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We acknowledge the traditional owners and custodians of the land on which our campuses are located, the Wurundjeri people of the Kulin nation, and pay our respects to their elders past and present.
OUR MISSION

*Mastery of disease through discovery*

OUR VISION

To be an innovative medical research institute that engages and enriches society and improves health outcomes through discovery, translation and education.

ABOUT THE INSTITUTE

The Walter and Eliza Hall Institute is Australia’s oldest medical research institute, and is celebrating its centenary in 2015. For 100 years we have been making discoveries for humanity, improving the health of people in Australia and around the world.

The institute has more than 750 researchers who are working to understand, prevent and treat diseases, with a focus on cancers, immune disorders and infectious disease.

Our past discoveries include identifying colony stimulating factors (CSFs), which have helped more than 20 million cancer patients recover from chemotherapy; treating immune disorders with drugs that suppress abnormal immune responses; and developing techniques for growing flu viruses at sufficient quantities for flu vaccines.

The institute offers postgraduate training as the Department of Medical Biology of The University of Melbourne, and is affiliated with The University of Melbourne and The Royal Melbourne Hospital.

INSTITUTE AT A GLANCE

- 1011 staff and students
- 40+ diseases impacted by institute research
- 167 publications
- 100 national and international trials based on institute discoveries
- 74 institute and visiting speakers

in the six months from July to December 2014.
It is my privilege to once again report to our stakeholders. This report covers only six months due to the change in our financial year, which sees us moving to a calendar rather than the traditional financial year. We feel this better aligns with the government grant cycle.

The latter part of 2014 continued to be a challenging one for medical research institutes in Australia. Budget uncertainties persisted at the federal level, particularly with respect to the proposed Medical Research Future Fund, and the newly elected Victorian Government has yet to announce any initiatives for the sector.

Putting all this into context however, we have now entered the institute’s centenary year, which not only gives us many reasons to celebrate, but also many reasons to reflect. The extraordinary achievements of the institute’s scientists, and those who have supported them since we started, are the foundations on which the institute’s reputation has been built and is maintained.

We are also very conscious of the extraordinary philanthropic support and collaboration from other institutions that has underpinned our growth and success. It is remarkable to look at the institute’s first annual financial accounts dated almost a century ago and see the four familiar names that have been involved with us all the way.

The Walter and Eliza Hall Trust, which enabled our establishment, continues to support us as do other partners from our early days: The University of Melbourne, The Royal Melbourne Hospital and CSL Ltd. In fact, our original premises were in the then Melbourne Hospital, and part of these were sublet for a period to the then Commonwealth Serum Laboratories (now CSL Ltd) as they built their own facilities.

Thus we are reminded that although government funding is clearly critical to medical research institutes throughout Australia, the philanthropists and other collaborators with whom we have worked for so many years have provided a real edge that has helped the institute to remain innovative and world leading.

We have also just completed our strategic review and have formulated the strategic priorities that we will pursue over the next five years. We look forward to sharing these with all stakeholders and to celebrating the centenary throughout 2015. Our hope is that as a consequence new supporters will be attracted to the wonderful work of our scientific team.

Mr Christopher Thomas
President
Walter and Eliza Hall Institute
As director, I am always excited to hear our scientists’ plans for their research. Medical research is a rapidly moving field and, at the institute, we strive to ensure that the facilities and support we provide our researchers gives them every opportunity to pursue new and rewarding avenues of discovery.

This year, we have been developing a new five-year strategic plan that will follow on from our current plan, guiding our operations from 2015 to 2020. Institute staff, students, supporters and collaborators have been consulted about how the institute can maximise the benefits it provides to the community through world-class research.

Our researchers have made many exciting research breakthroughs this year, and have been duly rewarded with notable prizes and competitive grants. We were delighted to receive more than $28 million of funding from the National Health and Medical Research Council. Competition for this funding was intense, and national statistics showed that many promising young researchers missed out on receiving government support for their research.

Talented young researchers are vital for the future of medical research in Australia. We are mindful of the challenges our early-career researchers face in obtaining funding for their innovative, long-term and sometimes risky research ideas. In response, we have initiated a campaign to establish Centenary fellowships for our most promising young researchers. Over the next five years we have the ambitious goal of securing 100 fellowships with the support of our donors.

In October, I began a two-year term as the president of the Association of Australian Medical Research Institutes (AAMRI). With other research organisations, AAMRI has strongly advocated for the establishment of the federal government’s Medical Research Future Fund, which will build a stable foundation for expanding government investment in medical research over coming decades. A revised model for capitalising the fund was announced in December 2014, and has the strong support of Australia’s major medical research institutes and universities. Enhanced funding of medical research is crucial if Australian researchers are to continue improving our nation’s health into the future.

As you read this, our centenary year will be well underway. An exciting line-up of events to celebrate the institute’s achievements has been put together. I am looking forward to meeting many of you, our existing supporters, at these events, as well as introducing many more Australians to the 100 years of inspiring work of medical researchers.

Professor Douglas Hilton
Director
Walter and Eliza Hall Institute
WALTER AND ELIZA HALL INSTITUTE BOARD

The institute’s board is governed by 14 directors, led by Mr Christopher Thomas, and is responsible for oversight of the policies, strategic direction and management of the institute.

Mr Malcolm Broomhead joined the institute board as a director in July 2014. Mr Broomhead is a professional non-executive director, with extensive experience in the resources industry, as well as in finance, investment and construction activities.

Mr Mark Licciardo joined the institute as company secretary in September 2014. A former company secretary of Top 50 ASX listed companies Transurban Group and Australian Foundation Investment Company Limited, his expertise includes working with boards of directors in the areas of corporate governance, administration and company secretarial practices for Australian and foreign entities.

In November 2014, Ms Linda Nicholls resigned from the institute board after 13 years of service to the institute.

The institute board of directors (L–R): Dr Gareth Goodier, Associate Professor Rufus Black, Dr Graham Mitchell, Mr Michael Fitzpatrick, Mr Christopher Thomas (president), Mr Robert Wylie (treasurer), Professor Ingrid Winship, Mr Mark Licciardo (company secretary) and Mr Steven Skala (vice president).

Absent: Mrs Jane Hemstritch, Professor Jim McCluskey, Mr Terry Moran, Professor Stephen Smith, Ms Catherine Walter.
It was with great sadness that we farewelled Professor Donald Metcalf AC, who passed away in December.

Professor Metcalf was an outstanding medical researcher, whose discovery of colony stimulating factors has benefited more than 20 million people worldwide.

Professor Metcalf joined the institute in 1954 as a young medical graduate, supported by Cancer Council Victoria’s Carden Fellowship, an award he held until his retirement in September 2014.

His studies of how blood production is controlled led him to predict that there must be a biological mechanism – one or more hormones – that controlled white blood cell production. These hormones, which he called colony stimulating factors (CSFs), were the focus of 60 years of research. Over this time, Professor Metcalf led researchers to characterise and purify four separate CSFs.

Professor Metcalf was a central figure in the international clinical trials of CSFs in the 1980s, assessing whether CSFs could boost immune cell numbers in cancer patients whose immune system was weakened as a side effect of chemotherapy, leaving the patient susceptible to infection. On the basis of these studies, G-CSF (Neupogen) was approved for clinical use in 1991.

An estimated 20 million people have now been treated with CSFs. As well as boosting the immune system in people treated with chemotherapy or with other immune deficiencies, CSFs have revolutionised blood stem cell transplantation. CSFs also contribute to other diseases such as rheumatoid arthritis, and medications that block CSF function are now entering clinical trials.

Professor Metcalf was a mentor to hundreds of young researchers who worked with him, and an inspiration to thousands of scientists around the world. Among his many honours and awards were the Companion of the Order of Australia (1993), the Albert Lasker Award for Clinical Medical Research (1993), the Gairdner Foundation International Award (1994), the Royal Medal of the Royal Society (1995), the Victoria Prize (2000) and the Prime Minister’s Prize for Science (2001).

Many people chose to remember Professor Metcalf and recognise his significant contributions to science by donating to the Metcalf Scholarship Fund.

Professor Metcalf worked in his lab at the Walter and Eliza Hall Institute for an impressive six decades and made an outstanding contribution not just to medical science, but also to the careers of many researchers. The fund will support promising young researchers studying at the institute, providing conference, travel and bench costs.

Contributors to the Metcalf Scholarship Fund included institute director Professor Doug Hilton and his wife Adrienne, board president Mr Chris Thomas and his wife Cheryl, CSL Ltd and The University of Melbourne. The first Metcalf Scholarships will be awarded in May 2015 at the institute’s annual general meeting.

Professor Hilton said the scientific community would remember and pay tribute to Professor Metcalf’s legacy for many decades to come. “Don was an inspiration to us all at the institute and we miss him,” he said.

“I am overwhelmed by the community’s generosity in remembering Don, and I know he would be excited about the opportunities that young researchers will receive though this fund, just as he was supported as a young researcher.”

The Walter and Eliza Hall Institute community offers its sincere condolences to Professor Metcalf’s wife Jo, daughters Kate, Mary-Ann, Penelope and Johanna, grandchildren James, Martin, Patrick, Elizabeth, Rose and Robert and their extended families.

Once more unto the breach, dear friends, once more, Or close the wall up with our English dead! In peace there’s nothing so becomes a man As modest stillness and humility, But when the blast of war blows in our ears, Then imitate the action of the tiger: Stiffen the sinews, summon up the blood.

King Henry, excerpt from Henry V by William Shakespeare.

One of Don’s favourite passages, inspiring the title of his autobiography Summon up the Blood.
Potential hepatitis B cure enters clinical trials

More than two billion people worldwide are infected with hepatitis B, a viral disease that infects liver cells. Most patients will recover, but 5-10 per cent will develop a chronic hepatitis B infection, with children most at risk. More than 780,000 people die every year from complications associated with chronic hepatitis B infection, such as cirrhosis and liver cancer.

In November 2014, a new treatment developed by Walter and Eliza Hall Institute researchers to promote the cure of chronic hepatitis B virus infection entered a phase I/2a clinical trial. Dr Marc Pellegrini, Dr Greg Ebert and colleagues developed the treatment in collaboration with TetraLogic Pharmaceuticals, a biotech company based in Malvern, Pennsylvania, US. The clinical trial is being held at sites across Australia, including Melbourne, Adelaide and Perth.

The new treatment uses TetraLogic Pharmaceutical’s drug birinapant. Dr Pellegrini said the drug worked to ‘cure’ hepatitis B infections by enabling virus-infected cells to self-destruct. “We are really excited that this treatment has entered phase 1/2a clinical trials as it is a culmination of many years work in developing new strategies to tackle chronic infections,” he said.

“Our preclinical models have shown that birinapant kills infected liver cells, while not harming uninfected cells. Used in conjunction with an existing treatment for hepatitis B, this drug has the potential, for the first time, to functionally cure chronic hepatitis B infections.”

Dr Pellegrini said the new treatment had the potential to revolutionise the way chronic hepatitis B infections were treated. “Patients who develop chronic hepatitis B infections can be treated, but do not completely eliminate the virus,” he said. “Our new therapy combines an existing anti-viral drug, which reduces the viral load, with birinapant that promotes efficient killing of hepatitis B infected cells and clearance of the virus from the system.”

The study is sponsored by TetraLogic Pharmaceuticals Corporation in collaboration with Nucleus Network in Melbourne and hospitals across Australia and New Zealand.
Math helps to predict how the body fights disease

T cells are important for launching specific immune responses against invading microbes, as well as eliminating some cancer cells.

Errors in the control of T cells can lead to harmful autoimmune responses that attack the body’s own tissues, the underlying cause of diseases including type 1 diabetes and rheumatoid arthritis.

Institute researchers have defined for the first time how the size of the immune response is controlled, using mathematical modelling to predict how powerfully immune cells respond to infection and disease.

The research team, including Ms Julia Marchingo, Dr Andrey Kan, Dr Susanne Heinzel and Professor Phil Hodgkin, used mathematics and computer modelling to understand how complex signalling impacts the size of the response by key infection-fighting immune cells called T cells.

Ms Marchingo said the discovery enabled researchers to predict the size of an immune response. “For example, we can predict the size of the immune response to flu virus, based on the sum of the signals received by the flu-responsive T cells,” she said.

“The new models provide insights into how immune responses might be manipulated to improve health.”

“The new models provide insights into how immune responses might be manipulated to improve health, including how anti-cancer immune responses could be enhanced to develop new, and improve existing, cancer treatments.”

Professor Hodgkin said the research also showed how ‘errors’ in the developing immune response contribute to autoimmune disease. “This model clarifies that many small changes in the signals delivered to T cells can have a cumulative effect, enough to trigger a harmful immune response,” Professor Hodgkin said. “In the long run this may enhance efforts to predict a person’s risk of autoimmune disease, and improve how these conditions are treated.”

Collaborating organisations: National University of Ireland, Maynooth (Ireland).

Funding partners: Australian National Health and Medical Research Council, Australian Research Council, Edith Moffatt Scholarship Fund, Human Frontier Science Program (US), Science Foundation Ireland and Victorian Government.

Natural killer cells are immune predators, present in high frequency in our blood, that patrol the body’s frontlines – the lungs, intestines, mucous membranes and skin – to detect and destroy diseased cells.

Institute researchers have revealed the critical importance of these highly specialised immune cells in killing melanoma cells that have spread to the lungs.

Dr Nick Huntington, Dr Priyanka Sathe, Ms Rebecca Delconte and colleagues showed the protein MCL-1 was crucial for the survival of natural killer cells, and could be a target for boosting or depleting natural killer cell populations to treat diseases such as cancer.

Dr Huntington said the team showed natural killer cells were needed to fight invading tumour cells that had spread past the original cancer site. “Without natural killer cells, the body was unable to destroy melanoma metastases that had spread throughout the body, and the cancers overwhelmed the lungs,” he said. Natural killer cells could be harnessed to hunt down and kill cancers that have spread in the body. “Knowing how important natural killer cells are for detecting and destroying cancer cells as they spread suggests they would be a good target for boosting immune defences to treat cancer,” Dr Huntington said.

**Natural killer cells were needed to fight off invading tumour cells that had spread past the original cancer site.**

However Dr Huntington said these predatory natural killer cells were a double-edged sword, playing a role in death from toxic shock (sepsis), a potentially fatal illness caused by bacterial toxins, and in rejecting bone marrow transplants.

“This discovery provides a solid lead to look for ways of boosting natural killer cells when they are needed in higher supply, or depleting them when they are causing illness,” he said.

**Collaborating organisations:** Centre d’Immunologie de Marseille-Luminy, INSERM (France), QIMR Berghofer Medical Research Institute and University of Queensland

**Funding partners:** Australian National Health and Medical Research Council, The Menzies Foundation and Victorian Government.


**Dr Wilson Wong**

**Boosting immune cells could halt cancer spread**

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**Funding partners:** Australian National Health and Medical Research Council, The Menzies Foundation and Victorian Government.


**Dr Wilson Wong**

**Turning an antibiotic into a malaria drug**

Malaria infects hundreds of millions of people worldwide every year and causes more than 800,000 deaths.

The *Plasmodium* malaria parasite has developed resistance to current antimalarial drugs, making them less effective. New drugs are needed urgently.

Institute researchers Dr Wilson Wong, Dr Jake Baum and colleagues have made progress towards new antimalarial drugs. Dr Wong said the team discovered how the antibiotic emetine attaches to and blocks the ribosome – molecular machinery that makes the proteins required for malaria parasite survival.

“Our structure is an exciting discovery as it gives a clear path forward in developing new drugs.”

“Antibiotics such as emetine kill the malaria parasite by binding to its ribosome and preventing the parasite from building the proteins it needs to produce energy, grow, reproduce and evade the immune system,” he said.

Dr Wong said the research team used a new imaging technique called cryo-electron microscopy to visualise for the first time the structure of the malaria parasite’s ribosome bound to emetine.

“Our structure is an exciting discovery as it gives a clear path forward in developing new drugs to tackle this deadly disease,” he said. “We have found features of the parasitic ribosome that are not found in the human form.”

Dr Wong said although emetine was effective against malaria it was not used as a preventive drug due to its significant side-effects.

“We are now working with our colleagues to develop new molecules based on emetine and a similar drug called pactamycin. Knowing exactly how these antibiotics work will enable development of new antimalarial drugs that replicate the active component of these antibiotics while changing the parts that make it toxic to patients,” Dr Wong said.

**Collaborating organisations:** Bio21 Institute, MRC Laboratory of Molecular Biology, Cambridge (UK).

**Funding partners:** Australia–Europe Malaria Research Cooperation (OzEMalaR), Australian National Health and Medical Research Council, Australian Research Council, Human Frontier Science Program (US), Medical Research Council (UK), Victorian Government and Wellcome Trust (UK).

Understanding how cell death is ‘silenced’

Silent cell death, or apoptosis, is a controlled way for the body to eliminate cells that may be damaged, old, or surplus to the body’s requirements. During this normal cell death process, dying cells are ‘hidden’ from the immune police that patrol the body, to avoid triggering an inflammatory reaction that could cause collateral damage.

Institute researchers have solved a decades-old mystery about how cells dying by apoptosis avoid detection by immune cells, while cells dying from trauma or infection alert the immune system to be on the lookout for danger.

The team, led by Dr Michael White, Professor Benjamin Kile and colleagues, focused on the role of proteins called caspases in silencing apoptosis.

Dr White said caspases hastened cell death by breaking down key components within the dying cell. “Apoptosis can still occur without the involvement of caspases, so we investigated whether they play another role in cell death,” Dr White said.

“We found that when cells undergo apoptosis without caspases, they release cell signalling molecules called interferons that set off the immune response. We showed that one of the key roles of caspases is to suppress interferon production, confirming that caspases are crucial for hiding apoptotic cell death from the immune system.”

“Caspases are crucial for hiding apoptotic cell death from the immune system.”

The findings also provide important insights into how the body may tolerate drugs that target caspases, Professor Kile said. “Caspase-inhibiting medications are currently in clinical trials, for example being tested for their potential to keep cells alive during organ transplants. Our work suggests that any use of these medications should be accompanied by careful monitoring of their effects on the immune system.”

Collaborating organisations: University of Colorado Denver School of Medicine and National Jewish Health (US), and The University of Melbourne.

Funding partners: Australian Cancer Research Foundation, Australian National Health and Medical Research Council, Cancer Council Victoria, Human Frontier Science Program (US), Leukaemia Foundation of Australia, Sylvia and Charles Viertel Foundation and Victorian Government.

Necroptosis is a recently discovered cell death pathway linked to immune disorders such as rheumatoid arthritis, Crohn’s disease and psoriasis.

Necroptosis is a vital process in which cells undergo programmed death while warning the immune system that something has gone wrong, such as during viral infection. However when necroptosis is inappropriately activated, it can promote inflammation and the development of inflammatory disease.

Institute scientists have discovered a small molecule that blocks necroptosis, opening the door for potential new treatments for inflammatory disease. Dr Joanne Hildebrand, Dr James Murphy, Associate Professor John Silke, Dr Isabelle Lucet, Associate Professor Guillaume Lessene and colleagues made the discovery while investigating how a protein called MLKL kills cells during necroptosis.

Dr Hildebrand said the research team found a part of the MLKL protein became ‘unlatched’ when activated, allowing it to trigger cell death. “It’s like flicking a molecular switch,” she said. “We showed that when the switch can’t be turned on, MLKL doesn’t become active and necroptosis is prevented.”

Dr Lucet said the team tested a range of small molecules, identifying one that prevented MLKL from becoming active. “This small molecule binds to MLKL in such a way that it ‘jams the switch’ that makes it active, which could improve treatments for inflammatory disease,” she said.

Institute scientists have now embarked on a collaborative project with Catalyst Therapeutics to develop a potent new drug for treating inflammatory diseases, based on the small molecule identified in the study, Dr Murphy said. “MLKL is an appealing target because blocking the protein doesn’t impact other functions of the cell, reducing the chance of unwanted side-effects,” he said.


Funding partners: Australian Cancer Research Foundation, Australian Research Council, Australian National Health and Medical Research Council, The University of Melbourne and Victorian Government.

Programmed cell death – apoptosis – occurs naturally when the body needs to remove unwanted cells. However when this process goes awry, defective cells such as cancer cells can continue to live, or healthy cells can die unnecessarily, such as occurs in Alzheimer’s disease.

Institute researchers have uncovered key steps involved in apoptosis, identifying new targets for the treatment of diseases including lupus, cancers and neurodegenerative diseases.

Using the Australian Synchrotron, Mr Jason Brouwer, Dr Peter Czabotar and colleagues investigated the three-dimensional structure of a key cell death protein called Bak and how it changes to initiate cell death.

“Our research showed how Bak morphs from one shape to another to trigger apoptosis,” Dr Czabotar said. “Once Bak becomes ‘activated’, it couples with another Bak molecule to form a ‘dimer’, which then goes on to initiate apoptosis. Understanding the way cell death proteins work and what they look like is crucial to finding new ways to treat disease.”

Colleagues Dr Dana Westphal, Dr Ruth Kluck and Professor Jerry Adams led a team that examined how apoptosis bursts open the mitochondria – the cell’s energy factory – triggering a cascade of death signals that destroys the cell.

“Understanding the way cell death proteins work and what they look like is crucial to finding new ways to treat disease.”

Dr Kluck said dimers of Bak, or of a similar protein Bax, aggregated to burst open the mitochondrial surface. “A crucial stage of apoptosis is the release of proteins from within the mitochondria,” she said. “Scientists previously thought Bak and Bax poked through the mitochondrial membrane to form a hole, however our work has shown that these proteins collapse onto the oily surface of the mitochondria, and may then crowd the surface until holes form.

“We are now working to discover exactly how the dimers come together to destroy the mitochondria and trigger apoptosis,” Dr Kluck said.

Collaborating organisations: La Trobe University.

Funding partners: Australian Cancer Research Foundation, Australian National Health and Medical Research Council, Australian Research Council, Leukemia & Lymphoma Society (US) and Victorian Government.


Supporting cancer research breakthroughs

Institute cancer researchers have received a $2.5 million grant to establish the ACRF Breakthrough Technologies Laboratory, enhancing and accelerating research into many of Australia's most common, and most deadly, cancers.

Located at the Walter and Eliza Hall Institute, the ACRF Breakthrough Technologies Laboratory will be available to more than 1000 cancer researchers through the Victorian Comprehensive Cancer Centre, a collaborative network of Victorian hospitals and research centres improving the prevention, diagnosis and treatment of cancers including blood, breast, ovarian, lung and bowel cancers.

Dr Daniel Gray said a centrepiece of the ACRF Breakthrough Technologies Laboratory would be an Australian-first system to modify specific genes in cancer cells and in cells undergoing transformation to become cancers. “This new technology will provide cancer researchers with a ‘library’ of molecules that enable us to rapidly and precisely alter a single gene within a cancer cell. This has the potential to provide immense insights into which genes are crucial drivers of cancer development, progression and resistance to anti-cancer treatments,” Dr Gray said.

“This fantastic research team is forging a new path towards solving the problems of cancer.”

Mr Tom Dery, chairman of the ACRF (Australian Cancer Research Foundation), said Australia was at the forefront of cancer research globally. “We’re proud to support the Walter and Eliza Hall Institute in their investigations to better understand cellular errors in cancer,” he said. “This fantastic research team is forging a new path towards solving the problems of cancer.”

Institute director Professor Doug Hilton said the ACRF Breakthrough Technologies Laboratory would enable the institute to continue to produce internationally competitive research. “In the long term, this partnership will result in better outcomes for the 100,000 Australians diagnosed with cancer every year,” he said.

Alliance promotes gender balance among research leaders

Women currently comprise fewer than one-in-five researchers at senior levels of Australian universities and research institutes.

In November 2014, the Walter and Eliza Hall Institute joined four Melbourne medical research institutes to launch The Women in Science Parkville Precinct (WiSPP), a partnership to tackle the underrepresentation of women among Australia’s science leaders.

WiSPP brings together The Doherty Institute for Infection and Immunity, The Florey Institute of Neuroscience and Mental Health, the Murdoch Children’s Research Institute, the Peter MacCallum Cancer Centre and the Walter and Eliza Hall Institute. WiSPP initiatives are supported by the institutes and a donation of $100,000 from The Trust Company Australia Foundation.

Institute director Professor Doug Hilton said the loss of talented female scientists required urgent action to ensure Australia’s research excellence was maintained. “If women are not entering senior roles in research at the same rate as men, this represents a huge loss of talent from the sector,” he said.

Bringing five research organisations together allowed the precinct to tackle bigger and broader issues than any one organisation could resolve, he said. “I see WiSPP as an important initiative for bringing momentum to broader improvements across the research sector, initiatives that require support from government and other stakeholders,” Professor Hilton said.

Institute laboratory head Dr Marnie Blewitt said she had found many of the institute’s existing gender equity measures to be valuable. “Initiatives such as support to continue research during maternity leave and childcare assistance have made it easier for me to advance my career while having young children,” she said.

“I think it is vital that WiSPP explores ways to change the culture of science to ensure more women choose to remain in the sector. This is essential to achieve gender equity in the long run.”
CHIEF OPERATING OFFICER’S REPORT

Preparing for our centenary year

The institute spent the second half of 2014 continuing preparations and putting them into action ahead of our centenary year in 2015. As you read this, our centenary will be well underway. This is a landmark year for the institute as we celebrate the journey from establishment to our 100th year of discoveries.

A number of exciting events and projects are underway to recognise this significant milestone and the institute’s place in pioneering medical research in Australia. We look forward to engaging with our staff, students, supporters, alumni, colleagues and friends as part of these celebrations.

Planning for the institute’s future

At the annual general meeting in May 2015, the institute will unveil its new five-year strategic plan, outlining the priorities for the organisation. We are confident that the strategic plan will put us in good stead for the future as we navigate an uncertain funding environment while continuing to produce internationally competitive research, and discoveries that will improve lives.

As part of our strategic changes, we have moved to a calendar year financial reporting schedule to support our scientists by aligning with Australian grant periods. This has resulted in a substantial amount of work for our Finance department, with two budgets and audits performed in six months. I would like to extend our thanks to the team for their hard work.

Producing high-quality operations

We have an ambitious program to modernise our operations and provide greater support to our scientists and make best use of the institute’s resources.

As part of this work, in the second half of 2014 the board endorsed the consolidation of our campuses. Over the past six months we have been concentrating on transitioning services from our site at Bundoora to campuses at Parkville and Kew.

I would like to thank all our staff at Bundoora and Kew for their support and contributions to this transition.

I would also like to thank the Professional Services staff for their ongoing commitment to delivering our modernised program.

Ms Samantha Ludolf
Chief Operating Officer
Walter and Eliza Hall Institute
OUR SUPPORTERS

The supporters who make our discoveries possible

The advances in medical science at the Walter and Eliza Hall Institute are made possible by our generous supporters. We are proud to acknowledge these gifts, grants and bequests received from 1 January to 31 December 2014. Gifts of $1000 or more are acknowledged, unless otherwise requested by our donors.

The institute acknowledges the support of the Australian Government through funding from the National Health and Medical Research Council, and from the Victorian Government through the Operational Infrastructure Support (OIS) Program.

International grants

Grants of more than $500,000

- Human Frontier Science Program, US
- The Leukemia & Lymphoma Society, US
- Ludwig Cancer Research, US

Grants up to $500,000

- American Asthma Foundation, US
- Foundation for Innovative New Diagnostics, Switzerland
- Howard Hughes Medical Institute, US
- Juvenile Diabetes Research Foundation, US
- Lupus Research Institute, US
- National Institutes of Health, US
- PATH Malaria Vaccine Initiative, US
- Worldwide Cancer Research, UK

Grants up to $100,000

- The Bill & Melinda Gates Foundation, US
- Multiple Myeloma Research Foundation, US

Grants up to $50,000

- The Lustgarten Foundation, US
- The Lady Tata Memorial Trust, UK

Individual and family philanthropy

Gifts up to $500,000

- Anonymous (1)
- Mr Malcolm Broomhead
- Dr George Morstyn and Mrs Rosa Morstyn

Gifts up to $100,000

- Evelyn Ann Drury Trust Fund
- The Joan Marshall Breast Cancer Research Fund

Gifts up to $50,000

- Anonymous (2)
- Mr Leon Davis AO and Mrs Annette Davis
- Brian M Davis Charitable Foundation
- Drakensberg Trust
- The Isabel & John Gilbertson Charitable Trust

Gifts up to $10,000

- Anonymous (3)
- Ms Sue Clifton
- Shirley Cuff Cancer Research Foundation
- Dr Andrew Cuthbertson
- Mr Ronald F Diamond and Mrs Helen M Diamond
- Mrs Jane Hemstritch
- The Barbara Luree Parker Foundation Ltd
- Rob Meree Foundation

Gifts up to $5000

- Anonymous (6)
- Mrs Barbara Anderson
- Mr John Edward Davies
- Mrs Andrea Gowers and Mr Geoff Gowers
- Dr George James
- Mrs Christine McConnell and Mr Denis McConnell
- Mr James McIntyre
- Mrs Marion Page
- Craig Perkins Cancer Research Foundation
- Ms Caroline Richardson
- Mr Peter Ruse and Mrs Barbara Ruse
- Nell & Hermon Slade Trust
- Mr Chris Thomas and Mrs Cheryl Thomas
- Mr and Mrs Duncan Tuck
- Mr John Warburton

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The advances in medical science at the Walter and Eliza Hall Institute are made possible by our generous supporters. We are proud to acknowledge these gifts, grants and bequests received from 1 January to 31 December 2014. Gifts of $1000 or more are acknowledged, unless otherwise requested by our donors.

The institute acknowledges the support of the Australian Government through funding from the National Health and Medical Research Council, and from the Victorian Government through the Operational Infrastructure Support (OIS) Program.
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Diabetes Australia Research Trust
Diabetes Vaccine Development Centre
Erica Foundation
Lettisier Foundation as Trustee for Evans Family Foundation
The Lowy Medical Research Foundation
Harold Mitchell Foundation
National Heart Foundation of Australia
Ovarian Cancer Australia

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Tarneit Skies Resident Association Inc
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Estate of Sheila Mary Helpman
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Ms Susanne Williamson

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### Statistical summary for the 6 months to December 2014

<table>
<thead>
<tr>
<th></th>
<th>6 months to December 2014</th>
<th>12 months to 30 June 2014</th>
<th>2013</th>
<th>2012</th>
<th>2011</th>
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<tr>
<td></td>
<td>$'000s</td>
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<td><strong>Research revenue</strong></td>
<td></td>
<td></td>
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<td>Australian Government</td>
<td>25,569</td>
<td>51,512</td>
<td>52,995</td>
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<td>Victorian Government</td>
<td>3,078</td>
<td>6,936</td>
<td>6,771</td>
<td>7,074</td>
<td>6,842</td>
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<td>Foreign governments</td>
<td>47</td>
<td>506</td>
<td>472</td>
<td>359</td>
<td>557</td>
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<tr>
<td><strong>Government revenue</strong></td>
<td>28,694</td>
<td>58,954</td>
<td>60,238</td>
<td>57,395</td>
<td>53,372</td>
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<tr>
<td>Industrial grants and contracts</td>
<td>1,058</td>
<td>1,696</td>
<td>1,482</td>
<td>1,114</td>
<td>1,846</td>
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<tr>
<td>Philanthropic grants and fellowships – Australia</td>
<td>4,659</td>
<td>9,024</td>
<td>6,971</td>
<td>5,285</td>
<td>3,830</td>
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<tr>
<td>Philanthropic grants and fellowships – international</td>
<td>4,056</td>
<td>6,355</td>
<td>5,376</td>
<td>2,180</td>
<td>3,235</td>
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<td>Investment income</td>
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<td>12,925</td>
<td>13,146</td>
<td>11,280</td>
<td>11,486</td>
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<td>Royalty income</td>
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<td>3119</td>
<td>828</td>
<td>810</td>
<td>2,513</td>
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<tr>
<td>General revenue</td>
<td>1,077</td>
<td>3,369</td>
<td>2,819</td>
<td>3,054</td>
<td>2,647</td>
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<tr>
<td>Donations and bequests</td>
<td>4,126</td>
<td>6,678</td>
<td>4,042</td>
<td>3,043</td>
<td>3,305</td>
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<tr>
<td><strong>Non-government revenue</strong></td>
<td>26,773</td>
<td>43,166</td>
<td>35,024</td>
<td>26,766</td>
<td>28,662</td>
</tr>
<tr>
<td><strong>Total revenue for research</strong></td>
<td>55,467</td>
<td>102,120</td>
<td>95,262</td>
<td>84,161</td>
<td>82,234</td>
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<tr>
<td><strong>Research expenditure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff costs</td>
<td>38,544</td>
<td>75,027</td>
<td>69,339</td>
<td>61,559</td>
<td>54,799</td>
</tr>
<tr>
<td>Laboratory operating costs</td>
<td>9,326</td>
<td>17,841</td>
<td>17,650</td>
<td>16,452</td>
<td>15,424</td>
</tr>
<tr>
<td>Laboratory equipment</td>
<td>1,105</td>
<td>2,538</td>
<td>3,487</td>
<td>4,119</td>
<td>2,862</td>
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<tr>
<td>Building operations</td>
<td>2,424</td>
<td>5,171</td>
<td>5,307</td>
<td>4,746</td>
<td>4,353</td>
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<tr>
<td>Administration</td>
<td>1,558</td>
<td>1,985</td>
<td>1,162</td>
<td>1,203</td>
<td>1,002</td>
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<td>Business development</td>
<td>390</td>
<td>849</td>
<td>815</td>
<td>899</td>
<td>684</td>
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<td>Doubtful debts expense</td>
<td>201</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total research expenditure</strong></td>
<td>53,547</td>
<td>103,411</td>
<td>97,760</td>
<td>88,978</td>
<td>79,124</td>
</tr>
<tr>
<td><strong>Results from research activities</strong></td>
<td>1,920</td>
<td>(1,291)</td>
<td>(2,498)</td>
<td>(4,817)</td>
<td>(3,110)</td>
</tr>
<tr>
<td><strong>Other income</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Profit and loss on sale of long-term assets</td>
<td>2,170</td>
<td>5,324</td>
<td>21,600</td>
<td>746</td>
<td>7,712</td>
</tr>
<tr>
<td>Contribution income for recognition of land lease</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>12,782</td>
<td>-</td>
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<tr>
<td>Donations and bequests capitalised to Permanent Funds</td>
<td>137</td>
<td>1581</td>
<td>219</td>
<td>3,461</td>
<td>1,566</td>
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<tr>
<td>Grants and donations for capital works</td>
<td>870</td>
<td>3,204</td>
<td>2,105</td>
<td>906</td>
<td>117</td>
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<tr>
<td><strong>Total other income</strong></td>
<td>3,177</td>
<td>10,109</td>
<td>23,924</td>
<td>17,895</td>
<td>9,395</td>
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<tr>
<td><strong>Other expenses</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Loss on impairment write down of long-term investments</td>
<td>(391)</td>
<td>-</td>
<td>(263)</td>
<td>(2,333)</td>
<td>(2,945)</td>
</tr>
<tr>
<td>Depreciation and amortisation</td>
<td>(4,486)</td>
<td>(8,671)</td>
<td>(8,396)</td>
<td>(5,681)</td>
<td>(6,375)</td>
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<tr>
<td><strong>Total other expenses</strong></td>
<td>(4,877)</td>
<td>(8,671)</td>
<td>(8,659)</td>
<td>(8,014)</td>
<td>(9,320)</td>
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<tr>
<td><strong>Net operating surplus</strong></td>
<td>220</td>
<td>147</td>
<td>12,767</td>
<td>5,064</td>
<td>3,185</td>
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<tr>
<td><strong>Capital funds</strong></td>
<td></td>
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<td></td>
<td></td>
<td></td>
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<tr>
<td>Permanent invested capital funds</td>
<td>159,027</td>
<td>157,026</td>
<td>152,428</td>
<td>139,073</td>
<td>134,457</td>
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<td>General funds</td>
<td>143,126</td>
<td>150,132</td>
<td>160,291</td>
<td>162,909</td>
<td>138,752</td>
</tr>
<tr>
<td>Royalty fund</td>
<td>24,387</td>
<td>19,994</td>
<td>17,551</td>
<td>17,079</td>
<td>16,788</td>
</tr>
<tr>
<td>Leadership fund</td>
<td>19,724</td>
<td>18,975</td>
<td>17,840</td>
<td>16,282</td>
<td>16,182</td>
</tr>
<tr>
<td>Discovery fund</td>
<td>2,109</td>
<td>2,030</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Centenary fund</td>
<td>104</td>
<td>100</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Investment revaluation reserve</td>
<td>47,755</td>
<td>46,763</td>
<td>31,165</td>
<td>29,086</td>
<td>38,812</td>
</tr>
<tr>
<td><strong>Total funds</strong></td>
<td>396,232</td>
<td>395,020</td>
<td>379,275</td>
<td>364,429</td>
<td>344,991</td>
</tr>
<tr>
<td><strong>Capital expenditure</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Property, plant and equipment</td>
<td>1,484</td>
<td>3,937</td>
<td>5,852</td>
<td>43,348</td>
<td>53,579</td>
</tr>
<tr>
<td><strong>Staff numbers: (equivalent full-time)</strong></td>
<td>1 Dec 2014</td>
<td>1 Dec 2014</td>
<td>2013</td>
<td>2012</td>
<td>2011</td>
</tr>
<tr>
<td>Scientific research staff:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– Senior faculty</td>
<td>77</td>
<td>78</td>
<td>76</td>
<td>64</td>
<td>64</td>
</tr>
<tr>
<td>– Postdoctoral scientists</td>
<td>190</td>
<td>197</td>
<td>186</td>
<td>160</td>
<td>147</td>
</tr>
<tr>
<td>– Visiting scientists</td>
<td>12</td>
<td>14</td>
<td>15</td>
<td>10</td>
<td>16</td>
</tr>
<tr>
<td>– Other laboratory research staff</td>
<td>269</td>
<td>265</td>
<td>268</td>
<td>252</td>
<td>246</td>
</tr>
<tr>
<td>Supporting staff:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>– Other support services</td>
<td>144</td>
<td>135</td>
<td>129</td>
<td>122</td>
<td>112</td>
</tr>
<tr>
<td><strong>Total staff and visiting scientists</strong></td>
<td>692</td>
<td>689</td>
<td>674</td>
<td>608</td>
<td>585</td>
</tr>
<tr>
<td>Students</td>
<td>159</td>
<td>175</td>
<td>151</td>
<td>137</td>
<td>135</td>
</tr>
<tr>
<td>Papers published</td>
<td>167</td>
<td>381</td>
<td>298</td>
<td>284</td>
<td>250</td>
</tr>
</tbody>
</table>
The period at a glance

Revenue

- Australian Government 46%
- Philanthropic grants, fellowships – Australia 8%
- Victorian Government 6%
- Scientific laboratories 65%
- Support laboratories 18%
- Building operation 6%
- Administration 9%
- Business development 2%
- Investment income 13%
- Donations and bequests 7%
- Other income 13%

The period in brief 1 July – 31 December 2014 1 July – 30 June 2014

- Revenue for research 55,467 102,120
- Expenditure on research 53,547 103,411
- Net surplus (deficit) from research 1,920 (1,291)
- Number of staff and visiting scientists 692 689
- Number of postgraduate students 159 175
- Total staff and students (EFT)s 851 864
SUPPORTING OUR RESEARCH

A gift recognising a 100-year relationship

We are proud to be continuing our 100-year relationship with our founding donor, the Walter and Eliza Hall Trust, which has made the first pledge to the Centenary Fellowships fund.

In 2015, the institute launches its Centenary Fellowships campaign, with the ambitious five-year goal of securing 100 fellowships for our most promising young researchers.

We were thrilled when the trustees of the Walter and Eliza Hall Trust committed a $1 million centenary gift to support early-career researcher Dr Simon Willis. Dr Willis is focused on the challenging task of identifying the cause of multiple sclerosis (MS).

Dr Willis said there were still a lot of unknowns about multiple sclerosis. “MS remains a condition with no known cause or cure,” he said. “Identifying what causes MS is of the utmost importance for new diagnostics and improved treatment options that may prevent disease development or halt disease progression.”

“[The centenary] is also an opportunity to look to the next generation of scientists, who are already making great strides forward as they look to improve the health of people in the future.”

Dr Willis’ research is looking at whether there is an infectious cause of MS, which is a degenerative condition of the brain and nervous system.

“I’m very grateful for the support of the Walter and Eliza Hall Trust over the next five years, which will give me the opportunity to concentrate on the search for the underlying cause of multiple sclerosis,” Dr Willis said.

Institute director Professor Doug Hilton said the grant would also enable the institute to acquire essential equipment.

“The Walter and Eliza Hall Institute’s centenary is an opportunity to reflect on the achievements our innovative scientists have made to improve lives,” Professor Hilton said.

“However it is also an opportunity to look to the next generation of scientists, who are already making great strides forward as they look to improve the health of people in the future.”

If you would like to invest in the future health of all Australians by supporting an early-career researcher at the institute, please contact the director on 03 9345 2552 for a confidential discussion.

Dr Simon Willis is searching for the cause of multiple sclerosis, with support from the Walter and Eliza Hall Trust through a Centenary Fellowship.
The Walter and Eliza Hall Institute acknowledges the support of these organisations

The Walter and Eliza Hall Institute is associated with the following organisations