PERKINS NEWS

OCTOBER 2019

21 years of cancer research here in WA

Perkins

HARRY PERKINS INSTITUTE OF MEDICAL RESEARCH

On a personal note

I feel enormously privileged, as the Director of the Harry Perkins Institute of Medical Research, that I get to personally witness the life cycle of the incredible medical solutions that you have made possible through your support.

Collaboration is a central value of this organisation. Amongst our researchers but just as importantly with you, our extended Perkins family. You are our partners in the lab and we are working together in the pursuit of better health.

I hope this newsletter gives you a glimpse into the wonderful work you are a part of. Perkins researchers continue to take research to new heights and deliver new treatments to the community we share. This is only possible thanks to you and the fantastic community we have pushing us forward.

In this edition, you'll learn about some of the groundbreaking research outcomes that your support has made possible and how our culture of collaboration is bringing together experts from different disciplines to develop better treatments for you and your family. We've also included news on events you can attend to see your impact first-hand and some medical myth busting that may surprise you.

In the Perkins 21st year, I look back on the successes that brought the Institute to where it is today, and I feel an immense sense of pride. I'm proud of the achievements our teams of scientists have made in finding new ways to help people like you live longer, healthier lives.

And, most importantly, I'm grateful for your support because none of this progress would be possible without you.

I am constantly amazed by your generosity and passion for our work. The level of stability such support bring to the researchers is immeasurable. And so many of you touched our hearts and inspired us by sharing your personal stories in our first supporter survey earlier this year.

I hope that you too feel proud of WA's largest medical research institute and the impact that our unified efforts continue to make.

With thanks as always,

Professor Peter Leedman
Director, Harry Perkins Institute of Medical Research

PS – I hope that our paths will cross soon. And I invite you to attend our upcoming Open Day on Saturday 16 November from 10am – 3.30pm at the Perkins building in Nedlands.

Your impact on discoveries

It's thanks to generous support from people like you that we're making progress every day in preventing, diagnosing and defeating disease. We rely entirely on grants and donations to fund our work, so we couldn't do it without you.

You now have new hope for blood vessel surgery

A new biomaterial that could one day help you if you undergo heart surgery is being investigated by the team from the Vascular Engineering Laboratory (VascLab).

The aorta is the biggest and most important blood vessel in your body and a type B aortic dissection occurs when a tear forms in the inner lining of your aorta. Current treatments can require significant stent-grafting which is like a 'scaffolding system' to cover the tear with a synthetic material. In some cases, this can lead to spinal cord injury and other complications. Instead, the research team – headed by Dr Barry Doyle – set out to develop a less severe surgical technique that uses a biomaterial to fill the problem. For the thousands of Australians who face surgery each year, this could one day improve the kindness and effectiveness of their treatment, and reduce risky side effects – thanks to you.

New sarcoma genes uncovered thanks to you

Your support for Perkins research has helped lead to the discovery of new genes that researchers believe play an important role in the development of sarcoma, – a group of rare bone, muscle and connective tissue cancers.

The research team, including Rachel Jones and Associate Professor Evan Ingley, identified two new sarcoma familial risk genes, which are inherited from your parents and increase the risk of developing the potentially deadly disease. The team plans to investigate how widespread the association of these two new sarcoma risk genes is in other families with sarcoma and other cancers to determine the specific functions of the genes.

Diabetes and kidney disease: Do you know the link?

If you have a family member with diabetes, you have a genetic disposition to the disease.

A set of genes that affect the risk of developing diabetes-related kidney disease (DKD) has been discovered by Perkins researchers. DKD is the most common cause of end-stage renal disease in western countries and affects about a third of people with diabetes. Professor Grant Morahan and his team from the Perkins Centre for Diabetes Research conducted a 20-year study and found DKD-susceptibility genes that contributed to the disease. The team also showed they could block the disease by introducing resistance genes, meaning drugs that can block the action of these genes should also stop DKD.

"Our focus is now on developing a world-first genetic test that can identify those most at risk of DKD. I hope this will allow for better management, medical intervention and prevention of diabetes complications that can be fatal - including kidney failure, heart disease and blindness." Professor Grant Morahan, Head of the Perkins Centre for Diabetes Research

How your bike can beat cancer

With the MACA Cancer 200 Ride for Research just around the corner, it's time to celebrate the incredible impact that you as riders have made to research in Western Australia.

Less than a year ago, the flagship fundraising ride was reimagined – with a new name, new look and most importantly, a whole new way of doing things. The Ride's management was brought in-house, so Perkins team members now run the show. This has meant a renewed focus on providing you with a memorable event with your support having the greatest possible effect.

You did this!

Quite simply put, there would be no cancer breakthroughs without medical research and there would be no medical research at the Perkins without you.

By riding in the MACA Cancer 200, you are directly backing WA researchers at the Perkins and fast-tracking lifesaving treatments into the clinic where they're needed most.

This is just a sample of some of the ways you're delivering hope to your loved ones facing cancer.

Challenge yourself and make a difference in 2020.
Sign up to ride at cancer200.org.au

YOUR RIDE RECAP

8-years strong

This is the eighth year the Perth Ride has been held and some riders have been with us from the start, what an accomplishment!

2 million kilometres cycled

Over those 8 years, thousands of riders have racked up 2 million kilometres in the saddle.

$35 million raised

Your fundraising has delivered an incredible $35 million in support of local cancer research.

140,000 friends and family supported you

Over 140,000 of your friends and family have donated to you and other riders. That's a lot of support!

Eight discoveries to celebrate your eight years in the saddle

Through the Ride, you've helped:

1. A team focused on breaking your tumours down into their cellular building blocks to individually treat each cell type within the cancer.
2. The development of an improved and more authentic pre-clinical model to assess the success of anti-cancer medicines on cancerous tissue.
3. The uncovering of cancer-causing genes, allowing for the development of new medicines that could modify those genes and stop them turning bad.
4. A new combination of drugs that can supercharge your immune cells and soften hard tumours, allowing chemotherapies and immune cells to infiltrate the tumours' defences.
5. A new device that can help surgeons see the microscopic edge of a tumour, with the potential to reduce the number of patients requiring repeat surgery.
6. Identifying signals that cancer cells use to resist dying, allowing researchers to develop ways to improve your responses to current treatments.
7. The development of a microscopic drug delivery system that can transport chemotherapies directly to a tumour, potentially reducing uncomfortable side effects and improving treatment efficacy.
8. Investigating the use of a topical anti-fungal agent as a promising new treatment for deadly metastatic melanomas.

Let me introduce you!

Your support is bringing world-class researchers to Perth. Meet Elena Juan Pardo, the newest laboratory head at the Perkins.

After starting her career as a materials engineer, working on fusion reactors, Elena decided to transfer her engineering skills to the medical world to try and help improve the lives of people like you.

Tell us a bit about yourself

Hi, I'm Elena. I grew up in Spain, with two brothers and two sisters. I spend a lot of my spare time helping run a study centre for women of all ages. I believe that strong mentorship can really foster a positive culture of character development, kindness and leadership. This year I began working in the biomedical engineering space at the Perkins, running an advanced 3D printing tissue engineering laboratory.

What does your research aim to do?

My work is focused on cardiovascular health now because that's a major focus for the Perkins, but my work is applicable to many areas. We have a few major projects that we're working on.

One is the engineering of tissue models that more authentically represent natural cell growth in the human body – instead of growing cells in a petri dish.

Using these models, we can test drug compounds on different cell types outside the body and get a clearer idea of how they will behave in the body.

Another area is to 3D print what we call *scaffolds* that can help promote your body's own healing processes. Your body has incredible capacity for regeneration and healing but there are certain circumstances where your body can't regenerate without help, for example if you're in a car accident and you need surgical plates to support a badly fractured bone. What we're developing is a biocompatible structure that we can fill with your cells and anchor in an injury to guide the natural regeneration process and boost cell growth in your area of need.

What do you see as one of the biggest challenges in your area?

Right now it's translation. It's such a complex area to try and move toward the clinic. That's one of the main reasons I moved my research to Perth, and to the Perkins, because there is such a strong emphasis on translation of groundbreaking research toward helping people as soon as possible. I don't want my innovations sitting on a lab bench, I want to get it into hospitals for people who need it and I think working alongside doctors and scientists here will speed up this technology.

What would you say to someone supporting your work?

Research grants are extremely time consuming and not guaranteed, so support from generous people like you is vital to my research. I am enormously grateful to everyone who sees the importance of medical research and supports the cause and I'm looking forward to working together to find better ways to heal and help your loved ones.

What's something about you that not many people know?

My dad used to work in a radio station when he was younger, and we grew up with a lot of music in the house. I can play the guitar, and I just love being around music. You'll often catch me playing music in my laboratory to keep spirits high and keep me energised!

You can help continue the lifesaving work of Perkins researchers like Elena.
Donate today at perkins.org.au or call 08 6151 0772.

Star Supporter

From Disney princess to daring donor

It's because of people like you and Chantal that we can do what we do. After years spent growing an auburn mane of hair, long enough to sit on, Chantal Shipley decided to give up her locks to support a cause close to her heart.

At 26 years old, Chantal, who grew up in a wheatbelt community with a population just over 100, is accustomed to helping others. She describes herself as a 'country kid who just wants to make people smile'.

"I've been reminded that there is always someone else out there who has it worse and who needs a little extra support. My hair gave me so much confidence through harder periods of my life and it was just time for me to pass that confidence on to someone else who needed it a bit more than me," Chantal said.

With a nurse best friend and a sister studying genetic science, Chantal was encouraged to investigate the Perkins and learn more about the pioneering cancer research being done in WA.

"I got to thinking about how every year, researchers are learning more about our genes and our bodies and innovating new treatments, and it all relates back to our family history.

"Had my aunty been going through her treatment today, she would have had access to incredible treatment options that weren't available to her and could have extended her time and improved her quality of life in her final months with us.

"Improvements in detection and treatment from that time meant that when Mum got cancer, she was able to fight it and avoid a long drawn out struggle and still be with us today."

Chantal wanted to contribute to the new diagnostics and treatments that helped save her mum's life and when the clippers came out, Chantal has raised an incredible $4,440.49 for medical research at the Perkins.

"My hair gave me so much confidence through my life. It was time to pass that confidence on to someone else."

Her hair was bundled off to Variety, where she said she hoped a few sick kids would use it to feel like Disney princesses.

"One day, there's a chance I'll see someone going through cancer treatment with long red hair and a spring in their step and know that I've helped in just the smallest way possible."

"WA is becoming a really prominent hub for science innovation and research. With an amazing facility and phenomenal people working in this field, it makes me so happy and excited for where things will be in the future. I loved getting to walk through the Perkins labs and I urge everyone to see it for yourself and learn more about the amazing research happening right here."

It's support from people like you and Chantal that allows our teams to urgently search for new treatments.

You're invited to see your impact first-hand at the Perkins Discovery Day on Saturday 16 November from 10am to 3.30pm.

Foxgloves for the heart

Cardio health in your garden

You might not know it but a common garden plant with purple, tubular bell-like flowers is a vital natural resource, that often goes unrecognised, but is responsible for extending the lives of many West Australians.

The humble foxglove is the source of the widely used heart drug, Digoxin. The drug is derived from the leaves of the plant and it helps make your heart beat more strongly and with a more regular rhythm.

Digoxin is used to treat patients with heart failure and patients with the common condition, atrial fibrillation, a rhythm disorder of the upper chambers of the heart.

While Digoxin has been widely used since the 1970s, foxglove tea was first described in medical literature in 1785. It was used to treat 'dropsy' which was the general term for fluid retention.

Natural resources, both plant and marine life, have been part of Indigenous, Eastern and Western medicine for centuries and they remain widely used and provide a strong export market for Australia today.

Tasmanian opium poppy farms produce half of the world's legal supply of poppy straw that is refined into opiates such as morphine and codeine.

Australia and New Zealand's native Manuka tree is the natural resource being planted for the increased production of Manuka honey sold in chemists for its medicinal properties.

And innovative thinking at the Perkins has led to an investigation into the potential use of WA honeybee venom to treat the most aggressive types of breast cancer.

The potential is immeasurable for our natural resources to provide the next compound that kills cancer cells or solves the growing global antibiotic resistance problem and WA has one of the world's rare jewels that could hold the key to an international breakthrough.

Western Australia's Southwest corner stretching from Shark Bay to Esperance has remarkable biodiversity.

It is one of only 35 internationally recognised global hotspots for wildlife and plants. The area is about the size of England but the contrast is stark.

Where England has 1,500 species of plants with 47 of them found nowhere else in the world, our Southwest has an astonishing 7,239 plant species and almost 80% are found nowhere else in the world.

Who knows what medicinal properties might exist in this rich biodiversity that are yet to be discovered? The value of our rich natural resources goes far beyond mining and we have barely scratched the surface in harnessing the benefits that could be derived from our plant and animal biodiversity.

Every day, innovative researchers are discovering new compounds that could save the life of your loved ones.
You can learn more about the groundbreaking research discoveries happening at the Perkins at perkins.org.au

DISCOVER THE PERKINS

Do you want to know what happens behind the scenes at Perth's landmark medical research facility?

You're invited to join us for a day of discovery at the Perkins.

Hear from the experts

You can listen to seminars on health and disease from WA's leading doctors and scientists.

Explore the labs

You can tour the research laboratories and interact with fascinating exhibition spaces.

Become the scientist

You can transform into a scientist with many hands-on activities in the BioDiscovery Centre – the Institute's own specialised teaching laboratory.

Discover more

You can talk to medical researchers and learn more about the lifesaving science happening in your city! Plus, learn how you can become involved.

Saturday 16 November 2019
10am – 3.30pm

perkins.org.au

Discover how you can leave a legacy

Are you one of the growing number of Australians considering a gift to a charity in your Will?

Regardless of your intention, we have put together an informative session focused on giving you all the general information you need to leave a legacy you are proud of.

From 10.30am, Perkins Planned Giving Advisor, Ann will be joined by Hugh Cahill, a local lawyer who specialises in Wills and is volunteering his time to demystify this topic and answer any questions you might have.

Ann Macliver
Perkins Planned Giving Advisor

Hugh Cahill
Cullen Macleod Lawyers

Two brains are better than one

How you're helping unite researchers

Collaboration is a guiding principle for the Perkins. You are collaborating with us to accelerate discoveries and those discoveries are made from shared knowledge, equipment and sometimes even shared coffees.

Associate Professor Pilar Blancafort is a laboratory head at the Perkins and an expert in breast cancer research. Pilar's team have been developing molecular tools that can help turn bad genes off and reactivate healthy genes in tumours, but clinical input is needed to ensure the right genes are being targeted for the right group of patients.

It's here that Professor Anna Nowak, a medical oncologist and clinician scientist, has been helping. Anna's work in oncology meant she used to treat an array of cancer types, including breast cancer, but her focus has narrowed to brain cancer.

This year, Anna and Pilar began working together on a project that aims to improve treatments for primary brain cancers and breast cancer cells that have travelled to the brain. A project born from sharing ideas over a coffee in the Perkins café – Coffee Anatomy.

Tragically, about 10-15% of women with stage IV breast cancer develop brain metastases.

Primary brain cancer is also a devastating disease and treating cancer past the blood-brain barrier adds a level of complexity for doctors, so new solutions are urgently needed to save lives.

"People with brain cancer and people with the spread of breast cancer to the brain are often treated with chemotherapy and radiotherapy, including in combination. The problem is that it's not necessarily going to cure patients of the tumour. So, what our joint research is about, is trying to make chemotherapy and radiotherapy work better," Anna said.

"Normally, chemotherapy and radiotherapy damage the DNA of the cells, but a lot of cancer cells are able to repair themselves. What we're doing is taking a pair of tiny molecular scissors to remove those DNA repair mechanisms from the cells so that they've got much less chance of repairing after therapy and hopefully that's going to lead to more killing of the cancer cells and better outcomes for the patients."

By refining the tool and its use, researchers can avoid affecting the cellular repair kits of normal, healthy cells but to do this the treatment needs to be targeted to specific genes.

"These scissors will help target the corrupted genes directly to improve the effectiveness of the anti-cancer therapies," Pilar said.

It is thanks to support from people like you that this collaboration between organisations, doctors and researchers from a range of specialties can hope to deliver an immense benefit to the community.

This unique partnership has also inspired a collaboration between two major philanthropic organisations – the National Breast Cancer Foundation and the Cure Brain Cancer foundation. The funding bodies have joined forces to support this groundbreaking project and make this united work possible.

You can help continue this vital work at the Perkins.

Pilar is the inaugural Wesfarmers Fellow in Women's Cancer. In the past, her work has also been funded by you through the Hawaiian Walk for Women's Cancer. Sign up to walk in 2020 at WalkForWomensCancer.org.au

How your support is saving lives

Thanks to generous people like you, more people are surviving cancer than ever before – but there's still a long way to go.

Bunbury resident Karri Ashford has seen first-hand how far medical science has advanced, initially in her work in the nursing field and then following her own shock breast cancer diagnosis at 27.

Nine years ago, Karri was diagnosed with a type of breast cancer called Ductal Carcinoma in Situ, and while she says she was lucky to handle the tough treatment regime reasonably well, losing her hair was a side effect she struggled with.

"I specifically remember driving along the beachfront one sunny afternoon with my window down and watching my hair fall down around me like confetti.

"Losing my hair was a fairly confronting moment in my journey. I felt like it placed me in the category of a cancer patient, and that was a category I didn't want to be a part of. I became so aware of people's stares, probably both from interest and sympathy and it really rocked my confidence," Karri said.

It was Karri's very close-knit family that rallied around her and kept her spirits up.

"My mum Skyped me one night from my sister's place - she was wearing a long, brown wig that resembled something like Neil from the Young Ones, saying she had found me a wig. Mum looked absolutely ridiculous but that was the way Mum was, always injecting some humour into things where she could.

"The wig was actually perfect, and I found it gave me a boost to enter society and head back to work between treatments with a bit more confidence."

Karri said that family life has always played an enormous role in her world, with her relationship with her mum and three sisters more like a best friendship. And then tragically her beloved mum too was diagnosed with cancer.

"We lost Mum in 2015. In today's world, cancer affects everyone whether we like it or not."

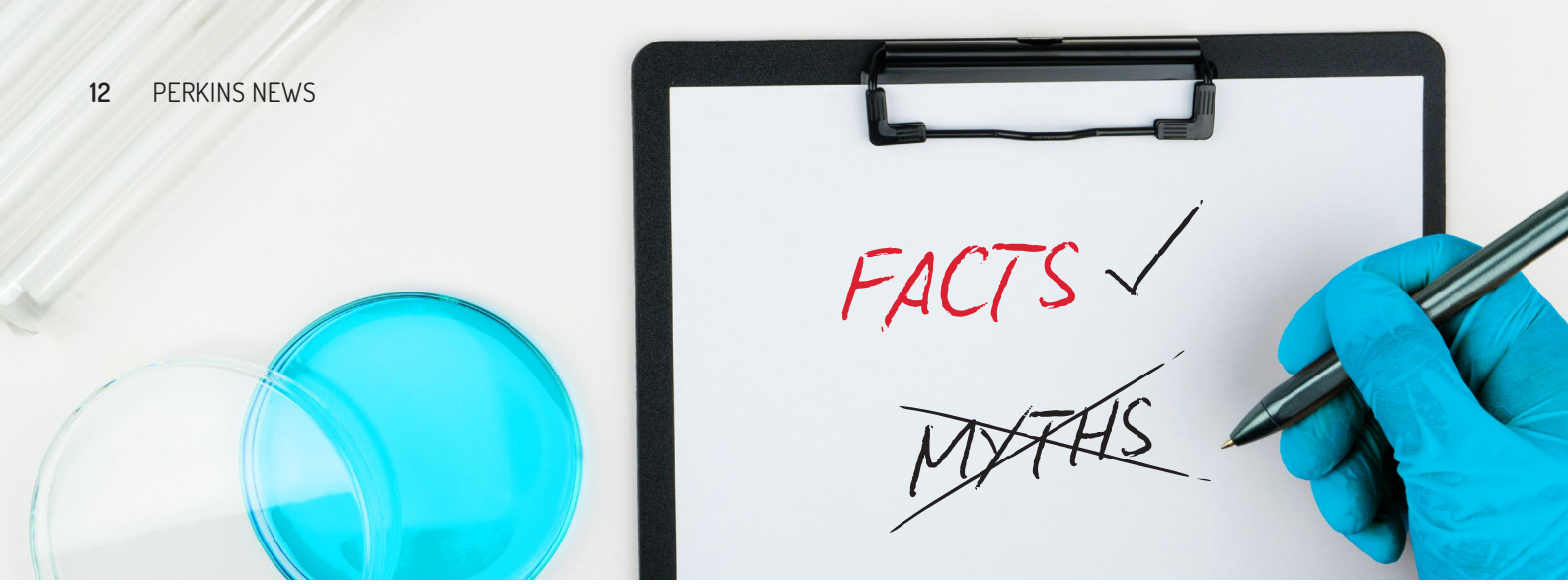
"When we lost our mum to cervical cancer in 2015, it rocked our worlds, and it's only been in recent years, that I have become more proactive in supporting cancer research.

"In today's world, cancer affects everyone whether we like it or not - someone has always got a story to tell.

"By fundraising and supporting research centres like the Perkins, you're ensuring you're giving everyone the best possible chance following a cancer diagnosis with early detection programs and world-class treatments, and we are so lucky to have these institutes in our own backyard."

Your support directly funds research into better treatments and diagnostics to save more people like Karri.

Donate to world-class cancer researchers working to keep families like yours together for longer at **perkins.org.au**



Your cancer myths busted

In recent years, our understanding of cancer and our bodies has increased exponentially due to innovative medical research discoveries. But as proven, evidence-based information is gained from studies, a variety of myths and misconceptions have been confused with scientific fact. Below we're busting some of the most common myths surrounding cancer prevention, treatment and risk.

MYTH 1

Having a family history of cancer means you will develop cancer

A family history of cancer doesn't guarantee a cancer diagnosis. Only around 5% of diagnoses for certain types of cancer are traced back to a faulty heritable gene, or a gene that has been passed down from parent to offspring. Most cancers are non-heritable, and can be attributed to age, environmental factors, lifestyle factors, and other elements which can cause mutations in your genes.

MYTH 2

Sugar feeds cancer

Research has found no evidence to suggest that sugar feeds the growth of cancer. While excess consumption of sugar can lead to the development of risk factors, including weight gain and obesity, cutting all sugar from your diet will not slow the growth of cancer or prevent cancer from developing.

MYTH 3

All cancers manifest as solid tumours

Tumours can be defined as solid or liquid. Solid cancers can be attributed to a tumourous lump, and can be found in cancers including the breast, prostate or skin. Liquid tumours do not develop as a lump, and instead includes the spread of malignant cells. This form of tumour occurs in cancers including leukemia, which can circulate through the blood.

MYTH 4

Resting your laptop on your lap can give you cancer

Studies have shown that there is no link between resting your laptop on your lap and developing cancer. The level of radiation produced by your laptop is incredibly low, and the heat produced by laptops is rarely enough to cause you any health damage.

Do you have medical myths you want busted?

Tell us what research rumours you've heard by emailing **peter@perkins.org.au** and Perkins experts will help you separate the fact from the fiction in the next magazine.

RESEARCH FROM AROUND THE WORLD SHOWS A SPIKE IN HEART ATTACKS DURING THE FESTIVE SEASON.

Will you help us get to the heart of the problem?

100% of your donation will stay in WA to support research into the prevention, prediction and treatment of this devastating disease. Together, we can keep families together for longer.

Donate today at perkins.org.au
or call 08 6151 0772

Putting your words into action

Earlier this year, we asked you to share your thoughts about the Perkins. We were keen to know about your understanding of the medical research areas we work in and the impact of cancer on you and your community.

Each of you who completed the inaugural Perkins Supporter Survey added to our greater understanding of the community we serve.

More than a quarter of you who responded to the survey had personally faced cancer, with almost all of you having a close family member or friend touched by the disease.

Overall, you told us you were most concerned about **breast, skin and bowel cancer** – three diseases we have focused our efforts on here at the Perkins.

You also told us that your highest priority for cancer research was discovering new and improved ways to diagnose or prevent the disease.

You were also so generous in sharing your stories. These highly personal stories filled our offices and labs with some laughter and more than a few tears. They served as a clear reminder of why our collective efforts to end this disease are so important. Medical Research is about more than science and cells – it is about you and keeping your family together for longer.

With your valued input documented, we will now begin rolling out the survey to the wider WA public to gain further insights into the impact of cancer in our State. Look out for the survey in Community Newspapers and on Facebook later this month.

We will also be offering a Feedback Session with Professor Peter Leedman in the future which you will be invited to. Here he will share how your feedback is shaping how we approach research. You can visit **perkins.org.au/events** to find out more.

These are the cancers most commonly affecting you and your familes.

Treat yourself to a healthy eat

Are you looking for a healthy, flavourful salad that's great any time of the year? This Vietnamese Beef Salad recipe courtesy of our friends at Coffee Anatomy – who are located in the Perkins Nedlands building – is the perfect balance of spicy, sweet and sour.

Prep: 35 mins
Cook: 15 mins

Serves: 4

Beef and Marinade

Marinate for at least 2 hours (ideally day before):

600g finely sliced strips of beef rump or sirloin

60g ginger, grated

2-3 garlic cloves, crushed

1 tablespoon oyster sauce

1 pinch bi-carbonate soda

Dressing

50g brown sugar

2 tablespoons fish sauce

2 tablespoons rice wine vinegar

Warm ingredients in saucepan until sugar has dissolved.

Salad

100g baby spinach

100g Mesculin lettuce leaf mix

½ red onion, finely sliced

2 spring onions, finely sliced

1 cup coriander leaves

1 cup mint leaves

100g red cabbage, finely sliced

100g green cabbage, finely sliced

Desired amount of red chilli, finely sliced

Mix together well in a large food bowl.

Garnish

40g peanuts, crushed

40g cashew nuts, crushed

Method

1. Heat a wok or large frying pan with 1 tablespoon of peanut oil until it just starts smoking.
2. Add marinated beef and stir fry until it has charred colour.
3. Add cooked beef to salad. Add dressing and mix together well.
4. Serve on plates or in bowls and garnish with crushed nuts. Enjoy!

Coffee Anatomy

Your voice matters to cancer research at the Perkins.

In the coming weeks, look out for this short survey in Community Newspapers or your mailbox.

Your personal experience is so important to medical research.

Your completed survey will help the Perkins understand cancer's impact in your community so that together, we can focus on groundbreaking discoveries and lifesaving treatments.

Thank you.

Perkins
HARRY PERKINS INSTITUTE OF MEDICAL RESEARCH

Get in touch

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