

PERKINS NEWS

FESTIVE EDITION NOVEMBER 2023



THANK YOU FOR YOUR SUPPORT
SEASON'S GREETINGS FROM THE PERKINS



DIRECTOR'S MESSAGE

Season's Greetings!

As you know, this year marks 25 years of the Perkins as WA's only medical research institute focused on the diseases that most impact you and your family – cancer, cardiovascular disease and diabetes and rare genetic diseases.

And your special festive issue of the Perkins News is dedicated to family. Not just the family you're born into but the family you make in life – the people who have your back, who are your source of strength and resilience, who champion you and help you to overcome life's obstacles.

A few years ago, one of the riders in our charity bike ride, the MACA Cancer 200, shared with me that he felt more than a supporter, he felt part of the Perkins family. That sentiment has stayed with me ever since. And, with some pride, I have heard it repeated often.

You are part of the growing Perkins family.

Due to your caring contributions to medical research, we have a lot to be proud of.

This magazine features a snapshot of stories made possible because of your support. There are many, many more which it will be my honour to share with you in the future.

As the year draws to a close, I want to thank you for your loyalty, curiosity, understanding and support. Medical research isn't for the fainthearted. Our goals are audacious, long ranging and challenging – but when we make a breakthrough, they change the world. And we do it together.

That's something you can be so proud of.

Enjoy.



Peter Leedman

Professor Peter Leedman AO
Director, Researcher, Doctor, Donor



More meaningful moments *this Christmas*


**As the season of giving approaches, we're reminded of
the power of kindness, joy and love.**

This festive season, please give the extraordinary gift of
more meaningful moments for families.

A gift in support of medical research can help keep loved ones
at the Christmas table and gathered around the Christmas tree
for years to come.

**Please consider making a gift this festive season
to help keep families together for longer.**

Visit xmaswishes.perkins.org.au or scan the QR code



*In loving memory of
Dad*

You should get ready because a tsunami is coming.

Liver cancer is an imminent health threat for all Australians. While rates of other cancers are falling or remaining static, liver cancer is the only top 10 cancer on the rise.



Most liver cancer patients are treated with surgery followed by medication. Currently, there's only one drug called Lenvatinib that is listed as a treatment for liver cancer, and essentially every patient develops resistance to that drug. With few treatment options, it's also rapidly becoming one of the hardest-to-treat cancers with a poor prognosis.



Without a new treatment, liver cancer will be the disease tsunami of the future. One of the most worrying aspects of the increase in the global incidence of liver cancer relates to obesity and problems with fatty liver.

Thankfully, there's hope and Perkins is leading the way through RNA-technology.

What is RNA and why should you know about it?

Within a cell, RNA molecules carry instructions for making proteins. They can also help genes turn on and off, aid chemical reactions and even alter other RNAs.

Researchers at the Perkins have identified a very small amount of the non-coding RNA, and this small RNA is called a micro-RNA. Researchers have been able to show that this micro-RNA is a very effective inhibitor of liver cancer in several different models. So now, for the first time, we have got a wonderful, small therapeutic which shows great promise.

We've also found that this little micro-RNA called microRNA-7 can make liver cancer cells that have become resistant to Lenvatinib more sensitive to the drug again, which is a remarkable finding.

This work is led by a multi-disciplinary global team, headed by Professor Peter Leedman from the Perkins:

"This micro-RNA has the potential to not only treat liver cancer before it has received Lenvatinib but it can rescue liver cancers that have become resistant to Lenvatinib. And given that resistance to cancer treatment is the real reason that most people die, we are very excited about this observation."



Emeritus Professor George Yeoh and Professor Peter Leedman AO sit on Perth's Liver Cancer Collective, fighting to find answers.



Brad during cancer treatment

Brad riding in Macca 200 Ride for Cancer Research

Brad is giving back to honour the research that saved his liver. And his life.

After a routine colonoscopy, Brad Glover did not expect to receive life-altering news. Not only was he informed that he had stage 4 bowel cancer, but he had 21 additional tumours in his liver.

Seven surgeries, 36 sessions of chemotherapy, three different forms of radiation therapy, countless number of scans and Brad is still here. In fact, he just completed his second MACA Cancer 200 Ride for Research.

"After dealing with the colon cancer, I underwent Selective Internal Radiation Treatment (SIRT) for my diseased liver. **It's like something out of James Bond. I was fully conscious as they injected microscopic nuclear spheres into the infected**

side of my liver. They worked by burning and cauterising my blood vessels effectively killing off my cancer-compromised liver so the good side could take over and regrow. And the best part? This technology was developed right here in WA."

Something that was discovered in the most isolated city in the world is now being used globally to benefit so many. Who knows, micro-RNA could be the next big breakthrough for this terrible disease and that is the power of the Perkins.



You're at the Heart of WA Research

Dr Abdul Ihdahid, Cardiovascular Researcher, and Dr Elena de Juan Pardo, Biomedical Engineer

So much of what you hear about medical research relates to cancer – with two in five Australians expected to be diagnosed with cancer before the age of 85, cancer gets the lion's share of the news.

But did you know that heart disease is our #1 killer? It accounts for around half of all deaths in Australia. We already know so much about the causes of heart disease and that many cardiovascular conditions are preventable. Yet it still has such a devastating impact on our families.

Supporters like you, who have made medical research in Western Australia a priority, are

at the heart of so many groundbreaking solutions to this deadly problem. And 2023 has been a big year for heart disease research.

Scientists, doctors and engineers at the Perkins are the collaborative force behind many of the advances being made in cardiovascular medicine. They're tackling heart disease in three ways:



1. Using Artificial Intelligence (AI) to predict heart attacks before they happen



2. Discovering new uses for existing drugs to prevent amputations due to peripheral arterial disease



3. Developing 3D printed heart valves that can be inserted by keyhole surgery and never need replacing.

Surprise! It's your heart!

For many Australians, a heart attack can be the first sign that they have heart disease. While survival rates for heart attacks are around 90%, cardiac arrests are more serious. These breaks in the electrical currents that keep the heart pumping have a much lower survival rate – around 50%. And they're often fatal, leaving families devastated.

With an aging population, the incidence of other heart issues, like aortic stenosis, hardening of the heart valves, are increasing. It is estimated that one in eight elderly Australians suffer from aortic stenosis, which is fatal if left untreated. Heart valve disease is also being detected in larger groups of younger people, so this will impact millions of Australians in the future.

You're already making a difference

Donations from the community are supporting Perkins researcher Dr Abdul Ihdahid, who is combining traditional tools and existing technology with artificial intelligence (AI). He's developing an AI stethoscope that will be able to detect abnormalities in your heart that can't currently be detected by doctors. This allows him to pick up very early signs of aortic stenosis and plan a better health care program to delay the onset of this debilitating disease.

And when your heart valve does need replacing, Abdul is working with another Perkins researcher

to ensure there's an accessible and effective option available. But Dr Elena de Juan Pardo is not a medical doctor – she's a Biomedical Engineer who is building new heart valves in the lab, from biopolymers, or plastics that can be absorbed by the human body.

So rare is Elena's line of work that before she could 3D print her first heart valve, she had to build her own 3D printer from the ground up – this is specialised equipment that's not readily available over the counter.

Thanks to generous people like you, Elena's research has now advanced to a point where her 3D printed prototypes intricately mimic a human heart valve.

You're already providing a safety net for Elena and her team so their research can continue – through the testing phase and into clinical trials. She's just started out this year on commercialising her invention, which can help to speed up this process.

It won't be long before you'll be able to ask your cardiologist for a heart valve developed right here in Elena's lab at the Perkins.



PhD students Ria Shah and Harrison Caddy at the Perkins with a digitally controlled hydraulic piston pump that creates physiological cardiac flows

Christmas Wishes

The streets are filled with blooming jacarandas, you can't leave the house without your sunnies, and you hear the tinkling of jingle bells everywhere you go. It's beginning to look a lot like Christmas, and that means it's time to start making a list (and checking it twice!)

We asked a group of Perkins researchers what would be at the top of their Christmas wish list this year, if money and time were no object.

Here is what they said:



Jevin Parmar

PHD STUDENT IN THE
DISEASE MODELS AND
THERAPIES TEAM

A genetic diagnosis for all patients who suffer from rare neuromuscular disorders.



Hanane Belhoul-Fakir

PHD CANDIDATE IN THE
TARGETED DRUG DELIVERY,
IMAGING AND THERAPY
LABORATORY

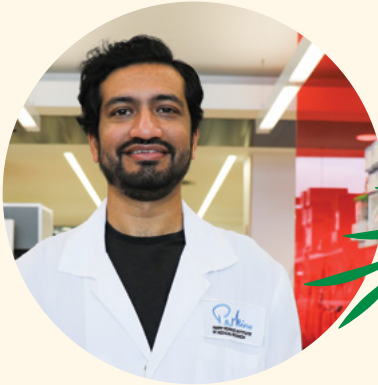
My wish is for access to better research models that closely mimic the human lipid metabolism so we can further our research into what causes atherosclerosis, the build of plaque in artery walls. Better models will also help us understand the efficacy of novel drugs to treat this devastating heart condition.



Sara Murphy

PERKINS LABORATORY MANAGER

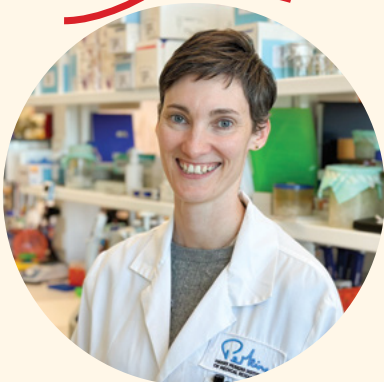
If money and time were no issue, my wish for medical research would be continuous stable funding and extra wellbeing support, because being a researcher and confronting disease every day is tough. This would attract and keep more talented people focused on tackling big difficult health issues by giving them the support they need to pursue this difficult career path.



Dr Mridul Johari

TFLF FELLOW AND RESEARCH
ASSOCIATE IN THE RARE DISEASE
AND FUNCTIONAL GENOMICS
LABORATORY

My goal is to understand aging, especially some neuromuscular diseases that resemble early aging. I focus on diseases where muscle weakness or neurological impairment happen in patients over the age of 45 years. I would be interested in studying what causes these neuromuscular issues and how they can be treated by targeting aberrant proteins, so these individuals have an improved quality of life for themselves and their families.



Dr Rhonda Taylor

TEAM LEADER OF THE DISEASE
MODELS AND THERAPIES TEAM

I would buy a new world-leading piece of equipment for making 3D human skeletal muscle tissues in a dish. My ultimate aim is to develop treatments for sick kids with muscle diseases – diseases that currently have no treatment. This new system would allow me to grow patients' cells in a dish, and measure how strong their muscle cells are before and after treatment. This would be a huge breakthrough which would greatly accelerate my search for new treatments.



Luisa Pinnel

INDEPENDENT RESEARCH
IN MELANOMA DISCOVERY
LABORATORY

PhD students are essential to new research being undertaken. I'd wish for more resources for student researchers so we can better balance our studies and research commitments with the cost of living – earning a wage outside of the lab takes us away from what we are devoted to achieving.



You won't believe where Michele's cancer journey led.

Each year, an incredible group of Perkins supporters gather at sunrise to start an epic walk through Perth – 35km or 42km, to be exact – you know who you are!

Not only are you tackling a mighty long hike, but you do it in the name of WA women's cancer research at the Perkins. This year, you raised \$1.4M.

The event is the New Town Toyota Walk for Women's Cancer – an annual fundraising event here at the Perkins to support medical research into breast, ovarian and other women's cancers.

Many of you reading this are veterans of the Walk – having completed the event many times. Some of you walk for yourselves and your own cancer journey, some of you walk on behalf of friends or family.

One such walker is the formidable Michele Librizzi.

Michele is a ten-year walker and Captain of Team Hello Titty. She is the Official 2023 Walk Ambassador raising over \$11,000 for WA women's cancer research at the Perkins.

Michele is also a cancer survivor.

At 36, Michele was diagnosed with ovarian cancer. She endured gruelling, sometimes daily chemo

treatments. And then came the 12-month waiting game to ensure she was cancer free.

For eleven months, she was clear... and then, just before her twelve month milestone, her doctors found something.

To everyone's shock, cancer had reared its ugly head again but this time, it was in Michele's breast.

And the two cancers were unrelated.

As frightening as it was to hear the nasty cancer word again, Michele felt stronger because she knew who she had by her side – researchers, doctors, nurses, volunteers and her remarkable family and friends – each playing their part to keep her alive.

"The amazing thing about cancer is that even though it can tear people apart, it also brings people together. And it's always, always the exact people you need by your side."

You will be happy to know that Michele is now cancer free and committed to giving back to recognise the part research played in her conquering cancer and so that others might never have to go through what she did – twice!

Michele says she wants to support Perkins researchers like Dr Edina Wang who continue to ensure that, in the future, you and your kids will be able to access kinder treatments leading to better outcomes.



Dr Edina Wang

"... and who knows, your support of the Perkins could lead to making this terrible disease just a pause in someone's life and not a full stop."



Michele Librizzi with fellow Team Hello Titty walkers stopped at the 18km marker for refreshments.

What's with all the bees?



The Walk for Women's Cancer logo features two fluffy honeybees. The bee has become a symbol of the Walk. In 2021, a global discovery was made at the Perkins involving the small but mighty WA honeybee. It was discovered that, in the lab, honeybee venom kills breast cancer cells. This discovery was heralded globally. Funds raised by Walkers have allowed researchers like Dr Edina Wang to continue her groundbreaking bee venom work in the hopes it will lead to a new treatment for breast, ovarian and potentially other cancers.

What do you want to be remembered for?

Pam Bird and her late husband Geoff have a long history supporting the health of others. Pam trained in nursing and midwifery and worked across the UK. Her late husband, Dr Geoff Bird was a leading obstetrician-gynaecologist who worked at King Edward Memorial Hospital.

Pam is now 93 and long retired, but that doesn't mean her efforts to care for the health and wellbeing of others has slowed. Pam is a loyal supporter of the Perkins and passionate about melanoma research, having included a future gift to the Perkins in her Will.

Pam has benefited from medical research - she's now cancer free after facing ovarian cancer 13 years ago. Pam told us: "I feel that any amount can make a huge difference. I'm sure Geoff would be happy with me continuing his legacy by helping to support medical research".

Thank you, Pam for your kind and selfless gift that will benefit the work of Jonas (below) and others.



Pam Bird 13 years cancer free, pictured with Rikki Brown



Professor Jonas Nilsson

Fighting the cancers that lurk beneath your skin

Melanoma is the third most diagnosed cancer in Australia. So you can understand why global expertise in this area is urgently needed in WA.

Meet the Perkins Chair of Melanoma Discovery, Professor Jonas Nilsson – one of the world's leading experts in melanoma research. His team focuses on improving

outcomes for melanoma patients.

Current immunotherapy treatment, where an individual's own immune system is harnessed to attack the cancer cells, benefits around half of all melanoma patients.

"Fifty per cent of patients can now get very, very long responses or even cures," he said.

"But if you flip to the other side of the coin, what about the rest of the patients? What can we do for them? That is where our research is going."

Professor Nilsson and his team are working on a cutting-edge treatment called TIL therapy, where immune cells are taken from the patient's tumour, 'super-charged' outside the patient's body, and then reintroduced in enormous numbers to help the patient fight the disease.

This is extremely exciting and could be the game changer we need to progress toward making melanoma non-lethal.

Big hearts meet bright minds

One of Australia's top 30 corporate philanthropists, Hearts and Minds Investments Limited (ASX: HMI) has made its first donation in Western Australia, funding the work of Associate Professor Gina Ravenscroft and the Rare Disease Genetics and Functional Genomics Group at the Perkins in its work investigating treatments for debilitating muscle weakening diseases.



Associate Professor Gina Ravenscroft

"The research conducted on neurogenetics by Associate Professor Gina Ravenscroft and her team in Western Australia is world class. HMI is excited to be supporting ongoing research in this area to provide better treatments and quality of life to children impacted by these terrible diseases," Paul Rayson, the Chief Executive Officer of Hearts and Minds Investments said.

The Rare Diseases Group at the Perkins was nominated as a beneficiary by HMI Core Fund Manager Magellan Asset Management. Our sincere thanks to Magellan Asset Management and Hearts and Minds Investments Limited for their most generous support! We are truly grateful.

Do you recognise our cover model?

You may know a family who are together this Christmas because of the incredible work of research teams. The Rare Disease Genetics Group at the Perkins have an important role to play in the lives of many families who may have experienced loss or have a child living with a suspected genetic disease.

You may have generously donated to our Autumn appeal last year, when you heard the story of little Logan and his Mum Lauren. After learning that she had a 50% chance of inheriting the neurodegenerative disease that had slowly and cruelly taken her father's life, she underwent genetic screening to get some answers.

She said "It's our second Christmas as a family and it's still surreal to me. I never thought I'd be lucky enough to have a family of my own.

I know this wouldn't have been possible without researchers, and the people donating to them, who discovered the disease-causing genes impacting my family many years ago. Today, the team here at the Perkins have found more than 40 disease genes for families like mine."

It's incredible to think of the number of families gathering together this Christmas who have been unknowingly touched by the research happening at the Perkins and the generosity of people like you. It's the best type of secret Santa.



Logan with his mum Lauren



Ryan Murphy



The Run for Ryan

Hale Students Rally for Ryan

On a sunny weekend in July, hundreds of Hale School students and parents gathered on the school oval to Run for Ryan.

A fit, fun-loving 17-year-old, Ryan Murphy had just returned from an overseas cricket tour when he got a painful headache. His mum took him to the doctor, who scheduled an MRI to find the cause of Ryan's pain.

After the visit to the doctor, Ryan slept for 15 hours straight – his mum suspected something wasn't right. Her hunch was confirmed. The MRI showed that Ryan had glioblastoma, an aggressive brain tumour.

Ryan and his family were shocked. And as they were coming to terms with Ryan's diagnosis, time ran out. Sadly, just three weeks after learning about the cancer in his brain, Ryan passed away.

Ryan's family, friends and the school community were devastated with the loss of their vibrant, energetic and loving son, brother and friend who had his whole life ahead of him.

Through her grief, Ryan's mum, Sharon, reached out to the Perkins. In 2021, Ryan had attended a 10-week Perkins Profs program in the Lotterywest BioDiscovery Centre. Here, he experienced firsthand what many of the researchers at the Perkins do every day in their quest to find answers to some of the most serious diseases that impact our families.

He came to appreciate the importance of medical research in developing new ways to treat diseases.

Ryan's classmates at Hale organised two fundraising events. In addition to the Run for Ryan, around 300 students shaved their heads to raise even more money. (And more than a few teachers and parents were pleased to see the demise of some unruly mullets).

Ryan's friends and family raised over \$40,000 in Ryan's name.

Ryan's dad reflected that Ryan would have been quietly chuffed, if not a little embarrassed, by all the attention.

The funds raised by Ryan's classmates were donated to the Perkins for cancer research, in addition to a private donation made by his family. While glioblastoma is rare, it is the most common brain cancer found in adults. But it's difficult to treat.

Professor Al Forrest leads a consortium of cancer researchers in Perth who are looking at ways to learn more about cancer tumours on a cellular level and



Shave for Ryan - Before



Shave for Ryan - After

find new ways to treat them. And a suite of cutting-edge technology at the Perkins provides researchers with the ability to examine tumours in minute detail.

Prof Forrest explains: "The single cell sequencing technology at the Perkins gives us something akin to a Google map of a tumour.

"This is particularly important because cells send little messages to each other. In just 12 minutes, we're able to see the signalling between cancer cells and immune cells. We can see if the immune cells are likely to recognise the cancer cells and destroy them, or if the tumour cells are sending a 'don't eat me' signal to the immune cells causing the immune cells to switch off.

"And if we know which cancer cells are sending a 'don't eat me' signal to immune cells and turn that signal off, then suddenly the immune system can start attacking them," he said.

The money raised in Ryan's name will be used to support research in this facility, so that researchers can learn more about how cancer tumours behave, and what might lead to a breakthrough treatment.



Sharon with her son Ryan

And Ryan's legacy will continue at the Perkins beyond the efforts of his family and friends. The Harry Perkins Institute of Medical Research has established a scholarship in Ryan's name, providing two places per year to Hale students to participate in the Perkins Profs program that had ignited Ryan's love for science.

Who knows where this might lead – a future medical researcher might just become the source of a local WA breakthrough, thanks to the kindness and generosity of Ryan's family and friends.

*** Our heartfelt gratitude to Ryan's family for their permission to share their story.**

Dates for your 2024 calendar

2024 is on the horizon and it brings opportunities for you to be involved in helping WA's best medical researchers beat the world's toughest diseases.



New Town Toyota Walk for Women's Cancer 27 April

Join us on 27 April 2024 for a 35km walk around Perth raising vital funds for cancers that affect women. There's also a 42km option for the truly inspired!

By taking part in the New Town Toyota Walk for Women's Cancer, you are helping to fund an amazing group of researchers dedicated to developing kinder treatments and better outcomes for the women in our lives fighting breast and ovarian cancer.

Register to walk and raise vital funds today.

Scan the QR code or visit: walkforwomenscancer.org.au



Maca Cancer 200 Ride for Research 12-13 October

Step up on 12-13 October 2024 for a 200km journey raising vital funds for cancer research right here in WA.

By taking part in the Maca Cancer 200 Ride for Research you'll be part of a movement to end cancer for good. There are no cancer breakthroughs without medical research and there's no medical research without you.

Scan this QR code for more info.

Register today: cancer200.org.au



Perkins Q&A

The dates for our 2024 Community Q&A events will be announced shortly but we're working hard to put together sessions that will shed light on the areas of health and research that you are interested in.

Do you have an idea for a great Q&A? Reach out and let us know by emailing info@perkins.org.au

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