Finland	CTC's	Prof Tapio Visakorpi	University of Tampere	EUR €17,771
Germany	CTCs	Prof Klaus Pantel	Universitätsklinikum Hamburg-Eppendorf	EUR €127,632
Ireland	Urine	Dr Antoinette Perry	Trinity College Dublin	EUR €74,090
Ireland	Serum	Prof William Watson	UCD Conway Institute of Biomolecular & Biomedical Research	EUR €192,000
Ireland	CTCs	Assoc. Prof Stephen Finn	Trinity College Dublin	EUR €32,312
Netherlands	Exosomes	Prof Guido Jenster	Josephine Nefkens Institute, Department of Urology, Erasmus MC	EUR €75,000
Netherlands	Urine	Prof Jack Schalken	Radboud University Nijmegen Medical Centre	EUR €37,440
New Zealand	Exosomes	Dr Bill Jordan	Victoria University of Wellington	NZD $50,452
Norway	Urine	Dr Ian Mills	Centre for Molecular Medicine Norway, Nordic EMBL Partnership	EUR €112,320
Norway	Serum	Dr Kristin Tasken	Oslo University Hospital	EUR €98,000
Norway	CTCs	Dr Ian Mills	Centre for Molecular Medicine Norway, Nordic EMBL Partnership	EUR €40,390
Spain	Urine	Dr Andreas Doll	Institut de Recerca, University Hospital Vall d'Hebron	EUR €31,200
Spain	Exosomes	Dr Juan-Manuel Falcón-Perez	CIC bioGUNE, CIBERehd	EUR €115,000
Sweden	Exosomes	Prof Anders Bergh	Umeå University	EUR €90,000
Sweden	CTCs	Prof Anders Bjartell	Skåne University Hospital	EUR €40,390
Sweden	CTCs	Prof Jan-Erik Damber	University of Gothenburg	EUR €40,390
Switzerland	CTCs	Dr Marco Checchini	University of Bern	EUR €40,390
UK (Scotland)	Urine	Prof Hing Leung	The Beatson Institute for Cancer Research	GBP £75,000
UK (Scotland)	Tissue	Prof Hing Leung	The Beatson Institue for Cancer Research	GBP $82,175
UK (Wales)	Exosomes	Dr Aled Clayton	Cardiff University	GBP £155,876
UK (England)	Urine	Prof Colin Cooper	University of East Anglia	GBP £114,000
UK (England)	Serum	Prof Ros Eeles	Royal Marsden Hospital	GBP £236,282
UK (England)	Urine	Prof Hardev Pandha	University of Surrey	GBP £25,000
UK (England)	Urine	Dr Chris Parker	The Royal Marsden NHS Foundation Trust	GBP £25,000
UK (England)	Urine	Dr Hayley Whitaker	Cambridge Research Institute	GBP £40,000

Note: CTCs - Circulating Tumour Cells

GAP 1
GLOBAL PROSTATE CANCER BIOMARKER INITIATIVE

COUNTRY	GAP 1 PROJECT	RESEARCHER	INSTITUTION	AWARD
UK (England)	CTCs	Prof Craig Robson	Newcastle University	GBP £110,551
UK (England)	CTCs	Dr Gerhardt Attard	The Institute of Cancer Research	GBP £149,569
USA	Serum	Assoc. Prof Lorelei Mucci	Harvard School of Public Health	USD $22,800
USA	Urine	Prof Martin Sanda	Beth Israel Deaconess Medical Center	USD $144,742
USA	Serum	Prof Janet Stanford	Fred Hutchinson Cancer Research Center	USD $380,000
USA	CTCs	Dr Amir Goldkorn	University of Southern California	USD $192,067
USA	CTCs	Dr Amado Zurita	The University of Texas MD Anderson Cancer Center	USD $49,315

Note: CTCs - Circulating Tumour Cells

GAP1A
GLOBAL PROSTATE CANCER XENOGRAFT INITIATIVE

COUNTRY	RESEARCHER	INSTITUTION	AWARD
USA	Assoc Prof Nora Navone |	The University of Texas MD Anderson	USD $140,137
	Prof Christopher Logothetis	The University of Texas MD Anderson	
UK	Prof Norman Maitland	The University of York	GBP £55,879
Australia	Prof Gail Risbridger	Monash University	AUD $126,000
Austria	Prof Zoran Culig	Innsbruck Medical University	EUR €72,320
USA	Prof Robert Vessella	University of Washington	USD $117,286
Canada	Dr Yuzhuo Wang	BC Cancer Agency Research Centre/VPC	CAD $110,221
Netherlands	Assist Prof Wytske van Weerden	Erasmus MC: University Medical Center	EUR €76,536
Netherlands	Dr Gabri van der Pluijm	Leiden University Medical Center	EUR €70,050
Switzerland	Dr Cyrill Rentsch |	University of Basel	CHF 101,713
	Dr Marco Cecchini |	University of Bern	
	Prof Lukas Bubendorf	University of Basel	
USA	Prof John Isaacs	Johns Hopkins Medical Institution	USD $90,152
Australia	Dr Elizabeth Williams |	Australian Prostate Cancer Research Centre, Queensland	AUD $112,500
	Prof Pamela Russell |	Australian Prostate Cancer Research Centre, Queensland	
	Prof Colleen Nelson	Australian Prostate Cancer Research Centre, Queensland	

GAP 1
UNIQUE TISSUE MICROARRAY (TMA) PROJECT

COUNTRY	RESEARCHER	INSTITUTION	AWARD
USA	Dr Isla Garraway |	Jonsson Comprehensive Cancer Center	USD $78,944
USA	Dr Beatrice Knudsen |	Cedars-Sinai Medical Center	
USA	Dr Michael Lewis	VA Greater Los Angeles Healthcare System	
USA	Dr Stephen Freedland	Duke University	USD $69,021
USA	Dr John Petros |	Emory University and Affiliated Hospitals	USD $107,003
USA	Assoc Prof Carlos Moreno	Emory University and Affiliated Hospitals	
Canada	Dr Fred Saad |	Université de Montréal, Hospital Research Centre	CAD $142,827
Canada	Dr Anne-Marie Mes Masson |	Université de Montréal, Hospital Research Centre	
Canada	Dr Veronique Ouellet |	Université de Montréal, Hospital Research Centre	
Canada	Dr Dominique Trudel	Université de Montréal, Hospital Research Centre	
USA	Asst Prof Xinchun Zhou	University of Mississippi Medical Center	USD $105,876
USA	Assist. Prof Colm Morrissey |	University of Washington	USD $75,400
USA	Dr Eva Corey	University of Washington	
Norway	Dr Viktor Berge	Oslo University Hospital	EUR €48,462
USA	Prof Bruce Trock	Johns Hopkins School of Medicine	USD $186,878
USA	Dr Angelo De Marzo	Johns Hopkins School of Medicine	
USA	Prof Jonathan Melamed	New York University School of Medicine	
Finland	Dr Tuomas Mirtti |	Helsinki University Central Hospital and Institute for Molecular Medicine Finland	EUR €57,379
Finland	Dr Antti Rannikko	Helsinki University Central Hospital	
Finland	Dr Pekka Taimen	Helsinki University Central Hospital	EUR €93,574

Note: TMA - Tissue Microarray

GAP 2
GLOBAL PROSTATE CANCER IMAGING INITIATIVE

COUNTRY	GAP 1 PROJECT	RESEARCHER	INSTITUTION	AWARD
USA	FDHT	Prof. Michael Morris	Memorial Sloan Kettering Cancer Centre	USD $788,651
Australia	FDHT	Prof. Ian Davis	Monash University	AUD $572,499
Netherlands	FDHT	Prof. Otto Hoekstra	VU University Medical Centre	EUR €389,770
UK	FDHT	Dr. Sue Chua	Royal Marsden Hospital NHS Trust	GBP £476,946
Australia	Choline	Assoc. Prof. Louise Emmett	St Vincent's Hospital Sydney	AUD $147,000
Australia	Choline	Prof. Ian Davis	Monash University	AUD $91,000
Australia	Choline	Prof. Rod Hicks	Peter MacCallum Cancer Centre	AUD $134,000
Australia	Choline	Dr. Andrew Weickhardt	Ludwig Cancer Institute	AUD $91,000
Canada	Choline	Dr. Glenn Bauman	Lawson Health Research Institute	CAD $111,430
Canada	Choline	Assoc. Prof Ur Metser	University of Toronto	CAD $87,415
Canada	Choline	Dr. Frederic Pouliot	Universite Laval	CAD $87,415
UK	Choline	Dr. Sue Chua	Royal Marsden Hospital NHS Trust	GBP £53,708
UK	Choline	Dr. Shonit Punwani	University College London	GBP £93,708
UK	Choline	Dr. Jacob Tanguay	Velindre Cancer Centre	GBP £53,708
USA	PSMA	Prof. Martin Pomper	Johns Hopkins Medical Institutes	USD $115,900
Canada	PSMA	Dr. John Valliant	McMaster University	CAD $129,681
Canada	PSMA	Dr. Katharine Zukotynski	Sunnybrook Health Sciences Centre	CAD $38,424
USA	FDHT and Choline	Ms. Bonnie Clarke	Society of Nuclear Medicine and Molecular Imaging	USD $156,800

Note: FDHT - [18F]fluorodihydrotestosterone

PSMA – prostate-specific membrane antigen

GAP 3
GLOBAL PROSTATE CANCER ACTIVE SURVEILLANCE INITIATIVE: CLINICAL RESEARCH PARTNERS AND PROJECT LEADERS

COUNTRY	RESEARCHER	INSTITUTION
Australia	Dr David Malouf Prof Mark Frydenberg	The Urological Society of Australia and New Zealand
Canada	Prof Laurence Klotz	University of Toronto, Sunnybrook Health Sciences Centre
Canada	Prof Tom Pickles	University of British Columbia, BC Cancer Agency
Canada	Prof Theo van der Kwast	Princess Margaret Cancer Centre, Toronto
Finland	Dr Antti Rannikko	Helsinki University Central Hospital
France	Prof Arnauld Villers	Centre Hospitallier Regional Universitaire de Lille
Italy	Dr Riccardo Valdagni	Fondazione IRCCS Istituto Nazionale dei Tumori di Milano
Japan	Dr Yoshiyuki Kakehi	Kagawa University Faculty of Medicine
Netherlands	Prof Chris Bangma Assoc. Prof Monique Roobol	Erasmus MC, Rotterdam
UK	Dr Caroline Moore	University College London & University College London Hospitals Trust
UK	Dr Vincent Gnanapragasam	Cambridge University Hospitals NHS Trust
USA	Prof Peter Carroll	University California San Francisco (UCSF)
USA	Dr Behfar Ehdaie	Memorial Sloan Kettering Cancer Center
USA	Prof Martin Sanda Assoc Prof Theresa Wicklin Gillespie	Emory University School of Medicine Emory Winship Cancer Institute
USA	Prof Bruce Trock	Johns Hopkins University
USA	Asst. Prof Christopher Filson	Emory University

GAP 4
GLOBAL PROSTATE CANCER AND METABOLIC HEALTH INITIATIVE STEERING COMMITTEE MEMBERS

COUNTRY	RESEARCHER	INSTITUTION
Australia	Prof. Aaron Russell	Deakin University
Australia	Prof. Robert Newton	Edith Cowan University
Canada	Dr. Fred Saad	University of Montreal/CRCHUM
Canada	Michael Pollak, MD	Department of Oncology, McGill University
Ireland	Dr. Stephen Finn	Trinity College, Dublin
Netherlands	Dr. Stephan Praet	Erasmus MC
UK	Prof. James Catto	University of Sheffield
UK	Dr. Rosemary Greenwood	Research Design Service, Southwest Region, Bristol
USA	Dr. Lorelei Mucci	Harvard School of Public Health
USA	Dr. Daniel Hughes	University of Texas Health Science Center at San Antonio
USA	Dr. Stephen R. Plymate	University of Washington
USA	Prof. Charles Ryan	University of California, San Francisco
USA	Dr. June Chan	University of California, San Francisco

GAP 5
TESTICULAR CANCER TRANSLATIONAL SCIENCE PROJECT STEERING COMMITTEE MEMBERS

COUNTRY	REPRESENTATIVE	INSTITUTION
Australia	Dr. Peter Grimison	Australian and New Zealand Urogenital and Prostate Cancer Trials Group (ANZUP)
Canada	Dr. Rob Hamilton	Princess Margaret Hospital
Denmark	Prof. Ewa Rajpert-De Meyts	Copenhagen University Hospital
Netherlands	Prof. Leendert Looijenga	Erasmus MC
UK	Prof. Dan Berney	Queen Mary University
USA	Dr. Darren Feldman	Memorial Sloan Kettering Cancer Center
USA	Assoc. Prof. Katherine Nathanson	University of Pennsylvania
USA	Dr. Craig Nichols	Testicular Cancer Commons
USA	Dr. Eliezer Van Allen	Dana-Farber Cancer Institute

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