Perkins News

AUTUMN EDITION 2024

HARRY PERKINS INSTITUTE
OF MEDICAL RESEARCH

You're making change happen every day

CEO's Message

A very warm welcome to the first edition of Perkins News for 2024

If you are an avid reader of this publication – and I hope you are – you will know that each issue is themed.

This edition, we delve into the inspiring world of Changemakers.

A Changemaker is someone who actively works to make a positive difference in the world. They are driven by a desire to improve the lives of others and create a more equitable and sustainable future.

Here at the Perkins, I'm humbled by the Changemakers I encounter daily.

It's people like WA's best researchers working tirelessly to beat the world's toughest diseases. Or the Research Support team ensuring that the researchers have everything they need to complete their work. Or it could be the patients I encounter in my clinic, determined to change the path of their cancer journey.

But by far the most important Changemaker is **you!**

None of our achievements, breakthroughs or kinder treatments would be possible without you. You have seen the impact disease can have on the people you know and love. And you've set about changing that for others by backing WA medical research – thank you.

I've said it many times, but the Perkins is a family. We look after and care for each other. And when change for the better happens, we celebrate it together – like a family.

Thank you, Changemaker, I hope you enjoy reading about what you have made possible.

Professor Peter Leedman AO
CEO, Researcher, Doctor and Donor

Harry Perkins Institute of Medical Research

Vale Kylie Beard
1976 - 2021

On the day before her 45th birthday, beloved sister, daughter, dear friend and long-term Perkins' supporter Kylie Beard lost her battle with breast cancer.

She was a force of nature who continues to drive research to this day.

In Loving memory

Over the coming months, we will be honouring Kylie's life and legacy.
Please keep a look out for her story in your mailboxes and online.

Professor Jonas Nilsson

First of its kind treatment coming to Australian cancer patients – thanks to you.

TIL therapy is a new cancer treatment that may be available to you and your loved ones soon. Doctors take immune cells from a tumour, vastly multiply them in a lab, then put them back in your body to target and destroy cancer cells.

TIL therapy gets its name from the cancer-fighting white blood cells that are extracted in the process, called tumour-infiltrating lymphocytes.

It's a key cancer treatment in many countries. However, it's not yet used in Australia. The West Australian Melanoma Initiative, led by Perkins researcher Professor Jonas Nilsson, is changing that. They're focusing on melanoma, also known as 'Australia's national cancer'.

Why melanoma? Currently, the third most diagnosed cancer in Australia, only around half of melanoma patients respond well to standard treatments – surgery, chemotherapy and radiation. That leaves half of melanoma patients with few other options. TIL Therapy could be their lifeline.

Professor Nilsson, Dr. Peter Lau, and Associate Professor Zlatibor Velickovic are leading the TIL therapy charge here in Australia.

First, Professor Nilsson extracts TILs from the tumour. His team ensures only the best are sent for replication.

Then, Associate Professor Velickovic grows billions of TILs in a special lab at Royal Perth Hospital. This newly created "clean room" lab is free of dust, microbes, and other contaminants. Even tiny particles can ruin the treatment.

Finally, the TILs are put back into the patient through an IV drip. Dr. Lau is there to oversee and monitor their response.

"It's been my dream to bring this therapy to WA," said Professor Nilsson who originally hails from Sweden. He goes on to explain that the missing piece of the puzzle was a clean room – now that is in place, the barriers to rolling out this potentially life-changing therapy have greatly decreased.

"...We see this as the first step to improving therapeutic outcomes in Australia. It is fulfilling to do what we came here to do."

As research in this field progresses, TIL therapy is expected to play a significant role in improving outcomes for future cancer patients.

Your donations have not only helped bring Professor Jonas Nilsson – a global melanoma expert – to Perth, but your loyal support is also funding the establishment of TIL Therapy in WA.

You are supporting new ovarian cancer treatment.

Ovarian cancer can be tricky to diagnose because its symptoms are often mistaken for other less serious conditions. There is no routine screening test for ovarian cancer, and this can lead to delays in diagnosis. That is why ovarian cancer is often found at a more advanced stage.

A new aggressive subtype of ovarian cancer has been found in ten percent of patients. These patients have the worst rates of survival, with their tumours being resistant to one of the only treatments for ovarian cancer, the drug Cisplatin.

Associate Professor Pilar Blancafort from the Perkins previously identified a protein called AAMDC which had a role in the development of breast cancer treatment.

This protein helps control important processes like DNA regulation and protein modification. It's believed that it could also be involved in how cancer spreads and grows by affecting how cells behave.

While investigating the role of AAMDC in ovarian cancer, A/Prof Blancafort's lab discovered that extra copies of this protein are found in those ten per cent of ovarian cancer patients.

Targeting this protein could be the key to more effective treatment and researchers at the Perkins have discovered that by blocking it, they can kill the cancer cells.

The research is still in its early stages but there's a lot of hope for what this could mean for individuals with ovarian cancer.

Women's cancer research at the Perkins is proudly funded by the passionate participants of the New Town Toyota Walk for Women's Cancer. Many of you are long-term contributors to this research. It's wonderful to share what your support has achieved.

Associate Professor Pilar Blancafort

Nurse Jenny Turner

Meet Jenny Turner, a cardiology nurse with more than 15 years' experience – and a Changemaker!

Jenny works at a major hospital south of the river. Her role involves supporting cardiologists and cardiac surgeons. Together, they aim for the best outcomes for patients.

Jenny works with patients who have aortic stenosis, or heart valve disease. Heart valve disease typically affects older people, but Jenny is seeing more patients in their forties and fifties. A large part of Jenny's job is ensuring that people who require heart surgery have the best chance of recovery.

Jenny says many older patients underestimate their heart issues and ignore symptoms until it's an emergency. Shortness of breath is the leading symptom of valvular heart disease. Yet most people think they are just 'slowing down'... so they slow down, their muscles get weaker over time and their heart struggles even more. By then, they need immediate help. Their bodies are in poor shape, making surgery risky.

Jenny is bringing her frontline experience to the work of Perkins researcher, cardiologist and Changemaker, Dr Abdul Ihdayhid who is aiming to revolutionise the early detection of heart disease. Because if we can detect heart disease early, we can prevent serious heart attacks and strokes.

Jenny has a message she wants to share with all of us. **Early signs of heart disease are often the same as those we associate with aging.**

- Do you lean on the shopping trolley at the supermarket?
- Have you started to use the dryer instead of hanging the washing out?
- Have you stopped doing the gardening yourself?

Don't assume you, or someone you love, is simply 'slowing down' because their activity levels are reducing. Instead, discuss it with your doctor. It's probably not heart disease, but if it is, early detection is key.

Dr. Ihdayhid is creating an AI stethoscope to spot heart valve disease early and prevent heart attacks.

First, the device turns your heart's 2D CT scans into 3D models. Then, it adds your model to a database of similar heart models. Finally, it simulates blood flow to detect blockages.

This stethoscope will enable GPs to predict heart attacks accurately during regular check-ups. They won't need to refer you for invasive or lengthy tests.

Abdul is part of a global team at the Perkins, aiming to transform heart and vascular disease treatment. Together they are working toward three audacious goals:

1. **PREDICT heart attacks before they happen.**
2. **STOP amputations due to plaque build-up.**
3. **CREATE new 3D printed heart valves that never need replacing.**

Each team is working independently but also collaboratively to make these goals happen. And here at the Perkins, thanks to you, we're kicking goals.

Right now, computers are crunching through big data. They're looking for sequences and learning the predictive factors associated with heart attacks. Once we know them, we can work on preventing them.

We have developed a world-first drug that can widen the smallest plaque-filled vascular vessels. This drug improves circulation and ultimately protects limbs from amputation.

And we are creating 3D printed biopolymer heart valves that will replace faulty valves. These valves will be cheaper to produce, can be inserted via keyhole surgery, and they'll last longer. That will reduce the need for further surgeries.

All this research is taking place today, right here in WA at the Perkins and is powered by the generosity of people like you.

Thank you for making change happen with your support.

Dr. Abdul Ihdayhid

Changemakers of the Perkins

Meet the wonderful Changemakers who, just like you, are actively making positive change by proudly supporting the Perkins and medical research. We're so grateful for everyone who drives discoveries by being an ambassador, donor, fundraiser, or volunteer. We asked these Perkins supporters what being a Changemaker means to them.

"My Dad truly believed in the Perkins and all the amazing and hard work they do. And so do I. Both his parents passed from cancer, and in 2022 my dad also left this world to reunite with his parents. Medical research is truly life changing and there are so many people who would not be here today if not for the Perkins. I'm doing my bit to make change happen by raising funds and awareness for the Perkins at community events, just like my dad."

– Kodie Rifici, Community Fundraiser

To me, supporting the Perkins through the New Town Toyota Walk for Women's Cancer means showing the Perkins researchers that we think the work they're doing is worthwhile. Raising money for the researchers enables them to do the good job that they do."

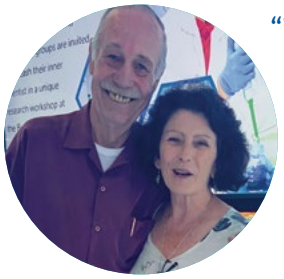
– Karen Webster, New Town Toyota Walk for Women's Cancer Walker

"It gives us the chance to support those who need a friendly voice or face when they are dealing with a tough road ahead. If that means dressing up in a costume and hitting the roads, then that's what we'll do. If it means making a phone call to check regularly on someone doing it tough, then that's what we'll do. It's all about trying to make a positive change no matter how big or small. We don't want recognition – we just want to put a smile on people's faces."

– Carol (left) and Nina (right), Volunteers and MACA Cancer 200 Riders

"It gives me great pleasure to support the Perkins because they are here in WA and my contributions stay here with the wonderful facilities available to retain research and researchers here. Importantly, the Perkins gives back to the community by hosting events, education sessions on what the researchers are focusing on, tours of the research areas and an opportunity to speak with those leading the valuable research."

– Irene Mills AM, Spark Donor and Silver Linings Family member



"Whilst we don't consider ourselves to be Changemakers, we are fervent supporters, in our small way, of the researchers and the various research projects being undertaken at the Perkins. Our admiration for the intellect and resilience of the researchers, to take a dream and progress it to fruition, is immense. If our small contributions help researchers to solve medical mysteries which will then enable people to live their best lives, we are happy."

– Susan and Gary Elsberry, Long-standing Donors

"Contributing to medical research through the Perkins with regular donations can evoke a sense of empowerment and fulfilment. It feels like playing an active role in advancing scientific knowledge and potentially improving the lives of countless individuals. Each contribution, no matter how modest, becomes a meaningful investment in the collective effort to combat disease and promote human well-being. It's a tangible way to make a difference and be part of something greater than oneself. And it feels good!'

– Murray Paddick, Spark Donor

"How am I hoping to make a change? The hope is that kinder treatments, and ultimately a cure, can be found for cancer, and more cancer battlers survive."

– Gino Macchiusi, MACA Cancer 200 Rider

Perkins Safe Harbour Fellows,
(L-R) Rhonda, Olivier and Chuck

Safe Harbour

In 2022, the Safe Harbour Program was created to support early- to mid-career researchers (or EMCR). It has been generously funded by people like you who understand the importance of protecting the next generation of researchers in WA.

EMCR typically refers to someone who has completed their doctoral studies and is in the early to middle stages of their research career. They are often in a vulnerable position due to a range of challenges including limited job security, pressure to secure research funding, intense job competition and the need to publish research in prestigious journals to advance their careers. Your support is currently funding three brilliant Safe Harbour Fellows.

What is your research about?

Dr Olivier Clement: My research explores the molecular mechanisms that allow your brain to permanently store a new memory and how that memory can be subsequently updated. Understanding these mechanisms is key to the development of treatments for neurological conditions including memory-related disorders such as Alzheimer's disease or PTSD.

Dr Rhonda Taylor: I'm developing treatments for children (and adults) born with genetic muscle diseases. These muscle diseases are usually very debilitating as they prevent the muscles used for moving, eating and breathing from working properly. There are currently no cures, so my career goal is to develop treatments for some of these diseases.

Dr Chuck Herring: I investigate how genes influence the development and identity of neurons and other cells in the human brain. Through the analysis of conditions such as schizophrenia, I aim to deepen our understanding of their origins and identify novel targets for treatment.

What excites you about your work?

Rhonda: My research is at an exciting point. We have spent the past few years developing a platform for growing patient muscle cells in the lab. Now that is working well, we can start testing some of the treatments we have designed and see if they do what we want them to do inside patient muscle cells in a dish!

Chuck: I'm enthusiastic about my research because it explores how the brain develops and how diseases can disrupt this process.

What is your biggest challenge?

Olivier: My research resides at the juncture of neurosciences and genomics. It generates a huge amount of data that must be analysed with care to reveal the precise molecular changes controlling memory processes. This takes time and funds. Inherent to the job insecurity EMCRs face, I'm also regularly taken away from my research by the need to apply for and secure grant funding.

Chuck: Deciphering the complexities of gene regulation in brain development poses challenges, requiring navigation through vast data and understanding intricate gene-cell and cell-cell interactions. Additionally, balancing time spent on research with other necessary responsibilities, such as securing funding, presents a significant challenge.

What does it mean to be a Perkins Safe Harbour Fellow?

Olivier: It represents a significant recognition of my research by the Perkins community. In addition, by covering salary and research costs, it reduced the burden to apply for funding, allowing me to focus more on my research.

Rhonda: It is an amazing initiative receiving Safe Harbour funding means that I have three years of stability to focus on achieving my research goals and I am really excited about how far I might be able to go in that time.

Chuck: It means a great deal, signifying recognition for my research and providing guaranteed funding, which is particularly challenging to secure for EMCRs like me.

What would you like to say to those people who are supporting you?

Olivier: I would like to express my deepest gratitude to everyone who generously contributes to Safe Harbour. This initiative helps young researchers like me at a critical period of our careers to pursue our own research projects. Your support is critical for us to transition to independence.

Rhonda: The world's biggest thank you! I honestly don't know if the supporters of the Safe Harbour scheme know what a huge impact they are making. Safe Harbour has given me the ability to keep pursuing my dream of making a difference to sick kids and their families, as well as supporting my own family. It means the world to me!

Chuck: I'm deeply thankful for your support, which empowers early-career researchers like me. Your generosity helps us in our pursuit to improve the lives of others, offering hope for those affected. Your contributions make a significant impact in our journey towards making lives better.

What does the future hold for you?

Chuck: I aim to establish my own lab and Safe Harbour is a significant first step, boosting my competitiveness as an investigator in national grant schemes.

Thank you to the families and donors who have supported the Safe Harbour Program so far. Our dream is to award one new Safe Harbour Fellow every year.

If you are interested in protecting brilliant minds like Olivier, Rhonda and Chuck, please email Key Relationship Manager, Shelley Mason at shelley.mason@perkins.org.au

PERKINS ALLIANCE

While they may be viewed as competitors or rivals by some, Geoff Baker from MACA and Bob Gavranich from MinRes reject such notions when it comes to their shared mission of combatting cancer.

These companies, alongside many others, have united to establish the Perkins Alliance with a singular objective – to decrease the overhead costs of Perkins major fundraising events, meaning more funds go towards vital research initiatives in WA.

We sat down with these two Changemakers of the Perkins Alliance to discover why they feel so passionate about the Perkins and medical research.

As a proud founding member of the Perkins Alliance, what keeps you engaged in the cause?

Geoff Baker: Cancer is a disease that unfortunately, I'm too familiar with. I lost my wife, Libby to cancer so my interest in finding cures for cancer is deeply personal. What keeps me engaged with the Perkins is their relentless fight to find answers for people like me and families like yours who are faced with the battle of their lives. Without research, we will not find cures so we must fund research.

Bob Gavranich: Cancer is a terrible disease that has no boundary in who it affects. I have seen family members and dear friends have their lives painfully cut short. So, to be part of an organisation like the Perkins whose sole aim is to provide answers to people suffering from disease is important to me. By doing our part as an organisation through the Perkins Alliance, my hope is that there will be more cancer survivors and less sufferers.

Why is the Perkins important to you?

Geoff: MACA has been a strong advocate of the Perkins for some time. But we really bolted on once the Perkins took the MACA Cancer 200 Ride in-house. The care and attention the entire Perkins team gives to ensuring the event is safe, memorable and life-changing is exemplary. I have personally met the researchers and visited the labs and I can tell you that you will not find more committed people dedicating their lives to a healthier future for all.

Bob: The members of the Perkins Alliance are all involved in the resources sector. It makes me proud that we stand behind a cause like this. The ability to harness the support from our suppliers is a key ingredient to the success of the Perkins Alliance. Cancer research

You may know someone who works for a Changemaker
Meet the Perkins Alliance: cancer200.org.au/perkins-alliance

Alliance Members

maca · MINERAL RESOURCES · WesTrac CAT · W.A. LIMESTONE · Europcar · BLUE DIAMOND MACHINERY

provides a platform for me to reach out to our valued suppliers and gives like-minded organisations that are keen to support the cause an avenue where they can provide in-kind support.

How has being involved changed your company culture?

Geoff: MACA's culture has only benefitted from our involvement in the Ride over the years. Not only has it brought team members from across the business and the country together, but it has galvanised us to raise considerable funds for this worthwhile cause. To date MACA has personally raised over $20M for cancer research at the Perkins.

Bob: Those who participate in the event embrace the culture that only a rider knows. For the interested onlookers who would like to enter the event but cannot for a variety of reasons, there is a sense of pride knowing that their workmates are doing their part in fighting cancer. Five years ago, MinRes had a very small contingent of riders in what is now known as the Cancer 200 Ride. In this year's event, we will have more than 100 riders participating which is an excellent indication on just how good the culture is at MinRes.

What advice would you give to other companies considering supporting a charity in a significant way?

Geoff: Find one what aligns with your company's values, keep the cause local – so WA based – and ensure that your workforce backs the decision. We don't just support the MACA Cancer 200 Ride for the Perkins – we are committed to the sustainability of the Perkins because it's a cause that affects everyone.

Bob: Do it now, you won't look back. Being in a position as an employer to be able to provide any amount of financial assistance towards cancer research is an acknowledgement that your organisation does care. Without the assistance from organisations that do care, the battle to find a cure for cancer will be a long one.

What does the word Changemaker mean to you?

Geoff: A Changemaker needs a bit of bravery, bravado and conviction that the decisions they make will help improve the community in which they live. Really, it comes down to leaving the world a better place than when you found it.

Bob: To collaborate with organisations and individuals where relationships have been formed over many years and then utilise those relationships to develop opportunities. Getting people involved and producing an outcome that will make a difference is what a Changemaker does.

You're helping to make global change

Perkins scientists collaborate with research teams across the globe to give you and the ones you love the best opportunity to live longer, healthier and better lives.

Perkins researchers have made many discoveries over the years which are improving health outcomes for people globally. It's because of your support that these collaborative research breakthroughs and discoveries were made in the cities below. Thank you!

FAST Infection diagnostics tool developed

Perkins researcher Dr Kieran Mulroney developed a new technique to diagnose life-threatening infections (such as sepsis and peritonitis) and find the best antibiotic to treat them.

Diagnostic delays for serious infections can be deadly. Patients have a greater than 7% chance of death each hour that they don't have an effective antibiotic – that's cumulative. Current pathology can take up to five days to diagnose.

Kieran's test aptly named FAST (Flow cytometry-assisted Antimicrobial Susceptibility) can return results in just 3-5 hours with 96.9% accuracy.

The technology measures hundreds of thousands of individual bacteria in just a few seconds and detects the damage antibiotics cause to bacteria. It uses this data to confirm which antibiotic will be an effective treatment.

Kieran and his team are now working to commercialise their FAST diagnostics tool. It will go a long way to help the over **1 million people globally** who suffer from antibiotic resistant infections.

World first brain gene activity map unveiled

Professor Ryan Lister and his team developed a map that tracks gene activity changes in various human brain cells from birth to adulthood. **This is the world's first guide to human brain development.** Now, researchers can use this map to spot changes in brain cells more accurately, specifically in cases like schizophrenia and brain cancer.

Cutting edge technology brought to WA

Cutting-edge technology for finding disease genes has reached Western Australia. It will aid in diagnosing genetic diseases. Associate Professor Gina Ravenscroft, leading the Perkins Rare Disease Genetics and Functional Genomics Group, praised the Bionano technology saying it will increase the number of diseases that can be diagnosed and will accelerate genomic research. The Bionano instrument can now be used by WA researchers in a **collaborative partnership between the Perkins, PathWest and FSHD Global Research Foundation.** This tool will boost Australia's muscle research and drug discovery for FSHD (Facioscapulohumeral muscular dystrophy).

FDA approval for drug use based on Perkins research

Colchicine, a widely available gout medication, received FDA approval to be used in low dose to prevent cardiovascular events in patients with proven coronary disease. This approval comes following the discovery by Perth clinical cardiologist Dr Mark Nidorf and Professor Peter Thompson AM from the Perkins. **Trials involving over 11,000 patients in Australia, the Netherlands and Canada** have confirmed the benefits, safety and efficacy of using this widely available gout drug to prevent coronary heart disease.

Thank you for supporting these Perkins Changemakers to beat the world's toughest diseases.

Dates for your calendar

New Town Toyota Walk for Women's Cancer
27 April 2024

Come and help celebrate over 1000 dedicated Walkers who are raising money to fight women's cancers. They will love the encouragement from the sidelines! Shake a pom pom, high-five a Walker or simply holler and hoot as they pass by – 35km is a long way to walk and your involvement really helps to keep the energy levels pumping. .

Scan the QR code or visit: walkforwomenscancer.org.au to find out how to get involved.

HBF Run for a Reason 19 May 2024

Join the Perkins largest HBF Run team ever at this year's event. Whether you're brand new to fitness challenges or a seasoned pro, lace up your runners and take on a 4km walk or run, 12km walk or run or half marathon, all in the name of raising funds and awareness for medical research. Running mode activated!

Scan the QR code or visit runforareason24.grassrootz.com/theperkins to find out more or sign up.

Perkins Plunge 7-8 September 2024

Get ready to make a splash with a brand-new event to dive into. The Perkins Plunge powered by MinRes is a 12-hour overnight relay swim raising funds for WA medical research into the diseases that most affect our families. Registrations open in June. Keep an eye on our socials so you don't miss out. See you pool side!

MACA Cancer 200 Ride for The Perkins
13-14 October 2024

A life-changing 200km, two-day journey uniting the community by supporting WA researchers to beat the world's toughest cancers to ensure you and your loved ones have longer, healthier and better lives. All types of Riders come together for two days filled with camaraderie, stunning scenery and the satisfaction of making a real impact on cancer research by helping Perkins researchers beat this terrible disease.

Scan the QR code or visit cancer200.org.au to find our more or sign up. Places are limited. Let's Ride!

Find us on Facebook & LinkedIn – search for Harry Perkins Institute.

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