

ANNUAL REPORT 2015

OUR VISION

WE STRIVE TO ENHANCE HUMAN HEALTH AND THE QUALITY OF LIFE THROUGH GROUNDBREAKING, COLLABORATIVE, MEDICAL ESEARCH DISCOVERIES AND NOVATION, AND ENSURE 5 DIRECT IMPACT ON THE COMMUNITY. **276**

scientific publications

HUDSON

AT A GLANCE

298 staff



- EXCELLENCE
- COLLABORATION
- INNOVATION
- COMMUNITY

168 current students

> 63 dents gradual

students graduated including Honours, Masters, and PhD graduates

CONTENTS

| About the Institute | 3 |
|---|----|
| Advancing Health Discovery | 5 |
| Chairman's report | 7 |
| Director's report | 8 |
| Centre Reports | 12 |
| Centre for Cancer Research | 12 |
| Centre for Endocrinology & Metabolism | 14 |
| Centre for Genetic Diseases | 16 |
| Centre for Innate Immunity & Infectious Disease | 18 |
| Centre for Reproductive Health | 20 |
| The Ritchie Centre | 22 |
| Research Highlights | 24 |
| Platform Technologies | 40 |
| Business Development | 42 |
| Nurturing Young Scientists | 47 |
| Our Community | 50 |
| Fundraising | 52 |
| Our Supporters | 55 |
| Board | 56 |
| Organisational Structure | 59 |
| Financial Snapshot | 60 |
| Service to the Scientific Community | 61 |
| Publications | 67 |

Hudson Institute of Medical Research 27 - 31 Wright Street, Clayton VIC 3168, Australia

t: +61 3 8572 2700 f: +61 3 9594 7114 email: info@hudson.org.au web: www.hudson.org.au

ABN 48 132 025 024

f www.facebook.com/hudson.org.au

www.twitter.com/Hudson_Research

Cover: MHTP Translational Research Facility (photos: Dave Banen)



ABOUT THE INSTITUTE



GREAT RESEARCH REQUIRES GREAT COLLABORATIONS

Adelaide, Australia Brisbane, Australia Canberra, Australia Melbourne, Australia Newcastle, Australia Perth, Australia Sydney, Australia Leuven, Belgium Sao Paulo, Brazil Toronto, Canada Beijing, China Wuhan, China Aarhus, Denmark Copenhagen, Denmark Turku, Finland Amiens, France Paris, France Bonn, Germany Cologne, Germany Freiburg, Germany Giessen, Germany

Kiel, Germany Munich, Germany Tubingen, Germany Singapore, Indonesia Brescia, Italy Florence, Italy Rome, Italy Chiba, Japan Kanazawa, Japan Moroyama, Saitama, Japan Sendai, Japan Tokyo, Japan Auckland, New Zealand Otago, New Zealand Thuwal, Saudi Arabia Barcelona, Spain Geneva. Switzerland Rotterdam, The Netherlands Utrecht, The Netherlands Cambridge, England, UK Hinxton, England, UK

London, England, UK Manchester England, UK Newcastle, England, UK Warwick, England, UK Dublin, Ireland, UK Aberdeen, Scotland, UK Edinburgh, Scotland, UK Cardiff, Wales, UK Boston, Massachusetts, USA Cambridge, Massachusetts, USA Clay Center, Nebraska, USA Cleveland, Ohio, USA Coralville, Iowa, USA Evanston, Illinois, USA Los Angeles, California, USA Madison, Wisconsin, USA New Haven, Connecticut, USA New York City, USA Pittsburgh, Pennsylvania, USA

HUDSON INSTITUTE IS A LEADING AUSTRALIAN MEDICAL RESEARCH INSTITUTE. OUR SCIENTIFIC DISCOVERIES POSITIVELY IMPACT ON THE HEALTH AND WELLBEING OF OUR COMMUNITY AND BEYOND.

Hudson Institute's world-class scientists and clinicians are at the forefront of discovery and translational research. We bring together over 450 brilliant minds to turn scientific discovery into medical solutions for those who need it most.

Research at Hudson Institute focuses on our communities and Australia's most pressing health challenges. We also research areas of global need.

Our diverse research environment fosters collaboration and creates opportunities for unique insights and innovation.

OUR IMPACT



Our community is served by Victoria's largest public health service, Monash Health. It is a rapidly growing, culturally diverse and ageing community. Our breakthrough discoveries and ability to translate these to the clinic positively improve the lives of all Australians at every life stage.



Our research is world leading and impacts those most in need.

Further enriching the quality of our research and its progression to patient outcomes is our location at the Monash Health Translation Precinct (MHTP), including the brand new purpose-built Translational Research Facility, which hosts clinical and research space, complete with world-best technology platforms and clinical trial facilities.

This position, immediately adjacent to our close collaborators, Monash University (Australia's largest university) and Monash Health (Victoria's largest healthcare network), provides a fertile environment for breakthrough collaboration between researchers and clinicians, focusing effort on the most pressing diseases and bringing novel science-based treatments to the clinic.

MONASH HEALTH TRANSLATION PRECINCT (MHTP) PARTNERS

Monash**Health**







ADVANCING HEALTH DISCOVERY

THE TRANSLATIONAL RESEARCH FACILITY WILL TRANSFORM HUDSON INSTITUTE'S RESEARCH CAPABILITY, ACCELERATING OUR RESEARCH TO MAKE A FAR GREATER IMPACT ON HEALTH.

Hudson Institute was placed at the forefront of science and health innovation with the opening of the state-of-the-art \$84.5 million Monash Health Translation Precinct (MHTP) Translational Research Facility (TRF) in October.

Hosting shared spaces for research, clinical trials and technology platforms, there is no other facility in Australia so ideally positioned to progress the rapid advancement of knowledge into life-changing and life-saving discoveries that will drive solutions to our most pressing diseases.

The six-storey TRF brings together MHTP partners Hudson Institute, Monash Health and Monash University within a unique environment where researchers and clinicians are working side-by-side with access to the latest technologies.

In November, Hudson Institute's The Ritchie Centre and Centre for Cancer Research moved into two research floors within the TRF, juxtaposed with a clinical research floor and an entire floor housing sophisticated cutting-edge technologies.

"WE COULD NOT HAVE ASKED FOR A MORE OUTSTANDING YEAR FOR OUR FIRST YEAR AS THE HUDSON INSTITUTE OF MEDICAL RESEARCH; SO MUCH HAS BEEN ACHIEVED.."

CHAIRMAN'S REPORT

We could not have asked for a more outstanding year for our first year as the Hudson Institute of Medical Research; so much has been achieved. It has been a pleasure to work with the leadership team and I continue to be in awe of the incredible research that consistently reaches new heights.

It is a testament to the remarkable work and dedication of our researchers that Hudson Institute was the recipient of the third largest number of National Health and Medical Research Council (NHMRC) grants awarded to a medical institute in Victoria.

It has been a remarkable year for strong leadership, both internally with the launch of our three-year strategic plan, and externally in the scientific community through the Institute's contribution to the Victorian Government's Health and Medical Research Strategy discussion paper and the Medical Research Future Fund campaign.

The opening of the highly progressive Translational Research Facility (TRF) in October was the realisation of a long-term vision to advance research and patient treatments to new levels. The facility heralds an exciting new direction for Hudson Institute and for Australian research. Having a focused research facility where scientists, clinicians and technological partners progress solutions to the most crucial medical issues is to be applauded, both for its impact on people and the efficiencies it brings.

Hudson Institute is fortunate to have a shared vision for a vibrant medical precinct that benefits all of its community members, with its Monash Health Translation Precinct partners Monash Health and Monash University. Together they share the goal to care for Melbourne's rapidly growing south-eastern corridor and advance medical solutions for Australia and the globe.

While Hudson Institute is extremely well positioned for the future, the challenge for all medical research institutes is the pressure on funding sources. It is my great hope that we do not lose too many researchers before we can see a resolution to this problem. With the introduction of the Medical Research Future Fund, we look forward to seeing this innovative sector of Australian industry supported in a more sustainable way.

For scientists to continue to find solutions in a rapidly advancing field, we must provide them with the funds and most advanced technology to progress their work, and ensure that we are bringing along the next generation of scientists. The increasing importance of philanthropic support in uncertain financial funding times cannot be stressed enough. We thank our donors and supporters, but I also know that Hudson Institute's incredible scientists have many more ground-breaking and life-saving opportunities to continue with, and are on their wish list to pursue.

During the year we were fortunate to recruit two outstanding Board members. Distinguished scientist, Professor Warwick Anderson AM, and Ms Maria Trinci, bring to the Board vital insights on the crucial areas of funding and finance.

Professor Anderson's funding and medical knowledge will be invaluable to the Board. He led the NHMRC, Australia's major governmental funding body for health and medical research, for nine years until March 2015. He is also the former Head of Monash University's School of Biomedical Sciences and former Deputy Director of the Baker Medical Research Institute. Ms Trinci is a partner in leading accounting firm KPMG, specialising in Financial Services and with extensive global banking industry experience.

With our future strategy in place, Hudson Institute is more than well placed to lead Australia's research future and is in sound health and delivering on its responsibility to governments, organisations and individuals who provide funding.

Finally, I would like to thank the dedicated Hudson Institute researchers for their relentless quest for answers and solutions, and their enormous contributions to medical science and our nation's health.



Dr Bob Edgar Chairman

DIRECTOR'S REPORT



Without a doubt, discovery research is a rapidly moving and dynamic field. In 2015, Hudson Institute of Medical Research evolved to be at the forefront of promising scientific frontiers and significant life-saving and life-changing contributions to our community.

Hudson Institute formed in 2014 from the merger of two of the most trusted names in medical research; Prince Henry's Institute (PHI) and the Monash Institute of Medical Research (MIMR). The opportunities that this combined Institute represents are exceptional. Together we have more than 75 years of research experience, are home to more than 450 leading researchers and postgraduate students, and house state-of-the-art research platforms and facilities, enabling the rapid advance of discoveries into patient care.

In May 2015 we announced our new Institute name, Hudson Institute of Medical Research, in honour of the late Professor Bryan Hudson, a world-renowned physician and scientist who was instrumental to the early origins of both PHI and MIMR. The name recognises our shared history with Professor Hudson and his legacy exemplifies the values to which Hudson Institute aspires – excellence in ground-breaking research and making a positive impact on our community.

The merging of the two Institutes came at a crucial point, with the opening of a new \$84 million, state-of-the-art Translational Research Facility (TRF) in October, alongside our Monash Health Translation Precinct (MHTP) partners, Monash Health and Monash University.

The TRF was born out of a long-term vision for an end-to-end story of health innovation and significantly transforms Hudson Institute's research capability and impact on health.

It is a facility like no other in Australia and enables Hudson Institute to take ground-breaking discovery research into patient care faster than ever before. Through the co-location of our laboratory discovery research with clinical trials and technological platforms in the TRF, we will ensure the rapid translation of our discoveries into better diagnoses, treatments and disease prevention, and investigation of the most pressing diseases. The opening of the TRF marked more than 10 years of hard work, planning, and engagement with both State and Federal Governments. That the TRF was completed on time and on budget is thanks to the efforts of some key individuals: Professor John Funder, for promoting our vision with Monash Health in his role as Research Director; Professor Ed Byrne, then Vice Chancellor of Monash University, for his support; and my fellow members of the MHTP Executive, Shelly Park, CEO of Monash Health, and Christina Mitchell, Dean of the Faculty of Medicine, Nursing and Health Sciences at Monash University, for their support through project planning and construction, and Professors Eric Morand, Erwin Lo and Paul Hertzog, for their continuing oversight on the Precinct Advisory Committee.

The November move of our Centre for Cancer Research and The Ritchie Centre into the TRF was a wonderful milestone for Hudson Institute and heralds an exciting future for discovery research.

The opportunities that the TRF presents could not have come at a better time for our precinct. The innovation statement from the Prime Minister, released late last year, issued a challenge for medical research to embrace change and innovation. Through the TRF, Hudson Institute is uniquely placed to lead the national innovation and science agenda.

Progressing outstanding scientific research requires a focused and directed strategy for nurturing a highly skilled workforce, and for technology and translation, incorporating thematic and programmatic excellence across the Institute. During 2015, we completed an extensive strategic review to ensure our ongoing contribution to world-leading research and I am happy to report that our three-year strategic plan was unanimously endorsed by the Board and supported by staff.

However, there are significant challenges on the horizon to navigate, not least of which is addressing the delivery of world-best research in a financially uncertain research environment.

While Hudson Institute ranked third among all independent medical research institutes in National Health and Medical Research Council (NHMRC) project grants awarded, a national drop in project grant funding to just 14.9 per cent of applications is the lowest in our history and represents a significant threat to medical research. In an increasingly competitive funding environment, we must continue to diversify our income sources. We are extremely fortunate that now, in the TRF, we have the optimum environment to work with new partners in the biopharma and biotechnology industries, broadening our funding base further. This environment is key to translating our discoveries to clinical impact, with our co-location alongside the TRF Clinical Trials floor.

In 2015, we provided significant direction in the Victorian Government's Health and Medical Research Strategy discussion paper led by the Chair, State Government Minister of Health, Jill Hennessy. Given the critical state of health and medical research funding in Australia, and the decrease in Victoria's share of NHMRC funding in the 2014 round, this was a timely initiative and I am hopeful of positive outcomes for our Institute, clinical partners and community.

Our grant success in a challenging funding environment is evidence of the extraordinary talent of our researchers, their commitment to excellence in research, collaboration and seeking innovative solutions, and the results they deliver for our community. As you read about the exceptional work of our talented researchers in this report, please consider supporting the realisation of their projects.

It saddens me that, as a result of the reduction in grant funding, many promising young researchers miss out and we lose them to other countries or even to the profession entirely. This loss to Australia, of life-saving medical discoveries and the industries that flow from them, is a national challenge. Fostering and keeping talented young researchers in Australia is vital, both for our health and our economy.

We are extremely grateful to the Fielding Foundation for addressing this growing gap at Hudson Institute through the establishment of the Fielding Fellowship and the Fielding Foundation Innovation Award, supporting research innovation and bright young researchers.

While our primary source of funds is through competitive grants won from the NHMRC, never before has the importance of other sources of support been so paramount. Philanthropic trusts and foundations, as well as private philanthropists, provide vital support when government funding is decreasing. During 2015, we welcomed incredible talent to our leadership team. Associate Professor Ron Firestein joined us from Genentech, San Francisco, as the new Head of the Centre for Cancer Research, and IVF pioneer and world-leading stem cell scientist, Professor Alan Trounson, re-joined the Hudson Institute from the \$3 billion California Institute for Regenerative Medicine (CIRM).

I take great pride in what our exceptional team of leaders, talented researchers, students and staff have accomplished in this past year. Together, we make Hudson Institute an extraordinary place to work, study and progress our shared future.

mm R.S. Wilhims

Professor Bryan Williams Director

'JOINING THE HUDSON INSTITUTE IS A FANTASTIC OPPORTUNITY TO BE IN THE RIGHT PLACE AT THE RIGHT

HUDSON INSTITUTE WELCOMED WORLD-RENOWNED RESEARCHER AND CLINICIAN, ASSOCIATE PROFESSOR RON FIRESTEIN, AS THE HEAD OF THE CENTRE FOR CANCER RESEARCH IN 2015.

A physician-scientist from San Francisco, A/Prof Firestein exemplifies the Institute's vision of leading the translation of innovative research into valuable patient treatment.

"Joining Hudson Institute is a fantastic opportunity to be in the right place at the right time. The new Translational Research Facility offers far-reaching possibilities for cancer research and treatments for patients. It's an environment like no other in the world," he said.

The strengths that drew me are the strong culture of collaboration and multi-disciplinary research, the critical mass of scientists and the clinical and translational strength on the Monash Precinct. It's an environment like no other in the world."

A/Prof Firestein, who also works one day a week in pathology at Monash Health, said having researchers, clinicians and patients sharing the same physical space is a transformative change for progressing treatments.

"The Centre for Cancer Research comprises dynamic scientists and clinicians who are tackling the most challenging problems in cancer research using unique and multidisciplinary research teams.

"This strong culture of collaboration drew me to Hudson Institute, backed up by the critical mass of scientists and the clinical-translational research strengths." A/Prof Firestein joins Hudson Institute from Genentech in San Francisco, where he was a cancer researcher and pathologist, focusing on cancer biomarker development in early-stage research and in clinical trials. Biomarkers can be used to assist the diagnosis of some cancers, and to design and monitor therapies specifically tailored for the individual. A/Prof Firestein's research is key to identifying and developing personalised treatments for particular cancer types.

He also led a research laboratory focused on novel oncogenic target identification and validation in colon, breast and lung cancer.

A/Prof Firestein earned his BA in Biology from the University of Pennsylvania and his MD/PhD from Stanford University in 2002. He completed his residency in Anatomic Pathology at the Brigham and Women's Hospital and a fellowship in Molecular Pathology at Harvard Medical School, where he received the Thomas Gil Award for excellence in research.

HUDSON

Associate Professor <mark>Ron Firestein</mark> Head, Centre for Can<mark>cer</mark> Research

CENTRE FOR CANCER RESEARCH



Centre Head: Associate Professor Ron Firestein

The Centre for Cancer Research scientists are tackling the most pressing challenges in the diagnosis and treatment of both adult and childhood cancers. The goal of the Centre for Cancer Research is to explain the fundamental mechanisms of tumour biology and to use these discoveries for the development of novel cancer therapies and biomarkers or indicators of cancer.

The Centre's research into the molecular mechanisms underlying tumour development and progression looks at the intricate relationship between the innate immune system and cancer. Using their expertise, researchers in the Centre develop sophisticated diagnostic tests that will enable early detection and more precise monitoring of ovarian, colorectal and prostate cancers.

Cancer is a leading cause of death in Australia with over 130,000 new cases diagnosed every year. Despite recent improvements in cancer diagnosis and treatment, one-third of these patients will die due to the disease within five years.

In 2015 world-renowned cancer researcher and clinician, Associate Professor Ron Firestein, joined the Centre for Cancer Research as the new head. A/Prof Firestein's work focuses on identifying and developing personalised treatments for particular cancer types and has already lead to significant progress in cancer research. The opportunity to work in the Monash Health Translational Research Facility, where he can combine both his scientific and clinical expertise to accelerate this vital research, was fundamental to his decision to move to the Hudson Institute from the United States.

Research Achievements 2015

A/Prof Ron Firestein's *Cancer Genetics and Functional Genomics group* discovered an important genetic marker that predicts which patients respond to a new class of cancer drugs called BET inhibitors, which target the cancers on a genetic level.

A team led by Drs Tony Sadler and Dakang Xu and Professor Bryan Williams *(Cancer and Innate Immunity group)* discovered that a factor termed PLZF, originally identified to be involved in the development of a rare form of childhood leukaemia, plays a critical role in the important process of dampening inflammation, reducing it by restricting the expression of inflammatory gene products.

Dr Kristy Brown was the recipient of a National Breast Cancer Foundation Career Development Fellowship aimed at supporting outstanding new investigators and expanding the scale and scope of breast cancer research in Australia.

Dr Kristy Brown's *Metabolism and Cancer group* discovered a new molecular link between obesity and breast cancer. Professor Terrance Johns' **Oncogenic Signalling group** shed light on the mechanism of action of EGFRvIII, a receptor often present in glioma, an incurable brain cancer. Their findings may result in new therapeutic strategies for glioma patients.

Dr Daniel Gough's **STAT Cancer Biology group** have uncovered an important metabolic pathway in mitochondria, dependent on a protein called STAT3, that could be targeted to kill cancer cells.

The *Leukaemia Research groups* led by Drs Ashish Banerjee and George Grigoriadis identified that inhibition of the protein NF- κ B is important in the mechanism underlying the action of deferasirox, a drug used to reduce iron levels in patients with blood diseases who need multiple transfusions.

Research Group Heads

A/Prof Ron Firestein, Cancer Genetics and Functional Genomics

Prof Bryan Williams, Cancer and Innate Immunity Dr Tony Sadler, Cancer and Innate Immunity Prof Terrance Johns, Oncogenic Signalling A/Prof Colin Clyne, Cancer Drug Discovery Dr Jason Cain, Developmental and Cancer Biology Dr Daniel Gough, STAT Cancer Biology Dr Andrew Stephens, Ovarian Cancer Biomarkers Dr Kristy Brown, Metabolism and Cancer Dr Ashish Banerjee, Immunohaematology Michael Gantier, Nucleic Acids and Innate Immunity Dr George Grigoriadis (Monash Health), Immunohaematology

A/Prof Elizabeth Algar (Monash Health), Genetics and Molecular Pathology

Dr Arun Azad (Monash University, School of Clinical Sciences), Prostate Cancer Biomarkers

A/Prof Jake Shortt (Monash University, School of Clinical Sciences), Leukaemia and Myelodysplasia

Distinguished Scientist

Prof Alan Trounson

Centre Highlights





PhD & Honours graduates in 2015





CENTRE FOR ENDOCRINOLOGY & METABOLISM



Centre Head: Professor Peter Fuller AM

The Centre for Endocrinology and Metabolism is working to understand the role of hormones in disease. By understanding the endocrine system, which affects all parts of the body, the Centre for Endocrinology researchers positively impact vital aspects of human health; from reproductive health and fertility to ageing, through to life-threatening diseases including cancers, cardiovascular disease, obesity and diabetes. The Centre is strongly focused on translating its research to the clinic to improve diagnosis, therapeutic intervention and prevention of major diseases.

Through its research into different endocrine functions The Centre impacts on many debilitating diseases, including:

- Improving osteoporosis through the study of bone disorders.
- Assisting wound healing, immune function and tumour progression by exploring the impact of the TGF-β family.
- Understanding reproductive hormones in men and women to improve health, fertility, ageing, menopause, cardiovascular disease, diabetes and obesity/adiposity.
- Treating and preventing breast cancer and cardiovascular disease by understanding steroid hormone interactions with nuclear receptors. The world's biggest killer, cardiovascular disease, is a major focus of this work.
- Informing understanding of thyroid cancer through a collaborative study.

Research Achievements 2015

Dr Simon Chu from the **Steroid Receptor Biology group** discovered that a combination treatment of two drugs increased cell death and decreased proliferation and viability in ovarian granulosa cell tumour cell lines. By analysing the proteins in these tumours, critical proteins were identified following the drug treatment. An unregulated protein, stearoyl-CoA desaturase (SCD), may have a critical role in the ovary. SCD encodes an enzyme involved in fatty acid biosynthesis; primarily the synthesis of oleic acid.

Dr Morag Young's **Cardiovascular Endocrinology group** found that blocking a steroid hormone receptor, the mineralocortoid receptor (MR), in cardiac muscle cells was critical for restoring heart function after heart failure. Macrophage-specific MR signalling was shown to be an important contributor to increased inflammation and fibrosis, which predispose the injured heart to failure.

Associate Professor Craig Harrison's **Growth Factor Signalling group** discovered that increasing activin levels (which are elevated in many cancer cells) caused muscle wasting and weight loss, resembling the weight loss in advanced cancer stages (termed cachexia). A novel activin antagonist, designed in his laboratory, prevented activin-induced muscle wasting. These findings were published in Molecular Therapy. The *Metabolic Bone Research group* welcomed PhD student, Dr Anne Trinh, the recipient of a Royal Australasian College of Physicians research grant to investigate bone disease in chronic neurological disability. Her work in cerebral palsy has been accepted for publication in Journal of Clinical Endocrinology and Metabolism.

Professor Robert McLachlan from the *Clinical Andrology group* continued the education of medical practitioners and the public about men's health, and led an enquiry into the incorporation of men's health teaching into medical school curricula to ensure that students have the skills and knowledge for subsequent clinical practice.

Professor Peter Fuller received Australia Day Honours. Prof Fuller was recognised with an AM for significant service to medicine as an endocrinologist through contributions to medical research and professional organisations.

Professor John Funder was also awarded an AC for eminent service to medicine, particularly to cardiovascular endocrinology, as a renowned researcher, author and educator; to the development of academic health science centres.

Professor Henry Burger was elected a Fellow of the Australian Academy of Health and Medical Sciences.

Research Group Heads

Professor Peter Fuller, Steroid Receptor Biology Group Professor Robert McLachlan, Clinical Andrology Group Dr Morag Young, Cardiovascular Endocrinology Group A/Professor Craig Harrison, Growth Factor Signalling Group Dr Frances Milat, Metabolic Bone Research Group Dr Peter Stanton, Male Fertility Regulation Group (jointly with CRH)

Distinguished Scientists

Prof Henry Burger AO FAA, Director Emeritus Prof John Funder AC Prof Evan Simpson FAA FRSE, Director Emeritus A/Prof David Robertson

Centre Highlights





iji 37



CENTRE FOR GENETIC DISEASES



Centre Head: Professor Justin St. John

Many of the diseases that affect us originate from changes present at or just after fertilisation and are known as inherited disorders. It was originally thought that these diseases were primarily caused by mutations to the genes inherited from our parents. However, it is becoming increasingly evident that many diseases also arise from the number of copies of a gene present in our cells and the changes to epigenetic regulators, which are factors that control how and if the gene is expressed.

By looking into the very earliest stages of development, when genetic and epigenetic disorders first manifest, we can understand the underlying mechanisms of disease and provide a platform for the development of tomorrow's therapies and clinical practices.

The Centre for Genetic Diseases studies the inheritance of mutations, the number of copies of genes and epigenetic regulators of gene expression. Our aim is to provide explanations for how a large number of diseases are passed from one generation to the next.

The Centre investigates how very early epigenetic markers in sperm and eggs are controlled during development, and how they will affect our children, and their children, if they are unhealthy.

Researchers are developing technologies to increase the number of crucial diseaseprotecting mitochondrial DNA in the eggs of women deficient in mitochondrial DNA. Eggs with low mitochondrial DNA are predisposed to develop diseases such as obesity and diabetes.

Another research focus is how faults in mitochondrial proteins cause energy generation defects that result in mitochondrial disease.

Research Achievements 2015

Dr Matthew McKenzie from the Molecular Basis of Mitochondrial Disease group discovered that new anticancer drugs that kill cancer cells inhibit enzyme activity in the cells' mitochondria to induce death of the cancer cell. This finding is not only important for understanding how these drugs work, but will also aid the design of new compounds that are more effective for cancer treatment.

Dr Patrick Western from the Germ Cell Development and Epigenetics group identified a significant issue with an additive used to model testis and ovary development in cell and organ culture. As a result, a recommendation was made to exclude this product from applications where normal tissue and cell development are required.

The Mitochondrial Genetics theme, headed by Professor Justin St. John, explored how mitochondrial DNA is regulated through an epigenetic mechanism that enables cells to perform their specialised functions efficiently, and how this process is regulated in cancer cells.

This team also discovered that a mutation in a nuclear-encoded mitochondrial gene leads to early cellular dysfunction and results in the inability of embryonic stem cells carrying this mutation to develop into mature cells.

Research Group Heads

Prof Justin St. John, Mitochondrial Genetics

Dr Matthew McKenzie, Molecular Basis of Mitochondrial Disease

Dr Patrick Western, Germ Cell Development and Epigenetics

Centre Highlights



PhD graduates in 2015





CENTRE FOR INNATE IMMUNITY AND INFECTIOUS DISEASES



Centre Head: Professor Paul Hertzog

Scientists in the Centre for Innate Immunity and Infectious Diseases (CiiiD) aim to discover how our early immune response fights infection, inflammatory diseases and proliferation of cancer cells. Research in the Centre focuses on the molecules that regulate this innate immune system and the cellular mechanisms that determine its success (resulting in a return to good health) or failure (resulting in acute or chronic disease). CiiiD scientists develop new approaches to preventing, diagnosing and treating infections, inflammatory diseases and cancer.

CiiiD researchers are world leaders in their field. The key diseases they investigate include:

- Infections such as influenza, HIV, herpes, Helicobacter pylori and Chlamydia.
- Inflammatory diseases such as gastritis, chronic obstructive pulmonary disease and autoimmune conditions related to systemic lupus erythematosus.
- Cancers of the stomach, lung, pancreas, breast and ovary.

The Centre's key focus is cytokine signalling and understanding the connections between molecules and diseases. This includes:

- Discovering the molecular pathways that determine how 'danger', such as a pathogen, cancer cell or inflammatory stimulus, is sensed.
- Studying cytokine signalling how cells produce important messenger molecules, such as interferons and interleukins, and how cells receive the cytokine message through receptors, which signal the cell to migrate, proliferate, kill pathogens or die.

"CiiiD is one of the premier innate immunity research centres in Australia, making a significant contribution to infection and immunity research and development, one of Victoria's scientific strengths and employing more than 5000 people. Victorian infection and immunity scientists consistently win more than 50 per cent of all NHMRC funding for immunology and microbiology research, validating the importance of research and discoveries in this field."

- Professor Paul Hertzog

Research Achievements 2015

CiiiD scientists continued important translational research projects with international and local collaborators on:

The previously discovered cytokine, interferon epsilon and its role in HIV infection.

Molecular profiling of pancreatic cancer for personalised therapy.

The role of innate immune receptors and Helicobacter pylori in gastric cancer.

Infectious and inflammatory diseases of the respiratory tract.

Dr Maria Kaparakis-Liaskos was awarded an inaugural veski Inspiring Women Fellowship. Funded by the Victorian Government through the office of the Lead Scientist, these fellowships ensure outstanding female researchers get the support they need to juggle career and carer commitments to remain competitive in their research careers.

Regulation of Interferon and Innate Signalling group PhD student, Ms Zoe Marks, won the Three Minute Thesis competition for the Institute, School of Clinical Sciences, and then for the Faculty of Medicine, Nursing and Health Sciences before placing second in the Monash University-wide competition.

CiiiD had an outstanding success rate of 50 per cent in our NHMRC Project Grant applications compared to the national average of 13.8 per cent. This outcome follows our 70 per cent success rate in 2014. CiiiD researchers were also successful in obtaining research funding from commercial and philanthropic sources.

Professor Paul Hertzog, Centre Head and MHTP Medical Genomics Facility Convenor, led the establishment of the Single Cell Genomics Centre, which resulted in its recognition as Australia's first Fluidigm Single Cell Centre of Excellence. CiiiD staff and students were highly engaged in community events and conference organising. Ten members of the Centre were involved in public outreach activities for the annual Victorian Day of Immunology.

Centre Head, Professor Paul Hertzog, co-convened the Fifth Lorne Infection and Immunity Conference and Associate Professor Richard Ferrero was on the organising committee of the major international conference, BacPath13: Molecular Analysis of Bacterial Pathogens.

Research Group Heads

Prof Paul Hertzog, Regulation of Interferon and Innate Signalling

Prof Brendan Jenkins, Cancer and Immune Signalling

A/Prof Richard Ferrero , Gastrointestinal Infection and Inflammation

Dr Ashley Mansell , Pattern Recognition Receptors and Inflammation

Prof Philip Bardin, Respiratory and Lung Research

Centre Highlights

staff

students

GGCAATCGG



CENTRE FOR REPRODUCTIVE HEALTH



Centre Head: Professor Lois Salamonsen

Reproductive health is now a major global challenge. Changes to our environment and within society are strongly affecting reproduction and the long-term health of our offspring. We now know that life-long health is determined by external factors that begin prior to conception. Using basic and translational science, the Centre for Reproductive Health seeks to answer critical questions about sperm and egg development, early embryo development, implantation of the embryo into the womb, formation of the placenta and nurture of the foetus until birth, and how these affect human life and development.

The Centre for Reproductive Health addresses important issues surrounding human reproductive health, including:

- Why one in eight couples are infertile.
- Increasing fertility.
- Giving an unborn baby the greatest opportunity for a healthy life.

The Centre also seeks to find solutions to important genetic issues, such as why embryos develop into either a male or female and why some brain disorders are more frequently diagnosed in one sex.

Researchers are also working on new, non-hormonal options for contraception; essential to an increasing world population.

The study of human reproductive health also has important implications in nature, including the conservation of endangered species and animal food production.

The Centre also provides important insights into cancer development and metastasis, immune cell and inflammatory disease, and tissue remodelling and repair through research of the regulatory processes involved in reproduction.

Research Achievements 2015

Dr Amy Winship and Associate Professor Eva Dimitriadis from the *Embryo Implantation group* established a unique model for the life-threatening pregnancy complication, preeclampsia. Unlike previous models, this model exhibits the full spectrum of the disease and paves the way for therapeutic testing. The team is now exploring new patient treatments for preeclampsia.

A team led by Dr Jemma Evans and A/Prof Eva Dimitriadis has shown that blocking the actions of one form of an important pregnancy hormone usually dominant during early placental development can compromise the placenta and lead to early miscarriage or pregnancy disorders. This finding provides important information to help prevent complications during pregnancy.

PhD student Sophea Heng and supervisor Guiying Nie from the *Implantation and Placental Development group* identified that a molecule on the endometrial surface, dystroglycan, is a barrier for embryo attachment and that removing it converts the surface to an adhesive state, essential for successful embryo implantation and establishment of pregnancy. Professor Kate Loveland's **Testis Development and Mail Germ Cell Biology group** identified proteins that move between the nucleus and cytoplasm to regulate cell activities in the embryonic testis when it is first masculinised. High resolution microscopy revealed how one of these proteins moves into a sub nuclear particle involved in RNA metabolism and responds to stress, which are vital cellular processes important for male fertility.

Professor David de Kretser was elected a Fellow of the Australian Academy of Health and Medical Sciences.

Research Group Heads

Prof Lois Salamonsen Endometrial Remodelling

Prof Vincent Harley Sex Determination and Gonadal Development

Prof Kate Loveland Testis Development and Male Germ Cell Biology

A/Prof Mark Hedger Endocrinology and Immunophysiology

A/Prof Eva Dimitriadis Embryo Implantation

A/Prof Guiying Nie Implantation and Placental Development

Dr Peter Stanton Male Fertility Regulation

Dr Joohyung Lee, Brain and Gender

Distinguished Scientists

Prof Jock Findlay AO

Prof David de Kretser AC Distinguished Sir John Monash Professor

Centre Highlights



Project grants

36 research publications

38

researchers



THE RITCHIE CENTRE



Centre Head: Professor Stuart Hooper

The Ritchie Centre is Australia's premier clinical and research centre for women, babies and children. The Ritchie Centre offers a unique setting where research advances can be rapidly applied for the benefit of women, seriously ill infants and children. This has led to the rapid translation of its basic research into clinical trials and clinical practice.

The Centre's mission to improve the health of women, infants and children through innovative research is achieved through its unique associations as the principal research centre of the Monash University Department of Obstetrics and Gynaecology and the Department of Paediatrics, Monash Women's Services, Monash Newborn and Melbourne Children's Sleep Centre. It is also a major research partner of the Monash Children's Hospital.

Research Themes:

- Women's Health.
- Fetal and Neonatal Health: respiratory and cardiovascular.
- Fetal and Neonatal Health: brain injury and neurodevelopment.
- Infant and Child Health.
- Cell Therapy and Regenerative Medicine

The Centre has more than 160 research staff and students, including fetal physiologists, sleep physiologists, immunologists, stem cell biologists, neonatologists, paediatricians, obstetricians, gynaecologists and radiologists.

Research Achievements 2015

Researchers in the **Women's Health theme** are one step closer to developing a cell-based therapy for pelvic organ prolapse, a common disorder resulting from childbirth injury with suboptimal treatment. A small molecule that prevents the loss of stem cell properties when adult stem cells are cultured to produce sufficient cells for clinical use was discovered. This was highlighted in one of their key publications: Inhibition of Transforming Growth Factor- β Receptor signaling promotes culture expansion of undifferentiated human Endometrial Mesenchymal Stem/stromal Cells.

The **Fetal and Neonatal Health: Respiratory and Cardiovascular theme** published 35 research articles and the combined output of the theme's research group leaders was cited over 800 times. Researchers from this theme were awarded more than \$8 million in funding from NHMRC; most notably a Program Grant to Centre Head Professor Stuart Hooper, a Career Development Fellowship (level 2) to Dr Graeme Polglase, Head of the Perinatal Transition Research Group, and an Early Career Fellowship to recent PhD graduate, Dr Samantha Barton.

The **Fetal and Neonatal Health: Brain Injury and Neurodevelopment theme** led more than 30 research projects designed to examine brain development, injury and neuroprotection, and to translate innovative ideas into preventative therapies for cerebral palsy. Research from the theme attracted international collaborations, ensuring our leadership in developing therapeutic interventions to reduce neonatal brain injury. The **Paediatric Sleep Group of the Infant and Child Health theme** published 16 journal articles, two book chapters and five reviews. Philanthropic funding was provided by the Angor Family Foundation, Jack Brockhoff Foundation and Creswick Foundation. Dr Lisa Walker received awards from the Australia and New Zealand Children's Haematology Oncology Group and the Australasian Sleep Association. Dr Sarah Biggs received the World Sleep Day Achievement Award from the World Association of Sleep Medicine. Professor Rosemary Horne received the inaugural Hudson Institute of Medical Research Achievement Award for her contributions to postgraduate student education. Associate Professor Gillian Nixon was awarded an NHMRC Translational Research into Practice Fellowship.

Dr Rebecca Lim from the *Cell Therapy and Regenerative Medicine theme* is leading a research group that is pioneering a world-first treatment employing stem-celllike therapy to treat lung damage in premature babies. If it proves successful, this technique could be used in hospitals to improve survival rates and quality of life of babies suffering from conditions like lung respiratory distress syndrome and bronchopulmonary dysplasia. The Theme now incorporates a novel GMP Cell Therapy Platform for translation of its studies to the clinic. Philanthropic funding was received from Inner Wheel Australia and the L.E.W. Carty Charitable Fund.

Research Group Heads

- Dr Rebecca Lim, Amnion Cell Biology
- A/Prof Caroline Gargett, Endometrial Stem Cells
- Prof Stuart Hooper, Fetal and Neonatal Health
- Prof Rosemary Horne, Infant and Child Health
- Prof Graham Jenkin, Cell Therapy and Regenerative Medicine
- A/Prof David Walker, Fetal and Neonatal Health Neurodevelopment
- Dr Suzanne Miller, Neurodevelopment and Neuroprotection
- Dr Megan Wallace, Lung Development
- A/Prof Tim Moss, Perinatal Inflammation
- Dr Graeme Polglase, Perinatal Transition

- Dr Hayley Dickinson, Embryology and Placental Biology
- A/Prof Marcel Nold, Inflammation in Neonatal Diseases
- A/Prof Flora Wong, Neonatal Brain Protection
- A/Prof Jim Buttery, Infant and Child Health

A/Prof Suzanne Miller (Department of Obstetrics and Gynaecology, Monash University), Neurodevelopment and Neuroprotection

Prof Euan Wallace (Head, Department of Obstetrics & Gynaecology, School of Clinical Sciences, Monash University), Cell Therapy and Regenerative Medicine

Prof Nick Freezer (Head, Department of Paediatrics, School of Clinical Sciences, Monash University)

Centre Highlights



e 24

PhD & Honours graduates in 2015

iji 95

67

HOPE FOR OUR TINIEST PATIENTS

PREMATURITY IS A LEADING CAUSE OF INFANT DEATH, WITH SURVIVAL RATES AS LOW AS 30 PER CENT.

The vision of The Ritchie Centre immunologist, Dr Claudia Nold, is to reduce premature death from cardiopulmonary diseases in our tiniest patients.

Preterm babies may suffer from two major diseases of the lung and heart. The most common, bronchopulmonary dysplasia (BPD), is characterised by severely curtailed lung growth that limits oxygen supply to the developing tissues of the infant; notably the brain.

One of the key signatures of BPD, a sparse pulmonary vascular tree, causes the second serious disease of prematurity: pulmonary arterial hypertension (PAH). PAH affects 25 per cent of BPD patients by slowly destroying their right heart; less than half of these babies survive beyond two years of age.

Currently there is no early diagnostic test, and no safe and effective way to treat these diseases. Each of the multifactorial pathways leading to BPD and PAH starts with inflammation that wreaks damage on the baby's lungs and heart.

Dr Nold's work shows that blocking inflammation early will reduce or even eliminate the onset of BPD, and therefore also PAH. "I think this potentially life-saving discovery means there is hope on the horizon for premature infants and their parents," said Dr Nold.

In recognition of her life-saving work, in 2015 the National Heart Foundation awarded Dr Nold the Future Leader Fellowship Award and the Heart Foundation Paul Korner Innovation Award.

Together with a very talented team of scientists and clinicians at Hudson Institute, and through collaborations within Australia and internationally, I am now seeking new anti-inflammatory therapies to avert disease in preterm babies and I plan to identify biomarkers that will enable early diagnosis of heart and lung diseases in infants.

"I want to harness the therapeutic value of two of the body's key anti-inflammatory molecules, interleukin 1 receptor antagonist, which prevents the development of severe lung disease, and interleukin 37, a newly discovered potent anti-inflammatory immune molecule with untapped therapeutic potential for cardiopulmonary diseases in preterm babies."

The top-ranked Heart Foundation Victoria Future Leader Fellowship Award supports the best and brightest cardiovascular researchers making high impact research outcomes, so they can build their research capacity and become leaders of research groups.

The Heart Foundation Paul Korner Innovation Award is granted to the most innovative Future Leader Fellowship Award winners.

MARCHARLAN DATA



Dr Claudia Nold Research Group Head, Interventional Immunology in Neonatal Diseases and Beyond

NURTURING OUR TALENT

THE WIDENING GAP IN MEDICAL RESEARCH FUNDING MEANS AUSTRALIA IS LOSING TALENTED YOUNG SCIENTISTS AND THEIR VITAL LIFE-SAVING DISCOVERIES AND ECONOMIC GROWTH.

Melbourne businessman and philanthropist, Peter Fielding, created two awards to help early-to-mid-career researchers continue their work in Australia:

• The Fielding Foundation Fellowship supports young scientists when they need it most, putting them on the path towards making vital discoveries for our community.

• The Fielding Foundation Innovation Award supports the commericalisation of medical research, seeing discoveries translated from the laboratory into patient treatments.

"This is a crucial investment in the careers of emerging research talent and will enable extraordinary young researchers to build their research and apply discoveries to drive global health innovation," said Mr Fielding.

EXTRAORDINARY TALENT

Inaugural Fielding Foundation Fellowship recipient, Dr Rebecca Lim, is pioneering a world-first treatment to save babies' lives.

Preterm babies are often born with immature lungs, requiring life-saving respiratory support. About 50 per cent will experience lung damage as a result, for which there is no effective treatment.

Dr Lim's team's research, now in clinical trial at Monash Health, uses stem cell-like therapy to repair lung damage in premature babies. If successful, Dr Lim's technique will be used to improve survival rates and the quality of life for premature babies by reducing conditions like lung respiratory distress syndrome and bronchopulmonary dysplasia.

Dr Lim has been the world's top-ranked researcher in her field of amnion cell research since 2010. She has received 17 awards for academic and research excellence and is a Chief Investigator on four NHMRC grants.

The treatment uses amnion epithelial cells extracted from amniotic membrane, which surrounds the baby during pregnancy. Like stem cells, these cells can grow into any type of cell in the body, but because they are discarded as part of the afterbirth, they lack the same ethical dilemmas. These potentially life-saving cells attach to the baby's damaged lungs, kick-starting the repair process.





NEW SYNDROME

HUDSON INSTITUTE SEX GENETIC EXPERTS HAVE IDENTIFIED A NEW RARE SYNDROME THAT HELPS SOLVE WHY SOME PEOPLE ARE BORN INTERSEX.

Centre for Reproductive Health researchers, Dr Stefan Bagheri-Fam and Professor Vincent Harley, led the international study that identified the new syndrome, craniosynostosis with sex reversal (CSR).

The study revealed that a mutated form of the FGFR2 gene, already known to cause craniosynostosis (where the joints between the bones of a baby's skull close before the brain fully forms), also causes XY sex reversal.

The breakthrough for the team came after analysing genetic data from a German intersex patient that revealed she was a carrier of the mutated FGFR2 gene, known to cause craniosynostosis. Hudson Institute's international collaborators for the discovery included laboratories at Yale University, USA and Freiburg University, Germany.

The umbrella term 'intersex' has many genetic causes, but only 30 per cent of people with intersex conditions are diagnosed with a specific genetic cause or disorder.

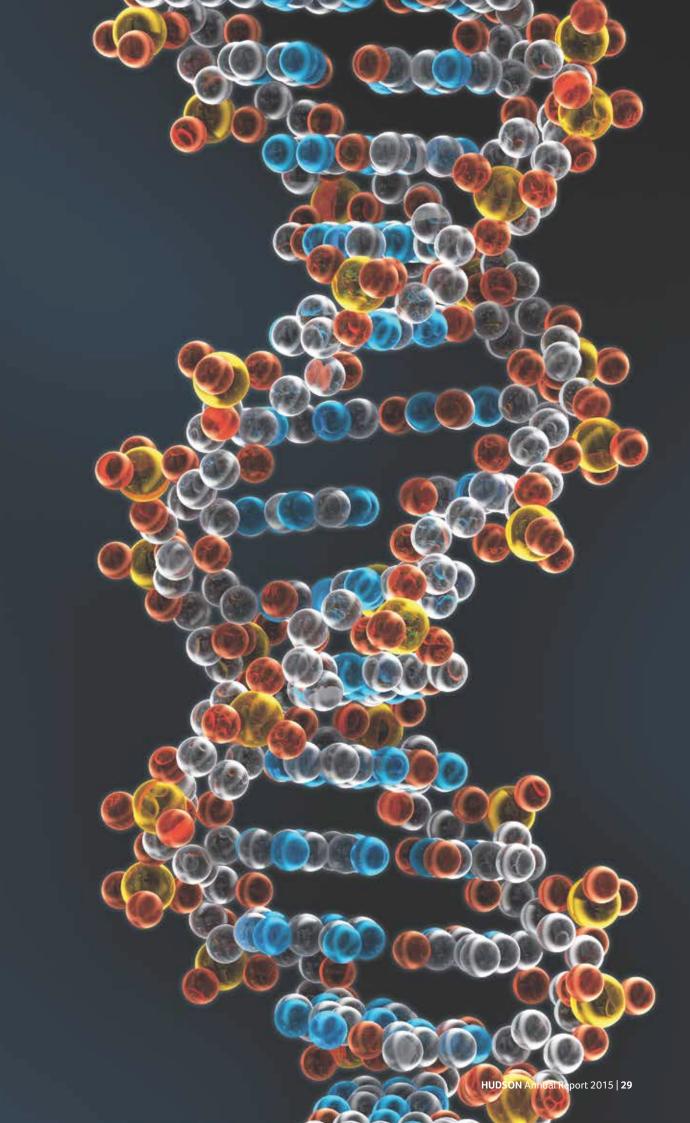
By identifying the genetic causes, clinicians are able to diagnose the condition earlier and help to avoid many health and social impacts later in life; including multiple surgeries, infertility, lifelong endocrine care, increased risk of some cancers, and psychological trauma.

Professor Vincent Harley

Research Group Head, Brain and Gender NHMRC Senior Research Fellow Adjunct Professor, Department of Biochemistry and Molecular Biology & Department of Anatomy and Cell Biology, Monash University

Dr Stefan Bagheri-Fam

Senior Research Officer, Sex Determination & Gonadal Development



REDUCING GLO HIV INFECTION

WORLD-FIRST HUDSON INSTITUTE RESEARCH HAS BEEN FUNDED FOR ITS POTENTIAL TO PREVENT SEXUALLY TRANSMITTED INFECTIONS AND HAS RECEIVED MORE THAN \$1 MILLION FROM THE BILL AND MELINDA GATES FOUNDATION.

In 2013 research led by Professor Paul Hertzog, Head of the Centre for Innate Immunity and Infectious Diseases, identified a naturally occurring immune cytokine, Interferon Epsilon (IFN-epsilon), in the female reproductive tract that regulates immunity to sexually transmitted infections (STIs), including HIV.

Progesterone-based contraceptives have been linked to an increased susceptibility to STIs, which, Prof Hertzog hypothesised, is caused by the progesterone in contraceptives suppressing IFN-epsilon in the female reproductive tract.

The discovery, published in the prestigious journal Science, outlined many implications for future studies into the prevention of diseases of the reproductive tract.

"Certain progesterone-based contraceptives are among the cheapest, most widely used contraceptives globally. This study was the first of its kind to link progesterone to suppression of IFN-epsilon expression. If we can show this, then we can investigate potential solutions, and contribute to reducing the high global incidence of HIV infection," said Prof Hertzog. The Gates Foundation recognised the potential of this research to determine the safest and most effective contraceptive solutions for women globally, and asked Prof Hertzog to continue the research to the next stage.

With the Gates Foundation's support, Prof Hertzog is leading a team of international research collaborators on a comprehensive 18-month investigation into the mechanism behind progesterone regulation of IFNepsilon and identifying biomarkers for monitoring IFN-epsilon activity in women.

The Gates Foundation has a strong program of family-planning activities, including a significant investment to making contraceptives available to 220 million women in western Africa, India and Indonesia.

Providing women in developing countries with hormone-based contraceptives helps women plan pregnancies and reduces infant mortality rates. However, if progesteronebased contraceptives are linked to increased HIV susceptibility, then alternative contraceptive options need to be considered.

Currently more than 33 million people are living with HIV. While huge advances in treatment have been made, the number of newly infected people each year outnumbers those who gain access to treatment by two to one.

Children are being born with HIV at a rate of 300,000 per year. Half of them won't reach their second birthday.

INFLAMMATION BREAKTHROUGH

Centre for Cancer researchers discovered that a protein called PLZF, previously found to be involved only in a rare form of childhood leukaemia, also acts as a brake on inflammation and could lead to better treatments for cancer, heart disease, diabetes and Alzheimer's disease. The team, led by Drs Tony Sadler and Dakang Xu, and Institute Director, Professor Bryan Williams, found that PLZF plays a crucial role in controlling inflammation.

When bacteria or viruses contact macrophages in the body, they are detected by specific receptors called Tolllike receptors. These receptors have evolved to become our first line of defence against invading viruses and bacteria.

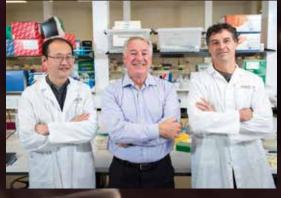
The research team discovered that the triggering of Tolllike receptors by bacteria, or by bacterial or viral products, instructs PLZF to dampen but not block the inflammatory response. In the absence of PLZF, higher levels of potent inflammatory cytokines are produced and there are exaggerated inflammatory responses to infections, which can be very dangerous. With this work, the team unravelled the pathways that control this inflammation. When these pathways are understood, precise drugs targeting such processes can be designed to help patients.

CONTROLLING INFLAMMATION – THE HOLY GRAIL

Inflammation is the root cause behind many serious diseases, and a research priority across multiple Hudson Institute research themes.

By understanding and controlling inflammation, our researchers can positively impact major diseases; including cancer, diabetes, heart disease and Alzheimer's disease.

Inflammation is a normal and important response to infection or injury – a little bit is good, but a lot can lead to serious disease. Current drugs used to treat inflammation are imprecise and either have significant side effects or work only in a select group of patients. By better understanding what controls inflammation, Hudson Institute hopes to improve treatments and develop new therapies for patients.



L - R: Dr Dakang Xu, Professor Bryan Williams, Dr Anthony Sadler

PROCEED WITH CAUTION

HEAD OF THE CENTRE FOR GENETIC DISEASES, PROFESSOR JUSTIN ST. JOHN, PLAYED A KEY LEADERSHIP ROLE IN THE DEBATE OVER THE UK'S DECISION TO ALLOW THE USE OF A CONTROVERSIAL IVF TECHNIQUE, MITOCHONDRIAL REPLACEMENT THERAPY, COMMONLY KNOWN AS 'THREE-PARENT IVF'.

Prof St. John has been a mitochondrial DNA researcher for more than 20 years and, while he supports the technique, he believes the decision may have come too early and that further testing is needed to confirm the safety of the technique before it is used to produce children.

Mitochondria are the 'power plants of a cell' and they possess DNA called mitochondrial DNA, which can only be inherited from mothers. Defects to mitochondrial DNA can lead to severe diseases, for which there are currently no effective treatments.

However, Mitochondrial Replacement Therapy involves replacing mitochondrial DNA from the unhealthy egg with healthy mitochondrial DNA from a donor egg. Although this donor contributes only 0.2 per cent of the embryo's total DNA, that DNA, if not correctly matched, can predispose individuals to many sorts of diseases, including diabetes and cancer.

"This technology is very useful in preventing mitochondrial diseases. However, before the technique is used to produce children, there must be more testing. We need to know that we are not going to solve one problem but create a completely new problem for the child.

"Defective mitochondrial DNA can also be carried over into the donor egg and, if it persists in the early embryo, it can also be inherited by the children. This is something that we need to eradicate to ensure the very dangers we are trying to avoid are not still passed on to the child," said Prof St John.

Through the widespread media debate, Prof St. John advocated further testing to determine the real effects of mitochondrial DNA carry over and matching of compatible donor eggs.

"Until we have this information, we should proceed with caution."

Prof St. John moved to Hudson Institute in 2009 from the UK. "I chose Hudson Institute because it's world class for its study of reproduction, development and stem cells. This provides us with a unique opportunity to study how disease develops from the very earliest stages of life."



OUTSTANDING BREAST CANCER RESEARCHER

ONE IN EIGHT WOMEN – OUR MOTHERS, DAUGHTERS, SISTERS, FRIENDS – WILL BE DIAGNOSED WITH BREAST CANCER, AND EIGHT WOMEN WILL DIE OF THE DISEASE IN AUSTRALIA EVERY DAY.

Centre for Cancer researcher, Dr Kristy Brown, was recognised as an outstanding new breast cancer research investigator, receiving a National Breast Cancer Foundation (NBCF) Career Development Fellowship.

Dr Brown's team discovered a mechanism to explain why being overweight or obese increases a woman's risk of developing hormone receptor-positive breast cancer after menopause. In addition, these women are also less responsive to treatment and more likely to die from the disease.

The new research will explore better ways of preventing and treating breast cancer for these women, with fewer side-effects. It will include investigating a treatment involving appetite-stimulating hormone ghrelin, produced by the gut. This hunger hormone has the potential to stop the body producing oestrogen effectively, starving the tumour and stopping its progression. Dr Brown explains, "Oestrogen, in addition to being produced by the ovaries, is also produced by fat cells, and the majority of obesity-related breast cancers are estrogen dependent. "We have found that ghrelin not only stops the production of oestrogen from the breast fat and the growth of oestrogen-dependent breast cancers, it also acts on tumours that are not dependent on oestrogen for which there are limited treatments available.

"Our lab is also investigating the possible interaction between breast inflammation, the metabolism of cells within the breast and the production of estrogen that drives tumour growth. This will help us identify new therapy options for the effective treatment and prevention of breast cancer."



OUTSTANDING ACHIEVEMENT – WOMEN IN CIENCE

DSCH

THE REAL PROPERTY.

Dr Maria Kaparakis-Liaskos, Research Group Head, Host-pathogen interactions DR MARIA KAPARAKIS-LIASKOS WAS PRESENTED WITH AN INAUGURAL VESKI INSPIRING WOMEN FELLOWSHIP BY THE HONOURABLE LINDA DESSAU AM, GOVERNOR OF VICTORIA, AT AN AWARD CEREMONY HELD AT GOVERNMENT HOUSE.

The veski inspiring women fellowship helps outstanding female leaders to continue their research while juggling career and carer commitments. It will enable Dr Kaparakis-Liaskos, from the Centre for Innate Immunity and Infectious Diseases, to continue progressing the upward trajectory of her career while raising her two young children.

Dr Maria Kaparakis-Liaskos proves that women can have leadership positions, successful research careers, flexible work hours, a strong support network and be great mothers.

Dr Kaparakis-Liaskos' 2015 achievements were truly outstanding. In addition to the inspiring women fellowship, she has published work in prestigious journals, won Young Investigator Awards and was invited to present her work at international and national conferences, all while caring for her children.

"This fellowship will enable me to continue the momentum of my research, expand my international and national collaborations, and establish a laboratory team while I am returning to work from maternity leave. "My strong collaborators and support network at Hudson Institute and overseas have proven integral to the success of my research and achievements during my career break," Dr Kaparakis-Liaskos said.

Dr Kaparakis-Liaskos' research is focused on examining the mechanisms of immune suppression during Helicobacter pylori infection, a bacterium in the stomach affecting more than three billion people worldwide and a cause of gastric cancer and stomach ulcers.

The veski fellowship will support her expanding research program, providing more 'hands' in the lab, in the form of a research assistant to progress the research during a period of parttime employment while returning to work. The fellowship will also provide funding for a fulltime PhD student, helping to foster the next generation of researchers while supporting her research efforts.

"The veski inspiring women fellowship is a visionary fellowship that promotes the advancement of women in science and I am honoured to be part of it. It is vital that female scientists are supported to continue the momentum of their research during essential career breaks," said Dr Kaparakis-Liaskos.

TECHNOLOGY PLATFORMS



Hudson Institute scientists use state-of-the-art technology and expertise to advance their research through the Monash Health Translation Precinct (MHTP) Technology Platforms.

In November, our precinct's multiple Technology Platforms were centrally relocated into a purpose-built floor at the heart of our new Translational Research Facility (TRF), together with Hudson's Centre for Cancer Research, The Ritchie Centre and an entire floor dedicated to clinical trials.

The co-location of technology, research and clinical capabilities provides seamless interaction between capabilities and uniquely positions our scientists to translate their work into better diagnoses, treatments and prevention of disease.

ACHIEVEMENTS 2015

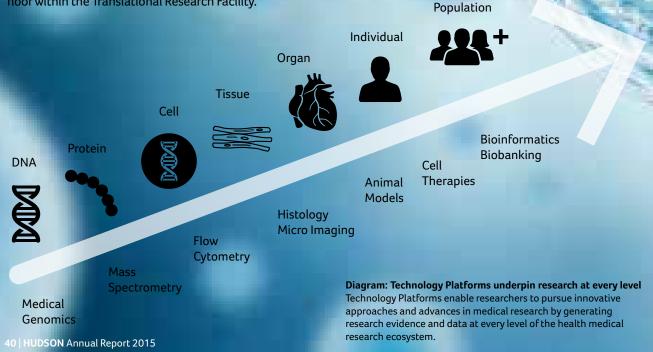
• The Single Cell Genomics Centre was awarded Australia's first Single Cell Centre of Excellence by internationally renowned biotechnology company Fluidigm, making it the first of its kind in the southern hemisphere.

• Our platforms (Medical Genomics, Bioinformatics, Cell Therapies, Mass Spectrometry, and Micro Imaging) relocated to a centrally positioned and dedicated Platform floor within the Translational Research Facility. • Histology facilities were merged and new world-leading equipment introduced to support research requiring histology, a technique that involves the study of the microscopic anatomy of cells and tissues to indicate health or disease.

• We launched our inaugural MHTP Technologies Platform brochure – Technologies Enabling Translational Research – to showcase the platforms available for use both within our MHTP precinct and to national scientific communities.

• The Cell Therapies Platform was involved in a worldfirst phase one clinical trial with Dr Rebecca Lim from Hudson Institute's The Ritchie Centre to assess the safety of providing human amnion cells to help premature babies with chronic lung diseases.

• The Micro Imaging Facility, in collaboration with researchers from The Ritchie Centre – Dr Claudia Nold, Associate Professor Marcel Nold and their research group – adapted the 2014 Chemistry Nobel Prize methodology of super resolution microscopy and established the dSTORM super-resolution technique. The results were published in the prestigious journal, Nature Immunology.



TECHNOLOGY TAKING MEDICINE TO A NEW LEVEL



Professor Paul Hertzog, Centre Head and MHTP Medical Genomics Facility Convener

Our Single Cell Genomics Centre became the first centre in the southern hemisphere to be awarded a Single Cell Centre of Excellence by internationally renowned biotechnology company Fluidigm in September.

Our state-of-the-art single cell genomics technologies accelerate scientific findings into clinical treatments.

Hudson Institute's Single Cell Genomics Centre was established in 2014 through funding from an Australian Research Council LIEF (Linkage Infrastructure, Equipment and Facilities) grant, in partnership with Monash University, the University of Melbourne and the University of Newcastle.

The collaboration with Fluidigm gives our scientists access to breakthrough developments in Fluidigm's technology, and increases the opportunities for our researchers to become world leaders in the field of genomics medicine.

REVOLUTIONISING RESEARCH

Single cell genomics research is revolutionising cell analysis, making it possible for scientists to isolate each individual cell from a diseased organ or tumour to establish which cells are causing the disease, or are responding to treatment.

Previously, when scientists analysed groups of cells, they did so assuming that all cells that appear the same must be similar in their make-up. However, individual cells that appear similar may in fact differ significantly in their genetic make-up, with this difference driving the health and function of the entire cell population. This technology allows our researchers to analyse individual cells that cause inflammation, cancer and chronic autoimmune diseases, such as lupus, and discover new principles of how our organs function and how drugs work. By developing this understanding, our researchers will be able to generate new therapies or more effectively target patient treatment.

"This will fundamentally change how we understand cell behaviour and the development of disease. It is likely to explain why some people respond to treatments and others don't.

"The speed, efficiency and low cost of this technology enables us to do research that previously was not possible. Measuring genomic changes in individual cells is done in a day, whereas before it would have taken three to four weeks. A full experiment can be done in a month that would have previously have taken two years."

BUSINESS DEVELOPMENT AND COMMERCIAL PARTNERSHIPS



Our Business Development Office works closely with our scientists and with the pharmaceutical and biotechnology sector to take Hudson research discoveries closer to the clinic.

They look after all aspects of commercialisation and commercial contracts, from evaluating invention disclosures to legally capturing intellectual property through negotiation and managing commercial agreements.

2015 HIGHLIGHTS

Hudson Institute joined the Australian Medical Research Commercialisation Fund (MRCF). Established in 2007 as an innovative investment collaboration, the fund invests in early-stage development and commercialisation opportunities in Australian medical research institutes. Our first project for funding, submitted in October 2015, was for an exosome project to be led by Dr Rebecca Lim and Professor Euan Wallace of The Ritchie Centre. An exclusive licence agreement was signed with Paranta Biosciences to develop and commercialise a potentially transformative technology developed at Hudson Institute relating to the use of follistatin as a novel chemotherapy sensitising agent for patients with solid tissue cancers.

This agreement is the result of novel research by Professor Neil Watkins and PhD student Keiren Marini from the Centre for Cancer Research, which shows that the use of follistatin can sensitise innately chemoresistant cancer cells to platinum-based chemotherapy without affecting normal (non-cancer) cells.

The inaugural Fielding Foundation Innovation Award and Fielding Fellowship were awarded to two bright Hudson researchers. These awards support young researchers in the commercialisation of their research, ensuring discoveries are translated from the laboratory into patient treatment. Dr Rebecca Lim was awarded the Fielding Fellowship and Associate Professor Marcel Nold was awarded the Fielding Foundation Innovation Award.

Ten provisional patent applications were lodged with the Australian Patent Office.

Monthly staff and student Translational Workshops for scientists started in May. The workshop themes ranged from pitching commercial ideas, venture capital and the role of commercial partners in transitioning research to the clinic, to intellectual property.

Clinical diagnostic products developed from Hudson Institute's intellectual property portfolio resulted in excess of \$USD23.8 million in worldwide sales during 2015. They include inhibin testing, used as a screening test for Down syndrome, and SOX9 and SOX13 antibodies.

BIG PICTURE CHANGE

"AS RESEARCHERS WE ARE ALWAYS LOOKING DOWN A MICROSCOPE AT THE DETAILS, BUT OUR REAL MOTIVATION IS THE BIG PICTURE – HELPING PEOPLE"

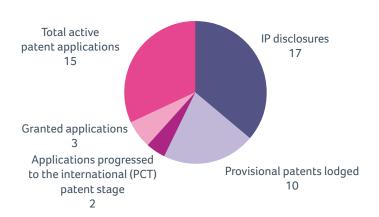
Dr Nadine Brew joined the business development team during 2015 after working as a postdoctoral researcher. The opportunity to translate research discoveries into new treatments that improve lives around the world was a natural and exciting move for her.

"I want to be part of helping Australia develop into a knowledge-based economy and to take our discoveries to the world stage, to see home-grown research improve lives and develop into businesses like Monash IVF and Cochlear,"

In an uncertain funding environment, our researchers need broader commercial skills so their discoveries continue to reach people. They need an awareness of commercial opportunities and how to pursue them, which is where Dr Brew comes in.



Dr Brew has a PhD in preterm neonatal lung injury from Monash University and completed the Victorian Government-sponsored 'Molecules to Medicine' research commercialisation course. She was previously a postdoctoral researcher in The Ritchie Centre and at Children's National Hospital in Washington DC. This experience gives her the perfect background as she helps our researchers further develop and translate their work into the clinic.



2015 PATENT APPLICATIONS

"SCIENTISTS NEED TO BE ABLE TO PITCH WHY THEIR WORK IS VITAL, NOT ONLY FOR INCREASED RESEARCH FUNDING BUT ALSO TO INFORM THE COMMUNITY TO SHOW PEOPLE HOW OUR WORK MAKES A DIFFERENCE TO THEIR LIVE - PROF ALAN TROUNSON

PROFESSOR ALAN TROUNSON IS EMERITUS PROFESSOR AT MONASH UNIVERSITY AND DISTINGUISHED SCIENTIS AT HUDSON INSTITUTE FOR MEDICAL RESEARCH.

He was a pioneer of human in vitro fertilisation (1977-1996), introducing fertility drugs for controlling ovulation, embryo-freezing techniques, egg and embryo donation methods, early sperm microinjection methods, initiated embryo biopsy, developing in vitro oocyte maturation methods and the vitrification of eggs and embryos.

He was appointed Director of the Centre for Early Human Development at Monash University in 1986 and Deputy Director/Director of the Monash Institute for Reproduction and Development (1990-2003). He led the Australian team for the discovery of human embryonic stem cells in the late 1990s and was the founding CEO of the Australian Stem Cell Centre. He founded the Monash Immunology and Stem Cell Laboratories at Monash University (2004-2007).

'CAN-DO' LEADS OUR FUTURE

IVF pioneer Professor Alan Trounson rejoined Hudson Institute in 2015 with his sights set on a 'can-do' vision for science in Australia, commercialisation, and harnessing the body's immune system to fight cancer.

In his new role as Distinguished Scientist of Hudson Institute, Prof Trounson will mentor Hudson researchers in the commercialisation of their research discoveries, while pursuing his own commercial venture in using T-cells to target cancer.

Prof Trounson returned from a seven-year tenure as President of the \$3 billion California Institute for Regenerative Medicine (CIRM) in August 2014, where he drove basic and translational research into stem cell therapies and forged leading partnerships with private industry, Government and philanthropic foundations.

"It was an incredibly stimulating and rewarding role. Californians are the 'can-do' people of the world," Prof Trounson says of his time in the US.

"The environment in California is dynamic and progressive. Californians lead in it all – information and biotechnologies, new approaches in genomics and regenerative medicine, and renewable energy. My experience has taught me that there is no reason why Victoria can't be the California of the southern hemisphere."

Prof Trounson wants to spark some of that 'can-do' Californian attitude in his new role mentoring researchers at Hudson Institute to take their innovative discoveries out of the laboratory into clinics and onto the world stage, so that Australia can reap the rewards. He will lead monthly Hudson Translational Workshops, where researchers can interact with a host of influential industry representatives and learn how to develop products and pitch their discoveries to a commercial body.

Prof Trounson says 'pitching' research to industry is a vital skill for researchers to master, as outcomes from traditional funding sources in Australia become leaner.

"Scientists need to be able to pitch why their work is vital, not only for increased research funding but also to inform the community, to show people how our work makes a difference to their lives. Researchers need to become more integrated with the community, so that every person understands the everyday benefits of research, and demands more of it. We need a groundswell of support from the community for influencing our political representatives from the bottom up, not just the top down."



He says mastering the 'community pitch' is also vital to stemming the flow overseas of Australian research talent, which is a net loss to the community investment and benefit.

"Australia is fortunate to train some incredibly talented scientists but, for lack of opportunity here, many of these scientists choose to take their discoveries overseas. Those discoveries are Australia's future – saving lives, and building industries and jobs for our economy," Prof Trounson said.

Inspired by the success of new cancer treatments that mobilise a person's immune system, Prof Trounson is leaping into his own commercial challenge, developing a product that uses the immune system to fight cancer.

In October 2015 he established Cartherics, with Monash University immunologist Professor Richard Boyd. Cartherics is the first new biotech start-up to be incubated within the Monash Health Translation Precinct's new \$84 million Translational Research Facility. Cartherics is investigating an off-the-shelf approach for treating cancer, developing Chimeric Antigen Receptor Technology (CAR-T)/T-Cell Receptor therapies using induced pluripotent stem cells.

"T-cells keep out infections like cancer cells, but cancer has developed properties to beat our natural immunity through our T-cells," Prof Trounson said. "This research is looking at arming T-cells with recognition molecules in an array that will effectively kill cancer cells, and aims to make these available for patients as innovative 'off-the-shelf' products for the majority of Australians. One of our early targets will be ovarian cancer."

Cartherics plans to commence their first clinical trials in cancer patients in 2017.

L - R: Zoe Marks, Paulo Pinares-Garcia, Kimberley D'Costa, Ishmael Inocencio

NURTURING YOUNG SCIENTISTS

Postgraduate students play a crucial and highly valued role at Hudson Institute, making significant contributions to research excellence and to the Institute's vibrant culture of cross-disciplinary integration.

Hudson Institute provides a collaborative, stimulating and nurturing environment in which students develop the skills and confidence needed to drive tomorrow's discoveries in basic and translational research that will lead to better healthcare outcomes.

| Honours, Masters, PhD students | 173 |
|--------------------------------|-----|
| Graduates | 53 |

POSTGRADUATE STUDENT COMMITTEE

Hudson's Postgraduate Student Committee provides support and mentoring to students and their supervisors, ensuring that each student's progress towards the completion of their degree is as seamless as possible.

Led by Professor Kate Loveland, the committee guides students in managing their workload and offers professional development opportunities. In 2015, the committee coordinated the implementation of new processes for more than 50 Progress Reviews and evaluated 30 PhD scholarship applications. Onsite workshops were organised on time management, as well as thesis and scientific writing. The annual student recruitment nights for MBBS and undergraduate students, the Three Minute Thesis Competition, and the Student Showcase Symposium, were all run in collaboration with the School of Clinical Sciences at Monash University.

HUDSON INSTITUTE STUDENT SOCIETY

The Hudson Institute Student Society (HISS) was formed in 2015 out of the former Monash Institute of Medical Research and Prince Henry's Institute student bodies. A society fully managed by students, HISS aims to create a positive and inclusive environment for all students and support their research degrees while maintaining a work-life balance.

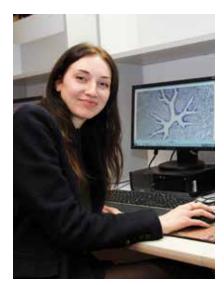
In 2015, the society hosted and contributed to more than seven events to encourage student networking, mentoring and socialising. These included the Three Minute Thesis Competition, the Student Showcase Symposium, Dumplings and Bar Night, International Food Day, Movie Night, the Student Christmas Party and the annual Trivia Night.

Hudson Institute Student Society Committee 2015 President: Harriet Fitzgerald Vice-President: Kimberley D'Costa

STUDENT OPEN DAY

In August, Hudson Institute opens its doors to more than 200 prospective Honours, Masters and PhD students for the Student Open Day. This event showcases student research opportunities and provides a forum in which students can meet researchers and interact with members of their research groups.

HUDSON STUDENT BLITZES THREE-MINUTE THESIS FINALS



Hudson Institute PhD student, Zoe Marks, blitzed the Three Minute Thesis Competition finals, winning both the Institute and Faculty level contests, and was runner-up across all Monash University PhD students.

Three Minute Thesis (3MT®) celebrates research conducted by PhD students across Australia. It cultivates presentation and research communication skills by challenging students to convey the significance of their research, avoiding scientific jargon, in just three minutes.

"The 3MT experience was incredible," said Zoe. "Both for the amount of support it received and for widening my network with other disciplines across Monash."

Zoe is a Bachelor of Medicine/Bachelor of Surgery student undertaking a PhD with Hudson Institute's Centre for Innate Immunity and Infectious Diseases. "Being at the Hudson has ignited a life-long interest in medical research. I'm in awe of the power of successful research and the potential to impact whole populations; there are no limits to the depth you can go."

"Completing a PhD at Hudson Institute has given me the opportunity to explore beyond clinical medicine. I am increasingly interested in oncology and aspire to continue work on breast cancer as a clinician-researcher," she said.

Zoe's 3MT presentation, 'Cancer signatures in blood; Reading the fine print!', explained her PhD thesis, which is investigating interferon (IFN) signalling in breast and ovarian cancer. She hopes to shed light on the role of IFN in the progression of these cancers and potentially discover a novel IFN therapy.

2015 GRADUATES

Congratulations to our 56 Honours, Masters and PhD students on the successful completion of their higher education studies in 2015.

PhD

Samantha Barton Alison Browning Daniel Czech Damien Eeles Stacey Ellery Simon Joosten Domenic Larosa Yali Li Istiak Mahfuz Lisa McKenzie Michael Mond Soroush Sarvestani Sebastian Stifter Matthew Thompson Gabrielle Van der Krann Jubina Venghateri Xuyi Wang Alexander Wilding Phillip Wong Saroj Yadav

Master of Reproductive Sciences Kavitha Vaithiyanathan

Bachelor of Biomedical

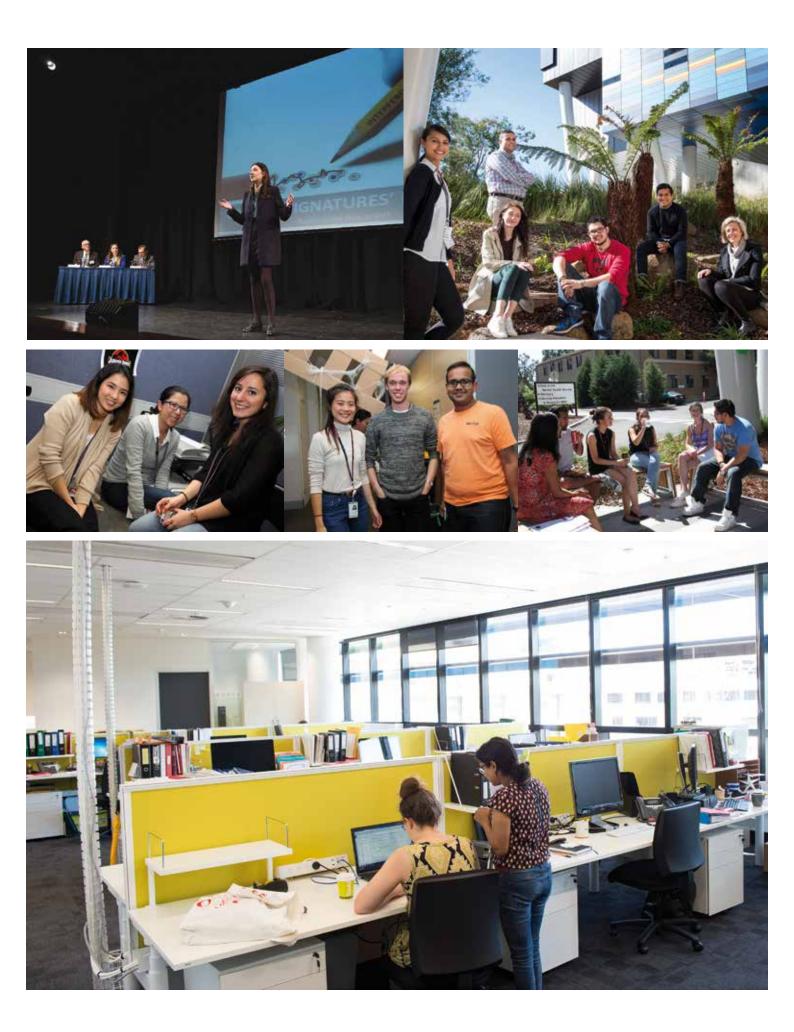
Sciences – Honours Kara Balakrishnan Lachlan Broadway Christine Bui Jasmine Chen Monica Gonev Madeleine Goss Aleks Guanizo Maisie Hands Kuo Lin (Colin) Huang Dhilshan Jayasinghe Yu Lee Thaleia Livis Amanda Ton Victoria Tran David Ung

Bachelor of Science – Honours

Michelle Chonwerawong Olivia Henry Emily Kerton Delphi Kondos-Devcic Amina Maleken Rachael Mercieca Alyce Nicholls Shalini Rajakaruna Raymond Shim William Stocker Lisa Torres Aaron Weinman Sarah Whitby Amy Wilson

Bachelor of Medical

Sciences – Honours Millicent Burggraf Lara Bush Thomas Lovelock Shreya Rana Riana Samuel Farzana Zaman



OUR COMMUNITY

OUR RESEARCHERS ARE DEEPLY COMMITTED TO SHARING DISCOVERIES WITH THE COMMUNITY AND REWARDING THEIR COMMITMENT TO SCIENCE.

Researchers at Hudson Institute care deeply about improving the health and wellbeing of people in our community and are committed to rewarding their investment in science. Our community's support and much-needed funding is essential to be able to carry forward vital research leading to future possibilities for curing disease. Through engaging with our community, Hudson researchers share their knowledge to increase peoples' understanding of the beneficial impact of science, and aim to inspire the next generation of researchers and scientists. In 2015, Hudson researchers participated in community events, school talks, Institute tours and camps with school students, community groups and public initiatives.

INNER WHEEL – COIN FOR A CORD DAY



Hudson Institute was delighted to welcome the support from Inner Wheel's Coin for a Cord Day, which supported a preclinical study in The Ritchie Centre, looking at premature birth and birth asphyxia, two of the major causes of cerebral palsy.

Grants from Inner Wheel Australia have supported the establishment of a world-first clinical trial to test the use of cord blood before it can be used to treat the damaged brains of babies who have suffered a loss of oxygen at birth. Students from The Centre for Continuing Education in Wangaratta raised funds for Coin for a Cord Day to support this important Hudson Institute study.

The students involved in fundraising visited Hudson Institute and joined in activities with The Ritchie Centre Deputy Head, Professor Graham Jenkin, and Research Group Head, Dr Suzanne Miller.

VCAL teacher, Rebecca Higginson, highlighted the importance of this visit for the students, saying that seeing first-hand how their funds were used was a very powerful reminder of the difference they could make to people.

INTERNATIONAL DAY OF IMMUNOLOGY

The Centre for Innate Immunity and Infectious Diseases (CiiiD) led activities for the 2015 International Day of Immunology, held in April. The Day of Immunology is celebrated in medical institutes and universities throughout Victoria to raise awareness in the community about the importance of the immune system and immunology research.

Coordinated by Dr Alison West, an NHMRC Peter Doherty Fellow working on innate immune responses in gastric cancer, ten CiiiD researchers set up an information booth for the day in the Monash Medical Centre's main foyer. They demonstrated to community members how a microscope is used and informed them about the latest scientific topics related to immunology, including vaccination, the differences between the common cold and flu, immunity in cancer, and antibiotic resistance.



CiiiD is one of Australia's largest centres for research into the innate immune response and is a significant component of Melbourne's scientific strength in immunology and infectious diseases research.

NURTURING FUTURE SCIENTISTS

The Ritchie Centre Year 10 work experience program, developed in partnership with the John Monash Science School, provides an opportunity for Hudson researchers to engage with students in their secondary school years so they can find out about the opportunities in scientific research. The program is part of Hudson Institute's commitment to inspiring a love of science in the next generation of scientists.



In addition, Dr Tamara Yawno, Senior Research Officer at The Ritchie Centre, also presented at the John Monash Science School lunchtime seminar series, sharing her journey in science – 'Science and Beyond: A Career in Research'.

SCIENTISTS IN SCHOOLS

Hudson Institute researchers participated in the CSIRO's program 'Scientists in Schools', which forges long-lasting partnerships between scientists, schools, students and teachers.

The 'Scientists in Schools' program is an opportunity for our scientists to nurture and inspire a love of science in the next generation, both as a career and as part of everyday life. In turn, our researchers are encouraged by students' curiosity and enthusiasm.

Centre for Cancer Research scientist, Dr Kevin Knower, has contributed to this important program for four years with the students at Mossgiel Park Primary School in Endeavour Hills.



Year 6 teacher, Cathy Cavedon, commented on how wonderful it had been for the students to have Dr Knower visiting as part of the 'Scientists in Schools' program and how the students were able to participate in activities with real-life application.

FUNDRAISING EVENTS

THANK YOU TO OUR GENEROUS DONORS WHO HELPED SUPPORT THE GROUND-BREAKING RESEARCH OF OUR SCIENTISTS.

To help augment a shortfall in income caused by a significant decrease in NHMRC project grant funding from the Federal Government to just 14.9 per cent in the last round, the Institute conducted two direct mail fundraising appeals during the year.

Thanks to the generous support of our donors, the two campaigns were successful and provided a much-needed injection of revenue for important and worthwhile research.

ZAC'S STORY



In May, we conducted an appeal focussed on Zac Mason who, at the age of just three, was diagnosed with medulloblastoma. The most common malignant brain tumour in children in Australia, medulloblastoma is an invasive and rapidly growing tumour. Sadly, Zac had several brain tumours, including one on his pituitary and small tumours along the entire length of his spinal cord.

After several operations and other treatment, Zac has now been free from cancer for 18 months. However, should the cancer return, he cannot be treated with current chemotherapy or radiation, as he was given the highest dosage possible and those methods will not work again.

Funds raised from this appeal are helping Hudson Institute's Paediatric Cancer Research Program (PCRP), which brings researchers and clinicians together to improve the health outcomes of children who are diagnosed with cancer. Medulloblastoma is one of their key priorities.

Dr Jason Cain, a member of the PCRP, is investigating the triggers within a cell that lead to the development and progression of medulloblastoma, with the aim of developing targeted, more effective therapies.

"Through donations from our wonderful supporters, we can help children like Zac by using their cells to assist in the molecular subtyping and profiling of tumours, in the hope of helping clinicians determine the optimal clinical management of these children," said Dr Cain.



GRACE'S STORY



In November, our fundraising appeal focused on Grace Connor, who was born 15 weeks premature. At just three months old, Grace suffered respiratory failure; fortunately she was revived, but the life-saving respiratory support used to keep her alive had an irreversible consequence.

Grace developed bronchopulmonary

dysplasia (BPD), a chronic lung disease that affects up to 50 per cent of preterm babies on respiratory support, because the machines that assist them to breathe cause permanent damage to their immature lungs. Grace was hospitalised for seven months, but was able to return home. Five months after discharge she contracted the flu, but her little body was unable to cope with the infection and sadly she suffered a fatal cardiac arrest.

Generous donations from this appeal are helping to support Hudson Institute's Dr Rebecca Lim and her team conduct a world-first clinical trial for a potentially lifesaving treatment to help repair the lungs of children like Grace.

The team are using amniotic epithelial cells, extracted from the amniotic membrane, and applying them to the damaged lungs of preterm babies with BPD in the days after their birth. Like stem cells, these amniotic epithelial cells can grow into any type of cell in the body and work by attaching themselves to the damaged lung tissue, commencing the repair process in growing infants.

HUDSON RIDES FOR RESEARCH

Scientists at Hudson Institute rely on high quality specialist medical equipment to continue to achieve research excellence and make ground-breaking new discoveries.

To help raise funds for this vital equipment, an intrepid team of 16 Institute researchers, scientific support staff and sponsors cycled a gruelling 520 kilometres in just 24 hours in the annual Ride for Research. This ride is part of the larger 'Murray to Moyne' event, which supports hospitals and health services to raise funds.

2015 marked the 10th consecutive year that Hudson Institute has participated in the event. Our riders cycled an arduous route from Echuca to Port Fairy, suitably aided by dedicated support staff, including the Institute's Director and CEO, Professor Bryan Williams.

Our courageous and inspiring teams have, over the past ten years, raised more than \$250,000 from this event. This year they raised a commendable \$36,000 from generous donations and sponsors. To all those who donated, thank you. Our sincere thanks also to our sponsors Davies Collison Cave, VicSuper, Zouki and BankVic.

The funds raised in 2015 were used to help purchase an xCELLigence system, advanced technology that allows researchers to monitor cell behaviour in real time. This technology has accelerated research across all of our Centres, and is used to explore areas as diverse as infertility,



placental insufficiency, immunological diseases, septic shock, hypertension, influenza A infections and also cancer, as researchers are able to track the cellular movement of cancer growths.

The Institute will participate in this event in future years. If you would like to sponsor or join our team of riders, or encourage them by making a donation in support of their efforts, please contact the Institute's Foundation Office on 03 85722701, email foundation@hudson.org.au or visit hudson.org.au. All donations are tax deductible in Australia.

GENEROUS DONATION SUPPORTS RESEARCH INNOVATION AND COMMERCIALISATION



In 2015, Hudson Institute was privileged to receive the first in a series of donations from the Fielding Foundation as part of its inspiring commitment to donate \$1 million over five years.

The Fielding Foundation, established by successful Melbourne businessman, Peter Fielding, will fund two important initiatives – the Fielding Fellowship and the Fielding Innovation Award. These initiatives encourage the retention of Hudson Institute's brightest and most promising young scientists during a critical phase in their career and in a difficult funding environment.

The Fielding Fellowship supports Hudson Institute's most outstanding early-to-mid-career researchers to undertake novel research projects. The Fielding Innovation Award supports scientists who produce major advancements in the commercialisation of their research to help ensure discoveries are translated from the laboratory into patient treatments.

Mr Fielding said, "As a donor, I see no greater cause to direct funds than improving the health and wellbeing of the community. Health affects us all. It is the one critical need we all share and sadly, disease and injury will affect either us or someone we love in our lifetime.

"We are very proud to have our contribution reflect areas we feel passionate about. Hudson Institute is an outstanding organisation and one with which the Fielding Foundation feels honoured and proud to be associated."

The inaugural recipient of the Fielding Fellowship was Dr Rebecca Lim, who is leading a research team pioneering a world-first treatment that employs stem cell-like treatment therapy to treat lung damage in premature babies.

Dr Lim's team has commenced clinical trials involving premature babies born at the Monash Children's Hospital where they administer the babies with the stem cell treatment in the days after their birth. If this technique is successful, it could be in used hospitals around the world to improve survival rates and the quality of life of babies suffering conditions such as lung respiratory distress syndrome and bronchopulmonary dysplasia.

As part of this treatment, amniotic epithetical cells are extracted from the amniotic membrane, which surrounds the baby during pregnancy. These cells then attach to the baby's damaged lungs which commences the repair process.

The inaugural recipient of the Fielding Innovation Award was Associate Professor Marcel Nold. This award enables the continuation of his work on proteins called cytokines, in particular interleukin 37 (IL-37) and its signalling and role in suppressing inflammation.

A/Prof Nold's team is investigating how to translate the powerful functions of this small protein into new drugs that could be used to control or unleash the immune system. This technique may have wide-reaching implications in treating diseases such as stroke, heart attacks and auto-immune diseases such as lupus.



Dr Rebecca Lim, Fielding Fellowship



Associate Professor Marcel Nold, Fielding Innovation Award

THANK YOU TO OUR SUPPORTERS

The Hudson Institute is grateful for the gifts received from trusts, foundations and organisations during the year. We also acknowledge the support of the Victorian State Government through its Operational Infrastructure Support Program. These valuable contributions assist the Institute to continue its important research.

Andrea Joy Logan Trust Fund Amgen Andrology Australia Australian & New Zealand Bone and Mineral Society (ANZBMS) Australian Synchrotron The Angior Family Foundation Australian Centre for HIV and Hepatitis Virology Research (ACH2) Australian Communities Foundation (ACF) Australian Lions Club Australian Mitochondrial Disease Foundation (AMDF) Australian Research Council (ARC) Australia Pork Limited **Bill & Melinda Gates Foundation BMG** LabTech Cancer Australia Cancer Council Victoria (CCV) CASS Foundation CellCare Australia Cerebral Palsy Alliance Collier Charitable Fund CRC- Alertness, Safety and Productivity Cure Brain Cancer Foundation (CBCF) Cure Brain Cancer Foundation (CBCF) - Tony Lucas Fund Childrens Cancer Foundation Department of Defense (US) Diabetes Australia Research Trust Endocrine Society of Australia Estate of Robert Clarence Cumming Equity Trustees – Buckland Foundation **Evans Family Foundation** Ferring Research Institute (US) **Fielding Foundation** GSK Harold Mitchell Foundation Inner Wheel Australia ThermoFisher Scientific The Jack Brockhoff Foundation Lettisier Foundation L.E.W. Carty Charitable Fund Life Sciences

Lung Cancer Research Foundation (USA) Matsarol Foundation Merck Serono GFI Micromon, Monash University Monash Comprehensive Cancer Consortium (MCCC) Monash Oncology Research Institute Monash IVF Monash University National Breast Cancer Foundation (NBCF) National Health and Medical Research Council (NHMRC) National Heart Foundation (NHF) National Institutes of Health (US) Osteoporosis Australia **Ovarian Cancer Research Foundation (OCRF)** Perinatal Society of Australia and New Zealand (PSANZ) Rebecca L.Cooper Foundation **Robert Conner Dawes Foundation** Royal Australasian College of Physicians Royal Australasian College of Surgeons Sids and Kids Stillbirth Foundation Australia Technology University of Dresden, Germany Therapeutic Innovation Australia The Royal Australian and New Zealand College of Obstetricians and Gynecologists (RANZCOG) The Sleep Research Society Foundation (USA) Victorian Cancer Agency veski (Victorian Endowment for Science Knowledge and Innovation) Wilrene Pty Ltd World Health Organisation Worldwide Cancer Research (UK) Youanmi Foundation Australia

And to the many individuals supporters who have contributed to our work at the Hudson Institute.

THE BOARD

Dr Robert (Bob) Edgar

BEcon (Hons), PhD, FAICD

Chair

Dr Edgar has extensive experience in financial services, including 25 years at ANZ Bank where he retired as Deputy Chief Executive Officer in 2009. He is also a Director on the Boards of Asciano Group, Djerriwarrh Securities, Linfox Armaguard Pty Ltd and Transurban Ltd.

Special responsibilities: Board Chair and Chair of the Investment Committee.

Professor Warwick Anderson

BSc (Hons) UNE, PhD (Adelaide), D Univ (Adelaide), FAHA (Int), FRCPA (Hon)

Professor Anderson is the Secretary General of the Human Frontier Science Program, funding international cooperation in research into the complex mechanisms of living organisms. He was previously CEO of the National Health and Medical Research Council of Australia (NHMRC), and held research positions at Monash University, Baker Medical Research Institute, University of Sydney and Harvard Medical School.

Professor Anderson's research focuses on the renal causes of hypertension, including humoural, neural and vascular remodelling aspects, resulting in 170 peer-reviewed articles. He was previously a member of numerous international bodies collaborating in medical research. He was made a Member of the Order of Australia in 2005.

Ms Jane Bell

BEc, LLB, LLM (Lon), FAICD

A Board member of Hudson Institute of Medical Research predecessor, Prince Henry's Institute, since 2002, Ms Bell has more than 22 years' experience in international banking and finance. She has held senior legal roles in corporate treasury and financial services operations in Australia, the UK, the USA and Canada. Ms Bell is a Fellow of the Australian Institute of Company Directors, and also serves as a Director on the Board of the Royal Melbourne Hospital.

Special responsibilities: Chair, Intellectual Property and Commercialisation Committee; Member, Finance and Audit Committee.

Ms Jennifer Joiner

BEcon, CPA

Jennifer has 30 years of experience in senior executive positions at Australian and global life sciences organisations including Thermo Fisher, IDEXX Labs, Bayer AG, and GE Medical Systems Australia Pty Ltd.

Professor Christina Mitchell

MBBS, PhD

Professor Mitchell is the Dean of the Faculty of Medicine, Nursing and Health Sciences at Monash University. A physician-scientist specialising in clinical haematology, her previous positions with the University include Head of the Department of Biochemistry and Molecular Biology, which quadrupled its size and research budget under her leadership, and Head of the School of Biomedical Sciences.

A member of the NHMRC Research Fellowships Peer Review Panel and the scientific advisory panels of the Garvan Institute and Peter MacCallum Research Institute, Professor Mitchell has previously been a director of veski and member of the scientific advisory panels of Cancer Council Victoria and the FSHD Global Research Foundation. She is a Director on the Boards of Baker IDI Heart and Diabetes Institute, Burnet Institute and the Victorian Institute of Forensic Medicine Council.

Professor Pauline Nestor

BA (Hons), MPhil, DPhil

Professor Nestor is Vice-Provost (Research) at Monash University. Previous appointments at Monash University have included Associate Dean (Research) in the Faculty of Arts, and Academic Adviser to the Office of the Deputy Vice-Chancellor (Research). A highly published expert in nineteenth-century English literature and culture, Professor Nestor completed a BA (Hons) at Melbourne University, before attending Oxford University as a Rhodes Scholar. She is also a Director on the Board of the Institute for Safety, Compensation and Recovery Research (ISCRR).

Ms Maria Trinci

BA/BComm, CA

Ms Trinci has worked with KPMG, specialising in Financial Services since 2000, and was admitted to the partnership in 2012. Ms Trinci is currently the engagement partner for ANZ. She has worked in the banking industry in London, Edinburgh, Glasgow and New York with clients including Mellon, Deutsche Bank and Citigroup. Maria is also a volunteer board member and pro bono audit provider. She is Deputy Chair of the Cancer Council Victoria Board and chairs their Finance. Risk and Audit Committee (FRAC). She is involved in a variety of community service groups including the Ovarian Cancer Research Foundation (OCRF), Crime Stoppers, Gay and Lesbian Switchboard Victoria and the Committee For Melbourne – Future Focus Leadership Program. Special responsibilities: Chair, Finance and Audit Committee.

Mr John Weste

BSc, MBA

Mr Weste has more than 30 years' management and management consulting experience and expertise, including within global corporations and as a Partner/Vice President in some of the world's leading management consulting firms. Mr Weste has partnered as a client with global search firms, systematically building corporate entities and consulting with businesses across Asia, Australia, India, Europe and North America. Mr Weste has previously held senior executive positions with major global consulting firms, including as Managing Director for The Richelieu Group, Partner at KordaMentha, Vice President and Head of Global Solutions at Tata Consultancy Services, Managing Vice President at Gartner Asia Pacific, and Partner at Arthur Andersen Business Consulting. His interests across these roles has included strategy development and execution, organisational change, IT-based business transformation programs, analytics and business intelligence, and leadership development.

Mr Graeme Wise

BEco (Monash), FAICD

Mr Wise began his career as a marketing specialist, including 15 years at Alcoa, based in both Australia and the UK. In 1981, he moved to retailing with Myer before founding Adidem Pty Ltd to build and operate the Australian branch of the Body Shop chain of retail stores. Mr Wise is now Chairman of the Adidem Group, which comprises companies in publishing, hospitality and computer solution businesses. Mr Wise is also involved in philanthropic activities as a patron of the Big Issue newspaper and founder of the Wise Foundation.

Company Secretary

Mr Rob Merriel

BA, Grad Dip (Psych), Grad Dip (Accounting), CPA

Mr Merriel is a Certified Practicing Accountant (CPA) with more than 30 years' experience working in medical research (Baker IDI), healthcare (Melbourne Health and Southern Health) and commercial organisations (Pacific Dunlop and Deloitte Consulting). The current Chief Financial Officer of the Institute, Mr Merriel was previously the Director and Company Secretary of several biotechnology-focused companies, including BioGrid Australia, Biocomm, the Australian Technology Fund, and Evivar.

BOARD COMMITTEES

Finance and Audit Committee

This committee assists the Board in internal control and compliance, accounting and financial reporting, and risk management processes of the Institute.

Members: Ms Maria Trinci (Chair, from March 2015), Ms Jane Bell, Dr Bob Edgar (Chair, until March 2015), Ms Carmel Mortell, and Secretary Mr Rob Merriel. The CEO, Professor Bryan Williams, attends meetings of this Board Committee.

Investment Committee

This committee advises the Board and Director on the effectiveness of investment policies, and approves the engagement of investment managers and investment transactions.

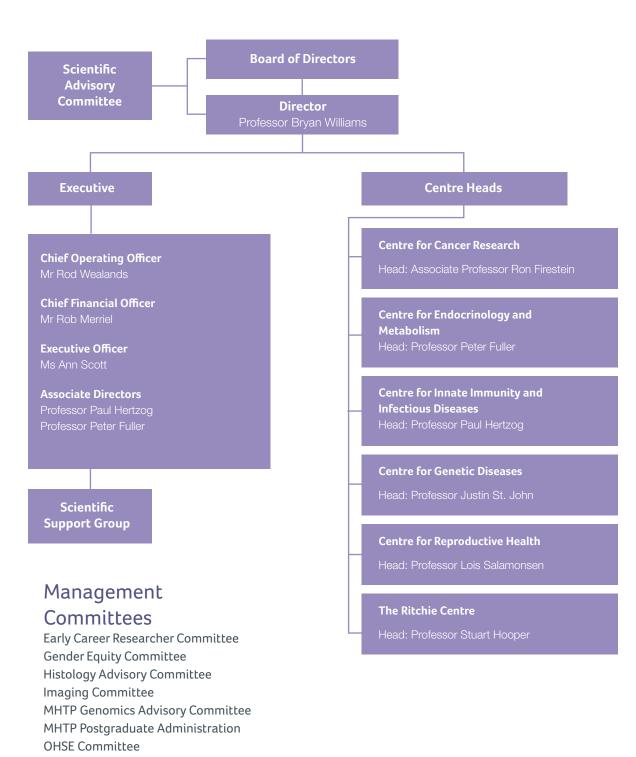
Members: Dr Bob Edgar (Chair), Mr Martin O'Meara, Mr Richard Condon (resigned November 2015), and Secretary Mr Rob Merriel. The CEO, Professor Bryan Williams, and Chief Operating Officer, Mr Rod Wealands, attend meetings of this Board Committee.

Intellectual Property and Commercialisation Committee

This committee advises the Board and Director on statutory requirements for corporate governance and commercialisation of the Institute's intellectual property and related issues.

Members: Ms Jane Bell (Chair), Ms Jennifer Joiner, Mr Grant Fisher, Dr Michael Pannacio, Dr Andrew Gearing, and Secretary Mr Rob Merriel. The CEO, Professor Bryan Williams, attends meetings of this Board Committee.

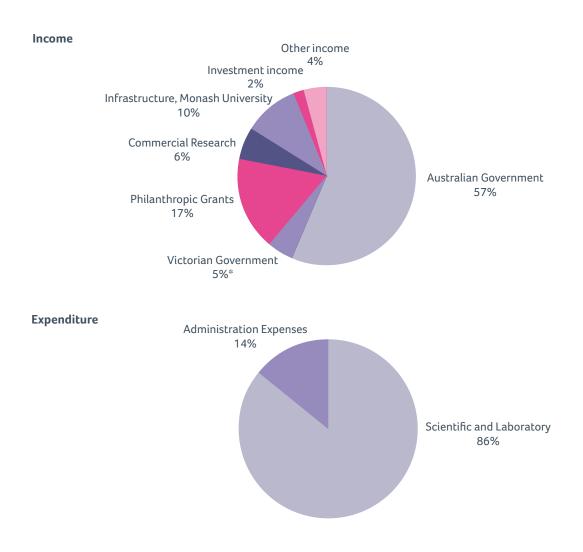
ORGANISATIONAL STRUCTURE



Purchasing Committee Recruitment Committee Seminar Committee Social Club Committee EBA Committee

Equipment Committee Student Society Committee

FINANCIAL SNAPSHOT



| Revenue | | 2015 | 2014 |
|----------------------------------|-----|------------|------------|
| Australian Government | 57% | 24,959,532 | 24,923,037 |
| Victorian Government* | 5% | 2,351,561 | 2,433,214 |
| Philanthropic Grants | 17% | 7,328,738 | 5,916,744 |
| Commercial Research | 6% | 2,626,143 | 5,103,595 |
| Infrastructure Monash University | 10% | 4,327,451 | 4,411,350 |
| Investment Income | 2% | 823,493 | 915,515 |
| Other Income | 4% | 1,697,061 | 1,558,713 |
| | | 44,113,979 | 45,262,169 |
| Expenditure | | | |
| Scientific and Laboratory | 86% | 38,549,915 | 38,920,781 |
| Administration Expenses | 14% | 6,503,248 | 6,616,108 |
| | | 45,053,163 | 45,536,889 |
| Total surplus | | -939,184 | -274,720 |

* Includes the Operational Infrastructure Support Program

SERVICE TO THE SCIENTIFIC COMMUNITY

Membership of National and International Boards and Committees

| Staff Member | Committee, Council, Board, Foundation | Role |
|------------------|--|-----------------------|
| Elizabeth Algar | European Network for Human Congenital Imprinting Disorders Royal College of Pathologists of Australia MSAC Genetic | Member |
| | Testing Pilot Working Group Committee | Member |
| Maree Bilandzic | Australasian Metastasis Research Society | Secretary |
| Kristy Brown | US Endocrine Society Annual Meeting Steering Committee | Member |
| | Victorian Cancer Biobank Board of Governance | Member |
| | Victorian Cancer Biobank Consortium Committee | Member |
| Henry Burger | Health& Medical Advisory Committee | Member |
| | Pfizer Pharmaceuticals Advisory Board | Member |
| David de Kretser | Academy of Technological Sciences and Engineering Clunies Ross Awards Committee Australian Centre of Excellence in Male Reproductive Health, | Committee Member |
| | Andrology Australia | Patron |
| | Bertarelli Foundation Advisory Committee | Committee Member |
| | BioMelbourne Network, Committee for Melbourne | Patron |
| | Congress of Andrology Organising Committee | Committee Member |
| | Doctors for the Environment | Committee Member |
| | Faculty of 1000 Medicine, Diabetes & Endocrinology Evaluation Board | Member |
| | Foundation 49 Men's Health | Committee Member |
| | Human Variome Project International Ltd | Board Director |
| | Infertility Treatment Authority of Victoria - Panel of Advisers, | |
| | Clinical and Scientific Panel | Committee Member |
| | International Academy of Human Reproduction | Fellow of the Society |
| | Men's Health Policy Consultation | Ambassador |
| | Minister's Male Health Policy Reference Group | Committee Member |
| | Monash Comprehensive Cancer Consortium (MCCC), | |
| | Management Committee | Member |
| | Monash IVF Research and Education Foundation Advisory Board | Member |
| | Monash Partners Academic Health Sciences Centre (AHSC) | Member |
| | Monash Vision Bionic Eye Group | Advisory Board Chai |
| | Paranta Biosciences Ltd | Board Director |
| | Peter MacCallum Cancer Foundation's Governor's Circle | Committee Member |
| | RANZOC Professionalism and Ethics Advisory Committee | Committee Member |
| | Southern Melbourne Integrated Cancer Service Joint Advisory Council | Member |
| | Stem Cells Australia Advisory Committee | Committee Member |
| | The Bio21 Cluster Board | Director |
| | Therapeutic Innovation Australia, Cell and Gene Therapy Committee | Committee Member |
| | University of Queensland Centre for Clinical Research Advisory Board | Director |
| | World Health Summit Advisory Committee | Member |
| | World Health Summit Scientific Committee | Member |
| Richard Ferrero | American Gastroenterological Association Digestive Disease Week - Abstract Review Panel | Chair |

Membership of National and International Boards and Committees (cont.)

| | | Role |
|---------------------|---|---|
| Jock Findlay | Endocrine Society of Australia Honorary Life Membership Robinson Research Institute Advisory Board Society for Study of Reproduction (USA) | Chair Past-President |
| Harriet Fitzgerald | Society for Reproductive Biology | Student Representative |
| Peter Fuller | Cabrini Institute Board Diabetes, Obesity, Men's Health and Endocrinology Theme, Academic Health Science Centre NHMRC Enabling Grants Committee NHMRC Venture Grants Committee | Chair Committee Member Inaugural Chair Deputy Chair |
| | The Cancer Council Victoria Board The Endocrine Society (USA) Endocrine Press Task Force The Endocrine Society (USA) Publications Committee The Endocrine Society (USA) Publications Core Committee, | Member Member Chair |
| | Steroid Testing Working Group The Victorian Cancer Agency Consultative Council Victorian Cancer Agency Consultative Council Victorian Cancer Registry Scientific Advisory Group | Chair Chair Chair Member |
| John Funder | Alan and Elizabeth Finkel Foundation Centenary Taskforce, The Endocrine Society Garnett Passe and Rodney Williams Memorial Research Foundation Grattan Institute Institute of Molecular Biosciences, University of Queensland, Scientific Advisory Board International Outreach Taskforce, The Endocrine Society Obesity Australia | Director Member Board Member Director Member Member Executive Chair |
| | Research Review, Sydney Adventist Hospital Specialist Medical Review Council Executive Committee Taskforce for Revision of Clinical Guidelines for Primary Aldosteronism Working Group | Chair Member Chair |
| Vinod Ganju | Divine Logistics Pty Ltd Monash Oncology Research Institute | Member Member |
| Caroline Gargett | National Stem Cell Foundation of Australia | Non-Executive Directo |
| , Vincent Harley | Lorne Genome Conference Board Inc | Vice-President |
| Craig Harrison | Endocrine Society of Australia Endocrine Society of Australia Council Paranta Biosciences Scientific Advisory Board | Council member and Assistant Treasurer Member Member |
| Mark Hedger | Paranta Biosciences, Melbourne Society for Reproductive Biology | Scientific Advisor President |
| Paul Hertzog | Platform Technologies Advisory Committee, State Government of Victoria Victorian Infection and Immunity Network Victorian Infection and Immunity Network Industry Alliance | Member Co-convenor Co-convenor |
| Rosemary Horne | Australian Sleep Association Paediatric Special Interest Group SIDS and Kids National Scientific Advisory Group | Chair Chair |

| Brendan Jenkins | Cancer Council Victoria Standing Research Subcommittee Council of the International Cytokine and Interferon Society International Cytokine and Interferon Society Meetings Committee Victorian Centre for Functional Genomics Scientific Advisory Board | Member Member Member Member |
|------------------|--|---|
| Terry Johns | The Cooperative Trials Group for Neuro-Oncology Management Comn The Cooperative Trials Group for Neuro-Oncology Scientific Advisory (| |
| Joohyung Lee | Primetrics Pte Ltd Scientific Review Board | Member and Scientific Consultant |
| Kate Loveland | American Society for Andrology Awards Committee Monash Institutional Biosafety Committee North American Testis Workshop | Member Chair Program Committee Member |
| | Society for the Study of Reproduction | Member, Board of Directors |
| | Women in Reproductive Science (WinRS) | Co-Founder and Steering Committee Member |
| Niamh Mangan | Victorian Infection and Immunity Network Organising Committee | Member |
| Ashley Mansell | Immunology Group of Victoria | Committee Member |
| Robert McLachlan | Andrology Australia Data and Safety Monitoring Board, National Institute of Child Health | Director |
| | and Human Development (US) Monash IVF Research and Education Foundation Victorian Assisted Reproduction Treatment Authority World Health Organisation Expert Working Group: Infertility Guidelines World Health Organisation research on methods for the | Member Chairman Scientific Advisor Member |
| | regulation of male fertility | Member |
| Sarah Meachem | Australian Society for Medical Research | President |
| Frances Milat | Australian and New Zealand Bone and Mineral Society Therapeutics Committee | Member |
| Chantal Nde | Australian German Academic Exchange Service Committee | Victorian Representative Executive Committee |
| Claudia Nold | Research Translation Faculty of the NHMRC | Member |
| Marcel Nold | NHMRC Research Translation Faculty | Member |
| Liza O'Donnell | Society for Reproductive Biology Plenary Lectureship | Secretary |
| Justin St. John | Winston Foundation | Director |
| Lois Salamonsen | Annual Meeting Advisory Committee, Society for the Study of Reproduction (USA) Australian Society of Reproductive Biology | Member Fellow of the Society, Honorary Life Membership |
| | NHMRC Assigners Academy, Canberra, Australia NHMRC Health Translation Advisory Committee Society for the Study of Reproduction (USA) Society for the Study of Reproduction (USA), Nominating Committee | Member Member Fellow of the Society Member |
| Peter Stanton | Society for Reproductive Biology | LOC Member Melbourne |

| Staff Member | Committee, Council, Board, Foundation | Role |
|----------------|--|------------------------|
| Megan Wallace | NHMRC Research Translation Faculty | Member |
| _ | Victorian Government Innovation Economy Advisory Board | Member |
| Bryan Williams | BioGrid Australia Ltd Biopharmaceuticals Biomaterials and Medical Devices | Board Chair |
| | Advisory Committee, Therapeutic Innovation Australia | Chair |
| | Board of Trustees, Hope Funds for Cancer Research | Board Member |
| | International Cytokine and Interferon Society Publications Committee | Chair |
| | Monash Comprehensive Cancer Consortium Management Committee | Member |
| | Monash Comprehensive Cancer Consortium Steering Committee | Member |
| | Monash Partners Academic Health Science Centre | Council |
| | NHMRC Project Grant Assigners Academy | Member |
| | Pacific Edge Ltd | Board Member |
| | Pacific Edge Pty Ltd | Board Member |
| | Scientific Advisory Board, NIH PO1 Grant "Global Innate Immune | |
| | Responses to HIV-1 Infection" (Salk Institute) | Board Member |
| | Scientific Advisory Council, Hope Funds for Cancer Research | Board Member |
| | Scientific Review Panel, Malaghan Institute, Wellington, New Zealand | Board Member |
| | Selection Panel, Premier's Award for Health and Medical Research | Chair |
| Heba Zahid | Society for Reproductive Biology | Student Representative |

Membership of National and International Boards and Committees (cont.)

Membership of Editorial Boards

| Staff Member | Journal | Board Position |
|---------------------|---|--|
| Phil Bardin | Respirology | Deputy Editor |
| Henry Berger | Climacteric Gynecological Endocrinology Menopause | Editorial Board member Editorial Board member Editorial Board member |
| Kristy Brown | Journal of Steroid Biochemistry and Molecular Biology Steroids Frontiers in Endocrinology and Oncology | Editorial Board Member Editorial Board Member Editorial Board Member |
| Simon Chu | Edorium Journal of Gynecology and Obstetrics | Editorial Board Member |
| Colin Clyne | Steroids Journal of Steroid Biochemistry and Molecular Biology Nuclear Receptor Research | Editorial Board Member Editorial Board Member Editorial Board Member |
| David de Kretser | Human Reproduction Update Asian Journal of Andrology The Journal of Clinical Endocrinology and Metabolism Jameson and de Groot 'Endocrinology: Adult and Paediatric', 7th Edition Faculty of 1000 Member: Reproductive Endocrinology Section | Editorial Board Member Editorial Board Member Editorial Board Member Section Editor |
| Evdokia Dimitriadis | Scientific Reports International Scholarly Research Notices: Developmental Biology American Cancer Research Journal | Editorial Board Member Editorial Board Member Editorial Board Member |
| Peter Fuller | Expert Opinion on Investigational Drugs Steroids Faculty of 1000 Cancer Medicine Molecular Endocrinology Endocrinology | Section Editor Editorial Board Member Faculty Member Editorial Board Member Editorial Board Member Editorial Board Member |

| Membership of Editorial Boards (cont.) |
|--|
|--|

| Staff Member | Journal | Board Position |
|-------------------------------|---|--|
| John Funder | Steroids Current Trends in Endocrinology Hypertension Research Physiological Reports Journal of Steroid Biochemistry and Molecular Biology Endocrinology | Editorial Board Member Editorial Board Member Editorial Board Member Editorial Board Member Corresponding Editor Editorial Board Member |
| Michael Gantier | Faculty of 1000 MicroRNA | Associate Faculty Member Editorial Board Regional Editor |
| Caroline Gargett | Reproductive Sciences | Member, Editorial |
| 5 | Biology of Reproduction | Advisory Board Member, Editorial Advisory Board |
| | Reproductive Sciences | Associate Editor |
| Vincent Harley | International Journal of Biochemistry and Cell Biology Sexual Development | Editorial Board Member Editorial Board Member |
| Craig Harrison Mark Hedger | Endocrinology Human Reproduction Journal of Reproductive Immunology | Editorial Board Member Associate Editor Section Editor: Basic Immunology |
| | Andrologia Molecular and Cellular Endocrinology Current Update of Testicular Biology | Advisory Board Editorial Board Member Guest Editor |
| Rosemary Horne | Journal of Sleep Research | Member, Editorial Advisory Board |
| | Sleep Medicine Sleep | Member, Editorial Advisory Board Member, Editorial Advisory Board |
| Brendan Jenkins | Cytokine | Editorial Board Member |
| Terrance Johns | The Open Biology Journal | Editorial Board Member |
| Joohyung Lee | PLoS One | Editorial Board Member |
| Maria Liaskos | PLoS One | Academic Editor |
| Kate Loveland | Faculty of 1000 | Member: Reproductive Endocrinology Section |
| | Journal of Assisted Reproduction and Genetics Spermatogenesis Andrology | Editorial Board Member Editorial Board Member Associate Editor |
| Yogesh Makanji | Repropedia | Editorial Board Member |
| Ashley Mansell | Immunology and Cell Biology Frontiers in Immunology - Molecular Innate Immunity | Editorial Board Member Editorial Board Member |

| Momborship | of Editorial Roard | (cont) |
|------------|---------------------|--------|
| Membership | of Editorial Boards | |

| Staff Member | Journal | Board Position |
|------------------|---|--------------------------------|
| Robert McLachlan | ENDOTEXT (On-line) | Associate Editor |
| | Journal of Andrology | Associate Editor |
| Tim Moss | Frontiers in Integrative Physiology | Member, Editorial Board and |
| | | Advisory Committee |
| | Dataset Papers in Medicine | Member, Editorial Board and |
| | | Advisory Committee |
| | Frontiers in Neonatology | Member, Editorial Board and |
| | | Advisory Committee |
| Guiying Nie | Reproductive Sciences | Editorial Board Member |
| Gillian Nixon | Australasian Sleep Association | Member, Board and |
| | Member, Board and Education Committee | Education Committee |
| Graeme Polglase | Frontiers in Paediatrics - Neonatology | Associate Editor |
| David Robertson | Future Medicine - Women's Health | Editorial Advisory Board |
| Justin St. John | Molecular Human Reproduction | Associate Editor |
| Anthony Sadler | Journal of Interferon and Cytokine Research | Secretary |
| Lois Salamonsen | Repropedia | Editorial Board Member |
| | Reproduction, Fertility and Development | International Advisory Panel |
| | Faculty of 1000 | Member: Women's Health |
| Peter Stanton | Tissue Barriers | Editorial Board Member |
| Michelle Tate | Virology Journal | Associate Editor |
| Bryan Williams | Journal of Virology | Editor |
| | Journal of Interferon and Cytokine Research | Editorial Board Member |
| | Viral Immunology | Editorial Board Member |
| | Faculty of 1000 | Editorial Board Member |
| | Cytokine & Growth Factor Reviews | Editorial Board Member |
| | Frontiers in Cancer Genetics | Editorial Board Member |
| Dakang Xu | Frontiers in Bioscience | Editorial Board Member |
| | Clinical and Experimental Pharmacology and Physiology | Associate Editor |
| Morag Young | Journal of Endocrinology and Journal of Molecular | |
| | Endocrinology | Senior Editor - Cardiovascular |
| | Journal of Steroid Biochemistry and Molecular Biology | Receiving Editor |

PUBLICATIONS

Research Articles:

- Abbassi R, Johns TG, Kassiou M, Munoz L. (2015) DYRK1A in neurodegeneration and cancer: Molecular basis and clinical implications. *Pharmacol Ther.* 151:87-98.
- Abubaker K, Latifi A, Chan E, Luwor RB, Burns CJ, Thompson EW, Findlay JK, Ahmed N. (2015) Enhanced activation of STAT3 in ascites-derived recurrent ovarian tumors: Inhibition of cisplatin-induced STAT3 activation reduced tumorigenicity of ovarian cancer by a loss of cancer stem cell-like characteristics. J Cancer Stem Cell Res. 3:e1001.
- Aghababaei M, Hogg K, Perdu S, Robinson WP, Beristain AG. (2015) ADAM12-directed ectodomain shedding of E-cadherin potentiates trophoblast fusion. *Cell Death Differ*. 22(12):1970-84.
- Allison BJ, Hooper SB, Coia E, Zahra VA, Jenkin G, Malhotra A, Sehgal A, Kluckow M, Gill AW, Sozo F, Miller SL, Polglase GR. (2015) Ventilation-induced lung injury is not exacerbated by growth restriction in preterm lambs. *Am J Physiol Lung Cell Mol Physiol*. 310(3):L213-23.
- Athikarisamy SE, Veldman A, Malhotra A, Wong F. (2015) Using a modified Seldinger technique is an effective way of placing femoral venous catheters in critically ill infants. *Acta Paediatr.* 104(6):241-6.
- Bagheri-Fam S, Ono M, Li L, Zhao L, Ryan J, Lai R, Katsura Y, Rossello FJ, Koopman P, Scherer G, Bartsch O, Eswarakumar JV, Harley VR. (2015) FGFR2 mutation in 46,XY sex reversal with craniosynostosis. *Hum Mol Genet.* 24(23):6699-710.
- Banerjee A, Mifsud NA, Bird R, Forsyth C, Szer J, Tam C, Kellner S, Grigg A, Motum P, Bentley M, Opat S, Grigoriadis G. (2015) The oral iron chelator deferasirox inhibits NF-kappaB mediated gene expression without impacting on proximal activation: Implications for myelodysplasia and aplastic anaemia. *Br J Haematol.* 168:576-82.
- Bardin PG, Low K, Ruane LE. (2015) Vocal cord dysfunction: Asking the right questions. *Clin Exp Allergy*. 45(9):1374-5.

- Barton SK, Melville JM, Tolcos M, Polglase GR, McDougall AR, Azhan A, Crossley KJ, Jenkin G, Moss TJ. (2015) Human amnion epithelial cells modulate ventilationinduced white matter pathology in preterm lambs. *Dev Neurosci.* 37(4-5):338-48.
- Beker F, Rogerson SR, Hooper SB, Sehgal A, Davis PG. (2015) Hemodynamic effects of nasal continuous positive airway pressure in preterm infants with evolving chronic lung disease, a crossover randomized trial. J Pediatr. 166(2):477-9.
- Bell JR, Bernasochi GB, Wollermann AC, Raaijmakers AJ, Boon WC, Simpson ER, Curl CL, Mellor KM, Delbridge LM. (2015) Myocardial and cardiomyocyte stress resilience is enhanced in aromatasedeficient female mouse hearts through CaMKIIdelta activation. *Endocrinology.* 156(4):1429-40.
- Bennett GA, Palliser HK, Shaw JC, Walker D, Hirst JJ. (2015) Prenatal stress alters hippocampal neuroglia and increases anxiety in childhood. *Dev Neurosci.* 37(6):533-45.
- Bienvenu LA, Reichelt ME, Morgan J, Fletcher EK, Bell JR, Rickard AJ, Delbridge LM, Young MJ. (2015) Cardiomyocyte mineralocorticoid receptor activation impairs acute cardiac functional recovery after ischemic insult. *Hypertension*. 66(5):970-7.
- Biggs SN, Walter LM, Jackman AR, Nisbet LC, Weichard AJ, Hollis SL, Davey MJ, Anderson V, Nixon GM, Horne RS. (2015) Longterm cognitive and behavioral outcomes following resolution of sleep disordered breathing in preschool children. *PLoS One.* 10(9):e0139142.
- Biggs SN, Walter LM, Jackman AR, Nisbet LC, Weichard AJ, Hollis SL, Davey MJ, Anderson V, Nixon GM, Horne RS. (2015) Longitudinal impact of resolution of snoring in young children on psychosocial functioning. *J Pediatr*. 167(6):1272-9.
- Boere I, Roest AA, Wallace E, Ten Harkel AD, Haak MC, Morley CJ, Hooper SB, te Pas AB. (2015) Umbilical blood flow patterns directly after birth before delayed cord clamping. Arch Dis Child Fetal Neonatal Ed. 100(2):F121-5.

- Bozinovski S, Seow HJ, Chan SP, Anthony D, McQualter J, Hansen M, Jenkins BJ, Anderson GP, Vlahos R. (2015) Innate cellular sources of interleukin-17A regulate macrophage accumulation in cigarette smoke-induced lung inflammation in mice. *Clin Sci (Lond)*. 129(9):785-96.
- Brown KA, Simpson ER. (2015) Estrogens, obesity, inflammation, and breast cancer
 what is the link? Semin Reprod Med. 33(3):208-12.
- Castillo-Melendez M, Yawno T, Allison BJ, Jenkin G, Wallace EM, Miller SL. (2015) Cerebrovascular adaptations to chronic hypoxia in the growth restricted lamb. *Int J Dev Neurosci*. 45:55-65.
- Chen JL, Walton KL, Al-Musawi SL, Kelly EK, Qian H, La M, Lu L, Lovrecz G, Ziemann M, Lazarus R, El-Osta A, Gregorevic P, Harrison CA. (2015) Development of novel activintargeted therapeutics. *Mol Ther*. 23(3):434-44.
- Chen P, Aguilar OA, Rahim MM, Allan DS, Fine JH, Kirkham CL, Ma J, Tanaka M, Tu MM, Wight A, Kartsogiannis V, Gillespie MT, Makrigiannis AP, Carlyle JR. (2015) Genetic investigation of MHCindependent missing-self recognition by mouse NK cells using an in vivo bone marrow transplantation model. *J Immunol.* 194(6):2909-18.
- Chen R, Zhang K, Chen H, Zhao X, Wang J, Li L, Cong Y, Ju Z, Xu D, Williams BR, Jia J, Liu JP. (2015) Telomerase deficiency causes alveolar stem cell senescence-associated low-grade inflammation in lungs. J Biol Chem. 290(52):30813-29.
- Chin SP, Marthick JR, West AC, Short AK, Chuckowree J, Polanowski AM, Thomson RJ, Holloway AF, Dickinson JL. (2015) Regulation of the ITGA2 gene by epigenetic mechanisms in prostate cancer. *Prostate.* 75(7):723-34.
- Chow Z, Banerjee A, Hickey MJ. (2015) Controlling the fire--tissue-specific mechanisms of effector regulatory T-cell homing. *Immunol Cell Biol.* 93(4):355-63.

- Cohen E, Baerts W, van Bel F. (2015) Brainsparing in intrauterine growth restriction: Considerations for the neonatologist. *Neonatology.* 108(4):269-76.
- Cole TJ, Terella L, Morgan J, Alexiadis M, Yao YZ, Enriori P, Young MJ, Fuller PJ. (2015) Aldosterone-mediated renal sodium transport requires intact mineralocorticoid receptor DNA-binding in the mouse. *Endocrinology.* 156(8):2958-68.
- 27. Collins CL, Barfield C, Davis PG, Horne RS. (2015) Randomized controlled trial to compare sleep and wake in preterm infants less than 32 weeks of gestation receiving two different modes of noninvasive respiratory support. *Early Hum Dev.* 91(12):701-4.
- Cottle DL, Ursino GM, Ip SC, Jones LK, Ditommaso T, Hacking DF, Mangan NE, Mellett NA, Henley KJ, Sviridov D, Nold-Petry CA, Nold MF, Meikle PJ, Kile BT, Smyth IM. (2015) Fetal inhibition of inflammation improves disease phenotypes in harlequin ichthyosis. *Hum Mol Genet.* 24(2):436-49.
- 29. Crozier TM, Wallace EM, Parkin WG. (2015) Haemodynamic assessment in pregnancy and pre-eclampsia: a Guytonian approach. *Pregnancy Hypertens*. 5(2):177-81.
- Cuman C, Van Sinderen M, Gantier MP, Rainczuk K, Sorby K, Rombauts L, Osianlis T, Dimitriadis E. (2015) Human blastocyst secreted microRNA regulate endometrial epithelial cell adhesion. *EBioMedicine*. 2(10):1528-35.
- 31. Dargaville PA, Lavizzari A, Padoin P, Black D, Zonneveld E, Perkins E, Sourial M, Rajapaksa AE, Davis PG, Hooper SB, Moss TJ, Polglase GR, Tingay DG. (2015) An authentic animal model of the very preterm infant on nasal continuous positive airway pressure. *Intensive Care Med Exp.* 3(1):51.
- Davies-Tuck M, Biro MA, Mockler J, Stewart L, Wallace EM, East C. (2015) Maternal Asian ethnicity and the risk of anal sphincter injury. Acta Obstet Gynecol Scand. 94(3):308-15.

- Davies-Tuck M, Yim C, Knight M, Hodges R, Doery JC, Wallace E. (2015) Vitamin D testing in pregnancy: Does one size fit all? Aust N ZJ Obstet Gynaecol. 55(2):149-55.
- 34. Dawson JA, Ekstrom A, Frisk C, Thio M, Roehr CC, Kamlin CO, Donath SM, Davis PG, Giraffe Study Group. (2015) Assessing the tongue colour of newly born infants may help to predict the need for supplemental oxygen in the delivery room. Acta Paediatr. 104(4):356-9.
- Decima PF, Fyfe KL, Odoi A, Wong FY, Horne RS. (2015) The longitudinal effects of persistent periodic breathing on cerebral oxygenation in preterm infants. *Sleep Med.* 16(6):729-35.
- Dickerman BK, White CL, Kessler P, Sadler AJ, Williams BR, Sen GC. (2015) The protein activator of protein kinase R, PACT/RAX, negatively regulates protein kinase R during mouse anterior pituitary development. *FEBS* J. 282:4766-81.
- Ding M, Zhang H, Li Z, Wang W, Chen J, Shi L, Xu D, Gao Y. (2015) The polycomb group protein enhancer of zeste 2 is a novel therapeutic target for cervical cancer. *Clin Exp Pharmacol Physiol.* 42(6):458–64.
- Docanto MM, Ham S, Corbould A, Brown KA. (2015) Obesity-associated inflammatory cytokines and prostaglandin E2 stimulate glucose transporter mRNA expression and glucose uptake in primary human adipose stromal cells. *J Interferon Cytokine Res.* 35(8):600-5.
- Edwards A, Veldman A, Nitsos I, Chan Y, Brew N, Teoh M, Menahem S, Schranz D, Wong FY. (2015) Percutaneous fetal cardiac catheterization technique for stenting the foramen ovale in a midgestation lamb model. *Circ Cardiovasc Interv.* 8(3):e001967.
- Edwards A, Veldman A, Nitsos I, Chan Y, Brew N, Teoh M, Menahem S, Schranz D, Wong FY. (2015) A percutaneous fetal cardiac catheterization technique for pulmonary valvuloplasty and valvulotomy in a mid-gestation lamb model. *Prenat Diagn.* 35(1):74-80.

- Edwards CL, Best SE, Gun SY, Claser C, James KR, de Oca MM, Sebina I, Rivera Fde L, Amante FH, Hertzog PJ, Engwerda CR, Renia L, Haque A. (2015) Spatiotemporal requirements for IRF7 in mediating type I IFN-dependent susceptibility to bloodstage Plasmodium infection. *Eur J Immunol.* 45(1):130-41.
- Edwards M, Roeper J, Allgood C, Chin R, Santamaria J, Wong F, Schwarz G, Whitehall J. (2015) Investigation of molybdenum cofactor deficiency due to MOCS2 deficiency in a newborn baby. *Meta Gene*. 3:43-9.
- Edwards SL, Ulrich D, White JF, Su K, Rosamilia A, Ramshaw JA, Gargett CE, Werkmeister JA. (2015) Temporal changes in the biomechanical properties of endometrial mesenchymal stem cell seeded scaffolds in a rat model. *Acta Biomater*. 13:286-94.
- Eeles DG, Hodge JM, Singh PP, Schuijers JA, Grills BL, Gillespie MT, Myers DE, Quinn JM. (2015) Osteoclast formation elicited by interleukin-33 stimulation is dependent upon the type of osteoclast progenitor. *Mol Cell Endocrinol.* 399:259-66.
- 45. Eggers S, DeBoer KD, van den Bergen J, Gordon L, White SJ, Jamsai D, McLachlan RI, Sinclair AH, O'Bryan MK. (2015) Copy number variation associated with meiotic arrest in idiopathic male infertility. *Fertil Steril.* 103(1):214-9.
- 46. Eggers S, Smith KR, Bahlo M, Looijenga LH, Drop SL, Juniarto ZA, Harley VR, Koopman P, Faradz SM, Sinclair AH. (2015) Whole exome sequencing combined with linkage analysis identifies a novel 3 bp deletion in NR5A1. *Eur J Hum Genet*. 23(4):486-93.
- Elgass KD, Smith EA, LeGros MA, Larabell CA, Ryan MT. (2015) Analysis of ERmitochondria contacts using correlative fluorescence microscopy and soft X-ray tomography of mammalian cells. *J Cell Sci.* 128(15):2795-804.

- 48. Ellery SJ, LaRosa DA, Kett MM, Della Gatta PA, Snow RJ, Walker DW, Dickinson H. (2015) Maternal creatine homeostasis is altered during gestation in the spiny mouse: is this a metabolic adaptation to pregnancy? BMC Pregnancy Childbirth. 15:92.
- 49. Evans J, D'Sylva R, Volpert M, Jamsai D, Merriner DJ, Nie G, Salamonsen LA, O'Bryan MK. (2015) Endometrial CRISP3 is regulated throughout the mouse estrous and human menstrual cycle and facilitates adhesion and proliferation of endometrial epithelial cells. *Biol Reprod.* 92(4):99.
- 50. Evans J, Salamonsen LA, Menkhorst E, Dimitriadis E. (2015) Dynamic changes in hyperglycosylated human chorionic gonadotrophin throughout the first trimester of pregnancy and its role in early placentation. Hum Reprod. 30(5):1029-38.
- Fairfax KA, Gantier MP, Mackay F, Williams BR, McCoy CE. (2015) IL-10 regulates Aicda expression through miR-155. *J Leukoc Biol.* 97(1):71-8.
- Findlay JK, Hutt KJ, Hickey M, Anderson RA. (2015) Ovarian reserve screening: a scientific and ethical analysis. *Hum Reprod.* 30(4):1000-2.
- Findlay JK, Hutt KJ, Hickey M, Anderson RA. (2015) What is the "ovarian reserve"? Fertil Steril. 103(3):628-30.
- Formosa LE, Mimaki M, Frazier AE, McKenzie M, Stait TL, Thorburn DR, Stroud DA, Ryan MT. (2015) Characterization of mitochondrial FOXRED1 in the assembly of respiratory chain complex I. *Hum Mol Genet.* 24(10):2952-65.
- Funder JW. (2015) Primary aldosteronism: Seismic shifts. J Clin Endocrinol Metab. 100(8):2853-5.
- 56. Fyfe K, Odoi A, Yiallourou SR, Wong F, Walker AM, Horne RS. (2015) Preterm infants exhibit greater variability in cerebrovascular control than term infants. *Sleep*. 38(9):1411-21.
- Fyfe KL, Yiallourou SR, Wong FY, Odoi A, Walker AM, Horne RS. (2015) The effect of gestational age at birth on post-term maturation of heart rate variability. *Sleep.* 38(10):1635-44.

- Fyfe KL, Yiallourou SR, Wong FY, Odoi A, Walker AM, Horne RS. (2015) Gestational age at birth affects maturation of baroreflex control. J Pediatr. 166:559-65.
- 59. Garama DJ, Harris TJ, White CL, Rossello FJ, Abdul-Hay M, Gough DJ, Levy DE. (2015) A synthetic lethal interaction between glutathione synthesis and mitochondrial reactive oxygen species provides a tumorspecific vulnerability dependent on STAT3. *Mol Cell Biol.* 35(21):3646-56.
- 60. Gibson-Helm ME, Teede HJ, Cheng IH, Block AA, Knight M, East CE, Wallace EM, Boyle JA. (2015) Maternal health and pregnancy outcomes comparing migrant women born in humanitarian and nonhumanitarian source countries: a retrospective, observational study. *Birth.* 42(2):116-24.
- 61. Goldschlager T, Dea N, Boyd M, Reynolds J, Patel S, Rhines LD, Mendel E, Pacheco M, Ramos E, Mattei TA, Fisher CG. (2015) Giant cell tumors of the spine: Has denosumab changed the treatment paradigm? J Neurosurg Spine. 22(5):526-33.
- 62. Gompel A, Burger H. (2015) A commentary on a recent update of the ovarian cancer risk attributable to menopausal hormone therapy. *Climacteric.* 18(3):376-8.
- Goodchild CS, Serrao JM, Kolosov A, Boyd BJ. (2015) Alphaxalone reformulated: a watersoluble intravenous anesthetic preparation in sulfobutyl-ether-beta-cyclodextrin. *Anesth Analg.* 120(5):1025-31.
- 64. Green AC, Poulton IJ, Vrahnas C, Hausler KD, Walkley CR, Wu JY, Martin TJ, Gillespie MT, Chandraratna RA, Quinn JM, Sims NA, Purton LE. (2015) RARgamma is a negative regulator of osteoclastogenesis. *J Steroid Biochem Mol Biol.* 150:46-53.
- 65. Greenall SA, Donoghue JF, Gottardo NG, Johns TG, Adams TE. (2015) Glioma-specific Domain IV EGFR cysteine mutations promote ligand-induced covalent receptor dimerization and display enhanced sensitivity to dacomitinib in vivo. Oncogene. 34:1658-66.

- 66. Greenall SA, Donoghue JF, Van Sinderen M, Dubljevic V, Budiman S, Devlin M, Street I, Adams TE, Johns TG. (2015) EGFRvIIImediated transactivation of receptor tyrosine kinases in glioma: Mechanism and therapeutic implications. *Oncogene.* 34:5277-87.
- 67. Gu R, Santos LL, Ngo D, Fan H, Singh PP, Fingerle-Rowson G, Bucala R, Xu J, Quinn JM, Morand EF. (2015) Macrophage migration inhibitory factor is essential for osteoclastogenic mechanisms in vitro and in vivo mouse model of arthritis. *Cytokine*. 72(2):135-45.
- 68. Gurgis FMS, Akerfeldt MC, Heng B, Wong C, Adams S, Guillemin GJ, Johns TG, Chircop M, Munoz L. (2015) Cytotoxic activity of the MK2 inhibitor CMPD1 in glioblastoma cells is independent of MK2. *Cell Death Discov.* 1:15028.
- Gurung S, Deane JA, Masuda H, Maruyama T, Gargett CE. (2015) Stem cells in endometrial physiology. *Semin Reprod Med.* 33(5):326-32.
- Gurung S, Werkmeister JA, Gargett CE. (2015) Inhibition of transforming growth factor-beta receptor signaling promotes culture expansion of undifferentiated human endometrial mesenchymal stem/ stromal cells. Sci Rep. 5:15042.
- 71. Hardy CL, King SJ, Mifsud NA, Hedger MP, Phillips DJ, Mackay F, de Kretser DM, Wilson JW, Rolland JM, O'Hehir RE. (2015) The activin A antagonist follistatin inhibits cystic fibrosis-like lung inflammation and pathology. *Immunol Cell Biol*. 93(6):567-77.
- Harman AN, Nasr N, Feetham A, Galoyan A, Alshehri AA, Rambukwelle D, Botting RA, Hiener BM, Diefenbach E, Diefenbach RJ, Kim M, Mansell A, Cunningham AL. (2015) HIV blocks interferon induction in human dendritic cells and macrophages by dysregulation of TBK1. *J Virol.* 89(13):6575-84.
- Hart RJ, Doherty DA, McLachlan RI, Walls ML, Keelan JA, Dickinson JE, Skakkebaek NE, Norman RJ, Handelsman DJ. (2015) Testicular function in a birth cohort of young men. *Hum Reprod.* 30(12):2713-24.

70 | HUDSON Annual Report 2015

- Hatswell BL, Allan CA, Teng J, Wong P, Ebeling PR, Wallace EM, Fuller PJ, Milat F. (2015) Management of hypoparathyroidism in pregnancy and lactation – a report of 10 cases. *Bone Reports* 3:15-19.
- 75. Heng S, Dynon K, Li Y, Edgell T, Walton K, Rombauts LJ, Vollenhoven B, Nie G. (2015) Development of a high-throughput assay for human proprotein convertase 5/6 for detecting uterine receptivity. *Anal Biochem.* 475:14-21.
- Heng S, Paule SG, Li Y, Rombauts LJ, Vollenhoven B, Salamonsen LA, Nie G. (2015) Posttranslational removal of alphadystroglycan N terminus by PC5/6 cleavage is important for uterine preparation for embryo implantation in women. *FASEB J.* 29(9):4011-22.
- Henry BA, Loughnan R, Hickford J, Young IR, St John JC, Clarke I. (2015) Differences in mitochondrial DNA inheritance and function align with body conformation in genetically lean and fat sheep. *J Anim Sci.* 93(5):2083-93.
- Hobson SR, Mockler JC, Lim R, Alers NO, Miller SL, Wallace EM. (2015) Melatonin for preventing pre-eclampsia (Protocol). *Cochrane Database of Systematic Reviews*. Issue 5:CD011657.
- 79. Hogg K, Western PS. (2015) Differentiation of fetal male germline and gonadal progenitor cells is disrupted in organ cultures containing knockout serum replacement. *Stem Cells Dev.* 24(24):2899-911.
- Holden CA, Collins VR, Anderson CJ, Pomeroy S, Turner R, Canny BJ, Yeap BB, Wittert G, McLachlan RI. (2015) "Men's health - a little in the shadow": a formative evaluation of medical curriculum enhancement with men's health teaching and learning. *BMC Med Educ.* 15(1):210.
- Holdsworth-Carson SJ, Craythorn RG, Winnall WR, Dhaliwal K, Genovese R, Nowell CJ, Rogers PA, de Kretser DM, Hedger MP, Girling JE. (2015) Follistatin is essential for normal postnatal development and function of mouse oviduct and uterus. *Reprod Fertil Dev.* 27:985-99.

- Hunter SM, Anglesio MS, Ryland GL, Sharma R, Chiew YE, Rowley SM, Doyle MA, Li J, Gilks CB, Moss P, Allan PE, Stephens AN, Huntsman DG, deFazio A, Bowtell DD, Australian Ovarian Cancer Study G, Gorringe KL, Campbell IG. (2015) Molecular profiling of low grade serous ovarian tumours identifies novel candidate driver genes. Oncotarget. 6(35):37663-77.
- Huo CW, Chew G, Hill P, Huang D, Ingman W, Hodson L, Brown KA, Magenau A, Allam AH, McGhee E, Timpson P, Henderson MA, Thompson EW, Britt K. (2015) High mammographic density is associated with an increase in stromal collagen and immune cells within the mammary epithelium. *Breast Cancer Res.* 17(1):79.
- Itman C, Bielanowicz A, Goh H, Lee Q, Fulcher AJ, Moody SC, Doery JC, Martin J, Eyre S, Hedger MP, Loveland KL.
 (2015) Murine inhibin alpha-subunit haploinsufficiency causes transient abnormalities in prepubertal testis development followed by adult testicular decline. *Endocrinology*. 156(6):2254-68.
- Jamieson S, Fuller PJ. (2015) Tyrosine kinase inhibitors as potential therapeutic agents in the treatment of granulosa cell tumors of the ovary. *Int J Gynecol Cancer*. 25(7):1224-31.
- Jamsai D, O'Connor AE, O'Donnell L, Lo JC, O'Bryan MK. (2015) Uncoupling of transcription and translation of Fanconi anemia (FANC) complex proteins during spermatogenesis. Spermatogenesis. 5(1):e979061.
- Jenny RA, Hirst C, Lim SM, Goulburn AL, Micallef SJ, Labonne T, Kicic A, Ling KM, Stick SM, Ng ES, Trounson A, Giudice A, Elefanty AG, Stanley EG. (2015) Productive infection of human embryonic stem cellderived NKX2.1+ respiratory progenitors with human rhinovirus. *Stem Cells Transl Med.* 4(6):603-14.
- Jones GW, Bombardieri M, Greenhill CJ, McLeod L, Nerviani A, Rocher-Ros V, Cardus A, Williams AS, Pitzalis C, Jenkins BJ, Jones SA. (2015) Interleukin-27 inhibits ectopic lymphoid-like structure development in early inflammatory arthritis. J Exp Med. 212(11):1793-802.

- Jones GW, McLeod L, Kennedy CL, Bozinovski S, Najdovska M, Jenkins BJ. (2015) Imbalanced gp130 signalling in ApoE-deficient mice protects against atherosclerosis. *Atherosclerosis*. 238(2):321-8.
- Joosten SA, Edwards BA, Wellman A, Turton A, Skuza EM, Berger PJ, Hamilton GS. (2015) The effect of body position on physiological factors that contribute to obstructive sleep apnea. Sleep. 38(9):1469-78.
- 91. Joosten SA, Sands SA, Edwards BA, Hamza K, Turton A, Lau KK, Crossett M, Berger PJ, Hamilton GS. (2015) Evaluation of the role of lung volume and airway size and shape in supine-predominant obstructive sleep apnoea patients. *Respirology*. 20(5):819-27.
- Joshi MS, Williams D, Horlock D, Samarasinghe T, Andrews KL, Jefferis AM, Berger PJ, Chin-Dusting JP, Kaye DM. (2015) Role of mitochondrial dysfunction in hyperglycaemia-induced coronary microvascular dysfunction: Protective role of resveratrol. *Diab Vasc Dis Res.* 12(3):208-16.
- 93. Junttila MR, Mao W, Wang X, Wang BE, Pham T, Flygare J, Yu SF, Yee S, Goldenberg D, Fields C, Eastham-Anderson J, Singh M, Vij R, Hongo JA, Firestein R, Schutten M, Flagella K, Polakis P, Polson AG. (2015) Targeting LGR5+ cells with an antibodydrug conjugate for the treatment of colon cancer. *Sci Transl Med.* 7(314):314ra186.
- 94. Kandula T, Fahey M, Chalmers R, Edwards A, Shekleton P, Teoh M, Clark J, Goergen SK. (2015) Isolated ventriculomegaly on prenatal ultrasound: What does fetal MRI add? J Med Imaging Radiat Oncol. 59(2):154-62.
- 95. King PT, Sharma R, O'Sullivan K, Selemidis S, Lim S, Radhakrishna N, Lo C, Prasad J, Callaghan J, McLaughlin P, Farmer M, Steinfort D, Jennings B, Ngui J, Broughton BR, Thomas B, Essilfie AT, Hickey M, Holmes PW, Hansbro P, Bardin PG, Holdsworth SR. (2015) Nontypeable *Haemophilus influenzae* induces sustained lung oxidative stress and protease expression. *PLoS One.* 10(3):e0120371.

- Kitchen MJ, Buckley GA, Leong AF, Carnibella RP, Fouras A, Wallace MJ, Hooper SB. (2015) X-ray specks: Low dose in vivo imaging of lung structure and function. *Phys Med Biol.* 60(18):7259-76.
- Kluckow M, Hooper SB. (2015) Using physiology to guide time to cord clamping. Semin Fetal Neonatal Med. 20(4):225-31.
- 98. Kusuma GD, Manuelpillai U, Abumaree MH, Pertile MD, Brennecke SP, Kalionis B. (2015) Mesenchymal stem cells reside in a vascular niche in the decidua basalis and are absent in remodelled spiral arterioles. *Placenta*. 36(3):312-21.
- 99. Lee W, Johnson J, Gough DJ, Donoghue J, Cagnone GL, Vaghjiani V, Brown KA, Johns TG, St John JC. (2015) Mitochondrial DNA copy number is regulated by DNA methylation and demethylation of POLGA in stem and cancer cells and their differentiated progeny. *Cell Death Dis.* 6:e1664.
- 100. Lee W, Kelly RD, Yeung KY, Cagnone G, McKenzie M, St John JC. (2015) Analysis of mitochondrial DNA in induced pluripotent and embryonic stem cells. *Methods Mol Biol.* 1330:219-52.
- Lee W, St. John JC. (2015) The control of mitochondrial DNA replication during development and tumorigenesis. *Ann N Y Acad Sci.* 1350:95–106.
- Letouzey V, Tan KS, Deane JA, Ulrich D, Gurung S, Ong YR, Gargett CE.
 (2015) Isolation and characterisation of mesenchymal stem/stromal cells in the ovine endometrium. *PLoS One.* 10(5):e0127531.
- 103. Lewin J, Cullinane C, Akhurst T, Waldeck K, Watkins DN, Rao A, Eu P, Mileshkin L, Hicks RJ. (2015) Peptide receptor chemoradionuclide therapy in small cell carcinoma: From bench to bedside. *Eur J Nucl Med Mol Imaging*. 42(1):25-32.
- 104. Li D, Liu MS, Ji B. (2015) Mapping the dynamics landscape of conformational transitions in enzyme: The adenylate kinase case. *Biophys J.* 109(3):647-60.

- 105. Li J, Funato M, Tamai H, Wada H, Nishihara M, Morita T, Miller SL, Egashira K. (2015) Impact of intra- and extrauterine growth on bone mineral density and content in the neonatal period of very-low-birthweight infants. *Early Hum Dev.* 92:1-6.
- 106. Lim R, Acharya R, Delpachitra P, Hobson S, Sobey CG, Drummond GR, Wallace EM. (2015) Activin and NADPH-oxidase in preeclampsia: Insights from in vitro and murine studies. Am J Obstet Gynecol. 212(1):86.e1-12.
- 107. Lim R, Adhikari S, Gurusinghe S, Leaw B, Acharya R, Rahman R, Ciayadi R, Potdar M, Kelso GF, Hearn MT, Wallace EM. (2015) Inhibition of activin A signalling in a mouse model of pre-eclampsia. *Placenta*. 36(8):926-31.
- 108. Lim R, Muljadi R, Koulaeva E, Vosdoganes P, Chan ST, Acharya R, Gurusinghe S, Ritvos O, Pasternack A, Wallace EM. (2015) Activin A contributes to the development of hyperoxia-induced lung injury in neonatal mice. *Pediatr Res.* 77(6):749-56.
- 109. Lim SC, Carey KT, McKenzie M. (2015) Anti-cancer analogues ME-143 and ME-344 exert toxicity by directly inhibiting mitochondrial NADH: ubiquinone oxidoreductase (Complex I). *Am J Cancer Res.* 5(2):689-701.
- 110. Lindquist AC, Kurinczuk JJ, Wallace EM, Oats J, Knight M. (2015) Risk factors for maternal morbidity in Victoria, Australia: a population-based study. *BMJ Open.* 5(8):e007903.
- Liu JP, Chen R. (2015) Stressed SIRT7: Facing a crossroad of senescence and immortality. *Clin Exp Pharmacol Physiol.* 42(6):567-9.
- 112. Liu Y, DeBoer K, de Kretser DM, O'Donnell L, O'Connor AE, Merriner DJ, Okuda H, Whittle B, Jans DA, Efthymiadis A, McLachlan RI, Ormandy CJ, Goodnow CC, Jamsai D, O'Bryan MK. (2015) LRGUK-1 is required for basal body and manchette function during spermatogenesis and male fertility. *PLoS Genet.* 11(3):e1005090.

- 113. Lobachevsky P, Ivashkevich A, Forrester HB, Stevenson AW, Hall CJ, Sprung CN, Martin OA. (2015) Assessment and implications of scattered microbeam and broadbeam synchrotron radiation for bystander effect studies. *Radiat Res.* 184(6):650-9.
- 114. Loke H, Harley V, Lee J. (2015) Biological factors underlying sex differences in neurological disorders. *Int J Biochem Cell Biol.* 65:139–50.
- 115. Londrigan SL, Tate MD, Job ER, Moffat JM, Wakim LM, Gonelli CA, Purcell DF, Brooks AG, Villadangos JA, Reading PC, Mintern JD. (2015) Endogenous murine BST-2/ tetherin is not a major restriction factor of influenza A virus infection. *PLoS One.* 10(11):e0142925.
- 116. Magatti M, Caruso M, De Munari S, Vertua E, De D, Manuelpillai U, Parolini O. (2015) Human amniotic membrane-derived mesenchymal and epithelial cells exert different effects on monocyte-derived dendritic cell differentiation and function. *Cell Transplant.* 24(9):1733-52.
- Magne Nde CB, Zingue S, Winter E, Creczynski-Pasa TB, Michel T, Fernandez X, Njamen D, Clyne C. (2015) Flavonoids, breast cancer chemopreventive and/or chemotherapeutic agents. *Curr Med Chem.* 22(30):3434-46.
- 118. Major AT, Hogarth CA, Miyamoto Y, Sarraj MA, Smith CL, Koopman P, Kurihara Y, Jans DA, Loveland KL. (2015) Specific interaction with the nuclear transporter importin alpha 2 can modulate paraspeckle protein 1 delivery to nuclear paraspeckles. *Mol Biol Cell*. 26(8):1543-58.
- 119. Mak P, Broadbear JH, Kolosov A, Goodchild CS. (2015) Long-term antihyperalgesic and opioid-sparing effects of 5-day ketamine and morphine infusion ("burst ketamine") in diabetic neuropathic rats. Pain Med. 16(9):1781-93.
- 120. Malaver-Ortega LF, Taheri-Ghahfarokhi A, Sumer H. (2015) Inducing pluripotency in cattle. *Methods Mol Biol.* 1330:57-68.

- Malhotra A, Yahya Z, Sasi A, Jenkin G, Ditchfield M, Polglase GR, Miller SL.
 (2015) Does fetal growth restriction lead to increased brain injury as detected by neonatal cranial ultrasound in premature infants? J Paediatr Child Health. 51(11):1103-8.
- 122. Mamrot J, Pangestu M, Walker D, Gardner DK, Dickinson H. (2015) Confirmed dioestrus in pseudopregnant mice using vaginal exfoliative cytology improves embryo transfer implantation rate. *Reprod BioMed Online.* 31(4):538-43.
- 123. McCleland ML, Soukup TM, Liu SD, Esensten JH, de Sousa EMF, Yaylaoglu M, Warming S, Roose-Girma M, Firestein R. (2015) Cdk8 deletion in the Apc(Min) murine tumour model represses EZH2 activity and accelerates tumourigenesis. J Pathol. 237(4):508-19.
- 124. McClelland KS, Bell K, Larney C, Harley VR, Sinclair AH, Oshlack A, Koopman P, Bowles J. (2015) Purification and transcriptomic analysis of mouse fetal Leydig cells reveals candidate genes for specification of gonadal steroidogenic cells. *Biol Reprod.* 92(6):45.
- 125. McDonald CA, Oehme D, Pham Y, Kelly K, Itescu S, Gibbon A, Jenkin G. (2015) Evaluation of the safety and tolerability of a high-dose intravenous infusion of allogeneic mesenchymal precursor cells. *Cytotherapy.* 17(9):1178-87.
- 126. McDonald CA, Payne NL, Sun G, Moussa L, Siatskas C, Lim R, Wallace EM, Jenkin G, Bernard CC. (2015) Immunosuppressive potential of human amnion epithelial cells in the treatment of experimental autoimmune encephalomyelitis. J Neuroinflammation. 12:112.
- Michel V, Pilatz A, Hedger MP, Meinhardt
 A. (2015) Epididymitis: Revelations at the convergence of clinical and basic sciences. *Asian J Androl.* 17:756-63.
- 128. Mihalas B, Western PS, Loveland KL, McLaughlin E, Holt J. (2015) Changing expression and subcellular distribution of karyopherins during murine oogenesis. *Reproduction.* 150(6):485-96.

- 129. Milat F, Vincent AJ. (2015) Management of bone disease in women after breast cancer. *Climacteric.* 18:47–55.
- 130. Miller A, Brooks GD, McLeod L, Ruwanpura S, Jenkins BJ. (2015) Differential involvement of gp130 signalling pathways in modulating tobacco carcinogeninduced lung tumourigenesis. Oncogene. 34(12):1510-9.
- 131. Monagle J, Siu L, Worrell J, Goodchild CS, Serrao JM. (2015) A Phase 1c trial comparing the efficacy and safety of a new aqueous formulation of alphaxalone with propofol. Anesth Analg. 121(4):914-24.
- 132. Mond M, Bullock M, Yao Y, Clifton-Bligh RJ, Gilfillan C, Fuller PJ. (2015) Somatic mutations of FOXE1 in papillary thyroid cancer. *Thyroid.* 25(8):904-10.
- 133. Mottershead DG, Sugimura S, Al-Musawi SL, Li JJ, Richani D, White MA, Martin GA, Trotta AP, Ritter LJ, Shi J, Mueller TD, Harrison CA, Gilchrist RB. (2015) Cumulin, an oocyte-secreted heterodimer of the transforming growth factor-beta family, is a potent activator of granulosa cells and improves oocyte quality. J Biol Chem. 290(39):24007-09.
- 134. Musk GC, Polglase GR, Bunnell JB, Nitsos I, Tingay D, Pillow JJ. (2015) A comparison of high-frequency jet ventilation and synchronised intermittent mandatory ventilation in preterm lambs. *Pediatr Pulmonol.* 50(12):1286-93.
- 135. Ng AP, Hu Y, Metcalf D, Hyland CD, Ierino H, Phipson B, Wu D, Baldwin TM, Kauppi M, Kiu H, Di Rago L, Hilton DJ, Smyth GK, Alexander WS. (2015) Early lineage priming by trisomy of *Erg* leads to myeloproliferation in a down syndrome model. *PLoS Genet.* 11(5):e1005211.
- Nixon GM, Davey M. (2015) Sleep apnoea in the child. Aust Fam Physician. 44(6):352-5.
- 137. Nold-Petry CA, Lo CY, Rudloff I, Elgass KD, Li S, Gantier MP, Lotz-Havla AS, Gersting SW, Cho SX, Lao JC, Ellisdon AM, Rotter B, Azam T, Mangan NE, Rossello FJ, Whisstock JC, Bufler P, Garlanda C, Mantovani A,

Dinarello CA, Nold MF. (2015) IL-37 requires the receptors IL-18Ralpha and IL-1R8 (SIGIRR) to carry out its multifaceted anti-inflammatory program upon innate signal transduction. *Nat Immunol.* 16(4):354-65.

- 138. Oehme D, Ghosh P, Goldschlager T, Shimon S, Wu J, Stuckey S, Williamson M, Rosenfeld J, Jenkin G. (2015) Radiological, morphological, histological and biochemical changes of lumbar discs in an animal model of disc degeneration suitable for evaluating the potential regenerative capacity of novel biological agents. J Tissue Sci Eng. 6(2):153.
- 139. Palliser HK, Kelleher MA, Tolcos M, Walker DW, Hirst JJ. (2015) Effect of postnatal progesterone therapy following preterm birth on neurosteroid concentrations and cerebellar myelination in guinea pigs. J Dev Orig Health Dis. 6(4):350-61.
- 140. Palmer KR, Kaitu'u-Lino TJ, Hastie R, Hannan NJ, Ye L, Binder N, Cannon P, Tuohey L, Johns TG, Shub A, Tong S. (2015) Placental-specific sFLT-1 e15a protein is increased in preeclampsia, antagonizes vascular endothelial growth factor signaling, and has antiangiogenic activity. *Hypertension.* 66:1251-9.
- 141. Pappas DJ, Gourraud PA, Le Gall C, Laurent J, Trounson A, DeWitt N, Talib S. (2015) Human leukocyte antigen haplohomozygous induced pluripotent stem cell haplobank modeled after the california population: Evaluating matching in a multiethnic and admixed population. *Stem Cells Transl Med.* 4(5):413-8.
- 142. Pathak A, Blair VL, Ferrero RL, Junk PC, Tabor RF, Andrews PC. (2015) Synthesis and structural characterisation of bismuth(III) hydroxamates and their activity against *Helicobacter pylori*. *Dalton Trans*. 44(38):16903-13.
- 143. Paule S, Nebl T, Webb AI, Vollenhoven B, Rombauts LJ, Nie G. (2015) Proprotein convertase 5/6 cleaves plateletderived growth factor A in the human endometrium in preparation for embryo implantation. *Mol Hum Reprod.* 21(3):262-70.

- 144. Phoa AF, Browne S, Gurgis FM, Akerfeldt MC, Dobber A, Renn C, Peifer C, Stringer BW, Day BW, Wong C, Chircop M, Johns TG, Kassiou M, Munoz L. (2015) Pharmacology of novel small-molecule tubulin inhibitors in glioblastoma cells with enhanced EGFR signalling. *Biochem Pharmacol.* 98(4):587-601.
- 145. Polglase GR, Dawson JA, Kluckow M, Gill AW, Davis PG, te Pas AB, Crossley KJ, McDougall A, Wallace EM, Hooper SB.
 (2015) Ventilation onset prior to umbilical cord clamping (physiological-based cord clamping) improves systemic and cerebral oxygenation in preterm lambs. *PLoS One.* 10(2):e0117504.
- 146. Qu X, Jiang M, Sun YB, Jiang X, Fu P, Ren Y, Wang D, Dai L, Caruana G, Bertram JF, Nikolic-Paterson DJ, Li J. (2015) The Smad3/Smad4/CDK9 complex promotes renal fibrosis in mice with unilateral ureteral obstruction. *Kidney Int.* 88(6):1323-1335.
- 147. Quinn TA, Ratnayake U, Dickinson H, Castillo-Melendez M, Walker DW. (2015) Ontogenetic change in the regional distribution of dehydroepiandrosteronesynthesizing enzyme and the glucocorticoid receptor in the brain of the spiny mouse (Acomys cahirinus). Dev Neurosci. 38(1):54-73.
- 148. Rahim MM, Chen P, Mottashed AN, Mahmoud AB, Thomas MJ, Zhu Q, Brooks CG, Kartsogiannis V, Gillespie MT, Carlyle JR, Makrigiannis AP. (2015) The mouse NKR-P1B:Clr-b recognition system is a negative regulator of innate immune responses. *Blood.* 125(14):2217-27.
- 149. Rahman M, Reyner K, Deleyrolle L, Millette S, Azari H, Day BW, Stringer BW, Boyd AW, Johns TG, Blot V, Duggal R, Reynolds BA.
 (2015) Neurosphere and adherent culture conditions are equivalent for malignant glioma stem cell lines. *Anat Cell Biol.* 48(1):25-35.
- 150. Rautela J, Baschuk N, Slaney CY, Jayatilleke K, Xiao K, Bidwell BN, Lucas E, Hawkins ED, Lock P, Wong C, Chen W, Anderson RL, Hertzog PJ, Andrews DM, Moller A, Parker BS. (2015) Loss of host type-I IFN signaling

accelerates metastasis and impairs NK cell anti-tumor function in multiple models of breast cancer. *Cancer Immunol Res.* 3(11):1207-17.

- 151. Rombauts L, McMaster R, Motteram C, Fernando S. (2015) Risk of ectopic pregnancy is linked to endometrial thickness in a retrospective cohort study of 8120 assisted reproduction technology cycles. Hum Reprod. 30(12):2846-52.
- 152. Rudloff I, Godsell J, Nold-Petry CA, Harris J, Hoi A, Morand EF, Nold MF. (2015) Interleukin 38 exerts anti-inflammatory functions and is associated with disease activity in systemic lupus erythematosus. *Arthritis Rheumatol.* 67(12):3219-25.
- 153. Rumbold AR, Wild KJ, Maypilama EL, Kildea SV, Barclay L, Wallace EM, Boyle JA. (2015) Challenges to providing fetal anomaly testing in a cross-cultural environment: experiences of practitioners caring for aboriginal women. *Birth.* 42(4):362-8.
- 154. Ryland GL, Doyle MA, Goode D, Boyle SE, Choong DY, Rowley SM, Li J, Australian Ovarian Cancer Study Group, Bowtell DD, Tothill RW, Campbell IG, Gorringe KL. (2015) Loss of heterozygosity: What is it good for? BMC Med Genomics. 8:45.
- 155. Ryland GL, Hunter SM, Doyle MA, Caramia F, Li J, Rowley SM, Christie M, Allan PE, Stephens AN, Bowtell DD, Australian Ovarian Cancer Study G, Campbell IG, Gorringe KL. (2015) Mutational landscape of mucinous ovarian carcinoma and its neoplastic precursors. *Genome Med*. 7(1):87.
- 156. Sadler AJ, Rossello FJ, Yu L, Deane JA, Yuan X, Wang D, Irving AT, Kaparakis-Liaskos M, Gantier MP, Ying H, Yim HC, Hartland EL, Notini AJ, de Boer S, White SJ, Mansell A, Liu JP, Watkins DN, Gerondakis S, Williams BR, Xu D. (2015) BTB-ZF transcriptional regulator PLZF modifies chromatin to restrain inflammatory signaling programs. *Proc Natl Acad Sci U S A*. 112(5):1535-40.
- 157. Sadler AJ, Suliman BA, Yu L, Yuan X, Wang D, Irving AT, Sarvestani ST, Banerjee A, Mansell AS, Liu JP, Gerondakis S, Williams BR, Xu D. (2015) The acetyltransferase

HAT1 moderates the NF-kappaB response by regulating the transcription factor PLZF. *Nat Commun.* 6:6795.

- 158. Sahadan DZ, Davey MJ, Horne RS, Nixon GM. (2015) Improving detection of obstructive sleep apnoea by overnight oximetry in children using pulse rate parameters. Sleep Breath. 19(4):1409-14.
- 159. Saif Z, Hodyl NA, Stark MJ, Fuller PJ, Cole T, Lu N, Clifton VL. (2015) Expression of eight glucocorticoid receptor isoforms in the human preterm placenta vary with fetal sex and birthweight. *Placenta*. 36(7):723-30.
- 160. Samarasinghe TD, Sands SA, Skuza EM, Joshi MS, Nold-Petry CA, Berger PJ. (2015) The effect of prenatal maternal infection on respiratory function in mouse offspring: Evidence for enhanced chemosensitivity. J Appl Physiol (1985). 119(3):299-307.
- 161. Samardzija C, Luwor RB, Volchek M, Quinn MA, Findlay JK, Ahmed N. (2015) A critical role of Oct4A in mediating metastasis and disease-free survival in a mouse model of ovarian cancer. *Mol Cancer.* 14:152.
- 162. Sarvestani ST, Stunden HJ, Behlke MA, Forster SC, McCoy CE, Tate MD, Ferrand J, Lennox KA, Latz E, Williams BR, Gantier MP. (2015) Sequence-dependent off-target inhibition of TLR7/8 sensing by synthetic microRNA inhibitors. *Nucleic Acids Res.* 43(2):1177-88.
- 163. Sasi A, Abraham V, Davies-Tuck M, Polglase GR, Jenkin G, Miller SL, Malhotra A. (2015) Impact of intrauterine growth restriction on preterm lung disease. *Acta Paediatr.* 104:552-6.
- 164. Schmolzer GM, Hooper SB, Wong C, Kamlin CO, Davis PG. (2015) Exhaled carbon dioxide in healthy term infants immediately after birth. *J Pediatr.* 166(4):844-9.e1-3.
- 165. Schwahn BC, Van Spronsen FJ, Belaidi AA, Bowhay S, Christodoulou J, Derks TG, Hennermann JB, Jameson E, Konig K, McGregor TL, Font-Montgomery E, Santamaria-Araujo JA, Santra S, Vaidya M, Vierzig A, Wassmer E, Weis I, Wong FY, Veldman A, Schwarz G. (2015)

Efficacy and safety of cyclic pyranopterin monophosphate substitution in severe molybdenum cofactor deficiency type A: a prospective cohort study. *Lancet.* 386:1955-63.

- 166. Shaw JC, Palliser HK, Walker DW, Hirst JJ. (2015) Preterm birth affects GABAA receptor subunit mRNA levels during the foetal-to-neonatal transition in guinea pigs. J Dev Orig Health Dis. 6(3):250-60.
- 167. Siew ML, van Vonderen JJ, Hooper SB, te Pas AB. (2015) Very preterm infants failing CPAP show signs of fatigue immediately after birth. *PLoS One.* 10(6):e0129592.
- 168. Singh H, Zhao M, Chen Q, Wang Y, Li Y, Kaitu'u-Lino TJ, Tong S, Nie G. (2015) Human HtrA4 expression is restricted to the placenta, is significantly upregulated in early-onset preeclampsia, and high levels of HtrA4 cause endothelial dysfunction. J Clin Endocrinol Metab. 100(7):E936-45.
- 169. Sobotka KS, Ong T, Polglase GR, Crossley KJ, Moss TJ, Hooper SB. (2015) The effect of oxygen content during an initial sustained inflation on heart rate in asphyxiated nearterm lambs. Arch Dis Child Fetal Neonatal Ed. 100(4):F337-43.
- 170. Sobotka KS, Polglase GR, Schmolzer GM, Davis PG, Klingenberg C, Hooper SB.
 (2015) Effects of chest compressions on cardiovascular and cerebral hemodynamics in asphyxiated near-term lambs. *Pediatr Res.* 78(4):395-400.
- 171. St John JC. (2015) The mitochondrion, its genome and their contribution to well-being and disease. *Mol Hum Reprod.* 21(1):1-2.
- 172. Stark Z, McGillivray G, Sampson A, Palma-Dias R, Edwards A, Said JM, Whiteley G, Fink AM. (2015) Apert syndrome: Temporal lobe abnormalities on fetal brain imaging. *Prenat Diagn*. 35(2):179-82.
- 173. Steinhardt A, Hinner P, Kuhn T, Roehr CC, Rudiger M, Reichert J. (2015) Influences of a dedicated parental training program on parent-child interaction in preterm infants. *Early Hum Dev.* 91(3):205-10.

- 174. Taheri-Ghahfarokhi A, Malaver-Ortega LF, Sumer H. (2015) Genome modification of pluripotent cells by using transcription activator-like effector nucleases (TALENs). *Methods Mol Biol.* 1330:253-67.
- 175. Tan JL, Chan ST, Lo CY, Deane JA, McDonald CA, Bernard CC, Wallace EM, Lim R.
 (2015) Amnion cell-mediated immune modulation following bleomycin challenge: Controlling the regulatory T cell response. Stem Cell Res Ther. 6:8.
- 176. Tana M, Polglase GR, Cota F, Tirone C, Aurilia C, Lio A, Ricci C, Romagnoli C, Vento G. (2015) Determination of lung volume and hemodynamic changes during high-frequency ventilation recruitment in preterm neonates with respiratory distress syndrome. *Crit Care Med.* 43(8):1685-91.
- 177. Teng J, Hutchinson ME, Doery JC, Choy KW, Chong W, Fuller PJ, Yang J. (2015) The role of adrenal vein sampling in primary aldosteronism: The Monash Health experience. *Intern Med J.* 45(11):1141-6.
- Teoh SS, Zhao M, Wang Y, Chen Q, Nie G. (2015) Serum HtrA1 is differentially regulated between early-onset and lateonset preeclampsia. *Placenta*. 36:990-5.
- 179. Thompson JE, Hayen A, Landau A, Haynes AM, Kalapara A, Ischia J, Matthews J, Frydenberg M, Stricker PD. (2015) Mediumterm oncological outcomes for extended vs saturation biopsy and transrectal vs transperineal biopsy in active surveillance for prostate cancer. BJU Int. 115(6):884-91.
- 180. Tingay DG, Polglase GR, Bhatia R, Berry CA, Kopotic RJ, Kopotic CP, Song Y, Szyld E, Jobe AH, Pillow JJ. (2015) Pressurelimited sustained inflation vs gradual tidal inflations for resuscitation in preterm lambs. J Appl Physiol (1985). 118(7):890-7.
- 181. Tolcos M, Markwick R, O'Dowd R, Martin V, Turnley A, Rees S. (2015) Intrauterine growth restriction: Effects on neural precursor cell proliferation and angiogenesis in the foetal subventricular zone. Dev Neurosci. 37(4-5):453-63.
- 182. Toon E, Davey MJ, Hollis SL, Nixon GM, Horne RS, Biggs SN. (2015) Comparison of

commercial wrist-based and amartphone accelerometers, actigraphy, and PSG in a clinical cohort of children and adolescents. *J Clin Sleep Med.* 12(3):343-50.

- Trounson A, Kolaja K, Petersen T, Weber K, McVean M, Funk KA. (2015) Stem cell research. Int J Toxicol. 34(4):349-51.
- 184. Turner L, Praszkier J, Hutton ML, Steer D, Ramm G, Kaparakis-Liaskos M, Ferrero RL. (2015) Increased outer membrane vesicle formation in a *Helicobacter pylori tolB* mutant. *Helicobacter*. 20(4):269-83.
- 185. Ullah MO, Valkov E, Ve T, Williams S, Mas C, Mansell A, Kobe B. (2015) Recombinant production of functional full-length and truncated human TRAM/TICAM-2 adaptor protein involved in Toll-like receptor and interferon signaling. *Protein Expr Purif.* 106:31-40.
- 186. Van Sinderen M, Cuman C, Gamage T, Rainczuk K, Osianlis T, Rombauts L, Dimitriadis E. (2015) Localisation of the Notch family in the human endometrium of fertile and infertile women. J Mol Histol. 45(6):697-706.
- 187. Van Sinderen ML, Steinberg GR, Jorgensen SB, Honeyman J, Chow JD, Herridge KA, Winship AL, Dimitriadis E, Jones ME, Simpson ER, Boon WC. (2015) Effects of estrogens on adipokines and glucose homeostasis in female aromatase knockout mice. *PLoS One.* 10(8):e0136143.
- 188. van Vonderen JJ, Hooper SB, Krabbe VB, Siew ML, te Pas AB. (2015) Monitoring tidal volumes in preterm infants at birth: Mask versus endotracheal ventilation. Arch Dis Child Fetal Neonatal Ed. 100(1):F43-6.
- 189. van Vonderen JJ, Hooper SB, Kroese JK, Roest AA, Narayen IC, van Zwet EW, te Pas AB. (2015) Pulse oximetry measures a lower heart rate at birth compared with electrocardiography. J Pediatr. 166(1):49-53.
- 190. van Vonderen JJ, Lista G, Cavigioli F, Hooper SB, te Pas AB. (2015) Effectivity of ventilation by measuring expired CO2 and RIP during stabilisation of preterm infants at birth. Arch Dis Child Fetal Neonatal Ed. 100(6):F514-8.

- 191. van Vonderen JJ, Roest AA, Walther FJ, Blom NA, van Lith JM, Hooper SB, te Pas AB. (2015) The influence of crying on the ductus arteriosus shunt and left ventricular output at birth. *Neonatology*. 107(2):108-12.
- 192. Vanden Brink H, Robertson DM, Lim H, Lee C, Chizen D, Harris G, Hale G, Burger H, Baerwald A. (2015) Associations between antral ovarian follicle dynamics and hormone production throughout the menstrual cycle as women age. J Clin Endocrinol Metab. 100(12):4553-62.
- 193. Walter LM, Biggs SN, Nisbet LC, Weichard AJ, Hollis SL, Davey MJ, Anderson V, Nixon GM, Horne RS. (2015) Long-term improvements in sleep and respiratory parameters in preschool children following treatment of sleep disordered breathing. J Clin Sleep Med. 11(10):1143-51.
- 194. Walter LM, Biggs SN, Nisbet LC, Weichard AJ, Muntinga M, Davey MJ, Anderson V, Nixon GM, Horne RS. (2015) Augmented cardiovascular responses to episodes of repetitive compared with isolated respiratory events in preschool children with sleep disordered breathing. *Pediatr Res.* 78(5):560-6.
- 195. Walton KL, Kelly EK, Chan KL, Harrison CA, Robertson DM. (2015) Inhibin biosynthesis and activity are limited by a prodomain-derived peptide. *Endocrinology*. 156(8):3047-57.
- 196. Wang T, Gantier MP, Xiang D, Bean AG, Bruce M, Zhou SF, Khasraw M, Ward A, Wang L, Wei MQ, AlShamaileh H, Chen L, She X, Lin J, Kong L, Shigdar S, Duan W. (2015) EpCAM aptamer-mediated survivin silencing sensitized cancer stem cells to doxorubicin in a breast cancer model. *Theranostics*. 5(12):1456-72.
- 197. Wang T, Shigdar S, Gantier MP, Hou Y, Wang L, Li Y, Al Shamaileh H, Yin W, Zhou SF, Zhao X, Duan W. (2015) Cancer stem cell targeted therapy: Progress amid controversies. *Oncotarget.* 6(42):44191-206.

- 198. Wang T, Sun X, Zhao J, Zhang J, Zhu H, Li C, Gao N, Jia Y, Xu D, Huang FP, Li N, Lu L, Li ZG. (2015) Regulatory T cells in rheumatoid arthritis showed increased plasticity toward Th17 but retained suppressive function in peripheral blood. *Ann Rheum Dis*. 74(6):1293-301.
- 199. Wang X, Docanto MM, Sasano H, Kathleen Cuningham Foundation Consortium for Research into Familial Breast Cancer, Lo C, Simpson ER, Brown KA.
 (2015) Prostaglandin E2 inhibits p53 in human breast adipose stromal cells: a novel mechanism for the regulation of aromatase in obesity and breast cancer. *Cancer Res.* 75(4):645-55.
- 200. West AC, Jenkins BJ. (2015) Inflammatory and non-inflammatory roles for Toll-like receptors in gastrointestinal cancer. *Curr Pharm Des.* 21:2968-77.
- 201. Wilmut I, Leslie S, Martin NG, Peschanski M, Rao M, Trounson A, Turner D, Turner ML, Yamanaka S, Taylor CJ. (2015) Development of a global network of induced pluripotent stem cell haplobanks. *Regen Med.* 10(3):235-8.
- 202. Wilson SL, Blair JD, Hogg K, Langlois S, von Dadelszen P, Robinson WP. (2015) Placental DNA methylation at term reflects maternal serum levels of INHA and FN1, but not PAPPA, early in pregnancy. BMC Med Genet. 16(1):111.
- 203. Winnall WR, Lloyd SB, De Rose R, Alcantara S, Amarasena TH, Hedger MP, Girling JE, Kent SJ. (2015) Simian immunodeficiency virus infection and immune responses in the pig-tailed macaque testis. *J Leukoc Biol.* 97(3):599-609.
- 204. Winship A, Correia J, Krishnan T, Menkhorst E, Cuman C, Zhang JG, Nicola NA, Dimitriadis E. (2015) Blocking endogenous leukemia inhibitory factor during placental development in mice leads to abnormal placentation and pregnancy loss. *Sci Rep.* 5:13237.
- 205. Winship A, Correia J, Zhang JG, Nicola NA, Dimitriadis E. (2015) Leukemia inhibitory factor (LIF) inhibition during mid-gestation impairs trophoblast invasion and spiral artery remodelling during pregnancy in mice. *PLoS One.* 10(10):e0129110.

- 206. Winship A, Cuman C, Rainczuk K, Dimitriadis E. (2015) Fibulin-5 is upregulated in decidualized human endometrial stromal cells and promotes primary human extravillous trophoblast outgrowth. *Placenta*. 36(12):1405-11.
- 207. Winship AL, Koga K, Menkhorst E, Van Sinderen M, Rainczuk K, Nagai M, Cuman C, Yap J, Zhang JG, Simmons D, Young MJ, Dimitriadis E. (2015) Interleukin-11 alters placentation and causes preeclampsia features in mice. *Proc Natl Acad Sci U S A*. 112(52):15928-33.
- 208. Wu LL, Russell DL, Wong SL, Chen M, Tsai TS, St John JC, Norman RJ, Febbraio MA, Carroll J, Robker RL. (2015) Mitochondrial dysfunction in oocytes of obese mothers: Transmission to offspring and reversal by pharmacological endoplasmic reticulum stress inhibitors. *Development.* 142(4):681-91.
- 209. Yan EB, Frugier T, Lim CK, Heng B, Sundaram G, Tan M, Rosenfeld JV, Walker DW, Guillemin GJ, Morganti-Kossmann MC. (2015) Activation of the kynurenine pathway and increased production of the excitotoxin quinolinic acid following traumatic brain injury in humans. J Neuroinflammation. 12:110.
- 210. Yang J, Fuller PJ, Morgan J, Shibata H, Clyne CD, Young MJ. (2015) GEMIN4 functions as a coregulator of the mineralocorticoid receptor. J Mol Endocrinol. 54(2):149-60.
- 211. Yeap BB, Alfonso H, Chubb SA, Byrnes E, Beilby JP, Ebeling PR, Allan CA, Schultz C, Hankey GJ, Golledge J, Flicker L, Norman PE. (2015) Proportion of undercarboxylated osteocalcin and serum P1NP predict incidence of myocardial infarction in older men. J Clin Endocrinol Metab. 100(10):3934-42.
- 212. Yeap BB, Alfonso H, Chubb SA, Gauci R, Byrnes E, Beilby JP, Ebeling PR, Handelsman DJ, Allan CA, Grossmann M, Norman PE, Flicker L. (2015) Higher serum undercarboxylated osteocalcin and other bone turnover markers are associated with reduced diabetes risk and lower estradiol concentrations in older men. J Clin Endocrinol Metab. 100(1):63-71.

- 213. Yelland J, Riggs E, Szwarc J, Casey S, Dawson W, Vanpraag D, East C, Wallace E, Teale G, Harrison B, Petschel P, Furler J, Goldfeld S, Mensah F, Biro MA, Willey S, Cheng IH, Small R, Brown S. (2015) Bridging the gap: Using an interrupted time series design to evaluate systems reform addressing refugee maternal and child health inequalities. *Implement Sci.* 10(1):62.
- 214. Zhang H, Maqsudi S, Rainczuk A, Duffield N, Lawrence J, Keane FM, Justa-Schuch D, Geiss-Friedlander R, Gorrell MD, Stephens AN. (2015) Identification of novel dipeptidyl peptidase 9 substrates by two-dimensional differential in-gel electrophoresis. *FEBS J.* 282(19):3737-57.

Reviews:

- Aesoy R, Clyne CD, Chand AL. (2015) Insights into orphan nuclear receptors as prognostic markers and novel therapeutic targets for breast cancer. *Front Endocrinol* (Lausanne). 6:115.
- Ahmed AU, Williams BR, Hannigan GE. (2015) Transcriptional activation of inflammatory genes: mechanistic insight into selectivity and diversity. *Biomolecules*. 5(4):3087-111.
- Barton SK, Tolcos M, Miller SL, Roehr CC, Schmolzer GM, Davis PG, Moss TJ, LaRosa DA, Hooper SB, Polglase GR. (2015) Unraveling the links between the initiation of ventilation and brain injury in preterm infants. *Front Pediatr.* 3:97.
- Bird AD, McDougall AR, Seow B, Hooper SB, Cole TJ. (2015) Glucocorticoid regulation of lung development: Lessons learned from conditional GR knockout mice. *Mol Endocrinol.* 29(2):158-71.
- Boolell V, Alamgeer M, Watkins DN, Ganju
 V. (2015) The evolution of therapies in non-small cell lung cancer. *Cancers* (Basel). 7(3):1815-46.
- Brosens I, Curcic A, Vejnovic T, Gargett CE, Brosens JJ, Benagiano G. (2015) The perinatal origins of major reproductive disorders in the adolescent: Research avenues. *Placenta*. 36(4):341-4.

- Brosens I, Gargett C, Gordts S, Brosens J, Benagiano G. (2015) Neonatal menstruation explains epidemiological links between fetomaternal conditions and adolescent endometriosis. J Endometr Pelvic Pain Disorders. 7(2):51-55.
- Cochrane CR, Szczepny A, Watkins DN, Cain JE. (2015) Hedgehog signaling in the maintenance of cancer stem cells. *Cancers* (Basel). 7(3):1554-85.
- Eid SG, Mangan NE, Hertzog PJ, Mak J. (2015) Blocking HIV-1 transmission in the female reproductive tract: from microbicide development to exploring local antiviral responses. *Clin Transl Immunology.* 4(10):e43.
- Ellery SJ, Cai X, Walker DD, Dickinson H, Kett MM. (2015) Transcutaneous measurement of glomerular filtration rate in small rodents: Through the skin for the win? *Nephrology* (Carlton). 20(3):117-23.
- Findlay JK, Hutt KJ, Hickey M, Anderson RA. (2015) How Is the number of primordial follicles in the ovarian reserve established? *Biol Reprod.* 93(5):111.
- Forster SC, Tate MD, Hertzog PJ. (2015) MicroRNA as type I interferon-regulated transcripts and modulators of the innate immune response. *Front Immunol.* 6:334.
- Fuller PJ. (2015) Novel interactions of the mineralocorticoid receptor. Mol Cell Endocrinol. 408:33-7.
- 14. Funder JW. (2015) Primary aldosteronism and salt. *Pflugers Arch*. 467(3):587-94.
- Funder JW. (2015) Primary aldosteronism: New answers, new questions. *Horm Metab Res.* 47(13):935-40.
- Handley C, Goldschlager T, Oehme D, Ghosh P, Jenkin G. (2015) Mesenchymal stem cell tracking in the intervertebral disc. World J Stem Cells. 7(1):65-74.
- Herlihy AS, McLachlan RI. (2015) Screening for Klinefelter syndrome. Curr Opin Endocrinol Diabetes Obes. 22(3):224-9.
- Hogg K, Western PS. (2015) Refurbishing the germline epigenome: Out with the old, in with the new. *Semin Cell Dev Biol.* 45:104-13.

- Hooper SB, Polglase GR, Roehr CC. (2015) Cardiopulmonary changes with aeration of the newborn lung. *Paediatr Respir Rev.* 16:147-50.
- Hooper SB, Polglase GR, te Pas AB. (2015) A physiological approach to the timing of umbilical cord clamping at birth. Arch Dis Child Fetal Neonatal Ed. 100(4):F355-60.
- Hooper SB, te Pas AB, Lang J, van Vonderen JJ, Roehr CC, Kluckow M, Gill AW, Wallace EM, Polglase GR. (2015) Cardiovascular transition at birth: a physiological sequence. *Pediatr Res.* 77(5):608-14.
- Horne RS, Hauck FR, Moon RY. (2015) Sudden infant death syndrome and advice for safe sleeping. *BMJ*. 350:h1989.
- 23. Hutt KJ. (2015) The role of BH3-only proteins in apoptosis within the ovary. *Reproduction*. 149(2):R81-9.
- Kaparakis-Liaskos M. (2015) The intracellular location, mechanisms and outcomes of NOD1 signaling. *Cytokine*. 74(2):207-12.
- Kaparakis-Liaskos M, Ferrero RL. (2015) Immune modulation by bacterial outer membrane vesicles. *Nat Rev Immunol.* 15(6):375-87.
- Larmour LI, Jobling TW, Gargett CE. (2015) A review of current animal models for the study of cervical dysplasia and cervical carcinoma. *Int J Gynecol Cancer*. 25(8):1345-52.
- 27. Lawlor KT, Kaur P. (2015) Dermal contributions to human interfollicular epidermal architecture and self-renewal. *Int J Mol Sci.* 16(12):28098-107.
- Lenzini L, Rossitto G, Maiolino G, Letizia C, Funder JW, Rossi GP. (2015) A meta-analysis of somatic KCNJ5 K(+) channel mutations In 1636 patients with an aldosteroneproducing adenoma. J Clin Endocrinol Metab. 100(8):E1089-95.
- 29. Loveland KL, Major AT, Butler R, Young JC, Jans DA, Miyamoto Y. (2015) Putting things in place for fertilization: Discovering roles for importin proteins in cell fate and spermatogenesis. *Asian J Androl.* 17(4):537-44.

- Masuda H, Maruyama T, Gargett CE, Miyazaki K, Matsuzaki Y, Okano H, Tanaka M. (2015) Endometrial side population cells: Potential adult stem/progenitor cells in endometrium. *Biol Reprod.* 93(4):84.
- McDougall AR, Tolcos M, Hooper SB, Cole TJ, Wallace MJ. (2015) Trop2: From development to disease. *Dev Dyn.* 244:99-109.
- Nguyen MU, Wallace MJ, Pepe S, Menheniott TR, Moss TJ, Burgner D. (2015) Perinatal inflammation: a common factor in the early origins of cardiovascular disease? *Clin Sci* (Lond). 129(8):769-84.
- 33. Oehme D, Goldschlager T, Ghosh P, Rosenfeld JV, Jenkin G. (2015) Cell-based therapies used to treat lumbar degenerative disc disease: a systematic review of animal studies and human clinical trials. *Stem Cells Int.* 2015:946031.
- Oehme D, Goldschlager T, Rosenfeld JV, Ghosh P, Jenkin G. (2015) The role of stem cell therapies in degenerative lumbar spine disease: a review. *Neurosurg Rev.* 38(3):429-45.
- Porritt RA, Hertzog PJ. (2015) Dynamic control of type I IFN signalling by an integrated network of negative regulators. *Trends Immunol.* 36(3):150-60.
- Prokopuk L, Western PS, Stringer JM. (2015) Transgenerational epigenetic inheritance: Adaptation through the germline epigenome? *Epigenomics*. 7(5):829-46.
- Saad MI, Abdelkhalek TM, Saleh MM, Kamel MA, Youssef M, Tawfik SH, Dominguez H. (2015) Insights into the molecular mechanisms of diabetes-induced endothelial dysfunction: Focus on oxidative stress and endothelial progenitor cells. *Endocrine.* 50(3):537-67.
- Simpson ER, Santen RJ. (2015) Celebrating 75 years of oestradiol. J Mol Endocrinol. 55(3):T1-20.
- Sprung CN, Forrester HB, Siva S, Martin OA.
 (2015) Immunological markers that predict radiation toxicity. *Cancer Lett.* 368:191-7.

- Sprung CN, Ivashkevich A, Forrester HB, Redon CE, Georgakilas A, Martin OA.
 (2015) Oxidative DNA damage caused by inflammation may link to stressinduced non-targeted effects. *Cancer Lett.* 356(1):72-81.
- St John B, McLachlan R. (2015) Klinefelter's syndrome: The most overlooked cause of androgen deficiency. *Endocrinology Today* 4(1):8-14.
- To SQ, Knower KC, Cheung V, Simpson ER, Clyne CD. (2015) Transcriptional control of local estrogen formation by aromatase in the breast. J Steroid Biochem Mol Biol. 145:179-86.
- Trounson A, McDonald C. (2015) Stem cell therapies in clinical trials: Progress and challenges. *Cell Stem Cell*. 17(1):11-22.
- Walter LM, Nixon GM, Davey MJ, Downie PA, Horne RS. (2015) Sleep and fatigue in pediatric oncology: a review of the literature. *Sleep Med Rev.* 24C:71-82.
- Wang X, Simpson ER, Brown KA.
 (2015) Aromatase overexpression in dysfunctional adipose tissue links obesity to postmenopausal breast cancer. J Steroid Biochem Mol Biol. 153:35-44.
- Wang X, Simpson ER, Brown KA. (2015) p53: Protection against tumor growth beyond effects on cell cycle and apoptosis. *Cancer Res.* 75(23):5001-7.
- Yiallourou SR, Wallace EM, Miller SL, Horne RS. (2015) Effects of intrauterine growth restriction on sleep and the cardiovascular system: The use of melatonin as a potential therapy? Sleep Med Rev. 26(64-73).
- Young JC, Wakitani S, Loveland KL. (2015) TGF-beta superfamily signaling in testis formation and early male germline development. Semin Cell Dev Biol. 45:94-103.
- Young MJ, Rickard AJ. (2015) Mineralocorticoid receptors in the heart: Lessons from cell-selective transgenic animals. J Endocrinol. 224(1):R1-13.

Book Chapters:

- Burger H. (2015) Foreword. In Managing the Menopause: 21st Century Solutions. Panay N, Briggs P, Kovacs G, eds. Cambridge University Press, Cambridge. p x.
- de Kretser DM, Hedger MP, Burger HG. (2015) Gonadal peptides: Inhibins, activins, follistatin, and Müllerian-inhibiting substance (antimüllerian hormone). In *Endocrinology, Adult and Pediatric.* 7th edn. Jameson L, De Groot LJ, eds. Elsevier, USA. pp 2037-50.
- de Kretser DM, Loveland K, O'Bryan M.
 (2015) Spermatogenesis. In Endocrinology, Adult and Pediatric. 7th edn. Jameson L, De Groot LJ, eds. Elsevier, USA. pp 2325-53.
- Fuller PJ, Yang J, Young MJ. (2015) Corticosteroid receptors. In Nuclear Receptors: From Structure to the Clinic. 1st ed. McEwan IJ, Kumar R, eds. Springer, USA. pp 17-39.
- Fuller PJ, Young MJ. (2015) Aldosterone secretion and action. In *Endocrinology, Adult* and *Pediatric*. 7th edn. Jameson L, De Groot LJ, eds. Elsevier, USA. pp 1756-62.
- Hedger MP. (2015) The immunophysiology of male reproduction. In *Knobil and Neill's Physiology of Reproduction*. 4th edn. Plant TM, Zeleznik AJ, eds. Elsevier, Amsterdam. pp 805-92.
- Lim R, Tan JL, Wallace EM. (2015) Cell therapies for lung disease. In Gene and Cell Therapy: Therapeutic Mechanisms and Strategies. 4th ed. Templeton NS, ed. CRC Press, USA. pp 1157-70.
- Loveland KL, Hedger MP. (2015) Activins and inhibins in Sertoli cell biology: Implications for testis development and function. In *Sertoli Cell Biology*. 2nd edn. Griswold MD, ed. Elsevier, USA. pp 201-32.
- Siew ML, Kitchen MJ, te Pas AB, Harding R, Hooper SB. (2015) Pulmonary transition at birth. In *The Lung: Development, Aging* and the Environment. 2nd edn. Harding R, Pinkerton KE, eds. Elsevier Academic Press, USA. pp 251-264.

- Smith LB, Walker WH, O' Donnell L. (2015) Hormonal regulation of spermatogenesis through Sertoli cells by androgens and estrogens. In Sertoli Cell Biology. 2nd edn. Griswold MD, ed. Elsevier, USA. pp 175-200.
- Tolcos M, Rowitch DH, Dean J. (2015) Oligodendrocytes: Cells of origin for white matter injury in the developing brain. In Prenatal and Postnatal Determinants of Brain Development – Recent Studies and Methodological Advances. Walker DW, ed. Humana Press, USA. Vol. 109, pp 281-301.
- Wallace MJ, Hooper SB, McDougall ARA.
 (2015) Physical, endocrine and growth factors in lung development. In *The Lung: Development, Aging and the Environment.* 2nd edn. Harding R, Pinkerton KE, eds.
 Elsevier Academic Press, USA. pp 157-182.
- Yang J, Fuller PJ. (2015) Clinical management of hyperaldosteronism. In Adrenal Glands: From Pathophysiology to Clinical Evidence. Santulli G, ed. Nova Science Publishers, USA. pp 115-41.

2015 PUBLICATIONS – EPUBS

Research Articles:

- Alexiadis M, Chu S, Leung DT, J G, Jobling T, Fuller PJ. (2015) Transcriptomic analysis of stage 1 versus advanced adult granulosa cell tumors. *Oncotarget*.
- Andraweera PH, Bobek G, Bowen C, Burton GJ, Correa Frigerio P, Chaparro A, Dickinson H, Duncombe G, Hyett J, Illanes SE, Johnstone E, Kumar S, Morgan TK, Myers J, Orefice R, Roberts CT, Salafia CM, Thornburg KL, Whitehead CL, Bainbridge SA. (2015) IFPA meeting 2015 workshop report: Mechanistic role of the placenta in fetal programming; biomarkers of placental function and complications of pregnancy; late onset fetal growth restriction surveillance and monitoring. *Placenta.*
- Aridas JD, McDonald CA, Paton MC, Yawno T, Sutherland AE, Nitsos I, Pham Y, Ditchfield M, Fahey MC, Wong F, Malhotra A, Castillo-Melendez M, Bhakoo K, Wallace EM, Jenkin G, Miller SL. (2015) Cord blood mononuclear

cells prevent neuronal apoptosis in response to perinatal asphyxia in the newborn lamb. *J Physiol*.

- Barton SK, McDougall AR, Melville JM, Moss TJ, Zahra VA, Lim T, Crossley KJ, Polglase GR, Tolcos M. (2015) Differential shortterm regional effects of early high dose erythropoietin on white matter in preterm lambs after mechanical ventilation. J Physiol.
- Blake J, Hu D, Cain JE, Rosenblum ND. (2015) Urogenital development in Pallister-Hall syndrome is disrupted in a cell lineagespecific manner by constitutive Expression of GLI3 repressor. Hum Mol Genet.
- Brew N, Azhan A, den Heijer I, Boomgardt M, Davies GI, Nitsos I, Miller SL, Walker AM, Walker DW, Wong FY. (2015) Dopamine treatment during acute hypoxia is neuroprotective in the developing sheep brain. *Neuroscience.*
- Clifton VL, Moss TJ, Wooldridge AL, Gatford KL, Liravi B, Kim D, Muhlhausler BS, Morrison JL, Davies A, De Matteo R, Wallace MJ, Bischof RJ. (2015) Development of an experimental model of maternal allergic asthma during pregnancy. J Physiol. 594(5).
- 8. Cohen E, Baerts W, Alderliesten T, Derks J, Lemmers P, van Bel F. (2015) Growth restriction and gender influence cerebral oxygenation in preterm neonates. *Arch Dis Child Fetal Neonatal Ed.*
- Ellery SJ, Dickinson H, McKenzie M, Walker DW. (2015) Dietary interventions designed to protect the perinatal brain from hypoxicischemic encephalopathy - creatine prophylaxis and the need for multi-organ protection. *Neurochem Int.*
- Ellery SJ, LaRosa DA, Kett MM, Della Gatta PA, Snow RJ, Walker DW, Dickinson H. (2015) Dietary creatine supplementation during pregnancy: a study on the effects of creatine supplementation on creatine homeostasis and renal excretory function in spiny mice. *Amino Acids*.
- Evans J. (2015) Hyperglycosylated hCG: a unique human implantation and invasion factor. Am J Reprod Immunol.

- Forster SC, Browne HP, Kumar N, Hunt M, Denise H, Mitchell A, Finn RD, Lawley TD. (2015) HPMCD: the database of human microbial communities from metagenomic datasets and microbial reference genomes. *Nucleic Acids Res.*
- Guan Y, Liang G, Hawken PA, Meachem SJ, Malecki IA, Ham S, Stewart T, Guan LL, Martin GB. (2015) Nutrition affects Sertoli cell function but not Sertoli cell numbers in sexually mature male sheep. *Reprod Fertil Dev.*
- 14. Hanafi MY, Saleh MM, Saad MI, Abdelkhalek TM, Kamel MA. (2015) Transgenerational effects of obesity and malnourishment on diabetes risk in F2 generation. *Mol Cell Biochem.*
- Haverfield JT, Stanton PG, Loveland KL, Zahid H, Nicholls PK, Olcorn JS, Makanji Y, Itman CM, Simpson ER, Meachem SJ. (2015) Suppression of Sertoli cell tumour development during the first wave of spermatogenesis in inhibin alpha-deficient mice. *Reprod Fertil Dev.*
- Heng S, Vollenhoven B, Rombauts LJ, Nie G. (2015) A high-throughput assay for the Detection of alpha-dystroglycan N-terminus in human uterine fluid to determine uterine receptivity. J Biomol Screen.
- 17. Hooper SB, te Pas AB, Kitchen MJ. (2015) Respiratory transition in the newborn: A three-phase process. *Arch Dis Child Fetal Neonatal Ed.*
- Horne RS, Fyfe KL, Odoi A, Athukoralage A, Yiallourou SR, Wong FY. (2015) Dummy/ pacifier use in preterm infants increases blood pressure and improves heart rate control. *Pediatr Res.*
- Johnson KE, Makanji Y, Temple-Smith P, Kelly EK, Barton PA, Al-Musawi SL, Mueller TD, Walton KL, Harrison CA. (2015) Biological activity and in vivo half-life of pro-activin A in male rats. *Mol Cell Endocrinol.*
- Krishnan SM, Dowling JK, Ling YH, Diep H, Chan CT, Ferens D, Kett MM, Pinar A, Samuel CS, Vinh A, Arumugam TV, Hewitson TD, Kemp-Harper BK, Roberston

AA, Cooper MA, Latz E, Mansell A, Sobey CG, Drummond GR. (2015) Inflammasome activity is essential for one kidney/ deoxycorticosterone acetate/salt-induced hypertension in mice. *Br J Pharmacol.*

- 21. Kroese JK, van Vonderen JJ, Narayen IC, Walther FJ, Hooper S, te Pas AB. (2015) The perfusion index of healthy term infants during transition at birth. *Eur J Pediatr.*
- 22. Kumar A, Nestel D, Stoyles S, East C, Wallace EM, White C. (2015) Simulation based training in a publicly funded home birth programme in Australia: A qualitative study. *Women Birth.*
- Lang JA, Pearson JT, Binder-Heschl C, Wallace MJ, Siew ML, Kitchen MJ, te Pas AB, Fouras A, Lewis RA, Polglase GR, Shirai M, Hooper SB. (2015) Increase in pulmonary blood flow at birth; role of oxygen and lung aeration. J Physiol.
- 24. Lee PH, Bird N, MacKenzie-Kludas C, Mansell A, Kedzierska K, Brown L, McAuley J. (2015) Induction of memory cytotoxic T cells to influenza A virus and subsequent viral clearance is not modulated by PB1-F2-dependent inflammasome activation. *Immunol Cell Biol.*
- 25. Liew SH, Vaithiyanathan K, Hutt KJ. (2015) Taking control of the female fertile lifespan: a key role for Bcl-2 family proteins. *Reprod Fertil Dev.*
- 26. Malaver-Ortega LF, Sumer H, Jain K, Verma PJ. (2015) Bone morphogenetic protein 4 and retinoic acid trigger bovine VASA homolog expression in differentiating bovine induced pluripotent stem cells. *Mol Reprod Dev.*
- 27. Martin OA, Yin X, Forrester HB, Sprung CN, Martin RF. (2015) Potential strategies to ameliorate risk of radiotherapy-induced second malignant neoplasms. *Semin Cancer Biol.*
- McCabe MJ, Foo CF, Dinger ME, Smooker PM, Stanton PG. (2015) Claudin-11 and occludin are major contributors to Sertoli cell tight junction function. Asian J Androl.

- 29. Miller SL, Huppi PS, Mallard C. (2015) The consequences of fetal growth restriction on brain structure and neurodevelopmental outcome. *J Physiol.*
- 30. Quinn TA, Ratnayake U, Dickinson H, Castillo-Melendez M, Walker DW. (2015) The feto-placental unit, and potential roles of dehydroepiandrosterone (DHEA) in prenatal and postnatal brain development: A re-examination using the spiny mouse. J Steroid Biochem Mol Biol.
- 31. Saad MI, Abdelkhalek TM, Haiba MM, Saleh MM, Hanafi MY, Tawfik SH, Kamel MA. (2015) Maternal obesity and malnourishment exacerbate perinatal oxidative stress resulting in diabetogenic programming in F1 offspring. J Endocrinol Invest.
- Trinh A, Chan I, Alexiadis M, Pell M, Kumar B, Fuller PJ. (2015) Adrenal Cushing's syndrome in pregnancy: Clinical and molecular characterisation of a case. Obstetric Medicine.
- Trounce IA, Ackerley J, McKenzie M.
 (2015) Generation of xenomitochondrial embryonic stem cells for the production of live xenomitochondrial mice. *Methods Mol Biol.*
- 34. Ulrich D, Edwards SL, Alexander DL, Rosamilia A, Werkmeister JA, Gargett CE, Letouzey V. (2015) Changes in pelvic organ prolapse mesh mechanical properties following implantation in rats. Am J Obstet Gynecol.
- Van Sinderen M, Oyanedel J, Menkhorst
 E, Cuman C, Rainczuk K, Winship A,
 Salamonsen L, Edgell T, Dimitriadis E.
 (2015) Soluble delta-like ligand 1 alters
 human endometrial epithelial cell adhesive
 capacity. *Reprod Fertil Dev.*
- 36. Walter LM, Biggs SN, Cikor N, Rowe K, Davey MJ, Horne RS, Nixon GM. (2015) The efficacy of the OSA-18 as a waiting list triage tool for OSA in children. *Sleep Breath.*
- 37. Walter LM, Biggs SN, Nisbet LC, Weichard AJ, Hollis SL, Davey MJ, Anderson V, Nixon GM, Horne RS. (2015) Improved long-term autonomic function following resolution of sleep-disordered breathing in preschoolaged children. *Sleep Breath*.

- Winship AL, Rainczuk K, Dimitriadis E. (2015) Flotillin-1 protein is upregulated in human endometrial cancer and localization shifts from epithelial to stromal with increasing tumor grade. *Cancer Invest.*
- Wu D, Gantier MP. (2015) Normalization of Affymetrix miRNA microarrays for the analysis of cancer samples. *Methods Mol Biol.*

Review:

- Eggermann T, Brioude F, Russo S, Lombardi MP, Bliek J, Maher ER, Larizza L, Prawitt D, Netchine I, Gonzales M, Gronskov K, Tumer Z, Monk D, Mannens M, Chrzanowska K, Walasek MK, Begemann M, Soellner L, Eggermann K, Tenorio J, Nevado J, Moore GE, Mackay DJ, Temple K, Gillessen-Kaesbach G, Ogata T, Weksberg R, Algar E, Lapunzina P. (2015) Prenatal molecular testing for Beckwith-Wiedemann and Silver-Russell syndromes: a challenge for molecular analysis and genetic counseling. *Eur J Hum Genet.*
- Gargett CE, Schwab KE, Deane JA. (2015) Endometrial stem/progenitor cells: The first 10 years. *Hum Reprod Update.*
- Hirst JJ, Cumberland AL, Shaw JC, Bennett GA, Kelleher MA, Walker DW, Palliser HK. (2015) Loss of neurosteroid-mediated protection following stress during fetal life. J Steroid Biochem Mol Biol.
- Menkhorst E, Winship A, Van Sinderen M, Dimitriadis E. (2015) Human extravillous trophoblast invasion: intrinsic and extrinsic regulation. *Reprod Fertil Dev.*
- Salamonsen LA, Evans J, Nguyen HP, Edgell TA. (2015) The microenvironment of human implantation: Determinant of reproductive success. Am J Reprod Immunol.
- Winship A, Menkhorst E, Van Sinderen M, Dimitriadis E. (2015) Interleukin 11: Similar or opposite roles in female reproduction and reproductive cancer? *Reprod Fertil Dev.*

