FIAT LUX
Walter+Eliza Hall
Institute of Medical Research

TOWARDS OUR CENTENARY IN 2015

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ILLUMINATE

Diabetes 'docking' discovery

Institute researchers have shown how insulin docks on cells, a discovery that could lead to new and improved insulin for diabetics.

A landmark discovery about how insulin docks on cells could help in the development of improved types of insulin for treating both type 1 and type 2 diabetes.

A research team led by Associate Professor Mike Lawrence, Dr Colin Ward and Dr John Menting captured the intricate way in which insulin binds to the surface of cells, which is necessary for the cells to take up sugar from the blood as energy.

Associate Professor Lawrence said understanding how insulin interacted with the insulin receptor on the cell surface was fundamental to the development of novel insulins for the treatment of diabetes. "Until now we have not been able to see how these molecules interact," he said. "We can now exploit this knowledge to design new insulin medications with improved properties, which is very exciting."

He said the insulin hormone engages its receptor in a very unusual way. "A piece of insulin folds out and key pieces within the receptor move to engage the insulin hormone – you might call it a 'molecular handshake'," Associate Professor Lawrence said.

Insulin is a key treatment for diabetics, but there are many ways that its properties could be improved. "This discovery could lead to new types of insulin that could be given in ways other than injection, or an insulin that has improved properties or longer activity so that it doesn't need to be taken as often," Associate Professor Lawrence said. "It may also have ramifications for diabetes treatment in developing nations, by creating insulin that is less likely to degrade when not kept cold."

The Australian Synchrotron was critical to the project's success. "If we did not have this fantastic facility in Australia and their staff available to help us, we would simply not have been able to complete this project," Associate Professor Lawrence said.

Australia is facing an increasing epidemic of type 2 diabetes. There are now approximately one million Australians living with diabetes and around 100,000 new diagnoses each year.

In this issue

From the director

Christmas and January can be a very relaxing time for many Australians; a time to spend with friends and family.

However for medical researchers in Australia, it is one of the most stressful times. Summer is grant-writing time; the time we put our plans down on paper and seek funding from the federal government. Each year more than 3000 project grants are submitted to the National Health and Medical Research Council (NHMRC) by Australian researchers, of which slightly more than 20 per cent will receive funding.

What does funding mean to a researcher? Testing new ideas about how the biological world works, or how disease prevention, diagnosis and treatment might be improved, takes money. Money for staff, for equipment and reagents. For our laboratory heads, project grant funding means the opportunity to pursue new ideas.

For our research staff, project grant funding often determines whether they will have a job for three more years. The salaries for many of our staff come from NHMRC grants, which last only three years. The grants we are writing now are for the salaries of our staff for 2014 to 2016. Although we write the grants in January and submit them in February, our researchers will only find out whether they have received grant funding in October or November, just a few weeks before their current funding, and hence the salaries of their research staff, disappears. Life for medical researchers is one of continuous uncertainty.

Last year our researchers were very successful with project grants, with more than half of their applications being funded. This was especially pleasing given it was mainly our younger researchers who applied for project grants, with most of our senior researchers part of program grants.

One of the major factors behind the success of our young researchers is you.

One of the major factors behind the success of our young researchers is you. Thanks to the generosity of our supporters in the community, we can provide seed funding to support our young researchers as they obtain preliminary data that can be included in their grant applications. Without preliminary data, ideas are viewed as 'pie-in-the-sky'; with some preliminary data, ideas are viewed as feasible. I would estimate that every dollar of support donors in the community provide a young researcher, leads to $5 to $10 that they will ultimately obtain from government. Thank you for backing our bright young stars.

Very best wishes,

Doug

Professor Peter Colman wins Bragg Medal

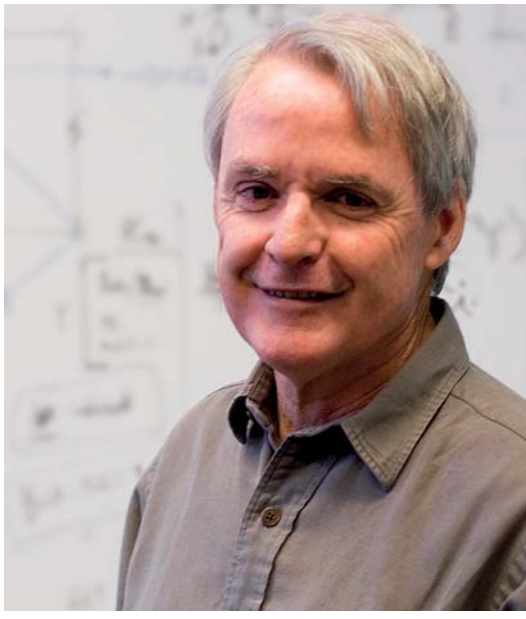
Walter and Eliza Hall Institute structural biologist Professor Peter Colman has been awarded the inaugural Bragg Medal of the Society of Crystallographers in Australia and New Zealand.

The medal recognises the achievements of Professor Colman's more than 40-year scientific career using X-rays to determine the structures of proteins. The award is named for Australian physicist Sir William Lawrence Bragg, whose discoveries led to the development of X-ray crystallography.

Professor Colman has made many important discoveries about how proteins function by determining the proteins' molecular structure. While working at CSIRO in the 1980s, Professor Colman and colleagues used X-ray crystallography to discover the three-dimensional molecular structure of the influenza virus protein neuraminidase. Their work led to the development of the anti-influenza medication, Relenza®, one of the first times a medication was designed directly from a protein structure.

Professor Colman said he was delighted to receive the inaugural Bragg Medal. "It is humbling to be recognised by one's peers," he said. "I thank my current and former colleagues and students, who have played their part in the work recognised by this award."

Professor Colman is now focusing on determining the structures of the Bcl-2 family of proteins, which control whether cells survive or die. Bcl-2 family proteins are known to be important in cancer cell development and resistance to traditional chemotherapies. Insights into the structure of these proteins have led to the design of a new class of potential anti-cancer agents that are now in clinical trials.



Professor Peter Colman

Hormones can change breast's genetic material

Dr Bhupinder Pal (left) and Professor Jane Visvader found that progesterone can cause changes in the breast's genetic material that could lead to breast cancer.

Institute scientists have discovered how female hormones can make dramatic changes to the genetic material in breast cells, changes that could potentially lead to breast cancer.

The research team identified how pregnancy hormones send signals to critical molecules on the DNA to make changes in the epigenome. The epigenome is a series of chemical tags that modify DNA, controlling which genes are switched on and off.

Professor Jane Visvader, Dr Bhupinder Pal, Professor Geoff Lindeman, Professor Gordon Smyth and colleagues from the institute led the study.

Professor Visvader said the researchers looked at how the epigenome changed in response to ovarian hormones such as progesterone. "We found the epigenome was very sensitive to hormonal regulation," she said. "This reveals another way in which female hormones can influence breast cancer risk – by altering the epigenome through modifications in DNA tags."

The research team discovered that pregnancy hormones activate the gene EZH2, an important modifier of the epigenome. "We found that hormones including progesterone activate EZH2 to modify the epigenome, leading to global changes in the expression of a huge number of genes," Professor Visvader said. "In normal tissue, EZH2 is essential for the development of breast tissue and for the activity of breast stem cells and their daughter progenitor cells. However, life-long exposure to hormones could lead to breast tumour initiation through increased levels of EZH2 and the changes that it orchestrates in the epigenome."

High levels of EZH2 are a marker of poor prognosis in breast cancer and have been frequently observed in basal-like breast cancers, the most aggressive types of breast cancer. "The link between progesterone, EZH2 and the epigenome could be crucially important in the very early stages of breast cancer development," Professor Visvader said.

Professor Lindeman said there were decades of evidence linking hormone exposure with breast cancer, but the hormones' influence on the epigenome was not known. "Our discovery points to a role for hormone-induced changes in the epigenome in the early stages of breast cancer initiation, and could lead to new therapeutics for treating breast cancer," he said.

About breast cancer

- **Breast cancer is the most common cause of cancer in women**
- **It accounts for almost 30 per cent of all cancers in women.**
- **1 in 9 women in Australia will develop breast cancer by the age of 85.**

'Stem cell' gene linked to rare leukaemia

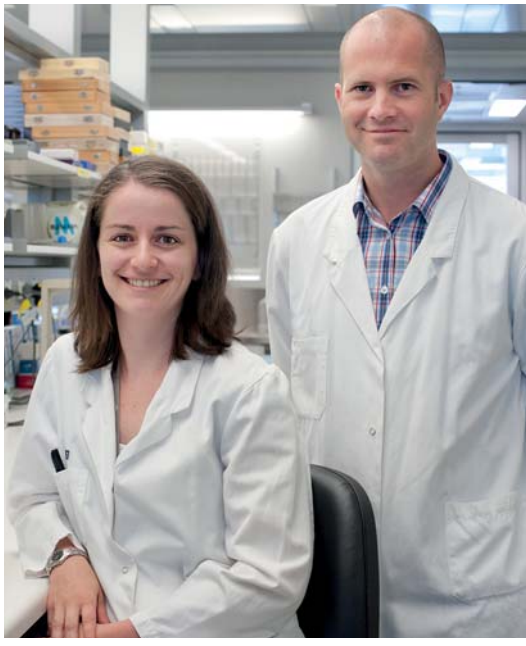
Institute researchers have provided the first evidence linking a gene essential for the maintenance of blood stem cells to a rare type of leukaemia.

Dr Catherine Carmichael, Dr Benjamin Kile and Professor Donald Metcalf led the research team that investigated the role of the gene *Erg* in the development of blood cancers. *Erg* is essential for blood stem cell self renewal and function, and has been strongly implicated in the development of prostate cancer and Ewing's sarcoma, as well as acute megakaryocytic leukaemia (AMKL) – a rare blood cancer that is 500 times more common in children with Down syndrome.

Dr Carmichael said despite *Erg* clearly being important in cancer development, the underlying function of *Erg* during this process was a mystery. "We were interested in understanding how this integral blood stem cell regulator may drive leukaemia development," she said. "We discovered that high levels of *Erg* in the bone marrow of mice induced a leukaemia very similar to human erythroleukaemia. Intriguingly, the leukaemic cells also had some features of AMKL, suggesting that this disease was a unique mixed erythro-megakaryocytic leukaemia."

Erythroleukaemia affects red blood cell precursors, while AMKL affects the precursors of platelet-forming cells, called megakaryocytes. Both these types of leukaemia are very rare and aggressive, and the overall prognosis is generally poor.

Dr Carmichael said the research had the potential to lead to a better understanding and, in the long term, better treatments for these rare blood cancers. "This research has given us a model that we can use to better understand the role of *Erg* in leukaemia development," she said. "In particular, we hope that this research may provide important insight into why children with Down syndrome are predisposed to develop AMKL."



Dr Catherine Carmichael (left) and Dr Benjamin Kile

Benjamin Kile wins 2013 Gottschalk Medal

Dr Benjamin Kile has won the Australian Academy of Science's Gottschalk Medal.

Blood cell researcher Dr Benjamin Kile has been awarded the Australian Academy of Science's 2013 Gottschalk Medal for a series of major discoveries that have shed new light on blood cell formation and function.

Dr Kile said he was honoured to win the Gottschalk Medal, which is named after biochemist Alfred Gottschalk. "I love what I do, and it has been a privilege to be able to pursue a career in medical research in Australia," Dr Kile said. "This award is recognition for work that has involved literally dozens of colleagues and collaborators, nationally and internationally".

Dr Kile's work has centred on understanding the genes that are essential for the formation and function of blood cells and blood stem cells. One of his best-known discoveries was that platelets, tiny cells essential for blood clotting, are born with a short, predetermined lifespan and when their biological clock runs out, they are programmed to commit suicide.

"Our research team showed platelets have an internal cell death pathway that tells them when to die," Dr Kile said. "This raises the prospect of extending the life span of blood bank platelets by inhibiting the cell death pathway, increasing the availability of this life-saving product for cancer patients and others in danger of serious bleeding. It also has implications for understanding conditions where platelets cause unwanted blood clots, such as heart disease and stroke."

In 2008 Dr Kile and his colleagues also made the discovery that a gene called *ERG*, which is involved in prostate cancer and leukaemia, is a master regulator of blood stem cell function. Identifying the targets of *ERG* may ultimately lead to new cancer therapies.

The Gottschalk medal recognises outstanding research in the medical sciences by researchers less than 40 years of age.

Willy-John Martin
Postdoctoral researcher

Describe your job… My research is in acute rheumatic fever and rheumatic heart disease in Aboriginal Australians and Fijians.

How long have you worked here? Two years.

If you weren't doing your job, what would you be doing? In my first year of university, I volunteered almost every day at a local primary school to help teach Maori language to children. I enjoyed it so much I was almost enticed to switch careers.

Best aspect of your job? Always being challenged by something new in an ever-evolving discipline. I also love working in a field that has a positive impact on indigenous health.

Worst aspect of your job? Paperwork of all kinds.

What's one thing most people would be surprised to know about you? I have 13 younger brothers and sisters who are very good at making babies. It is not one of my talents, though.

What's the smartest thing you've been told? Seek first to understand, then to be understood.

What are the best things about living in Melbourne? The food. Melbourne is a place that does vegetarian extremely well. I also discovered flamenco in Melbourne and that pleases me.

What is your favourite overseas destination? At the moment, I like New York City. What's not to like? Amazing food, razor sharp shows, funky gigs, New York salsa dancing, truly gauche events, ethnic richness, and the countryside only a short ride away. It's great fun.

What do you want to be remembered for? Being a complete person who contributed positively to the world.

Charity Law
PhD student

Describe your job… I develop new methods of analyses for genomic datasets. This helps biologists understand the changes that are occurring amongst thousands of genes, for experiments such as those in malaria.

How long have you worked here? I worked as a research assistant in the Smyth lab in 2008, and started my PhD in 2009. I've just recently submitted my thesis. Hooray!

If you weren't doing your job, what would you be doing? I'd be travelling and looking for local community projects I could get involved with whenever and wherever it is possible.

Best aspect of your job? There's always more to learn, think about and be challenged by.

What are the best things about living in Melbourne? Brunch at a quaint little café, the smell and taste of coffee, cultural diversity, great Italian and Vietnamese food as well as food from other parts of the world, street art, moonlight and rooftop cinemas, …and the people!

What is your favourite overseas destination? There are so many amazing places around the world. I don't think I can name one. Most recently I had the opportunity to travel around East Africa. Africans are some of the most hospitable people I've ever met, and the landscape is absolutely breathtaking. Outside of Africa, other memorable destinations are Rio de Janeiro and Machu Picchu.

Making it personal

Institute researchers are developing ways of better detecting bowel cancers early and improving survival through more targeted and personalised treatments.

Mr Robert Woolley participated in a trial that is looking for cancer cell DNA in patients' blood samples, as a new way to detect bowel cancer.

In the past 40 years, earlier diagnosis and better treatments have seen a doubling in survival rates from bowel cancer, with more than 90 per cent of cases successfully treated if detected early.

However more than 3500 Australians still die from bowel cancer every year, making the work of the institute's bowel cancer team vital to improving survival rates and people's quality of life. Bowel cancer specialists Dr Jeanne Tie and Associate Professor Peter Gibbs are working to develop new ways to predict the best treatments for patients.

Tailoring treatments to improve patient outcomes

There is considerable variability between bowel cancers, meaning some people will respond well to treatment while others have a higher likelihood of their disease recurring.

The way I look at [clinical trials], even if it doesn't help me, it will help someone else.

Dr Tie said DNA sequencing of cancer cells was allowing a better understanding of what genetic changes drive bowel cancer progression and helping doctors to choose which treatments are best for each type of bowel cancer.

"Our studies of more than 1000 patients have revealed some important differences that predict how bowel cancer will respond to treatment," Dr Tie said. "We are now developing a blood test that will allow oncologists to make better decisions about which treatment will work best for each patient."

Cancer treatments were already becoming more sophisticated, and some could be especially effective in certain types of bowel cancer, Dr Tie said. "It will soon become possible to personalise bowel cancer treatment, determining the most effective treatments for each patient based on their cancer's genetic profile," she said.

Detecting bowel cancers early

When bowel cancers are diagnosed early, before there are symptoms, almost all patients can be cured. Associate Professor Gibbs said current methods of detecting these early cancers involve either collecting a stool sample or undergoing a colonoscopy, but one of the major limitations of these tests is that many people are unwilling to participate.

Associate Professor Gibbs and his colleagues are working on a blood test to detect early-stage bowel cancer. "We believe that a simple blood test will prove much more acceptable as a screening test," he said. "Our initial studies have shown promise that detecting tiny amounts of cancer cell DNA in blood will be an accurate test for early bowel cancer."

Mr Robert Woolley was diagnosed with bowel cancer in 2010, and underwent surgery and chemotherapy before participating in the trial, which is developing a test to detect cancer cell DNA in blood. "Somebody has to be involved in clinical trials," he said. "The way I look at it, even if it doesn't help me, it will help someone else. So many people are affected by cancer, and I hope that one day there will be better treatments."

Potential new treatment for gastrointestinal cancers

Researchers have identified a complex of proteins that promotes the growth of some types of colon and gastric cancers, and shown that medications that block the function of this complex have the potential to be developed into a new treatment for these diseases.

It is the first time that the complex of proteins, known as mTorc1, has been shown to promote the growth of colon and gastric cancers that are associated with inflammation. Dr Stefan Thiem and Associate Professor Matthias Ernst from the Walter and Eliza Hall Institute made the discovery while at the Ludwig Institute for Cancer Research.

Associate Professor Ernst said many types of colon and gastric cancers were associated with chronic inflammation. "In the digestive system, persistent inflammatory conditions have been linked with tumour growth," he said.

The research team found that inflammation-associated gastric and colon cancers showed activation of mTorc1, a protein complex that signals inside cells to promote growth.

The growth of inflammation-associated colon and gastric cancers could be treated with mTorc1 inhibitors, Associate Professor Ernst said. "We were excited to discover that the growth of these cancers in laboratory models could be prevented by treatment with mTorc1 inhibitors that are already in clinical trials for other types of cancer," he said. "In the future, we hope that this finding might lead to better treatment options for colon and gastric cancers that are associated with inflammation."

Bowel cancer in Australia

- **Bowel cancer is the second largest cause of cancer deaths in Australia.**
- **More than 14,000 Australians are diagnosed with bowel cancer each year.**
- **1 in 12 Australians will develop bowel cancer before the age of 85.**
- **Risk factors include increased age, family history of bowel cancer or polyps, or inflammatory bowel conditions such as Crohn's disease or colitis.**

Catching cell death 'in the act'

Dr Peter Czabotar (left) and Dr Dana Westphal have identified how cell death proteins 'change' to force cells to die.

Institute scientists have for the first time visualised the molecular changes that take place in a critical cell death protein, forcing cells to die.

The finding provides important insights into how cell death occurs and could lead to new classes of medicines that control whether diseased cells live or die.

Cell death is important for controlling the number of cells in the body, with defects in this pathway being linked to the development of disease. Insufficient cell death can cause cancers by allowing cells to become immortal, while excessive cell death of brain cells may be a cause of neurodegenerative conditions.

Dr Peter Czabotar, Professor Peter Colman and Dr Dana Westphal led the team that made the discovery.

Dr Czabotar said activation of pro-death protein Bax had long been known to be an important event in cell death, but it was not known how this occurred. "Bax is responsible for punching the holes in the mitochondrial membrane, one of the key steps in cell death," Dr Czabotar said.

Using the Australian Synchrotron, the team obtained detailed three-dimensional images of Bax changing shape as it moved from inactive to active forms. The active form ruptures mitochondrial membranes, removing the cell's energy supply and causing cell death. "Visualising the activation of Bax brings us a step closer to understanding the mechanics of cell death," Dr Czabotar said.

"Our research could provide clues about how to design potential new therapeutic agents that target Bax. Designing agents that block Bax activation could prevent cell death in conditions such as neurodegenerative disorders, while agents that drive Bax into its active form could provide the basis for a potential new class of anti-cancer agents."

'Survival' gene key to better myeloma treatments

Scientists have identified the gene essential for survival of plasma cells, a finding that could lead to better treatments for diseases such as myeloma and chronic immune disorders.

Associate Professor David Tarlinton, Dr Victor Peperzak and colleagues found that a gene called Mcl-1 is critical for keeping this vital immune cell population alive.

Plasma cells make antibodies that provide a person with long-term protection from viruses and bacteria. Associate Professor Tarlinton said plasma cells were produced after vaccination or infection and are responsible for the immune 'memory' that can persist in humans for 70 or 80 years. "In this study, we found that plasma cells critically rely on Mcl-1 for their continued survival and, without it, they die within two days," he said.

Plasma cells are vital to the immune response, but can be dangerous if not properly controlled. "When they are out of control they continue to make antibodies that can be very damaging if there are too many," Associate Professor Tarlinton said. "This happens in conditions such as myeloma – a cancer of plasma cells – and various forms of autoimmunity, such as lupus or rheumatoid arthritis, where there are excessive levels of antibodies."

Associate Professor Tarlinton said the discovery could be used to develop new treatments for these conditions. "Our hope is that we will identify some point in the internal cell signalling pathway, or a critical external molecule, that could be blocked to stop Mcl-1 being produced by the cell," he said. "This would be an important new platform for diseases that currently have no specific or effective treatment, such as myeloma, or offer new treatment options for people who don't respond well to existing treatments for diseases such as lupus or rheumatoid arthritis."

Immune cell death defects linked to autoimmune diseases

Institute researchers have discovered that the death of immune system cells is an important safeguard against developing diseases such as type 1 diabetes, rheumatoid arthritis and lupus.

The finding suggests that so-called autoimmune diseases, which occur when the immune system attacks the body's own tissues, could be treated with existing medications that force long-lived immune cells to die.

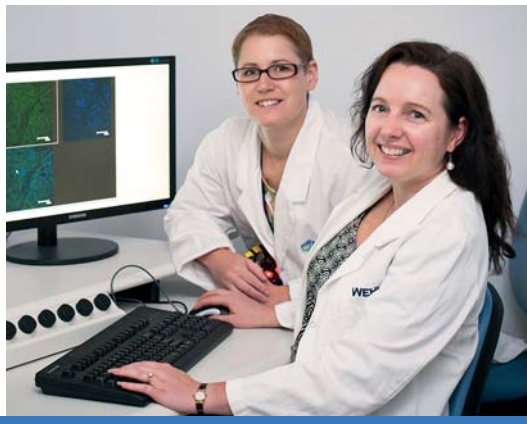
During development, some 'self-reactive' immune cells are produced that have the potential to attack the body's own tissues. The death of these immune cells through a process called apoptosis is an important safeguard against autoimmune disease.

But Dr Kylie Mason (pictured left), Dr Lorraine O'Reilly and colleagues from the institute have discovered that when immune cells lack two related proteins, Bax and Bak, the cells can attack healthy tissues and cause severe autoimmune disease.

Dr O'Reilly said Bax and Bak act like an irreversible switch in cells to determine when they die by apoptosis, and that some immune cells that lacked the proteins were able to attack healthy tissues in many organs of the body.

"Without Bax and Bak, enough self-reactive cells survive development to persist in the body and cause autoimmune disease in organs such as the kidneys (glomerulonephritis), similar to what is seen in the most severe form of lupus," she said. "Our findings confirm that defective apoptosis of immune cells can cause autoimmune disease, and that Bax and Bak are important determinants of immune cell death."

The research provides hope for people with autoimmune diseases as a new class of potential anti-cancer agents, currently in clinical trials, can trigger Bax and Bak activity. "These anti-cancer agents might be an exciting new option for treating autoimmune conditions, by activating Bax and Bak and making the self-reactive immune cells which are causing the autoimmune disease to die," Dr O'Reilly said.



A generous parting gift

Dr Jason Tye-Din (left) met with Mr Bob Munro (right) and his granddaughter Phoebe at the institute's building opening in November 2012, where he was awarded the J.H.A. Munro Fellowship.

The J.H.A. Munro Foundation has been a generous supporter of the Walter and Eliza Hall Institute since 2009, supporting various areas of research but particularly that into type 1 diabetes and coeliac disease.

Last year the J.H.A. Munro Foundation Ltd voluntarily deregistered, with the directors choosing to donate more than $580,000 in residual funds to our medical research.

Institute director Professor Doug Hilton met with Professor Terry Nolan, Mr Andrew J. Crozier-Durham, Mr Simon Stuart and Mr Bob Munro to discuss how the generous donation from the foundation could be best used to support institute researchers.

"Bob was adamant that the funds be used at the discretion of the director," Professor Hilton said. "Untied philanthropic funding is crucial to the success of our institute as it allows us to take risks on smart young researchers. In discussion with Bob, we decided that the funds would be kept invested in perpetuity, with the interest funding a research fellowship. Given Bob's interest in diabetes and coeliac disease, it made sense for the funding to initially support Dr Jason Tye-Din, one of our star clinician researchers who is spearheading our coeliac disease research program."

The J.H.A. Munro Fellowship will allow us to attract, retain and support the brightest researchers of each generation.

Dr Tye-Din will become the inaugural J.H.A. Munro Fellow, in honour of Mr Bob Munro's uncle Mr James Harry Alexander (Alex) Munro. "It is a pleasure to name the fellowship in recognition of Mr Munro's uncle, who was renowned as a person of high principles and morals and donated generously to charity," Professor Hilton said. "The J.H.A. Munro Fellowship will allow us to attract, retain and support the brightest researchers of each generation and will be a wonderful testament to the generosity and foresight of Bob and Alex Munro."

Dr Tye-Din said he was thrilled and honoured to be awarded the first J.H.A Munro Fellowship. "Coeliac disease is a serious medical illness in Australia and research is essential for delivering better outcomes for our patients," he said. "This award cements coeliac disease on the research agenda and will be of immeasurable benefit to our research program at the institute. I would like to extend my sincere appreciation to Bob Munro and the trustees of the J.H.A Munro Foundation for their generous support."

Cure Cancer Australia supporting our best young researchers

Three of the institute's young cancer researchers have received support from the Cure Cancer Australia Foundation to explore the biology behind breast and colon cancer development.

Cancer researchers Dr Lisa Mielke, Dr Anne Rios and Dr Donia Moujalled (pictured) each received a one-year grant of $100,000 to pursue research they hope will lead to new and better treatments for breast and colon cancer.

Australia and New Zealand have the highest incidence of colon cancer worldwide, while one in nine Australian women will be diagnosed with breast cancer.

Ms Leanne Warner, chief executive officer of Cure Cancer Australia, said the organisation chose to support and develop new generations of researchers who were full of courage, passion and determination to find a cure for cancer. "Early career funding provides a much needed start for researchers who go on to achieve wonderful, often world class, outcomes," Ms Warner said. "If we don't support young researchers, then many new ideas to improve treatments and find a cure will never be investigated."

The research projects supported by the foundation are:

- Dr Lisa Mielke's investigations into the molecular 'link' between chronic inflammation and the development of colon cancer. Chronic inflammation is believed to be a major factor in the development of colon cancers.
- Dr Anne Rios's examinations of the differences between normal breast cells and breast cancer cells, that will help uncover the molecular pathways that allow breast cells to escape normal control systems and become cancerous.
- Dr Donia Moujalled's studies into the function of proteins involved in programmed cell death, and how they can go awry in cancer, helping to identify potential new cancer therapies.

World Malaria Day

A day to recognise the global effort to provide effective control of malaria.

Malaria is one of the leading infectious killers globally, but it is an entirely preventable and treatable disease.
World Malaria Day is observed on 25 April, and is a day to recognise the burden that malaria causes to the global community, and reflect on the progress that has been made, and is being made, to banish this debilitating disease.

April **30**

Malaria public lecture and discovery tours

On Tuesday 30 April 2013, to mark World Malaria Day, we will be opening the doors of the institute and inviting the community to visit the institute to meet our malaria experts and find out the latest information about our malaria research program.
You can meet world leaders in malaria research, find out about the latest scientific advances that have been made to understand, prevent and treat malaria, and tour the state-of-the-art facilities that we use to make these discoveries.

Malaria – a global disease: can it be eradicated?

Public lecture,
6–7:30pm, Walter and Eliza Hall Institute lecture theatre

Discovery tours:
Visit the institute's malaria research labs and speak to our malaria researchers about their latest work, including progress on a malaria vaccine, new research into antimalarial drugs, and the latest studies in the Asia-Pacific.

Tours will last for 30 minutes.
To find out more or book a malaria discovery tour, visit www.wehi.edu.au/worldmalariaday.

Malaria facts

- **Approximately half of the world's population is at risk of contracting malaria.**
- **Malaria mortality rates have fallen by 25 per cent since 2000, but each year up to 660,000 people still die from malaria, mostly children under the age of five.**
- **No malaria vaccines are currently available, and malaria parasites are becoming resistant to many available antimalarial drugs.**

Did you know?

- **Most mosquitoes feed on nectar and plant fluids. Only pregnant females feed on blood, which helps their eggs grow.**

Coming events

April **18**

Are you a clinician wanting to improve your career?

We are inviting clinicians to attend a PhD research opportunities forum at the Walter and Eliza Hall Institute.
The institute is committed to translating basic discoveries to treatments that can help the community. The forum will include a showcase of our translational research and Clinical Translation Centre, and discussion of career opportunities for clinicians.

Date: Thursday 18 April 2013, 6–8pm

Contact: Jenni Harris, 03 9345 2480 or ctc@wehi.edu.au.

Register online at
www.wehi.edu.au/phd_opportunities_forum.

Travel assistance is available for rural and interstate attendees.

April **20**

Trivia night: raising money for diabetes research

In 2005, Tim Bates, a loved member of the institute's IT team, died from diabetic complications at age 34. In his memory, Tim's parents, Ann and Robert Bates, and sister Rebecca established The Tim Bates Memorial Diabetes Research Fund at the institute to help support vital diabetes research.
Stephanie Cross, from Mater Christi College, is holding a trivia night to raise funds for diabetes research, with proceeds going to the Tim Bates Memorial Diabetes Research Fund.

All are welcome to attend this fundraising night, contact Ms Cross at potter7head@gmail.com to book your place.

Date: Saturday 20 April 2013, 6:30–11pm.

Venue: Boronia Uniting Church Hall, Cnr Zeising Court and Boronia Road, Boronia.

Cost: $15 per person with a maximum of eight per table.

Public discovery tours

Ever wanted to see behind the scenes at a medical research institute?
Tour the institute's Parkville campus, meet our scientists, and learn about our work and how we are improving the health of all Australians.
To book, visit www.wehi.edu.au/events or call 03 9345 2555.

Coming tours:
Thursday 14 March 2013, 6–7pm
Wednesday 8 May 2013, 10:30–11:30am

Public lectures

Come along to find out the latest about our disease research and what outcomes are on the horizon.

Malaria 30 April 2013, 6–7:30pm
Rheumatoid arthritis 18 June 2013, 6–7:30pm
Breast cancer 6 November 2013, 6–7:30pm

To find out more about institute events, including public lectures and discovery tours, please phone (03) 9345 2555 or visit
www.wehi.edu.au/events

Produced by the institute's Community Relations department. If you would prefer to receive this publication via email or have any feedback, please contact: Mail **1G Royal Pde Parkville Australia 3052** | Email **illuminate@wehi.edu.au** | Telephone **+61 3 9345 2555** | Printed on 100% recycled paper.

Support our discoveries…

donate today

The Walter and Eliza Hall Institute is home to more than 650 researcahers who are working to understand, prevent and treat diseases including blood, breast, ovarian, colon and lung cancers, type 1 diabetes, rheumatoid arthritis, coeliac disease and malaria.

We are doing this because:

- One in nine Australian women will be diagnosed with breast cancer by the age of 85.
- Malaria kills up to 660,000 people each year.
- More than 120,000 Australians have type 1 diabetes.
- As many as 1 in 100 Australians have coeliac disease.

More than 60 clinical trials based on discoveries made at the institute are underway, including a new class of anti-cancer drugs and vaccines for type 1 diabetes, coeliac disease and malaria.

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