



**ANNUAL
REPORT
2022**

Our values

Excellence

Integrity and passion underpin our pursuit of scientific knowledge of the highest quality, while nurturing and inspiring the next generation of scientists.

Innovation

We inspire and enable world-class researchers at the frontiers of science and medicine to find new, transformative solutions to our greatest health challenges.

Partnerships

Our collaborative research environment allows scientists to leverage partnerships for true knowledge gain and patient impact.

Community

We care deeply about improving the health and wellbeing of our community and we are committed to rewarding its investment in science.

Our goals

Transformative medical research

We strive to improve the health of our community by undertaking outstanding medical research.

Enriching partnerships

We build and nurture meaningful partnerships to accelerate research discoveries to patient care.

Exceptional people and culture

We are a destination of choice, recognised for supporting and developing our staff and students.

Enabling success

We deliver a world-class research environment.



Postdoctoral scientist Dr Stacey Ellery and her son Archie
Photograph by Ian Currie

02

About us

08

From the Director

10

Chair's report

12

The silent killer: Why medical research is fired up about inflammation

14

Research impact

41

Business development and commercialisation

42

Thank you to our supporters

46

People

56

Graduates of 2022

58

Board of directors

60

Organisation structure

61

Financial snapshot

About us

A global bioscience medical research leader, Hudson Institute advances healthcare through groundbreaking, collaborative medical research discoveries and their translation into real-world impact.

Our internationally recognised research programs deliver in five areas of medical need

- Inflammation
- Cancer
- Reproductive health
- Newborn health
- Hormones and health.

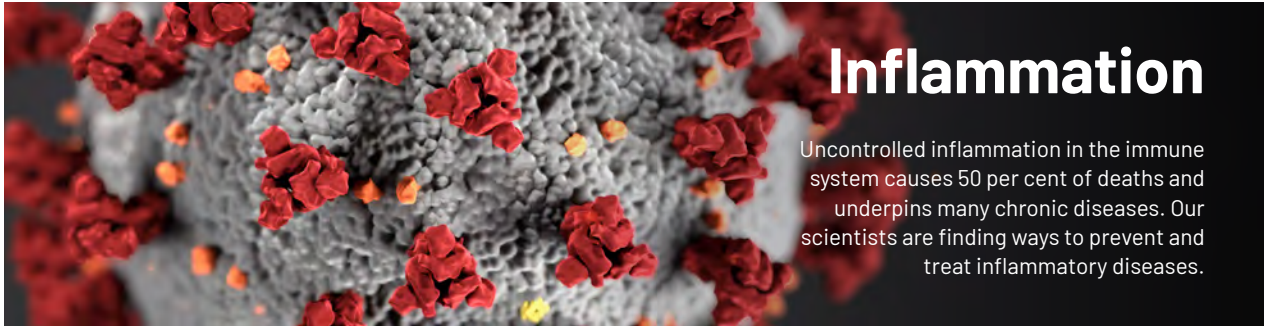
Our 457 scientists, clinicians and graduate students come from around the world to pursue one mission – to make medical research discoveries that save and change lives.

Located in the Monash Health Translation Precinct, our scientists work alongside clinical and industry colleagues and use advanced technology platforms to inform their discoveries.

Our expertise spans the complete translation pipeline from patient need, scientific discovery to clinical testing and commercialising new preventative approaches, therapies and devices for patients.

Our Institute is named after Professor Bryan Hudson AO, the Founding Director of Prince Henry's Institute, and Inaugural Chair of the Department of Medicine at Monash University.

Our themes



Inflammation

Uncontrolled inflammation in the immune system causes 50 per cent of deaths and underpins many chronic diseases. Our scientists are finding ways to prevent and treat inflammatory diseases.



Cancer

Every day, 400 Australians are diagnosed with cancer and 130 succumb to the disease. Our scientists are identifying better ways to diagnose, detect and treat cancers.



Reproductive health

The reproductive system is central to conception, pregnancy and birth. Our scientists are working to reduce rates of infertility, stillbirth, endometriosis and birth trauma.



Newborn health

Almost one in five newborns starts life in neonatal care. Our scientists investigate the complications that can occur during pregnancy, birth, and the critical early weeks to protect vulnerable newborns.



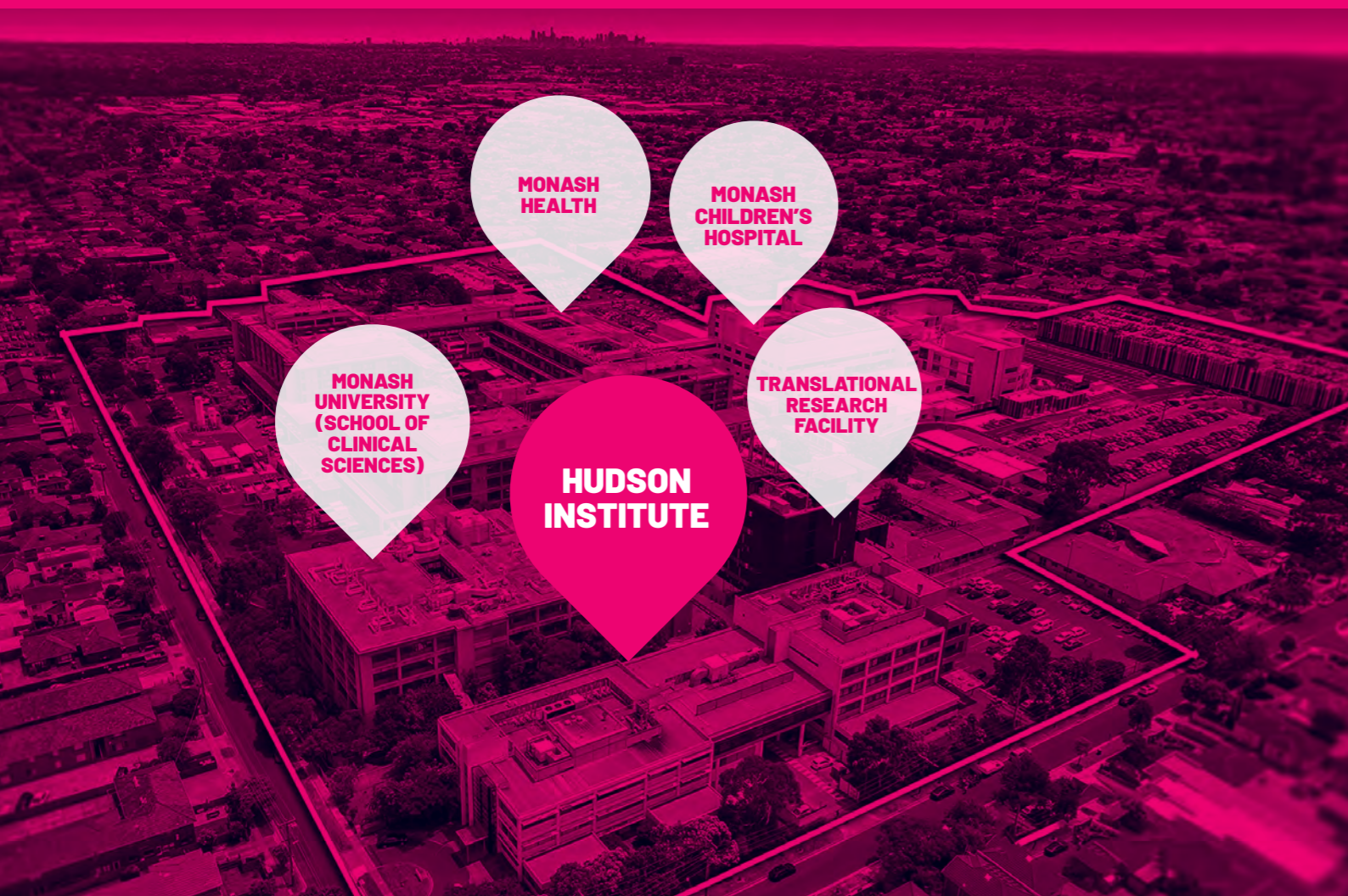
Hormones and health

The endocrine (hormonal) system is important for most parts of your body to work. Our scientists' goal is to find new treatments for hormonal conditions.

Monash Health Translation Precinct

Hudson Institute is located within the Monash Health Translation Precinct (MHTP), a major scientific research and medical innovation powerhouse in Melbourne's south-eastern corridor. With our precinct partners, Monash Health and Monash University, we are a global leader in medical research, healthcare, new technologies and education.

Our shared Translational Research Facility (TRF) brings scientists, clinicians and state-of-the-art technology together to accelerate medical research discovery through to clinical trials and into patient care. We achieve this through innovation and trusted relationships with industry and government.



At Hudson Institute

We expand the boundaries of knowledge to save and change lives.

We make new scientific discoveries to improve people's health.

We collaborate with scientists and clinicians in Australia and around the world.

We help governments to improve healthcare and create jobs.

We help doctors save lives, providing insight for them to find the right clinical answers.

We provide scientific breakthroughs for development with industry.

We prepare today's students for successful careers in science and medicine for tomorrow.

At a glance

281

STAFF

176

STUDENTS

45

RESEARCH GROUPS

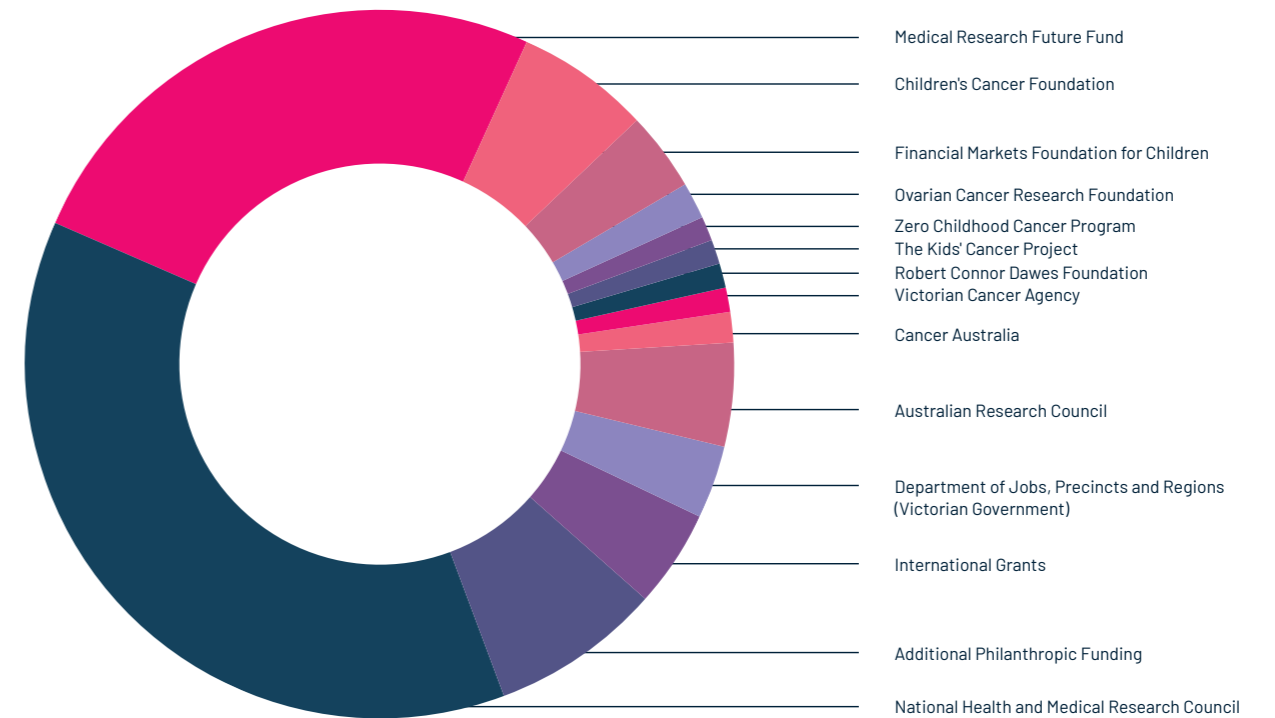
250

RESEARCH PUBLICATIONS



Research outputs

Grant funding received in 2022



	\$
● National Health and Medical Research Council	10,070,052
● Medical Research Future Fund	6,833,672
● Children's Cancer Foundation	1,704,680
● Australian Research Council	1,276,142
● Financial Markets Foundation for Children	1,000,000
● Department of Jobs, Precincts and Regions (Victorian Government)	881,667
● Ovarian Cancer Research Foundation	388,155
● Cancer Australia	370,110
● Zero Childhood Cancer Program	336,332
● Victorian Cancer Agency	320,000
● The Kids' Cancer Project	306,000
● Robert Conner Dawes Foundation	272,543
● Additional Philanthropic Funding	
Cerebral Palsy Alliance	190,709
Cancer Council Victoria	138,982
National Heart Foundation	114,517
You Are My Sunshine Foundation	102,589
Australian Communities Foundation	100,275
Minderoo Foundation	99,818
Eva and Les Erdi Charitable Foundation	75,000
Canteen	71,875
Additional grant funding	1,155,843
TOTAL	2,049,608
● International Grants	
Department of Defense (USA)	650,795
University of Birmingham (UK) (in partnership with CCF)	278,025
National Institutes of Health (USA)	141,566
Other international grants	177,079
TOTAL	1,247,464
TOTAL GRANT FUNDING	27,056,425

Publications

In 2022, Hudson Institute's researchers published extensively in international peer-reviewed journals.

Publication type	2020	2021	2022
Original research articles	210	188	192
Reviews	41	41	38
Editorials and commentaries	26	26	17
Books and book chapters	8	2	3

From the Director

As the third year of the COVID-19 pandemic comes to a close, what are you reflecting on?

I keep returning to the importance of inflammation, not just as it relates to COVID-19, but its role in so many diseases, and the equally important part it will no doubt play in future pandemics. I'm also motivated by the incredible potential resulting from Hudson Institute's co-location with Victoria's largest public health service, Monash Health. Being on a hospital site means our researchers can more quickly respond to healthcare needs and likewise progress their discoveries to patients through our clinical partnerships.

What were your highlights of 2022?

I was delighted we could contribute to a feature in *Good Weekend* magazine shining a light on inflammation and its impact on our health. Our scientists are making a profound difference to a multitude of diseases, from cancer, lung, kidney and liver diseases to

asthma, infertility, endometriosis, neurodegenerative conditions and autoimmune diseases like diabetes, not to mention long COVID. Our plans for a National Centre for Inflammation Research (NCIR) will accelerate that progress.

What excites you about the year ahead?

I'm looking forward to seeing the latest developments in children's cancer from our dedicated team of paediatric cancer researchers. We are proud to be a leading partner of the Victorian Paediatric Cancer Consortium (VPCC), a collaborative effort that would not exist without the vision and backing of the Children's Cancer Foundation. There is now more hope than ever for better outcomes for children with cancer and their families.

As Director and CEO, what's your vision for the future of Hudson Institute?

Independent medical research institutes, especially those co-located with a healthcare service, focus on

targeting research to areas of patient need. Our plan for the NCIR will focus on the rapid translation of our research discoveries in inflammation into the public sphere to enable a fast response during times of need, like a pandemic, but also to address the ever growing burden of chronic disease. This initiative is an Australian first where the investments we make today will pay us all back with tomorrow's healthcare breakthroughs.

I can't wait to see what we will achieve together.



Professor Elizabeth Hartland
Director and CEO

“There is now more hope than ever for better outcomes for children with cancer and their families.”



Dr Robert Edgar

Chair's report

Following another challenging year for healthcare providers everywhere, Hudson Institute can be proud of the part it continues to play in the nation's medical research landscape.

A fine illustration is the ascension of Professor Elizabeth Hartland to the position of incoming President of the Association of Australian Medical Research Institutes (AAMRI), the peak body representing medical research institutes across Australia. Prof Hartland is an inspirational figurehead for the organisation, both as an eminent researcher and as an inspirational leader. The Board is proud and honoured that she will continue to lead the Institute for a second five-year term as our Director and CEO.

Challenges ahead

From a financial perspective, 2022 was a successful year, with healthy revenues generated and significant research grants received, despite the difficult funding environment in which the entire sector currently operates. We expect 2023 to be a challenging year financially, but we will continue to support AAMRI and our representative bodies as they lobby for further support for the research sector, which is so vital for the future health of Australians.

Partnerships bearing fruit

On the business development and commercialisation front, Hudson Institute is increasingly valued as a major partner with industry in the development, testing and production of new treatments and cures. In terms of partnerships, patents and public exposure, we are successfully exploring all avenues for bringing our research discoveries to those who would most benefit from them.

This can be seen with our recent licensing agreement with Australian clinical-stage drug development company Noxopharm Ltd, through its wholly owned subsidiary, Pharmorage Pty Ltd. This has the potential to make mRNA vaccines easier to manufacture and more effective. With the mRNA vaccines market predicted to reach US\$23 billion by 2035, RNA technologies are integral to new treatments for the future.

Our partnerships with funding bodies also continue to be fruitful, and it is extremely gratifying to see the work

coming from our children's cancer researchers and their productive partnership with the Victorian Paediatric Cancer Consortium – a concept that was made real by the hard work and dedication of the Children's Cancer Foundation.

I acknowledge the services of Nigel Garrard on the Hudson Institute Board and regret that he has stepped down. Nigel has been a valuable Board member as well as a generous donor, and his contribution to the Board will be missed.

In 2023 and beyond, we know that many lessons remain to be learned from COVID-19 and Hudson Institute will remain at the forefront of inflammation research, both in terms of the current pandemic and the health emergencies that the future will undoubtedly bring.

Dr Robert (Bob) Edgar AM
Chair

“We are successfully exploring all avenues for bringing our research discoveries to those who would most benefit from them.”

The silent killer: Why medical research is fired up about inflammation

In February 2022, *Good Weekend** magazine produced a feature about inflammation, showcasing the important work of our scientists. Below is an extract, published with permission by the author, Greg Callaghan.

From long COVID to Alzheimer's, all manner of health woes are increasingly thought to have one thing in common: inflammation. But there's an ongoing mystery: why does it go rogue in some people and not others? Great medical minds are on the case.

Long COVID is merely the latest in a big, mixed bag of diseases in which inflammation has been found to play a key role. Over the past 20 years, study after study has revealed inflammation's contribution to heart disease, respiratory diseases like asthma, rheumatoid arthritis, Alzheimer's disease, and autoimmune diseases like type 1 diabetes, lupus and inflammatory bowel disease, which encompasses Crohn's disease and ulcerative colitis.

Inflammation has been shown to loosen cholesterol deposits in coronary arteries, leading to heart attacks; it's the mechanism that wears down large and small joints in rheumatoid arthritis; it's the engine behind the ulceration of the gastrointestinal tract in inflammatory bowel disease; it's at the centre of the immune system attacking its own tissues in lupus sufferers; it's at the heart of the process of T-cells attacking insulin-producing cells in the pancreas in type 1 diabetes; it's behind the chronic pain of endometriosis; in Alzheimer's, prolonged neuroinflammation can trigger an onset of the disease.

The word inflammation might sit a little flat on the page beside dramatic

words like cancer and heart disease, but because it's an underlying dynamic in a host of diseases, it's now a focus of cutting-edge medical research across the globe.

Professor Elizabeth Hartland, Director and CEO of Melbourne's Hudson Institute of Medical Research, which houses



the largest number of inflammation researchers – 150 – in Australia, contends that inflammation contributes to more than half of all deaths worldwide, and is the single biggest cause of death from COVID. “We’re not designed to withstand constant bouts of inflammation. That’s why when it becomes overblown or chronic, it can have lasting, damaging effects on the body. We need access to a better range of therapies that target inflammation when it becomes harmful.”

Scientists are now talking about an “inflammation clock”, Hartland later

explains in the *Good Weekend* podcast chat, *GW Talks*. “People who have less inflammation are predicted to live longer, and people with chronic inflammation to age faster.”

When a foreign invader – a bacterium, virus or parasite – enters your body, your immune system immediately dispatches white blood cells to the injury or entry site, slowing down the march of the intruder, until wave after wave of reinforcements arrive to launch a counterattack against its spread.

The infection-fighting cells release proteins called cytokines that fuel inflammation, the trademark signs of which are heat, swelling and redness. This is the process that turns the tissue around a splinter in your finger red and hot – and it’s essential to healing.

Inflammation is a lifesaver – until it’s not. Occasionally, even after the unwelcome pathogen has been destroyed and the healing process is over, the inflammatory fires continue to burn away, fuelled by an immune system in overdrive. Over time, this chronic inflammation can lead to lasting damage to organs

such as the lungs, heart, bowel and joints.

“Inflammation is a frontline system; it needs to be activated quickly but then should switch off when the job is done.”

The big question about inflammation is: why does it turn rogue in some people and not others? Inflammation’s tangled involvement in so many diseases explains why it’s now one of the hottest areas of medical research.



Associate Professor Michael Gantier

When Michael Gantier was 11, growing up in the town of Cholet in France’s picturesque Loire Valley, having his appendix removed didn’t seem like such a big deal. Then again, he had no idea of what was in store. “Unfortunately, it was a Friday afternoon, probably the worst time to get an operation,” the 41-year-old father of two says half-jokingly of the minor medical horror story he’s about to share. “After the operation, I had a temperature of 40–41 degrees and a high count of white blood cells.”

While the doctors initially dismissed this as part of his recovery from the operation, his parents, both teachers of biology in school, suspected otherwise.

Suffering sepsis, a life-threatening infection of the blood, he was critically ill. “The surgeon later said I was only hours away from death.”

In the years afterwards, Gantier was plagued by stomach problems, which resulted in a diagnosis of Crohn’s disease, a debilitating condition characterised by diarrhoea, abdominal cramping, fatigue and weight loss. Both Crohn’s disease and ulcerative colitis fall under the umbrella of inflammatory bowel disease (IBD).

His experience as a child inspired him to become a doctor and scientist, and he is now a Research Group Head at Hudson Institute, working on anti-inflammatory treatments for COVID. He says any imbalance in the microbiome can influence pro-inflammatory processes in the body.

A colleague at Hudson Institute, Dr Sam Forster, who leads the Microbiota and Systems Biology Research group, compares a healthy gut biome to a pristine forest bursting with a rich variety of trees, shrubs, and flowers;

“There is a lot of association between changes in bacteria and the modification of the immune response.”

Associate Professor Michael Gantier

and an unhealthy biome to a partly cleared one, lacking in biodiversity and riddled with invasive pests and weeds. “If you have an inflammatory response from the gut, you’ll likely have an inflammatory response in other parts of the body, because our systems are interlinked,” says Forster.

The good news is that in the fight against inflammatory disease, we now live in a world of opportunity. Multiple research studies are underway at Hudson Institute. “Thanks to the focus on inflammation research over the past decade or so, we have a much richer understanding of how it behaves in our bodies”, explains Prof Hartland. “We have more knowledge of the viral and bacterial triggers of inflammation, how cytokines act on different tissues, and the genetic basis of inflammation disorders. This has all led to new treatments.”

Until last year, there weren’t many reports of long-COVID patients making a full recovery, but that appears to be changing now that more time has elapsed. Widespread vaccination also appears to have successfully blunted long COVID: studies from the UK and the US indicate that getting a jab at least halves the risk for those infected with the earlier Alpha and Delta variants. The jury is still out on whether long COVID is less common or milder with the wildly infectious Omicron strain, but again, vaccination appears to radically reduce the risk of prolonged illness.

**Good Weekend* is published in *The Sydney Morning Herald* and *The Age*.

Research impact



INFLAMMATION

Chasing bacterial evolution to safeguard human health

Most of us imagine evolution to be a slow process, with changes taking place within species over thousands of years.

Associate Professor Jaclyn Pearson is not like most of us.

In her role researching antimicrobial resistance (AMR), A/Prof Pearson sees evolution happening before her eyes.

She also sees how harmful it can be.

As a microbiologist and head of the Host-Pathogen Interactions research group, she studies how bacteria can evade or fool our defence systems to cause serious health problems. It is a fast-moving field.

It's work that saw her recognised on several fronts in 2022, not least being named a Superstar of STEM. She was also one of three Australian scientists to receive a prestigious Sylvia and Charles Viertel Charitable Foundation Senior Medical Research Fellowship (worth \$1.375 million over five years).

Each year, almost five million deaths are associated with drug resistant bacterial infections. That number is expected to double by 2050, so it's no surprise that the World Health Organization calls AMR one of the top 10 global public health threats facing humanity.

A/Prof Pearson says there is an urgent need for progress, as some infections have no effective antibiotics available, leaving patients hospitalised with no treatment options.

"Major pharmaceutical companies see how quickly bacteria become resistant, so why would they want to invest in developing new antibiotics?" she says.

"Fundamental research utilising cutting-edge technology will drive long-term solutions and address the health crisis we now face due to antibiotic resistance."

Keeping track of dangerous bacteria means knowing where they have come from and where they are heading – an approach she also takes to her career, after spending much of her 20s on the road as a drummer with the early 2000s rock band, Lash.

"Despite the opportunity to pursue music further, I have stuck with my career in research because it is exciting and compelling. At the end of my career, I want to look back and say I made a difference to someone's life," A/Prof Pearson says.

Having benefited from great mentorship early in her career, A/Prof Pearson now wants to help the next generation.

"I moved interstate specifically to train under the supervision of Professor Elizabeth Hartland, who gave me the time, resources, and confidence to work to my strengths and become the successful leader I am today.

"I now strive to be an inspiring and kind mentor to my staff and students.

"If those I mentor continue to pursue a career in science, then I have achieved something special."

Collaborators Monash University; Peter Doherty Institute; WEHI

Funders Australian Society for Immunology; NHMRC; Sylvia and Charles Viertel Charitable Foundation

"My eureka moment occurred during my PhD when I saw first-hand the many ways in which bacteria meticulously target and manipulate the immune system to 'hide' from our defences and cause disease."

Associate Professor Jaclyn Pearson



Associate Professor Jaclyn Pearson

Published in *Nature Microbiology*, April 2022

Published in *Nature Communications*, March 2022

Unlocking the mysteries of the microbiome

When it works as intended, the human gut is rarely given a thought – but that is rare luxury for the 130,000 Australians with inflammatory bowel disease (IBD), like Marisa (see next page).

That's where Associate Professor Samuel Forster comes in.

"Our microbiome research is focused on understanding the naturally occurring bacteria we carry with us every day, and which play a critical role in keeping us healthy," A/Prof Forster says.

"We know these hundreds of bacterial species interact with the immune systems and regulate processes such as inflammation. But we don't yet know the 'correct' combination of bacteria for anyone at any particular time, or how to maintain it."

A/Prof Forster's work saw him published in two prestigious *Nature* group journals in 2022 and he was one of two Australian scientists to be awarded a CSL Centenary Fellowship of \$1.25 million over five years.

Using a combination of computational analysis and microbiology to identify bacterial strains that influence disease,

he collaborates closely with Paediatric Gastroenterologist Dr Edward Giles from Monash Health, and the Adelaide-based biotechnology company BiomeBank to develop new therapies for IBD.

With cutting-edge technologies, including the gut-on-a-chip – which allows individual bacterial species to be studied in the lab – A/Prof Forster also seeks to answer fundamental questions about the immunology of the gut and its microbiome.

The potential benefits will be felt in IBD, as well as addressing the emerging threats from antimicrobial resistance (AMR) and many more areas of medical need.

"My team is working towards a future where we will have a comprehensive bank of purified microbiome derived bacterial isolates, the

ability to accurately measure a person's microbiome state, replace the missing species and maximise health for every individual."

Collaborators Monash Health; Wellcome Sanger Institute (UK)

Funders ARC; NHMRC; Walter Cottman Endowment; Kenneth Rainin Foundation (USA)

"Despite their importance for our health, many microbial species are being lost due to changes in our lifestyles, diet and other factors they rely on to survive. We aim to collect these species, understand how they can be beneficial and ensure they are preserved for future generations of medicines."

Associate Professor Samuel Forster

INFLAMMATION

MARISA

Stomach pains, hospitalisations, teenage years blighted by illness and the puffiness caused by steroid treatments – this is the reality of living with inflammatory bowel disease (IBD), according to 23-year-old nurse, Marisa Coniglione.

IBD – the collective term for Crohn’s disease and ulcerative colitis – is a chronic, painful and disruptive inflammation of the lining of the gut, with no known cause or cure. Treatment involves expensive immune suppression that can have life-changing side effects.

Marisa has lived with the social, psychological and emotional toll of IBD

since the age of 11. While three-hour-long infusion treatments given every eight weeks have made the condition more manageable, she still struggles with flare-ups and side effects.

“I feel awful and there are many risks that come with a suppressed immune system such as frequent infections. I’m battling a bacterial throat infection right now.”

She hopes A/Prof Forster’s research will lead to treatments that make it easier to enjoy life and give future patients fewer difficulties in their teens through to adulthood.



INFLAMMATION

RNA – changing the face of modern medicine

The COVID-19 pandemic made RNA a topic of everyday discussion – suddenly, it was everywhere.

For many Hudson Institute scientists, that meant an unprecedented level of interest in something they had spent many years studying.

Thankfully, in 2022 it also meant new funding opportunities that will see discovery research translated into revolutionary new treatments for many diseases.

So, what is RNA? Why is it important? And what can RNA technologies offer us?

There is no-one better to ask than Associate Professor Michael Gantier and Dr Natália Sampaio, both of whom received significant funding in 2022 to advance their RNA research.

“RNA therapeutics is the technology of the decade,” said A/Prof Gantier. “It will generate jobs, with leaders such as BioNTech and Moderna now in Melbourne, but it also opens the opportunity to treat many diseases deemed incurable to date.”

DNA and RNA are a class of molecules called nucleic acids (the ‘NA’ in DNA and RNA). DNA contains the genetic information that controls which cells do what in our bodies and RNA converts that genetic blueprint into proteins.

Vaccines aside, RNA therapeutics are already approved to treat a growing number of diseases; for example, a twice-yearly injection for people with high cholesterol to control their condition.

It was this potential, and recognised leadership in RNA research, that saw Dr Sampaio awarded a \$690,000 mRNA Victoria Activation Program Grant to better understand how the immune system detects RNA.

“If we want to employ mRNA therapies to many other diseases, like cancer or gene therapy, we need to avoid side effects to improve tolerance and safety of these therapies,” Dr Sampaio said.

mRNA Victoria also saw the potential in A/Prof Gantier’s work, awarding him \$200,000 to advance his work on short anti-inflammatory synthetic RNAs (also known as oligonucleotides). The short oligonucleotide fragments (Sofra™) at the basis of this novel technology are being developed in partnership with Pharmorage Pty Ltd and could help devise the next generation of mRNA vaccines.

“RNA technology is changing the face of modern medicine, largely due to the speed at which new treatments, like COVID-19 vaccines, can be developed and rolled out. We’ve only scratched the surface of the potential applications of RNA therapies.”

Associate Professor Michael Gantier

An additional \$1.5 million from the NHMRC and \$700,000 from the Victorian Government will extend this technology to cover autoimmunity and treatments for infection-driven hyperinflammation, such as severe COVID-19 and influenza A infection.

2022 was about more than potential, as A/Prof Gantier was celebrated for his role in an international team that found a genetic cause of the chronic inflammatory disease lupus, driven by the aberrant detection of RNA, with the results published in *Nature*.

As for the future, RNA holds promise for sufferers of a wide range of conditions, from lupus, inflammatory bowel disease and diabetes to psoriasis.

There is also the potential of mRNA vaccines that are cheaper to produce and carry fewer side effects.

The future for RNA technologies is bright at Hudson Institute.

Collaborators Australian National University; Pharmorage Pty Ltd; St Vincent’s Institute; University of Melbourne; University of New South Wales; University of Technology Sydney; University of Oxford (UK)

Funders DJPR; mRNA Victoria; NHMRC



L-R: Dr Natália Sampaio, Associate Professor Michael Gantier

NEWBORN HEALTH

Published in *Science Translational Medicine*, April 2022

Making a big difference for tiny babies

In business it's called vertical integration – when the same organisation controls multiple stages of the production process.

The medical research equivalent of vertical integration is rare – which is why Hudson Institute is fortunate to have husband-and-wife team Professors Claudia and Marcel Nold, who are engaged in a hugely beneficial working partnership.

Their combined skills are bringing new treatments for preterm babies, from laboratory discovery to clinical trials in Monash Children's Hospital's Neonatal Intensive Care Unit (NICU).

With a background in pharmacology, Claudia spends her time searching for new ways to safeguard the health of tiny infants – aiming to prevent bronchopulmonary dysplasia (BPD), necrotising enterocolitis, and other illnesses, as well as collaborating on prevention of cerebral palsy. She jointly heads the Interventional Immunology in Early Life Diseases Research group.

Meanwhile Marcel, a clinician-scientist, splits his time between the lab and Monash Children's Hospital, where he's hands-on with babies like Max (see page 27) and their families during their early difficult days.

These pioneering collaborators are now close to achieving something once thought impossible. Based on decades of work, they are within reach of a treatment to control inflammation in preterm babies that can cause devastating heart, lung, gut and brain conditions.

A remarkable year

In 2022, they identified the specific inflammatory responses that drive illnesses of prematurity and revealed several risk factors both before and after birth.

Marcel explains their discovery, published in *Science Translational Medicine*: "Type-2-polarised inflammation drives cardiopulmonary disease in these babies, allowing us to now

work on ways to control inflammation in preterm babies and avoid the damage it wreaks."

"It's one of those 'eureka' moments," says Claudia. "Like when we discovered the anti-inflammatory function of one of the

molecules we were investigating, which we now are developing into a drug."

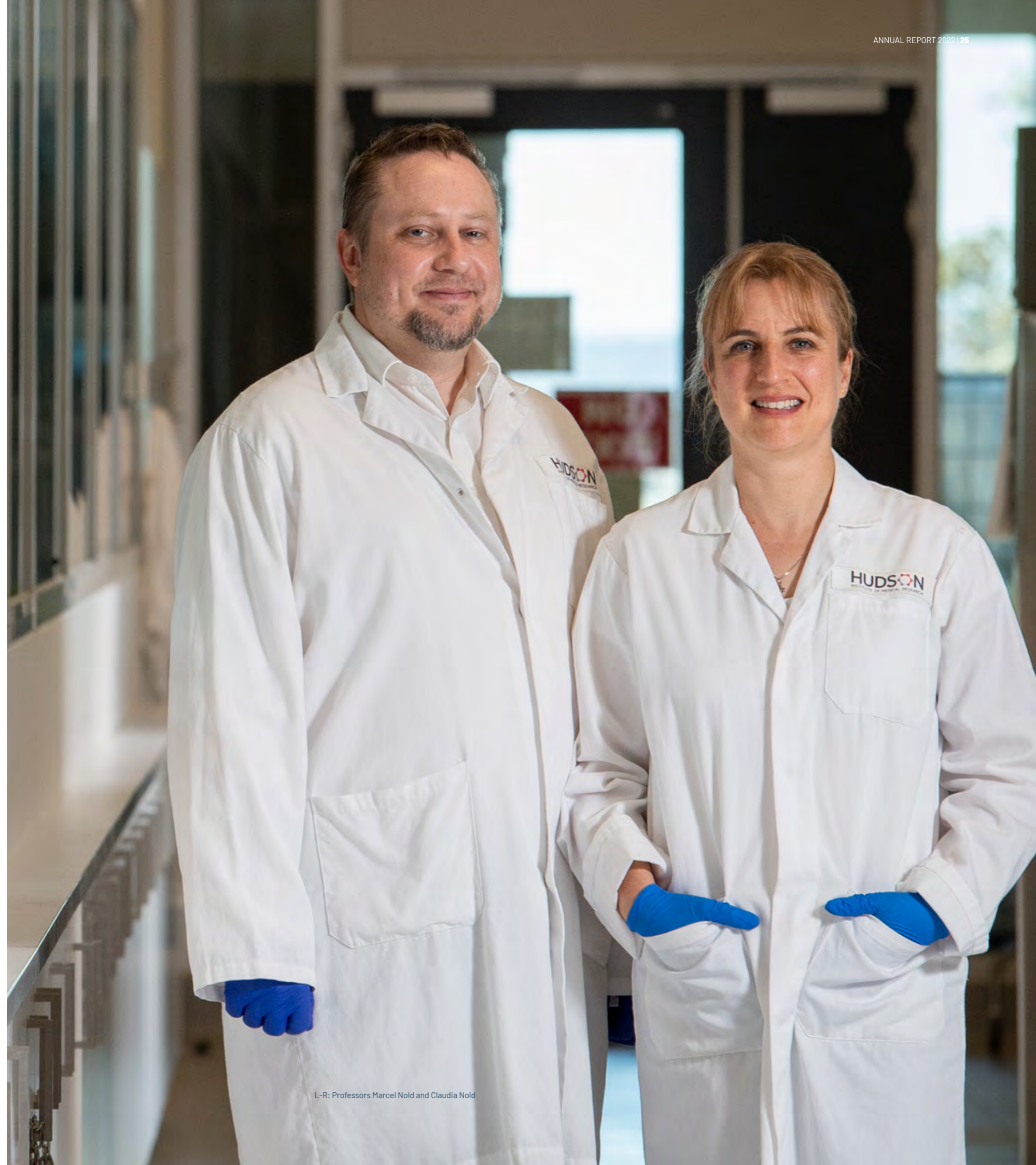
They also further advanced their clinical trial of the anti-inflammatory drug anakinra, and they are cautiously positive about the results.

Collaborators 13 University of Technology; Australian Synchrotron, Centenary Institute; CSL Limited, Hunter Medical Research Institute; Mater Research Institute; Mercy Hospital for Women; Monash Children's Hospital; Monash University; Murdoch Children's Research Institute; Royal Women's Hospital; University of Adelaide; University of Melbourne; Victorian Heart Institute; Helios HSK, Germany; National Cerebral and Cardiovascular Center Research Institute, Japan; St. Vincent's Hospital, Germany

Funders Australian Synchrotron; CSL Ltd; Jack Brockhoff Foundation; National Heart Foundation; NHMRC; Rebecca L Cooper Foundation

"The word 'research' is made up of re (meaning 'again') and search, so you search, search again and again. The exciting moment is when we find what we were looking for, or something unexpected that now makes total biological sense."

Professor Claudia Nold



L-R: Professors Marcel Nold and Claudia Nold



Susana and baby Max

MAX AND SUSANA

A little over 27 weeks into her second pregnancy, all in the space of a couple of days, Susana went from planning months ahead for her baby's arrival to giving birth and becoming part of medical history.

Baby Max arrived small and vulnerable, so when doctors in Monash Children's Hospital's neonatal unit asked if she would like her newborn son to be the first participant in a trial of a new treatment to keep preterm babies healthy, she quickly said "yes".

The drug anakinra has been used to prevent dangerous inflammation for

decades, but never in preterm newborns until this trial.

"We were aware of the dangers to vital organs such as lungs, heart, gut and brain for a baby born so early – it was daunting but I'm proud that we took part. We've brought some good to the world," Susana said.

Now, 10 months on, Max is making good progress and recently even had his first overseas trip – to meet his grandparents for the first time.

But even before he got on the plane, little Max had travelled a long way.

CHILDHOOD CANCER

Collaborating to conquer childhood cancer

Childhood cancer facts

- Cancer is the leading disease-related cause of death among Australian children.
- One in five children diagnosed with cancer will not survive.
- For those who do, the majority will suffer long-term disability from the toxic treatments.
- Despite decades of research, survival rates from some cancers have hardly improved.

When it comes to treating disease, the medical profession is increasingly recognising that children are not just small adults: their bodies behave differently.

Sadly, paediatric oncologists are often faced with little option but to treat childhood cancers with repurposed drugs developed for adult cancers. These treatments are frequently ineffective and toxic.

Victorian Paediatric Cancer Consortium

Developing new treatments and cures for children's cancers is the driving factor behind the creation of the groundbreaking Victorian Paediatric Cancer Consortium (VPCC).

Co-led by Professor Ron Firestein (Hudson Institute) and Professor David Eisenstat (RCH/MCRI), the VPCC brings

together a consortium of Victoria's finest paediatric cancer clinicians and researchers.

With the guidance and generosity of the Children's Cancer Foundation, and \$9.6 million from the Federal Government's Medical Research Future Fund (MRFF), the VPCC is the result of five years of planning, building global scientific and clinical networks, and lobbying.

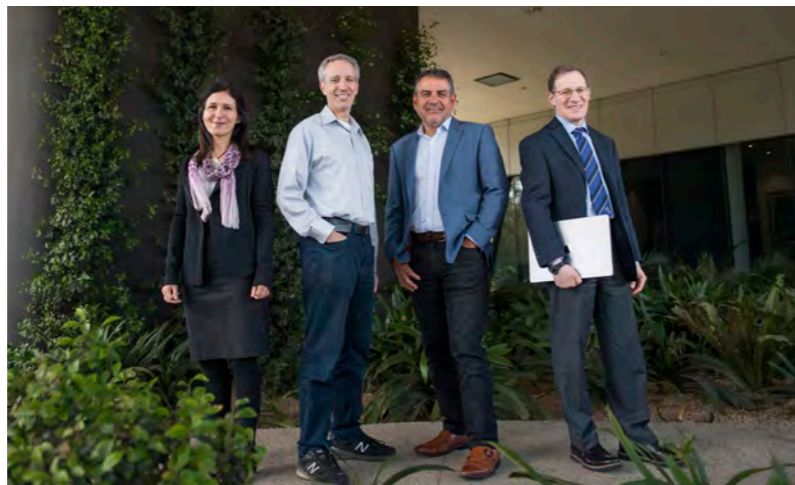
In October 2022, the Victorian government pledged \$35 million towards the next phase of the VPCC, with the Children's Cancer Foundation contributing another \$10 million. This will benefit a wide range of services including discovery research and clinical innovation programs, integrated biobanking, data management and bioinformatics platforms, and training the next generation of researchers and clinicians.

It also enables the creation of a state-wide, multidisciplinary, and collaborative approach to combating childhood cancers, fostering research excellence, innovation, and best-practice clinical care.

The VPCC's core aims are to

- Develop and advance new and more precise treatments for children.
- Accelerate the participation of children in clinical trials.
- Improve survivorship and long-term health.
- Leverage the diverse expertise of Victorian researchers and clinicians to catalyse the translation of research from bench to bedside.

L-R: Ms Naama Neeman (Hudson Institute), Professor Ron Firestein (Hudson Institute), Jeff Darmanin (CCF), Professor David Eisenstat (RCH/MCRI)



VPCC partners

- Hudson Institute of Medical Research
- Monash Children's Hospital
- Monash University
- Royal Children's Hospital (RCH)
- Murdoch Children's Research Institute (MCRI)
- University of Melbourne
- Peter MacCallum Cancer Centre
- Walter and Eliza Hall Institute of Medical Research (WEHI)
- The Children's Cancer Foundation (CCF)

ELI AND NELLY

501 days of chemotherapy

Even after watching her infant son go through such an ordeal, Nelly sees the bright side.

"It's been a big journey, but the best part is that he doesn't remember it," she said.

Eli was just 16 months old when he went from being a happy, healthy boy to beginning chemo in the space of a week.

Discomfort on Monday, a trip to emergency on Thursday after discovering a lump, and by Sunday he'd been diagnosed and booked in to start treatment the following day.

"When they were doing the ultrasound I had this terrible sense of dread, but you never expect to hear someone tell you your child has cancer," Nelly said.

Eli had an embryonal rhabdomyosarcoma (soft tissue cancer) in his bladder, and the treatment was harrowing, but three-and-a-half years later he remains cancer-free, with plenty of life ahead of him.

Despite so much medical intervention, his development is now back where it should be, with few signs of the ordeal he went through except for the regular six-monthly checks.

Nelly knows who to thank for it: "Medical professionals – scientists like Ron and Jason – they're all just superheroes in my eyes. It's so personal for me, so if my story and our journey can help spread the word and attract extra funding, I will work my hardest and scream 'more funding, please'."



L-R: Nelly and Eli



L-R: Professor Ron Firestein, Dr Jason Cain

Smarter cancer treatments

Risk Stratification - Sarcoma program

It's not just the number of children who succumb to cancer that drives Dr Jason Cain to pursue his research; it's also the ones who survive.

"Childhood cancer is a devastating diagnosis for the patient and family," Dr Cain said.

"The current treatments for childhood cancer (surgery, chemotherapy and radiotherapy) have remained unchanged for decades. Not all children respond to these therapies, and even those who do are often left with permanent side effects."

It is those facts that spur him on to understand what causes childhood cancers, then convert that knowledge into a targeted search for new treatments - not just to improve survival rates but also the patient's quality of life.

Dr Cain leads the VPCC Risk Stratification - Sarcoma program, focused on finding

"Many survivors of childhood cancer are left with debilitating long-term side effects of their treatments. We need to do better."

Dr Jason Cain

molecular signatures that predict a child's response to therapy, their risk of metastasis and their potential survival outcomes.

His goal is to determine which patients are likely to respond to which therapies, so ineffective treatments and their side effects can be avoided.

"No one treatment is going to be effective for all patients, even with the same cancer diagnosis," he said.

"There is a need to identify several different therapies that can be used in combination to treat patients."

Now, thanks to the VPCC, the best minds in Victoria's medical research community have a new platform through which to share and benefit from each other's knowledge.

"Our findings will enable other researchers in the childhood cancer community to accelerate their own research and discoveries," Dr Cain said.

Targeted childhood cancer treatments

Next Generation Precision Medicine program

Rarity is a virtue in some fields. Unfortunately, that's anything but true when it comes to childhood cancers.

Not only are they often uneconomic for drug companies to pour research dollars into, but tissue samples can be hard to come by.

As Head of the Centre for Cancer Research, Professor Ron Firestein wants to change all that with the VPCC Next Generation Precision Medicine program.

The aim is to significantly improve treatment for childhood cancer patients with the greatest unmet clinical need - those diagnosed with brain cancers and solid tumours.

Prof Firestein's four-pronged approach to the problem includes going beyond

genomic sequencing to what's called multi-omics, which studies the genome, transcriptome, epigenome and proteome of cancer cells.

Another crucial aspect of this program is the creation of the Childhood Cancer Model Atlas (CCMA) - a tissue bank where samples of actual cancers can be stored and reproduced, to be analysed and tested against potential therapies.

The CCMA is also the largest collection of high-risk paediatric solid tumour cell lines in the world, and for Prof Firestein and cancer researchers everywhere, it is a goldmine.

The CCMA also includes a searchable data portal to foster the collaborative and hypothesis-driven research needed to catalyse clinical translation.

NEWBORN HEALTH

New leadership at The Ritchie Centre

“Leadership and learning are indispensable to each other.”
– John F. Kennedy

Leadership can take many forms. Some lead by their actions and the example they set; others by creating new and better ways of doing things. The most successful are those whose leadership enables those around them to lead.

Professor Suzanne Miller ticks all the boxes while, most importantly, providing hope to parents of our most vulnerable babies.

She established her credentials over many years as a leading researcher in the field of fetal and neonatal physiology and brain injury, working to prevent and treat the neurodevelopmental disorders that can have lifelong effects.

One of her projects has now progressed to the world-first PROTECT Me Trial, using melatonin to combat the effects of fetal growth restriction (FGR) – a major cause of cardiovascular disease, lung and brain injury in the newborn, as well as contributing to the ongoing development of cerebral palsy, autism, learning and other behavioural dysfunctions.

In 2022, Prof Miller added an NHMRC Investigator Grant to her impressive list of achievements – receiving more than \$2.3 million over five years to continue

her groundbreaking work on targeted neuroprotective treatments for fetal and neonatal brain injury. Further confirmation of her talents came when she was appointed to lead The Ritchie Centre.

It is in this role where she is using her experience to guide and mentor the medical research pioneers of the future.

“The developing brain is fascinating. The fetal brain is exquisitely sensitive to the in-utero environment. We are still learning how compromise during pregnancy affects the baby’s brain development and long-term neurological outcomes.”

Professor Suzanne Miller

“I have been lucky to work both directly and indirectly with really clever and enthusiastic researchers and clinicians who have provided mentoring and research guidance,” she said.

“I hope that I can now pass on some of what

I have learned to provide mentorship and support to the next generation of researchers.

“At the end of my research career, I would be really chuffed if I could say there are fewer children with cerebral palsy or learning disabilities because of new preventions and treatments my team has developed for neonatal brain injury.”

Collaborators Monash Health; Monash University

Funders Cerebral Palsy Alliance; Inner Wheel Australia; NHMRC



Professor Suzanne Miller



— R: Hannah, Nav and baby Ronick

RONICK

When doctors told Hannah after her 28-week scan that her baby's growth was well behind schedule, she was understandably concerned – especially in light of previous miscarriages.

So when staff at her obstetric check-up asked if she would like to take part in the PROTECT Me Trial, she and husband Nav did not hesitate.

"I believe in science. I trust the doctors and midwives, so I decided to join the trial as soon as I knew there was an issue with my baby's growth," she said.

Every week, she returned for a scan with an instruction to "pack your bags because you may need an emergency C-section at any time".

Baby Ronick waited another seven weeks to come into the world. He weighed 1.88kg (small, but still much more than expected) and gave a good healthy cry when he arrived.

"We were so relieved to have a healthy baby!" Hannah said.

Ronick's progress will be monitored, like the other 335 babies in the trial, and once they have reached their second birthday, the effectiveness of melatonin treatment will be assessed.

Hannah and Nav are proud to have played their part in advancing medical science.

Published in *Proceedings of the National Academy of Sciences*, October 2022

Flicking the off-switch for pancreatitis

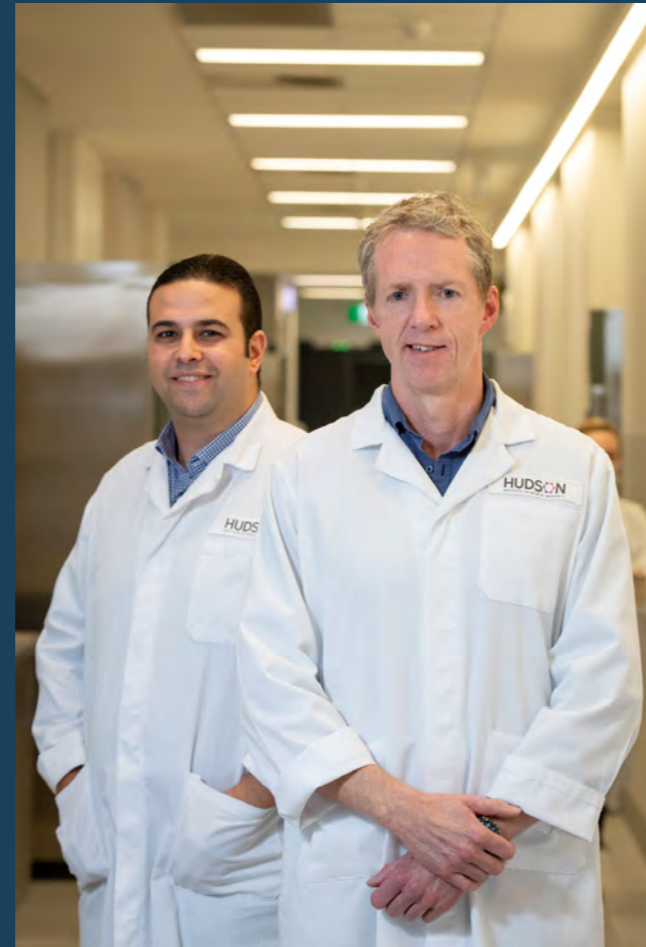
Pancreatitis is a serious inflammatory gastrointestinal disorder and the starting point for many health problems – up to 20 per cent of patients go on to experience multiple organ failure. Dr Mohamed Saad and his mentor, Professor Brendan Jenkins, identified a key enzyme called ADAM17, which acts as a central molecular switch leading to pancreatic inflammation – giving them a starting point for the development of new drugs to potentially treat pancreatitis.

Collaborators Monash Health; Monash University; Christian-Albrechts-University (Germany); Weizmann Institute of Science (Israel)

Funders Cancer Council Victoria; NHMRC

“Our research is the first to give hope that we have found a key to new, effective treatments for this condition.”

Dr Mohamed Saad



L-R: Dr Mohamed Saad, Professor Brendan Jenkins

Published in *Nature Communications*, May 2022

Restoring parenthood potential

The after-effects of cancer treatment can have numerous outcomes. In many men, chemotherapy kills the cancer but also damages fertility; however, those men now have new hope thanks to the work of Associate Professor Robin Hobbs. As Head of the Germline Stem Cell Biology Research group, he studies the systems responsible for fertility and the factors that promote cellular regeneration after they sustain damage. His research, published in *Nature Communications*, provides new understanding of these factors. It could ultimately allow researchers to design ways to help restore fertility of male cancer patients, representing an important step in addressing this major quality of life issue for cancer survivors.

Collaborators Monash University; University of Melbourne; Chinese University of Hong Kong (China)
Funder NHMRC

“While it’s not a cure in itself, our new understanding of these pathways may allow us to develop treatments that restore male fertility after chemotherapy.”

Associate Professor Robin Hobbs



Associate Professor Robin Hobbs

Published in *Medical Journal of Australia*, March 2022

Diagnosing curable hypertension



L-R: David Wyatt, Associate Professor Jun Yang

Associate Professor Jun Yang and her team are changing the way GPs think about hypertension (high blood pressure), and saving lives in the process. Her research established that in one in 10 cases, hypertension is caused by a hormonal condition called primary aldosteronism (PA), which means standard treatments are ineffective. The next step was a pilot project encouraging GPs to screen for PA, with results showing far more affected patients than expected. Head of the Endocrine Hypertension Research group and Consultant Endocrinologist at Monash Health, A/Prof Yang has been awarded two large MRFF grants, including a clinical trials grant of \$2.29 million over four years to roll out a

screening program in GP clinics, with collaborators in Victoria, South Australia and Tasmania. Further research also identified that existing testing methods for PA need careful analysis – and sometimes even multiple tests – to be accurate. She is now educating clinics and hospitals about PA and helping prepare them for the expected increase in diagnoses of this previously under-reported condition.

Collaborators Baker Heart and Diabetes Institute; Barwon Health; Monash University; University of Queensland; University of Western Australia

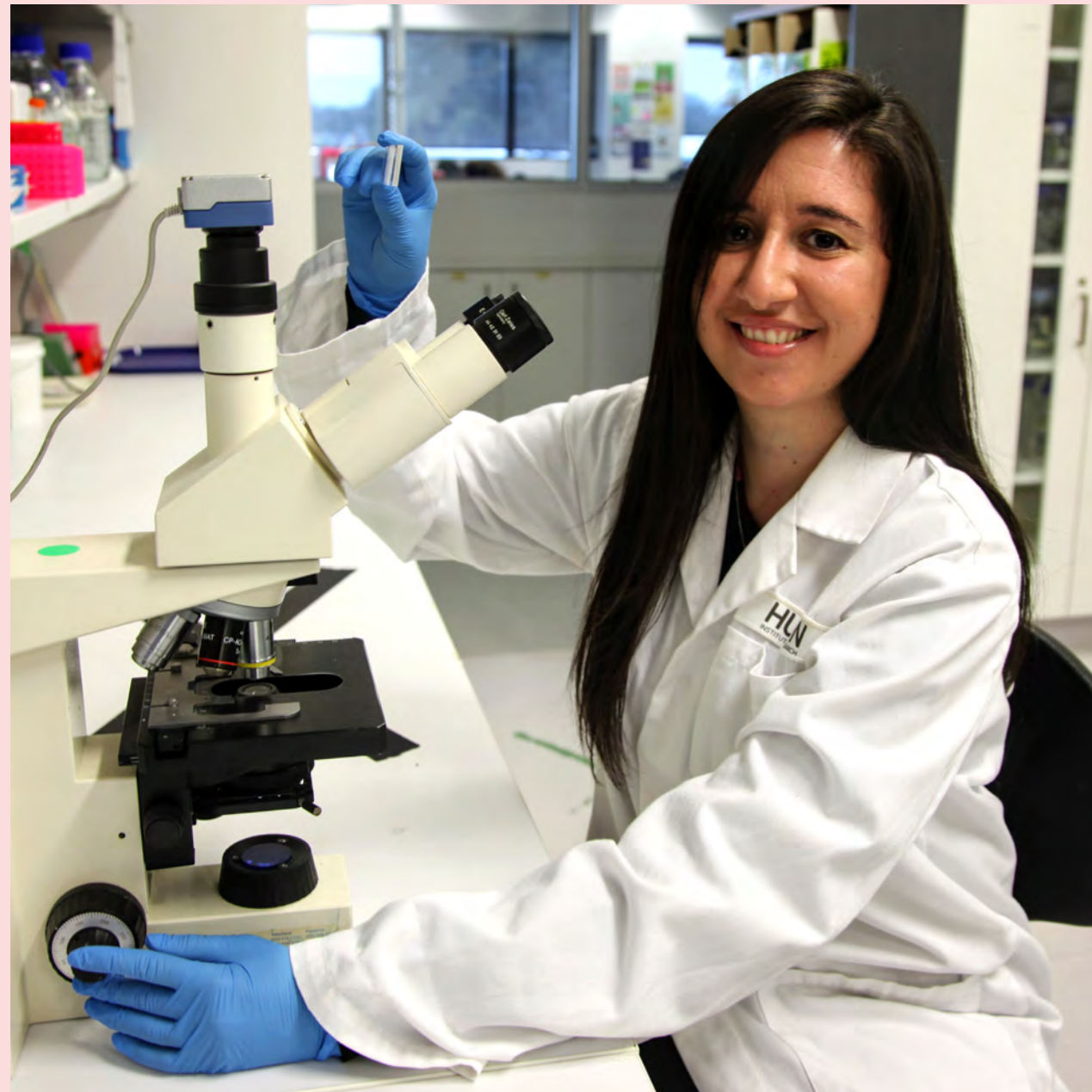
Funders Heart Foundation; NHMRC; Rebecca Cooper Foundation

“Once GPs started to actively screen for PA, the number of hypertensive patients diagnosed with PA jumped from one in 1000, to 140 in 1000.”

Associate Professor Jun Yang

Published in *Proceedings of the National Academy of Sciences*, June 2022

Gastroenteritis breakthrough



Dr Cristina Giogha

Dr Cristina Giogha studies a range of medically important bacteria that cause millions of deaths worldwide every year due to gastroenteritis, such as *E. coli*, *Salmonella* and *Shigella*. It is well known that *E. coli* destroy intestinal structures called microvilli – tiny finger-like projections on intestinal cells that are vital for absorbing nutrients and water from the gut – but until now there has been little understanding of the mechanics of how this occurs. 2022 brought a breakthrough, with Dr Giogha and her mentor, Professor Elizabeth Hartland, showing for the first time

the involvement of specific human and bacterial factors in the destruction of microvilli. She sums up her findings simply: “If the cell is like your home, *E. coli* are like unwanted guests that remodel your home to suit themselves.”

Collaborators University of Melbourne; University of Saskatchewan (Canada); Vanderbilt University (USA)

Funders Australian Research Council; NHMRC; China Scholarship Council (China); National Institutes of Health (USA); Vanderbilt University (USA)

“Our work aims to understand the mechanisms by which *E. coli* bacteria cause gastroenteritis, so new treatments can be designed, potentially saving thousands of lives, particularly in low-income countries.”

Dr Cristina Giogha

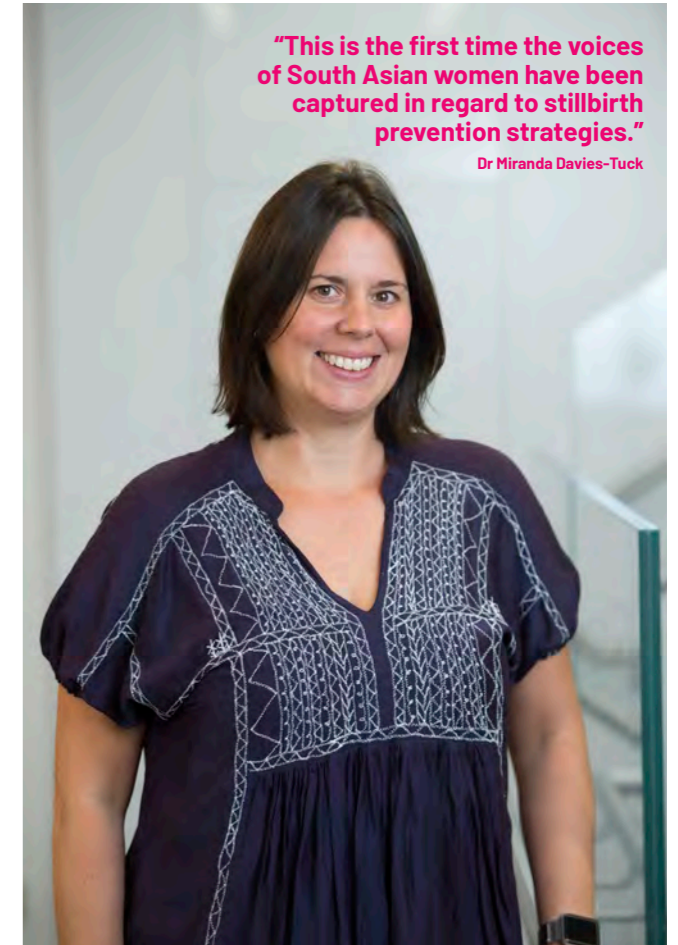
Published in *Women and Birth: Journal of the Australian College of Midwives*, July 2022

Ending preventable stillbirths

Stillbirth is devastating for any family, and Dr Miranda Davies-Tuck is working to better understand why it happens. A 2022 study by Dr Davies-Tuck’s team published in *The Australian and New Zealand Journal of Obstetrics and Gynecology*, March 2022, looked at all births in Victoria between 2010 and 2018, finding that full-term stillbirth rates have reduced, but the overall stillbirth rate has remained at approximately six babies per day. That means preterm deaths are on the rise. This strengthens her focus on research to reduce pre-term stillbirths. After previously establishing that women of South Asian origin (India, Pakistan, Bangladesh and Sri Lanka) have a higher risk of stillbirth in late pregnancy, she recommended more fetal monitoring for this group. Those clinical changes have now been incorporated into clinical guidelines nationally. In 2022, the team took this research further by talking to those mothers – many of whom do not have English as their native language – about their experience of these clinical changes. The findings showed that better communication is just as important as better monitoring in making sure both mother and baby have a positive birth experience.

Collaborators Monash Health; Monash University

Funder Red Nose Australia



Dr Miranda Davies-Tuck

“This is the first time the voices of South Asian women have been captured in regard to stillbirth prevention strategies.”

Dr Miranda Davies-Tuck

Published in *Proceedings of the National Academy of Sciences*, August 2022

How emphysema wreaks havoc

Emphysema is the major debilitating lung disease associated with inflammation caused by uncontrolled activation of the immune system. The two arms of that system are innate immunity, or the first line of defence against invaders, and immune system adaptive immunity, which mounts a slower, highly specific immune response. The triggers that promote the development of emphysema have been elusive, preventing advances in patient treatments. In a pivotal breakthrough, a team led by Professor Brendan Jenkins discovered that a regulatory complex of the innate immune system, called inflammasomes, is responsible for the development of emphysema. This world-first finding lays the foundation for new emphysema treatments targeting the immune system.

Collaborators Monash Health; RMIT University; University of Melbourne; Christian-Albrechts-University (Germany); National Cancer Institute (USA)

Funder NHMRC

“It is significant research, because it’s the first to demonstrate a specific pathological role for inflammasomes in emphysema that is separate from their immune activity.”

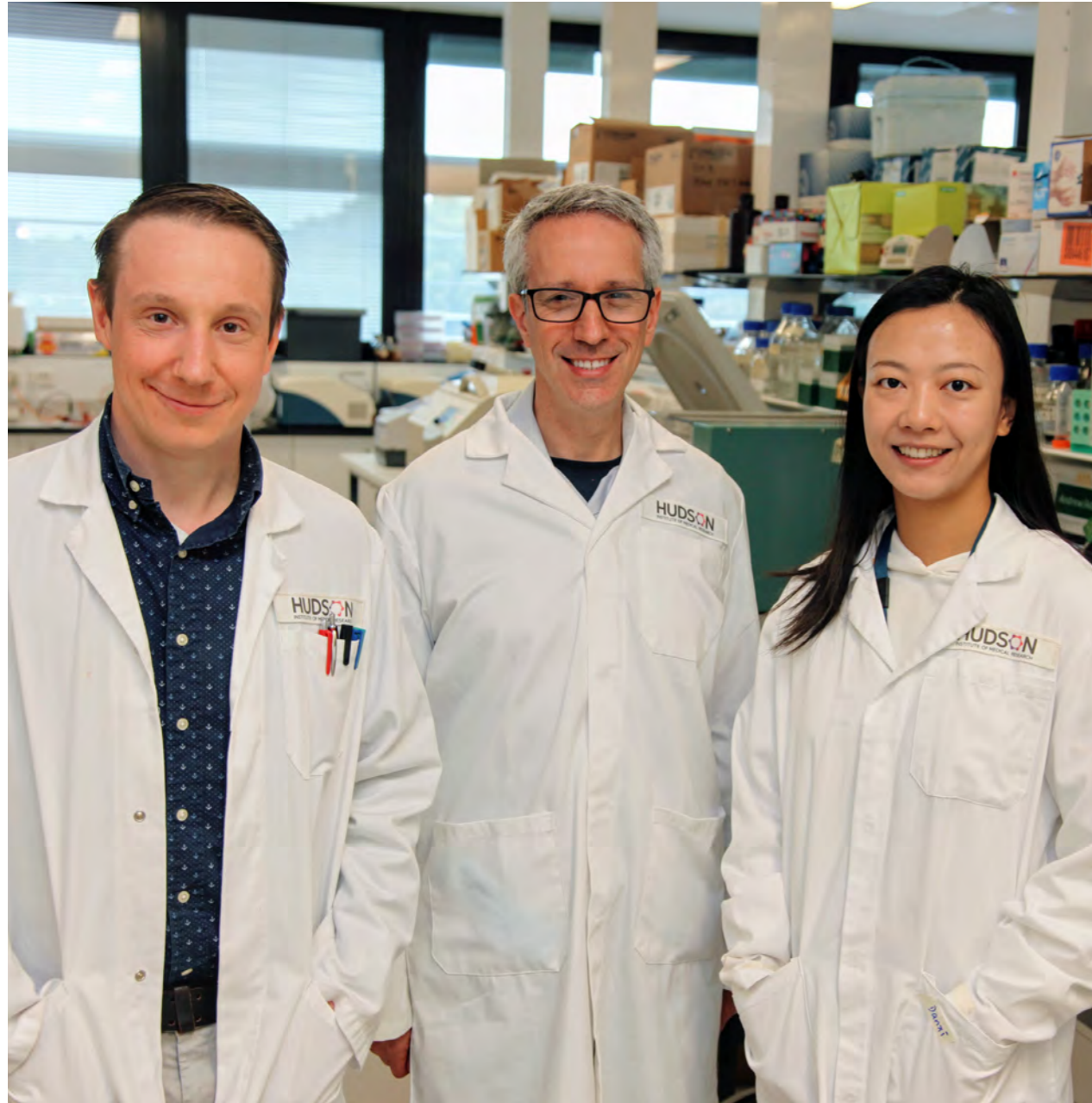
Professor Brendan Jenkins



Professor Brendan Jenkins

Published in the *Journal of Clinical Investigation*, October 2022

Solving the gut health puzzle



L-R: Dr Marius Dannappel, Professor Ron Firestein, Dr Danxi Zhu

The cells that line the intestines are a crucial interface between the outside world and the human body, but many mysteries remain as to how they work. Research published by an international team led by Hudson Institute investigated so-called Mediator kinases – regulators of gene expression – and discovered that they play an unexpected role in maintaining a proper balance of the different cell populations that make up the intestinal lining. Dr Marius Dannappel and Dr Danxi Zhu, with their mentor Professor Ron Firestein, found

that Mediator kinases also interact with another group of proteins that have been linked to many diseases and cancers. Their findings have wide-ranging implications for inflammatory conditions affecting the intestine, such as Inflammatory Bowel Disease (IBD) and cancer.

Collaborators Monash Health; Monash University; University of Texas (USA)

Funders NHMRC; China Scholarship Council (China); DFG, German Research Foundation (Germany)

“We discovered that Mediator kinases play a pivotal role in orchestrating the production of the cells lining the intestinal lumen, particularly for specialised cell types (Paneth cells, tuft cells and goblet cells) responsible for organising the defence against infection.”

Dr Danxi Zhu

Business development and commercialisation

Business development and commercialisation ensures the Institute’s scientific discoveries move from the laboratory to patients’ bedsides. Working with industry, academic and government partners, research is protected, commercialised, and developed for future use. Partnerships are forged with pharmaceutical, clinical and venture capital organisations to progress research from early stages to clinical trials, and ultimately to patients’ treatments or diagnosis.

The value of commercial agreements continues to be an important category of the Institute’s total revenue – over the last three years, we have attracted over \$15.8 million, with exceptional prospects for growth in 2023.

Nine patents protecting scientific discoveries were granted in a range of countries, while six provisional patent applications were progressed to PCT or International Phase, and two new provisional applications were filed.

Significant commercial transactions included

- A partnership with Pharmorage’s Noxopharm (ASX:NOX), a clinical-stage drug development company that has been established to focus on drug discovery and

the commercial use of RNA technologies.

- The creation of a biotech start-up that focuses on the development of tests for the diagnosis and monitoring of cancer.
- The licencing of microbiome-related IP from the Microbiota and System Biology Research group to Biomebank, a clinical-stage biotechnology company.
- The establishment of a spinout company to develop a novel anti-cancer strategy.

Hudson Institute was also actively involved in the start-up of two other companies and two new IP licences that were established for further start-up initiatives. In addition, the Institute successfully achieved an overall 10 per cent

increase in finalised contracts and commercial agreements on the previous year.

Successful commercially targeted or translational grants included

- Victorian Medical Research Acceleration Fund (\$0.2 million)
- mRNA Victoria Activation Program (\$0.7 million)
- National Health and Medical Research Council Development Grant (\$0.9 million)
- Department of Jobs, Precincts and Regions COVID funding (\$1.5 million)
- Two grants from CUREator-Australia’s national biotech incubator (totalling \$5.5 million).

PHILANTHROPY

Thank you to our supporters

We are grateful for the gifts received from individuals, trusts, foundations and organisations during the year. We also acknowledge the support of the Victorian State Government and the Australian Government.

Funding bodies

Andrea Joy Logan Trust

Australian Communities Foundation

Australian Government, Medical Research Future Fund

Australian Research Council

Bethlehem Griffiths Research Foundation

Can Too Foundation

Cancer Australia

Cancer Council Victoria

Canteen

Carrie's Beanies for Brain Cancer

CASS Foundation

Cerebral Palsy Alliance

Children's Cancer Foundation (CCF)

Children's Tumour Foundation

Cure Brain Cancer Foundation

Department of Defense (USA)

Eva and Les Erdi Charitable Foundation

Financial Markets Foundation

Inner Wheel Foundation

Isabella and Marcus Foundation

Johnson & Johnson

Leukaemia Foundation

Magee-Womens Research Institute and Foundation

Minderoo Foundation

National Health and Medical Research Council

National Heart Foundation

National Institutes of Health (USA)

Norman Beischer Medical Research Foundation

Ovarian Cancer Research Foundation

Robert Conner Dawes Foundation

Royal Australian College of Physicians

RUN DIPG

Snowdome Foundation

Stillbirth Foundation Australia

The Kids' Cancer Project

University of Birmingham (in partnership with CCF)

Victorian Cancer Agency

Victorian Government, Department of Jobs, Precincts and Regions

Victorian Government, Operational Infrastructure Support Scheme

You Are My Sunshine Foundation (YAMS)

Zero Childhood Cancer Program

Major donors

The Evans Family Foundation

Professor Kate Loveland

Estate of Robert Dale Checcucci

Australian Communities Foundation

Mrs Ann Lorden

The Piers K Fowler Scholarship Fund

Invetech

Mrs Jill M Ross-Perrier

Ms Sally Maconochie

Lord Mayor's Charitable Foundation

Associate Professor John McBain AO

Professor Lois Salamonsen

Professor Caroline Gargett

Dr Fiona Clay

Fire Rescue Victoria

Lifestyle Communities Officer

The Hon. Gayle Tierney

Mr Claude Lombard OAM

Mr Joseph Zouki

Dr Robert Edgar AM

Mr Neville Marriott

Mrs Kathleen Johnston

Mrs Regine Lindner

Mrs Jill D'Arcy

The Phoebe Jones and Jacob Jones Trust

Bensons Property Group

Mrs Ella Matheson

Mr Luke and Mrs Susi Lindner

Mrs Joan Donaldson

Dr Miriam Shalit and Mr Greg Faine

Professor Arthur Clark

S&D Hain Foundation

Mr Alfred Frohlich

Give and take – one family's cancer journey

By any measure, cancer has played too large a role in Ann Lorden's life.

Both she and her daughter have fought breast cancer and won, but her husband Max sadly lost his fight with renal cancer in 2017. However, it was when her granddaughter Ella faced her own cancer challenge at just eight years old that Ann decided to do whatever she could to make a difference.

Ella is now a healthy 15-year-old, looking forward to her upcoming student exchange trip to Japan. But seven years ago, things looked very different when she was diagnosed with osteosarcoma – a type of cancer that begins in the cells that form bones.

"From my experience as a nurse in the 1970s to when Ella had her treatment, the drugs were the same," says Ann.

The oncologist noted that there was no money for commercial companies in developing treatments for rare cancers, so that has driven her own personal philanthropy to Hudson Institute.

Dr Jason Cain's lab will be the main beneficiary of this generous funding and he says it's an area of great need in cancer research.

"When it comes to rare childhood cancers the pharmaceutical industry rarely invests in treatments and cures, so our role is to fill those gaps," Dr Cain said.

"With our Childhood Cancer Model Atlas (CCMA), Hudson Institute is now home to the world's biggest bank of paediatric tumour tissue samples, giving researchers everywhere the opportunity to run tests to establish which cancers are likely to respond best to which treatments."

Ann made her first donation in 2018, in her late husband's name. Five years on she is donating again, proud that her funding will help to build a brighter future for kids like Ella, who find themselves facing the fight of their lives. Her generous philanthropy will continue to allow for expedited and innovative research into osteosarcoma, in areas such as more precise diagnostics and new therapy projects.

"My children and grandchildren could have a lovely holiday with their inheritance after I'm gone, but there's more good to be done for kids just like Ella by giving while living."

Ann Lorden

TRUSTS AND FOUNDATIONS

Our loyal supporters

Hudson Institute is grateful for the ongoing support of our generous trusts and foundations who form part of our wider community, helping to connect our Institute and scientists with patients who inform our research.

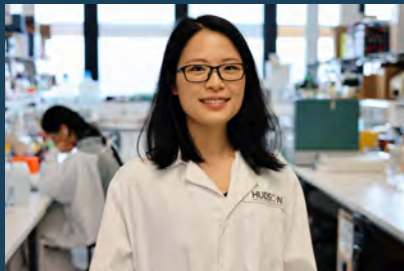


L-R: Premier Daniel Andrews, The Hon Jaala Pulford, Jeremy Smith (CCF)

Children's Cancer Foundation

Hudson Institute is deeply appreciative of its partnership with the Children's Cancer Foundation (CCF). As featured earlier in this Annual Report, the Children's Cancer Foundation played a critical role in helping launch the Victorian Paediatric Cancer Consortium (VPCC). This new consortium has allowed Hudson Institute's childhood cancer research to accelerate like never before. In October, the Children's Cancer Foundation was instrumental in creating yet another catalytic initiative.

Through tireless petitioning, a groundbreaking pledge was made by the Victorian Government to invest \$35 million to support childhood cancer research. Additionally, the Children's Cancer Foundation has contributed an additional \$10 million, amplifying the collective effort of childhood cancer researchers and ensuring continuity and extension of our life-saving work.



Dr Dongmei Tong

Can Too Foundation

Hudson Institute was honoured to commence a new funding relationship in 2022 with the innovative and inspiring Can Too Foundation. Committed to funding cancer research, Can Too is an independent health promotion charity that believes everyone can achieve goals they once thought impossible. Can Too was specifically drawn to the cancer research being conducted by our early career cancer researchers and has committed to supporting Dr Dongmei Tong, whose cancer research is identifying biomarkers for stomach lymphoma.



Dr Beth Allison

Cerebral Palsy Alliance

For more than 70 years, Cerebral Palsy Alliance has been helping anyone living with neurological and physical disabilities to lead the most comfortable, independent and inclusive life possible. One of the ways they provide this support is through strong ongoing commitment to funding high quality research. Research Group Head of Perinatal Cardiovascular Physiology Dr Beth Allison received funding from the Cerebral Palsy Alliance to assist her research into the pregnancy complication, fetal growth restriction (FGR), which affects up to 10 per cent of pregnancies worldwide. With the Cerebral Palsy Alliance's support, Dr Allison can continue her examination of how babies with FGR can have the best chance of maximising their potential.



Dr Maree Bilandzic

Ovarian Cancer Research Foundation

We are proud to continue our longstanding partnership with the Ovarian Cancer Research Foundation (OCRF). With their support, the search for a breakthrough in early detection of ovarian cancer continues. Funding received from OCRF in 2022 continues to support Dr Andrew Stephens' ovarian cancer research, the OCRF tissue bank at Hudson Institute, and Dr Maree Bilandzic's precision medicine program that directs treatment options. Additionally, new funding from OCRF is supporting Professor Ron Firestein to lead a project investigating ways to disrupt the workings of a protein that increases the ability of cancer cells to grow and metastasize.

Community rallies for Jessica

If it takes a village to raise a child, the same village will often come together to mourn a young person taken too soon.



Jessica Lindner

That was the sad but inspiring story surrounding the death of 13-year-old Jessica Lindner. Diagnosed with a rare form of brain cancer, Jessica fought until the last moments, but eventually succumbed to the disease. It wasn't the end of her story, though – it actually marked a new beginning.

Throughout their cancer journey, the Lindner family became familiar with the research into rare childhood cancers being undertaken at Hudson Institute, as Jessica's tumour was biopsied and analysed at Hudson Institute before a customised treatment regime was designed.

After that experience, and the devastation of losing their daughter, they chose to create something positive out of their grief, giving hope to other families who might find themselves in a similar situation.

Susi and Luke Lindner requested that friends, family and colleagues make donations in Jessica's name instead of gifts or flowers. That decision resulted in nearly \$10,000 being raised by the Lindner family's community. When Luke's employer Invetech pledged an extra \$11,000, they had raised almost \$21,000.

That total was enough for Hudson Institute to purchase a digital microscope with computer software that allows us to recognise and analyse cancer cells grown from patients.

It is also an excellent tool for training PhD students, medical students and paediatric oncology research fellows in childhood brain cancer research.

"By raising funds in Jessica's name for this important research, we are hopeful that one day another family won't have to lose a child to a similar disease."

Luke Lindner

The microscope, with a plaque in Jessica's memory, was unveiled in late 2022 in the Centre for Cancer Research in a touching ceremony attended by the Lindner family.

Now, as well as their cherished memories of a daughter and sister, Jessica's family have an enduring legacy in her name that they know will bring treatments and cures for rare childhood cancers closer to reality.

The Will to live

Philanthropy: noun

1. *The effort or inclination to increase the wellbeing of humankind, as by charitable aid or donations.*

2. *Love of humankind in general.*

The word philanthropist may not sit comfortably with Janine Flatt, but it describes her perfectly. As in so many cases, a tragic bereavement – the death of her husband – was the catalyst for Janine's decision to donate to medical research. But that's just a reflection of the spirit that inspired it – the love of humankind in general.

As an African-American US military veteran, Bruce Hall never knew he was in a high-risk group for stomach cancer

"I'm not a millionaire and there are other diseases I could have donated to, but stomach cancer is so much more prevalent than I'd realised, and I know my donation will make a difference."

Janine Flatt, donor

linked to gastric bacteria (*H.pylori*) infection. Even when he was diagnosed with *H.pylori* infection in April 2017, there was no mention of increased cancer risk.

So, no-one expected this fit, non-smoking teetotaler to succumb to the disease at the age of 64. Piling stress on top of Janine's grief, Bruce died without a Will, leaving Australian-born Janine alone in the USA, with a lengthy and draining legal process to settle his affairs.

So, when Janine heard about Dr Richard Ferrero's research at Hudson Institute into precisely this condition, she decided a donation from Bruce's estate was an effective and appropriate way to help others avoid a similar fate.

Janine is in good company, too – another significant funder of this research is the US government itself.

"I felt so strongly about this link between *H.pylori* and cancer, and then to find out it's so prevalent among people just like

Bruce, I wanted to make a difference if I could," Janine said.

"It is good to hear the US Dept of Defense look beyond their immediate shores to fund and utilise the research skills of those at Hudson Institute."



L-R: Janine Flatt, Bruce Hall

Now living back in Australia, unsurprisingly, one of the first things Janine asks people is: "Do you have a Will?"

PEOPLE

Research excellence

Hudson Institute's discoveries are supported by competitive, peer-reviewed funding, which underpins our researchers' salaries and research projects.

Competitive fellowships and grants awarded by the National Health and Medical Research Council (NHMRC), the Medical Research Future Fund (MRFF) and philanthropic and industry funding bodies are selected in a highly competitive process, where expert panels assess and rank applications on scientific merit, innovation and track record.

When a researcher's grant proposal is successful, it demonstrates how highly they are regarded by their peers. However, the competition for available grants is extremely strong and limited budgets mean only a small percentage of applications receive funding.



Associate Professor Robin Hobbs

ARC Discovery Grant

Research area: Reproductive health, male fertility and cancer



Associate Professor Samuel Forster

CSL Centenary Fellowship

Research area: Microbiome, IBD, AMR



Dr Kelly Crossley

NHMRC Ideas Grant

Research area: Newborn health, newborn breathing



Dr Natalia Sampaio

mRNA Victoria Activation Program Grant

Research area: Inflammation, RNA



Associate Professor Rebecca Lim

NHMRC Development Grant

Research area: Inflammation, stem cell therapies



Dr Fiona Cousins

NHMRC Ideas Grant

Research area: Reproductive health, endometriosis



Professor Suzanne Miller

NHMRC Investigator Grant

Research area: Fetal growth restriction, newborn health



Associate Professor Michelle Tate

NHMRC Ideas Grant

Research area: Inflammation, influenza



Dr Catherine Carmichael

Victorian Cancer Agency Mid-Career Research Fellowship

Research area: Cancer, acute myeloid leukaemia



Associate Professor Michael Gantier

mRNA Victoria Research Acceleration Fund

Victorian Government COVID-19 Treatments Medical Research Fund

NHMRC Ideas Grant

Research area: Inflammation, RNA, autoimmune diseases



Professor Brendan Jenkins

US Department of Defense (DoD) Grants

Research area: Inflammation, stomach cancer, pancreatic cancer



Dr Claire Sun

Victorian Cancer Agency Early Career Research Fellowship

Research area: Cancer, childhood cancer



Associate Professor Jaclyn Pearson

Superstars of STEM

Sylvia and Charles Viertel Charitable Foundation Senior Medical Research Fellowship

Research area: Inflammation, antimicrobial resistance



Associate Professor Patrick Western

NHMRC Ideas Grant

Research area: Reproductive health, inherited diseases

Collaboration generates innovation

Seed Funding Awards

Australia's health and medical research sector has the potential to be one of the most innovative and commercially successful in the world – employing thousands of people and creating preventative therapies, vaccines and treatments for the betterment of human health.

However, a constrained funding environment means many promising early and mid-career scientists no longer necessarily receive funding for their research, even when it is assessed as 'outstanding' by peer review.

Hudson Institute's Research Committee established the Innovation Seed Awards to provide seed funding to support innovative blue-sky ideas, interdisciplinary research, and collaborations between researchers. This funding allows researchers to gather the baseline data for out-of-the-box ideas – and provides a clear pathway to sustainable funding.

“Seed funding is crucial for starting innovative research projects and collecting critical data needed to secure funding. Importantly, this funding also builds multi-disciplinary teams that bring unique perspectives and resources to challenge the status quo.”

Professor Ron Firestein, co-chair, Research Committee



Senior Researcher Award Winners

**Dr Beth Allison,
Professor Mark Hedger**

Project title | Finding a new marker for brain injury following birth

Disease impact | Brain injury at birth, cerebral palsy

**Associate Professor
Simon Chu
Dr Wilson Wong**

Project title | Utilising powerful imaging technology to uncover drug targets

Disease impact | Ovarian granulosa cell tumours

**Dr Robert Galinsky,
Professor Richard Ferrero**

Project title | A new approach to investigating infection-related inflammation in the preterm brain

Disease impact | Preterm brain

**Associate Professor
Jun Yang, Dr Miranda Davies-Tuck**

Project title | Aldosterone and renin in hypertensive disorders of pregnancy (ALDOHOP study)

Disease impact | Hypertension in pregnancy

Postdoctoral Researcher Award Winners

**Dr Rukmali Wijayarathna,
Dr Eveline de Geus**

Project title | Could interferon-epsilon protect against viruses affecting male reproduction?

Disease impact | Protecting the male reproductive system against viruses, e.g. mumps, Zika virus and herpes simplex virus

**Dr Le Ying,
Dr Raissa Wibawa**

Project title | Establishing a novel stem cell model to study Legionnaires' disease

Disease impact | Legionnaires' disease, pneumonia

**Dr Marius Dannappel,
Dr Catherine Carmichael**

Project title | Identifying novel regulators of immune cell function and differentiation

Disease impact | Inflammation and cancer

**Dr Shanti Gurung,
Dr Michelle Chonwerawong**

Project title | Treating gastrointestinal-graft-versus-host-disease with endometrial mesenchymal stem cells

Disease impact | Graft-versus-host-disease, gastrointestinal tract

EQUITY AND DIVERSITY

Who are we?

Our scientists and students come from all corners of the globe to advance medical science in their various fields. Together, they represent 29 countries and speak 27 languages. Having a rich diversity of knowledge and experience is the lifeblood of scientific discovery. We foster an inclusive and positive culture for all staff regardless of age, race, religion, gender identity, sexual orientation, disability, or spiritual belief.

During the year, the **Equity & Diversity and Culture & Engagement Committees** organise a broad range of events to celebrate and share our rich diversity. Here are some of the 2022 highlights in our celebration calendar.

International Women's Day: We recognised our team of strong, passionate, intelligent and committed women.

Harmony Day: We celebrated multiculturalism, inclusiveness and belonging.

Pride Month: It was time for our rainbow pins to sparkle and to add a splash of colour in support of LGBTQI+ friends and colleagues.

National Reconciliation Week: With the theme 'Be Brave. Make Change', we acknowledged our shared histories, cultures and achievements, and how we all contribute to them.

NAIDOC Week: We celebrated the history, culture and achievements of Aboriginal and Torres Strait Islander peoples.

Wellbeing Week: This comprised a week of celebrations – including RUOK? Day – to remind us to take the time to look after our individual and collective wellbeing.

LGBTQI+ STEM Day: This featured the 'LGBTQI+ Morning Tea', with the sharing of rainbow baking treats.



COMMUNITY

Scientists in action

During the year, our scientists joined in a range of activities, giving back to the communities that support medical research.



The Hon Jaala Pulford, Minister for Innovation, Medical Research and the Digital Economy, views artwork with Professor Elizabeth Hartland and Dr Susanne Iltschner.

Art-meets-science education event

Communicating Endo through Art was a community event showcasing works from Australian and French artists living with endometriosis. The evening, attended by the Hon Jaala Pulford, Minister for Innovation, Medical Research and the Digital Economy, provided an open forum for people living with the disease, supporters, scientists and clinicians to discuss leading-edge endometriosis research. Speakers included Professors Caroline Gargett and Elizabeth Hartland, the event's instigator, Dr Susanne Iltschner, and, from Endometriosis Australia, Directors Maree Davenport and Monica Forlano.



L-R: Associate Professor Jun Yang and volunteer

May Measurement Month

Despite detection taking just minutes, high blood pressure continues to claim the lives of millions each year. To raise awareness during May Measurement Month, Associate Professor Jun Yang set up a monitoring station offering free blood pressure checks to visitors at Monash Medical Centre.



Neve presents the fundraising cheque to Associate Professor Simon Chu

Ride4Research

Associate Professor Simon Chu cycled 900 kilometres from Canberra to Melbourne for Ride4Research in May, organised by ROC Inc (Rare Ovarian Cancer Incorporated). A/Prof Simon Chu studies granulosa cell tumours (GCT), with much of his funding coming from ROC Inc. GCT survivor, eight-year-old Neve, who is the youngest person diagnosed with ovarian cancer (aged 11 months), led the cyclists across the finish line.



L-R: Melissa Loi, Dr Vanessa Tsui, Eliza Metcalfe, Naama Neeman, Dr Claire Sun, Shazia Adjumain, Monty Panday, Dr Nicole Chew and Dr Yuqing Liang

Million Dollar Lunch

The Children's Cancer Foundation's (CCF) fundraiser The Million Dollar Lunch was back in August 2022 after a pandemic hiatus. Cancer scientists were there on the day to help achieve a record tally.



Dr Jason Cain and family

Connor's Run

Cancer scientists and their families took part in Connor's Run in September to raise money for the Robert Connor Dawes (RCD) Foundation, which supports paediatric brain cancer research and clinical care.



L-R: Brittany Doran, Maria Petraki, Dr Yiqian Chen, Teharn Hegarty, Dr Amy Wilson, Dr Laura Moffitt and Trang Tran

Frocktober

Ovarian cancer scientists frocked up to support the Ovarian Cancer Research Foundation (OCRF) Frocktober campaign, raising funds and awareness. Our team is working on an effective early detection test and new treatments.



L-R: Dr Yuqing Liang, Dr Paul Daniel, Shazia Adjumain and Dr Claire Sun

Koala Kids

Koala Kids helps children and families going through cancer treatment. In August, childhood cancer scientists swapped their lab coats for high vis vests, volunteering in the Koala Kids warehouse.



Run Melbourne, team Hudson

Run Melbourne

In July, more than 50 scientists, staff and their families donned their runners to raise funds at Run Melbourne in support of our Young Women in STEM program – a two-week immersive laboratory experience for 12 local female high school students.

Inspiring young scientists

Hudson Institute's Young Women in Science program provides an intensive one-week immersive laboratory experience program for 12 local Year 10 high school students.

Evidence shows that having a STEM role model plays a big part of choosing STEM subjects at school and STEM careers.

The program gives young women an insight into the science underpinning medical research, with the aim of inspiring a career in science. Each

student is partnered with a leading female scientist for a 'behind the scenes' insight into the laboratory science underpinning medical research.

Students spend their time immersed in laboratory life – learning how to formulate and test hypotheses, prepare experiments, draw conclusions and join in lab meetings and group discussions. They also tour the state-of-the-art technology platforms used by our scientists and, on their final day, present work to their group, teachers and family.

"We hope this program gives young women the courage and confidence to

continue their studies in science, leading to a greater representation of women as STEM leaders," said endometriosis researcher and program convenor, Dr Fiona Cousins.

"Initiatives such as this aim to help young women see the breadth of career opportunities available, as well as connect them with a successful female mentor for advice on how to carve out a career in this industry," she said.

Young Women in Science was made possible by funds raised by Hudson Institute staff, students, and supporters in this year's Run Melbourne event.



Back row: Professor Elizabeth Hartland, Dr Fiona Cousins, Aimee Booth. Second back row: Luvleen Chand, Mohana Lakshminarayanan, Annabelle Lau, Neo Menger. Second front row: Grace Groves, Amaal Ibrahim, Mandy Lai, Shazfa Mohamed Shafee. Front row: Ashleigh Puar, Van Lai Diki Khupno, Arushi Tandon

While girls and boys perform similarly in STEM subjects at school, at tertiary level only 19 per cent of girls study STEM subjects compared to 42 per cent of boys.

Women make up only 28 per cent of the workplace in Science, Technology, Engineering and Mathematics (or STEM) careers.

Evidence shows that having a STEM role model plays a big part in choosing STEM subjects at school and STEM careers.

OUR STUDENTS

Life as an explorer

In 2022, 176 Honours, Masters and PhD students were mentored by senior scientists at Hudson Institute. Here, PhD candidate Ellen Jarred and her supervisor, Associate Professor Patrick Western, share their research and the role of mentorship in science. A/Prof Western also co-chairs Hudson Institute's Education and Training Committee.

What is your research about?

We study how information is programmed into eggs (oocytes) to produce healthy offspring and what happens if this information is disrupted. This non-genetic information is called 'epigenetic', or above the gene, and influences the combinations of genes turned on or off in cells.

We hope that our research will one day ... determine how epigenetics is important in female reproductive health and oocytes, and how our lifestyle choices, such as our diet or the drugs we take, may influence our health, and potentially that of our future offspring.

Dr Ellen Jarred PhD student

I chose to study in Patrick's group because ... I was instantly intrigued by his work in epigenetics when I met him at Student Open Day. He is passionate about science and is a kind and approachable mentor.

I chose this career because ... being a scientist is like being an explorer – I get to dive into the world of the cell and make new discoveries about how our genes are regulated to make all the diverse cell types in our body.

The highlight of my year was ... completing my PhD! This is something I had never imagined was possible, so it was a very proud moment to realise I had achieved this milestone.

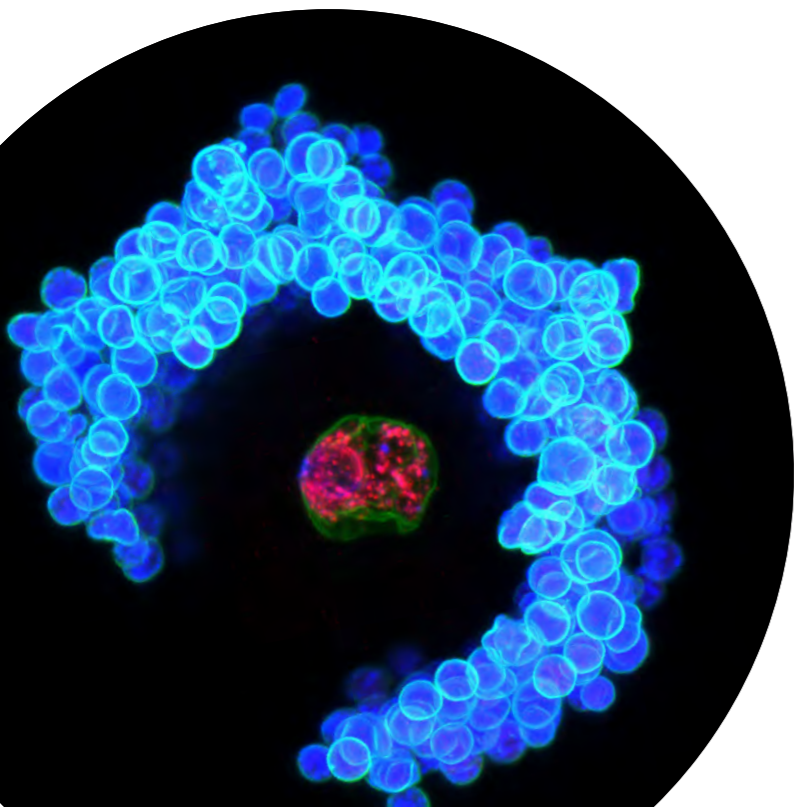
The best part of my job ... is getting to see under the microscope how clever (and beautiful) biology can be.

Associate Professor Patrick Western Supervisor

The most fascinating thing about my research is ... understanding how the amazing diversity of cell types arise from a single fertilised cell to form a highly complex individual. Epigenetics not only regulates cell formation and function but provides a potential interface between our environment and health. I aim to determine how epigenetics and lifestyle choices influence development and health in ourselves plus our offspring.

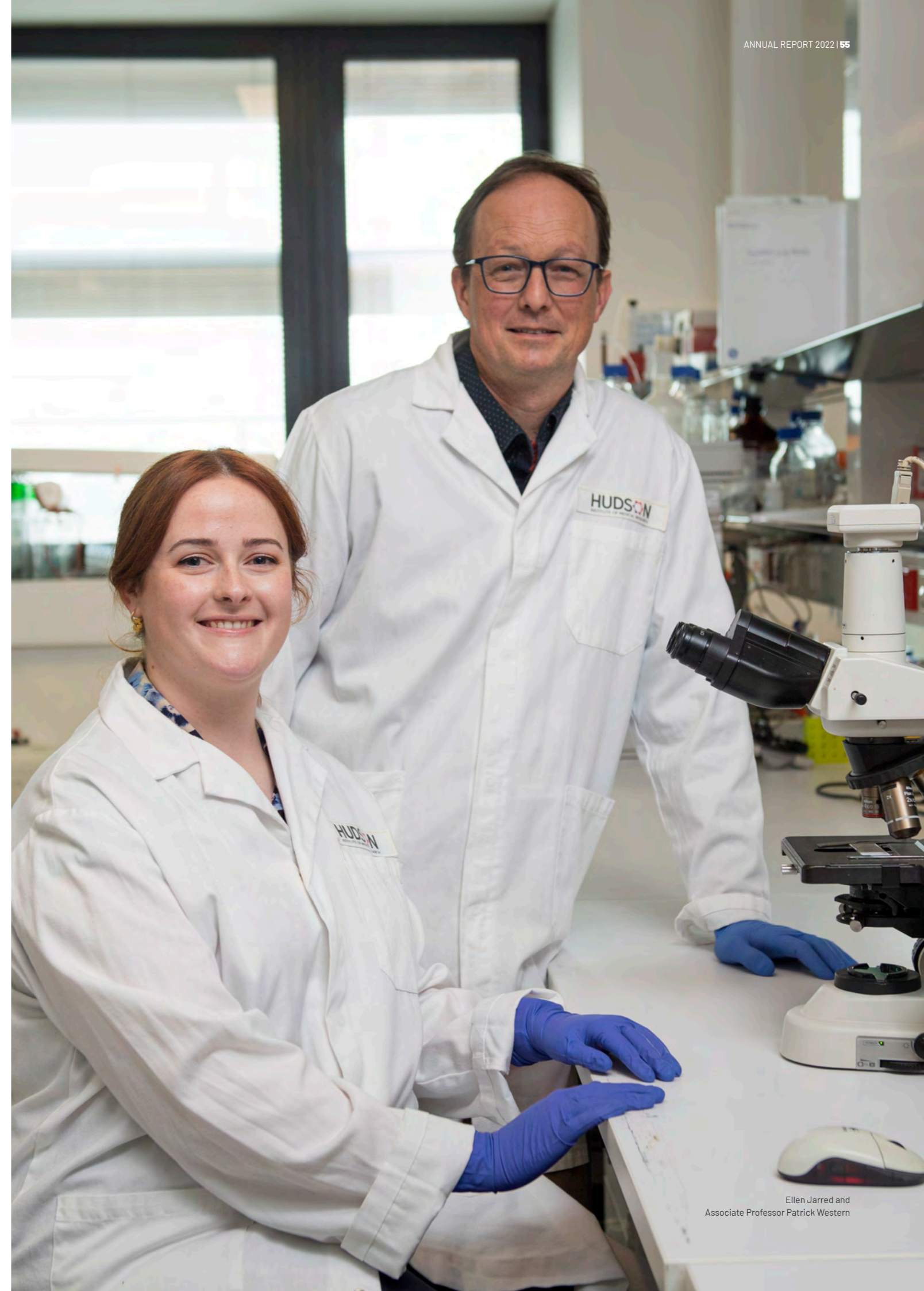
To succeed, a scientist needs ... curiosity, a healthy dose of scepticism, resilience, and respect for the data. Believe in your ideas and persist when you think you are onto something new and exciting, but also keep your mind open to alternative possibilities.

The most important things I can teach my team is ... to be open, honest, and supportive. Enjoy your work, your successes and those of others – especially colleagues new to the research adventure.



Oocyte (egg) surrounded by supporting cells

Ellen's image received a commendation in Light Microscopy Australia's competition.



Ellen Jarred and Associate Professor Patrick Western

GRADUATES

Graduates of 2022

Congratulations to our 66 Postgraduate and Honours students

Doctor of Philosophy

Dr Mohammad Ahamd Alanazi

Role of Inflammasomes in lung cancer
Supervisors: Prof Brendan Jenkins, Dr Mohamed Saad

Dr Vederalage (Shiraz) Badurdeen

Improving transition at birth for the compromised infant

Supervisors: Prof Stuart Hooper AM, A/Prof Peter Davis, Prof Graeme Polglase

Dr Julia Bender (Joint Badged PhD – Monash University & Justus-Liebig University)

Regulation of immune responses in the normal and infected testis: Role of sertoli cell-derived activins

Supervisors: Prof Mark Hedger, Prof Kate Loveland, Prof Andreas Meinhardt

Dr Jia Bian

Genetic and proteomic screening reveals B-catenin-dependent transcriptional regulation in colorectal cancer

Supervisors: Prof Ron Firestein, Dr Xin (Claire) Sun, Dr Daniel Garama

Dr Eva Chan

Defining stem cell function and environmental interactions in gastrointestinal development

Supervisors: Prof Helen Abud, A/Prof Samuel Forster, Dr Edward Giles, Dr Christian Nefzger

Dr Gemma D'Adamo

Characterisation and validation of novel biomarkers and therapeutic candidates in paediatric inflammatory bowel disease

Supervisors: A/Prof Samuel Forster, Dr Edward Giles, Prof Paul Hertzog

Dr Deborah De Guingand

Creatine metabolism in pregnancy and potential for creatine supplementation in human pregnancy

Supervisors: Dr Kirsten Palmer, Dr Stacey Ellery

Dr Ruth Escalona

The role of metzincins and TIMPs in ovarian cancer

Supervisors: Prof Jock Findlay, Prof Nuzhat Ahmed, A/Prof Harry Georgiou

Dr Samira Hosseini (CRH) (Joint Badged PhD – Monash University & Justus-Liebig University)

Testicular immune cells in murine and human fetal development and implications for male reproductive health

Supervisors: Dr Daniela Fietz, Prof Mark Hedger, Prof Kate Loveland, Prof HC Schuppe

Dr Jiyao Gan

Molecular insights into Salmonella-host cell interactions

Supervisors: Prof Elizabeth Hartland, Dr Cristina Giogha

Dr U-Shane (Steph) Huang

Characterisation of differential signalling of type 1 interferons through cognate receptor subunits

Supervisors: Prof Paul Hertzog, Dr Nicole De Weerd

Dr Ellen Jarred

The role of PRC2 in female reproduction

Supervisors: A/Prof Patrick Western, Dr Te-Sha Tsai, Dr Jessica Stringer

Dr Assema Lalzad

Cranial ultrasound of the newborn: Knowledge, practice and safety

Supervisors: Prof Michal Schneider, A/Prof Flora Wong

Dr Anqi Li

Developing automated solutions for cell manufacturing using counterflow centrifugation technology

Supervisors: A/Prof Rebecca Lim, Dr David James, Dr Gina Kusuma

Dr Quinton Luong

Functional genomic screening to identify mechanisms of platinum resistance in small cell lung cancer

Supervisors: Dr Daniel Gough, Prof Jake Shortt

Dr Merrin Allegra Pang

Markers of pulmonary arterial hypertension in infants with BPD

Supervisors: Prof Claudia Nold, Prof Marcel Nold, Dr Sarah Jones

Dr Sigrid Petautschnig

Determining the role of maternal epigenetic inheritance in offspring brain development and behaviour

Supervisors: A/Prof Patrick Western, Prof Maarten Van Den Buuse

Dr Raouda Sgaier (Joint PhD – Monash University & Justus-Liebig University)

Proteomics and male Infertility: Seminal plasma and blood biomarkers as predictors of successful sperm retrieval

Supervisors: Prof Thorsten Diemer, Dr Liza O'Donnell, Dr Adrian Pilatz, A/Prof Peter Stanton

Dr Hui (Claire) Shi

Identification of therapeutic vulnerabilities in atypical teratoid rhabdoid tumour

Supervisors: Prof Ron Firestein, Dr Duncan Crombie

Dr Sarah Straub

Type 1 IFN signaling

Supervisors: Prof Paul Hertzog, Prof Eicke Latz

Dr Tomalika Rahmat Ullah

Impact of flavonoid compounds on cGAS STING pathway

Supervisors: A/Prof Michael Gantier, Prof Paul Hertzog

Students at a glance 2022



176

STUDENTS
126 PHD
4 MASTERS
46 HONOURS



47

STUDENTS
WITH MEDICAL
TRAINING



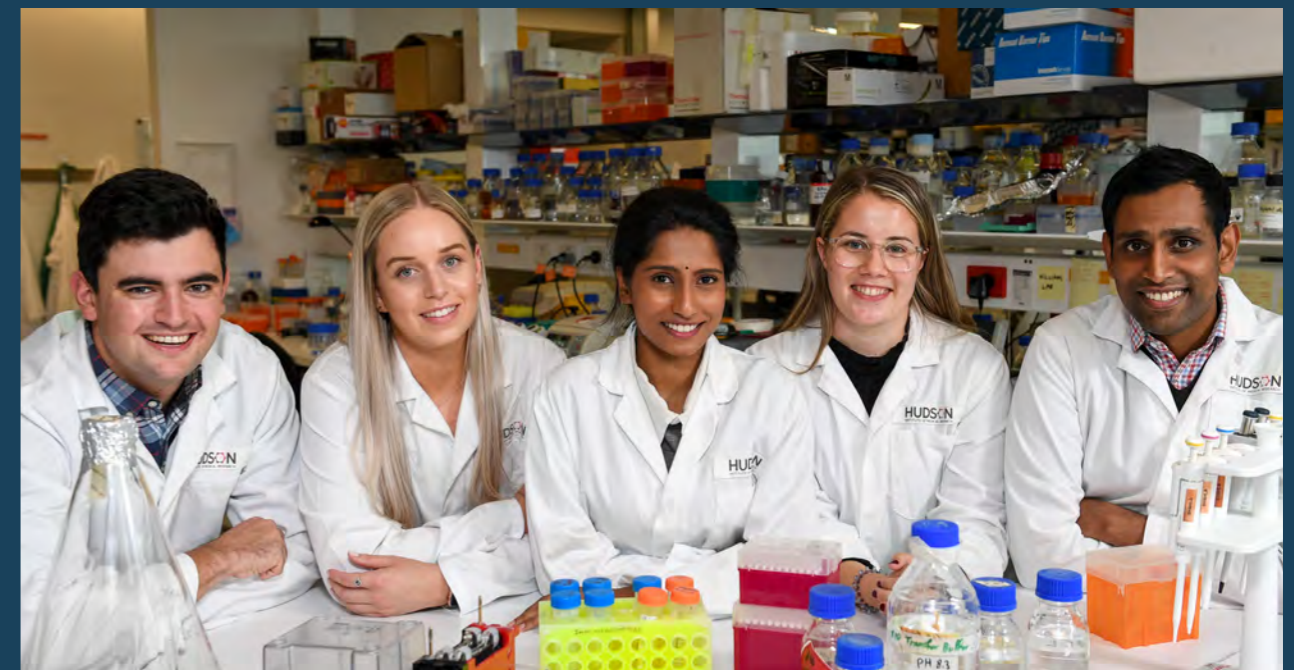
41

STUDENT
FIRST AUTHOR
PUBLICATIONS



66

POSTGRADUATE
AND HONOURS
STUDENTS
COMPLETED



L-R: Alex Bell, Dr Laura Moffitt, Rama Ravinthiran, Georgie Wray-MacCann, Dr Shan Balachandran

Bachelor of Biomedical Science (Honours)

Ms Dima Abdu
Ms Anuja Bawiskar
Ms Natasha Borash
Mr Alexander Bur
Ms Alina Dahiya
Mr Minh Dinh
Miss Ceenin Hasan
Ms Erandi Rupasinghe
Ms Nicky Stephanou
Mr James Thompson
Ms Isabelle Townend

Bachelor of Medical Science (Honours)

Miss Alyssa Shafa Andiana
Miss Fei Chan
Mr William Coote
Mr Angus Robb Cramond
Miss Nadia Saffanah Elvirenia
Miss Natalie Evans
Miss Tara Finkelstein
Miss Sue Liu
Miss Molly McLaughlin
Miss Vanessa Maritza
Miss YiJie Neo
Ms Josephine Owen
Ms Shanika Palawaththa
Mr Jalen Ren
Mr Samuel Robinson
Miss Lena Scally-Leprevost
Mr Harry Taylor
Mr Benjamin Townley
Mr Zachary Tuttle

Bachelor of Science (Honours)

Ms Lubna Dakakni
Ms Tejaswi Dama
Ms Cailin Diedricks
Mr Andre Espiritu
Ms Nicole Ghaly
Ms Sophee Hamilton
Ms Olivia Martinez
Ms Ricki Marzan
Ms Natasha Mitchell
Ms Wardah Mohamed Nasir
Ms Emma Taylor
Ms Lynda Truong
Ms Varnika Vaddiraju
Miss Mazine Yap
Ms Indiana Zorkau

Board of directors

The directors of Hudson Institute of Medical Research Board, 31 December 2022

	<p>DR ROBERT (BOB) EDGAR AM BOARD CHAIR BEcon (Hons), PhD (Ohio State)</p>	
		<p>PROFESSOR CHRISTINA MITCHELL AO MBBS, PhD, FRACP, FAHMS</p>
<p>PROFESSOR WARWICK ANDERSON AM BSc (Hons) UNE, PhD (Adelaide), DUniv (Adelaide), FAHA (Int), FRCPA (Hon), FAAHMS, DH (Newcastle)</p>		<p>MR NIGEL GARRARD BComm, AICD, CA <i>Resigned: December 2022</i></p>
	<p>MR GEORGE OU MBA, CPA</p>	
	<p>MR ANDREW LEYDEN BComm <i>Chair, Investment Committee</i></p>	

Board committees

Finance and Audit Committee

Mr Chris Dodd (Chair), Mr George Ou, Mr Rob Merriel (Secretary), Professor Elizabeth Hartland and Mr Alan Lahiff (Financial Comptroller)

Investment Committee

Mr Andrew Leyden (Chair), Mr Nigel Garrard (resigned December 2022), Mr Rob Merriel and Mr Alan Lahiff (Secretary)

Intellectual Property and Commercialisation Committee

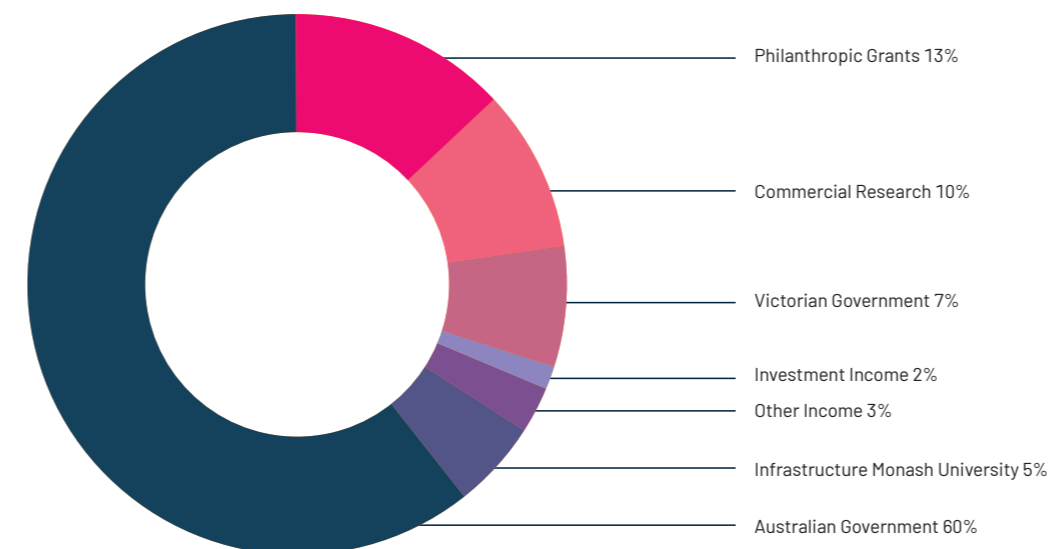
Ms Zita Peach (Chair), Dr Andrew Gearing, Dr Alastair Hick, Dr Chris Smith, Dr Tony Eglezos, Mr Rob Merriel (Secretary), Professor Elizabeth Hartland, Professor Claudia Nold, Ms Carmela Monger (Business Development Manager), Dr Kate Mackin (Business Development Coordinator – resigned August 2022) and Mr Ryan Huang (Commercialisation Associate – commenced August 2022)

	<p>MR CHRIS DODD MBA, FCAANZ <i>Chair, Finance and Audit Committee</i></p>		<p>MR ROB MERRIEL COMPANY SECRETARY BA, Grad Dip (Psych), Grad Dip (Accounting), CPA</p>
			<p>PROFESSOR ANDREW STRIPP BOARD OBSERVER BSc (Hons), MSc (Clinical Psychology)</p>
<p>MS ZITA PEACH BSc, FAICD, FAMI <i>Chair, Intellectual Property and Commercialisation Committee</i></p>		<p>PROFESSOR KIM CORNISH BS (Hons), PhD (London)</p>	

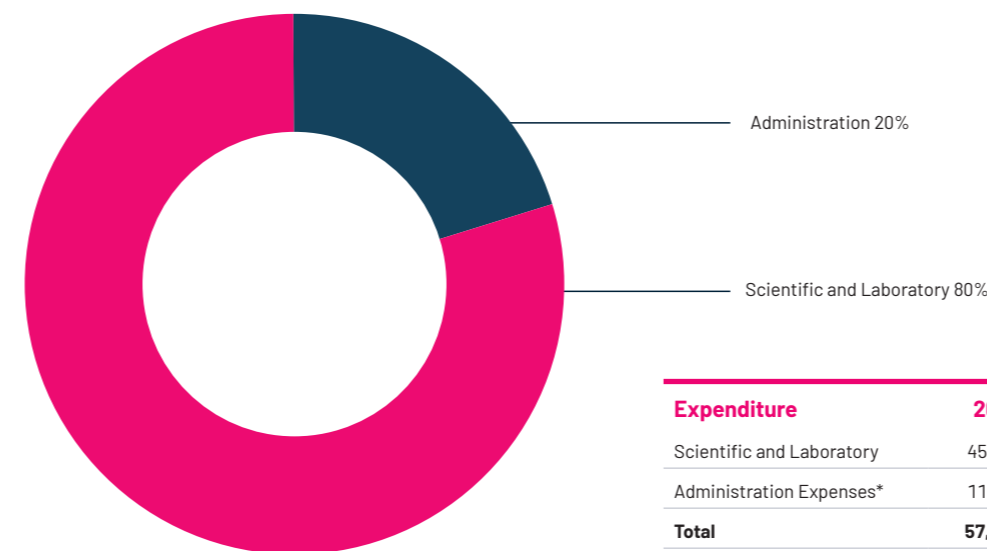
Organisation structure



Financial snapshot



Revenue	2022 (\$)	2021 (\$)	2020 (\$)
Australian Government	35,242,311	35,831,133	33,717,571
Philanthropic Grants	7,691,335	7,975,494	7,672,830
Commercial Research	5,745,228	5,539,265	5,374,502
Victorian Government	4,120,398	3,844,981	2,419,514
Infrastructure Monash University	3,061,489	3,702,044	3,207,348
Other Income	1,556,799	1,283,901	1,084,855
Investment Income	901,892	701,942	400,587
Total	58,319,452	58,878,760	53,877,208



Expenditure	2022 (\$)	2021 (\$)	2020 (\$)
Scientific and Laboratory	45,664,097	46,558,691	42,911,471
Administration Expenses*	11,534,862	11,465,389	9,952,501
Total	57,198,959	58,024,079	52,863,972

*Administration Expenses include: special projects; salaries of administrative and scientific support staff; fundraising; communications; rent, utilities and buildings; information systems; professional services; legal patents and commercialisation; finance; and insurances.

Will you power our life-saving research by making a tax deductible donation today?

Yes, I would like to make a donation to groundbreaking medical research

Please send me further information about
Making a regular, automated donation to Hudson Institute
 Remembering Hudson Institute in my Will (strictly confidential)
 I have included a gift in my Will to Hudson Institute (strictly confidential)

Please change my communications
Please remove me from your mailing list
 I only wish to receive Hudson News by email (as per my email details on this form)

For all other enquiries, please contact us
t: +61 3 8572 2700 (9am-5pm)
e: donations@hudson.org.au

My contact details

Title

Name

Address

Suburb

Postcode

Email

Phone

State

Please forward my receipt to

My postal address My email address

Thank you, your donation is powering new treatments and cures!

Your gift of \$2 and over is tax deductible.



AR2022

Hudson Institute (ABN 48 132 025 024) protects your privacy in accordance with the Information Privacy Principles of the Information Privacy Act 2000.

Please fill out this form and return in the enclosed reply paid envelope
(Or make a secure online donation at hudson.org.au or by scanning the QR code below)

Cheque (made payable to 'Hudson Institute of Medical Research')

Yes, I will support groundbreaking medical research

\$100 \$250 \$500 My choice

Please deduct the above amount

Once Monthly Annually

Visa Mastercard AMEX



Cardholder's name

Card number

Expiry date

Signature

CVC



2021 Publications

Journal Articles

- Al-Asmari SS, Rajapakse A, Ullah TR, Pépin G, Croft LV, Gantier MP (2022) Pharmacological targeting of STING-dependent IL-6 production in cancer cells. *Front Cell Dev Biol.* 9:709618.
- Aleksova J, Ebeling PR, Milat F, Elder GJ (2022) Dxa-derived advanced hip analysis and the trabecular bone score in end stage kidney disease secondary to type 1 diabetes. *Eur J Endocrinol.* 187:883-892.
- Almasabi S, Boyd R, Ahmed AU, Williams BRG (2022) Integrin-linked kinase expression characterizes the immunosuppressive tumor microenvironment in colorectal cancer and regulates PD-L1 expression and immune cell cytotoxicity. *Front Oncol.* 12:836005.
- Alperin M, Abramowitch S, Alarab M, Bortolini M, Brown B, Burnett LA, Connell KA, Damaser M, de Vita R, Gargett CE, Guess MK, Guler Z, Jorge RN, Kelley RS, Kibschull M, Miller K, Moalli PA, Mysorekar IU, Routzong MR, Shynlova O, Swenson CW, Therriault MA, Northington GM (2022) Foundational science and mechanistic insights for a shared disease model: An expert consensus: Developed by the AUGS Basic Science subcommittee and IUGA Special Interest Group. *Int Urogynecol J.* 33:1387-1392.
- Andrew MS, Selvaratnam RJ, Davies-Tuck M, Howland K, Davey MA (2022) The association between intrapartum interventions and immediate and ongoing breastfeeding outcomes: An Australian retrospective population-based cohort study. *Int Breastfeed J.* 17:48.
- Badurdeen S, Davis PG, Hooper SB, Donath S, Santomartino GA, Heng A, Zannino D, Hoq M, Omar FK, Kane SC, Woodward A, Roberts CT, Polglase GR, Blank DA (2022) Physiologically based cord clamping for infants $\geq 32+0$ weeks gestation: A randomised clinical trial and reference percentiles for heart rate and oxygen saturation for infants $\geq 35+0$ weeks gestation. *PLoS Med.* 19:e1004029.
- Badurdeen S, Hodgson KA, Santomartino GA, Stevens L, Donath S, Roberts CT, Manley BJ, Polglase GR, Hooper SB, Davis PG, Blank DA (2022) Rapid centralised randomisation in emergency setting trials using a smartphone. *Eur J Pediatr.* 181:3207-3210.
- Bagheri-Fam S, Alankarage D, Frost ER, Harley VR (2022) Dataset of differentially expressed genes in mouse P12 testes in response to the loss of ATRX in Sertoli cells. *Data in Brief.* 42:108230.
- Banakh I, Rahman MM, Arellano CL, Marks DC, Mukherjee S, Gargett CE, Cleland H, Akbarzadeh S (2022) Platelet lysate can support the development of a 3D-engineered skin for clinical application. *Cell Tissue Res.* 391:173-188.
- Barber C, Yap Y, Hannan NJ, Wallace EM, Marshall SA (2022) Activin A causes endothelial dysfunction of mouse aorta and human aortic cells. *Reproduction.* 163:145-155.
- Bardin PG, Bourke J (2022) Nurturing respiratory clinician-scientists - an important priority in the Asia-Pacific and for the Asia-Pacific Society of Respiriology (APSR). *Respirology.* 27:490-492.
- Bates D, Vivian D, Freitag J, Wickham J, Mitchell B, Verrills P, Shah K, Boyd R, Federman D, Barnard A, O'Connor L, Young JF (2022) Low-dose mesenchymal stem cell therapy for discogenic pain: Safety and efficacy results from a 1-year feasibility study. *Future Sci OA.* 8:FS0794.
- Bekkering S, Singh K, Lu H, Limawan AP, Nold-Petry CA, Wallace MJ, Curtis N, Pepe S, Cheung M, Burgner DP, Moss T (2022) Neonatal subcutaneous BCG vaccination decreases atherosclerotic plaque number and plaque macrophage content in *ApoE^{-/-}* mice. *Biology (Basel).* 11:1511.
- Biniwale S, Wijayarathna R, Pleuger C, Bhushan S, Loveland KL, Meinhardt A, Hedger MP (2022) Regulation of macrophage number and gene transcript levels by activin A and its binding protein, Follistatin, in the testes of adult mice. *J Reprod Immunol.* 151:103618.
- Björndahl L, Barratt CLR, Mortimer D, Agarwal A, Aitken RJ, Alvarez JG, Aneck-Hahn N, Arver S, Baldi E, Bassas L, Boitrelle F, Bornman R, Carrell DT, Castilla JA, Cerezo Parra G, Check JH, Cuasnicu PS, Darney SP, de Jager C, De Jonge CJ, Drevet JR, Drobnis EZ, Du Plessis SS, Eisenberg ML, Esteves SC, Evgeni EA, Ferlin A, Garrido N, Giwercman A, Goovaerts IGF, Haugen TB, Henkel R, Henningsohn L, Hofmann MC, Hotaling JM, Jedrzejczak P, Jouannet P, Jørgensen N, Kirkman Brown JC, Krausz C, Kurpisz M, Kvist U, Lamb DJ, Levine H, Loveland KL, McLachlan RI, Mahran A, Maree L, Martins da Silva S, Mbizvo MT, Meinhardt A, Menkveld R, Mortimer ST, Moskovtsev S, Muller CH, Munuce MJ, Muratori M, Niederberger C, O'Flaherty C, Oliva R, Ombelet W, Pacey AA, Palladino MA, Ramasamy R, Ramos L, Rives N, Roldan ER, Rothmann S, Sakkas D, Salonia A, Sánchez-Pozo MC, Sapiro R, Schlatt S, Schlegel PN, Schuppe HC, Shah R, Skakkebaek NE, Teerds K, Toskin I, Tournaye H, Turek PJ, van der Horst G, Vazquez-Levin M, Wang C, Wetzels A, Zeginiadou T, Zini A (2022) Standards in semen examination: Publishing reproducible and reliable data based on high-quality methodology. *Hum Reprod.* 37:2497-2502.
- Bourke NM, Achilles SL, Huang SU, Cumming HE, Lim SS, Papageorgiou I, Gearing LJ, Chapman R, Thakore S, Mangan NE, Mesiano S, Hertzog PJ (2022) Spatiotemporal regulation of human IFN ϵ and innate immunity in the female reproductive tract. *JCI Insight.* 7:e135407.
- Brouwer E, Knol R, Kroushev A, Van Den Akker T, Hooper SB, Roest AA, Te Pas AB (2022) Effect of breathing on venous return during delayed cord clamping: An observational study. *Arch Dis Child Fetal Neonatal Ed.* 107:65-69.
- Brown GJ, Cañete PF, Wang H, Medhavy A, Bones J, Roco JA, He Y, Qin Y, Cappello J, Ellyard JI, Bassett K, Shen Q, Burgio G, Zhang Y, Turnbull C, Meng X, Wu P, Cho E, Miosge LA, Andrews TD, Field MA, Tvorogov D, Lopez AF, Babon JJ, López CA, González-Murillo A, Garulo DC, Pascual V, Levy T, Mallack EJ, Calame DG, Lotze T, Lupski JR, Ding H, Ullah TR, Walters GD, Koina ME, Cook MC, Shen N, de Lucas Collantes C, Corry B, Gantier MP, Athanasopoulos V, Vinuesa CG (2022) TLR7 gain-of-function genetic variation causes human lupus. *Nature.* 605:349-356.
- Bujotzek A, Tiefenthaler G, Larivière L, D'Andrea L, Marquez EA, Rudloff I, Cho SX, Deen NS, Richter W, Regenass-Lechner F, Poehler A, Whisstock JC, Sydow-Andersen J, Reiser X, Schuster S, Neubauer J, Hoepfl S, Richter K, Nold MF, Nold-Petry CA, Schumacher F, Ellisdon AM (2022) Protein engineering of a stable and potent anti-inflammatory IL-37-FC fusion with enhanced therapeutic potential. *Cell Chem Biol.* 29:586-596.
- Burgin H, Sharpe AJ, Nie S, Ziemann M, Cramer JJ, Stojanovski D, Pitt J, Ohtake A, Murayama K, McKenzie M (2022) Loss of mitochondrial fatty acid β -oxidation protein short-chain Enoyl-CoA hydratase disrupts oxidative phosphorylation protein complex stability and function. *FEBS J.* 290:225-246.
- Burgin HJ, Cramer JJ, Stojanovski D, Sanchez M, Ziemann M, McKenzie M (2022) Stimulating mitochondrial biogenesis with deoxyribonucleosides increases functional capacity in ECHS1-deficient cells. *Int J Mol Sci.* 23:12610.
- Catford nSR, Halliday J, Lewis S, O'Bryan MK, Handelsman DJ, Hart RJ, McBain J, Rombauts L, Amor DJ, Saffery R, McLachlan RI (2022) The metabolic health of young men conceived using intracytoplasmic sperm injection. *Hum Reprod.* 37:2908-2920.
- Catford SR, Halliday J, Lewis S, O'Bryan MK, Handelsman DJ, Hart RJ, McBain J, Rombauts L, Amor DJ, Saffery R, McLachlan RI (2022) Reproductive function in men conceived with in vitro fertilization and intracytoplasmic sperm injection. *Fertil Steril.* 117:727-737.
- Chaichompo P, Nithipongvanitch R, Kheansaard W, Tubsuban A, Srinoun K, Vadolas J, Fucharoen S, Smith DR, Winichagoon P, Svasti S (2022) Increased autophagy leads to decreased apoptosis during β -thalassaemic mouse and patient erythropoiesis. *Sci Rep.* 12:18628.
- Chan KY, Tran NT, Papagianis PC, Zahra VA, Nitsos I, Moxham AM, LaRosa DA, McDonald C, Miller SL, Galinsky R, Alahmari DM, Stojanovska V, Polglase GR (2022) Investigating pathways of ventilation induced brain injury on cerebral white matter inflammation and injury after 24 h in preterm lambs. *Front Physiol.* 13:904144.
- Chauhan K, Schachna E, Libianto R, Ryan J, Hutton H, Fuller PJ, Wilson S, Kerr PG, Yang J (2022) Screening for primary aldosteronism is underutilised in patients with chronic kidney disease. *J Nephrol.* 35:1667-1677.
- Chen Z, Liu X, Li F, Li C, Marquez-Lago T, Leier A, Webb GI, Xu D, Akutsu T, Song J (2022) Systematic characterization of lysine post-translational modification sites using MUsCADEL. *Methods Mol Biol.* 2499:205-219.
- Choy KW, Fuller PJ, Russell G, Li Q, Leenaerts M, Yang J (2022) Primary aldosteronism. *BMJ.* 377:e065250.
- Choy KW, Libianto R, Simpson I, Yang J (2022) Plasma aldosterone to renin ratio for the detection of primary aldosteronism in patients with drug-resistant hypertension. *Med J Aust.* 216:399-400.
- Clyne CD, Kusnadi K, Cowcher A, Morgan J, Yang J, Fuller PJ, Young MJ (2022) Regulation of mineralocorticoid receptor activation by circadian protein TIMELESS. *J Mol Endocrinol.* 70:e210279.
- Crinall K, Ward M, MacDonald R, Crinall W, Aridas J, Rolnik DL (2022) Evaluating a peer-led wellbeing programme for doctors-in-training during the COVID-19 pandemic in Victoria, Australia, using the most significant change technique. *Eval J Australas.* 12:e060575.
- Curley M, Darbey A, O'Donnell L, Kilcoyne KR, Wilson K, Mungall W, Rebourcet D, Guo J, Mitchell RT, Smith LB (2022) Leukemia inhibitory factor-receptor signalling negatively regulates gonadotrophin-stimulated testosterone production in mouse Leydig cells. *Mol Cell Endocrinol.* 544:111556.
- Dankers W, Northcott M, Bennett T, D'Cruz A, Sherlock R, Gearing LJ, Hertzog P, Russ B, Miceli I, Scheer S, Fujishiro M, Hayakawa K, Ikeda K, Morand EF, Jones SA (2022) Type 1 interferon suppresses expression and glucocorticoid-induced leucine zipper (GILZ). *Front Immunol.* 13:1034880.
- Dannappel MV, Zhu D, Sun X, Chua HK, Poppelaars M, Suehiro M, Khadka S, Lim Kam Sian TC, Sooraj D, Loi M, Gao H, Croagh D, Daly RJ, Faridi P, Boyer TG, Firestein R (2022) CDK8 and CDK19 regulate intestinal differentiation and homeostasis via the chromatin remodeling complex SWI/SNF. *J Clin Invest.* 132.
- Davidson JO, van den Heuvel LG, Dhillion SK, Miller SL, Lim R, Jenkin G, Gunn AJ, Bennet L (2022) Lack of neuroprotection with a single intravenous infusion of human amnion epithelial cells after severe hypoxia-ischemia in near-term fetal sheep. *Int J Mol Sci.* 23:8393.
- Davidson S, Yu CH, Steiner A, Ebsstein F, Baker PJ, Jarur-Chamy V, Hrovat Schaale K, Laohamonthonkul P, Kong K, Calleja DJ, Harapas CR, Balka KR, Mitchell J, Jackson JT, Geoghegan ND, Moghaddas F, Rogers KL, Mayer-Barber KD, De Jesus AA, De Nardo D, Kile BT, Sadler AJ, Poli MC, Krüger E, Goldbach Mansky R, Masters SL (2022) Protein kinase R is an innate immune sensor of proteotoxic stress via accumulation of cytoplasmic IL-24. *Sci Immunol.* 7:eabi6763.
- Dawson RE, Deswaerte V, West AC, Tang K, West AJ, Balic JJ, Gearing LJ, Saad MI, Yu L, Wu Y, Bhathal PS, Kumar B, Chakrabarti JT, Zavros Y, Oshima H, Klinman DM, Oshima M, Tan P, Jenkins BJ (2022) STAT3-mediated upregulation of the AIM2 DNA sensor links innate immunity with cell migration to promote epithelial tumorigenesis. *Gut.* 71:1515-1531.

38. de Alwis N, Binder NK, Beard S, Mangwiro YT, Kadife E, Cuffe JS, Keenan E, Fato BR, Kaitu'u-Lino TJ, Brownfoot FC, Marshall SA, Hannan NJ (2022) The L-NAME mouse model of preeclampsia and impact to long-term maternal cardiovascular health. *Life Sci Alliance*. 5:e202201517.
39. de Vasconcelos DAA, Nachbar RT, Pinheiro CH, do Amaral CL, Crisma AR, Vitzel KF, Abreu P, Alonso-Vale MI, Lopes AB, Bento-Santos A, Falcão-Tebas F, de Santana DF, do Nascimento E, Curi R, Pithon-Curi TC, Hirabara SM, Leandro CG (2022) Maternal low-protein diet reduces skeletal muscle protein synthesis and mass via Akt-mTOR pathway in adult rats. *Front Nutr*. 9:947458.
40. Delahunty R, Nguyen L, Craig S, Creighton B, Ariyaratne D, Garsed DW, Christie E, Fereday S, Andrews L, Lewis A, Limb S, Pandey A, Hendley J, Traficante N, Carvajal N, Spurdle AB, Thompson B, Parsons MT, Beshay V, Volcheck M, Semple T, Lupat R, Doig K, Yu J, Chen XQ, Marsh A, Love C, Bilic S, Beilin M, Nichols CB, Greer C, Lee YC, Gerty S, Gill L, Newton E, Howard J, Williams R, Norris C, Stephens AN, Tutty E, Smyth C, O'Connell S, Jobling T, Stewart CJR, Tan A, Fox SB, Pachter N, Li J, Ellul J, Mir Arnau G, Young MA, Gordon L, Forrest L, Harris M, Livingstone K, Hill J, Chenevix-Trench G, Cohen PA, Webb PM, Friedlander M, James P, Bowtell D, Alsop K (2022) TRACEBACK: Testing of historical tubo-ovarian cancer patients for hereditary risk genes as a cancer prevention strategy in family members. *J Clin Oncol*. 40:2036-2047.
41. Dudink I, White TA, Ardalan M, Mallard C, Ballerín G, Creed SJ, Pham Y, Sutherland AE, Castillo-Melendez M, Allison BJ, Miller SL (2022) An optimized and detailed step-by-step protocol for the analysis of neuronal morphology in Golgi-stained fetal sheep brain. *Dev Neurosci*. 44:344-362.
42. Engel RM, Jardé T, Oliva K, Kerr G, Chan WH, Hlavca S, Nickless D, Archer SK, Yap R, Ranchod P, Bell S, Niap A, Koulis C, Chong A, Wilkins S, Dale TC, Hollins AJ, McMurrick PJ, Abud HE (2022) Modelling colorectal cancer: A bio-resource of 50 patient-derived organoid lines. *J Gastroenterol Hepatol*. 37:898-907.
43. Escalona RM, Chu S, Kadife E, Kelly JK, Kannourakis G, Findlay JK, Ahmed N (2022) Knock down of TIMP-2 by siRNA and CRISPR/Cas9 mediates diverse cellular reprogramming of metastasis and chemosensitivity in ovarian cancer. *Cancer Cell Int*. 22:422.
44. Escalona RM, Kannourakis G, Findlay JK, Ahmed N (2022). Expression of TIMPs and MMPs in ovarian tumors, ascites, ascites-derived cells, and cancer cell lines: Characteristic modulatory response before and after chemotherapy treatment. *Frontiers in Oncology* 11:796588.
45. Farsi F, Tahvilian N, Heydarian A, Karimi S, Ebrahimi S, Ebrahimi-Daryani N, Tabataba-Vakili S, Heshmati J, Mokhtare M (2022) Evaluating macro- and micronutrients and food groups intake with the risk of developing inflammatory bowel disease: Is there any association? *Food Sci Nutr*. 10:3920-3930.
46. Fatmou M, Rai A, Poh QH, Salamonsen LA, Greening DW (2022) Endometrial small extracellular vesicles regulate human trophectodermal cell invasion by reprogramming the phosphoproteome landscape. *Front Cell Dev Biol*. 10:1078096.
47. Forster SC, Clare S, Beresford-Jones BS, Harcourt K, Notley G, Stares MD, Kumar N, Soderholm AT, Adoum A, Wong H, Morón B, Brandt C, Dougan G, Adams DJ, Maloy KJ, Pedicord VA, Lawley TD (2022) Identification of gut microbial species linked with disease variability in a widely used mouse model of colitis. *Nat Microbiol*. 7:590-599.
48. Forster SC, Liu J, Kumar N, Gulliver EL, Gould JA, Escobar-Zepeda A, Mkandawire T, Pike LJ, Shao Y, Stares MD, Browne HP, Neville BA, Lawley TD (2022) Strain-level characterization of broad host range mobile genetic elements transferring antibiotic resistance from the human microbiome. *Nat Commun*. 13:1445.
49. Frank D, Garnish SE, Sandow JJ, Weir A, Liu L, Clayer E, Meza L, Rashidi M, Cobbold SA, Scutts SR, Doerflinger M, Anderton H, Lawlor KE, Lalaoui N, Kueh AJ, Eng VV, Ambrose RL, Herold MJ, Samson AL, Feltham R, Murphy JM, Ebert G, Pearson JS, Vince JE (2022) Ubiquitylation of RIPK3 beyond-the-RHIM can limit RIPK3 activity and cell death. *iScience*. 25:104632.
50. Fukusho R, Ruane L, Phyland D, Koh J, Avram A, Leong P, MacDonald M, Lau KK, Baxter M, Bardin PG (2022) A multidisciplinary team clinic for vocal cord dysfunction reduces corticosteroid burst therapy. *J Allergy Clin Immunol Pract*. 10:612-614.
51. Funder, J (2022) Primary aldosteronism. *Trends in Cardiovascular Medicine* 32:228-233.
52. Gaertner VD, Rügger CM, Bassler D, O'Curraín E, Kamlin COF, Hooper SB, Davis PG, Springer L (2022) Effects of tactile stimulation on spontaneous breathing during face mask ventilation. *Arch Dis Child Fetal Neonatal Ed*. 107:508-512.
53. Gaertner VD, Waldmann AD, Bassler D, Hooper SB, Rügger CM (2022) Intrapulmonary volume changes during hiccups versus spontaneous breaths in a preterm infant. *Neonatology*. 119:525-529.
54. Gantier MP (2022). Powering on cGAMP mini factories. *EMBO Rep* 23:e54231.
55. Gargett CE, Hapangama D (2022) Endometrial Stem/Progenitor Cells: Prospects and Challenges. *J Pers Med* 12:1466
56. Gorsek Sparovec T, Markert UR, Reif P, Schoell W, Moser G, Feichtinger J, Mihalic ZN, Kargl J, Gargett CE, Gold D (2022) The fate of human SUSD2+ endometrial mesenchymal stem cells during decidualization. *Stem Cell Res*. 60:102671.
57. Green EA, Metz D, Galinsky R, Atkinson R, Skuza EM, Clark M, Gunn AJ, Kirkpatrick CM, Hunt RW, Berger PJ, Nold-Petry CA, Nold MF (2022) Anakinra pilot - a clinical trial to demonstrate safety, feasibility and pharmacokinetics of interleukin 1 receptor antagonist in preterm infants. *Front Immunol*. 13:1022104.
58. Gulliver EL, Sy BM, Wong JL, Deveson Lucas DS, Powell DR, Harper M, Tree JJ, Boyce JD (2022) The role and targets of the RNA-binding protein ProQ in the gram-negative bacterial pathogen *Pasteurella multocida*. *J Bacteriol*. 204:e0059221.
59. Gurner KH, Evans J, Hutchison JC, Harvey AJ, Gardner DK (2022) A microenvironment of high lactate and low pH created by the blastocyst promotes endometrial receptivity and implantation. *Reprod Biomed Online*. 44:14-26.
60. Hajmir MM, Shiraseb F, Ebrahimi S, Noori S, Ghaffarian-Ensaf R, Mirzaei K (2022) Interaction between ultra-processed food intake and genetic risk score on mental health and sleep quality. *Eat Weight Disord*. 27:3609-3625.
61. Hammarberg, K., et al. (2022). "Does being conceived by assisted reproductive technology influence adult quality of life?". *Hum Fertil (Camb)*. 1-7
62. Han-Menz C, Whiteley G, Evans R, Razak A, Malhotra A (2022) Systemic postnatal corticosteroids and magnetic resonance imaging measurements of corpus callosum and cerebellum of extremely preterm infants. *J Paediatr Child Health*. 59:282-287.
63. Headland SE, Dengler HS, Xu D, Teng G, Everett C, Ratsimandresy RA, Yan D, Kang J, Ganeshan K, Nazarova EV, Gierke S, Wedeles CJ, Guidi R, DePianto DJ, Morshead KB, Huynh A, Mills J, Flanagan S, Hambro S, Nunez V, Klementowicz JE, Shi Y, Wang J, Bevers J, 3rd, Ramirez-Carrozzi V, Pappu R, Abbas A, Vander Heiden J, Choy DF, Yadav R, Modrusan Z, Panettieri RA, Jr., Kozioł-White C, Jester WF, Jr., Jenkins BJ, Cao Y, Clarke C, Austin C, Lafkas D, Xu M, Wolters PJ, Arron JR, West NR, Wilson MS (2022) Oncostatin M expression induced by bacterial triggers drives airway inflammatory and mucus secretion in severe asthma. *Sci Transl Med*. 14:eabf8188.
64. Heazlewood SY, Ahmad T, Mohenska M, Guo BB, Gangatirkar P, Josefsson EC, Ellis SL, Ratnadiwakara M, Cao H, Cao B, Heazlewood CK, Williams B, Fulton M, White JF, Ramialison M, Nilsson SK, Änkö ML (2022) The RNA-binding protein SRSF3 has an essential role in megakaryocyte maturation and platelet production. *Blood*. 139:1359-1373.
65. Hodgson KA, Owen LS, Kamlin COF, Roberts CT, Newman SE, Francis KL, Donath SM, Davis PG, Manley BJ (2022) Nasal high-flow therapy during neonatal endotracheal intubation. *N Engl J Med*. 386:1627-1637.
66. Horn-Oudshoorn EJJ, Knol R, Cochiús-den Otter SCM, Te Pas AB, Hooper SB, Roberts CT, Rafat N, Schaible T, de Boode WP, van der Lee R, Debeer A, Kipfmüller F, Roehr CC, Reiss IKM, DeKoninck PLJ (2022) Spontaneous breathing approach in mild congenital diaphragmatic hernia: A resuscitation algorithm. *Front Pediatr*. 10:945090.
67. Horn-Oudshoorn EJJ, Knol R, Te Pas AB, Hooper SB, Cochiús-den Otter SCM, Wijnen RMH, Crossley KJ, Rafat N, Schaible T, de Boode WP, Debeer A, Urlesberger B, Roberts CT, Kipfmüller F, Reiss IKM, DeKoninck PLJ (2022) Physiological-based cord clamping versus immediate cord clamping for infants born with a congenital diaphragmatic hernia (PinC): Study protocol for a multicentre, randomised controlled trial. *BMJ Open*. 12:e054808.
68. Horn-Oudshoorn EJJ, Vermeulen MJ, Crossley KJ, Cochiús-den Otter SCM, Schnater JM, Reiss IKM, DeKoninck PLJ (2022) Oxygen saturation index in neonates with a congenital diaphragmatic hernia: A retrospective cohort study. *Neonatology*. 119:111-118.
69. Hosseini S, Moody SC, Fietz D, Indumathy S, Schuppe HC, Hedger MP, Loveland KL (2022) The changing landscape of immune cells in the fetal mouse testis. *Histochem Cell Biol*. 158:345-368.
70. Hu J, Chen X, Yang J, Giovannucci E, Lee DH, Luo W, Cheng Q, Gong L, Wang Z, Li Q, Yang S (2022) Association between fat mass and mortality: Analysis of Mendelian randomization and lifestyle modification. *Metabolism*. 136:155307.
71. Inocencio IM, Tran NT, Nakamura S, Khor SJ, Wiersma M, Stoecker K, Maksimenko A, Polglase GR, Walker DW, Pearson JT, Wong FY (2022) Cerebral haemodynamic response to somatosensory stimulation in preterm lambs and 7-10-day old lambs born at term: Direct synchrotron microangiography assessment. *J Cereb Blood Flow Metab*. 271678x211045848.
72. Inocencio IM, Tran NT, Wiersma M, Stoecker K, Nakamura S, Moss TJ, Walker DW, Wong FY (2022) The cerebral haemodynamic response to somatosensory stimulation in preterm newborn lambs is reduced following intrauterine inflammation and dopamine infusion. *Exp Neurol*. 352:114049.
73. Jarred EG, Qu Z, Tsai T, Oberin R, Petautschnig S, Bildsoe H, Pederson S, Zhang QH, Stringer JM, Carroll J, Gardner DK, Van den Buuse M, Sims NA, Gibson WT, Adelson DL, Western PS (2022) Transient Polycomb activity represses developmental genes in growing oocytes. *Clin Epigenetics*. 14:183.
74. Jia T, Chang WS, Marcelino VR, Zhao S, Liu X, You Y, Holmes EC, Shi M, Zhang C (2022) Characterization of the gut microbiome and resistomes of wild and zoo-captive macaques. *Front Vet Sci*. 8:778556.
75. Jing Y, Hu J, Luo R, Mao Y, Luo Z, Zhang M, Yang J, Song Y, Feng Z, Wang Z, Cheng Q, Ma L, Yang Y, Zhong L, Du Z, Wang Y, Luo T, He W, Sun Y, Lv F, Li Q, Yang S (2022) Prevalence and characteristics of adrenal tumors in an unselected screening population: A cross-sectional study. *Ann Intern Med*. 175:1383-1391.
76. Johansen MD, Mahbub RM, Idrees S, Nguyen DH, Miemczyk S, Pathinayake P, Nichol K, Hansbro NG, Gearing LJ, Hertzog PJ, Gallego-Ortega D, Britton WJ, Saunders BM, Wark PA, Faiz A, Hansbro PM (2022) Increased SARS-CoV-2 infection, protease and inflammatory responses in COPD primary bronchial epithelial cells defined with single cell RNA-sequencing. *Am J Respir Crit Care Med*. 206:712-729.
77. Jones AR, Ebeling PR, Teede H, Milat F, Vincent AJ (2022) Patient experience of telemedicine for osteoporosis care during the COVID-19 pandemic. *Clin Endocrinol (Oxf)*. 98:134-135.
78. Joyeux L, Basurto D, Bleeser T, Van der Veeken L, Vergote S, Kunpalin Y, Trigo L, Corno E, De Bie FR, De Coppi P, Ourselin S, Van Calenberghe F, Hooper SB, Rex S, Deprest J (2022) Fetoscopic insufflation of heated-humidified carbon dioxide during simulated spina bifida repair is safe under controlled anesthesia in the fetal lamb. *Prenat Diagn*. 42:180-191.

79. Kagan BJ, Kitchen AC, Tran NT, Habibollahi F, Khajehnejad M, Parker BJ, Bhat A, Rollo B, Razi A, Friston KJ (2022) In vitro neurons learn and exhibit sentience when embodied in a simulated game-world. *Neuron*. 110:3952-3969.
80. Keung C, Heraud P, Kuk N, Lim R, Sievert W, Moore G, Wood B (2022) Fourier-transform infra-red microspectroscopy can accurately diagnose colitis and assess severity of inflammation. *Int J Mol Sci*. 23.
81. Knol R, Brouwer E, van den Akker T, DeKoninck PLJ, Lopriore E, Onland W, Vermeulen MJ, van den Akker-van Marle ME, van Bodegom-Vos L, de Boode WP, van Kaam AH, Reiss IKM, Polglase GR, Hutten GJ, Prins SA, Mulder EEM, Hulzebos CV, van Sambeek SJ, van der Putten ME, Zonnenberg IA, Hooper SB, Te Pas AB (2022) Physiological-based cord clamping in very preterm infants: The aeration, breathing, clamping 3 (ABC3) trial-study protocol for a multicentre randomised controlled trial. *Trials*. 23:838.
82. Kusuma GD, Li A, Zhu D, McDonald H, Inocencio IM, Chambers DC, Sinclair K, Fang H, Greening DW, Frith JE, Lim R (2022) Effect of 2D and 3D culture microenvironments on mesenchymal stem cell-derived extracellular vesicles potencies. *Front Cell Dev Biol*. 10:819726.
83. Kuypers K, Willemsen LA, Cramer SJE, Kashyap AJ, Drevhammar T, Hooper SB, Te Pas AB (2022) The effect of a higher bias gas flow on imposed T-piece resistance and breathing in preterm infants at birth. *Front Pediatr*. 10:817010.
84. La HM, Liao J, Legrand JMD, Rossello FJ, Chan AL, Vaghjiani V, Cain JE, Papa A, Lee TL, Hobbs RM (2022) Distinctive molecular features of regenerative stem cells in the damaged male germline. *Nat Commun*. 13:2500.
85. Lao JC, Bui CB, Pang MA, Cho SX, Rudloff I, Elgass K, Schröder J, Maksimenko A, Mangan NE, Starkey MR, Skuza EM, Sun YBY, Beker F, Collins CL, Kamlin OF, König K, Malhotra A, Tan K, Theda C, Young MJ, McLean CA, Wilson NJ, Sehgal A, Hansbro PM, Pearson JT, Polo JM, Veldman A, Berger PJ, Nold-Petry CA, Nold MF (2022) Type 2 immune polarization is associated with cardiopulmonary disease in preterm infants. *Sci Transl Med*. 14:eaa28454.
86. Lei D, Miller T, Carr J, Buttery J, Nold-Petry CA, Nold MF, Malhotra A (2022) Timing of the first dose of the Hepatitis B vaccine in preterm infants. *Vaccines*. 10.
87. Leung D, Price ZK, Lokman NA, Wang W, Goonetilleke L, Kadife E, Oehler MK, Ricciardelli C, Kannourakis G, Ahmed N (2022) Platinum-resistance in epithelial ovarian cancer: An interplay of epithelial-mesenchymal transition interlinked with reprogrammed metabolism. *J Transl Med*. 20:556.
88. Li A, Barabadi M, McDonald H, Chan ST, Krause M, Ooi JD, Kusuma GD, James D, Lim R (2022) Improving cell viability using counterflow centrifugal elutriation. *Cytotherapy*. 24:650-658.
89. Libianto RS, Russell GM, Stowasser M, Gwini SM, Nuttall P, Shen J, Young MJ, Fuller PJ, Yang J (2022) Detecting primary aldosteronism in Australian primary care: A prospective study. *Med J Aust*. 216:408-412.
90. Lilly JV, Rokita JL, Mason JL, Patton T, Stefankiewicz S, Higgins D, Trooskin G, Larouci CA, Arya K, Appert E, Heath AP, Zhu Y, Brown MA, Zhang B, Farrow BK, Robins S, Morgan AM, Nguyen TQ, Frenkel E, Lehmann K, Drake E, Sullivan C, Plisiewicz A, Coleman N, Patterson L, Koptyra M, Helili Z, Van Kuren N, Young N, Kim MC, Friedman C, Lubneuski A, Blackden C, Williams M, Baubet V, Tauhid L, Galanaugh J, Boucher K, Ijaz H, Cole KA, Choudhari N, Santi M, Moulder RW, Waller J, Rife W, Diskin SJ, Mateos M, Parsons DW, Pollack IF, Goldman S, Leary S, Caporalini C, Buccoliero AM, Scagnet M, Haussler D, Hanson D, Firestein R, Cain J, Phillips JJ, Gupta N, Mueller S, Grant G, Monje-Deisseroth M, Partap S, Greenfield JP, Hashizume R, Smith A, Zhu S, Johnston JM, Fangusaro JR, Miller M, Wood MD, Gardner S, Carter CL, Prolo LM, Pisapia J, Pehlivan K, Franson A, Niazi T, Rubin J, Abdelbaki M, Ziegler DS, Lindsay HB, Stucklin AG, Gerber N, Vaske OM, Quinsey C, Rood BR, Nazarian J, Raabe E, Jackson EM, Stapleton S, Lober RM, Kram DE, Koschmann C, Storm PB, Lulla RR, Prados M, Resnick AC, Waanders AJ (2022) The children's brain tumor network (CBTN) - accelerating research in pediatric central nervous system tumors through collaboration and open science. *Neoplasia*. 35:100846.
91. Liu L, Sandow JJ, Leslie Pedrioli DM, Samson AL, Silke N, Kratina T, Ambrose RL, Doerflinger M, Hu Z, Morrish E, Chau D, Kueh AJ, Fitzibbon C, Pellegrini M, Pearson JS, Hottiger MO, Webb AI, Lalaoui N, Silke J (2022) Tankyrase-mediated ADP-ribosylation is a regulator of TNF-induced death. *Sci Adv*. 8:eabh2332.
92. Lundy J, McKay O, Croagh D, Ganju V (2022) Exceptional response to olaparib and pembrolizumab for pancreatic adenocarcinoma with germline brca1 mutation and high tumor mutation burden: Case report and literature review. *JCO Precis Oncol*. 6:e2100437.
93. Magawa S, Lear CA, Beacom MJ, King VJ, Kasai M, Galinsky R, Ikeda T, Gunn AJ, Bennet L (2022) Fetal heart rate variability is a biomarker of rapid but not progressive exacerbation of inflammation in preterm fetal sheep. *Sci Rep*. 12:1771.
94. Manley BJ, Buckmaster AG, Travadi J, Owen LS, Roberts CT, Wright IMR, Davis PG, Arnolda G (2022) Trends in the use of non-invasive respiratory support for term infants in tertiary neonatal units in Australia and New Zealand. *Arch Dis Child Fetal Neonatal Ed*. 107:572-576.
95. Martherus T, Croughan MK, Crossley KJ, Wallace MJ, McGillick EV, Thio M, Roehr CC, Pearson JT, Lee K, Ruben G, Kitchen MJ, Te Pas AB, Hooper SB (2022) Higher CPAP levels improve functional residual capacity at birth in preterm rabbits. *Pediatr Res*. 91:1686-1694.
96. Martin JH, Mohammed R, Delforce SJ, Skerrett-Byrne DA, de Meaultsart CC, Almazi JG, Stephens AN, Verrills NM, Dimitriadis E, Wang Y, Lumbers ER, Pringle KG (2022) Role of the prorenin receptor in endometrial cancer cell growth. *Oncotarget*. 13:587-599.
97. McKenna J, Bellofiore N, Temple-Smith P (2022) Good things come to those who mate: Analysis of the mating behaviour in the menstruating rodent, *Acomys cahirinus*. *BMC Zoology*. 7:13.
98. Menkhorst E, Zhou W, Santos L, Zhang JG, St-Pierre Y, Young MJ, Dimitriadis E (2022) Galectin-7 dysregulates renin-angiotensin-aldosterone and NADPH oxidase pathways in preeclampsia. *Pregnancy Hypertens*. 30:130-136.
99. Meyer F, Fritz A, Deng ZL, Koslicki D, Lesker TR, Gurevich A, Robertson G, Alser M, Antipov D, Beghini F, Bertrand D, Brito JJ, Brown CT, Buchmann J, Buluç A, Chen B, Chikhi R, Clausen P, Cristian A, Dabrowski PW, Darling AE, Egan R, Eskin E, Georganas E, Goltsman E, Gray MA, Hansen LH, Hofmeyr S, Huang P, Irber L, Jia H, Jørgensen TS, Kieser SD, Klemetsen T, Kola A, Kolmogorov M, Korobeynikov A, Kwan J, LaPierre N, Lemaître C, Li C, Limasset A, Malcher-Miranda F, Mangul S, Marcelino VR, Marchet C, Marijon P, Meleshko D, Mende DR, Milanese A, Nagarajan N, Nissen J, Nurk S, Oliker L, Paoli L, Peterlongo P, Piro VC, Porter JS, Rasmussen S, Rees ER, Reinert K, Renard B, Robertsen EM, Rosen GL, Ruscheweyh HJ, Sarwal V, Segata N, Seiler E, Shi L, Sun F, Sunagawa S, Sørensen SJ, Thomas A, Tong C, Trajkovski M, Tremblay J, Uritskiy G, Vicedomini R, Wang Z, Wang Z, Wang Z, Warren A, Willassen NP, Yelick K, You R, Zeller G, Zhao Z, Zhu S, Zhu J, Garrido-Oter R, Gastmeier P, Hacquard S, Häubler S, Khaledi A, Maechler F, Mesny F, Radutoiu S, Schulze-Lefert P, Smit N, Strowig T, Bremges A, Sczyrba A, McHardy AC (2022) Critical assessment of metagenome interpretation: The second round of challenges. *Nat Methods*. 19:429-440.
100. Miller SL, Bennet L, Sutherland AE, Pham Y, McDonald C, Castillo-Melendez M, Allison BJ, Mihelakis J, Nitsos I, Boyd BJ, Hirst JJ, Walker DW, Hunt RW, Jenkin G, Wong F, Malhotra A, Fahey MC, Yawno T (2022) Ganaxolone versus phenobarbital for neonatal seizure management. *Ann Neurol*. 92:1066-1079.
101. Ming-Chin Lee K, Achuthan AA, De Souza DP, Lupancu TJ, Binger KJ, Lee MKS, Xu Y, McConville MJ, de Weerd NA, Dragoljevic D, Hertzog PJ, Murphy AJ, Hamilton JA, Fleetwood AJ (2022) Type I interferon antagonism of the JMJD3-IRF4 pathway modulates macrophage activation and polarization. *Cell Rep*. 39:110719.
102. Moody SC, Whiley PAF, Western PS, Loveland KL (2022) The impact of Activin A on fetal gonocytes: Chronic versus acute exposure outcomes. *Front Endocrinol (Lausanne)*. 13:896747.
103. Mousa A, Huynh K, Ellery SJ, Strauss BJ, Joham AE, de Courten B, Meikle PJ, Teede HJ (2022) Novel lipidomic signature associated with metabolic risk in women with and without polycystic ovary syndrome. *J Clin Endocrinol Metab*. 107:e1987-e1999.
104. Muccini AM, Tran NT, Hale N, McKenzie M, Snow RJ, Walker DW, Ellery SJ (2022) The effects of *in utero* fetal hypoxia and creatine treatment on mitochondrial function in the late gestation fetal sheep brain. *Oxid Med Cell Longev*. 2022:3255296.
105. Mukherjee S, Sharma S, Soni V, Joshi A, Gaikwad A, Bellare J, Kode J (2022) Improved osteoblast function on titanium implant surfaces coated with nanocomposite apatite-wollastonite-chitosan- an experimental in-vitro study. *J Mater Sci Mater Med*. 33:25.
106. Nagiraja L, Lopes AM, Charng WL, Miller B, Stakaitis R, Golubickaite I, Stendahl A, Luan T, Friedrich C, Mahyari E, Fadiel E, Kasak L, Vigh-Conrad K, Oud MS, Xavier MJ, Cheers SR, James ER, Guo J, Jenkins TG, Riera-Escamilla A, Barros A, Carvalho F, Fernandes S, Gonçalves J, Gurnett CA, Jørgensen N, Jezek D, Jungheim ES, Kliesch S, McLachlan RI, Omurtag KR, Pilatz A, Sandlow JI, Smith J, Eisenberg ML, Hotaling JM, Jarvi KA, Punab M, Rajpert-De Meyts E, Carrell DT, Krausz C, Laan M, O'Bryan MK, Schlegel PN, Tüttelmann F, Veltman JA, Almstrup K, Aston KI, Conrad DF (2022) Diverse monogenic subforms of human spermatogenic failure. *Nat Commun*. 13:7953.
107. Nainani AK, Yang J, Peters S, Russell G (2022) 'I can't understand why others don't screen more': A qualitative study exploring why Australian general practitioners screen for primary aldosteronism. *BMJ Open*. 12:e061671.
108. Nakanishi A, Lascelles BD, Allen J, Case B, Gearing D, Enomoto M (2022) A pilot, open-label study to evaluate the efficacy of intra-articular administration of a caninized TNF Receptor Fc fusion protein as a treatment for osteoarthritis-associated joint pain. *Front Vet Sci*. 9:836709.
109. Napso T, Lean S, Lu M, Mort EJ, Desforges M, Moghimi A, Bartels B, El-Bacha T, Fowden AL, Camm EJ, Sferruzzi-Perri AN (2022) Diet-induced maternal obesity impacts fetoplacental growth and induces sex-specific alterations in placental morphology, mitochondrial bioenergetics, dynamics, lipid metabolism and oxidative stress in mice. *Acta Physiol*. 234:e13795.
110. Neo SY, Jing X, Tong L, Tong D, Gao J, Chen Z, De Los Santos MC, Burduli N, De Souza Ferreira S, Wagner AK, Alici E, Rolny C, Cao Y, Lundqvist A (2022) Tumor MHC class I expression alters cancer-associated myelopoiesis driven by host NK cells. *J Immunother Cancer*. 10.
111. Ng E, Gwini SM, Libianto R, Choy KW, Lu ZX, Shen J, Doery JCG, Fuller PJ, Yang J (2022) Aldosterone, renin and ARR variability in screening for primary aldosteronism. *J Clin Endocrinol Metab*. 108:33-41.
112. Northcott M, Gearing LJ, Bonin J, Koelmeyer R, Hoi A, Hertzog PJ, Morand EF (2022) Immunosuppressant exposure confounds gene expression analysis in systemic lupus erythematosus. *Front Immunol*. 13:964263.
113. Obermeier M, Vadolas J, Verhulst S, Goossens E, Baert Y (2022) Lipofection of non-integrative CRISPR/Cas9 ribonucleoproteins in male germline stem cells: A simple and effective knockout tool for germline genome engineering. *Front Cell Dev Biol*. 10:891173.
114. O'Connell DW, Morgan KS, Ruben G, Croton LCP, Pollock JA, Croughan MK, McGillick EV, Wallace MJ, Crossley KJ, Pryor EJ, Lewis RA, Hooper SB, Kitchen MJ (2022) Accurate measures of changes in regional lung air volumes from chest x-rays of small animals. *Phys Med Biol*. 67.
115. Okada T, Sun X, McIlpatrick S, St John JC (2022) Low guanine content and biased nucleotide distribution in vertebrate mtDNA can cause overestimation of non-CPG methylation. *NAR Genom Bioinform*. 4:lqab119.

116. Oseghale O, Liong S, Coward-Smith M, To EE, Erlich JR, Luong R, Liong F, Miles M, Norouzi S, Martin C, O'Toole S, Brooks RD, Bozinovski S, Vlahos R, O'Leary JJ, Brooks DA, Selemidis S (2022) Influenza a virus elicits peri-vascular adipose tissue inflammation and vascular dysfunction of the aorta in pregnant mice. *PLoS Pathog.* 18:e1010703.
117. Pang ES, Daraj G, Balka KR, De Nardo D, Macri C, Hochrein H, Masterman KA, Tan PS, Shoppee A, Magill Z, Jahan N, Bafit M, Zhan Y, Kile BT, Lawlor KE, Radford KJ, Wright MD, O'Keefe M (2022) Discordance in STING-induced activation and cell death between mouse and human dendritic cell populations. *Front Immunol.* 13:794776.
118. Pang R, Han HJ, Meehan C, Golay X, Miller SL, Robertson NJ (2022) Efficacy of melatonin in term neonatal models of perinatal hypoxia-ischaemia. *Ann Clin Transl Neurol.* 9:795-809.
119. Parkinson LA, Karjalainen PK, Mukherjee S, Papageorgiou AW, Kulkarni M, Arkwright JW, Young N, Werkmeister JA, Davies-Tuck M, Gargett CE, Rosamilia A (2022) Vaginal pressure sensor measurement during maximal voluntary pelvic floor contraction correlates with vaginal birth and pelvic organ prolapse - A pilot study. *NeuroUrol Urodyn.* 41:592-600.
120. Pasella M, Lee M, Marcelino V, Willis A, Verbruggen H (2022) Ten ostreobium (ulvophyceae) strains from great barrier reef corals as a resource for algal endolith biology and genomics. *Phycologia.* 61:452-4581-4587.
121. Payne O, Smith V, Rolnik DL, Davies-Tuck M, Warty R, Seo D, Wetherell L, Murday HK, Nair A, Kaur R, Vollenhoven B (2022) Virtual reality and its use in post-operative pain following laparoscopy: A feasibility study. *Sci Rep.* 12:13137.
122. Peng W, Kepsch A, Kracht TO, Hasan H, Wijayarathna R, Wahle E, Pleuger C, Bhushan S, Günther S, Kauerhof AC, Planinić A, Fietz D, Schuppe HC, Wygrecka M, Loveland KL, Ježek D, Meinhardt A, Hedger MP, Fijak M (2022) Activin A and CCR2 regulate macrophage function in testicular fibrosis caused by experimental autoimmune orchitis. *Cell Mol Life Sci.* 79:602.
123. Pleuger C, Ai D, Hoppe ML, Winter LT, Bohnert D, Karl D, Guenther S, Epelman S, Kantores C, Fijak M, Ravens S, Middendorff R, Mayer JU, Loveland KL, Hedger M, Bhushan S, Meinhardt A (2022) The regional distribution of resident immune cells shapes distinct immunological environments along the murine epididymis. *Elife.* 11:e82193.
124. Pollock GL, Grishin AM, Giogha C, Gan J, Oates CV, McMillan PJ, Gaeta I, Tyska MJ, Pearson JS, Scott NE, Cygler M, Hartland EL (2022) Targeting of microvillus protein Eps8 by the NleH effector kinases from enteropathogenic *E. coli*. *Proc Natl Acad Sci U S A.* 119:e2204332119.
125. Prentice RE, Bell SJ, Nold-Petry CA, Nold MF, Goldberg R (2022) Safety of in utero exposure to maternal IBD pharmacotherapies. *Nat Rev Gastroenterol Hepatol.* 19:213-214.
126. Prokopuk L, Jarred EG, Blucher RO, McLaughlin EA, Stringer J, Western PS (2022) An essential role for Polycomb Repressive Complex 2 in the mouse ovary. *Reproduction.* 163:167-182.
127. Pryor EJ, Blank DA, Hooper SB, Crossley KJ, Badurdeen S, Pollock JA, Stainsby AV, Croton LCP, O'Connell DW, Hall CJ, Maksimenko A, Hausermann D, Davis PG, Kitchen MJ (2022) Quantifying lung aeration in neonatal lambs at birth using lung ultrasound. *Front Pediatr.* 10:990923.
128. Przystal JM, Cosentino CC, Yadavilli S, Zhang J, Laternser S, Bonner ER, Prasad R, Dawood AA, Lobeto N, Chong WC, Biery MC, Myers C, Olson JM, Panditharatna EA, Kritzer B, Mourabit S, Vitanza NA, Filbin MG, De Iuliis GN, Dun MD, Koschmann C, Cain J, Grotzer MA, Waszak SM, Mueller S, Nazarian J (2022) Imipridones affect tumor bioenergetics and promote cell lineage differentiation in diffuse midline gliomas. *Neuro Oncol.* 24:1438-1451.
129. Quach D, Ten Eikelder M, Jozwiak M, Davies-Tuck M, Bloemenkamp KWM, Mol BW, Li W (2022) Maternal and fetal characteristics predicting cesarean risk following induction of labor: Pooled analysis of PROBAAT trials. *Ultrasound Obstet Gynecol.* 59:89-92.
130. Roberts CT, Klink S, Schmöler GM, Blank DA, Badurdeen S, Crossley KJ, Rodgers K, Zahra V, Moxham A, Roehr CC, Kluckow M, Gill AW, Hooper SB, Polglase GR (2022) Comparison of intraosseous and intravenous epinephrine administration during resuscitation of asphyxiated newborn lambs. *Arch Dis Child Fetal Neonatal Ed.* 107:311-316.
131. Rogers M, Coates A, Huggins CE, Dorrian J, Clark AB, Davis C, Leung GK, Davis R, Phoi YY, Kellow NJ, Iacovou M, Yates CL, Banks S, Sletten TL, Bonham MP (2022) Study protocol for the shifting weight using intermittent fasting in night shift workers (SWIFT) study: A three-arm randomised controlled trial comparing three weight loss strategies in night shift workers with obesity. *BMJ Open.* 12:e060520.
132. Rolnik DL, Selvaratnam RJ, Wertaschnigg D, Meagher S, Wallace E, Hyett J, da Silva Costa F, McLennan A. (2022). Routine first trimester combined screening for preterm preeclampsia in Australia: A multicenter clinical implementation cohort study. *Int J Gynaecol Obstet.* 158: 634-642.
133. Rossi GP, Crimi F, Rossitto G, Amar L, Azizi M, Riestler A, Reincke M, Degenhart C, Widimsky J, Naruse M, Deinum J, Kool LS, Kocjan T, Negro A, Rossi E, Kline G, Tanabe A, Satoh F, Rump LC, Vonend O, Willenberg HS, Fuller PJ, Yang J, Chee NYN, Magill SB, Shafiqullina Z, Quinkler M, Oliveras A, Wu VC, Kratka Z, Barbiero G, Battistel M, Seccia TM (2022) Feasibility of imaging-guided adrenalectomy in young patients with primary aldosteronism. *Hypertension.* 79:187-195.
134. Rossi GP, Rossitto G, Amar L, Azizi M, Riestler A, Reincke M, Degenhart C, Widimsky J, Naruse M, Deinum J, Schultze Kool L, Kocjan T, Negro A, Rossi E, Kline G, Tanabe A, Satoh F, Rump LC, Vonend O, Willenberg HS, Fuller PJ, Yang J, Chee NYN, Margill SB, Shafiqullina Z, Quinkler M, Oliveras A, Lee BC, Wu VC, Kratka Z, Seccia TM, Lenzini L (2022) Drug-resistant hypertension in primary aldosteronism patients undergoing adrenal vein sampling: The avis-2-rh study. *Eur J Prev Cardiol.* 29:e85-e93.
135. Rowson S, Reddy M, De Guingand DL, Langston-Cox A, Marshall SA, da Silva Costa F, Palmer KR (2022) Comparison of circulating total sflt-1 to placental-specific sflt-1 e15a in women with suspected preeclampsia. *Placenta.* 120:73-78.
136. Ruben G, Pinar I, Brown JMC, Schaff F, Pollock JA, Crossley KJ, Maksimenko A, Hall C, Hausermann D, Uesugi K, Kitchen MJ (2022) Full field x-ray scatter tomography. *IEEE Trans Med Imaging.* 41:2170-2179.
137. Ruwanpura SM, McLeod L, Dousha LF, Seow HJ, West AC, West AJ, Weng T, Alanazi M, MacDonald M, King PT, Bardin PG, Gabay C, Klinman DM, Bozinovski S, Vlahos R, Anderson GP, Rose-John S, Saad MI, Jenkins BJ (2022) Cross-talk between il-6 trans-signaling and aim2 inflammasome/il-1 β axes bridge innate immunity and epithelial apoptosis to promote emphysema. *Proc Natl Acad Sci U S A.* 119:e2201494119.
138. Saad MI, Weng T, Lundy J, Gearing LJ, West AC, Harpur CM, Alanazi M, Hodges C, Croagh D, Kumar B, Sagi I, Rose-John S, Jenkins BJ (2022) Blockade of the protease ADAM17 ameliorates experimental pancreatitis. *Proc Natl Acad Sci U S A.* 119:e2213744119.
139. Salmon JM, Todorovski I, Stanley KL, Bruedigam C, Kearney CJ, Martelotto LG, Rossello F, Semple T, Arnau GM, Zethoven M, Bots M, Bjelosevic S, Cluse LA, Fraser PJ, Litalien V, Vidacs E, McArthur K, Matthews AY, Gressier E, de Weerd NA, Lichte J, Kelly MJ, Hogg SJ, Hertzog PJ, Kats LM, Vervoort SJ, De Carvalho DD, Scheu S, Bedoui S, Kile BT, Lane SW, Perkins AC, Wei AH, Dominguez PM, Johnstone RW (2022) Epigenetic activation of plasmacytoid DCs drives IFNAR-dependent therapeutic differentiation of AML. *Cancer Discov.* 12:1560-1579.
140. Samad N, Nguyen HH, Hashimura H, Pasco J, Kotowicz M, Strauss BJ, Ebeling PR, Milat F, Vincent AJ (2022) Abnormal trabecular bone score, lower bone mineral density and lean mass in young women with premature ovarian insufficiency are prevented by oestrogen replacement. *Front Endocrinol (Lausanne).* 13:860853.
141. Schmöler GM, Roberts CT, Blank DA, Badurdeen S, Miller SL, Crossley KJ, Stojanovska V, Galinsky R, Kluckow M, Gill AW, Hooper SB, Polglase GR (2022) Single versus continuous sustained inflations during chest compressions and physiological-based cord clamping in asystolic lambs. *Archives of disease in childhood Fetal and neonatal edition.* 107:488-494.
142. Sehgal A, Allison BJ (2022) Targeting vasculature to reduce fetal growth restriction associated bronchopulmonary dysplasia. *Respirology.* 27:920-922.
143. Sehgal A, Nold MF, Roberts CT, Menahem S (2022) Cardiorespiratory adaptation to low-dose dexmethasone for lung disease in extremely preterm infants: A prospective echocardiographic study. *J Physiol.* 600:4361-4373.
144. Sharlov R, Taniar D, Phan T, Beare R, Srikanth V, Ma H, Farrell T, White C, Wallace EM, Davies-Tuck M (2022) Where do low risk women live relative to maternity services across Victoria? Expanding access to public homebirth models across Victoria. *Women Birth.* 35:e91-e97.
145. Shekibi M, Heng S, Wang Y, Samarajeewa N, Rombauts L, Nie G (2022) Progesterone suppresses podocalyxin partly by up-regulating miR-145 and miR-199 in human endometrial epithelial cells to enhance receptivity in *in vitro* models. *Mol Hum Reprod.* 28:gaac034.
146. Signorelli C, Wakefield C, McLoone JK, Fardell J, Jones JM, Turpin KH, Emery J, Michel G, Downie P, Skeen JE, Cohn R (2022) Childhood cancer survivorship: Barriers and preferences. *BMJ Support Palliat Care.* 12:e687-e695.
147. Simpson DS, Pang J, Weir A, Kong IY, Fritsch M, Rashidi M, Cooney JP, Davidson KC, Speir M, Djajawi TM, Hughes S, Mackiewicz L, Dayton M, Anderton H, Doerflinger M, Deng Y, Huang AS, Conos SA, Tye H, Chow SH, Rahman A, Norton RS, Naderer T, Nicholson SE, Burgio G, Man SM, Groom JR, Herold MJ, Hawkins ED, Lawlor KE, Strasser A, Silke J, Pellegrini M, Kashkar H, Feltham R, Vince JE (2022) Interferon- γ primes macrophages for pathogen ligand-induced killing via a Caspase-8 and mitochondrial cell death pathway. *Immunity.* 55:423-441.
148. Siritworadetkun S, Thiengtavor C, Thubthed R, Paiboonsukwong K, Fucharoen S, Pattanapanyasat K, Vadolas J, Svasti S, Chaichompoo P (2022) A comprehensive study of immune function and immunophenotyping of white blood cells from β -thalassaemia/HBE patients on hydroxyurea supports the safety of the drug. *Br J Haematol.* 200:367-376.
149. Smith C, Hiam D, Tacey A, Lin X, Woessner MN, Zarekookandeh N, Garnham A, Chubb P, Lewis JR, Sim M, Herrmann M, Duque G, Levinger I (2022) Higher bone remodeling biomarkers are related to a higher muscle function in older adults: Effects of acute exercise. *Bone.* 165:116545.
150. Solanki P, Gwini SM, Libianto R, Gabb G, Shen J, Young MJ, Fuller PJ, Yang J (2022) Risky business: A single-centre cross-sectional analysis of calculated cardiovascular risk in patients with primary aldosteronism and essential hypertension. *BMJ Open.* 12:e062406.
151. Solari SM, Young RB, Marcelino VR, Forster SC (2022) expam-high-resolution analysis of metagenomes using distance trees. *Bioinformatics.* 38:4814-4816.
152. Song Y, Yang J, Shen H, Ng E, Fuller PJ, Feng Z, Hu J, Ma L, Yang Y, Du Z, Wang Y, Luo T, He W, Li Q, Wu FF, Yang S (2022) Development and validation of model for sparing adrenal venous sampling in diagnosing unilateral primary aldosteronism. *J Hypertens.* 40:1692-1701.
153. Sooraj D, Sun C, Doan A, Garama DJ, Dannappel MV, Zhu D, Chua HK, Mahara S, Wan Hassan WA, Tay YK, Guanizo A, Croagh D, Prodanovic Z, Gough DJ, Wan C, Firestein R (2022) MED12 and BRD4 cooperate to sustain cancer growth upon loss of mediator kinase. *Mol Cell.* 82:123-139.
154. Stavely R, Sahakian L, Filippone RT, Stojanovska V, Bornstein JC, Sakkal S, Nurgali K (2022) Oxidative stress-induced HMGB1 translocation in myenteric neurons contributes to neuropathy in colitis. *Biomolecules.* 12:1831.

155. Steiner A, Hrovat-Schaale K, Prigione I, Yu CH, Laohamonthonkul P, Harapas CR, Low RRJ, De Nardo D, Dagley LF, Mlodzianowski MJ, Rogers KL, Zillinger T, Hartmann G, Gantier MP, Gattorno M, Geyer M, Volpi S, Davidson S, Masters SL (2022) Deficiency in coatomer complex I causes aberrant activation of STING signalling. *Nat Commun.* 13:2321.
156. Stojanovska V, Atta J, Kelly SB, Zahra VA, Matthews-Staindl E, Nitsos I, Moxham A, Pham Y, Hooper SB, Herlenius E, Galinsky R, Polglase GR (2022) Increased prostaglandin e2 in brainstem respiratory centers is associated with inhibition of breathing movements in fetal sheep exposed to progressive systemic inflammation. *Front Physiol.* 13:841229.
157. Studdert JB, Bildsoe H, Masamsetti VP, Tam PPL (2022) Elucidation of gene expression patterns in the craniofacial tissues of mouse embryos by wholemount *in situ* hybridization. *Methods Mol Biol.* 2403:33-42.
158. Studdert JB, Bildsoe H, Masamsetti VP, Tam PPL (2022) Visualization of the cartilage and bone elements in the craniofacial structures by alcian blue and alizarin red staining. *Methods Mol Biol.* 2403:43-50.
159. Tan SJ, Libianto R, Yang J, Wong J (2022) Screening for primary aldosteronism in the diabetic population: A cohort study. *Intern Med J.* 53:709-716.
160. Tang K, McLeod L, Livis T, West AC, Dawson R, Yu L, Balic JJ, Chonwerawong M, Wray-McCann G, Oshima H, Oshima M, Deswaerte V, Ferrero RL, Jenkins BJ (2022) Toll-like receptor 9 promotes initiation of gastric tumorigenesis by augmenting inflammation and cellular proliferation. *Cell Mol Gastroenterol Hepatol.* 14:567-586.
161. Tapmeier TT, Howell JH, Zhao L, Papiez BW, Schnabel JA, Muschel RJ, Gal A (2022) Evolving polarisation of infiltrating and alveolar macrophages in the lung during metastatic progression of melanoma suggests CCR1 as a therapeutic target. *Oncogene.* 41:5032-5045.
162. Teixeira ACM, Marcelino VR, Alexandrino J, Haddad CFB, Giaretta AA (2022) Populational differentiation in *Boana bischoffi* (Anura, Hylidae): Revisiting the issue using molecular, morphological, and acoustic data. *J Herpetol.* 56:110-119.
163. Thach B, Samarajeewa N, Li Y, Heng S, Tsai T, Pangestu M, Catt S, Nie G (2022) Podocalyxin molecular characteristics and endometrial expression: High conservation between humans and macaques but divergence in mice. *Biol Reprod.* 106:1143-1158.
164. Thubthed R, Siriworadetkun S, Paiboonsukwong K, Fucharoen S, Pattanapanyasat K, Vadolas J, Svasti S, Chaichompoo P (2022) Impaired neutrophil extracellular trap formation in β -thalassaemia/HBE. *Sci Rep.* 12:1967.
165. Tindal K, Bimal G, Flenady V, Gordon A, Farrell T, Davies-Tuck M (2022) Causes of perinatal deaths in Australia: Slow progress in the preterm period. *Aust N Z J Obstet Gynaecol.* 62:511-517.
166. Tran AHL, Chin KL, Horne RSC, Liew D, Rimmer J, Nixon GM (2022) Hospital revisits after paediatric tonsillectomy: A cohort study. *J Otolaryngol Head Neck Surg.* 51:1. 2403:33-42.
167. Tran AHL, Liew D, Horne RSC, Rimmer J, Nixon GM (2022) Cost and economic determinants of paediatric tonsillectomy. *Aust Health Rev.* 46:153-162.
168. Tran NT, Kowalski GM, Muccini AM, Nitsos I, Hale N, Snow RJ, Walker DW, Ellery SJ (2022) Creatine supplementation reduces the cerebral oxidative and metabolic stress responses to acute in utero hypoxia in the late-gestation fetal sheep. *J Physiol.* 600:3193-3210.
169. Tran TT, Mathmann CD, Gatica-Andrades M, Rollo RF, Oelker M, Ljungberg JK, Nguyen TTK, Zamoshnikova A, Kumhari LK, Wyer OJK, Irvine KM, Melo-Bolivar J, Gross A, Brown D, Mak JYW, Fairlie DP, Hansford KA, Cooper MA, Giri R, Schreiber V, Joseph SR, Simpson F, Barnett TC, Johansson J, Dankers W, Harris J, Wells TJ, Kapetanovic R, Sweet MJ, Latomanski EA, Newton HJ, Guérillot RJR, Hachani A, Stinear TP, Ong SY, Chandran Y, Hartland EL, Kobe B, Stow JL, Sauer-Eriksson AE, Begun J, Kling JC, Blumenthal A (2022) Inhibition of the master regulator of listeria monocytogenes virulence enables bacterial clearance from spacious replication vacuoles in infected macrophages. *PLoS Pathog.* 18:e1010166.
170. Ullah TR, Balka KR, Ambrose RL, Pépin G, Wilce MCJ, Wilce JA, Thomas BJ, De Nardo D, Williams BRG, Gantier MP (2022) Genistein targets STING-driven antiviral responses. *mBio.* 13:e0206422.
171. Van Calster B, Benachi A, Nicolaides KH, Gratacos E, Berg C, Persico N, Gardener GJ, Belfort M, Ville Y, Ryan G, Johnson A, Sago H, Kosiński P, Bagolan P, Van Mieghem T, Dekoninck PLJ, Russo FM, Hooper SB, Deprest JA (2022) The randomized tracheal occlusion to accelerate lung (TOTAL)-trials on fetal surgery for congenital diaphragmatic hernia: Re-analysis using pooled data. *Am J Obstet Gynecol.* 226:560.e561-560.e524.
172. Veldman A, Richter E, Hacker C, Fischer D (2022) The use of off-label medications in newborn infants despite an approved alternative being available—results of a national survey. *Pharmacy (Basel).* 10.
173. Vrselja A, Pillow JJ, Bensley JG, Ellery SJ, Ahmadi-Noorbakhsh S, Moss TJ, Black MJ (2022) Intrauterine inflammation exacerbates maladaptive remodeling of the immature myocardium after preterm birth in lambs. *Pediatr Res.* 92:1555-1565.
174. Ward MC, Crinall K, McDonald R, Crinall W, Aridas J, Leung C, Quittner D, Hodges RJ, Rolnik DL (2022) The kindness COVID-19 toolkit: A mixed-methods evaluation of a programme designed by doctors in training for doctors in training. *BMJ Open.* 12:e060575.
175. Watt AP, Kirkland M, Nekkanti L, Pham Y, McDonald C, Malhotra A, Moeneclae G, Miller SL, Jenkin G (2022) Effect of expansion of human umbilical cord blood CD34+ cells on neurotrophic and angiogenic factor expression and function. *Cell Tissue Res.* 388:117-132.
176. West AJ, Deswaerte V, West AC, Gearing LJ, Tan P, Jenkins BJ (2022) Inflammasome-associated gastric tumorigenesis is independent of the nlrp3 pattern recognition receptor. *Front Oncol.* 12:830350.
177. Wibawa RR, Li P, McCaffrey K, Hartland EL (2022) Using genomic deletion mutants to investigate effector-triggered immunity during *Legionella pneumophila* infection. *Methods Mol Biol.* 2523:23-41.
178. Wijayarathna R, Genovese R, Meinhardt A, Loveland KL, Groome NP, Hinton BT, Hedger MP (2022) Examination of testicular lumicrine regulation of activins and immunoregulatory genes in the epididymal caput. *Andrology.* 10:190-201.
179. Yamaoka S, Crossley KJ, McDougall AR, Rodgers K, Zahra VA, Moxham A, Te Pas AB, McGillick EV, Hooper SB (2022) Increased airway liquid volumes at birth impairs cardiorespiratory function in preterm and near-term lambs. *J Appl Physiol (1985).* 132:1080-1090.
180. Yang J, Libianto R, Lau KK, Doery JCG, Wan KL, Chee NYN, Shen J, Fuller PJ, Chong W (2022) Impact of intraprocedural sedation on adrenal vein sampling without corticotropin stimulation. *Radiology.* 304:716-718.
181. Yao YZ, Brennan FE, Carvajal CA, Vecchiola A, Tapia-Castillo A, Fardella CE, Fuller PJ (2022) Cortisol resistance in the degu (*Octodon degus*). *Steroids.* 184:109037.
182. Yap YW, Hannan NJ, Wallace EM, Marshall SA (2022) Silencing of Nrf genes in the human placenta as measured by SDS-PAGE and Western Blotting techniques. *Placenta.* 118:70-74.
183. Yu L, Cao C, Li X, Zhang M, Gu Q, Gao H, Balic JJ, Xu D, Zhang L, Ying L, Xu D, Yang Y, Wu D, He B, Jenkins BJ, Liu Y, Li J (2022) Complete loss of mirR200 family induces EMT associated cellular senescence in gastric cancer. *Oncogene.* 41:26-36.
184. Zhang J, Libianto R, Lee JC, Grodski S, Shen J, Fuller PJ, Yang J (2022) Preoperative mineralocorticoid receptor antagonist reduces postoperative hyperkalaemia in patients with Conn syndrome. *Clin Endocrinol (Oxf).* 96:40-46.
185. Zhang J, Yang J, Libianto R, Shen J, Fuller PJ, Grodski S, Lee JC (2022) Impact of dedicated multidisciplinary service on patient selection and outcomes for surgical treatment of primary aldosteronism. *Surgery.* 172:1682-1688.
186. Zhang L, Jiang L, Yu L, Li Q, Tian X, He J, Zeng L, Yang Y, Wang C, Wei Y, Jiang X, Li J, Ge X, Gu Q, Li J, Wu D, Sadler AJ, Yu D, Xu D, Gao Y, Yuan X, He B (2022) Inhibition of UBA6 by inosine augments tumour immunogenicity and responses. *Nat Commun.* 13:5413.
187. Zhao L, Thomson E, Ng ET, Longmuss E, Svingen T, Bagheri-Fam S, Quinn A, Harley VR, Harrison LC, Pelosi E, Koopman P (2022) Functional analysis of Mmd2 and related PAQR genes during sex determination in mice. *Sex Dev.* 16:270-282.
188. Zhou L, McDonald C, Yawno T, Jenkin G, Miller S, Malhotra A (2022) Umbilical cord blood and cord tissue-derived cell therapies for neonatal morbidities: Current status and future challenges. *Stem Cells Transl Med.* 11:135-145.
189. Zhu D, Krause M, Yawno T, Kusuma GD, Schwab R, Barabadi M, Maleken AS, Chan ST, Hunt R, Greening D, Wallace EM, Lim R (2022) Assessing the impact of gestational age of donors on the efficacy of amniotic epithelial cell-derived extracellular vesicles in experimental bronchopulmonary dysplasia. *Stem Cell Res Ther.* 13:196.
6. Castle-Kirsbaum M, Goldschlager T, Shi MDY, Kam J, Fuller PJ (2022) Postoperative fluid restriction to prevent hyponatremia after transsphenoidal pituitary surgery: An updated meta-analysis and critique. *J Clin Neurosci.* 106:180-184.
7. Cousins FL, Filby CE, Gargett CE (2022) Endometrial stem/progenitor cells – their role in endometrial repair and regeneration. *Front Reprod Health.* 3:811537.
8. de Medeiros SM, Mangat A, Polglase GR, Sarrato GZ, Davis PG, Schmöler GM (2022) Respiratory function monitoring to improve the outcomes following neonatal resuscitation: A systematic review and meta-analysis. *Arch Dis Child Fetal Neonatal Ed.* 107:589-596.
9. Ebeling PR, Nguyen HH, Aleksova J, Vincent AJ, Wong P, Milat F (2022) Secondary osteoporosis. *Endocr Rev.* 43:240-313.
10. Fewkes JJ, Kellow NJ, Cowan SF, Williamson G, Dordevic AL (2022) A single high-fat meal adversely affects postprandial endothelial function: A systematic review and meta-analysis. *Am J Clin Nutr.* 116:699-729.
11. Findlay IJ, De luliis GN, Duchatel RJ, Jackson ER, Vitanza NA, Cain JE, Waszak SM, Dun MD (2022) Pharmaco-proteogenomic profiling of pediatric diffuse midline glioma to inform future treatment strategies. *Oncogene.* 41:461-475.
12. Funder JW, Carey RM (2022) Primary aldosteronism: Where are we now? Where to from here? *Hypertension.* 79:726-735.
13. Gulliver EL, Young RB, Chonwerawong M, D'Adamo GL, Thomason T, Widdop JT, Rutten EL, Rossetto Marcelino V, Bryant RV, Costello SP, O'Brien CL, Hold GL, Giles EM, Forster SC (2022) Review article: The future of microbiome-based therapeutics. *Aliment Pharmacol Ther.* 56:192-208.
14. Hartland EL, Ghosal D, Giogha C (2022) Manipulation of epithelial cell architecture by the bacterial pathogens *Listeria* and *Shigella*. *Curr Opin Cell Biol.* 79:102131.
15. Heland S, Fields N, Ellery SJ, Fahey M, Palmer KR (2022) The role of nutrients in human neurodevelopment and their potential to prevent neurodevelopmental adversity. *Front Nutr.* 9:992120.

Reviews

1. Ansari A, Denton KM, Lim R (2022) Strategies for immortalisation of amnion-derived mesenchymal and epithelial cells. *Cell Biol Int.* 46:1999-2008.
2. Ariens J, Horvath AR, Yang J, Choy KW (2022) Performance of the aldosterone-to-renin ratio as a screening test for primary aldosteronism in primary care. *Endocrine.* 77:11-20.
3. Bahremandi-Toloue E, Mohammadalizadeh Z, Mukherjee S, Karbasi S (2022) Incorporation of inorganic bioceramics into electrospun scaffolds for tissue engineering applications: A review. *Ceramics International.* 48:8803-8837.
4. Bain NT, Wang Y, Arulananda S (2022) Minimal residual disease in EGFR-mutant non-small-cell lung cancer. *Front Oncol.* 12:1002714.
5. Cai Y, Song W, Li J, Jing Y, Liang C, Zhang L, Zhang X, Zhang W, Liu B, An Y, Li J, Tang B, Pei S, Wu X, Liu Y, Zhuang CL, Ying Y, Dou X, Chen Y, Xiao FH, Li D, Yang R, Zhao Y, Wang Y, Wang L, Li Y, Ma S, Wang S, Song X, Ren J, Zhang L, Wang J, Zhang W, Xie Z, Qu J, Wang J, Xiao Y, Tian Y, Wang G, Hu P, Ye J, Sun Y, Mao Z, Kong QP, Liu Q, Zou W, Tian XL, Xiao ZX, Liu Y, Liu JP, Song M, Han JJ, Liu GH (2022) The landscape of aging. *Sci China Life Sci.* 65:2354-2454.

16. Herath M, Cohen A, Ebeling PR, Milat F (2022) Dilemmas in the management of osteoporosis in younger adults. *JBMR Plus*. 6:e10594.
17. Herath M, Langdahl B, Ebeling PR, Milat F (2022) Challenges in the diagnosis and management of glucocorticoid-induced osteoporosis in younger and older adults. *Clin Endocrinol (Oxf)*. 96:460-474.
18. Hong X, Wang L, Zhang K, Liu J, Liu JP (2022) Molecular mechanisms of alveolar epithelial stem cell senescence and senescence-associated differentiation disorders in pulmonary fibrosis. *Cells*. 11:877.
19. Jahan N, Patton T, O'Keeffe M (2022) The influence of antibiotic resistance on innate immune responses to *Staphylococcus aureus* infection. *Antibiotics*. 11:542.
20. Karthigan N, Lockwood S, White A, Yang J, Young MJ (2022) Mineralocorticoid receptor antagonists, heart failure and predictive biomarkers. *J Endocrinol*. 253:R65-R76.
21. Kieu V, Stern C, Harris J, Jayasinghe Y, Bradford N, Cui W, Deans R, Hunter T, Allingham C, Kane SC, Lau LS, Logan S, McLachlan R, Neville K, Peate M, Phillips M, Saunders C, Tome M, Upreti R, White K, Anazodo A, Hart RJ (2022) Australian fertility preservation guidelines for people with cancer 2022: Review and recommendations. *Med J Aust*. 217:564-569.
22. King AR, Al Imam MH, McIntyre S, Morgan C, Khandaker G, Badawi N, Malhotra A (2022) Early diagnosis of cerebral palsy in low- and middle-income countries. *Brain Sciences*. 12:539.
23. Lam M, Mansell A, Tate MD (2022) Another one fights the dust - targeting the 3 NLRP3 inflammasome for the treatment of silicosis. *Am J Respir Cell Mol Biol*. 66:601-611.
24. Man SM, Jenkins BJ (2022) Context-dependent functions of pattern recognition receptors in cancer. *Nat Rev Cancer*. 22:397-413.
25. Martin FC, Conduit C, Loveland KL, Thomas B, Lewin J, Tran B (2022) Genetics of testicular cancer: A review. *Curr Opin Urol*. 32:481-487.
26. McGillick EV, Te Pas AB, van den Akker T, Keus JMH, Thio M, Hooper SB (2022) Evaluating clinical outcomes and physiological perspectives in studies investigating respiratory support for babies born at term with or at risk of transient tachypnea: A narrative review. *Front Pediatr*. 10:878536.
27. Ming Z, Vining B, Bagheri-Fam S, Harley V (2022) SOX9 in organogenesis: Shared and unique transcriptional functions. *Cell Mol Life Sci*. 79:522.
28. Mohammadalazadeh Z, Bahremandi-Toloue E, Karbasi S (2022) Recent advances in modification strategies of pre- and post-electrospinning of nanofiber scaffolds in tissue engineering. *React Funct Polym*. 172:105202.
29. Nathaniel B, Whiley PAF, Miyamoto Y, Loveland KL (2022) Importins: Diverse roles in male fertility. *Seminars in Cell and Developmental Biology*. 121:82-98.
30. Newman H, Catt S, Vining B, Vollenhoven B, Horta F (2022) DNA repair and response to sperm DNA damage in oocytes and embryos, and the potential consequences in ART: A systematic review. *Mol Hum Reprod*. 28:gaab071.
31. O'Donnell L, Smith LB, Rebourcet D (2022) Sperm-specific proteins: New implications for diagnostic development and cancer immunotherapy. *Curr Opin Cell Biol*. 77:102104.
32. O'Donnell L, Whiley PAF, Loveland KL (2022) Activin A and Sertoli cells: Key to fetal testis steroidogenesis. *Front Endocrinol (Lausanne)*. 13:898876.
33. Paton MCB, Finch-Edmondson M, Dale RC, Fahey MC, Nold-Petry CA, Nold MF, Griffin AR, Novak I (2022) Persistent inflammation in cerebral palsy: Pathogenic mediator or comorbidity? A scoping review. *J Clin Med*. 11:7368.
34. Ramnath D, Das Gupta K, Wang Y, Abrol R, Curson JEB, Lim J, Reid RC, Mansell A, Blumenthal A, Karunakaran D, Fairlie DP, Sweet MJ (2022) The histone deacetylase Hdac7 supports LPS-inducible glycolysis and IL-1 β production in murine macrophages via distinct mechanisms. *J Leukoc Biol*. 111:327-336.
35. Salamonsen L, Dimitriadis E (2022) Infertility and the endometrium. *CEOG*. 49:149.
36. Santos-Paulo S, Costello S, Forster S, Travis S, Bryant R (2022) The gut microbiota as a therapeutic target for obesity: A scoping review. *Nutr Res Rev*. 35:207-220.
37. Sehgal A, Dassios T, Nold M, Nold-Petry CA, Greenough A (2022) Fetal growth restriction and neonatal-pediatric lung diseases: Vascular mechanistic links and therapeutic directions. *Paediatr Respir Rev*. 44:19-30.
38. Shen H, Lundy J, Strickland AH, Harris M, Swan M, Desmond C, Jenkins BJ, Croagh D (2022) Kras g12d mutation subtype in pancreatic ductal adenocarcinoma: Does it influence prognosis or stage of disease at presentation? *Cells*. 11:3175.
39. To V, Evtimov VJ, Jenkin G, Pupovac A, Trounson AO, Boyd RL (2022) CAR-T cell development for cutaneous T cell lymphoma: Current limitations and potential treatment strategies. *Front Immunol*. 13:968395.
40. Turcu AF, Yang J, Vaidya A (2022) Primary aldosteronism - a multidimensional syndrome. *Nat Rev Endocrinol*. 18:665-682.
5. Furlong E, Kotecha RS, Conyers R, O'Brien TA, Hansford JR, Super L, Downie P, Eisenstat DD, Haeusler G, McMullan B, Phillips MB, Padhye B, Dalla-Pozza L, Alvaro F, Fraser CJ, Nicholls W, Clark JE, O'Connor M, Saxon BR, Tap H, Heath J, Hunter SE, Tsui K, Winstanley M, Lyver A, Best EJ, Wadia U, Yeoh D, Blyth CC, Gottardo NG (2022) COVID-19 vaccination in children and adolescents aged 5 years and older undergoing treatment for cancer and non-malignant haematological conditions: ANZCHOG consensus statement. *Med J Aust*. 216:312-319.
6. Gantier MP (2022) Powering on cGAMP mini factories. *EMBO Rep*. 23:e54231.
7. Gargett CE, Hapangama D (2022) Endometrial stem/progenitor cells: Prospects and challenges. *J Pers Med*. 12.
8. Hartland EL (2022) Emerging technologies in microbiology. *Mol Microbiol*. 117:551-552.
9. Hooper SB, Te Pas AB, Blank DA, Polglase GR (2022) The physiology of delayed umbilical cord clamping at birth: Let's not add to the confusion. *J Physiol*. 600:3625-3626.
10. Jenkins BJ (2022) IL-6 family cytokines: An updated perspective on their broad pathophysiology. *Cytokine*. 152:155822.
11. Liley HG, Hooper SB, Nakwa F (2022) Worldwide success of CPAP in the delivery room - still a work in progress. *Resuscitation*. 170:264-265.
12. Nold-Petry CA, Nold MF (2022) Rationale for IL-37 as a novel therapeutic agent in inflammation. *Expert Rev Clin Immunol*. 18:1203-1206.
13. Piessens S, Edwards AG (2022) Assessing endometriosis during routine gynaecological ultrasound: The road less travelled. *J Minim Invasive Gynecol*. 29:1121-1122.
14. Qiao B, Li S, Wang D, Wu D (2022) Editorial: Genetics and molecular mechanisms of oral and esophageal squamous cell carcinoma. *Front Oncol*. 12:874353.
15. Romano A, Guo SW, Brosens J, Fazleabas AT, Gargett C, Giselsbrecht S, Goette M, Griffith L, Taylor HS, Taylor RN, Vankelecom H, Chapron C, Chang X, Khan KN, Vigano P (2022) ENDOCELL: A Delphi protocol to harmonise methods in endometrial cell culturing. *Reprod Fertil*. 3:G1-8.
16. Sadler AJ (2022) A viral NOD to encephalitis. *J Virol*. 96:e0045422.
17. Schubert JP, Rayner CK, Costello SP, Roberts-Thomson IC, Forster SC, Bryant RV (2022) Helicobacter pylori: Have potential benefits been overlooked? *JGH Open*. 6:735-737.
18. Speir M, Chan AH, Simpson DS, Khan T, Saunders TL, Poon IK, Atkin-Smith GK (2022) The Australasian Cell Death Society (ACDS): Celebrating 50 years of Australasian cell death research. *Immunol Cell Biol*. 100:9-14.
5. Frost ER, Ford EA, Peters AE, Lovell-Badge R, Taylor G, McLaughlin EA, Sutherland JM (2022) A new understanding, guided by single-cell sequencing, of the establishment and maintenance of the ovarian reserve in mammals. *Sex Dev*.
6. Lai JH, Gwini SM, Chen G, Long KM, Russell G, Schlaich MP, Stowasser M, Young MJ, Fuller PJ, Mori TA, Wolley M, Reid CM, Yang J (2022) Willingness to be tested for a secondary cause of hypertension: A survey of the Australian general community. *Intern Med J*.
7. McGillick EV, Gizzi C, Volpe M, Nakstad B, Kooi EMW, Wixey J, Tolcos M (2022) Editorial: Visibility matters - women in neonatology. *Front Pediatr*. 10:1059426.
8. Parivesh A, Délot E, Reyes A, Ryan J, Bhattacharya S, Harley V, Vilain E (2022). Reprogramming human fibroblasts into Sertoli cells: a tool for personalized medicine. *bioRxiv*: 2022.2008.2025.505300.
9. Panneflek TJR, Kuypers K, Polglase GR, Hooper SB, van den Akker T, Te Pas AB (2022) Effect of clinical chorioamnionitis on breathing effort in premature infants at birth: A retrospective case-control study. *Arch Dis Child Fetal Neonatal Ed*.
10. Santomartino GA, Blank DA, Heng A, Woodward A, Kane SC, Thio M, Polglase GR, Hooper SB, Davis PG, Badurdeen S (2022) Perinatal predictors of clinical instability at birth in late-preterm and term infants. *Eur J Pediatr*.
11. Sehgal A, Allison BJ, Miller SL, Polglase GR (2022) Myocardial perfusion and function dichotomy in growth restricted preterm infants. *J Dev Orig Health Dis*. 1-9.
12. Sharma R, Kannourakis G, Prithviraj P, Ahmed N (2022) Precision medicine: An optimal approach to patient care in renal cell carcinoma. *Front Med (Lausanne)*. 9:766869.
13. Tully E, Truong M, Fooladi E, Davey MA, Hodges R, Davies-Tuck M (2022) South-asian women's experiences of earlier additional, fetal monitoring to reduce stillbirth: An exploratory qualitative study. *Women Birth*.

Epub ahead of Print

1. Castle-Kirszbaum M, Fuller PJ, Goldschlager T (2022) Letter to the editor. Risk factors for postoperative DI after transsphenoidal surgery: Missing a pinch of SALT. *J Neurosurg*. 1-2.
2. Croft B, Bird AD, Ono M, Eggers S, Bagheri-Fam S, Ryan JM, Reyes AP, van den Bergen J, Baxendale A, Thompson EM, Kueh AJ, Stanton P, Thomas T, Sinclair AH, Harley VR (2023) FGF9 variant in 46,XY DSD patient suggests a role for dimerization in sex determination. *Clin Genet*. 103:277-287.
3. Cumberland A, Hale N, Azhan A, Gilchrist CP, Chincarini G, Tolcos M (2022) Excitatory and inhibitory neuron imbalance in the intrauterine growth restricted fetal guinea pig brain: Relevance to the developmental origins of schizophrenia and autism. *Dev Neurobiol*.
4. Erker C, Mynarek M, Bailey S, Mazewski CM, Baroni L, Massimino M, Hukin J, Aguilera D, Cappellano AM, Ramaswamy V, Lassaletta A, Perreault S, Kline CN, Rajagopal R, Michael G, Zapotocky M, Santa-Maria Lopez V, La Madrid AM, Cacciotti C, Sandler ES, Hoffman LM, Klawinski D, Khan S, Salloum R, Hoppmann AL, Larouche V, Dorris K, Toledano H, Gilheaney SW, Abdelbaki MS, Wilson B, Tsang DS, Knipstein J, Oren MY, Shah S, Murray JC, Ginn KF, Wang ZJ, Fleischhack G, Obrecht D, Tonn S, Harrod VL, Matheson K, Crooks B, Strother DR, Cohen KJ, Hansford JR, Mueller S, Margol A, Gajjar A, Dhall G, Finlay JL, Northcott PA, Rutkowski S, Clifford SC, Robinson G, Bouffet E, Lafay-Cousin L (2022) Outcomes of infants and young children with relapsed medulloblastoma after initial

Editorials and Commentaries

1. Chee A, Low MSY, Vilcassim S, Grigoriadis G, Fedele PL (2022) COVID-19 unmasks the critical role of primary healthcare providers in the timely diagnosis of multiple myeloma. *Intern Med J*. 52:885-886.
2. Dunleavy JEM, Dinh DT, Filby CE, Green E, Hofstee P, Pini T, Rivers N, Skerrett-Byrne DA, Wijayarathna R, Winstanley YE, Zhou W, Richani D (2022) Reproductive biology research down under: Highlights from the Australian and New Zealand Annual Meeting of the Society for Reproductive Biology, 2021. *Reprod Fertil Dev*. 34:855-866.
3. Fuller PJ, Nguyen T, Alexiadis M, Chu S (2022) FOXL^{C134W}: Much ado about something! *J Pathol*. 256:1-3.
4. Funder JW (2022) Primary aldosteronism - imaging versus lateralization. *Am J Hypertens*. 35:512-513.

Additional pubs:

*Fully Published in 2021 but not included in 2021 Annual Report

Journal Articles:

1. *O'Malley J, Iacovou M, Holdsworth-Carson SJ (2021) Evidence for an association between endometriosis and allergic and non-allergic food hypersensitivity is lacking. *Front Reprod Health* 3:726598.
2. *Salamonsen LA (2021) Menstrual fluid factors mediate endometrial repair. *Front Reprod Health*. 3:779979.

**Hudson affiliation with a consortium:

Epub:

1. **Hansen ML, Hyttel-Sørensen S, Jakobsen JC, Gluud C, Kooi EMW, Mintzer J, de Boode WP, Fumagalli M, Alarcon A, Alderliesten T, Greisen G, (NIRS) ESfPSIGNS (2022) Cerebral near-infrared spectroscopy monitoring (nirs) in children and adults: A systematic review with meta-analysis. *Pediatr Res*.

Research article:

1. **Oud MS, Smits RM, Smith HE, Mastrorosa FK, Holt GS, Houston BJ, de Vries PF, Alobaidi BKS, Batty LE, Ismail H, Greenwood J, Sheth H, Mikulasova A, Astuti GDN, Gilissen C, McEleny K, Turner H, Coxhead J, Cockell S, Braat DDM, Fleischer K, D'Hauwers KWM, Schaafsma E, Nagirnaja L, Conrad DF, Friedrich C, Kliesch S, Aston KI, Riera-Escamilla A, Krausz C, Gonzaga-Jauregui C, Santibanez-Koref M, Elliott DJ, Vissers LE, Tüttelmann F, O'Bryan MK, Ramos L, Xavier MJ, van der Heijden GW, Veltman JA, Genetics of Male Infertility Initiative cG (2022) A de novo paradigm for male infertility. *Nat Commun*. 13:154.



L-R: Associate Professor Jason Cain and Professor Ron Firestein

