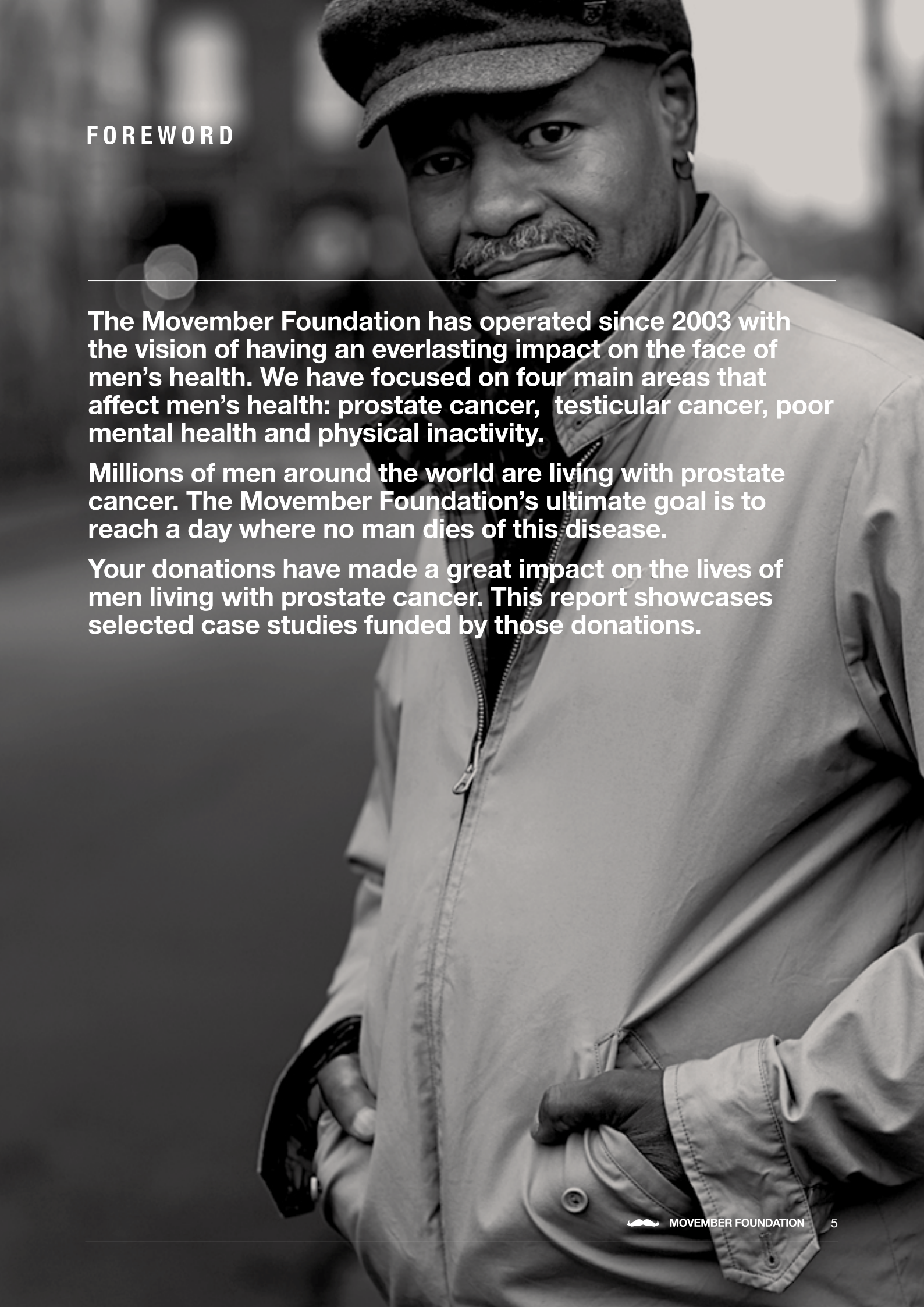
STRATEGIC PROGRAM INVESTMENTS

# 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

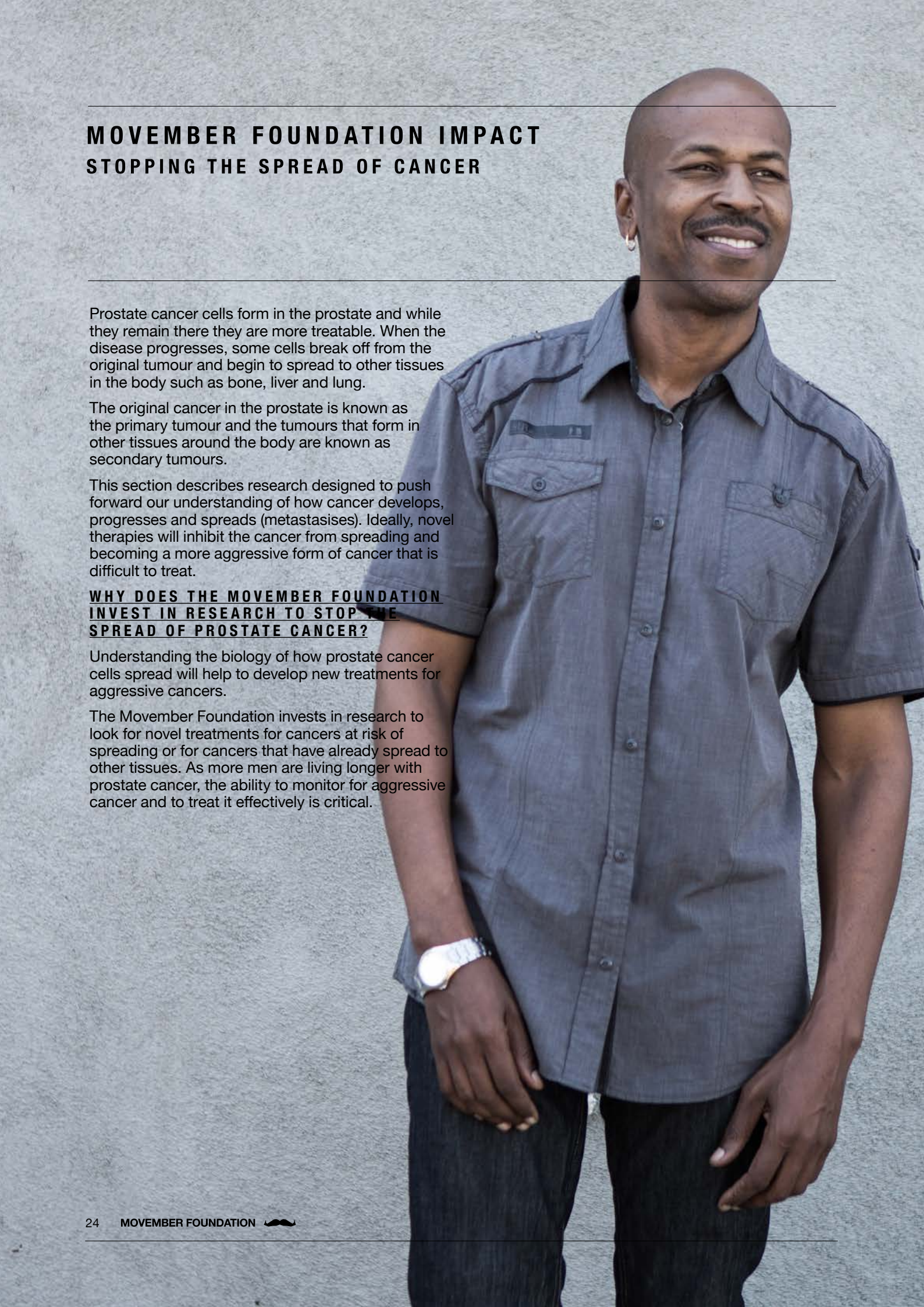
These findings are highly innovative and could lead to new therapies that target the amino acid transporters to inhibit growth and the spread of cancer. The team is currently identifying compounds that target the amino acid transporters and are developing them with an aim to begin clinical trials in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

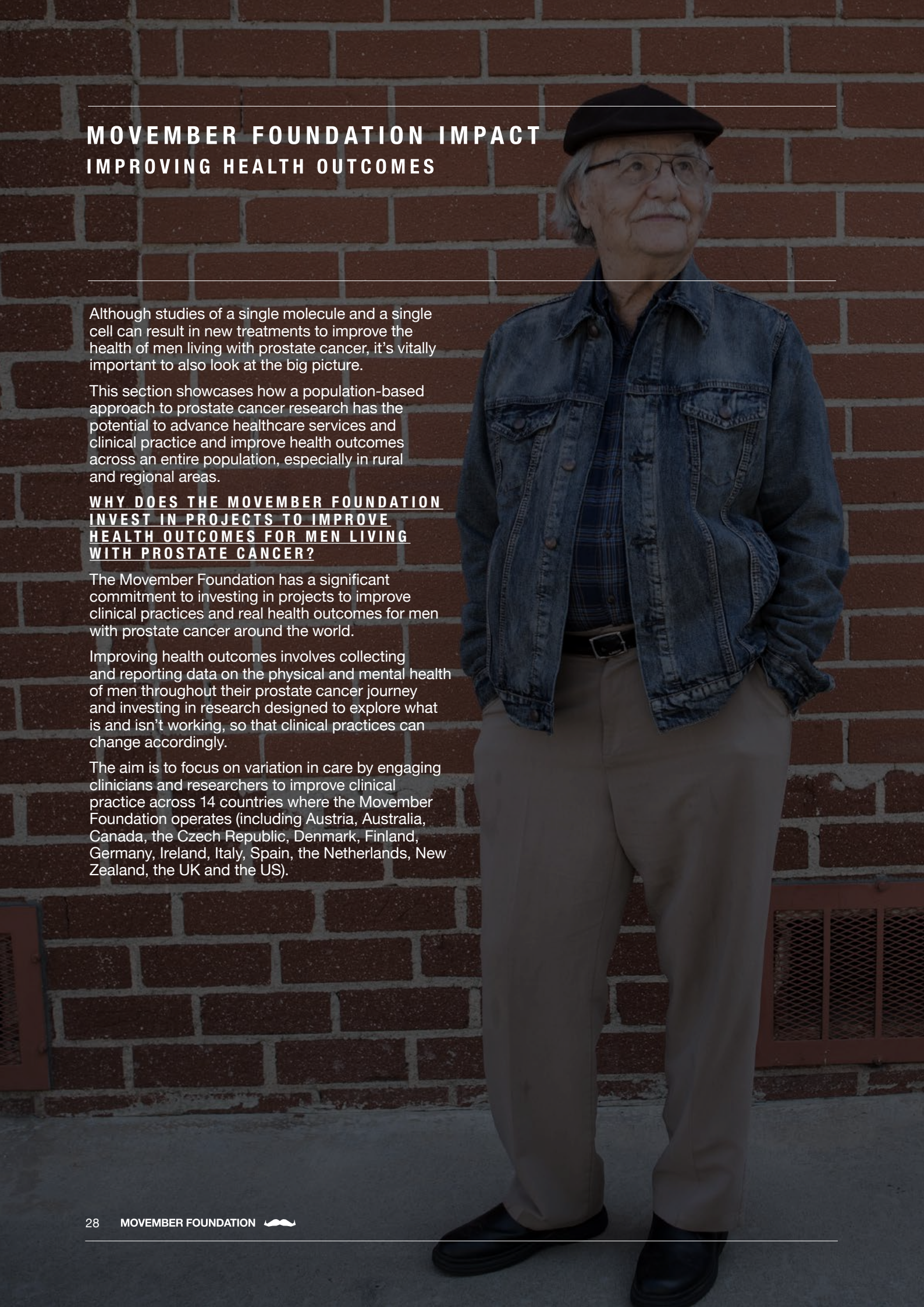
By eliminating RAMP-3, both of these experiments reduced the subsequent spread of prostate cancer to other tissues. This suggests that RAMP-3 acts both inside and outside the prostate cancer cell to enable metastasis to other tissues.

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

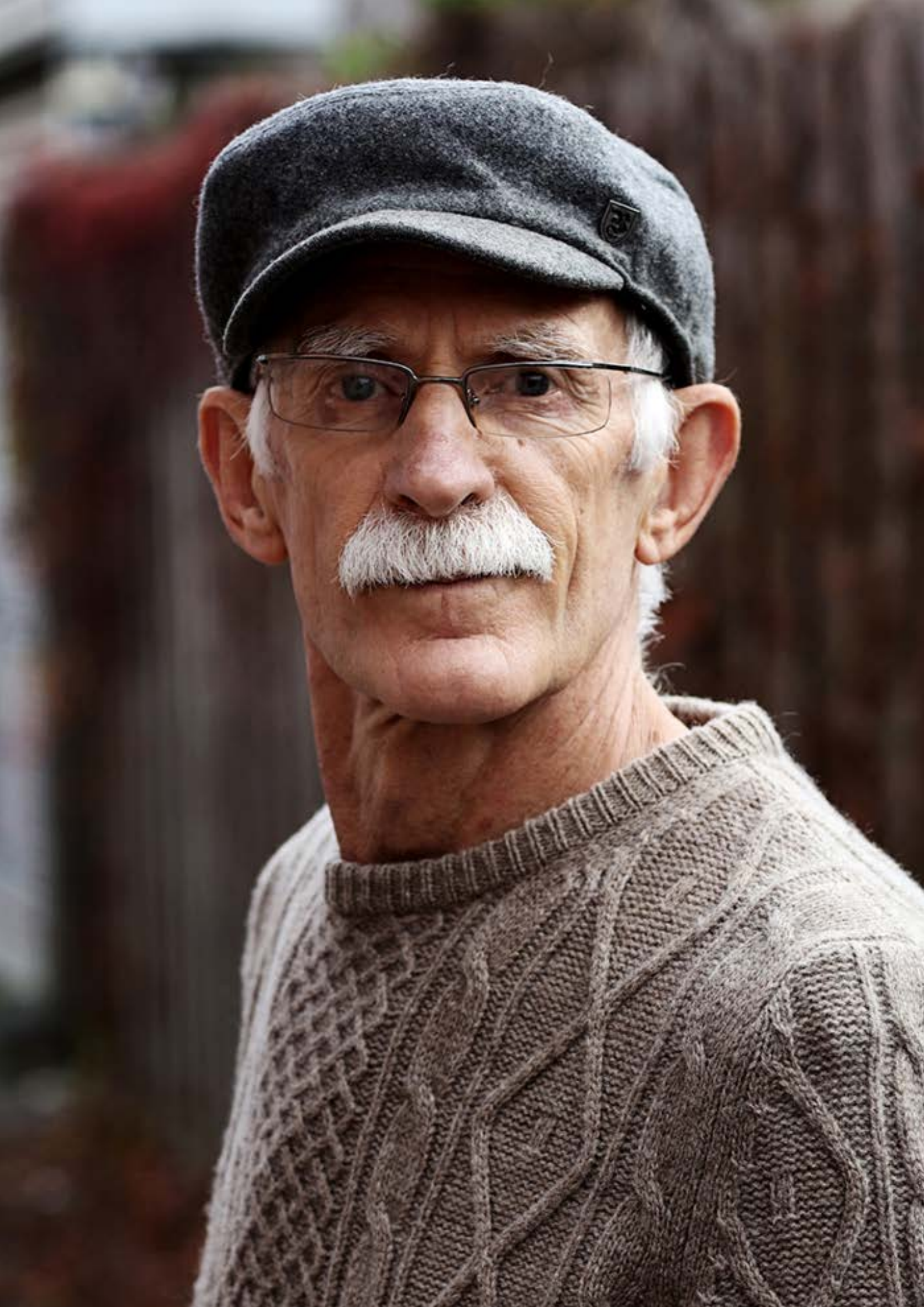
The underlying hypothesis was that vitamin D would inhibit androgen-related genes and change the way testosterone was processed by the body, and that this would reduce advanced prostate cancer recurring in men.

### 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<br>Queensland University of Technology | Clinician Scientist Awards | Precision medicine in advanced and oligometastatic prostate cancer | AUD $450,000 |
| 2014 | Dr Kate Mahon<br>Garvan Institute of Medical Research | Clinician Scientist Awards | Docetaxel resistance in advanced metastatic prostate cancer | AUD $450,000 |
| 2013 | Assoc Prof Lisa Butler<br>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<br>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<br>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<br>University of Sydney | Cancer Australia (PdCCRS) | Hitting the Target: Real-Time Prostate Cancer Radiotherapy | AUD $171,852 |
| 2012 | A/Prof Gillian Mitchell<br>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<br>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<br>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<br>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<br>Monash University | New Concept Grant | Understanding how obesity causes prostate cancer progression | AUD $250,000 |
| 2012 | Prof Dianne O'Connell<br>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<br>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<br>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<br>University of Melbourne | Young Investigator Grant | Advanced image analysis for prostate cancer using functional imaging and histopathology | AUD $360,000 |
| 2012 | Dr Shahneen Sandhu<br>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<br>University of Adelaide | Cancer Australia (PdCCRS) | Mechanism and targeting of castration-resistant prostate cancer | AUD $270,569 |
| 2011 | Assoc Prof Lisa Butler<br>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<br>Monash University | Equipment Grant | LI-COR Odyssey CLx Infrared Imaging System | AUD $32,000 |
| 2011 | Assoc Prof Lisa Horvath<br>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<br>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<br>Deakin University | Movember New Concept Grants | Improving psychological and physiological outcomes for prostate cancer survivors | AUD $70,000 |
| 2011 | Prof Jane Ussher<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>University of Adelaide | Young Investigator Grant | Using explant technology to discover markers of prostate cancer treatment response | AUD $450,000 |
| 2011 | Dr Michael Cater<br>University of Melbourne | Young Investigator Grant | Can copper be used to selectively kill prostate cancer cells? | AUD $311,473 |
| 2011 | Dr Jennifer Gunter<br>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<br>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<br>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<br>University of Adelaide | Cancer Australia (PdCCRS) | Androgen receptor action in the prostate cancer microenvironment | AUD $287,792 |
| 2010 | Prof Roger Daly<br>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<br>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<br>University of Melbourne,<br>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<br>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<br>Monash University | Equipment Grant | Aperio ScanScope CS (Digital slide scanner) with operating software and server | AUD $50,000 |
| 2010 | Prof Robert Newton<br>Edith Cowan University | Equipment Grant | Actigraph Physical Activity Monitoring System | AUD $33,000 |
| 2010 | Prof Pamela Russell<br>Queensland University of Technology | New Direction Development Award | Simultaneous Imaging and Drug Delivery for Prostate Cancer Theranostics | AUD $100,000 |
| 2010 | Prof Ian Davis<br>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<br>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<br>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<br>University of Adelaide | New Direction Development Award | Exploiting metabolic alterations to more accurately monitor prostate cancer therapy | AUD $299,817 |
| 2010 | Mr Michael Nugara<br>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<br>Monash University | Young Investigator Grant | Sorting Wheat from Chaff: Isolating Stromal Stem Cells from Prostate Cancer | AUD $269,000 |
| 2010 | Dr Helen Pearson<br>University of Melbourne | Young Investigator Grant | Investigating the role of planar cell polarity in prostate cancer | AUD $350,000 |
| 2010 | Dr Patric Jan Jansson<br>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<br>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<br>University of Sydney | Young Investigator Grant | The role of nutrient amino acids in prostate cancer | AUD $100,000 |
| 2009 | Prof Judith Clements<br>Queensland University of Technology | Building Capacity Grant | PCFA support for the APCC Bioresource | AUD $1,000,000 |
| 2009 | Prof Wayne Tilley<br>University of Adelaide | Building Capacity Grant | PCFA support for the Adelaide Prostate Cancer Research Centre | AUD $750,000 |
| 2009 | Prof Jeremy Millar<br>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<br>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<br>Burnet Institute | Concept Grant | XMRV in Australian Prostate Cancer | AUD $300,000 |
| 2009 | Assoc Prof Pamela Sykes<br>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<br>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<br>University of Sydney | Concept Grant | Using PSA to Activate Anticancer Prodrugs in Prostate Cancers | AUD $249,435 |
| 2009 | Prof Roger Daly<br>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<br>Ludwig Institute for Cancer Research | Equipment Grant | FACSAria Cell Sorter | AUD $100,000 |
| 2009 | Assoc Prof John Hooper<br>Mater Medical Research Institute | Equipment Grant | BMG “POLARstar Omega” Microplate Reader | AUD $50,000 |
| 2009 | Prof Des Richardson<br>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<br>University of New South Wales | Equipment Grant | Digital microscope camera system | AUD $50,000 |
| 2009 | Prof Robert Newton<br>Edith Cowan University | Equipment Grant | pQCT XCT 3000 Clinical | AUD $80,000 |
| 2009 | Dr Ora Bernard<br>St Vincent’s Institute of Medical Research | Equipment Grant | Mass Spectrometry Facility | AUD $18,707 |
| 2009 | Prof Richard Turner<br>University of Tasmania | Project Grant | Clinical Teaching Associate program for sensitive male examinations - Tasmania | AUD $52,380 |
| 2009 | Dr Christine Fairbank<br>University of Melbourne | Project Grant | Urological Teaching Associate (UTA) Program - Victoria | AUD $101,378 |
| 2009 | Assoc Prof Patricia Livingston<br>Deakin University | Partnership grant | Improving psychological and physiological outcomes for prostate cancer survivors | AUD $70,000 |
| 2009 | Prof Mary Haines<br>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<br>Monash University | Project grant | Imbalance of Stromal Steroid Receptor Signalling Contributes to Prostate Cancer Progression | AUD $250,000 |
| 2009 | Dr Nick Ferris<br>University of Melbourne | Project grant | Prostate Bed Radiotherapy Margins Assessed With 3-Tesla Cine Magnetic Resonance Imaging | AUD $84,971 |
| 2009 | Dr Kristen Radford<br>Mater Medical Research Institute | Project grant | Targeted delivery of prostate cancer antigens to dendritic cells for immunotherapy | AUD $375,000 |
| 2009 | Dr Grant Buchanan<br>University of Adelaide | Project grant | Targeting chemokine signaling in prostate cancer | AUD $250,000 |
| 2009 | Prof Andrew Brown<br>University of New South Wales | Project grant | Exploiting Cholesterol Metabolism to Fight Prostate Cancer | AUD $250,000 |
| 2009 | Dr Mika Jormakka<br>University of Sydney | Project grant | Structural analysis of amino acid transporters that regulate the mTOR pathway | AUD $250,000 |
| 2009 | Prof Judith Clements<br>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<br>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<br>Mater Medical Research Institute | Project grant | Next generation DNA sequence analysis of prostate tumour initiating cells | AUD $250,000 |
| 2009 | Prof Andrew Boyd<br>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<br>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<br>Institute of Health and<br>Biomedical Innovation | Project grant<br>cancer cells | Identification of RNA species regulated by YB-1 and G3BPs in prostate | AUD $250,000 |
| 2009 | Prof Leonie Ashman<br>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<br>Garvan Institute of Medical Research | Young Investigator Grant | Role of β1 integrin in prostate cancer | AUD $100,000 |
| 2009 | Dr Luc Furic<br>Monash University | Young Investigator Grant | Targeting the Eukaryotic Translation Initiation Factor 4E to treat Prostate Cancer | AUD $285,000 |
| 2009 | Dr Xue Qin Yu<br>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<br>Peter MacCallum Cancer Centre | Young Investigator Grant | Understanding immunosuppressive pathways in prostate cancer | AUD $374,257 |
| 2009 | Dr Luke Selth<br>University of Adelaide | Young Investigator Grant | microRNAs in prostate cancer: prognostic markers and therapeutic targets | AUD $356,093 |
| 2009 | Dr Addie Wootten<br>Melbourne Health | Young Investigator Grant | An Online Psychological Support Program for Men with Prostate Cancer | AUD $97,101 |
| 2008 | Prof Colleen Nelson<br>Queensland University of Technology | Building Capacity Grant | NIRAP- Support Australian Canadian Prostate Cancer Research Centre | AUD $300,000 |
| 2008 | Assoc Prof Lisa Horvath<br>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<br>Ludwig Institute for Cancer Research | Cancer Australia (PdCCRS) | Mechanisms of abiraterone resistance in prostate cancer | AUD $393,000 |
| 2008 | Prof Jeremy Millar<br>Monash University | Cancer Australia (PdCCRS) | Pilot of a population-based prostate cancer clinical registry | AUD $197,625 |
| 2008 | Assoc Prof Lisa Butler<br>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<br>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<br>University of South Australia | Career Development Award | Application of nanoparticle drug delivery in prostate cancer | AUD $225,000 |
| 2008 | Dr Caroline Gargett<br>Monash Institute of Medical Research | Concept Grant | Identifying progenitor cells in prostate tumour stroma | AUD $258,246 |
| 2008 | Dr Patrick Humbert<br>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<br>Griffith University | Equipment Grant | Agilent Bravo Automated Liquid Handler | AUD $50,000 |
| 2008 | Prof John EJ Rasko<br>Centenary Inst.- Cancer Medicine<br>& Cell Biology | Equipment Grant | IVIS Lumina 11 quantitative fluorescent and bioluminescent imager | AUD $40,000 |
| 2008 | Prof Des Richardson<br>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<br>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<br>Institute of Health and<br>Biomedical Innovation | Equipment Grant | Syngene G Box Chemi XT unit | AUD $30,000 |
| 2008 | Mr Peter Fisher<br>Cancer Council Tasmania | Project Grant | PCFA/CCT prostate education project | AUD $150,000 |
| 2008 | Prof Pamela Russell<br>Institute of Health and<br>Biomedical Innovation | Project Grant | Targeted nanoparticles for imaging prostate cancer | AUD $125,000 |
| 2008 | Prof Gail Risbridger<br>Monash Institute of Medical Research | Project Grant | Novel estrogen therapy for advanced prostate cancer | AUD $246,831 |
| 2008 | Assoc Prof Ygal Haupt<br>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<br>Cancer Care Centre,<br>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<br>Griffith University | Project Grant | Targeting mitochondria for selective therapy of prostate cancer | AUD $150,000 |
| 2008 | Assoc Prof Gianluca Severi<br>Cancer Epidemiology Centre,<br>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<br>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<br>Western Australian Institute<br>for Medical Research | Project Grant | Functional role of a novel nuclear receptor coregulator in prostate cancer | AUD $250,000 |
| 2008 | Dr Stuart Ellem<br>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<br>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<br>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<br>Griffith University | Concept Grant | Exploring the Third Dimension of Prostate Cancer Cytomics Through Imaging | AUD $280,704 |
| 2007 | Prof Markus Seibel<br>ANZAC Research Institute | Concept Grant | Vitamin D Deficiency and Prostate Cancer Metastasis to Bone | AUD $284,810 |
| 2007 | Prof David Smith<br>University of Western Australia | Concept Grant | Integrative systems modelling of prostate cancer bone metastases | AUD $279,845 |
| 2007 | Dr Darryl Russell<br>University of Adelaide | Concept Grant | Role of ADAMTS proteases in prostate cancer metastasis | AUD $180,482 |
| 2007 | Prof Arthur Shulkes<br>University of Melbourne | Equipment Grant | High Pressure Binary Liquid Chromatography System | AUD $50,000 |
| 2007 | Prof Des Richardson<br>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<br>TissuePath | Project Grant | Does Rhoc expression in prostate cancer predict local invasion or metastases? | AUD $81,247 |
| 2007 | Prof Gail Risbridger<br>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<br>Queensland Institute of<br>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<br>Institute of Health and | Project Grant<br>Metabolic Syndrome Induced by Androgen Deprivation Therapy | De Novo Steroidogenesis in Prostate Tumours Promoted by Insulin During | AUD $93,750<br>Biomedical Innovation |
| 2007 | Prof Robert ('Frank') Gardiner<br>University of Queensland | Project Grant | The relationship between PCA3 and BMCC1 in prostate cancer development and detection | AUD $394,390 |
| 2007 | Prof Peter Leedman<br>Western Australian Institute for<br>Medical Research | Project Grant | Functional role of a novel nuclear receptor coregulator in prostate cancer | AUD $114,750 |
| 2007 | Prof Dianne O'Connell<br>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<br>Centenary Institute<br>- Cancer Medicine & Cell Biology | Project Grant | Tri-modal targeted stem cell gene therapy for prostate cancer metastases | AUD $94,000 |
| 2007 | Dr Tanya Day<br>University of Adelaide,<br>Hanson Institute | Young Investigator Grant | Androgen receptor signalling in prostate cancer tumourigenesis | AUD $491,208 |
| 2007 | Dr Jeff Holst<br>Centenary Institute<br>- Cancer Medicine & Cell Biology | Young Investigator Grant | The role of nutrient amino acids in prostate cancer | AUD $75,000 |
| 2007 | Prof Daniel Galvão<br>Edith Cowan University | Young Investigator Grant | Population based exercise intervention for prostate cancer patients - RADAR | AUD $476,025 |
| 2007 | Dr Matthew Naylor<br>Garvan Institute of Medical Research | Young Investigator Grant | Role of β1 integrin in prostate cancer | AUD $248,429 |
| 2007 | Dr Stuart Ellem<br>Monash Institute of Medical Research | Young Investigator Grant | Estrogens in prostatitis and prostate cancer | AUD $93,495 |
| 2007 | Dr Michelle Hill<br>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<br>Cancer Epidemiology Centre,<br>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<br>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<br>Monash University | Cancer Australia (PdCCRS) | Preclinical and clinical evaluation of an antibody therapeutic targeting prostate carcinoma | AUD $329,504 |
| 2006 | Prof Colleen Nelson<br>Queensland University of Technology | Cancer Australia (PdCCRS) | MicroRNAs in Prostate Cancer: Novel Biomarkers and Potential Therapeutic Targets | AUD $400,000 |
| 2006 | Prof Pamela Russell<br>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<br>University of Melbourne | Concept Grant | The role of polarity regulators in prostate cancer | AUD $73,500 |
| 2006 | Prof Des Richardson<br>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<br>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<br>Garvan Institute of Medical Research | Equipment Grant | DAKO Autostainer Plus | AUD $50,000 |
| 2006 | Prof Dietmar Hutmacher<br>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<br>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<br>Institute of Health and Biomedical Innovation | Project Grant | EPHB4 as a target for anti-prostate cancer therapy | AUD $183,352 |
| 2006 | Dr Jonathan Harris<br>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<br>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<br>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<br>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<br>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<br>University of Sydney | Project Grant | The regulation of E-cadherin expression and Tumour Metastasis in prostate cancer | AUD $296,359 |
| 2006 | Prof Andrew Brown<br>University of New South Wales | Project Grant | Cholesterol, Statins and Prostate Cancer | AUD $291,393 |
| 2006 | Dr Rosetta Martiniello-Wilks<br>Centenary Institute<br>- Cancer Medicine & Cell Biology | Project Grant | Tri-modal targeted stem cell gene therapy for prostate cancer metastases | AUD $300,000 |
| 2006 | Dr Renea Taylor<br>Monash University,<br>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<br>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<br>Centenary Institute<br>- Cancer Medicine & Cell Biology | Young Investigator Grant | The role of nutrient amino acids in prostate cancer | AUD $400,000 |
| 2005 | Prof Pamela Russell<br>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<br>University of Sydney | Project Grant | Clinical Guidelines for Advanced Prostate Cancer | AUD $59,188 |
| 2005 | Assoc Prof Ronnie Cohen<br>Uropath | Project Grant | Prostate Biopsy Database | AUD $83,084 |
| 2005 | Prof Mari Botti<br>Deakin University | Project Grant | Patient outcomes after open and minimally invasive surgery for prostate cancer | AUD $191,575 |
| 2005 | Prof Robert Newton<br>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<br>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<br>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<br>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<br>University of Calgary | Movember Rising Star in Prostate Cancer Research | Prostate cancer and sexual recovery | CAD $334,205 |
| 2013 | Aaron Ward<br>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<br>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<br>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<br>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<br>BC Cancer Agency | Movember Discovery Grants | Functional analysis of PCAT18 | CAD $184,000 |
| 2013 | Stanley Liu<br>Sunnybrook Research Institute | Movember Discovery Grants | MicroRNA as mediators of radioresistance in prostate cancer patients | CAD $87,567 |
| 2013 | Julian Lum<br>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<br>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<br>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<br>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<br>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<br>Jewish General Hospital | Movember Discovery Grants | Development of human STING agonists for prostate cancer immunotherapy | CAD $200,000 |
| 2013 | Alexander Wyatt<br>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<br>University of Alberta | Movember Discovery Grants | Nano- and imaging platforms for prostate cancer personalized medicine | CAD $200,000 |
| 2013 | Gang Zheng<br>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<br>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<br>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<br>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<br>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<br>Vancouver Prostate Centre | Translational Acceleration Grant | Therapeutic protein inhibitors of SEMA3C in treatment of advanced prostate cancer | CAD $122,660 |
| 2012 | Jehonathan Pinthus<br>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<br>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<br>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<br>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<br>Sunnybrook Research Institute | 2014 Movember Rising Stars | microRNA: elucidating their biology and significance in prostate cancer | CAD $450,000 |
| 2012 | Frédéric Pouliot<br>Université Laval | 2014 Movember Rising Stars | Integrative prostate cancer detection and prognostication by molecular imaging | CAD $403,232 |
| 2012 | Paul Boutros<br>Ontario Institute for Cancer Research | 2014 Movember Rising Stars | Discovering general features of prostate cancer biomarkers | CAD $450,000 |
| 2012 | Mathieu Lupien<br>Princess Margaret Cancer Centre | 2014 Movember Rising Stars | Identifying functional mutations in enhancers of prostate tumours | CAD $422,094 |
| 2012 | Imed Gallouzi<br>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<br>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<br>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<br>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<br>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<br>Mount Sinai Hospital | Movember Discovery Grants | Advancing precision medicine for prostate cancer through transcriptomics | CAD $200,000 |
| 2012 | Bharati Bapat<br>Lunenfeld-Tannenbaum Research Institute | Movember Discovery Grants | Deciphering DNA methylome in metastatic prostate cancer | CAD $185,900 |
| 2012 | Peter Black<br>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<br>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<br>University of Toronto | Movember Discovery Grants | Designing controlled release DNA-based drug delivery systems | CAD $187,000 |
| 2012 | Fernand Gobeil<br>Université de Sherbrooke | Movember Discovery Grants | Inducible kinin B1 receptors as prostate cancer theranostic targets | CAD $200,000 |
| 2012 | S.M. Mansour Haeryfar<br>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<br>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<br>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<br>McMaster University | Movember Discovery Grants | Prostate cancer-induced depression | CAD $198,685 |
| 2012 | Xiao Yu Wu<br>University of Toronto | Movember Discovery Grants | Hypoxia-modulating nanoparticles for enhancing radiation response of inoperable advanced prostate cancer | CAD $200,000 |
| 2012 | Andrew Loblaw<br>Odette Cancer Centre<br>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<br>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<br>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<br>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<br>University of Toronto | Movember Discovery Grants | Nanoscale oxygen transport carriers for radiosensitization of prostate tumours | CAD $197,656 |
| 2012 | Rithwik Ramachandran<br>University of Calgary | Movember Discovery Grants | Molecular regulation of TRPM8 in prostate cancer | CAD $199,735 |
| 2012 | Vincent Fradet<br>Université Laval | Movember Discovery Grants | Epigenomic control of prostatic inflammation | CAD $198,000 |
| 2012 | Stephane Gobeil<br>Université Laval | Movember Discovery Grants | Identification of new metastasis suppressor genes in prostate cancer | CAD $199,772 |
| 2012 | Khalid Al-Nedawi<br>McMaster University | Movember Discovery Grants | Regulation of androgen receptor through microvesicles | CAD $200,000 |
| 2012 | Hon Leong<br>Western University | Movember Discovery Grants | Developing a liquid biopsy format of Gleason scoring for prostate cancer prognostication | CAD $180,014 |
| 2012 | Xuesen Dong<br>University of British Columbia | Rising Star in Prostate Cancer Research | Androgen receptor signaling in castration resistant prostate cancer | CAD $450,000 |
| 2012 | Anthony Joshua<br>Princess Margaret Hospital, Toronto | Rising Star in Prostate Cancer Research | Exploiting autophagy for therapeutic gain in prostate cancer | CAD $449,996 |
| 2012 | Hon Leong<br>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<br>Université Laval | Rising Star in Prostate Cancer Research | Novel prognostic markers of prostate cancer | CAD $340,000 |
| 2011 | Ralph Buttyan<br>Vancouver Prostate Centre | Team Grants | Tumour cell plasticity in treatment-resistant prostate cancer | CAD $5,000,000 |
| 2011 | Robert Day<br>Université de Sherbrooke | Translational Acceleration Grant | Clinical validation of PACE4 for an improved diagnosis of prostate cancer | CAD $1,492,000 |
| 2011 | John Lewis<br>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<br>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<br>Princess Margaret Hospital,<br>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<br>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<br>Princess Margaret Hospital,<br>Toronto | Pilot Grants | High-throughput discovery of prostate tumour initiating cells markers for prognosis and personalized medicine | CAD $150,000 |
| 2011 | Michael Cox<br>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<br>Université de Sherbrooke | Pilot Grants | The development of PACE4 Inhibitors for novel prostate cancer therapies | CAD $150,000 |
| 2011 | Louis Lacombe<br>Centre Hospitalier Universitaire<br>de Québec | Pilot Grants | Immune score as a new possible approach to predict prostate cancer outcome after prostectomy | CAD $150,000 |
| 2011 | Hon Leong<br>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<br>Centre de recherche du Centre<br>hospitalier de l’Université de Montréal | Pilot Grants | Involvement of IKKe in castration resistance and prostate cancer progression | CAD $150,000 |
| 2011 | Paulo Nuin<br>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<br>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<br>Université Laval | Pilot Grants | In Vivo prostate cancer transcriptional signature detection using integrative multigenic molecular imaging | CAD $150,000 |
| 2011 | John Stagg<br>Centre de recherche du Centre<br>hospitalier de l’Université de Montréal (QC) | Pilot Grants | Targeting CD73 for treatment of prostate cancer | CAD $150,000 |
| 2011 | Mark Trifiro<br>Jewish General Hospital (Montreal) | Pilot Grants | Novel targeted abiotic therapeutics and imaging agents for prostate cancer | CAD $149,960 |
| 2011 | Kishor Wasan<br>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<br>University Health Network, Toronto | Pilot Grants | Porphysome-enabled focal laser ablation of prostate cancer | CAD $150,000 |
| 2011 | Amina Zoubeidi<br>Vancouver Prostate Centre | Pilot Grants | Persistent androgen receptor activation after maximum androgen blockade | CAD $150,000 |
| 2011 | Shabbir Alibhai, Toronto General<br>Research Institute,<br>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<br>McMaster University | Discovery Grants | The role of microvesicular-PTEN in prostate cancer: a diagnostic potential | CAD $194,000 |
| 2011 | Artem Cherkasov<br>Vancouver Prostate Centre,<br>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<br>Lady Davis Institute,<br>Jewish General Hospital, Montréal | Discovery Grants | Combination oncolytic virotherapy for the treatment of prostate cancer | CAD $200,000 |
| 2011 | Stanley Liu<br>Sunnybrook Health Sciences Centre,<br>Toronto | Discovery Grants | microRNA and prostate cancer radiation response | CAD $200,000 |
| 2011 | Salaheddin Mahmud<br>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<br>Princess Margaret Cancer Centre,<br>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<br>Princess Margaret Cancer Centre,<br>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<br>Princess Margaret Cancer Centre,<br>University Health Network, Toronto | Discovery Grants | 18F-FCH -PET/MR in high risk prostate cancer: a multiparametric approach | CAD $199,558 |
| 2011 | Linda Penn<br>Princess Margaret Cancer Centre,<br>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<br>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<br>McGill University | Discovery Grants | CCN3 as a prognostic and therapeutic target in prostate cancer | CAD $197,000 |
| 2011 | Hanadi Sleiman<br>McGill University | Discovery Grants | Conditional siRNA delivery to prostate cancer cells using DNA cages | CAD $199,160 |
| 2011 | Michel L. Tremblay<br>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<br>Lady Davis Institute,<br>Jewish General Hospital, Montréal | Discovery Grants | Androgen receptor-mediated translational regulation in prostate cancer | CAD $192,283 |
| 2011 | Eva Turley<br>Western University | Discovery Grants | The role of RHAMM/HMMR in prostate cancer progression | CAD $187,376 |
| 2011 | Nawaid Usmani<br>University of Alberta | Discovery Grants | A validated model to predict the risk of radiation toxicity after prostate radiotherapy | CAD $193,665 |
| 2011 | Geoffrey Wood<br>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<br>Lady Davis Institute,<br>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<br>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<br>University of Alberta | Discovery Grants | Ultrasound-stimulated release of exosomes as biomarkers | CAD $192,000 |
| 2010 | Stanley Liu<br>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<br>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<br>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<br>Ottawa Hospital Research Institute | Pilot Grants | Regulation of prostate Cancer Metastasis and Response to therapy by Beta1 Integrins | CAD $149,887 |
| 2010 | Bharati Bapat<br>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<br>York University | Pilot Grants | Deciphering the roles of the histone variant H2A.Z and Brd2 in prostate cancer | CAD $92,040 |
| 2010 | Urban Emmenegger<br>Sunnybrook Research Institute | Pilot Grants | Overcoming resistance to systemic prostate cancer therapy by autophagy modulation | CAD $92,040 |
| 2010 | Gerardo Ferbeyre<br>Université de Montréal | Pilot Grants | Cellular mechanisms of metformin action | CAD $92,040 |
| 2010 | Bertrand Jean-Claude<br>McGill University | Pilot Grants | A novel c-Met-based multitargeted approach for the treatment of advanced prostate cancer | CAD $92,040 |
| 2010 | Patrick Lee<br>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<br>University of Alberta | Pilot Grants | Non-invasive imaging of prostate cancer using EGFL7-targeted nanoparticles | CAD $92,040 |
| 2010 | Sylvain Meloche<br>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<br>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<br>Lady Davis Institute for Medical Research | Pilot Grants | AR-mediate alternative RNA splicing- Impact on Prostate Cancer Progression | CAD $92,040 |
| 2010 | Jehonathan Pinthus<br>Juravinski Cancer Centre | Pilot Grants | Augmenting the Innate Adiponectin Tumour-suppressive Axis in Prostate Cancer | CAD $92,040 |
| 2010 | Michael Pollak<br>McGill University | Pilot Grants | Influence of insulin on androgen production | CAD $88,205 |
| 2010 | Harvey Quon<br>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<br>British Columbia Cancer Agency | Pilot Grants | A Potential Prostate Cancer Metastasis-Associated miRNA | CAD $92,040 |
| 2010 | Vincent Fradet<br>Université Laval | Pilot Grants | Development of inflammation and metabolic biomarkers of prostate microenvironment | CAD $91,791 |
| 2010 | James Gleason<br>McGill University | Pilot Grants | Hybrid antiandrogen / histone deacetylase inhibitors for prostate cancer treatment | CAD $92,040 |
| 2010 | Fraser Hof<br>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<br>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<br>The Prostate Cancer Centre,<br>Southern Alberta Institute of Urology,<br>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<br>Sunnybrook Research Institute | Clinician Scientists | Metronomic chemotherapy in castration-resistant prostate cancer: overcoming treatment resistance | CAD $240,000 |
| 2009 | Frederic Pouliot<br>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<br>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<br>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<br>McGill University | Pilot Grants | Androgen Deprivation Therapy and the Risk of Stroke in Patients with Prostate Cancer | CAD $65,705 |
| 2009 | Tarek Bismar<br>University of Calgary | Pilot Grants | miRNA Predictors of Lethal Hormone Refractory Prostate Cancer | CAD $92,760 |
| 2009 | Simone Chevalier<br>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<br>McGill University | Pilot Grants | The role of CD9 in establishing prostate cancer bone metastasis | CAD $92,760 |
| 2009 | Yves Fradet<br>Centre Hospitalier Universitaire de Québec | Pilot Grants | Characterization of MAGE-A11 for immunotherapy of prostate cancer | CAD $60,000 |
| 2009 | Cheryl Helgason<br>British Columbia Cancer Agency | Pilot Grants | Mechanisms of Immune Privilege Used by Prostate Cancer Stem Cells | CAD $92,760 |
| 2009 | Jacques Lapointe<br>McGill University | Pilot Grants | Role of PDK1 in prostate cancer progression | CAD $92,760 |
| 2009 | Eric Levesque<br>Centre Hospitalier Universitaire de Québec | Pilot Grants | Inherited genetic variations and prostate cancer recurrence after prostatectomy | CAD $92,760 |
| 2009 | Ivan Robert Nabi<br>University of British Columbia | Pilot Grants | Identification of Caveolin-1 Associated Regulatory Proteins in Prostate Cancer | CAD $92,760 |
| 2009 | Damu Tang<br>McMaster University | Pilot Grants | ABCC2 confers chemoresistance to docetaxel in hormone refractory prostate cancer | CAD $92,760 |
| 2009 | Frank van Veggel<br>University of Victoria | Pilot Grants | Early detection of prostate cancer with antibody-nanoparticle conjugates by MRI | CAD $92,760 |
| 2009 | Vasundara Venkateswaran<br>Sunnybrook Research Institute | Pilot Grants | Utilizing metformin to enhance the efficacy of androgen deprivation therapy in prostate cancer | CAD $92,734 |
| 2009 | George Yousef<br>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<br>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<br>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<br>Princess Margaret Hospital, Toronto | Clinician Scientist | Exploring autophagy in prostatic carcinogenesis | CAD $240,000 |
| 2008 | Moulay Alaoui-Jamali<br>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<br>McGill University | Pilot Grants | Role of Gata3 in prostate cancer | CAD $48,000 |
| 2008 | William Chu<br>Sunnybrook Research Institute, Toronto | Pilot Grants | Functional Imaging of the Prostate Cancer Metabolome with Hyperpolarized Carbon-13 MRSI | CAD $47,616 |
| 2008 | Gregory Czarnota<br>Sunnybrook Research Institute, Toronto | Pilot Grants | Novel Ultrasound Antivascular Prostate Cancer Therapy | CAD $40,000 |
| 2008 | Yves Fradet<br>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<br>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<br>Ontario Cancer Institute, Toronto | Pilot Grants | Proteomic profiling of prostatic secretions: Biomarker discovery and validation | CAD $48,000 |
| 2008 | Andis Klegeris<br>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<br>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<br>McGill University | Pilot Grants | PTEN loss and energy metabolism in prostate cancer | CAD $48,000 |
| 2008 | Paul Rennie<br>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<br>British Columbia Cancer Agency | Pilot Grants | Proteomic investigation of a novel drug candidate for prostate cancer | CAD $48,000 |
| 2008 | D. Robert Siemens<br>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<br>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<br>University Health Network, Toronto | Pilot Grants | Stromal Factors Promoting Prostate Cancer Progression | CAD $48,000 |
| 2008 | Damu Tang<br>McMaster University | Pilot Grants | Investigation of a novel metastatic factor in prostate cancer stem cells | CAD $48,000 |
| 2008 | Theos Tsakiridis<br>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<br>Arul Chinnaiyan, MD, PhD<br>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<br>Fred Hutchinson Cancer Research Center<br>Phillip Kantoff, MD<br>Dana Farber Cancer Institute<br>Bruce Montgomery, PhD<br>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<br>Charles Drake, MD, PhD<br>Kenneth Pienta, MD<br>Martin Pomper, MD, PhD<br>Theodore DeWeese, MD<br>Mario Eisenberger, MD<br>Johns Hopkins University School of Medicine<br>Adam Dicker, MD, PhD<br>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<br>Manish Kohli, MD<br>Mayo Clinic<br>Scott Dehm, PhD<br>University of Minnesota<br>Martin Gleave, MD<br>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<br>Weill Cornell Medical College<br>Scott Tomlins, MD, PhD<br>University of Michigan<br>Ronglai Shen, PhD<br>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<br>Thomas Jefferson University<br>Lawrence Fong, MD<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>University of California, San Francisco<br>Owen Witte, MD<br>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<br>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<br>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<br>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<br>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<br>Beth Israel Deaconess Medical Center<br>Phillip Kantoff, MD<br>Dana Farber Cancer Institute<br>Peter Nelson, MD<br>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<br>Kenneth Pienta, MD<br>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<br>Levi Garraway, MD, PhD<br>William Hahn, MD, PhD<br>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<br>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<br>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<br>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<br>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<br>University of Glasgow | Project Grants and Pilot Awards | Investigating the role of PDE47 interactome | GBP £49,977 |
| 2013 | Dr Victoria James<br>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<br>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<br>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<br>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<br>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<br>University of Bath | Project Grants and Pilot Awards | AMACR targeted drugs for treating advanced prostate cancer | GBP £278,037 |
| 2013 | Dr Hayley Whitaker<br>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<br>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<br>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<br>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<br>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<br>Royal Marsden University | Training Awards | Assessment of delivered dose to improve dosimetric constraints for prostate cancer radiotherapy | GBP £198,916 |
| 2013 | Dr Jason Webber<br>Cardiff University | Training Awards | Exosomal heparan sulphate proteoglycans drive disease progression in patients with prostate cancer. | GBP £679,601 |
| 2013 | Dr Joaquin Mateo Valderrama<br>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<br>University of Dundee<br>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<br>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<br>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<br>Institute of Cancer Research | Project Grants and Pilot Awards | Identification of aggressive prostate cancer driver genes | GBP £220,818 |
| 2012 | Dr Rich Williams<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>Imperial College London | Project Grants and Pilot Awards | Targeting microRNA regulation of metabolism in prostate cancer | GBP £49,995 |
| 2012 | Dr Anna Gavin<br>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<br>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<br>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<br>University of East Anglia | Training & Fellowships | Novel Targeted Nanomedicine for Metastatic Prostate Cancer | GBP £749,218 |
| 2012 | Dr Kelly Coffey<br>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<br>University of York | Training & Fellowships | Phospholipase D as a target for drug design in advanced prostate cancer | GBP £65,000 |
| 2012 | Dr Andrew Chantry<br>University of East Anglia | Training & Fellowships | Targeting WW domain function in ubiquitin ligases overexpressed in prostate cancer | GBP £89,334 |
| 2012 | Professor Michael Threadgill<br>University of Bath | Training & Fellowships | Refinement of a polymeric system delivering super-potent cytotoxins to prostate tumours | GBP £99,730 |
| 2012 | Dr Claire Edwards<br>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<br>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<br>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<br>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<br>Blizard Institute | Project Grants and Pilot Awards | Targeting ABC transporter autocrine loop in prostate cancer (PG12-23) | GBP £178,587 |
| 2011 | Prof Rob Mairs<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>University of York | Project Grants and Pilot Awards | Targeting the tumour-initiating population in prostate cancer | GBP £187,426 |
| 2011 | Prof Gary Cook<br>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<br>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<br>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<br>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<br>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,<br>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<br>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<br>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<br>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<br>University of Bradford | Training and Fellowships | Aldehyde dehydrogenases in prostate cancer (S12-027) | GBP £99,325 |
| 2011 | Dr Claire Wells<br>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<br>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<br>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<br>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<br>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<br>Beatson Institute, University of Glasgow | Research | Synergistic interaction between Sprouty2 loss and PI3K/AKT activation in prostate carcinogenesis | |
| 2010 | Dr Joanne Edwards<br>University of Glasgow | Research | The role of IKKa and IKKb in prostate cancer progression | |
| 2010 | Dr Chris Parker<br>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<br>University College London (UCL) | Research | Improving Prostate Cancer Diagnosis and Monitoring using 3D Ultrasound-Guided Biopsy | |
| 2010 | Dr Helen Sheldrake<br>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<br>University of Cambridge | Research | The role of autophagy in the initiation, progression and recurrence of prostate cancer | |
| 2010 | Dr Matthew David Lloyd<br>University of Bath | Research | Targeting AMACR to treat castrate-resistant prostate cancer | |
| 2010 | Prof Kevin Prise<br>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<br>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<br>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<br>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<br>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<br>Weatherall Institute<br>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<br>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<br>University of Ulster | Research | A novel chemoprotective role for vitamin D in prostate cancer | |
| 2009 | Prof Freddie Hamdy<br>University of Oxford | Research | Exploiting defects in DNA repair for treatment of prostate cancer | |
| 2009 | Dr Roberto Alonzi<br>University College London, UCL | Research | A Phase Ib/II trial of Prostate Radiotherapy in Conjunction with Carbogen and Nicotinamide (PROCON) | |
| 2009 | Dr Anna Gavin<br>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<br>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<br>University of Southampton | Research | Trial of devices for intractable urinary incontinence following prostate cancer surgery | |
| 2008 | Prof Johann de Bono<br>Institute of Cancer Research | Research | Identifying mechanisms of resistance to specific CYP17 inhibition with abiraterone acetate | |
| 2008 | Prof David Neal<br>University of Cambridge | Research | Novel proteomic approach combined with an RNAi screen to identify AR co-factors | |
| 2008 | Dr Dmitry Pshezhetskiy<br>Imperial College London | Research | Sphingosine kinase-1 signalling during prostate cancer cell motility, invasion and metastasis | |
| 2008 | Prof Stephanie McKeown<br>University of Ulster | Research | Understanding prostate tumour response to bicalutamide can lead to improved treatment regimens | |
| 2007 | Prof Norman Maitland<br>University of York | Research | DNA damage response in prostate cancer stem cells | Total funds for year: GBP £400,000 |
| 2007 | Prof Colin Cooper<br>Institute of Cancer Research | Research | A mechanism-based system of classification for human prostate cancer | |
| 2007 | Dr Axel Thomson<br>University of Edinburgh | Research | Analysis of stromal signaling pathways in human prostate cancer initiation and progression | |
| 2007 | Prof Fouad Habib<br>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<br>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<br>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<br>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<br>Assoc Prof Theresa Wicklin Gillespie | Emory University School of Medicine<br>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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