

2024 Annual Report

Centre for Precision Health

Contents

About the Centre for Precision Health	3	Attracting Research Funding	23
Director's Report	4	Early Career Researcher grant success	24
Centre for Precision Health – 2024 at a glance	5	Active funded research projects	25
2024 Highlights	6	Sharing our Research Findings	27
Backstage at the CPH	8	In the Media	28
New book bringing precision to preventative healthcare	9	Contributing to Research Culture	29
Research highlights	10	2024 CPH Research Showcase	30
Ellagic acid could offer a solution to fatty liver disease	11	103 Publications in 2024	32
Genetic link between diabetes and gut health could offer treatment solutions	12	Governance	39
Confirming a genetic link between Alzheimer's and heart disease	13	2024 CPH Leadership Group	40
Blood test could determine diabetes risk	14	2024 CPH Steering Management Committee	41
Travel could be the best defence against ageing	15	Centre for Precision Health External Research Advisory Board	42
Engaging the Community	16	CPH Members in 2024	43
NeuroHub WA Platform	18	Summary Report – Key Performance Indicators	47
Community participation	19	Financial Statement 2024 Strategic Research Fund Income and Expenditure	48
Fostering HDR excellence	20		
HDR awards	21		
New research staff	22		

Cover image: Cancer associated lymphoid structure captured using the Akoya PhenoCycler

About the Centre for Precision Health

Our vision

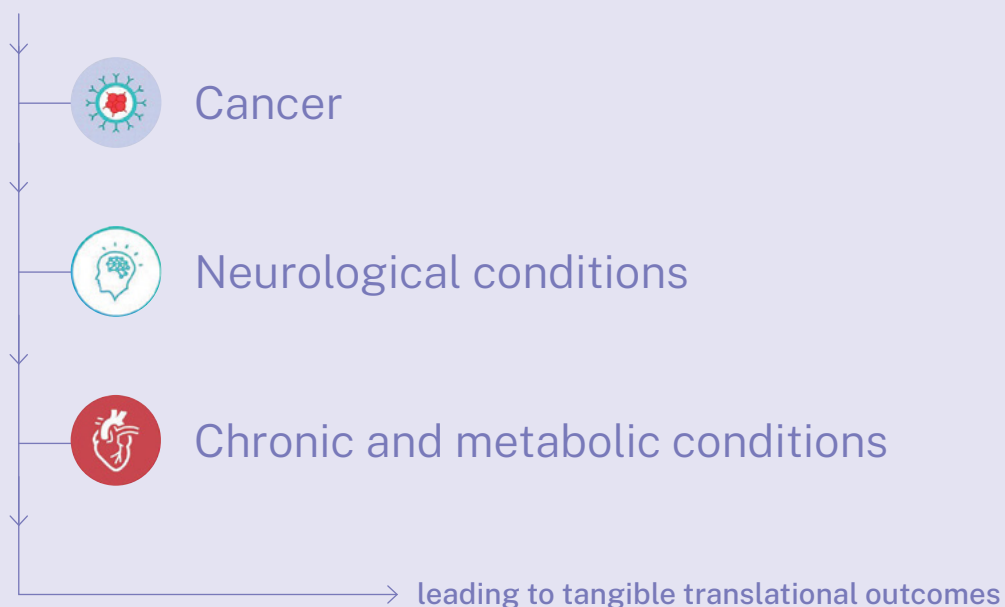
To improve health outcomes and maximise quality of life through the application of personalised solutions that consider an individual's unique biology and environment.

Our research

We are developing precision health solutions to predict disease risk, progression rate and response to treatment, to inform tailored interventions.



The Centre applies a Precision Health model to addressing the Key Health Priorities of:



Director's Report

When we put together our Annual Report each year, it gives us an opportunity to pause, reflect and celebrate our successes across the year. As you will read below and in the contents of this report, it has been another successful year.

In 2024, we raised the bar for research outputs across the Centre, hitting three figures and collectively contributing to 103 publications. A third of these were contributed to by HDR students, and 81% involved international collaborations, reflecting both the impact of our students and our international networks. Several of these received significant media engagement, nationally and internationally. We also saw our 20th HDR student graduate since our inception in 2021. As we constantly implement new strategies to attract the highest quality postgraduate students, I am sure this will continue to be a growth area for the CPH.

Last year, we acknowledged two very worthy promotions. In 2024, we celebrate three promotions. What is worthy of mentioning is that the CPH has now had five promotions (nearly a third of our research members) across every level of academia, reflecting our commitment to growing and supporting our researchers at every level.

This year, we celebrate two early-career researcher promotions, as Dr Aaron Beasley and Dr Shayne Vial were both promoted. Aaron has been part of the CPH family since its inception, where he was one of the first PhD completions. It is always gratifying to see PhD graduates taking giant leaps forward in their careers – and Aaron will be sure to take many more. Shayne is a new CPH research member, and we are looking forward to further integrating his expertise in biomechanics into clinical applications. We also celebrate Dr. Lois Balmer's promotion to Associate Professor. Lois has been the foundational support for many postgraduate students in the CPH, and her leadership in the CPH and her commitment to research and research training are exemplary.

The CPH laboratories have been a hive of activity in 2024, and we have significantly expanded our infrastructure to support not only our research across the Centre but also to support, engage and collaborate with external researchers and industry partners, nationally and internationally. Highlights include the opening of the Thermo Fisher Scientific GeneTitan facility by Minister Stephen Dawson, MLC, and the multi-grant/multi-institute initiative led by Prof. Elin Gray, that saw the CPH become the proud home to an Akoya Biosciences PhenoCycler-Fusion.

Consumer and community involvement is a key tenant in our research within the CPH. I am very proud of initiatives across the Centre that iteratively involve those living with or supporting those living with the conditions on which we focus our research. Two such programs have really built momentum this year, both driven by Dr Travis Cruickshank and our community and technology partners. The NeuroHub WA initiative is a tour de force of community involvement that hopes to address gaps that have been identified through co-design with community members. The BrainBites initiative was likewise co-developed with the community, and it was truly inspirational to be involved in the trial. The smiles on the faces of those participating help us remember why we undertake the research we do within CPH. I strongly encourage you to read more on these in this report.

As the CPH moves into its fifth year, we plan to deliver new initiatives and develop increased focus in our research approaches whilst providing enhanced leadership pathways for our members. It is also a period of change for the University as we welcomed our new Vice-Chancellor to ECU, Prof Clare Pollock, in late September.



“If you want to go fast, go alone... If you want to go far, ...go together.”

African Proverb

I believe these are exciting times for research at ECU, and I look forward to working closely with the Vice-Chancellor and our DVCR, Prof Caroline Finch, in my role as Chair of the ECU Research Professoriate over the next few years.

As we gear up for an exciting 2025, I invite you to first take a brief pause and reflect with me on the year that was. There was much to celebrate, but there is so much to be excited about, and I, for one, cannot wait to see what we will achieve in 2025. We have so much further to go... together.

Professor Simon Laws
Director, Centre for
Precision Health

A handwritten signature in black ink, appearing to read 'Simon Laws', written in a cursive style.

Centre for Precision Health – 2024 at a glance

 16

new grants awarded

 \$2,137,979

of research income received

 \$154,843

commercial income received

 103 publications

35%

CPH HDR author

81%

International authors

80%

Q1 publications

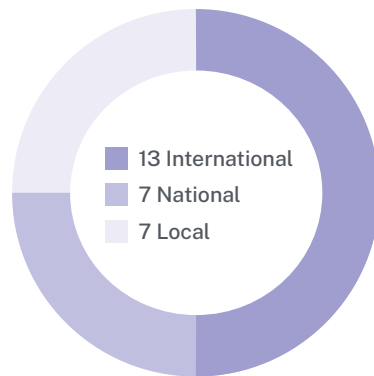
75 CPH Members (plus 18 Adjunct members)

52 HDR students

4 New HDR enrolments

6 HDR completions

27 Conferences members presented at



6 CPH Seminars held

12 CPH newsletters distributed

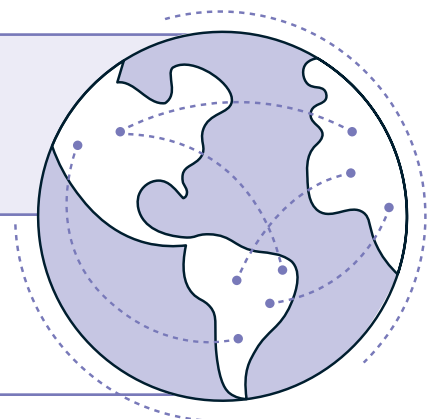
4 External Research Advisory Board meetings held

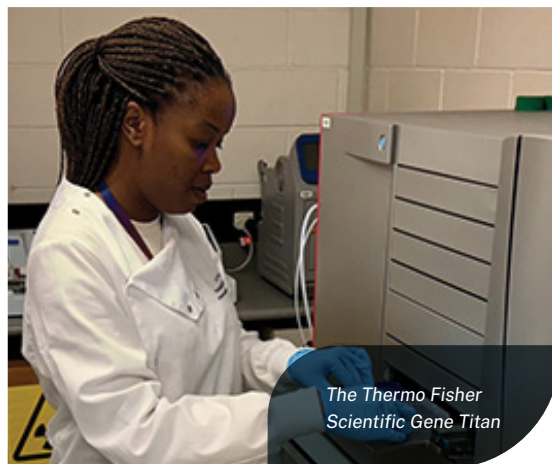
3.4 billion Global audience reached



940 Media mentions in 2024

US\$32.5 million Estimated earned media worth





2024 Highlights

A year of innovation and growth.

The Gene Titan - Unveiling our cutting-edge infrastructure

The Centre for Precision Health became the first research facility in Western Australia to use the Thermo Fisher Scientific GeneTitan™ for human health and precision health applications. The Gene Titan gives scientists the capabilities to investigate and interrogate the entire human genome. The new equipment is worth a combined estimated \$900,000 made possible through generous contributions from the School of Medical and Health Sciences and School of Science and was installed in the CPH laboratory on ECU Joondalup campus.

The new platform eliminates the need for researchers to go to third-party providers over East or overseas. The Neurospine Foundation were thrilled to become the first commercial user of the Gene Titan in the CPH laboratory.

ECU School of Science is also able to use the facilities for aqua and agricultural genetics, investigating areas such as crop and species diversity.

The instrumentation condenses hands-on processing time to as little as 30 minutes and can operate unattended overnight, and enables high-quality, consistent data by processing multiple samples under identical conditions.

On 2 May 2024, the Centre hosted Minister Stephen Dawson, MLC, Minister for Innovation and the Digital Economy: Science; Medical Research to officially launch the new infrastructure.

In addition to being joined by the Minister, the Vice-Chancellor, Prof Steve Chapman, and DVCR Prof Caroline Finch, also at the event were several senior Thermo Fisher Scientific delegates, including Domenic Stranieri, Vice President and General Manager, Australia, and New Zealand.

The opening of the facility was featured in the media on both Channel 7 and Channel 10 news.

Credit: ECU Newsroom

"Precision health remains a key priority for the Cook Government and represents a leap forward in addressing the unique health challenges of Western Australia's diverse populations," said Medical Research Minister Stephen Dawson. This technology will bolster our ability to tailor healthcare solutions that meet the specific needs of all Western Australians. Investing in precision health is investing in a sustainable future for our healthcare system.



InnoScan 710 (innopsys)

The purchase of the new InnoScan 710 microarray scanner was made possible this year by the School of Science and reflects the exciting and ongoing collaboration between the School of Sciences, School of Medical and Health Sciences and the Centre for Precision Health staff.

Characterised by its ease-of-use, speed, and image quality, InnoScan 710 is the ideal tool for routine microarray reading and is a low cost, portable scanner capable of reading medium density microarrays at a maximum resolution of 3 µm/pixel.

Phenocycler-Fusion 2.0 (Akoya Biosciences)

The PhenoCycler-Fusion is an advanced tool for studying cells in tissue samples. It can quickly analyse millions of cells and identify over 100 different markers in a single run.

This system combines fluid handling and imaging in one device, making it efficient and easy to use. It also ensures that the samples remain intact for further testing. Overall, it's a powerful and user-friendly solution for researchers looking to understand complex tissue biology.

The Phenocycler-Fusion system was purchased thanks to two grants awarded to Professor Elin Gray by the Ian Potter Foundation (\$140K) and the Channel 7 Telethon Foundation (\$197,350). Philanthropic funding donated to the ECU Melanoma Foundation and the Harry Perkins Institute provided additional support.

CytoFlex SRT (Beckman Coulter)

The CytoFlex SRT is a versatile benchtop cell sorter designed for a wide range of sorting needs. It features up to 15 fluorescent detectors and can perform complex sorting tasks with intuitive software that simplifies setup and operation.

The system will enable research on markers of cancer response to immunotherapy and the discovery of novel therapeutic targets.

The purchase of the system was supported by strategic funding by the School of Medical and Health Sciences.

QIASymphony and QIACube Connect System

In September the QIASymphony arrived in the CPH lab from our industry partner QIAGEN. The instrument allows our researchers to perform purification of high-quality genomic DNA, pathogen DNA/RNA, cell-free circulating DNA and cellular RNA. In addition, the plug-and-play QIACube Connect System simplifies purification by automating QIAGEN spin-column kits. Start-up is fast, results are immediate, and performance is comparable to the more manual procedure.

Backstage at the CPH

In 2024, the Centre hosted several laboratory tours to donors, prospective HDR students and the CPH External Research Advisory Board members.

These tours each contributed to engagement with our stakeholders and visibility of our research, and in particular showcasing our cutting-edge technologies and facilities. One of our key goals is to recruit the next generation of researchers and our information session followed by an inaugural lab tour for prospective students provided them with a firsthand look at the exciting research happening in our Centre.



"What we need to see in healthcare is to promote a change from delayed intervention to predictive medicine tailored to the person, from reactive to preventive medicine and from disease to wellness," Professor Wang said.

New book bringing precision to preventative healthcare



Professor Wei Wang's newly published book demonstrates advanced strategies focused on suboptimal health, an elusive physical state between health and disease.

A new book addressing suboptimal health has been published to help tackle the global spread of public-health challenges.

Professor Wei Wang, Pro-Vice-Chancellor (China) at Edith Cowan University and lead of the Suboptimal Health Program in CPH, coined the research term "suboptimal health status" which has been recognised internationally and archived by the World Health Organisation (WHO). The term describes a level of health that remains elusive, effecting an increasing number of people worldwide who report a general malaise but lack a precise diagnosable disorder.

Along with his team in CPH who have published several book chapters in the book, Professor Wang describes suboptimal health as "a physical state between health and disease". Those who find themselves in that state generally report ambiguous health complaints as well as general weakness and periods of low energy.

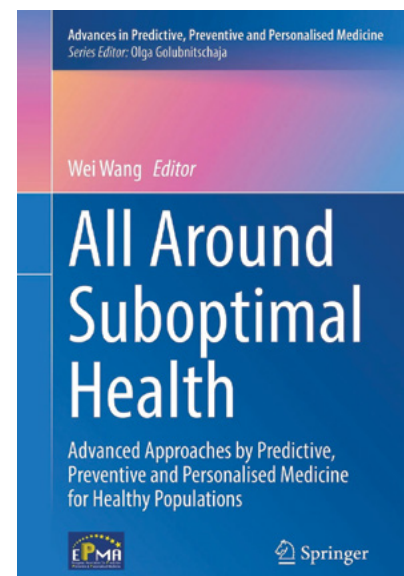
Professor Wang's new book *All About Suboptimal Health* demonstrates advanced strategies in biomedical sciences and healthcare focused on suboptimal health conditions. This research uses an innovative framework of Predictive, Preventive and Personalised Medicine (3PM/PPPM). This framework is emerging as the focal point of efforts in healthcare aimed at curbing the prevalence of both communicable and non-communicable diseases such as diabetes, cardiovascular diseases, chronic respiratory diseases, cancer and dental pathologies.

Suboptimal health is also described as a reversible stage of a chronic disease, which is a crucial distinction in how physicians can approach any number of health conditions.

With a goal of bringing precision to preventive healthcare, Professor Wang has also developed a tool, Suboptimal Health Questionnaire-25 (SHSQ-25), to measure suboptimal health.

The tool delves into assessing fatigue, the cardiovascular system, digestive system, immune system, and mental health status. The SHSQ-25 has been validated in three major ethnic groups, African, Asian and Caucasians, and translated into multiple languages including Arabic, Chinese, Dutch, Korean, Persian, Portuguese, Japanese, Russian, Sinhala, Spanish, Slovak and Thai.

Credit: ECU Newsroom





Research highlights

Researchers taking a closer look at eye cancer.

New research brings us one step closer to understanding why uveal melanoma, the deadliest form of eye cancer, has such a high rate of metastasis.

Uveal melanoma is a rare cancer type with an incidence of 7.6 per million adults in Australia and represents around 5% of all melanomas. Patients presenting with uveal melanoma have a 50% chance of the disease metastasising or spreading from the eye, commonly to the liver, even after successful treatment of the tumours within the eye.

CPH researcher and ECU Vice Chancellor's Research Fellow, Dr Vivian Chua noted that after diagnosis of the disease in the liver, patient survival is often short due to the lack of effective treatment options.

Dr Chua's most recent research focused on alterations in the BRCA1-associated protein 1 (BAP1) gene. The BAP1 gene is functionally involved in modulating the characteristics of cancer cells, particularly uveal melanoma. Alterations in the BAP1 gene lead to loss of the BAP1 protein function and expression and are associated with an increased risks of metastasis of uveal melanoma and poorer patient survival. BAP1 alterations have also been reported in other cancer types such as mesothelioma and cholangiocarcinoma.

Dr Chua, who recently returned to Australia following eight-years at Thomas Jefferson University, in Philadelphia, engineered human uveal melanoma cell cultures that are BAP1-deficient to re-exhibit BAP1,

to allow for a comparison between the BAP1-deficient and BAP1-proficient uveal melanoma cells.

"We found that BAP1-deficient cells are slow-growing, and this was associated with the cells exhibiting low activity of the S6 protein. This is consistent with the known function of the S6 protein to regulate cancer cell growth. These characteristics were also associated with the BAP1-deficient cells surviving better under conditions deprived of amino acids.

"Overall, we have uncovered a role of BAP1 deficiency in uveal melanoma," said Dr Chua. Results suggest that BAP1-deficient uveal melanoma cells can survive or thrive under conditions that are deprived of nutrients, particularly, amino acids, thereby allowing them to spread successfully.

Chua, V. Lopez-Anton, M., Terai, [...] and Aplin, A. (Jun 2024). Slow proliferation of BAP1-deficient uveal melanoma cells is associated with reduced S6 signaling and resistance to nutrient stress. *Science Signaling*, 17(840), <https://doi.org/10.1126/scisignal.adn8376>. Credit: ECU Newsroom



Ellagic acid could offer a solution to fatty liver disease

Ellagic acid, an antioxidant found in some fruits and vegetables, could potentially reverse the damage caused by fatty liver disease.

Non-alcoholic fatty liver disease (NAFLD) is the physiological manifestation of obesity in the liver. The prevalence of NAFLD has increased from 25.24% in 2015 to 29.38% in 2021, and this condition now accounts for 45.8% of all cases of chronic-liver-disease-related deaths worldwide.

There currently exists no treatment for the long-term management of NAFLD, however, dietary interventions have been investigated for the treatment of this disease, including several polyphenolic compounds such as Ellagic acid.

CPH researcher Dr Lois Balmer and PhD student Tharani Senavirathna noted that Ellagic acid,

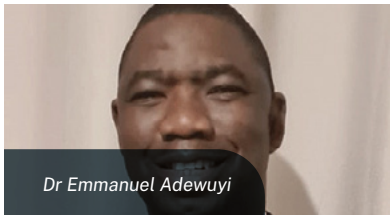
which is found in a variety of food such as raspberries, pomegranate, blackberries, and pecan nuts, is widely recognised for its antioxidant properties, but also exhibits anti-inflammatory, antifibrotic and anticancer properties.

Ellagic acid stands out as a remarkable polyphenolic compound, possessing a wide range of pharmacological properties that hold promise in treating various chronic diseases, including NAFLD. Due to its multifaceted biological effects, edible plants containing Ellagic acid, and its derivatives are recognised as valuable functional foods for enhancing human health.

Moreover, there is evidence suggesting that Ellagic acid, when combined with other antioxidant nutraceuticals, exhibits a synergistic therapeutic effect, making it a potential candidate for combination therapy.

Mrs Senavirathna has been involved in a previously undertaken pilot study investigating the effects of several polyphenolic compounds on NAFLD, with Ellagic acid showing the most promise in reducing inflammation.

A larger study is now under way which will also investigate at which point of the illness treatment would be ineffective to reverse damage to the liver.



Genetic link between diabetes and gut health could offer treatment solutions

Uncovering a significant genetic connection between Type 2 Diabetes and certain gut disorders could pave the way for more effective therapies.

A CPH study led by Dr Emmanuel Adewuyi has uncovered a significant genetic connection between Type 2 Diabetes and certain gut disorders, which could pave the way for more effective therapies.

The research found that gut disorders like stomach ulcers, irritable bowel syndrome and acid reflux could share similar biological origins with Type 2 Diabetes, meaning that some of the same genes played a role in these conditions.

The study employs a genetic approach to unravel the intricate relationships of these seemingly unrelated conditions. By uncovering their genetic underpinnings, we have laid the foundation for targeted treatment and personalised care.

Diabetes has reached pandemic proportions with over 536 million people globally living with the disease by 2021, and with the illness resulting in more than 6.7 million mortalities. Type 2 Diabetes accounts for between 90% to 95% of all cases of diabetes.

The co-occurrence of Type 2 Diabetes and gut disorders can speed up disease progression and increase healthcare costs, leading to complex management plans and poorer quality of life for patients. This co-occurrence could also contribute to the actual development of these disorders through shared genetics mechanisms and biological processes or causal relationships.

Unlike the other gut conditions, however, the study found no genetic connection between Type 2 Diabetes and inflammatory bowel disease (IBD), showcasing the complexities of these conditions.

Professor Simon Laws, Director of the Centre for Precision Health and supervisor of the study remarked, "This research marks another significant milestone in our Centre's statistical genetics research program that seeks to unravel the intricate relationships across many of today's major health conditions. By delving into the genetic architecture of Type 2 Diabetes and various gut disorders, we have uncovered novel insights that could pave the way for more effective therapeutic strategies. Deciphering the underlying mechanisms linking these conditions has the potential to lead to improvements in patient care and outcomes."

Further research will be essential to translate these findings into tangible benefits for patients worldwide.

Adewuyi, E., Porter, T., O'Brien, E., Olaniru, O., Verdile, G., & Laws, S. (27 May 2024). Genome-wide cross-disease analyses highlight causality and shared biological pathways of type 2 diabetes with gastrointestinal disorders. Communications Biology, 7, Article number 643, Genome-wide cross-disease analyses highlight causality and shared biological pathways of type 2 diabetes with gastrointestinal disorders. Communications Biology, <https://www.nature.com/articles/s42003-024-06333-z>. Credit: ECU Newsroom



Confirming a genetic link between Alzheimer's and heart disease

Uncovering a significant genetic connection between Alzheimer's disease (AD) and several coronary artery disease (CAD) related disorders and lipid classes.

The new research led by Artika Kirby (PhD student) and supervisors Professor Simon Laws, Dr Emmanuel Adewuyi and Dr Tenielle Porter, has found that several heart disease-related factors like angina, arteriosclerosis, ischemic heart disease, myocardial infarction, and coronary artery disease (CAD) as well as lipids like cholesterol, triglycerides and both high- and low-density lipoproteins (HDL and LDL) could share similar biological origins with Alzheimer's Disease (AD). This means that some of the same genes played a role in or are associated across these conditions.

There is considerable evidence from observational and other studies to support a connection between these conditions, however the intricate biological mechanisms of AD are poorly understood, and its relationship with lipids and CAD traits remains unresolved.

This study employed a genetic approach to investigate the intricate relationships of these comorbid conditions, providing new insights into their shared biological underpinnings of these conditions. The Centre for Precision Health's use of advanced statistical genetics approaches is significantly contributing to the understanding of the relationships across many of today's major health conditions.

Dementia, of which AD is the major cause, and coronary artery or heart disease, are the two leading underlying causes of death in Australians.

Evidence increasingly links CAD with cognitive impairment and the risk of dementia with research suggesting that individuals with CAD experience an accelerated cognitive decline following diagnosis and CAD patients have a 26% higher relative risk of dementia.

However, the nature of the relationship and the underpinning mechanisms for CAD's association with AD and cognitive impairment remains unclear.

The connection between CAD and AD may partly reflect shared risk factors such as dyslipidaemia and inflammation. Lipid disorders and CAD considerably impact human health and are recognised as a substantial risk factor for AD, just as a relationship between CAD and AD has been reported. There is also the potential for shared genetic predispositions across all of these factors.

By applying genetic approaches to gain a deeper understanding of the relationship between AD and Coronary Heart disease – the two leading causes of death in Australia, the researchers have uncovered novel insights into the underlying mechanisms linking these conditions.

Kirby, A., Porter, T., Adewuyi, E., & Laws, S. (2024). Investigating genetic overlap between Alzheimer's Disease, lipids, and coronary artery disease: A large-scale genomic-wide cross trait analysis. *Int. J. Mol. Sci.* 25(16), 8814, <https://doi.org/10.3390/ijms25168814>. Credit: ECU Newsroom



Dan Wu



Blood test could determine diabetes risk

PhD research finds that a blood test could potentially be used to assess a patient's risk of type 2 diabetes.

The most commonly used inflammatory biomarker currently used to predict the risk of type 2 diabetes is high-sensitivity C-reactive protein (CRP). However, emerging research has suggested that the joint assessment of biomarkers, rather than assessing each individually, would improve the chances of predicting diabetes risk and diabetic complications.

A study by CPH PhD student Dan Wu investigated the connection between systematic inflammation, assessed by joint cumulative high-sensitivity CRP and another biomarker called monocyte to high-density lipoprotein ratio (MHR), and incident type 2 diabetes.

The study followed more than 40,800 non-diabetic participants over a near ten-year period, with more than 4,800 of the participants developing diabetes over this period. Wu found that of those patients presenting with type 2 diabetes, significant interaction between MHR and CRP was observed.

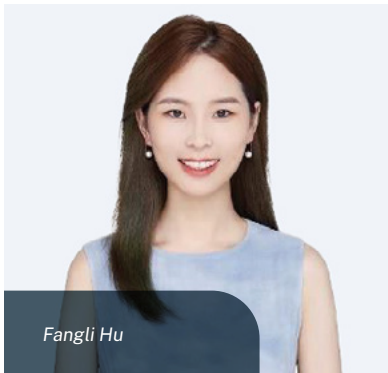
Specifically, increases in the MHR in each CRP stratum increased the risk of type 2 diabetes; concomitant increases in MHR and CRP presented significantly higher incidence rates and risks of diabetes. Furthermore, the association between chronic inflammation (reflected by the joint cumulative MHR and CRP exposure) and incident diabetes was highly age- and sex-specific and influenced by hypertension, high cholesterol, or prediabetes. The addition of the MHR and CRP to the clinical risk model significantly improved the prediction of incident diabetes.

The study also found that females had a greater risk of type 2 diabetes conferred by joint increases in CRP and MHR, with Wu stating that sex hormones could account for these differences and that the research findings corroborated the involvement of chronic inflammation in causing early-onset diabetes and merited specific attention.

Leveraging this age-specific association between inflammation and type 2 diabetes may be a promising method for achieving early identification of at-risk young adults and developing personalised interventions.

Although ageing and genetics are non-modifiable risk factors, other risk factors could be modified through lifestyle changes. Inflammation is strongly influenced by life activities and metabolic conditions such as diet, sleep disruptions, chronic stress, and glucose and cholesterol dysregulation, thereby indicating the potential benefits of monitoring risk-related metabolic conditions. Wu said that the dual advantages of cost effectiveness and the wide availability of cumulative MHR and CRP in current clinical settings, potentiated the widespread use of these measures as a convenient tool for predicting the risk of diabetes.

*Wu, D., Chen, G., Lan, Y., Chen, S., Ding, X., Wei, C., Balmer, L., Wang, W., Wu, S., & Xu, W. (28 Jan 2024). Measurement of cumulative high-sensitivity C-reactive protein and monocyte to high-density lipoprotein ratio in the risk prediction of type 2 diabetes: a prospective cohort study. *Journal of Translational Medicine*, 22, Article number 110. <https://doi.org/10.1186/s12967-024-04895-4>. Credit: ECU Newsroom*



Travel could be the best defence against ageing

For the first time, an interdisciplinary study has applied the theory of entropy to tourism, finding that travel could have positive health benefits, including slowing down the signs of ageing.

Entropy is classified as the general trend of the universe towards death and disorder. The entropy perspective suggests that tourism could trigger entropy changes, where positive experiences might mitigate entropy increase and enhance health, while negative experiences may contribute to entropy increase and compromise health. "Ageing, as a process, is irreversible. While it can't be stopped, it can be slowed down," CPH PhD candidate Fangli Hu said.

Ms Hu noted that positive travel experiences could enhance individuals' physical and mental wellness through exposure to novel environments, engagement in physical activities and social interaction, and the fostering of positive emotions. These potential benefits have been acknowledged through practices such as wellness tourism, health tourism, and yoga tourism.

Hu, F., Wen, J., ... & Wang, W. (2024). The principle of entropy increase: A novel view of how tourism influences human health. Journal of Travel Research, 64(3), <https://doi.org/10.1177/00472875241269892>

Travel therapy could serve as a groundbreaking health intervention when viewed through an entropy lens. As an important aspect of the environment, positive travel experiences may help the body sustain a low-entropy state by modulating its four major systems. Leisurely travel activities might help alleviate chronic stress, dampen overactivation of the immune system, and encourage normal functioning of the self-defence system. Engaging in recreation potentially releases tension and fatigue in the muscles and joints. This relief helps maintain the body's metabolic balance and increases the anti-wear-and-tear system's effectiveness. Organs and tissues can then remain in a low-entropy state.

Travel encompasses physical activities such as hiking, climbing, walking, and cycling. Physical exertion can boost metabolism, energy expenditure, and material transformation, all of which help coordinate self-organising systems.

Ms Hu said, "Participating in these activities could enhance the body's immune function and self-defence capabilities, bolstering its hardiness to external risks. Physical exercise may also improve blood circulation, expedite nutrient transport, and aid waste elimination to collectively maintain an active self-healing system. Moderate exercise is beneficial to the bones, muscles, and joints in addition to supporting the body's anti-wear-and-tear system."

On the flip side, the research has pointed out that tourists could face challenges such as infectious diseases, accidents, injuries, violence, water and food safety issues, and concerns related to inappropriate tourism engagement. Conversely, tourism can involve negative experiences that potentially lead to health problems, paralleling the process of promoting entropy increase. A prominent example is the public health crisis of COVID-19.



Engaging the Community

Brain Bites Project

Researchers from the Centre for Precision Health have developed a meal box targeted specifically for patients living with Huntington's disease and those with acquired brain injuries.

Weight loss and malnutrition from unhealthy eating due to cognitive, movement, behavioural, and social factors are common in people with neurological conditions such as Huntington's disease, acquired brain injury, Parkinson's disease, and Alzheimer's disease. These issues contribute to poorer physical, cognitive, and emotional functioning, and reduced independence and quality of life. The inability to cook is also a significant predictor of nursing home placement.

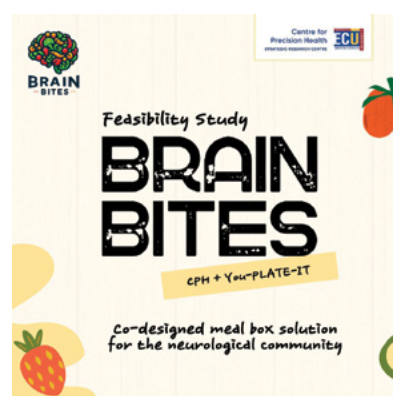
Partnering with WA-based meal box provider You Plate It, researchers translated insights from workshops with lived experience advocates, health experts and scientific experts to co-design Brain Bites specifically to meet the dietary and disability needs of the community.

Compared with other meal box offerings on the market, Brain Bites requires less preparation, offers simplistic recipes and shorter cook times. Packaging of the ingredients within the Brain Bites meal box has also been considered to make it more accessible to users.

CPH Dietitian Dr Jo Rees said the recipes contained within the Brain Bites meal boxes were based on the Mediterranean and MIND diets, offering optimal nutrition. The Mediterranean and MIND diets are currently clinically recommended, but can be hard to follow. Patients are just presented with a piece of paper offering guidelines on what foods they should eat, with no instructions on how. The Brain Bites initiative will simplify this process for patients living with Huntington's disease or with acquired brain injuries, bringing the ingredients right to their doorstep and providing them with easy-to-follow recipes.



Kings Park Warriors CEO
Gregg Oughton



What's next?

Trials to evaluate the feasibility of the co-designed meal box, and to assess the effects of the meal box on the nutritional intake of individuals with Huntington's disease and acquired brain injuries have now been completed, with great success.

Senior CPH researcher and project lead, Dr Travis Cruickshank said, "The project is the first to evaluate a tailored meal box solution designed to address the specific dietary challenges of people with neurological conditions. If proven feasible, Brain Bites could establish a model for future trials. By helping individuals continue cooking and preparing meals independently for longer, this intervention could delay the need for facilitated care and nursing home placement, thereby potentially altering the clinical course of the disease."



"There is a real need for people with neurological conditions to have good food and easy to follow recipes to ensure that they are getting the adequate nutrition and remain independent and in the kitchen. Brain Bites is primed for translation and we are excited to bring this solution to the neurological community and other clinical communities with our incredible collaborators and some of Australia's leading chefs."

Feedback from the Trials

Feedback from the Brain Bites trials has been overwhelmingly positive. Participants shared how they felt their input had been heard, and that the meal boxes made cooking enjoyable and accessible again, with straightforward instructions, less prep time and minimal chopping or grating. Many commented on how great the food tasted and how the boxes helped restore a sense of self-worth and independence.

Future iterations of the meal box are currently being customised to suit individuals at different stages of these conditions, based on the latest evidence-based dietary guidelines. Furthermore, the project team are currently working on a meal box specifically tailored for people living with Parkinson's disease, Alzheimer's disease and stroke and working with collaborators to translate this work to cardiovascular, metabolic, and cancerous diseases.

The Brain Bites initiative has been supported by a number of organisations and individuals, including Huntington's Australia, the State Head Injury Unit, Kings Park Warriors, Connectivity representative and lived experience advisor Shenane Hogg, Neurosciences Unit North Metropolitan Area Mental Health representative Melanie Clark, and Season 16 Masterchef contestant Lachlan Whittle. The team are also in discussions with several leading Australian chefs about further optimising this innovative solution.

Huntington's Australia CEO Lenni Duffield said the organisation was very excited to be part of the Brain Bites initiative.



Consumers Shenane Hogg and Lenni Duffield



Dr Travis Cruickshank was awarded two grants from Huntington's WA for this project

Credit: ECU Newsroom

NeuroHub WA Platform

The Centre for Precision Health (CPH) has called on the Western Australian community to support the development of NeuroHub WA, a world-first digital platform designed to support the life journey of more than one million Western Australians living with a neurological condition.

NeuroHub WA has been a very large co-design initiative, developed with the neurological community for the neurological community. The prototype was co-developed by the CPH, Perron Institute, and impact partner Anthologie, in collaboration with people living with neurological conditions, healthcare experts, researchers, and not-for-profit industry leaders.

NeuroHub WA offers a digital solution where users can create a personalised profile that allows them to manage their information, keep a detailed diary of their condition as well as social appointments. The information can also be shared with their healthcare providers.

Additionally, NeuroHub WA would offer users quick access to simple and easy-to-understand information about their conditions from specialist service providers and non-for-profit organisations.

Neurological conditions affect 1 in 3 people worldwide, representing a significant health burden. These conditions encompass a wide range of disorders, including Alzheimer's disease, Parkinson's disease, Huntington's disease, multiple sclerosis, epilepsy and stroke, among others. They are the leading cause of mortality and morbidity, with their impact extending beyond diagnosed individuals, significantly affecting families, caregivers and health systems, creating a pressing need for effective interventions and support strategies.

The NeuroHub WA platform is supported by the WA Brain Injury Support Group, Brightwater, Neuro Muscular WA, Huntington's Australia, the Neurological Council of WA, Beyond ABI, Palliative Care WA, the Rare Care Centre, as well as many others (collaborator logos are displayed on the signature platform).

To capture the support of the community, the team developed and released a signature platform. This signature platform provides a mechanism for the community to show their support for this work and development of the platform.

Since December 2024 more than 1100 people have signed in support of the platform development, showcasing the significant desire for the platform.



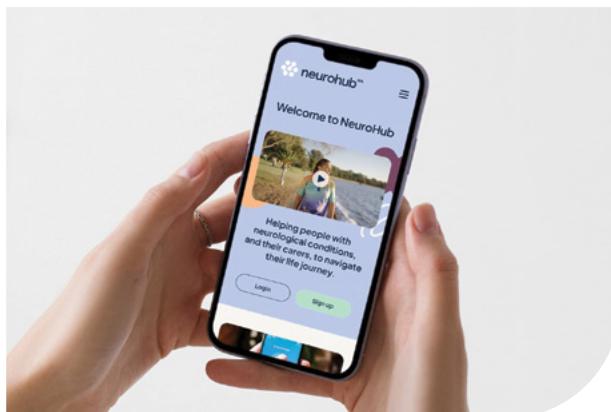
Dr. Travis Cruickshank,
NeuroHub WA co-founder



Professor Simon Laws

"Often, patients living with neurological conditions feel like a passenger in their own life journey, particularly when it comes to their data. NeuroHub WA aims to give back that control."

Credit: ECU Newsroom



Community participation



Brain Bites community trials



The Cancer research team at the Melanoma March in Perth



Prof. Elin Gray with the Cancer Council of WA and Australians of the Year 2024

Fostering HDR excellence



52

Total HDRs in 2024

06

Number of HDR Completions in 2024

20

HDR Completions since 2021



2024 marked the 20th HDR student completion by CPH supervisors since the Centre began in 2021.

Dr Lidija Milicic – Doctor of Philosophy

(unconditionally passed without further corrections)

Thesis title: Peripheral DNA methylation patterns, methylation age and Alzheimer's disease risk and related phenotypes

CPH Supervisors:

Prof. Simon Laws and Dr Tenielle Porter

Other Supervisors:

Dr Michael Vacher (CSIRO)

Dr Cuihong Tian – Doctor of Philosophy

Thesis title: The role of CD147 N-glycosylation and IgG N-glycosylation in the inflammatory modulation of atherogenesis

CPH Supervisors:

Prof. Wei Wang and Dr Xingang Li

Other Supervisors:

Prof. Chris Abbiss (ECU) and Prof. Xuerui Tan (Shantou University)

Dr Mehrane Mehramiz – Doctor of Philosophy

Thesis title: The impact of the interaction between SIRT1 and lifestyle factors on Alzheimer's disease risk and related phenotypes

CPH Supervisors:

Prof. Simon Laws, Dr Eleanor O'Brien and Dr Tenielle Porter

Other Supervisors:

A/Prof. Stephanie Rainey-Smith (Murdoch University)

Dr Yulong Lan – Doctor of Philosophy

Thesis title: Inflammation, metabolic disorders and incident type 2 diabetes

CPH Supervisors:

Prof. Wei Wang and A/Prof. Lois Balmer

Other Supervisors:

Dr Manshu Song (ECU) and Prof. Youren Chen (Shantou University)

Dr Dan Wu – Doctor of Philosophy

Thesis title: Monocytic inflammation and cardiometabolic diseases and mortality

CPH Supervisors:

Prof. Wei Wang and A/Prof. Lois Balmer

Other Supervisors:

Prof. Wencan Xu (Shantou University)

Dr Chunbin Zhou – Doctor of Philosophy

Thesis title: Investigating the expression and role of circular RNAs in the pathogenesis of osteosarcoma

CPH Supervisors:

Prof. Wei Wang and A/Prof. Lois Balmer

Other Supervisors:

Dr Manshu Song (ECU) and Prof. Hu Wang (Shantou University)

HDR awards



Lidia Medhin (left) awarded best abstract at the SMHS HDR Student Symposium with Tharani Senavirathna awarded Best Presentation.



Sanjeev Adhikari

Lidia Medhin (PhD candidate) received a number of awards:

- Conference scholarship to the International Society for Extracellular Vesicles and won the 'top junior interpretative image award'.
- Best poster award at the Perth Combined Biological Sciences Meeting.
- Best abstract prize at the SMHS HDR Student Symposium.
- Best Presentation award at the ECU Research Student Symposium.
- Best Presentation prize at the CPH Research Showcase.

Sanjeev Adhikari (PhD candidate) was awarded the Best Oral Presentation award at the Thomas Ashworth CTC & Liquid Biopsy conference in Sydney.

Desiree Sexauer (PhD candidate) was awarded a travel bursary to attend and present a poster at the 36th Lorne Conference in Melbourne.

Zhuoqiao He (PhD candidate) was awarded a Presentation Prize at the EPMA World Congress.

Xiaoqia Xu (PhD candidate) was awarded a Best Presentation prize at the SMHS HDR Student Symposium.

Tharani Senavirathna (PhD candidate) was awarded a Best Presentation prize at the ECU Research Student Symposium.

CPH HDR Student Grant Scheme

The following PhD candidates were awarded \$5,000 grants for their research projects:

- Lidia Medhin
- Weijie Cao
- Fangli Hu

New research staff

CPH welcomed five new researchers in 2024.



Dr Vivian Chua
Vice-Chancellor's Research Fellow
Research focus: Uveal melanoma



Dr Chris Latella
Postdoctoral Research Fellow
Research focus:
Neurophysiological basis of
motor impairment



Professor Joanne Dickson
Research focus: Improving quality
of life and positive mood in
neurological conditions



Dr Lidija Milicic
Lecturer
Research focus:
Neurological conditions



Dr Jo Rees
Dietician
Brain Bites research project

Promotions

This year CPH celebrated three promotions:

Dr Lois Balmer was promoted to Associate Professor Level D

Dr Aaron Beasley was promoted to Academic Level B.

Dr Shayne Vial was promoted to Academic Level B.

New appointments

Professor Simon Laws was appointed Chair of the ECU Research Professoriate Group from 2025.



Attracting Research Funding

\$2,137,979

of research income received in 2024 (invoiced amount)

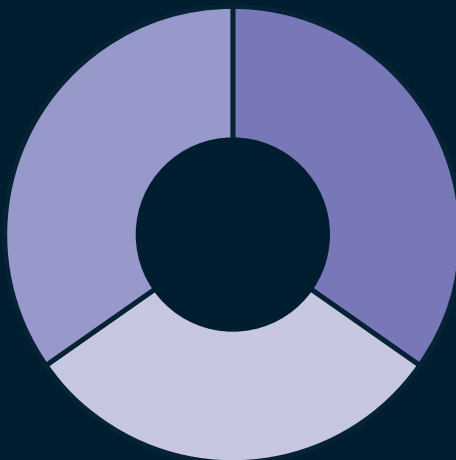
\$154,843

in commercial income received

1:4.6

Return on Investment (target 1:4)

16 new grants awarded in 2024



Category 1 grants

\$580,847

Category 2 grants

\$512,066

Category 3 grants

\$575,279

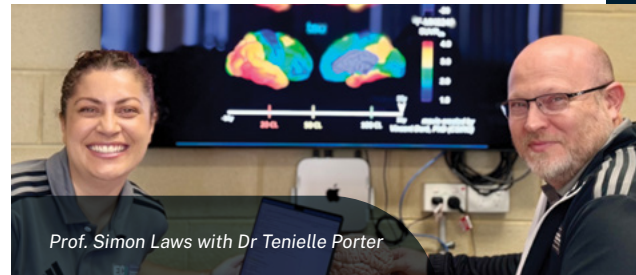
Grant highlights

Eli Lilly and Company (US) – Lilly Research Award Program

Title: Validate ARIA Risk genes using brain MRI/PET imaging endpoints

\$387,144

Professor Simon Laws and Dr Tenielle Porter will co-lead this industry funded research project, in close collaboration with industry partner investigators, Dr Samantha Burnham and Dr Raj Hooli (Eli Lilly) and Dr Vincent Doré (CSIRO).



Prof. Simon Laws with Dr Tenielle Porter

NHMRC/MRFF Genomics Health Futures Mission grant

Title: ctDNA-guided clinical management of melanoma

\$580,847

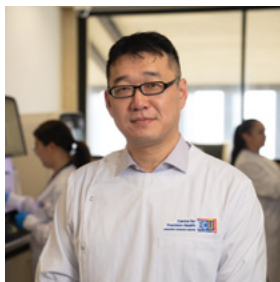
Professor Elin Gray will lead the ECU arm of this Macquarie University-led project by Professor Helen Rizos (CPH adjunct). ECU was awarded over 500,000 from a total of \$923,738.



Prof. Elin Gray with Prof. Helen Rizos

Early Career Researcher grant success

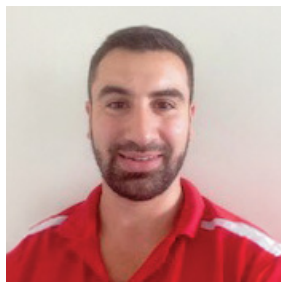
A total of \$461,920 was awarded to the Centre's Early Career Researchers to fund eight new projects.



Dr Xingang Ivan Li

Project: B Cell Regulation of Immunoglobulin G N-Glycosylation in Crohn's Disease

Funded by the Department of Health WA Near-Miss Awards: Emerging Leaders Program (\$100,000)



Dr Christopher Latella

Project: Human motor impairment in long covid: Brain and motoneuron dysfunction

Funded by the Department of Health WA Near-Miss Awards: Emerging Leaders Program (\$100,000)



Dr Aaron Beasley (Lead)

Project 1: Using circulating tumour cells in novel uveal melanoma PDX to discover new therapies

Funded by the Department of Health WA Near-Miss Awards: Emerging Leaders Program (\$100,000)



Dr Vivian Chua

Project 1: Investigating the roles of liver cells on the growth and metastasis of uveal melanoma

Funded by the ECU Early Career Researcher Grant Scheme (\$39,806)

Project 2: Investigating effects of fimepinostat, a dual HDAC1/2/3/10 and PI3K inhibitor, in uveal melanoma

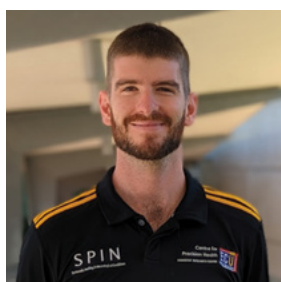
Funded by the Australian Melanoma Research Foundation Early Career Scientist Grant (\$12,500)



Dr Lydia Warburton (Clinical PhD student – pictured Centre)

Project: Enhanced liquid biopsy for detection of melanoma brain metastases

Funded by the Hospital Research Foundation Early Career Researcher Seed Grant (\$20,000)



Dr Mitchell Turner

Project: Improved sleep health

Funded by the ECU Early Career Researcher Scheme (\$39,700)





Active funded research projects

In addition to the 16 new grants, the Centre for Precision Health had 27 active research grants in 2024.

Australian Melanoma Research Foundation Early Career Scientist Grant

Dr Pauline Zaenker – *IgG and IgA autoantibodies as predictive biomarkers of immune-related adverse events (irAEs) and survival in cutaneous melanoma patients on immune-checkpoint inhibitors*

Cancer Council of WA Suzanne Cavanagh Early Career Researcher Grant

Dr Aaron Beasley – *Predicting prognosis using circulating tumour DNA in uveal melanoma*

Cancer Research Trust

Professor Elin Gray – *Enabling Advanced Single Cell Cancer Genomics in WA*

Cancer Research Trust

Professor Elin Gray – *Western Australia Melanoma Initiative (WAMI): developing novel treatments for immunotherapy-resistant melanoma*

Department of Health WA/Future Health & Research Innovation Fund (FHIRI)

Professor Elin Gray – *Cancer blood biomarkers*

Department of Health WA Near-miss Awards Emerging Leader

Dr Emmanuel Adewuyi – *Genetic study of Alzheimer's disease, mechanisms, and comorbidities*

Department of Health WA Near-miss Awards Ideas:

Dr Pauline Zaenker – *Autoantibodies as Biomarkers of Response to Immunotherapy and Onset of Immune-related Adverse Events in Cutaneous Melanoma Patients*

ECU Early Mid-Career Researcher Grant

Dr Aaron Beasley – *Predicting prognosis using circulating tumour DNA in uveal melanoma*

ECU Early Mid-Career Researcher Grant

Dr Xingang Li – *Developing a tool to predict the likely occurrence of stroke*

Florey Institute of Neuroscience and Mental Health

Professor Simon Laws – *Genetic contributions to Alzheimer's disease risk and progression in the AIBL cohort*

Ian Potter Foundation

Professor Elin Gray – *Spatial proteomic phenotyping to enable unbiased discovery*

Multiple Sclerosis Research Australia Incubator Grant

Dr Chris Latella – *Motoneurons, muscle weakness and motor performance in multiple sclerosis*

Multiple Sclerosis Society of Western Australia (MSWA)

Professor Simon Laws and Dr Travis Cruickshank – *Develop a systematic profiling of neurological conditions that will facilitate personalised treatment and streamline services*

National Health and Medical Research Council (NHMRC) Boosting Dementia Research Grant

Professor Simon Laws – *E-DADS: Early Detection of Alzheimer's Disease Subtypes*

NHMRC/MRFF – Genomics Health Futures Mission

Professor Elin Gray – *Integrated multimodal precision liquid biopsy to enhance MELanoma and NSCLC Treatment (IMPLEMENT)*

NHMRC/MRFF – Dementia, Ageing and Aged Care Mission

Professor Simon Laws – *Blood testing to predict and discriminate dementias*

NHMRC Ideas Grant

Professor Simon Laws – *Imaging, fluid, and genetic markers of Alzheimer's disease*

NHMRC Investigator Grant

Dr Emmanuel Adewuyi – *Characterising the biological mechanisms of dementia via genetic dissection of comorbidities*

NHMRC Project Grant

Professor Simon Laws – *Genetic and lifestyle susceptibility and resilience factors affecting rates of change in preclinical Alzheimer's Disease*

National Institutes of Health (NIH) grant

Professor Simon Laws – *Alzheimer's dementia and progression in international cohorts*

Multiple Sclerosis Society of Western Australia (MSWA)

Prof. Simon Laws and Dr Travis Cruickshank – *Establishing a Neurological Hub (NeuroHub) Data Registry*

Perron Institute for Neurological and Translational Science

Dr Travis Cruickshank – *The effectiveness of a 12-week remote-delivered green-blue light therapy intervention on daytime sleepiness, fatigue, work productivity and quality of life following traumatic brain injury*

Shantou University Medical College, China – PhD Program

Professor Wei Wang – *Shantou Cooperative Research in Medical Sciences and Health Service Delivery*

Spinnaker Health Research Foundation: Janine Chalwell Gift Grant

Professor Elin Gray – *Multimodal liquid biopsy to predict response to melanoma to Immuno-Oncology*

Spinnaker Health Research Foundation Nicholas Way grant

Andrea Lyon (HDR) and Professor Wei Wang

U.S Department of Defense: Melanoma Research Program Team Science Award

Professor Elin Gray – *Multimodal Precision Liquid Biopsy to predict the risk of Melanoma Recurrence*

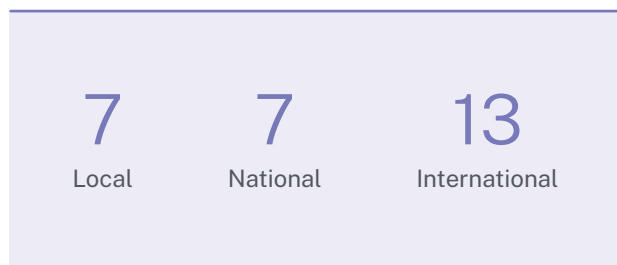
U.S Department of Defense: Melanoma Research Program Team Melanoma Academy Scholar Award

Dr Vivian Chua – *Slow proliferation of BAP1 mutant uveal melanoma cells and its role in metastasis*

Sharing our Research Findings

Creating impact by sharing our research findings and knowledge to local, national, and international audiences.

In 2024, CPH staff and students disseminated their knowledge and research findings at 27 different conferences. The majority were oral presentations, some plenary/chair roles, and the remaining were posters.



EPMA World Congress

The Suboptimal Health program including 3 staff and 16 HDR students hosted and presented at the European Association for Predictive, Preventive and Personalised Medicine (EPMA) World Congress, held in Shantou, China and online in Perth.



Prof. Wei Wang delivered a number of Keynote addresses this year at EPMA and other international conferences



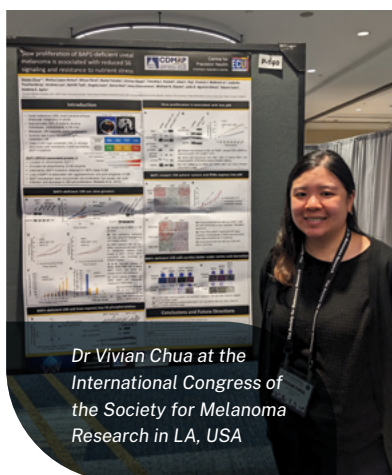
The cancer team at the Australian Melanoma Conference in Sydney



Prof. Simon Laws and Dr Lidija Milicic at the Alzheimer's Association International Conference in Philadelphia, USA



CPH HDR students at the WA ASMR conference in Perth



Dr Vivian Chua at the International Congress of the Society for Melanoma Research in LA, USA

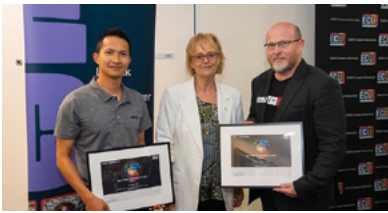


Suboptimal Health program HDR students at the EPMA congress

In the Media

The Centre for Precision Health had a stellar media year in 2024. Centre members featured in 14 ECU media release articles in 2024, as well as on Channel 9 news, CBS news, national radio, and other national and international media outlets. This is testament to the Centre's increasing recognition and expertise.

ECU Media Awards



In March 2024 Professor Simon Laws, in collaboration with Dr Marc Sim won Best ECU Media Campaign 2023 for their work on the relationship between muscle function and dementia.

The three leading CPH research media campaigns in 2024 included:



PhD student Fangli Hu and Professor Wei Wang earned 799 media mentions pertaining to Fangli's PhD research on travel and ageing, reaching an estimated 2.69 billion people, with the earned media worth US\$25.38 million. In October she was interviewed in Perth by a CBS news journalist from New York, which was broadcast on CBS TV in the United States.

<https://www.ecu.edu.au/newsroom/articles/research/travel-could-be-the-best-defence-against-ageing>



Professor Simon Laws, Dr Emmanuel Adewuyi and PhD candidate Artika Kirby (pictured) earned 51 media mentions for their research linking Alzheimer's and heart disease. The media campaign reached some 418.7 million people, with the earned media worth US\$3.8 million.

<https://www.ecu.edu.au/newsroom/articles/research/ecu-medical-researchers-confirm-genetic-link-between-alzheimers-and-heart-disease>



PhD student Tharani Senavirathna (pictured) and Dr Lois Balmer's research on the effects of Ellagic acid on non-alcoholic fatty liver disease had 28 media mentions, reaching 26.8 million people, with an earned value of \$248,245.01.

<https://www.ecu.edu.au/newsroom/articles/research/pomegranates-could-offer-a-solution-to-fatty-liver-disease>



940
media mentions



3.4 billion global
audience reach estimate



US\$32.5 million earned
media worth



LinkedIn
– new in 2024!

In September 2024 CPH expanded its social media choice of platform to LinkedIn to maximise the visibility of our research and grow our networks, with nearly 200 followers by the end of the year.

The Centre also has a well-developed and active website and X account, which features the Centre's news and events, as well as distributing a monthly newsletter to 160 subscribers.



Contributing to Research Culture

The Centre for Precision Health held three Professional Development workshops for staff and students, and an information session on the new HDR milestones at ECU.

The CPH Seminar Series continued with 4 seminars and 2 webinars:

March webinar

Guest: Dr Yiguang Lin – UTS Sydney

CPH speaker: Jiangyue Yao (PhD student)

Topic: Advances in cancer therapy.

April seminar

Guest: Professor Jonas Nilsson – Harry Perkins Institute of Medical Research

CPH speaker: Luisa Pinnel (MBR student)

Topic: Harnessing the immune system to fight cancer.

June seminar

Guest: Professor Joanne Dickson – ECU School of Arts and Humanities and CPH

CPH speakers: Louis Fang and Pari Eshraghi (PhD students)

Topic: Reviewing motivational and cognitive processes to enhance personalised health interventions and mental health.



Professor Sulev Koks

August webinar

Guest: Professor Xifeng Lu – Shantou University Medical College, China

CPH speaker: Chunbin Zhou (PhD student)

Topic: Proton pumps get your heart pumping.

September seminar

Guest: Associate Professor Pieter Eichhorn – Curtin University, Dean of Infrastructure

CPH speaker: Dr Vivian Chua

Topic: A window into the ubiquitous role of ubiquitination in cancer.

November seminar

Guest: Professor Sulev Koks – Murdoch University

CPH speaker: Dr Lidija Milicic

Topic: Exploring the contribution of epigenetics and transposable elements to neurodegenerative diseases.



2024 CPH Research Showcase

The Centre for Precision Health held their 4th Annual Research Showcase event at ECU on 3 December. It was a tremendous success with 90 attendees and a series of insightful and inspiring presentations from our talented researchers and HDR students, as well as showcasing 18 fantastic research posters in our poster session.

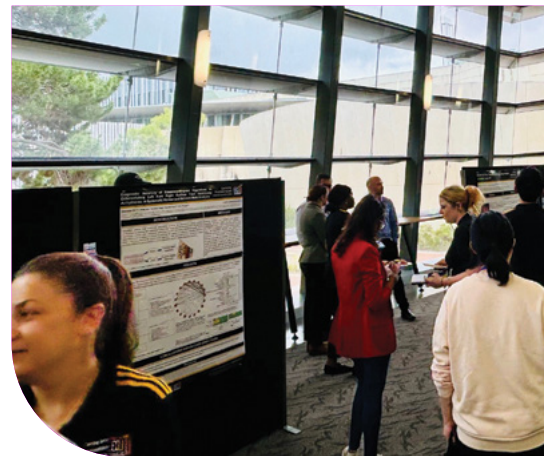
A special highlight was the keynote address by Emeritus Professor Chen from the University of Queensland who shared his amazing research on “Hyperinsulinemia and low growth hormone in obesity and diabetes”.

Presenters included Professor Simon Laws, Professor Elin Gray, Dr Vivian Chua, Lidia Medhin (PhD student), Dr Tenielle Porter, Olasunkanmi David Bamidele (PhD student), Dr Xingang Ivan Li and Weijie Cao (PhD student).

The Centre thanks their sponsors, Thermo Fisher and QIAGEN, and a special thanks also to Professor Margaret Jones and Ms Annie Cordingley for their invaluable contributions to the event in judging and presenting the prizes on the day.

Poster session

Six posters were presented in the judging category and 12 posters presented for the People’s Choice award.



Prize winners



Dr Tenielle Porter with Ms Annie Cordingley



Publication prizes

First Place HDR Student Publication Prize
Artika Kirby

Second Place HDR Student Publication Prize
Zhuoqiao He

Poster prizes

EMCR Poster Prize Associate
Professor Lois Balmer

HDR Student Poster prize
Tharani Senavirathna

People’s Choice Poster prize
Ruirui Xu

Presentation prizes

Best Presentation Prize
Lidia Medhin

Runner up Presentation Prize
Dr Tenielle Porter



Emeritus Professor Chen



Showcase prize winners with Prof. Simon Laws and Prof. Elin Gray

Communicating our Research Findings

79%
Q1 Journals

35%
HDR author

81%
International

103 Publications in 2024

Includes CPH members and Adjuncts

1. **Abed, A., Reid, A., Law, N., Millward, M., & Gray, E.** (Sep 2024). HLA-A01 and HLA-B27 Supertypes, but Not HLA Homozygosity, Correlate with Clinical Outcome among Patients with Non-Small Cell Lung Cancer Treated with Pembrolizumab in Combination with Chemotherapy. *Cancers*, 16(17), 3102, <https://doi.org/10.3390/cancers16173102>
2. **Acheampong, E., Allsopp, R., Page, K., Wadsley, M., Beasley, A., Coombes, C., Shaw, J., & Gray, E.** (Jan 2024). Meta-Analysis of Circulating Tumor Cell PD-L1 Expression and the Association with Clinical Outcomes in Non-Small Cell Lung Cancer. *Clin Chem*, 70(1): 234-249, <https://doi.org/10.1093/clinchem/hvad187>
3. **Adewuyi, E., Porter, T., O'Brien, E., Olaniru, O., Verdile, G., & Laws, S.** (27 May 2024). Genome-wide cross-disease analyses highlight causality and shared biological pathways of type 2 diabetes with gastrointestinal disorders. *Communications Biology*, 7, Article number 643, *Communications Biology*, 7, Article number 643, <https://doi.org/10.1038/s42003-024-06333-z>
4. **Adua, E., Afrifa-Yamoah, E., Kolog, E.A.** (2024). Leveraging Supervised Machine Learning for Determining the Link between Suboptimal Health Status and the Prognosis of Chronic Diseases. In: Wang, W. (eds) *All Around Suboptimal Health. Advances in Predictive, Preventive and Personalised Medicine*, vol 18, 91-113, Springer, Cham. https://doi.org/10.1007/978-3-031-46891-9_9
5. **Alzain, M., Asweto, C., Hassan, S., Saeed, M., Kassab, A., Elbssir, K., Ali, M., Ghorbel, M., Zrieq, R., Alsaif, B., & Wang, W.** (2024). Assessing suboptimal health status in the Saudi population: Translation and validation of the ASHSQ-25 questionnaire. *Journal of Global Health*, 14, Article 04030, <https://doi.org/10.7189/jogh.14.04030>
6. **Anto, E.O., Wang, Y., Wang, W.** (2024). Treatment Algorithm Tailored to Individuals with Non-communicable Diseases: The Innovative Utility of Suboptimal Health Concept from the Predictive, Preventive and Personalised Medical Care Perspective. In: Wang, W. (eds) *All Around Suboptimal Health. Advances in Predictive, Preventive and Personalised Medicine*, vol 18, pp.73-82, Springer, Cham. https://doi.org/10.1007/978-3-031-46891-9_7
7. **Aubin, A., Vdovenko, D., Collin, R., Balmer, L., Coderre, L., Morahan, G., Lombard-Vadnais, F., & Lesage, S.** (2024). Variations in the germinal center response revealed by genetically diverse mouse strains. *Immunology & Cell Biology*, 1-14, <https://doi.org/10.1111/imcb.12823>
8. **Brown, L., Khou, V., Brown, C., Alexander, M., Jayamanne, D., Wei, J., Gray, L., Chan, W., Smith, S., Harden, S., Mersiades, A., Warburton, L., Itchins, M., Lee, J., Pavlakis, N., Clarke, S., Boyer, M., Nagrial, A., Hau, E., Pires da Silva, I., Kao, S., & Kong, B.** (2024). First-line chemioimmunotherapy and immunotherapy in patients with non-small cell lung cancer and brain metastases: a registry study. *Frontiers in Oncology*, 14, Article number 1305720, <https://doi.org/10.3389/fonc.2024.1305720>
9. **Buhrer, E., Kicinski, M., Mandala, M., Pe, M., Long, G., Atkinson, V., Blank, C., Haydon, A., Dalle, S., Khattak, A., Carlino, M., ... & Eggermont, A.** (2024). Adjuvant pembrolizumab versus placebo in resected stage III melanoma (EORTC 1325-MG/KEYNOTE-054): long-term, health-related quality-of-life results from a double-blind, randomised, controlled, phase 3 trial. *The Lancet Oncology*, 25(9), 1202-1212, [https://doi.org/10.1016/S1470-2045\(24\)00338-3](https://doi.org/10.1016/S1470-2045(24)00338-3)

10. **Chen, Z., Balmer, L.,** & Tan, X. (2024). Optimizing Cardiac Resynchronization Therapy in Heart Failure Patients With Prolonged QRS Duration: Insights Into Electrical and Mechanical Dyssynchrony. *Journal of Interventional Cardiology*, 2024, Article number 5549433, <https://doi.org/10.1155/2024/5549433>
11. **Chen, Z.,** Chu, J., Wang, J., Cai, C., Lu, X., Song, M., **Balmer, L., Wang, W.,** & Tan, X. (Nov 2024). Horizontal QRS Axis Predicts Response to Cardiac Resynchronization Therapy in Heart Failure Patients with Left Bundle Branch Block. *Heart Rhythm*, <https://doi.org/10.1016/j.hrthm.2024.11.011>
12. **Chen, Z., Xu, X.,** Song, M., & Lin, L. (Dec 2024). Crosstalk Between Cytokines and IgG N-Glycosylation: Bidirectional Effects and Relevance to Clinical Innovation for Inflammatory Diseases. *OMICS A Journal of Integrative Biology*, 28(12): 608-619, <https://doi.org/10.1089/omi.2024.0176>
13. **Chua, V.,** Lopez-Anton, M., Terai, M., Tanaka, R., Baqai, U., Purwin, T., Haj, J., Waltrich, F., Trachtenberb, I., [...] and Aplin, A. (Jun 2024). Slow proliferation of BAP1-deficient uveal melanoma cells is associated with reduced S6 signaling and resistance to nutrient stress. *Science Signaling*, 17(840), <https://doi.org/10.1126/scisignal.adn8376>
14. Cui, C., **Wu, Z.,** Zheng, J., Chu, J., Zhu, J., Qi, Y., Zhang, Z., Wang, Z., Zhang, M., Mo, Z., Cheng, L., Ding, L., Kang, X., Liu, L., Zhang, T. (2024). Arterial stiffness and obesity as predictors of Diabetes: Longitudinal cohort study. *JMIR Public Health Surveill*, 10: Article e46088, <http://dx.doi.org/10.2196/46088>
15. Cui, C., Liu, L., Qi, Y., Han, N., Xu, H., Wang, Z., Shang, X., Han, T., Zha, Y., Wei, X., & **Wu, Z.** (May 2024). Joint association of TyG index and high sensitivity C-reactive protein with cardiovascular disease: a national cohort study. *Cardiovascular Diabetology*, 23, Article number 156, <https://doi.org/10.1186/s12933-024-02244-9>
16. Cui, C., Li, P., Qi, Y., Song, J., Han, T., Shang, X., **Balmer, L.,** Sheng, C., Zha, Y., Xu, Z., Wang, X., & Wu, Z. (2024). Intraindividual discordance between remnant cholesterol and low-density lipoprotein cholesterol associated with incident Stroke: Results from 2 national cohorts. *J Am Heart Assoc*, 13(20): e035764, <https://doi.org/10.1161/jaha.124.035764>
17. Cui, C., Liu, L., Li, H., Qi, Y., Song, J., Han, N., Wang, Z., Shang, X., Sheng, C., **Balmer, L.,** & Wu, Z. (Dec 2024). Childhood Exposure to Interparental Physical Violence and Adult Cardiovascular Disease. *JAMA Network Open*, 7(12), Article e2451806, <https://doi.org/10.1001/jamanetworkopen.2024.51806>
18. Dang, Y., **Wang, W.,** Lyu, A., Wang, L., & Ji, G. (1 May 2024). Editorial: Application of genomics and epigenetics in disease and syndrome classification. *Front. Genet*, 15, <https://doi.org/10.3389/fgene.2024.1421163>
19. Denisenko, E., de Kock, L., Tan, A., **Beasley, A.,** Beilin, M., Jones, M., Hou, R., O Muiri, D., Bilic, S., Mohan, G., Salfinger, S., Fox, S., Hmon, K., Yeow, Y., Kim, Y., John, R., Gilderman, T., Killingbeck, E., **Gray, E.,** Cohen, P., Yu, Y., & Forrest, A. Spatial transcriptomics reveals discrete tumour microenvironments and autocrine loops within ovarian cancer subclones. *Nature Communications*, 15, Article number 2860, <https://doi.org/10.1038/s41467-024-47271-y>
20. Dupuy, O., Ludyga, S., Ortega, F., Hillman, C., Erickson, K., Herold, F., Kamijo, K. Wang, C., Morris, T., **Brown, B.,** Esteban-Cornejo, I., Solis-Urra, P., Bosquet, L., Gerber, M., Mekari, S., Berryman, N., Bherer, L., Rattray, B., Liu-Ambrose, T., Voelcker-Rehage, C., & Cheval, B. (Aug 2024). Do not underestimate the cognitive benefits of exercise. *Nat Human Behav.*, 8(8): 1460-1463, <https://doi.org/10.1038/s41562-024-01949-x>
21. Eggermont, A., Kicinski, M., Blank, C., Mandala, M., Long, G., Atkinson, V., Dalle, S., Haydon, A., Meshcheryakov, A., **Khattak, A.,** Carlino, M., & Shahneen, S. (Nov 2024). Seven-year analysis of adjuvant pembrolizumab versus placebo in stage III melanoma in the EORTC1325/KEYNOTE-054 trial. *European Journal of Cancer*, 211, Article number 114327, <https://doi.org/10.1016/j.ejca.2024.114327>
22. Ewens, B., Smyth, A., **Dickson, J.,** & Ang, S. (30 May 2024). Enablers and barriers of online mindfulness-based interventions for informal carers: A mixed-methods systematic review. *Mindfulness*, 15, 1257-1274, <https://doi.org/10.1007/s12671-024-02365-y>
23. **Fang, L.,** Allan, A., & **Dickson, J.** (24 Jun 2024). Purpose in life and associated cognitive and affective mechanisms. *Journal of Happiness Studies*, 25, article number 63, <https://doi.org/10.1007/s10902-024-00771-6>
24. Fantoni, A., **Warburton, L.,** Solomon, B., Alexander, M., Maddula, M., Brown, L., da Silva, I., Nagrial, A., Abu Al-Hial, F., Itchins, M., Pavlakis, N., & Bowyer, S. (Jul 2024). Completion of Pembrolizumab in advanced non-small cell lung cancer -Real world outcomes after two years of therapy (COPILOT). *Clinical Lung Cancer*, 25(5): 449-459, <https://doi.org/10.1016/j.clcc.2024.04.008>
25. Feizpour, A., Doecke, J., Dore, V., Krishnadas, N., Huang, K., Bourgeat, P., **Laws, S.,** Fowler, C., Robertson, J., Mackintosh, L., Ayton, S., & Martins, R., Rainey-Smith, S., Taddei, K., Ward, L., Stage, E., Bannan, A., Masters, C., Fripp, J., **Villemagne, V.,** & Rowe, C. (Nov 2024). Detection and staging of Alzheimer's disease by plasma pTau217 on a high throughput immunoassay platform. *eBioMedicine*, 109: 105405, <https://doi.org/10.1016/j.ebiom.2024.105405>
26. Forero, D., Curioso, W., & **Wang, W.** (2024). Ten simple rules for successfully carrying out funded research projects. *PLoS Comput Biol* 20(9): e1012431. <https://doi.org/10.1371/journal.pcbi.1012431>

27. Ghasemifard, N., Radavelli-Bagatini, S., **Laws, S.**, Macpherson, H., Stevenson, E., Hodgson, J., Prince, R., & Lewis, J. (2024). Specific vegetable types are associated with lower long-term risk for late-life dementia: the Perth Longitudinal Study of Aging Women. *Food Func*, 15(21): 10885-10895, <https://doi.org/10.1039/d4fo03239j>
28. **Garcia, M.**, **Wang, W.** (2024). Suboptimal Health and the Economic Impact to Healthcare from the Perspective of PPP Medicine. In: Wang, W. (eds) All Around Suboptimal Health. Advances in Predictive, Preventive and Personalised Medicine, vol 18, pp.31-46. Springer, Cham. https://doi.org/10.1007/978-3-031-46891-9_4
29. **Garcia, M.**, Guo, Z., Zheng, Y., Wu, Z., Visser, E., **Balmer, L.**, & **Wang, W.** (31 Jul 2024). The caregiving role influences Suboptimal Health Status and psychological symptoms in unpaid carers. *EPMA Journal*, 15, 453-469, <https://doi.org/10.1007/s13167-024-00370-8>
30. Golubnitschaja, O., Polivka Jnr, J., Potuznik, P., Pesta, M., Stetkarova, I., Mazurakova, A., Lackova, L., Kubatka, P., ... **Wang, W.**, & Polivka, J. (27 Feb 2024). The paradigm change from reactive medical services to 3PM in ischemic stroke: a holistic approach utilising tear fluid multi-omics, mitochondria as a vital biosensor and AI-based multi-professional data interpretation. *EPMA Journal*, 15, 1-23, <https://doi.org/10.1007/s13167-024-00356-6>
31. Goonoo, N., Gimie, F., Ait-Arsa, I., **Ziman, M.**, Adeyemi, S., Ubanako, P., Ngema, L., Choonara, Y., & Bhaw-Luximon, A. (Jul 2024). Electrospun nanofibrous scaffolds as a platform to reduce melanoma tumour growth, recurrence, and promote post-resection wound repair. *Biomaterials Advances*, 161, Article 213870, <https://doi.org/10.1016/j.bioadv.2024.213870>
32. Gujral S, Burns M, Erickson KI, Rofey D, Peiffer J, **Laws SM**, **Brown B.** Dose-Response Effects of Exercise on Mental Health in Community-dwelling Older Adults: Exploration of Genetic Moderators. *Int J Clin Health Psych*, 2024 24(1), 100443, <https://doi.org/10.1016/j.ijchp.2024.100443>
33. **Guo, Z.**, **Zheng, Y.**, Geng, J., Wu, Z., Tao, W., Shan, G., Zhu, Y., Zheng, Y., and **Li, X.** (Jan 2024). Unveiling the link between systemic inflammation markers and cognitive performance among older adults in the US: A population-based study using NHANES 2011-2014 data. *Journal of Clinical Neuroscience*, 119, 45-51, <https://doi.org/10.1016/j.jocn.2023.11.004>
34. **He, Z.**, Zhang, Q., Song, M., Tan, X., & **Wang, W.** (2024). Four overlooked errors in ROC analysis: how to prevent and avoid. *BMJ Evidence-Based Medicine*, <https://doi.org/10.1136/bmjebm-2024-113078>
35. Hill, C., Shafaei, A., Boyce, M., Zhong, L., **Balmer, L.**, Lewis, J., Hodgson, J., & Blekkenhorst, L. (Nov 2024). S-methyl-L-cysteine sulfoxide and glucosinolate levels in Australian-sourced Brassica vegetables before and after domestic cooking. *Journal of Food Composition and Analysis*, <https://doi.org/10.1016/j.jfca.2024.107015>
36. Hill, C., Shafaei, A., Boyce, M., Zhong, L., **Balmer, L.**, Lewis, J., Hodgson, J., & Blekkenhorst, L. (Nov 2024). S-methyl-L-cysteine sulfoxide and glucosinolate levels in Australian-sourced Brassica vegetables before and after domestic cooking. *Journal of Food Composition and Analysis*, 138, Article 107015, <https://doi.org/10.1016/j.jfca.2024.107015>
37. **Hou, H.**, **Wang, W.** (2024). Definition of Suboptimal Health. In: Wang, W. (eds) All Around Suboptimal Health. Advances in Predictive, Preventive and Personalised Medicine, vol 18, pp.7-16, Springer, Cham. https://doi.org/10.1007/978-3-031-46891-9_2
38. Hou, R., Dou, J., Wu, L., Zhang, X., Li, C., Wang, W., Gao, Z., Tang, X., Yan, L., Wan, Q., Luo, Z., Qin, G., Chen, L., Ji, J., He, Y., **Wang, W.**, Mu, Y., & Zheng, D. (21 Jun 2024). Development and validation of a machine learning-based model to predict isolated post-challenge hyperglycemia in middle-aged and elder adults: Analysis from a multicentric study. *Diabetes/ Metabolism Research and Reviews*, 40(5), e3832, <https://doi.org/10.1002/dmrr.3832>
39. **Hu, F.**, Wen, J., Zheng, D., **Wang, W.** (2024). Tourism, Suboptimal Health Status, and Dementia. In: Wang, W. (eds) All Around Suboptimal Health. Advances in Predictive, Preventive and Personalised Medicine, vol 18. Springer, Cham. https://doi.org/10.1007/978-3-031-46891-9_17
40. **Hu, F.**, Wen, J., Zheng, D., Ying, T., **Hou, H.**, & **Wang, W.** (Aug 2024). Letter. The principle of Entropy increase: A novel view of how tourism influences human health. *Journal of Travel Research*, <https://doi.org/10.1177/00472875241269892>
41. **Hu, F.**, Wen, J., Zheng, D., Jiang, Y., **Hou, H.**, & **Wang, W.** (Nov 2024). Rethinking perceived constraints for people with chronic diseases: Developing and validating a scale for tourists with mild dementia. *Tourism Management*, 107, Article 105082, <https://doi.org/10.1016/j.tourman.2024.105082>
42. **Hu, F.**, Wen, J., **Hou, H.**, & **Wang, W.** (Nov 2024). Bridging travel medicine and tourism: A call for collaboration. *Annals of Tourism Research*, 110, Article 103868, <https://doi.org/10.1016/j.annals.2024.103868>
43. **Hu, F.**, Wen, J., Zheng, D., Jiang, Y., **Hou, H.**, & **Wang, W.** (2024). Rethinking perceived constraints for people with chronic diseases: Developing and validating a scale for tourists with mild dementia. *Tourism Management*, 107, Article 105082, <https://doi.org/10.1016/j.tourman.2024.105082>

44. Jiang, Y., Qu, M., Jiang, M., Jiang, X., **Fernandez, S., Porter, T., Laws, S.,** Masters, C., Guo, H., Cheng, S., & Wang, C. (2024). MethylGenotyper: Accurate Estimation of SNP Genotypes and Genetic Relatedness from DNA Methylation Data. *Genomics, Proteomics & Bioinformatics*, 22(3): article qzae044, <https://doi.org/10.1093/gpbjnl/qzae044>
45. Kennedy, O., Glassee, N., Kicinski, M., Blank, C., Long, G., Atkinson, V., Dalle, S., Haydon, A., Meshcheryakov, A., **Khattak, A.,** Carlino, M., Sandhu, S., Larkin, J., Puig, S., Ascierto, P., Rutkowski, P., Schadendorf, D., Boers-Sonderen, M., Di Giacomo, A., van den Eertwegh, A., Grob, J., Gutzmer, R., Jamal, R., van Akkooi, A., Gandini, S., Buhner, E., Suci, S., Robert, C., Eggermont, A., Mandala, M., Lorigan, P., Valpione, S. (Apr 2024). Prognostic and predictive value of non-steroidal anti-inflammatory drugs in the EORTC 1325/KEYNOTE-054 phase III trial of pembrolizumab versus placebo in resected high-risk stage III melanoma. *European Journal of Cancer*, 201: Article 113585, <https://doi.org/10.1016/j.ejca.2024.113585>
46. Kim, J., Taaffe, D., Galvao, D., Clay, T., Redfern, A., **Gray, E.,** & Newton, R. (1 Jul 2024). Enhancing circulatory myokines and extracellular vesicle uptake with targeted exercise in patients with prostate cancer (the MYEX trial): a single-group crossover study. *BMC Cancer*, 24, Article number 784, <https://doi.org/10.1186/s12885-024-12530-0>
47. **Kirby, A., Porter, T., Adewuyi, E., & Laws, S.** (2024). Investigating Genetic Overlap between Alzheimer's Disease, Lipids, and Coronary Artery Disease: A Large-Scale Genome-Wide Cross Trait Analysis. *International Journal of Molecular Sciences*, 25(16):8814. <https://doi.org/10.3390/ijms25168814>
48. Lapole, T., Mesquita, R. Baudry, s., Souron, R., **O'Brien, E.,** Brownstein, C., & Rozand, V. (Jun 2024). Persistent inward currents in tibialis anterior motoneurons can be reliably estimated within the same session. *J Electromyogr Kinesiol*, 78, Article 102911, <https://doi.org/10.1016/j.jelekin.2024.102911>
49. Li, C., Meng, X., Zhang, J., Wang, H., Lu, H., Cao, M., Sun, S., & **Wang, Y.** (4 Jul 2024). Associations of metabolic changes and polygenic risk scores with cardiovascular outcomes and all-cause mortality across BMI categories: a prospective cohort study. *Cardiovascular Diabetology*, 23, Article number 23, <https://doi.org/10.1186/s12933-024-02332-w>
50. Li, F., Si, Y., Tang, J., Umar, Z., Xiong, X., Wang, J., Yuan, Q., Tay, A., Chua, E., Zhang, L., Marshall, B., Yang, W., Gu, B., & **Wang, L.** (2024). Rapid profiling of carcinogenic types of Helicobacter pylori infection via deep learning analysis of label-free SERS spectra of human serum. *Comput Struct Biotechnol J*, 23, 3379-3390, <https://doi.org/10.1016/j.csbj.2024.09.008>
51. Liu, D., Cao, M., Wang, H., **Cao, W.,** Zheng, C., Li, Y., & **Wang, Y.** (Mar 2024). Association between inflammatory bowel disease and cancer risk: evidence triangulation from genetic correlation, Mendelian randomization, and colocalization analyses across East Asian and European populations. *BMC Medicine*, 22(1): Article number 137, <https://doi.org/10.1186/s12916-024-03352-9>
52. Liu, M., **He, Z., Ying, P., Lin, D.,** Yu, M., & Tan, X. (Apr 2024). Differentiating origins of outflow tract ventricular arrhythmias: The Correction of Transitional Zone Index is not superior to the original one. *Cardiology*, 149(2): 137-146, <https://doi.org/10.1159/000535811>
53. Lu, H., Wang, H., Li, C., Meng, X., Zheng, D., Wu, L., & **Wang, Y.** (Nov 2024). Observational and genetic associations between cardiorespiratory fitness and age-related diseases: longitudinal analyses in the UK Biobank study. *EPMA Journal*, 15, 629-641, <https://doi.org/10.1007/s13167-024-00382-4>
54. Luk, C., Lee, S., Naidovski, N., Liu, F., Tay, A., **Wang, L.,** Riordan, S., & Zhang, L. (2024). Investigation of Campylobacter concisus gastric epithelial pathogenicity using AGS cells. *Front Microbiol*, 14, <https://doi.org/10.3389/fmicb.2023.1289549>
55. Luke, J., Ascierto, P., **Khattak, M.A.,** Merino, L., Del Vecchio, M., Rutkowski, P., Spagnolo, F., ..., and Long, G. (Mar 2024). Pembrolizumab versus placebo as adjuvant therapy in resected stage IIB or IIC melanoma: Final analysis of distant metastasis-free survival in the phase III KEYNOTE_716 Study. *Journal of Clinical Oncology*, 42(14), <https://doi.org/10.1200/JCO.23.02355>
56. Ma, Z., Mou, J., Yuan, Q., Wang, Z., Liu, Q., Deng, B., Zhang, Y., Tang, D., & **Wang, L.** (27 Jul 2024). Molecular exploration of the diurnal alteration of glycogen structural fragility and stability in time-restricted-feeding mouse liver. *Int J Biol Macromol*, 277(Pt 2), Article 134225, <https://doi.org/10.1016/j.ijbiomac.2024.134225>
57. Mahara, G., Tan, X., **Wang, W.** (2024). Risk Factors, Health Status, and Risk Groups in Suboptimal Health Condition. In: Wang, W. (eds) All Around Suboptimal Health. Advances in Predictive, Preventive and Personalised Medicine, vol 18. Springer, Cham. https://doi.org/10.1007/978-3-031-46891-9_6
58. Marston, K., de Frutos-Lucas, J., **Porter, T., Milicic, L., Vacher, M.,** Sewell, K., Peiffer, J., **Laws, S., & Brown, B.** (2024). Exploration of Alzheimer's disease-related gene expression following high-intensity and moderate-intensity exercise interventions. *J Sci Med Sport*, S1440-2440(24), 00258-5, <https://doi.org/10.1016/j.jsams.2024.07.017>
59. McLean, L., Lim, A., Bressel, M., Lee, J., Ladwa, R., Guminski, A., Hughes, B., Bowyer, S., Briscoe, K., Harris, S., Kukard, C., Zielinski, R., Alamgeer, M., Carlino, M., Mo, J., Park, J., **Khattak, M.,** Day, F., & Rischin, D. (Feb 2024). Immune checkpoint inhibitor therapy for advanced cutaneous squamous cell carcinoma in Australia: a retrospective real world cohort study. *The Medical Journal of Australia*, 220(2), 80-90, <https://doi.org/10.5694/mja2.52199>

60. McNamee, N., Harvey, C., Gray, L., Khoo, T., Lingam, L., Zhang, B., Nindra, U., Yip, P., Pal, A., Clay, T., Arulananda, S., Itchins, M., Pavlakis, N., Kao, S., Bowyer, S., Chin, V., **Warburton, L.**, da Silva, I., John, T., Solomon, B., Alexander, M., Nagrial, A. (Apr 2024). Brief Report: Real-world toxicity and survival of combination Immunotherapy in Pleural Mesothelioma - RIOMeso. *Journal of Thoracic Oncology*, 19(4): 636-642, <https://doi.org/10.1016/j.jtho.2023.11.014>
61. Meng, X., Liu, D., Cao, M., **Wang, W.**, & **Wang, Y.** (Nov 2024). Potentially causal association between immunoglobulin G N-glycans and cardiometabolic diseases: Bidirectional two-sample Mendelian randomization study. *International Journal of Biological Macromolecules*, 279(1): Article 135125, <https://doi.org/10.1016/j.ijbiomac.2024.135125>
62. Mengying, Z., Wu, Y., Mou, J., Yao, Y., Wen, P., Liu, X., Shipeng, S., Kang, X., Tian, J., Liu, Y., Lv, E., & **Wang, L.** (Feb 2024). The global landscape of immune-derived lncRNA signature in colorectal cancer. *Heliyon*, 10(4), Article number e25568, <http://10.1016/j.heliyon.2024.e25568>
63. Moll van Charante, E., Hoevenaer-Blom, M., Song, M., Andrieu, S., Barnes, L., Birck, C., Brooks, R., Coley, N., Eggink, E., Georges, J., Hafdi, M., van Gool, W., Handels, R., **Hou, H.**, Lyu, J., Niu, Y., Song, L., **Wang, W.**, **Wang, Y.**, Wimon, A., Yu, Y., **Zhang, J.**, Zhang, W., Brayne, C., Wang, W., 7 Richard, E on behalf of the PRODEMOS study group. (16 May 2024). Prevention of dementia using mobile phone applications (PRODEMOS): a multinational, randomised, controlled effectiveness-implementation trial. *The Lancet Healthy Longevity*, 5(6), E431-E442, [https://doi.org/10.1016/S2666-7568\(24\)00068-0](https://doi.org/10.1016/S2666-7568(24)00068-0)
64. Nho, K., Risacher, S.L., Apostolova, L.G. Doré V, **Laws, S.M.**, Masters, C.L., **Porter, T.**, **Rowe, C.C.**, **Villemagne V.L.** Saykin. A.J. CYP1B1-RMDN2 Alzheimer's disease endophenotype locus identified for cerebral tau PET. *Nat Commun*, 15, 8251 (2024). <https://doi.org/10.1038/s41467-024-52298-2>
65. Obirikorang, C., Adu, E., **Anto, E.**, Awuah, A., Fynn, A., Osei-Somuah, G., Ansong, P., Boakye, A., Ofori-Boadu, I., Obirikorang, Y., Adobasom-Anane, A., Nyarko, E., & **Balmer, L.** (Mar 2024). Prevalence and risk factors of obesity among undergraduate student population in Ghana: an evaluation study of body composition indices. *BMC Public Health*, 24, Article number 877, <https://doi.org/10.1186/s12889-023-17175-5>
66. Oh, E., Dias, P., Al-Ogaili, Z., Otto, J., & **Warburton, L.** (Jun 2024). Unresectable cardiac metastasis from melanoma responds well to combination immunotherapy - a case report. *Eur Heart J Case Rep*, 8(6): ytae262, <https://doi.org/10.1093/ehjcr/ytae262>
67. **Oh, S.**, **Cao, W.**, & Song, M. (Jun 2024). Twin scholarships of glycomedicine and precision medicine in times of single-cell multiomics. *Omic: A Journal of Integrative Biology*, 28(7), <https://doi.org/10.1089/omi.2024.0111>
68. Pan, Y., Chen, Y., Wu, S., **Ying, P.**, Zhang, Z., Tan, X., & Zhu, J. (2024). Prevalence and management of depressive symptoms in coronary heart disease patients and relationship with cardiovascular prognosis: a prospective cohort study. *BMC Psychiatry*, 24(1): Article 644, <https://doi.org/10.1186/s12888-024-06117-z>
69. Perez, N., Morales, C., Reyes, A., **Cruickshank, T.**, & Penailillo, L. (20 Mar 2024). Effects of eccentric strength training on motor function in individuals with stroke: a scoping review. *Topics in Stroke Rehabilitation*, 31(7), 667-680, <https://doi.org/10.1080/10749357.2024.2330040>
70. Pivac, L., **Brown, B.**, Sewell, K., **Doecke, J.**, **Villemagne, V.**, Dore, V., Weinborn, M., Sohrabi, H., Gardener, S., Bucks, R., **Laws, S.**, Taddei, K., Maruff, P., Masters, C., Rowe, C., Martins, R., & Rainey-Smith, S. (Apr-Jun 2024). Suboptimal self-reported sleep efficiency and duration are associated with faster accumulation of brain amyloid beta in cognitively unimpaired older adults. *Alzheimer's and Dementia: Diagnosis, Assessment and Disease Monitoring*, 16(2), Article number e12579, <https://doi.org/10.1002/dad2.12579>
71. Pratt, J., Dalla Via, J., Sale, C., Gebre, A., Stephan, B., **Laws, S.**, Zhu, K., Lim, W., Prince, R., Lewis, J., & Sim, J. (2024). Apolipoprotein \square 4 is associated with increased risk of fall-and fracture-related hospitalisation: the Perth Longitudinal Study of Ageing Women. *Journal of Gerontology Series A: Biological Sciences and Medical Sciences*, 79(8): glae134, <https://doi.org/10.1093/gerona/glae134>
72. Rapcan, B., Song, M., Frkatovic-Hodzic, A., Pribic, T., Vuk, J., Beletic, A., Hanic, M., Juric, J., Tominac, P., Milas, J., Ivic, V., Viland, S., Bonet, S., Sego, B., Heffer, M., **Wang, W.**, Snyder, M., & Lauc, G. (14 Jun 2024). Glycan clock of ageing - analytical precision and time-dependent inter-and-individual variability. *GeroScience*, 46, 5781-5796, <https://doi.org/10.1007/s11357-024-01239-4>
73. Schadendorf, D., Luke, J., Ascierto, P., Long, G., Rutkowski, P., **Khattak, A.**, Del Vecchio, M., de la Cruz-Merino, L., Mackiewicz, J., Sileni, V., Kirkwood, J., Robert, C., Grob, J., Dummer, R., Carlino, M., Zhao, Y., Kalabis, M., Krepler, C., Eggermont, A., & Scolyer, R. (2024). Pembrolizumab versus placebo as adjuvant therapy in resected stage IIB or IIC melanoma: Outcomes in histopathologic subgroups from the randomized, double-blind, phase 3 KEYNOTE-716 trial. *Journal for ImmunoTherapy of Cancer*, 12(3), <https://doi.org/10.1136/jitc-2023-007501>

74. **Senavirathna, T., Shafaei, A., Lareu, R., & Balmer, L.** (Apr 2024). Unlocking the therapeutic potential of ellagic acid for Non-Alcoholic Fatty Liver Disease and Non-Alcoholic Steatohepatitis. *Antioxidants*, 13(4), Article 485, <https://doi.org/10.3390/antiox13040485>
75. Sewell, K., **Doecke, J.**, Xiong, C., Benzinger, T., Masters, C., Laske, C., Jucker, M., ... & **Brown, B.** (2024). Longitudinal associations between exercise and biomarkers in autosomal dominant Alzheimer's disease. *Alzheimer's & Dementia*, 20(11):7923-7939, <https://doi.org/10.1002/alz.14270>
76. Soldan, A., Wang, J., Pettigrew, C., Davatzikos, C., Erus, G., Hohman, T., Dumitrescu, L., Bilgel, M., Resnick, S., Rivera-Rivera, L., Langhough, R., Johnson, S., Benzinger, T., Morris, J., **Laws, S.**, Fripp, J., Masters, C., & Albert, M. (2024). Alzheimer disease genetic risk and changes in brain atrophy and white matter hyperintensities in cognitively unimpaired adults. *Brain Communications*, 6(5), fcae276, <https://doi.org/10.1093/braincomms/fcae276>
77. Sun, W., Jian, X., Zhang, J. Meng, X., Wang, H., Zheng, D., Wu, L., & **Wang, Y.** (Mar 2024). The causality between Human Immunoglobulin G (IgG) N-Glycosylation and Aging: A Mendelian Randomization Study. *Molecules*, 29(6): Article 1281, <https://doi.org/10.3390/molecules29061281>
78. **Tian, C.** Li, X., Zhang, H., He, J., Zhou, Y., Song, M., Yang, P., & Tan, X. (Nov 2024). Differences in IgG afucosylation between groups with and without carotid atherosclerosis. *BMC Cardiovasc Disord.*, 24(1): Article 612, <https://doi.org/10.1186/s12872-024-04296-x>
79. **Turner, M., Bartlett, D., Poudel, G., Zaenker, P., Laws, S., Lo, J., Ziman, M., & Cruickshank, T.** (Feb 2024). Associations between sleep quality and serum levels of neurofilament light in individuals with premanifest Huntington Disease. *Sleep Sci*, 1: e1-e116, <https://doi.org/10.1055/s-0043-1777783>
80. **Turner, M., Griffiths, M., Laws, M., Vial, S., Bartlett, D., & Cruickshank, T.** (1 Jun 2024). The multidimensional sleep health of individuals with multiple sclerosis, Huntington's disease, and healthy controls. *Journal of Clinical Sleep Medicine*, 20(6): 967-972, <https://doi.org/10.5664/jcsm.11052>
81. **Vacher, M., Canovas, R., Laws, S., & Doecke, J.** (19 Jun 2024). A comprehensive multi-omics analysis reveals unique signatures to predict Alzheimer's disease. *Front. Bioinform*, 4, <https://doi.org/10.3389/fbinf.2024.1390607>
82. Wang, H., Liu, D., Meng, X., Sun, W., Li, C., Lu, H., Zheng, D., Wu, L., Sun, S., & **Wang, Y.** (7 Jun 2024). Bidirectional two-sample Mendelian Randomization Study of Immunoglobulin G N-Glycosylation and Senescence-Associated Secretory Phenotype. *Int. J. Mol. Sci*, 25(12), Article 6337, <https://doi.org/10.3390/ijms25126337>
83. Wang, L., Lu, X., Wang, M., Zhao, X., Li, P., Zhang, H., Meng, Q., Zhang, Y., Wang, Y., **Wang, W., Ji, L., Hou, H., & Li, D.** The association between plasma IgG N-glycosylation and neonatal hypoxic-ischemic encephalopathy: a case-control study. *Front Cell Neuroscience*, 18, <https://doi.org/10.3389/fncel.2024.1335688>
84. **Wang, W., Costigliola, V., Golubnitschaja, O.** (2024). Suboptimal Health Management in the Framework of PPP Medicine. In: Wang, W. (eds) All Around Suboptimal Health. Advances in Predictive, Preventive and Personalised Medicine, vol 18, pp.1-5, Springer, Cham. https://doi.org/10.1007/978-3-031-46891-9_1
85. Weber, J., Carlino, M., **Khattak, A.,** Meniawy, T., Ansstas, G., Taylor, M., Kim, K., McKean, M., Long, G., Sullivan, R., Faries, M., Tran, T., Cowey, L., Pecora, A., Shaheen, M., Segar, J., Medina, T., Atkinson, V., Gibney, G., Luke, J., Thomas, S., Buchbinder, E., Healey, J., Huang, M., Morrissey, M., Feldman, I., Sehgal, v., Robert-Tissot, C., Hou, P., Zhu, L., Brown, M., Aanur, P., Meehan, R., & Zaks, T. (Jan 2024). Individualised neoantigen therapy with mRNA-4157 (V940) plus pembrolizumab versus pembrolizumab monotherapy in resected melanoma (KEYNOTE-942): a randomised, phase 2b study. *The Lancet*, 403(10427), P632-644, [https://doi.org/10.1016/S0140-6736\(23\)02268-7](https://doi.org/10.1016/S0140-6736(23)02268-7)
86. **Wu, D., Chen, G., Lan, Y., Chen, S., Ding, X., Wei, C., Balmer, L., Wang, W.,** Wu, S., & Xu, W. (28 Jan 2024). Measurement of cumulative high-sensitivity C-reactive protein and monocyte to high-density lipoprotein ratio in the risk prediction of type 2 diabetes: a prospective cohort study. *Journal of Translational Medicine*, 22, Article number 110, <https://doi.org/10.1186/s12967-024-04895-4>
87. Wu, G., Zhang, Q., Zhang, J., Zhu, J., Zheng, D., **Wang, Y., & Wu, L.** (30 Jul 2024). Exploring the impact of electrocardiographic parameters on the risk of common arrhythmias: a two-sample Mendelian randomization study. *Journal of Thoracic Disease*, 16(7): 4553-4566, <https://dx.doi.org/10.21037/jtd-24-814>
88. **Wu, Z.,** Zhang, H., Jiang, Y., Li, Z., Wang, Y., Tian, Y., **Guo, Z., Zheng, Y.,** Li, X., Tao, L., & **Guo, X.** (Jan 2024). Association of abnormal lung function and its subtypes with arterial stiffness: A longitudinal cohort study. *Journal of the American Heart Association*, 13(1): Article e029929, <https://doi.org/10.1161/JAHA.123.029929>

89. Wu, Z., Jiang, Y., Guo, Z., Li, P., Zheng, Y., Wang, Y., Zhang, H., **Balmer, L., Li, X.,** Tao, L., Zhang, Q., Gao, B., & **Guo, X.** (Feb 2024). Remnant cholesterol traits and risk of stroke: A multivariable Mendelian randomization study. *PNAS Nexus*, 3(2), Article number pgae033, <https://doi.org/10.1093%2Fpnasnexus%2Fpgae033>
90. Wu, Z., Zhang, H., Xu, Y., Li, X., **Li, X., Balmer, L., Guo, X.,** Zhang, Q., Han, X., & Tao, L. (Jul 2024). Low remnant cholesterol and in-hospital bleeding risk after Ischemic Stroke or Transient Ischemic Attack. *J Am Heart Assoc*, 13(14): e034307, <https://doi.org/10.1161/jaha.124.034307>
91. Wu, Z., **Wu, D.,** Chen, S., Xu, S., Zhang, S., & Wu, S. (Dec 2024). Resting Heart Rate Mediates the Association Between Circulating Neutrophil Count and Arterial Stiffness Progression: The Kailuan Study. *Journal of Inflammation Research*, 17, Article 11347, <https://doi.org/10.2147/jir.s488928>
92. Xia, Y., Dore, V., Fripp, J., Bourgeat, P., **Laws, S.,** Fowler, C., Rainey-Smith, S., Martins, R., Rowe, C., Masters, C., Coulsen, E., & Maruff, P. (17 Jun 2024). Association of basal forebrain atrophy with cognitive decline in early Alzheimer Disease. *Neurology*, 103(2), <https://doi.org/10.1212/WNL.0000000000209626>
93. **Xu, R., Balmer, L.,** Chen, G., & Song, M. (Nov 2024). Role of N-Glycosylation in Gastrointestinal Cancers. *OMICS: A Journal of Integrative Biology*, 28(12), <https://doi.org/10.1089/omi.2024.0174>
94. Yan, YX., **Wang, W.** (2024). Approaches for Measuring Reversible Damage to the Health. In: Wang, W. (eds) All Around Suboptimal Health. *Advances in Predictive, Preventive and Personalised Medicine*, vol 18, 83-90, Springer, Cham. https://doi.org/10.1007/978-3-031-46891-9_8
95. Yang, R., Li, W., Yu, S., Li, X., Huang, J., Guo, X., Tao, L., Li, X., Huang, J., & **Guo, X.** Deep Learning Model for Pathological Grading and Prognostic Assessment of Lung Cancer Using CT Imaging: A Study on NLST and External Validation Cohorts. *Academic Radiology*, <https://doi.org/10.1016/j.acra.2024.08.028>
96. Yang, R., Li, W., Yu, S., Wu, Z., Zhang, H., Liu, X., Tao, L., Li, X., Huang, J., & **Guo, X.** (Nov 2024). Enhanced NSCLC subtyping and staging through attention-augmented multi-task deep learning: A novel diagnostic tool. *International Journal of Medical Informatics*, 193, Article 105694, <https://doi.org/10.1016/j.ijmedinf.2024.105694>
97. Yap, F., Wilson, Y., Peverall, J., **Amanuel, B.,** Allanson, B., & Ruba, S. (2024). Concordance of HER2 Expression in Paired Primary and Metastatic Sites of Endometrial Serous Carcinoma and the Effect of Intratumoral Heterogeneity. *Journal of Molecular Pathology*, 5(3), 405-414, <https://doi.org/10.3390/jmp5030027>
98. Zhao, H., Li, M., **Wu, D.,** Chen, S., Zhu, C., Lan, Y., Liu, H., Wu, Y., & Wu, S. (Aug 2024). Physical activity modifies the risk of incident cardiac conduction disorders upon inflammation: A population-based cohort study. *Journal of the American Heart Association*, 13(16), <https://doi.org/10.1161/JAHA.124.034754>
99. Zheng, Y., Guo, Z., **Guo, X.** (2024). Conventional and Traditional Medicine: A "Hand-in-Hand" Collaboration Benefiting the Patient and Healthcare at Large. In: Wang, W. (eds) All Around Suboptimal Health. *Advances in Predictive, Preventive and Personalised Medicine*, vol 18, 243-251, Springer, Cham. https://doi.org/10.1007/978-3-031-46891-9_16
100. **Zhou, C., Balmer, L.,** Song, M., Mahara, G., Wu, K., **Wang, W.,** & Wang, H. (June 2024). Identification of circRNA biomarkers in osteosarcoma: An updated systematic review and meta-analysis. *Non-coding RNA Research*, 9(2), 341-349, <https://doi.org/10.1016/j.ncrna.2024.01.007>
101. **Zhou, C., Balmer, L.,** Song, M., Wu, K., **Wang, W.,** & Wang, H. (Apr 2024). CircPVT-1 promotes migration and invasion by regulating miR490-5p/HAVCR2 axis in osteosarcoma cells. *Journal of Cellular and Molecular Medicine*, 28(8), e18269, <https://doi.org/10.1111/jcmm.18269>
102. Zhou, H., **Lan, Y., Wu, D.,** Chen, S., Ding, X., & Wu, S. (Apr 2024). The effect of cumulative lipid accumulation product and related long-term change on incident stroke: The Kailuan Study. *Nutrition, Metabolism and Cardiovascular Diseases*, 34(4): 980-987 <https://doi.org/10.1016/j.numecd.2023.12.003>
103. Zhou, H., Ding, X., **Lan, Y.,** Fang, W., Yuan, X., Tian, Y., Chen, S., Wu, S., & **Wu, D.** (28 Jun 2024). Dual-trajectory of TyG levels and lifestyle scores and their associations with ischemic stroke in a non-diabetic population: a cohort study. *Cardiovascular Diabetology*, 23, Article number 225, <https://doi.org/10.1186/s12933-024-02313-z>



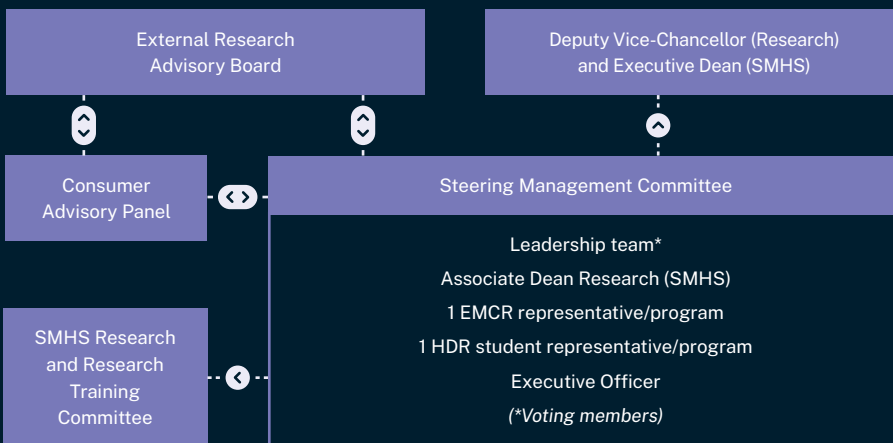
Governance

Organisational structure

The Centre for Precision Health, as an ECU Strategic Research Centre, receives funding from the ECU Strategic Research Fund and is accountable to the Deputy Vice-Chancellor (Research) and to the School of Medical and Health Sciences at ECU. The Centre has a robust governance structure including a Director and Leadership Team, as well as a Steering Management Committee and an External Research Advisory Board, who together, provide advice on operational and strategic matters.

Organisational structure

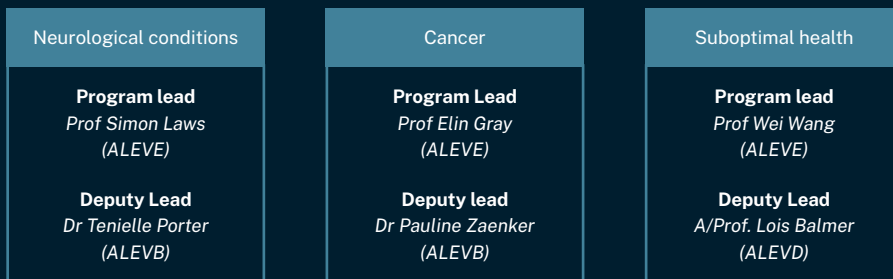
Advisory Structure



Leadership Team



Research Programs



Research Members | Research Support Members | HDR Student Members

2024 CPH Leadership Group



Professor Simon Laws
Professor of Translational Genomics
Director / Lead, Neurological Conditions Program



Professor Elin Gray
Professor of Cancer Research
Deputy Director / Lead, Cancer Program



Professor Wei Wang
Professor of Public Health
Lead, Suboptimal Health Program



Dr. Tenielle Porter
Research Fellow
Deputy Lead, Neurological Conditions Program



Dr. Pauline Zaenker
Research Fellow
Deputy Lead, Cancer Program



Associate Professor Lois Balmer
Associate Professor
Deputy Lead, Suboptimal Health Program



2024 CPH Steering Management Committee



Professor Simon Laws
Chair and Professor of
Translational Genomics



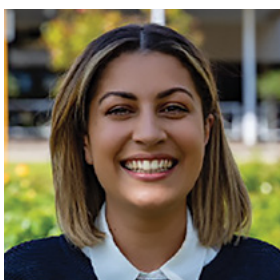
Professor Elin Gray
Professor of Cancer Research



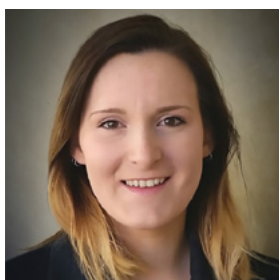
Professor Wei Wang
Professor of Public Health



A/Prof Claus Christophersen
SMHS Assoc. Dean (Research)



Dr Tenielle Porter
Research Fellow



Dr Pauline Zaenker
Research Fellow



A/Prof Lois Balmer
Associate Professor



Sharon Middleton
Centre Coordinator



Dr Emmanuel Adewuyi
NHMRC Emerging
Leaders Fellow



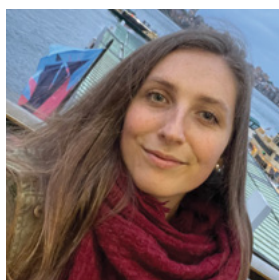
Dr Vivian Chua
Vice-Chancellor's
Research Fellow



Dr Xingang Ivan Li
Postdoctoral Research Fellow



Olasunkanmi David Bamidele
HDR Lead



Luisa Pinnel
HDR Lead



Tharani Senarvirathna
HDR Lead

The Steering Management
Committee (SMC) meets
on a monthly basis and
held 10 meetings in 2024.

Centre for Precision Health External Research Advisory Board



Inaugural Chair
Professor John Finlay-Jones
Emeritus Professor, SMHS
and Former ECU DVCR



Dr Carolyn Williams
Former CEO, Centre for Entrepreneurial
Research & Innovation (CERI)



Dr Kristen Nowak
Director, Office of Population Health
Genomics, WA Department of Health



Ms Katrina Harrison
Director and Principal Genetic Counsellor,
GenomicHealth



Ms Annie Cordingley
Consumer representative and Member of WA
Health Consumer Reference Group



Professor Gareth Baynam
Clinical Genomics Policy Advisor at WA
Health, Medical Director, Rare Care Centre

The Centre for Precision Health External Research Advisory Board (ERAB) consists of six external members (pictured) as well as the three Centre Program Leads (Professor Simon Laws, Professor Elin Gray and Professor Wei Wang), and the Centre Coordinator Sharon Middleton as Executive Officer. The Board meets quarterly and held four meetings in 2024.

This year the Centre was pleased to welcome two new members to the Board: **Dr Kristen Nowak**, Director, Office of Population Health Genomics, Western Australian (WA) Department of Health, and **Dr Katrina Harrison**, who is the Director and Principal Genetic Counsellor at GenomicHealth.

The ERAB provided significant advice into the strategic directions of the CPH in regard to driving collaboration, risk management, and the ongoing sustainability of the Centre.

CPH Members in 2024

Leadership Group

Name	Level	Position description
<i>Professor Simon Laws</i>	<i>Level E</i>	<i>Director and Research Lead (Neurological conditions)</i>
<i>Professor Elin Gray</i>	<i>Level E</i>	<i>Deputy Director and Research Lead (Cancer)</i>
<i>Professor Wei Wang</i>	<i>Level E</i>	<i>Research Lead (Suboptimal Health)</i>
<i>Associate Professor Lois Balmer</i>	<i>Level D</i>	<i>Deputy Research Lead (Suboptimal Health)</i>
<i>Dr Tenielle Porter</i>	<i>Level B</i>	<i>Deputy Research Lead (Neurological conditions)</i>
<i>Dr Pauline Zaenker</i>	<i>Level B</i>	<i>Deputy Research Lead (Cancer)</i>

Research Members

Name	Level	Position description
<i>Professor Joanne Dickson</i>	<i>Level E</i>	<i>Research member</i>
<i>Dr Travis Cruickshank</i>	<i>Level C</i>	<i>Research member - EMCR</i>
<i>Dr Aaron Beasley</i>	<i>Level B</i>	<i>Research member - EMCR</i>
<i>Dr Andrew Woo</i>	<i>Level B</i>	<i>Research member - EMCR</i>
<i>Dr Eleanor O'Brien</i>	<i>Level B</i>	<i>Research member - EMCR</i>
<i>Dr Emmanuel Adewuyi</i>	<i>Level B</i>	<i>Research member - EMCR</i>
<i>Dr Leslie Beasley</i>	<i>Level B</i>	<i>Research member - EMCR</i>
<i>Dr Mitchell Turner</i>	<i>Level B</i>	<i>Research member - EMCR</i>
<i>Dr Vivian Chua</i>	<i>Level B</i>	<i>Research member - EMCR</i>
<i>Dr Xingang Ivan Li</i>	<i>Level B</i>	<i>Research member - EMCR</i>
<i>Dr Christopher Latella</i>	<i>Level B</i>	<i>Research member - EMCR</i>
<i>Dr Lidija Milicic</i>	<i>Level A</i>	<i>Research member - EMCR</i>
<i>Dr Shayne Vial</i>	<i>Level B</i>	<i>Research member - EMCR</i>

Research Support Staff

Name	Level	Position description
Sharon Middleton	Professional staff	Centre Coordinator
Anna Reid	Professional staff	Clinical Study Coordinator
Milcent Tsvangirayi	Professional staff	Research Assistant
Kate Turner	Professional staff	Research Assistant
Melanie Jolly	Professional staff	Research Assistant
Dr Jo Rees	Dietician	Brain Bites program
Leah Dempsey	Prof. staff and HDR	RA and Masters by Research candidate
Luisa Pinnel	Prof. staff and HDR	RA and Masters by Research candidate
Rebecca Auzins	Prof. staff and HDR	RA and Masters by Research candidate

HDR Students

Name	Level	Position description
Dr Aesha Gandhi	HDR	Clinical PhD candidate
Andrea Lyon	HDR	PhD candidate
Anika Lamisa	HDR	PhD candidate
Anna Hongli Sun	HDR	PhD candidate
Artika Kirby	HDR	PhD candidate
Aydin Raei Sadigh	HDR	PhD candidate
Rebecca Auzins	HDR	Masters by Research candidate
Caipan Gong	HDR	PhD candidate
Dr Chunbin Zhou	HDR	PhD candidate (completed 2024)
Dr Cuihong Tian	HDR	PhD candidate (completed 2024)
Dr Dan Wu	HDR	PhD candidate (completed 2024)
Olasunkanmi David Bamidele	HDR	PhD candidate (HDR lead)
Desiree Sexauer	HDR	PhD candidate
Dong Lin	HDR	PhD candidate
Eleanore Daines	HDR	Masters by Research candidate
Fangli Hu	HDR	PhD candidate
Heng Zhang	HDR	PhD candidate
Huiying Pan	HDR	PhD candidate
Jiangyue Yao	HDR	PhD candidate

HDR Students

Name	Level	Position description
Jinxia Zhang	HDR	PhD candidate
Dr Lan Chen	HDR	PhD candidate
Leah Dempsey	HDR	Masters by Research candidate
Lidia Medhin	HDR	PhD candidate
Dr Lidija Milicic	HDR	PhD candidate (completed 2024)
Dr Lydia Warburton	HDR	Clinical PhD candidate
Louis Fang	HDR	PhD candidate
Luisa Pinnel	HDR	Masters by Research candidate (HDR lead)
Manjot Singh	HDR	PhD candidate
Dr Mehrane Mehramiz	HDR	PhD candidate (completed 2024)
Monique Garcia	HDR	PhD candidate
Neha Pulyani	HDR	PhD candidate
Nikayla Batohi	HDR	PhD candidate
Pari Eshraghi	HDR	PhD candidate
Pengxiang Ying	HDR	PhD candidate
Philipp Beranek	HDR	PhD candidate
Qi Yang	HDR	PhD candidate
Ruirui Xu	HDR	PhD candidate
Sam Adams	HDR	Masters by Research candidate
Sanjeev Adhikari	HDR	PhD candidate
Shane Fernandez	HDR	PhD candidate
Sharon Chen	HDR	PhD candidate
Shaun Basson	HDR	Masters by Research candidate
Sean (Seungyoul) Oh	HDR	PhD candidate
Tharani Senavirathna	HDR	PhD candidate (HDR lead)
Wanqi Wang	HDR	PhD candidate
Weijie Cao	HDR	PhD candidate
Xiaojia Xu	HDR	PhD candidate
Yulong Lan	HDR	PhD candidate (completed 2024)

HDR Students

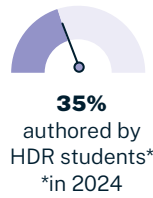
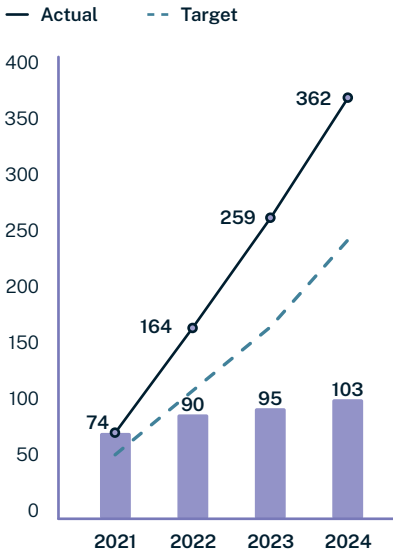
Name	Level	Position description
Zhisheng Chen	HDR	PhD candidate
Zhixian Chen	HDR	PhD candidate
Zhiwei Zhong	HDR	PhD candidate
Zhuoqiao He	HDR	PhD candidate

Adjuncts

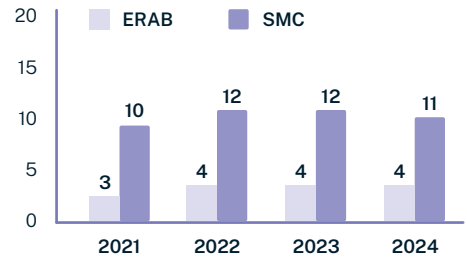
Name	Level	Position description
<i>Clin. Prof. Adnan Khattak</i>	<i>Adjunct</i>	<i>Oncologist & Director, Clinical Trials, Fiona Stanley Hospital</i>
<i>Clin. Prof. Benhur Amanuel</i>	<i>Adjunct</i>	<i>Service Director at PathWest</i>
<i>Hon. Prof. Mel Ziman</i>	<i>Adjunct</i>	<i>Honorary Professor, ECU Melanoma Research</i>
<i>Prof. Xiuhua Guo</i>	<i>Adjunct</i>	<i>Capital Medical University, Beijing, China</i>
<i>Prof. Michael Millward</i>	<i>Adjunct</i>	<i>Foundation Chair of Clinical Cancer Research, UWA</i>
<i>Prof. Youxin Wang</i>	<i>Adjunct</i>	<i>Capital Medical University, Beijing, China</i>
<i>Prof. Victor Villemagne</i>	<i>Adjunct</i>	<i>University of Pittsburgh, USA</i>
<i>A/Prof. Haifeng Hou</i>	<i>Adjunct</i>	<i>Shandong First Medical University, Taian, China</i>
<i>A/Prof Michelle Lupton</i>	<i>Adjunct</i>	<i>QIMR Berghofer Institute</i>
<i>A/Prof. Belinda Brown</i>	<i>Adjunct</i>	<i>Centre for Healthy Ageing, Murdoch University</i>
<i>A/Prof. Liang Wang</i>	<i>Adjunct</i>	<i>Guangdong Academy of Medical Sciences, China</i>
<i>Dr James Doecke</i>	<i>Adjunct</i>	<i>CSIRO, Queensland</i>
<i>Dr Michael Vacher</i>	<i>Adjunct</i>	<i>CSIRO, WA</i>
<i>Dr Enoch Anto</i>	<i>Adjunct</i>	<i>Kwame Nkrumah University of Science and Technology</i>
<i>Dr Eric Adua</i>	<i>Adjunct</i>	<i>University of New South Wales</i>
<i>Dr Weitao Lin</i>	<i>Adjunct</i>	<i>Harry Perkins Research Institute</i>
<i>Dr Siqi Ge</i>	<i>Adjunct</i>	<i>Beijing Neurosurgical Institute, China</i>
<i>Dr Tao Wang</i>	<i>Adjunct</i>	<i>Telethon Kids Institute</i>

Summary Report – Key Performance Indicators

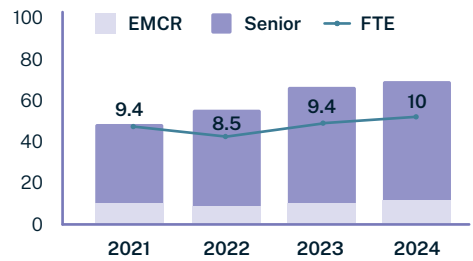
Publications



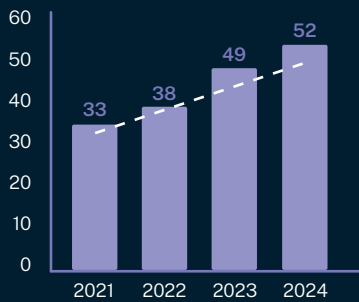
Governance meetings



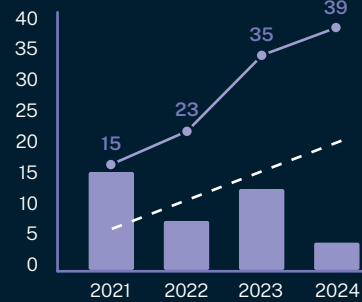
Membership



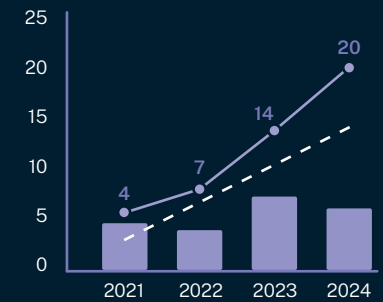
HDR Students



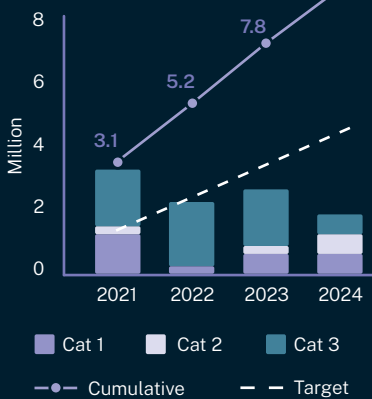
HDR Enrolments



HDR Completions



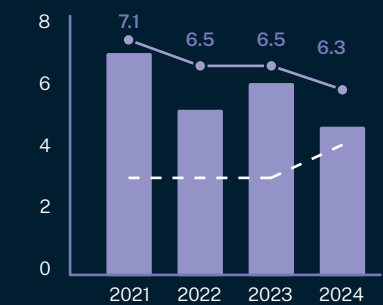
External Research Income



Grant Applications



ROI



Financial Statement

2024 Strategic Research Fund Income and Expenditure

Income	2024 (\$)
ECUSRIC	500,000

Expenditure	2024 (\$)
Salaries and Oncosts	148,687
Contractor and agency staff costs	500
Conferences, events and training	76,794
Scholarships & other student expenses	48,029
HDR grant	15,000
Grant top-up	50,000
Computing	5,182
Equipment, facilities, and maintenance	119,153
Other operating expenditure	36,656
Total Expenditure	500,000

The above-outlined expenses incurred by the Centre for Precision Health align with all previously approved budget areas and the ECUSRIC funding guidelines. Whilst no purchases or expenses were incurred in areas outside of those previously approved, the CPH did reallocate the allocated budget across these approved areas to reflect strategic priorities and opportunities that developed in 2024.

Allocations in all other areas were close to budget, with differences reflecting changes in infrastructure servicing costs because of higher-than-expected inflation.

Prof. Simon Laws
 Director, Centre for Precision Health




Further Information

T: +61 (8) 6304 5607

E: cph@ecu.edu.au

W: <https://bit.ly/CPHresearch>

 [linkedin.com/showcase/centre-for-precision-health-ecu](https://www.linkedin.com/showcase/centre-for-precision-health-ecu)

 [@CPH_ECU](https://twitter.com/CPH_ECU)