Cancer Council
Western Australia

Research Program
2017

Together we can BEAT cancer

Front cover image: Associate Professor Fiona Pixley with her PHD Student Amy Dwyer

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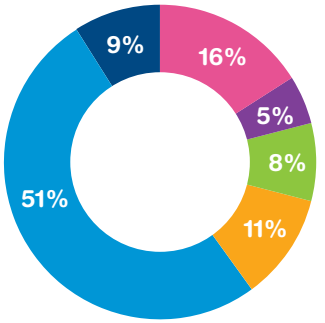
OUR RESEARCH FUNDING PROGRAM

2017 Research highlights

Cancer Council WA funds peer-reviewed world-class research that reduces the incidence and impact of cancer.

Types of research we funded

- Understanding how cancer works
- Causes of cancer
- Prevention
- Detection, diagnosis and prognosis
- Treatment
- Patient care and survivorship



Top five institutes we funded

Our competitive structure enables us to direct funding to the most promising research conducted across a range of institutes and universities.

- The University of Western Australia $1,772,229
- Harry Perkins Institute of Medical Research $397,500
- Telethon Kids Institute $207,176
- Curtin University $635,972
- Edith Cowan University $297,821

What we funded

55 Researchers

44 Projects

Total funded

$4m

We allocated $4 million in funding to support research this year*

*2016/17 financial year

Cancer Council WA's vision

To achieve a cancer-free future for our community.

Discovering new ways to beat cancer

Cancer research allows us to find ways to treat cancer more effectively, understand how cancer develops, diagnose cancer earlier, and improve the quality of life for people living with cancer.

Research also helps identify better ways to prevent cancer, allowing us to guide public policy and empower the community to reduce their cancer risk.

In the past 20 years, amazing progress has been made. Cancer mortality data has been collected in Australia since 1968 and it shows that over the past 20 years there has been a clear downward trend in deaths due to cancer. Cancer research is driving this, the outcomes from which are improved treatments and quality of care, early detection and prevention.

Translating results into patient outcomes

We are committed to ensuring that research outcomes can be translated into practice, and help create real improvements in prevention, diagnosis, treatment and quality of life for people living with cancer.

Ensuring your donation goes to the best research

Funding allocated to the research program for the 2016-2017 financial year is just over $4 million. Thanks to our supporters, we remain the largest charitable funder of cancer research in Western Australia.

In order to make further progress, we need to continue to invest in growing our research funding. We need to ensure that the best and brightest researchers in WA are able to make cancer research their career. Our competitive research program supports researchers at each step of their career, aiming to retain world-class cancer researchers here in WA.

HOW WE FUND RESEARCH

How we fund research

As the largest charitable funder of cancer research in Western Australia, we fund peer-reviewed world-class research that reduces the incidence and impact of cancer. Our funding is highly sought after, offering a range of opportunities to students, and junior through to senior researchers. All grant applications go through a competitive process to ensure we only fund the highest quality research.

So how does this funding program work?

The process below ensures good governance and the most effective use of community donations.

1. Cancer Council WA invites researchers to submit their research proposals.
2. In the case of project grants, proposals undergo an initial assessment for scientific merit by a panel of scientists convened by the National Health and Medical Research Council.
3. Cancer Council WA forwards the proposal to our appropriate Research Grants Advisory Committee/ Subcommittee for independent assessment against set criteria. Our committees consist of internationally and nationally recognised WA cancer researchers alongside community representatives.
4. The scores of individual committee members are combined to give a ranking of applications. Committee members are excluded from scoring and decision making for proposals where they have a potential conflict of interest.
5. Where necessary, committee members will meet to discuss their individual scores and agree on the final ranking. For some grants, shortlisted applicants are invited to an interview.
6. The Research Grants Advisory Committee submit their recommendations based on the ranking (and interview, where applicable) to our Board. Once approved by our Board funding is offered to the researcher.

Our Research Grants Advisory Committee/Subcommittees and their members

Our Research Grants Advisory Committees' role is to assess and award funds on the basis of scientific quality and responses to carefully developed and very specific community criteria.

It includes 14 internationally and nationally recognised cancer researchers, as well as 11 community representatives who have personal experience of cancer. The Research Grants Advisory Committee has two subcommittees – the Postdoctoral and Predoctoral Subcommittees. Our committee members generously volunteer their time, knowledge and expertise.

Committee members:

Scientific members
Prof Lin Fritschi (Chair)
Prof Daniel Galvão
Prof Ruth Ganss
Prof Barry Iacopetta
A/Prof Evan Ingley
Prof David Preen
Dr Andy Redfern

Community representatives
Dan Byles
Susan Hayes
Kilian Woulfe
Kristen Huey

Postdoctoral Subcommittee members:

Scientific members
A/Prof Evan Ingley (Chair)
Prof Martin Ebert
Prof Ruth Ganss
A/Prof Georgia Halkett
A/Prof Alison Reid

Community representatives
Wen-Jun Lee
Vanessa Samuels
Barbara Daniels

Predoctoral Subcommittee members:

Scientific members
Prof Daniel Galvão (Chair)
Dr Keith Giles
Dr Juliana Hamzah
Dr Kathy Fuller
A/Prof Geoffrey Jalleh
Prof Anna Nowak

Community representatives
Diana Andrew
Julie Duxbury
Cale Johnson
Ines Janca

THE RESEARCH WE FUND

Our research funding provides support for specific cancer research projects or cancer researchers in the fields of laboratory, clinical, epidemiological, psycho-social and/or behavioural science.

Cancer Council Western Australia Student Vacation Research Scholarships

These scholarships offer talented university students a taste of what cancer research can offer. They offer students a small stipend to conduct a specific research project over a period of 4-10 weeks.

Cancer Council Western Australia Honours Scholarships

We offer these one year scholarships to support the work of promising young honours students to encourage them to consider a career in cancer research.

Cancer Council Western Australia PhD Top Up Scholarships

These three year PhD Top Up Scholarships are awarded to applicants who have an outstanding academic record and the potential to pursue full-time PhD studies in cancer-related research.

Cancer Council Western Australia Suzanne Cavanagh Early Career Investigator Grants

Early Career Investigator Grants are designed to help talented early career cancer researchers to develop the skills and necessary track record to advance their career. These one-year awards give many researchers their first step in their career as an independent cancer researcher.

Cancer Council Western Australia Collaborative Cancer Grant Scheme

The purpose of the Collaborative Cancer Grant Scheme is to support early-to mid-career cancer researchers in WA and in particular to encourage collaboration among early-to mid-career cancer researchers. The scheme aims to improve research quality and increase the competitiveness of WA early to mid-career cancer researchers by helping researchers obtain preliminary data and build collaborative networks.

This scheme is supported by Cancer Council WA, Government of Western Australia, Curtin University, Edith Cowan University, Harry Perkins Institute of Medical Research, Telethon Kids Institute, The University of Western Australia.

Cancer Council Western Australia Postdoctoral Research Fellowships

Postdoctoral Research Fellowships give support for cancer researchers in the early stages of their career, providing improved career stability and encouraging the best and brightest young researchers to continue in the discipline of cancer research. These fellowships provide funding over a period of three years.

Cancer Council Western Australia Research Project Grants

Our Research Project Grants aim to provide 1-2 years of support to help local, world-class cancer researchers further their research. Grants are initially short-listed through the national expert review process of the National Health and Medical Research Council (NHMRC), and are then further assessed by the Cancer Council WA Research Grants Advisory Committee.

Grant applications are assessed on the basis of quality, practicality, value for money and contribution to the advancement of cancer knowledge.

Strategic Research Partnership Grant

This grant is intended to facilitate national collaboration of key health stakeholders with research teams to address high priority research questions with the potential to have a tangible impact on cancer control.

Cancer Council Western Australia Research Fellowships

Our Research Fellowships fund outstanding biomedical and health researchers working in the field of cancer so they can undertake research of major importance. They provide salary support for up to five years with the aim of advancing the quality and impact of cancer research in WA and promoting collaboration and partnerships, locally, nationally and internationally.

Targeted Specific Funding

A combination of long and short-term research projects of specific strategic importance.

Project title	Understanding megakaryocyte genetic abnormalities in patients with myeloproliferative neoplasms (MPN) and association with bone marrow scarring
Recipient	Mr Derrick Chan
Institution	The University of Western Australia
Research description	Myeloproliferative neoplasms (MPN) are bone marrow disorders that result in overproduction of blood cells leading to bleeding complications, increased risk of bone marrow scarring (fibrosis) and acute myeloid leukaemia. Fibrosis is incurable in more than 80% of patients, and significantly reduces the quality of life and life expectancy (2-6 years). There is currently no way to predict if or when a patient will develop fibrosis, yet early detection is critical for proper management and treatment. The aim of the research is to determine if MK (megakaryocytes) in MPN patients have copy number variation which are duplications and deletions of DNA segments. Standard diagnostic tests called G-banding and flow cytometry will be used. G-banding is a technique used to visualise and produce visible DNA while flow cytometry is a technique used to analyse and detect particular characteristics of cells as they pass through a laser. These will be compared with low pass whole genome sequencing which is a DNA analysis technique used to detect genomic variations where large regions of DNA can be duplicated or deleted. As Fibrosis is such a significant burden, this project provides the possibility of testing to identify disease progression early, enabling effective intervention and innovative treatment options.
Funding from CCWA	$3,000
Supported	In the name of Edward & Patricia Usher Cancer Research Assistance Fund

Project title	Establishing a definitive role for a key cancer regulator in neuroblastoma
Recipient	Mr Jack Cooper
Institution	The University of Western Australia
Research description	Neuroblastoma is a cancer arising primarily from the adrenal glands, and is the leading cause of cancer death in children under five. Most cancers must currently be treated with toxic drugs which are often debilitating for children and have long-term side effects. The search for more targeted interventions requires a better understanding of the molecular mechanisms that drive neuroblastoma. One such regulatory molecule is NONO (Non-POU domain-containing octamer-binding protein). NONO is known to regulate growth genes, and is thought to play a role in enhancing the genes responsible for the development of cancer. This research aims to characterise exactly how NONO affects important cancer genes. The team's long-term goal is to develop a treatment for neuroblastoma which targets the specific agents which mediate progression of the cancer.
Funding from CCWA	$3,000

Project title	Investigating the impact of the lack of skeletal muscle mass on people with malignant pleural mesothelioma
Recipient	Ms Melissa Hawksley
Institution	Edith Cowan University
Research description	Malignant pleural mesothelioma (MPM) is an incurable cancer and people diagnosed with the disease survive, on average, only 9-12 months. The lack of skeletal muscle mass, also known as sarcopenia, has become an important topic in cancer research with some studies reporting sarcopenic cancer patients have poorer overall survival. Cancer patients with sarcopenia also appear to be at a higher risk of toxicity when receiving chemotherapy. The aims of this research are to show if MPM patients with sarcopenia have poorer overall survival, and if they are more likely to experience treatment toxicity, when compared to patients with adequate skeletal muscle mass. This research will be the first of its kind in MPM and will generate the necessary data to support future research into ways to address sarcopenia.
Funding from CCWA	$3,000
Supported	In the name of Leah Jane Cohen

Project title	The role of platelets in metastasis of solid tumours
Recipient	Miss Reanne Ho
Institution	The University of Western Australia
Research description	Prostate and breast cancer remain two of the most prevalent cancers in Australia, both cancers are highly aggressive and likely to undergo metastasis. When this occurs, the cancer is at an advanced stage and becomes much harder to treat. In this project the focus is on the how interactions of cancers cells with platelets in the bloodstream affect the development of breast and prostate cancer cells from primary tumours into metastatic tumours. This project will contribute to the growing knowledge of anti-metastatic research as it will provide new targets for potential therapy in preventing the development of primary tumours to metastatic ones.
Funding from CCWA	$3,000
Fully supported	In the name of Momentum for Australia Ltd

Project title	Discovery of novel genes driving breast cancer cells resistance to anti-hormonal therapy
Recipient	Miss Audrey Kim
Institution	Harry Perkins Institute of Medical Research
Research description	Breast cancer is one of the most prevalent cancers in Australian women and the third most commonly diagnosed cancer in Australia. Particular breast cancers that have hormone receptors are usually treated with anti-hormonal therapy. IntClust2, a novel subtype of these cancers, has been found to resist treatment and has a high risk of recurring and spreading to other parts of the body. Preliminary data has shown the gene C11orf67 to be greatly expressed in IntClust2 subtypes and that this gene possibly controls cell survival and energy reprogramming via another protein involved in energy production, RABGAP1L. This research aims to map the interaction between C11orf67 and RABGAP1L to enable researchers to understand the resistant mechanism behind this subtype of breast cancer. This will guide the design of novel drugs to block this interaction or use existing anti-energy production drugs to block downstream cell communication and energy production.
Funding from CCWA	$3,000
Fully supported	In the name of Momentum for Australia Ltd

Project title	Diagnostic applications of 3D printing in the assistance of pre-surgical planning of brain tumours in children
Recipient	Mr Ivan Lau
Institution	Curtin University
Research description	In Australia, brain cancer is the second most common type of cancer among children. It also has the lowest survival rate. Among the different types of brain tumour, glioma is the most common in children. One of the main treatments is surgery. This project aims to explore how 3D printed models will aid in pre-surgical planning of brain tumour in children. To do this data sets from either of two types of imaging procedures, computed tomography (CT) and magnetic resonance imaging (MRI), will be collected from individuals diagnosed with glioma. This data will then be processed for 3D printing. It is anticipated that an accurate 3D representation of the brain tumour will help the surgeon to visualise the tumour better and result in more effective surgical planning with better treatment outcomes.
Funding from CCWA	$3,000
Supported	In the names of the Curtin University Community & Mitsui Iron Ore Development Pty Ltd

Project title	Targeting metabolism in mesothelioma: aiming for the Achilles' heel
Recipient	Mr Joshua Murphy
Institution	The University of Western Australia
Research description	Mesothelioma is a fatal, invasive cancer of the lungs, caused by asbestos. Western Australia has one of the highest rates of this cancer in the world, because of the mining and transport industries and high use of asbestos here. The research team has recently identified two proteins that regulate mesothelioma metabolism and thereby drive this cancer's growth. This project aims to determine the structure of these two proteins and their interactions with known inhibitors (molecules which stop the proteins from working). This can then provide the first crucial data that is necessary for the development of a new class of effective anti-cancer drugs that specifically target metabolism.
Funding from CCWA	$3,000
Supported	In the name of Carnarvon Lions Club Cancer Research Foundation

Project title	Can genome editing restore the expression of the PTEN tumour suppressor gene and reduce cell proliferation in triple-negative breast cancer?
Recipient	Ms Fiona Nugent
Institution	Harry Perkins Institute of Medical Research
Research description	Accounting for 15—25% of all breast cancers, triple-negative breast cancer (TNBC) is a challenging disease. Its treatment-resistant nature necessitates the use of aggressive combination therapies, illustrating the need to model and explore alternative treatment strategies. The PTEN tumour suppressor gene is one of a number of genes responsible for producing proteins that act to prevent cells from growing and dividing too rapidly, causing cancers. Genetic mutations in PTEN result in an abnormal PTEN protein which has lost its tumour-preventing ability, and represents a key step in the development of many cancers, including TNBC. The aim of this project is to evaluate the effectiveness of a new genetic engineering technique known as CRISPR (Clustered Regularly Interspaced Short Palindromic Repeats), which is used to modify the cancer genome and restore function to the PTEN tumour suppressor gene in TNBC cells.
Funding from CCWA	$3,000

Project title	Realistic three-dimensional (3D) printed models for pre-operative planning and assessment in hepatocellular carcinoma
Recipient	Ms Elizabeth Perica
Institution	Curtin University
Research description	Hepatocellular carcinoma (HCC) is a primary liver cancer that develops in the main liver cells. Surgery is considered one of the best options in the treatment of HCC. Recently, three-dimensional (3D) printing has shown great interest in medicine, and 3D printed models may be rendered as part of the pre-surgical planning. Research has shown the usefulness and clinical value of 3D printed models in cardiovascular disease and other areas, however research on the 3D printing process in HCC is limited. This research endeavours to address this by developing realistic 3D printed models of HCC with the aim of replicating complex anatomy of liver structures and the tumours in relation to the surrounding structures. Ultimately this should lead to more comprehensive surgical plans and better patient outcomes.
Funding from CCWA	$3,000

Project title	Finding new blood markers for monitoring oral cancers
Recipient	Mr Ryan Teh
Institution	The University of Western Australia
Research description	Oral cancer occurs in both smokers and non-smokers. Outcomes of the disease are poor with only a 50% cure rate. Current treatments also have severe side-effects, causing suffering to patients. This research investigates cancer "exosomes", parts of cancer that are shed into body fluids, shown to be elevated in aggressive and spreading cancers. These molecules could potentially serve as biomarkers, to monitor treatment outcomes through non-invasive routine blood tests. The insight gained through this research may help in developing an alternative to invasive biopsies and in the development of novel treatment options.
Funding from CCWA	$3,000
Fully supported	In the name of Knitters for a Cure Relay For Life team

Cancer Council Western Australia Honours Scholarships

Project title	Establishing a definitive role for a key cancer regulator in neuroblastoma
Recipient	Mr Jack Cooper
Institution	The University of Western Australia
Research description	Neuroblastoma is the most common infant cancer and is the leading cause of cancer death in children under five. Most tumours are currently treated using toxic drugs, with often debilitating, long-term side effects. The development of targeted treatment requires a better understanding of the functions of the complex regulatory molecules which, when disrupted, ultimately lead to cancer. One such regulatory molecule is NONO (Non-POU domain-containing octamer-binding protein). NONO is thought to play a role in enhancing genes responsible for the development of cancer. This research aims to further our understanding of how NONO functions to drive cancer growth. This research will characterise changes to cancer cell DNA, investigate the connections between genes affected by NONO, and observe the survival of cancer cells when NONO is removed. Ultimately the team hopes to develop a treatment for neuroblastoma which targets the unique function of NONO.
Funding from CCWA	$7,500

Project title	Targeting metabolism in mesothelioma - choosing an arrow
Recipient	Mr Joshua Murphy
Institution	The University of Western Australia
Research description	Mesothelioma is a fatal lung cancer caused by asbestos, a substance which was once prevalent in Western Australia's buildings. The team have found two proteins which are necessary for mesothelioma metabolism. It is hypothesised that a drug which can stop the action of these proteins will be an effective therapy for mesothelioma. The aim is to investigate chemical compounds which may serve as drugs or prototypes of drugs against these proteins. Firstly a method called crystallography will be used to view how chemical compounds attach to the proteins at the atomic level, providing essential data for the design and optimisation of the drug. Using this data and data from previous investigations, computer simulations of potential drugs will test multiple compounds quickly. Finally, some successful compounds shall be tested to see whether they bind to the proteins within a cellular environment.
Funding from CCWA	$7,500
Supported	In the name of Gilmac Pty Ltd

Project title	Identifying the role of novel mutations in the development of infant acute lymphoblastic leukaemia
Recipient	Miss Katherine Navarro
Institution	The University of Western Australia
Research description	Infant acute lymphoblastic leukaemia (iALL) is a fast growing cancer of the blood and bone marrow. The survival rate is only 40% in infants less than 3 months old at the time of diagnosis. Up to 80% of iALL patients have a genetic mutation that fuses one gene (known as MLL) to a different chromosome. The additional mutations that act alongside these "MLL rearrangements" to trigger leukaemia are unknown. The aim is to study a defect located within the gene, KRAS, which may contribute to iALL. The function of this KRAS mutation has not been characterised previously. The team will investigate if this mutation promotes leukaemia formation and/or influences response to conventional and novel therapies. This will advance our understanding of iALL and potentially lead to improved treatments in the future.
Funding from CCWA	$7,500

Project title	Investigating the cross-talk between genetic mutations and epigenetic silencing in genes that prevent cancer
Recipient	Ms Fiona Nugent
Institution	Harry Perkins Institute of Medical Research
Research description	Cancer can be driven by both genetic mutations that affect the DNA code directly, and errors that cause the wrong genes to be silenced. Gene silencing is caused by small “marks” on the DNA which tell the cell to pack it up tightly, preventing the genes in that area from being accessed and used. This control of DNA packing is known as “epigenetics”, and if it goes wrong, it can lead to the silencing of tumour suppressor genes – vital sentinels that protect our cells from becoming cancerous. Most genes have two copies stored in each cell of our bodies. This means that even if there is a genetic mutation in one copy of a tumour suppressor gene, the effect can be mitigated by the remaining working copy. However, when genetic mutations occur in one tumour suppressor copy, the other copy is often silenced later on. The tumour suppressor can then no longer protect the cell, which can cause healthy cells to become cancerous, or cause cancers to become more aggressive. This connection between genetic mutations and epigenetic silencing suggests that there is a “cross-talk” that tells cells to pack away and turn off the second gene copy when the first becomes mutated. The aim of this project is to test whether this cross-talk exists and if so, how it works.
Funding from CCWA	$7,500
Fully supported	In the name of the Estate of Les Matheson

Cancer Council Western Australia PhD Top Up Scholarships

Project title	Improving tumour detection using multimodality imaging
Recipient	Ms Meenu Chopra
Institution	Harry Perkins Institute of Medical Research
Project description	This research aims to enhance the capacity of imaging instruments, positron emission tomography (PET) and magnetic resonance imaging (MRI) and near-infrared imager in detecting breast and liver cancers in pre-clinical models. Cancer-targeted imaging nanoparticles will be developed to detect cancers non-invasively using: Combined PET/MRI imaging and Combined MRI/near-infrared imager.
Funding from CCWA	$12,000 ($36,000 total, $12,000 pa for 2016-2018)
Supported	In the name of the Estate of Les Matheson

Project title	Investigation of carcinomas of unknown primary
Recipient	Ms Britt Clynick
Institution	The University of Western Australia
Research description	Carcinoma of unknown primary (CUP) is a cancer that has spread from an unknown source. This project aims to determine whether cancer tissues removed from patients diagnosed with CUP show specific changes in their DNA and other molecules that suggest they may respond to various new treatments used for other cancers. It is expected that this research will benefit CUP patients by improving quality of life and survival through identifying their eligibility for numerous new treatments that are currently available for other cancers.
Funding from CCWA	$6,000 ($30,000 total, $12,000 pa for 2015-2016, $6,000 for 2017)
Supported	In the names of Mitsui Iron Ore Development Pty Ltd & the Joseph and Betty Pitschel Pain Relief Fund

Project title	Treating the most aggressive breast cancers using molecules from natural substances
Recipient	Ms Ciara Duffy
Institution	Harry Perkins Institute of Medical Research
Research description	Breast cancer remains a serious health threat for women, which occurs frequently with devastating outcomes. There are no drugs available which can specifically target the most difficult to treat breast cancers, such as triple-negative breast cancer. For people with this subtype, the only treatment options are chemotherapy, radiation and surgery, which can have lifelong side effects. Natural substances have been studied for a long time, and shown to work in killing cancer cells. The major molecules in these cancer selective natural compounds will be investigated. This research will involve treating breast cancer cells with these anti-cancer molecules and understanding how the cells die. The molecules will also be delivered using very small targeted particles. In this project, the aim is to develop a new targeted drug derived from natural molecules, which will selectively kill the most difficult to treat breast cancer cells.
Funding from CCWA	$6,000 ($12,000 total, $6,000 pa for 2017-2018)
Fully supported	In the name of Gilmac Pty Ltd

Project title	Designing new materials that deliver gene therapies to breast cancer
Recipient	Ms Jessica Kretzmann
Institution	The University of Western Australia
Research description	Breast cancer is the second most common cause of cancer deaths in women. Like most diseases, cancer is affected by our genetics. Women with abnormalities in particular regions of their genetic code are at increased risk of developing aggressive breast cancers, with limited treatment options available. Thus development of therapies that correct these abnormalities can have a huge, positive impact on the prevention and treatment of breast cancer. Unfortunately, there are no safe and efficient methods to deliver therapies that correct genetic abnormalities. This project aims to design, produce, and test highly effective and safe materials that can deliver genetic therapies to cancer cells. This will involve computer modelling and chemical synthesis to design and make the materials, followed by cell and animal-based experiments to test the new materials. Using this approach this project aims to develop crucial understanding in the targeted delivery of genetic therapies. These novel delivery agents can be used to edit faulty genes that lead to breast cancer.
Funding from CCWA	$6,000 ($12,000 total, $6,000 pa for 2017-2018)
Supported	In the name of the Ee Family

Project title	A holistic approach to improve breast cancer care
Recipient	Ms Olivia Ruhen
Institution	The University of Western Australia
Research description	This research will use the latest technology to screen patients' DNA for cancer-associated genetic changes (mutations) within each tumour. From this genetic information, it may be possible to determine which patients are at high risk of recurrence and potentially to identify new drug targets. Molecules within the patients' blood will also be comprehensively examined to determine whether these genetic changes can be detected by a simple blood test. If so, the data collected in this study could facilitate the development of a specific and sensitive blood test to more effectively monitor patients for disease recurrence, potentially improving patient survival.
Funding from CCWA	$12,000 ($36,000 total, $12,000 pa for 2015-2017)

Project title	Expression and function of stem cell genes in aggressive human brain tumours
Recipient	Ms Tracy Seymour
Institution	The University of Western Australia
Research description	Research has shown that two types of brain tumours, glioblastoma and gliosarcoma, contain a type of cell known as glioma stem cells. Glioma stem cells are thought to contribute to treatment resistance and tumour recurrence after optimal therapy. Certain genes, such as SOX2, OCT4 and NANOG show abnormal functioning in glioma stem cells when compared to normal stem cells, thus may serve as potential markers for glioma stem cells. The aim of this research is to examine the role of these stem cell genes in treatment resistance and tumour recurrence and also examine the potential ways to target them to eliminate glioma stem cells.
Funding from CCWA	$12,000 ($36,000 total, $12,000 pa for 2015-2017)
Fully supported	In the name of the Lions Cancer Institute Scholarship

Cancer Council Western Australia
Suzanne Cavanagh Early Career Investigator Grants

Project title	The smart surgical glove: a new tool to reduce the number of re-excision surgeries in breast cancer treatment
Lead researcher	Dr Lixin Chin
Institution	Harry Perkins Institute of Medical Research
Research description	It is reported that 20-30% of patients undergoing breast conserving surgery for treatment of breast cancer require a second surgery because small amounts of cancer were missed during the initial surgery. Existing techniques are unable to assess the boundary of the surgical cavity. The judgement as to whether a second surgery is required is based solely on analysis of the excised tissue, which is available only some time (often days) after the surgery. This team are researching the development of a small, flexible, surgical glove in order to enable surgeons to assess the tumour cavity during the initial surgery, with the ultimate goal of reducing the need for second surgeries.
Funding from CCWA	$35,000
Supported	In the names of Carnarvon Lions Club Cancer Research Foundation & the Estate of Daisy De Gennaro

Project title	Peptides from spider venom as new anti-cancer drugs
Lead researcher	Dr Evelyne Deplazes
Institution	Curtin University
Research description	Chemotherapy is used to treat many types of cancers. Unfortunately, chemotherapy often fails because cancer cells adapt and eventually no longer respond to the drug. This is known as chemotherapy resistance and affects the treatment of thousands of cancer patients every year. This study investigates a molecule called gomesin, which has been isolated from a Brazilian spider. Gomesin has been shown to kill cancer cells but little is known about how the peptide works. This research combines computer-based methods and experiments to investigate, in detail, the anti-cancer activity of gomesin. The results of this study will help the future development of new anti-cancer drugs that are less likely to cause chemotherapy resistance.
Funding from CCWA	$32,220
Fully supported	In the name of the Estate of Harold Marley

Project title	Digital technology to improve diagnosis of breast cancer
Lead researcher	Dr Benjamin Dessauvagie
Institution	Pathwest
Research description	Treatment of breast cancer is complex. The first step is usually surgery. Once removed the breast cancer is sent to a pathologist to confirm diagnosis and to provide additional information about the cancer. This additional information can give an idea of how aggressive a tumour is and whether aggressive therapy, which usually includes chemotherapy, is needed. However in up to 40% of cases, it remains difficult to know if a cancer is aggressive or not. This team have validated computer technology which can rapidly detect certain molecules (called biomarkers) on breast cancer pathology slides which provide additional information about cancer aggressiveness. The aim is to use this technology to assess the biomarkers in at least 1000 archived breast cancer specimens. This data will then be compared with how long it took for the breast cancer to come back, and how long the patient lived. This will determine the accuracy of this new cost effective technology in predicting an aggressive tumour and the potential need for chemotherapy.
Funding from CCWA	$34,957
Supported	In the names of Deeny O'Shaunessy & The Women of the Greek Community

Project title	Exploring new ways to stop lung or breast cancer from spreading
Lead researcher	Dr Bo He
Institution	Harry Perkins Institute of Medical Research
Research description	Cancer remains a deadly disease, in no small part because cancer spreads to distant organs (metastasis). This project will focus on prevention of spreading or – if it has already happened at time of surgery - how to attack and keep metastatic cancer under control. Tumour blood vessels are abnormally "leaky" and help cancer cells escape to other organs. The team have developed a new drug to tighten up these "leaky" vessels. This research uses preclinical models of lung and breast cancer to explore whether tightening of vessels can stop cancer spreading. Mice harbouring a cancer will be treated with this new drug and the changes studied. This research is also looking into what happens when cancer is cut out, similar to surgery in breast cancer patients. The aim is to find out whether this new drug together with a non-harmful dose of chemotherapy can keep small metastatic tumours that remain in the body after surgery under control. This is instead of using treatments like radiation or chemotherapy, which severely affects patients' wellbeing.
Funding from CCWA	$35,000
Supported	In the names of the Dorothy and Bill Irwin Charitable Trust & Yvonne Baker Foundation

Project title	Treating bowel cancer - does the immune system have a role to play?
Lead researcher	Dr Melanie McCoy
Institution	The University of Western Australia
Research description	Bowel cancer is the second most common cancer in Australia with over 15,000 people diagnosed every year. The immune system plays an important role in controlling cancer, but the way in which it affects how well patients with bowel cancer respond to treatment isn't well understood. Drugs that stimulate immune cells to attack cancer (immunotherapies) are now routinely used in melanoma and lung cancer, with impressive results in some patients. Many of these drugs target what are known as 'immune checkpoints'. These are found on immune cells and can dampen down immune responses, making the body less able to fight the cancer. The aim of this study is to determine whether immune checkpoints can influence how well patients with bowel cancer respond to chemotherapy and radiotherapy. We hope that the work will allow doctors to better predict who will respond well to standard treatment and who may benefit from drugs targeting the immune system.
Funding from CCWA	$34,729
Fully supported	In the name of the Estate of Margaret Shoesmith

Cancer Council Western Australia Collaborative Cancer Grant Scheme

Contributors and funding amounts for this inaugural round are:

Cancer Council Western Australia	$100,000
Government of Western Australia	$50,000
Curtin University	$25,000
Edith Cowan University	$25,000
Harry Perkins Institute of Medical Research	$25,000
Telethon Kids Institute	$25,000
The University of Western Australia	$25,000

The Assessment Panel

Researchers from each of the funding institutions were brought together to assess the applications. The panel members for this funding round were:

Prof Fiona Pixley (Chair)	Prof John Challis
Prof Mel Ziman	Prof David Preen
Prof Deirdre Coombe	Dr Jason Waithman
Prof Ruth Ganss	Dr Mark Cruickshank

Project title	A handheld micro-elastography probe: a new surgical tool to reduce the number of re-excision surgeries in breast cancer treatment
Lead researcher	Dr Lixin Chin
Institution	The University of Western Australia
Research description	It is reported that 20-30% of patients undergoing breast conserving surgery for treatment of breast cancer require a second surgery because small amounts of cancer were missed during the initial surgery. Existing techniques are unable to assess the boundary of the surgical cavity. The judgement as to whether a second surgery is required is based solely on analysis of the excised tissue, which is available only some time (often days) after the surgery. This team are researching the development of small, flexible, high resolution imaging probes in order to enable surgeons to assess the tumour cavity during the initial surgery, with the ultimate goal of reducing the need for second surgeries.
Funding from CCWA	$16,666 ($48,600 total funding from all contributors)

Project title	Understanding how cancer cells communicate with other cancer cells and with the immune system to improve cancer treatments
Lead researcher	Dr Elin Gray
Institution	Edith Cowan University
Research description	The cells in our bodies, including cancer cells, produce tiny vesicles called exosomes that are thought to serve as little garbage cans for the cells to dispose of unwanted components. However, it has become apparent that they constitute important messengers that mediate communication between cells, such as cancer cells and immune cells. This study will examine the role of these tiny vesicles in melanoma, a very aggressive skin cancer. The aim is to understand how these vesicles aid the spreading of drug resistance and affect the work of the immune system. In addition, the team will explore the utility of exosomes as a marker for therapy selection and monitoring patients. All of which would improve treatment outcome for melanoma patients.
Funding from CCWA	$16,666 ($43,230 total funding from all contributors)
Supported	In the name of Knitters for a Cure Relay For Life team

Project title	What aspects of cancer care are most important to patients and the general public?
Lead researcher	Dr Richard Norman
Institution	Curtin University
Research description	This research is exploring the value people place on different aspects of cancer care. This will help decision-makers to personalise care to reflect patient preferences. For instance, patients may prefer home treatment, and be willing to have less physician contact as a result. We are using a survey tool called a discrete choice experiment (DCE), which asks respondents to consider two care options, and select which they prefer. Through this, we can estimate the trade-offs between different aspects of care that the individual makes. We will run a DCE in samples with and without cancer, to show the impact of experience on the value someone places on aspects of care. This will provide evidence to help policy makers to implement patient centred care pathways that reflect what patients themselves believe to be important.
Funding from CCWA	$16,666 ($37,752 total funding from all contributors)

Project title	Targeting four-stranded DNA conformations to modulate gene expression in breast cancer
Lead researcher	Dr Nicole Smith
Institution	The University of Western Australia
Research description	Breast cancer is the secont most common cause of cancer death in women and the fourth most common cause of death from cancer in Australia. Not all patients respond well to treatments. This has created an urgent need to identify new drugs and ways of treating cancer. This research is focused on targeting an unusual DNA structure that is over-represented in cancer-related genes, where formation of this structure can control whether a gene is switched on or off. The team will engineer and utilize a precision-targeted technology that will better control formation of this unusual DNA structure in specific cancer-related genes with minimum off-target effects. The technology is intended to switch off the cancer gene, stop the growth and destroy the breast cancer cells that have already developed.
Funding from CCWA	$16,666 ($45,669 total funding from all contributors)

Project title	Asbestos Removalist's Health study
Lead researcher	Dr Nita Sodhi-Berry
Institution	The University of Western Australia
Research description	This project will develop strategic collaborations within WA and nationally to establish an Australia-wide cohort (group) of current and prior licensed asbestos removalists. This study is significant as this is the only group of people currently at risk of asbestos exposure through their occupation. Future studies on this group will help to improve our understanding of: modern-day low dose asbestos exposures and its health consequences; the factors influencing exposure levels during its removal; opportunities for interventions for reducing health risks; the adequacy of current regulatory practices; and may potentially identify a 'safe' level of asbestos exposure which would also be relevant for do-it-yourself home renovators and the community at large.
Funding from CCWA	$16,666 ($49,872 total funding from all contributors)
Supported	In the name of the Estate of Les Matheson

Project title	Identifying genetic causes of poor survival outcomes in patients with thin melanoma
Fellow	Dr Sarah Ward
Institution	The University of Western Australia
Research description	Melanoma is the fastest growing form of skin cancer and can spread quickly to other body sites, making it difficult to treat successfully. Melanoma survival is strongly related to the thickness of the tumour and most people with a thin melanoma (less than 1 mm) have a very good prognosis. However, in a small group of these patients, the cancer cells spread to other body sites and are lethal. This project will try to identify genetic changes that are associated with thin melanomas that spread. The team will examine genetic differences between patients with thin melanoma who do not have metastases, and those who either have metastases or have died from melanoma. The results will allow the researchers to identify which patients with thin melanoma are at higher risk of their melanoma spreading. These patients can then be followed more closely for any sign that the cancer has spread and given additional tests that thin melanoma patients would not normally receive as standard care, significantly enhancing survival.
Funding from CCWA	$16,666 ($49,877 total funding from all contributors)
Fully supported	In the name of the Estate of Les Matheson

Cancer Council Western Australia Postdoctoral Research Fellowships

Fellowship title	Prognostic significance of physical activity and sedentary behaviour in people with advanced non-small cell lung cancer
Fellow	Dr Vinicius Cavalheri de Oliveira
Institution	Curtin University
Project description	Due to symptoms of fatigue and shortness of breath, people with advanced non-small cell lung cancer (NSCLC) report adopting a sedentary lifestyle. In people with breast cancer, diabetes, heart or lung disease, time spent physically active during the day is linked with longer survival, whereas prolonged time spent sedentary during the day is linked with shorter survival. Studies in NSCLC patients have not yet investigated the link between time spent either physically active or sedentary and survival rates. So, the aim of this study is to investigate if levels of activity predict survival in people with advanced NSCLC, information that could then be used to develop new treatment protocols.
Funding from CCWA	$75,000 ($225,000 total, $75,000 pa for 2017-2019)
Fully supported	Through an anonymous estate

Fellowship title	To develop blood tests that can predict the risk of primary liver cancer
Fellow	Dr Yi Huang
Institution	The University of Western Australia
Research description	Early detection of primary liver cancer is critical for its successful management. It is important that doctors identify patients who have a higher risk of developing primary liver cancer. Patients in this high risk group then commence a screening ultrasound programme to detect early primary liver cancer. In a preliminary study, a simple blood test that can accurately predict this high risk group of chronic hepatitis C patients was developed. In this study, the aim is to validate this blood test in a larger population of chronic hepatitis C patients. A second aim is to develop blood tests to predict liver cancer development in other types of chronic liver disease.
Funding from CCWA	$52,500 ($150,000 total, $45,000 for 2016 $52,500 pa for 2017-2018)
Supported	In the name of the Estate of Dennis Owen

Fellowship title	Exercise as medicine in the management of mesothelioma
Fellow	Dr Carolyn McIntyre
Institution	Edith Cowan University
Research description	Patients with mesothelioma often suffer with muscle loss, tiredness, poor quality of life and are often unable to do daily tasks. Exercise has been shown to be very effective in improving the health of patients with lung and other types of cancer but until now there has been no study examining the role of exercise for improving the care of patients with mesothelioma. The aim of this research is to improve outcomes in patients with mesothelioma through the application of exercise to clinical care. The results of this work will be used to develop and implement clinical exercise programs to improve the care of patients with mesothelioma.
Funding from CCWA	$75,000 ($225,000 total, $75,000 pa for 2015-2017)
Supported	In the names of the West Coast Eagles Football Club & through an anonymous estate

Fellowship title	Improving fluid removal methods to optimise benefits in patients with cancer-related fluid collection in the chest
Fellow	Dr Rajesh Thomas
Institution	Institute of Respiratory Health
Research description	Cancer-related effusion (malignant pleural effusion, MPE) is an abnormal collection of fluid inside the chest, and affects 8000 Australians every year. It is frequently seen with lung cancer and mesothelioma, and usually indicates incurable cancer. Breathlessness is the most common symptom and can often be severe. Most patients require removal of cancer fluid to relieve symptoms. Indwelling pleural catheter (IPC) is a novel treatment that involves placement of a permanent catheter inside the chest, and permits easy fluid removal without hospital admission. Key questions remain about its role in MPE management. This research aims to compare standard treatments with IPC to: see if hospital care days are reduced; assess whether drainage improves breathlessness: and to identify key factors that will help predict which patients respond to fluid drainage with reduced breathlessness. The results from these studies will guide doctors in tailoring the best treatment for cancer effusion according to the patient.
Funding from CCWA	$16,875 ($69,375 total: $45,000 in 2016, $16,875 in 2017 and $7,500 in 2018)
Fully supported	In the name of William Barrett & Sons

Cancer Council Western Australia Research Project Grants

Project title	A novel strategy to kill triple negative breast cancers
Lead researcher	A/Prof Pilar Blancafort
Institution	Harry Perkins Institute of Medical Research
Research description	This project focuses on the development of novel treatments for triple negative breast cancers. Because these breast cancers don't have molecules normally present in other subtypes of breast cancers for which there are targeted drugs, they are currently not possible to treat. In addition, these tumours spread quickly from the breast to other sites of the body and at this stage the tumour cells are able to evade chemotherapy and become easily resistant to treatment. This proposal aims to develop new drugs designed to block these tumours preventing their growth, spread and resistance. State of the art technologies developed in Western Australia will allow for the delivery of these drugs directly into the tumours avoiding other sites of the body such as the liver or other organs. This research could be used in future clinical trials in Western Australia providing novel tailored cures for a group of breast cancers that are currently highly resistant to chemotherapy.
Funding from CCWA	$100,000
Supported	In the name of Annadora Horne & Thelma Norris Trust Fund

Project title	How can we best prevent future cancers in Australia?
Lead researcher	Dr Renee Carey
Institution	Curtin University
Research description	In this project the team will estimate how many cancers could be prevented by changing our exposure to 31 lifestyle and environmental factors known to cause cancer (such as smoking and obesity). The team will look at different approaches to changing the number of people who have these risk factors to see which might have the most impact on future cancers. For example, if smoking rates could be reduced from 15% to 5% of the population, how many fewer lung cancers would occur in the future? The team will compare different approaches using a measure which takes into account both improved quality of life, preventing new cancers developing, and people dying of cancers. By doing this the team can compare the effect on patients of different types of cancer which have different effects (e.g. lung cancer, melanoma, brain cancer). This study will help to determine how to best act to prevent future cancers.
Funding from CCWA	$95,000
Supported	In the name of Australia Post

Project title	Investigation of the role of a new gene regulator, Neat1 (Nuclear Paraspeckle Assembly Trasncript 1), in breast cancer metastasis
Lead researcher	Dr Archa Fox
Institution	Harry Perkins Institute of Medical Research
Research description	Breast cancer is the most common cancer to affect women, and is the second leading cause of cancer-related deaths in women. Metastasis, or the spread of cancer cells to distant sites, is the main cause of death for breast cancer patients. To develop new, more effective treatments we need to better understand how metastases form. This project will investigate a newly discovered cancer-causing molecule called Neat1 (Nuclear Paraspeckle Assembly Transcript 1) that have been found to be over-abundant in highly metastatic breast cancer cells. Overall, the aim of this research is to find how Neat1 works in breast cancer metastasis, to enable researchers to work towards developing new drugs that can either prevent Neat1 from working, or change its function. The design and development of targeted drugs to treat metastasis can take many years; this is a vital first step on this path.
Funding from CCWA	$99,917
Supported	In the names of Janifer Joy Mason & through an anonymous estate

Project title	Improving the cure rates of childhood brain cancer
Lead researcher	Clin/A/Prof Nicholas Gottardo
Institution	Telethon Kids Institute
Research description	Brain tumours cause the most deaths of children due to cancer. The team have found a new class of drugs, called CHK inhibitors (iCHKs) that block the ability of cancer cells to fix the DNA damage that is caused by chemotherapy. iCHKs have never been tested in children with cancer, but they have been used in adults and shown to be safe and effective so far. Prior to giving it to children, it needs to be demonstrated that it makes mice with brain cancer live longer without adverse side effects. To do this, childhood brain cancers will be mimicked in the lab by growing cancer cells from children in mouse brains. These mice will be given the iCHKs in combination with conventional chemotherapies used to treat childhood brain cancer, to determine if the new combination enables them to live longer. These results will show if iCHKs are good drugs for children with brain cancer and, if so, how they should be given to patients. With this information it will be possible to design new clinical trials and work towards the aim of achieving higher cure rates and better quality of life for patients.
Funding from CCWA	$97,176
Supported	In the name of Shutter Bugs Relay For Life Busselton

Project title	Blood based test to guide treatment of metastatic melanoma
Lead researcher	Dr Elin Gray
Institution	Edith Cowan University
Research description	The prognosis for metastatic melanoma has improved significantly with drugs that specifically target melanoma mutations (targeted therapy) or activate the immune system (immunotherapies). However patients on target therapies develop drug resistance, and immunotherapies are effective in a minority of cases. This project will show that blood based biomarkers are a valid tool for predicting whether the treatment is effective, allowing patients to be switched early to another therapy.
Funding from CCWA	$99,591 ($199,182 total: $99,591 in 2016 and $99,591 in 2017)
Supported	In the names of Burracoppin Daffodil Day Committee & Friends of Cancer Council WA

Project title	Hitting the off-switch to stop cancer cells spreading
Lead researcher	A/Prof Evan Ingley
Institution	Harry Perkins Institute of Medical Research
Research description	Death from cancer occurs mainly when it spreads to different parts of the body. We have identified the gene AFAP1L1 is involved in controlling the spreading of bone cancer (sarcoma), which is a cancer more common in young adults, with 1200 new cases a year in Australia. Patients with sarcoma that are found to be spreading have a bad diagnosis, with only 20% surviving more than 5 years. There is a need to find out how the gene AFAP1L1 can control cancer spread. The team will also be trying to find out how to turn off AFAP1L1 to prevent or stop cancer cells spreading. This will be done by taking cancer cells and switching off AFAP1L1 and seeing if they still spread using pre-clinical models of cancer. It is hoped this research will show that AFAP1L1 is very important in making sarcoma cells spread, and find ways to turn it off in order to start developing new drugs to stop cancer cells spreading and killing patients.
Funding from CCWA	$100,000
Fully supported	In the name of Jill Tilly

Project title	Micro-elastography: A new surgical tool to reduce the number of re-excision breast cancer surgeries
Lead researcher	Dr Brendan Kennedy
Institution	The University of Western Australia
Research description	In breast-conserving surgery, up to 1-in-3 patients require additional surgery because the tumour was missed during the initial surgery. A main reason for this is that existing tools to detect tumour intraoperatively are not good enough. The aim is to provide an engineering solution to this problem by developing a high resolution imaging system, micro-elastography, which can detect tumour based on microscopic changes in tissue stiffness. In this project, excised breast tissue, removed during breast-conserving surgery will be scanned using micro-elastography. By comparing the results against the gold standard of post-operative pathology, it will be possible to determine the accuracy of micro-elastography in assessing the presence of breast cancer at the boundaries of the excised mass. This information will enable the researchers to further develop micro-elastography into a tool that can be used by surgeons to assess the presence of any cancer missed during surgery, with the ultimate goal of reducing the need for second surgeries.
Funding from CCWA	$100,000
Supported	In the name of the Estate of Judith Smart

Project title	The effect of fibroblast growth factor 9 on the body's natural immune response to mesothelioma
Lead researcher	Dr Sally Lansley
Institution	Institute for Respiratory Health
Research description	Malignant mesothelioma kills one person every 12 hours in Australia. Australia has one of the world's highest rates of mesothelioma due to the past mining and exportation of crocidolite (the most carcinogenic type of asbestos). The team discovered that a factor produced by malignant mesothelioma tumours, fibroblast growth factor 9 (FGF9), reduces the body's natural anti-tumour response. Anti-FGF9 drugs reduce tumour size but when treatment ends the tumour returns. This project will examine how FGF9 affects the immune system to improve the effectiveness of anti-FGF9 treatment. This research could lead to the development of a new, more effective, treatment for people with mesothelioma.
Funding from CCWA	$81,581
Supported	In the name of N & M Nakashima

Project title	Preventing breast cancer from spreading by stopping immune cell movement
Lead researcher	Prof Fiona Pixley
Institution	The University of Western Australia
Research description	Death from cancer usually occurs when it spreads to other parts of the body. To spread, cancer cells must be able to move and an immune cell called the macrophage helps them to do this. Macrophages also dig paths for tumour cells to reach the bloodstream and hitch a ride to other organs. To attract macrophages, tumours make a protein called CSF-1, which stimulates macrophages to move through tissue. The purpose of this project is to identify drugs that can switch off the movement in macrophages. The team will then see if loss of macrophage movement can reduce invasion of breast cancer. This will first be tested in laboratory-based tests and then in mice. The chosen focus is on breast cancer because it is very common in women and has a grim outlook once it has spread to other organs. However, macrophages help a number of other cancers like prostate, lung, brain and stomach cancer to spread beyond their boundaries, potentially extending the findings from this research to develop better drug treatment for other cancers.
Funding from CCWA	$100,000
Supported	In the names of the Peter and Iris Cook Grant for Metastases Research & through an anonymous estate

Project title	The effect of therapy on the immune systems to recognize mutated proteins
Lead researcher	Prof Bruce Robinson
Institution	The University of Western Australia
Research description	Cancer is caused by mutations which should be ‘seen’ and destroyed by the patient’s immune cells, similar to how immune cells protect us against viruses. But they don’t. This grant will study how current cancer treatments help the immune cells ‘see’ these mutations and, crucially, if a vaccine consisting of mutated cancer proteins can stimulate anti-cancer killer cells. This group will undertake these studies in the important cancers, lung cancer and mesothelioma.
Funding from CCWA	$100,000
Fully supported	In the name of Jill Tilly

Strategic Research Partnership Grant

Project title	Strategic Research Partnership to improve cancer control for Indigenous Australians
Lead researcher	A/Prof Gail Garvey
Institution	Menzies School of Health Research
Research description	Indigenous Australians who get cancer are less likely to survive than other Australians. There is a need to make our health system work better to meet indigenous patients’ needs. To do this successfully, it is important to know more about what is happening now and how services could be improved. This program brings together leading researchers in partnership with service providers, policy-makers, consumer advocacy groups and indigenous groups to carry out high-priority research, share what is learnt, and identify more effective services.
Funding from CCWA	$100,000 ($500,000 total: $100,000 pa for 2013-2017)
Fully supported	In the name of the Estate of Daisy De Gennaro

Cancer Council Western Australia Research Fellowships

Fellowship title	Epigenetic tailoring of the cancer genome: novel targeted strategies for the treatment of aggressive breast cancer
Fellow	A/Prof Pilar Blancafort
Institution	Harry Perkins Institute of Medical Research
Research description	The research team will use laboratory techniques known as molecular engineering to make proteins that can identify and lock onto individual genes associated with the development and spread of basal-cell breast cancer. These proteins, or epi-modifiers, will act as switches that turn specific genes on or off so the basal cancer cells become more like normal healthy cells again. This team will test different combinations of these epi-modifiers to find those that work best to prevent basal-cell breast cancer growth and development. Once successful combinations have been identified, the team will then explore how these can be used in patients. They will begin by carrying out pre-clinical studies to investigate new ways to deliver the epi-modifiers to tumours.
Funding from CCWA	$20,000 ($80,000 total, $20,000 pa for 2014-2017)
Fully supported	Through an anonymous estate

Fellowship title	Improving health outcomes after cancer through exercise: a survivorship program
Fellow	Prof Daniel Galvão
Institution	Edith Cowan University
Research description	This research aims to investigate how exercise can be used in cancer management to improve patient outcomes. Cancer is a major contributor to the burden of disease in Australia. As the number of people diagnosed with cancer increases while at the same time survival rates improve, there is a rapidly growing population of cancer survivors with unique health care needs. Prof Galvão's previous research has shown that exercise is an effective therapy for people with cancer. This research will develop ready-to-implement population-based and translatable physical activity strategies aimed at improving patient outcomes. It also aims to generate new knowledge that will influence and shape best practice guidelines and health policy.
Funding from CCWA	80,000 ($320,000 total, $80,000 pa for 2014-2017)
Fully supported	In the name of the West Coast Eagles Football Club

Fellowship title	Improving the cure rates for the childhood brain cancer, medulloblastoma
Fellow	Clin/A/Prof Nicholas Gottardo
Institution	Telethon Kids Institute
Research description	Medulloblastoma (MB) is the most common malignant childhood brain cancer. Using a drug discovery and screening model the team will investigate a new class of drugs (CHK inhibitors) to determine which one is best at enhancing anti-MB chemotherapy. The results will be directly translated into new clinical trials for children with MB.
Funding from CCWA	$100,000 ($400,000 total, $100,000 pa for 2016-2019)
Supported	In the names of the Estate of Roy Billing & Swan Athletics Senior Citizens

Fellowship title	Improving psychosocial support and education for patients diagnosed with brain or head and neck cancer and their carers
Fellow	A/Prof Georgia Halkett
Institution	Curtin University
Research description	Patients diagnosed with cancer and their carers experience high levels of distress and unmet needs which impacts on their quality of life. Support programs need to be developed and tested to reduce patient and carer's distress and unmet needs. This program of research aims to improve support and education provided to people diagnosed with brain cancer or head and neck cancer and their carers. Two education and support interventions will be tested. The first focuses on preparing patients for radiotherapy by providing patients with additional education and support. The second intervention involves providing tailored nurse-led education and support over a 12 month period to reduce carer distress and improve their preparedness for caring.
Funding from CCWA	$115,000 ($460,000 total, $115,000 pa for 2017-2020)
Supported	In the name of the Estate of Les Matheson

Fellowship title	Identifyng new effective treatments for mesothelioma
Fellow	Dr Willem Lesterhuis
Institution	The University of Western Australia
Research description	Mesothelioma is a fatal cancer of the lining of the lung, caused by exposure to asbestos. Western Australia has the highest incidence of this cancer in the world, as a result of the mining and transport sectors and high use of asbestos here. Chemotherapy has some effect in a number of patients, but is always short-lived. The outcome for people with mesothelioma has not improved in more than a decade. This research project will test the proposition that chemotherapy, used in combination with immunotherapy (therapy that boost the immune system), will be a much more effective treatment for mesothelioma. The research will also aim to identify which classes of chemotherapy drugs to be used in the combination therapy are the most beneficial. Finally, the study will investigate the molecular and cellular processes within the body that occur when immunotherapy is given, to provide a greater understanding of this treatment. The overall aim is to increase the cure rates and life expectancies for mesothelioma patients.
Funding from CCWA	$20,000 ($80,000 total, $20,000 pa for 2017-2020)
Fully supported	In the name of the Estate of Les Matheson

Fellowship title	Small non-coding RNAs in malignant mesothelioma
Fellow	A/Prof Steven Mutsaers
Institution	Institute for Respiratory Health
Research description	This project explores the potential for microRNAs, small fragments of genetic material, as novel diagnostic, early disease and prognostic markers in malignant mesothelioma (MM). Currently, diagnosis of MM is difficult and may take up to 3 months which can impact on patient treatment. By investigating these molecules in clinical samples from patients, this project hopes to develop biomarkers for early diagnosis and identify those patients with better disease outcomes. It will also investigate the biological role of these molecules in MM to identify novel molecules as therapeutic targets to treat this disease.
Funding from CCWA	$80,000 ($320,000 total, $80,000 pa for 2013-2014 & 2017-2018)
Supported	In the name of Estate of Bridget Teal

Fellowship title	Correcting gene expression in pancreatic cancer
Fellow	A/Prof Oliver Rackham
Institution	Harry Perkins Institute of Medical Research
Research description	Normal genes responsible for cell growth, development, and differentiation can cause cancer when their activity or expression is increased, so called “oncogenes”. Other genes that normally act to stop the uncontrolled growth of cells - “tumour suppressor” genes - can also cause cancer if mutations or reduced gene expression lower their activity. Therefore, cancer is fundamentally a disease of defective genes and gene expression. This project will use cutting edge synthetic biology approaches to create new technologies to control gene expression, providing new ways to understand cancer targets and new protein-based therapies to modulate gene expression in cancers that resist current treatment regimes.
Funding from CCWA	$100,000 ($400,000 total, $100,000 pa for 2015-2018)
Supported	In the names of the Estate of Roy Billing & through an anonymous estate

Fellowship title	Clinical Research Fellowship in Cancer at Fiona Stanley Hospital
Fellow	Dr Andy Redfern
Institution	Fiona Stanley Hospital
Research description	This Fellowship in medical oncology is funded in collaboration with the Western Australian Government and The University of Western Australia. Its purpose is to improve the clinical care available to people diagnosed with cancer in Western Australia. Dr Redfern is involved in many clinical trials and other research projects. His research seeks to develop better treatments for cancer patients to improve their survival and quality of life.
Funding from CCWA	$50,000 ($500,000 total, $100,000 pa, July 2012 - June 2017)
Supported	In the name of the Estate of Shaun Carlson

Fellowship title	Improving breast cancer surgery with a tool that helps the surgeon remove all of the tumour in one go
Fellow	Dr Vincent Wallace
Institution	The University of Western Australia
Research description	Terahertz technology uses a special type of light that is invisible to the naked eye to create images of living tissues. The team have developed a hand held terahertz probe that can be used during surgery to tell the difference between the cancer and healthy tissue. This project will develop this tool further and test whether it is practical and economically feasible for it to be regularly used by surgeons who remove breast cancers.
Funding from CCWA	$100,000 ($400,000 total, $100,000 pa for 2015-2018) + $28,000 for research costs
Fully supported	In the name of The Youngberg Women’s Cancer Research Fellowship

Targeted Specific Funding

Chair in Clinical Cancer Research

Chair	Prof Michael Millward
Institution	The University of Western Australia
Research description	The Chair provides academic leadership in clinical cancer research in WA and aims to increase the participation of local cancer patients in clinical trials of new cancer treatments.
Funding from CCWA	$372,941
Fully supported	Through an anonymous estate

Cancer Council WA Epidemiology Network

Lead Investigator	Prof Lin Fritschi
Chief Investigators	A/Prof Alison Reid, Prof Liz Milne, Dr Jennifer Stone, Dr Terry Boyle, Dr Renee Carey
Collaborating Investigators	A/Prof Andrea Hinwood, Mrs Ann D'Orsogna, Prof Anna Nowak, Dr Brigid Lynch, Prof Bruce Maycock, A/Prof Cecilie Thøgersen-Ntoumani, Dr David Ransom, Prof David Whiteman, A/Prof Deborah Kerr, Dr Gavin Pereira, Dr Joanna Dewar, Dr Jonine Jancey, A/Prof Karen Canfell, Dr Lauren Breen, Prof Leon Straker, Prof Martin Ebert, Dr Nik Zeps, Prof Peter O'Leary, Mr Peter Somerford, A/Prof Rachel Neale, Dr Shaouli Shahid, Prof Simone Pettigrew, Dr Susan Peters, A/Prof Suzanne Robinson, Prof Tim Driscoll, Dr Tim Threlfall and Prof Yee Leung
Institution	Curtin University
Research description	The aim of the Cancer Council Epidemiology Network (CCEN) is to strengthen cancer epidemiological research in WA by: bringing together the best cancer epidemiologists in WA; connecting experts working in a range of different disciplines; using existing data in new ways to answer research questions that will leverage funding from national and international sources; and supporting the next generation of West Australian cancer epidemiologists.
Funding from CCWA	$115,000 ($345,000 total, $115,000 pa for 2016-2018)
Fully supported	In the name of Patricia New

Cancer Council WA Cancer Prevention Research Unit

Head	Prof Simone Pettigrew
Institution	Curtin University
Research description	Headed by Prof Simone Pettigrew the purpose of the Cancer Council WA Cancer Prevention Research Unit (WACPRU) is to increase our understanding of individual and societal factors that increase the risk of cancer in the community, and, through this understanding, develop more effective policies and programs to reduce cancer risk in the community.
Funding from CCWA	$160,000
Supported	In the names of Patricia New & through an anonymous estate

The Priority-driven Collaborative Cancer Research Scheme

Description	The Priority-driven Collaborative Cancer Research Scheme is an innovative annual national research project grant funding scheme which brings together government and other funders to collaboratively fund cancer research in Australia. This funding scheme helps to: coordinate funding of priority-driven cancer research at the national level; foster collaboration between cancer researchers to build Australia's cancer research capacity; and foster consumer participation in cancer research, from design to implementation.
Funding from CCWA	$65,000
Fully supported	Through an anonymous estate

Special thanks

We gratefully acknowledge the following supporters for their retrospective contribution to the 2016 Research Program:

- Annadora Home & Thelma Norris Trust Fund
- Cowaramup's Biggest Morning Tea

RESEARCH EXCELLENCE AWARDS

The Cancer Council WA Research Excellence Awards have been established to recognise and celebrate the achievements of Western Australia's best and brightest cancer researchers. They also serve to reinforce the importance of cancer research as an aspirational career choice and provide encouragement for the next generation of leading cancer researchers.

Early Career Cancer Researcher of the Year

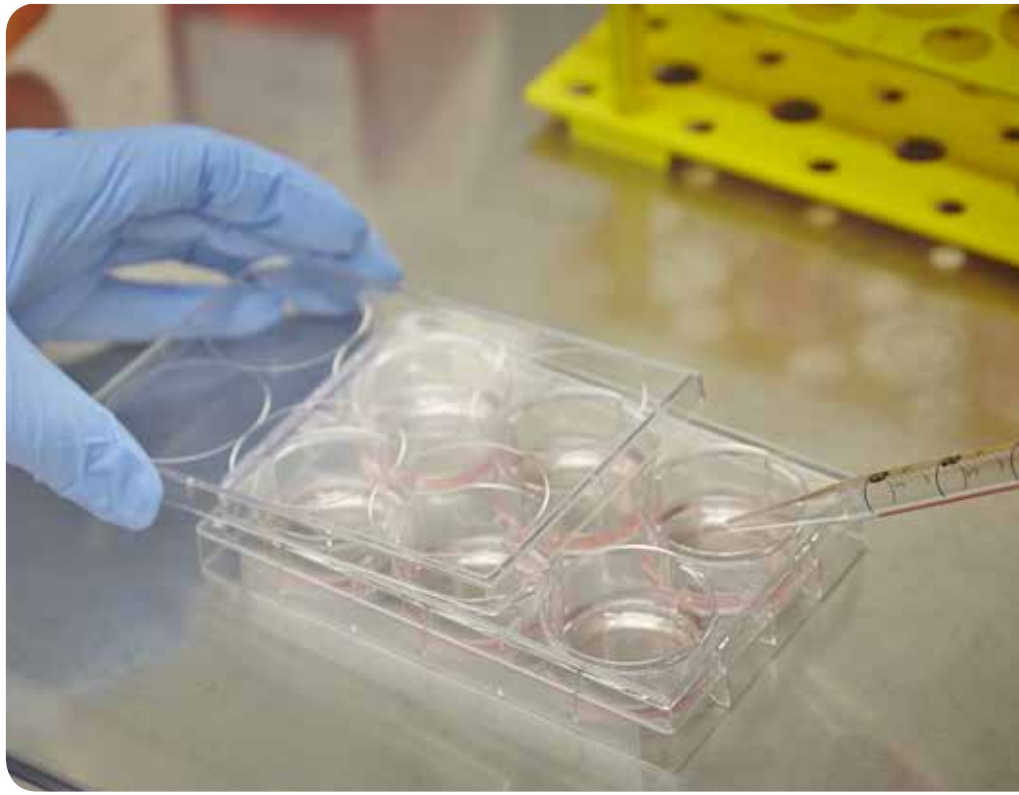
This award goes to an early career cancer researcher who has made significant advance in cancer research over the preceding 18 months.

Cancer Researcher of the Year

This award goes to a cancer researcher who has made an outstanding contribution to cancer research over the previous 12-24 months.

Cancer Research Career Achievement Award

This award acknowledges a researcher who has made a considerable contribution to cancer research.

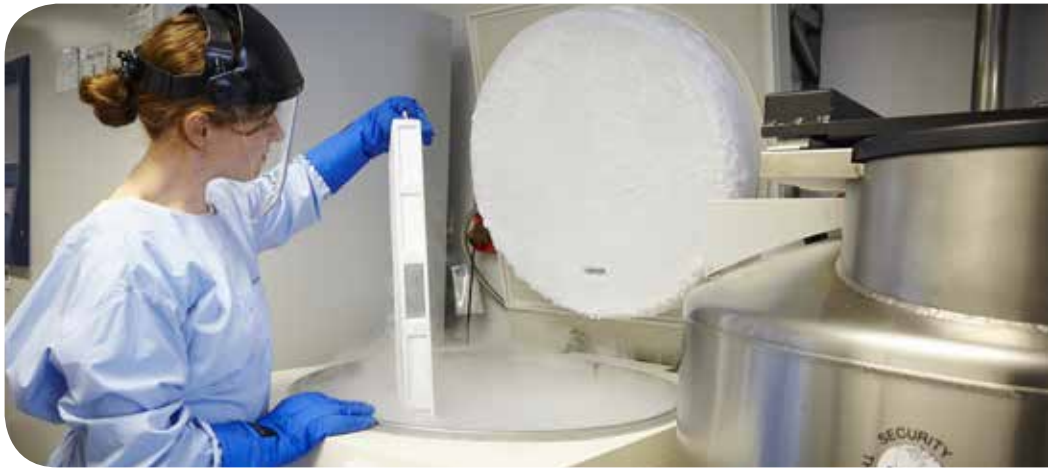


Award	Cancer Council Western Australia Early Career Cancer Researcher of the Year
Recipient	Dr Rishi Kotecha
Recipient's Career	Dr Kotecha's research area is paediatric haematology and oncology. His focus is on infant acute lymphoblastic leukaemia, which has poor survival rates. The strength of his scientific credentials is evidenced by several notable distinctions including awarding of the Raine Foundation Clinical Research Fellowship (2016-2019) and recent publications which have advanced the understanding of paediatric haematology/oncology. Amongst other accomplishments he is a Chief Investigator for the international INTERFANT-06 clinical therapeutic trial and a member of the national consortium exploring the epidemiology and risk factors for invasive fungal infections in immunocompromised children.
Prize	$10,000
Fully supported	In the name of Blueprint Wealth

Award	Cancer Council Western Australia Cancer Researcher of the Year
Recipient	Prof Mariapia Degli-Esposti
Recipient's Career	Professor Degli-Esposti is an internationally-recognized immunologist with an extensive nationally funded research program. This nomination relates to her work focusing on understanding the basis of impaired anti-viral immunity following bone-marrow-transplantation for the treatment of hematological malignancies. From this research Professor Degli-Esposti has developed pioneering pre-clinical models, which with effective collaborations with clinical leaders across the globe will ensure findings are rapidly translated into clinical settings.
Prize	$20,000

Award	Cancer Council Western Australia Cancer Research Career Achievement Award
Recipient	Prof Michael Millward
Recipient's Career	Professor Millward is an international expert on the management of thoracic malignancies and melanoma. He has a strong track record in delivering clinical trial outcomes, particularly with novel therapeutics and phase I/II studies. His career goals have been to increase cancer treatment capability in WA and to be able to offer as many patients as possible the opportunity to participate in clinical trials. He has initiated and carried out early phase clinical trials evaluating novel agents and novel combinations, where his site has been first-in-world to treatment. His leadership has promoted the inclusion of many Australian centres in international Phase II/III studies.
Prize	$20,000

MAKE A CONTRIBUTION TO RESEARCH



Help us beat cancer

For a minimum $3,000 investment you can contribute to this important work by purchasing units in our Research Program.

Your investment will support the invaluable work of our researchers as they strive to reduce the incidence and impact of cancer on our community and to give hope to those affected by cancer now and in the future.

We aim to keep growing our vital investment in research so that we can move closer to a cancer-free world.

We can only be there for the people that need us and fund critical cancer research with the support of people like you.

Benefits of investing in our Research Program

For your incredible support of the Cancer Council WA Research Program you will receive:

- Choice of research grant, project of scholarship to support (pending availability).
- Recognition of your funding in a family, estate, deceased loved one, company or individual name in our annual Cancer Council WA Research Program booklet
- A certificate recognising your support of Cancer Council WA Research Program
- An invitation to the annual Research Awards Lunch where the research funding, recipients and supporters are announced
- Acknowledgement in the Cancer Council WA Annual Review
- A Cancer Council WA tax receipt for each contribution

We're your compass through cancer

13 11 20

For support and information on cancer and cancer-related issues, call **Cancer Council 13 11 20.**

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