The Australian Society for Medical Research

The Queensland branch of the ASMR are proud to present the

2017 QUEENSLAND HEALTH & MEDICAL RESEARCH AWARDS

The Queensland Health & Medical Research Awards are sponsored by the Queensland Government

Queensland Government

Health & Medical Research

Forging a more prosperous future for all Australians

Health and Medical Research in Australia

Health & medical research: an exceptional investment and opportunity

- Every $1 invested into the National Health & Medical Research Council (NHMRC) returns more than $3 in health and economic benefits[1]
- NHMRC investment between 2000-2015 is projected to yield **net returns of over $1.5 billion per year**[2]
- Lifting NHMRC investment to 3% of total health system expenditure would **increase net returns by an extra $4.1 billion per year**[2]
- Over the last decade, the largest increase in real exports has been in medical instruments and medicinal and pharmaceutical products - a direct outcome of investment into health & medical research[3]

Recent workforce attrition impacts the future health and prosperity of all Australians

- The highly-skilled, highly-trained Australian health & medical research workforce is being dramatically eroded
- 16% of the workforce supported by NHMRC Project Grants has been lost over the past 3 years, equivalent to 670 full-time positions[2]
- In November 2016, 1 in 4 PhD-qualified researchers were uncertain of employment in 2017[4]
- Losses are sector-wide - breakthrough research in areas as diverse as childhood cancer, heart disease and mental health will not be converted into preventions and treatments unless researchers are supported

The Medical Research Future Fund (MRFF) is not a magic bullet

- Clinical translation and commercialisation must be built upon a solid foundation of discovery-driven basic research. **You cannot harvest crops without first planting seeds!**
- Further investment into the NHMRC Medical Research Endowment Account (MREA) is required if the aspirations of the MRFF are to be realised - all stages of the research pipeline must be supported

Maximise health, social & economic returns for a more prosperous Australia

- **Immediate action:** Increase investment into the NHMRC MREA to stem the loss of our valuable intellectual captial and retain our best and brightest
- **Over the next 10 years:** Increase NHMRC investment to 3% of total health spending by 2027 to take advantage of a **$58 billion bonanza of benefits**[2]

1. Deloitte Access Economics. *Extrapolated returns from investment in medical research future fund (MRFF)*, 2014, *www.asmr.org.au/Publications.html*
2. Deloitte Access Economics. *Australia's health and medical research workforce: expert people providing exceptional returns*, 2016, *www.asmr.org.au/Publications.html*
3. Prime Minister's Manufacturing Taskforce, *Report of the Non-Government Members*, 2012, *www.innovation.gov.au/Industry/Manufacturing/Taskforce/Documents/SmarterManufacturing.pdf*
4. ASMR snap survey of the Australian health and medical research workforce, November 2016, unpublished

asmr Australian Society for Medical Research

Established 1961
Public, Political, Scientific Advocacy

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Health and medical research is fundamental to our ability to deliver world class healthcare services across Queensland.

My health, Queensland's future: Advancing health 2026 articulates a 10-year vision and strategy for Queensland's health system. Our health research community is positioning Queensland to meet the challenges we face now and into the future, to ensure Queenslanders are among the healthiest people in the world.

Queensland Health manages many grants and fellowships, maintains a robust ethics and governance framework and promotes translation of research into practice. We are proud to once again sponsor the ASMR Queensland Awards for Health and Medical Research. This event is an opportunity to recognise the important work that our health and medical researchers undertake.

Research and innovation are an integral part of a high performing health system as they create new, more effective and efficient ways of preventing, diagnosing and treating disease. That is why Queensland Health provides significant funding and other supports for the conduct of health and medical research, both inside and outside of the organisation.

Congratulations to the award finalists and a sincere thank you to the broader health and medical research community for the dedication and valued contributions made to improving Queensland's healthcare.

Michael Walsh
Director-General, Queensland Health

2017 ASMR Queensland Health & Medical Research Award Finalists:

Clinical Researcher:

Professor Clare Heal, James Cook University
Dr Ian Vela, Princess Alexandra Hospital
Dr Shelley Wilkinson, Mater Research Institute

Senior Researcher:

Dr Jyotsna Batra, Institute of Health and Biomedical Innovation
Dr Motoko Koyama, QIMR Berghofer Medical Research Institute
Professor Jian Yang, The University of Queensland

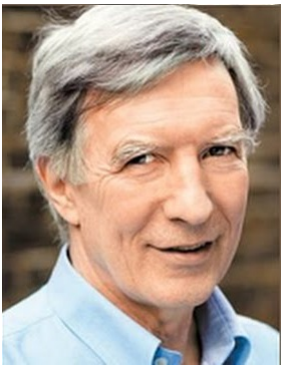
Postdoctoral Researcher:

Dr Nathalie Bock, Queensland University of Technology
Dr Tracy O'Mara, QIMR Berghofer Medical Research Institute
Dr Amirali Popat, The University of Queensland

Postgraduate Student Researcher:

Miss Rhiannon Werder, The University of Queensland
Ms Hannah Thomas, The University of Queensland
Dr Dylan Flaws, Royal Brisbane and Women's Hospital
Dr Moe Thuzar, School of Medicine, Translational Research Institute
Ms Christine Andrews, The University of Queensland
Mr Richard Lobb, QIMR Berghofer Medical Research Institute

ASMR Medallist 2017 – Professor Richard Wilkinson



Professor Emeritus of Social Epidemiology – University of Nottingham
Co-Founder – The Equality Trust
Author of international bestseller "The Spirit Level"

The ASMR Gala Dinner will feature a talk from the 2017 ASMR Medallist, who we are delighted to announce is Professor Richard Wilkinson. Professor Wilkinson is Professor Emeritus of Social Epidemiology at the University of Nottingham, co-founder of The Equality Trust and author of the international bestseller "The Spirit Level". Throughout a distinguished career examining the social determinants of health, Professor Wilkinson's research has uncovered that economic inequality is the key driver for numerous health (and social) problems in developed countries such as Australia. The identification of this strong causal relationship has commanded a re-think of policy development, with a renewed focus on addressing the underlying problem rather than treating specific health and social problems as unrelated phenomena. We're sure Professor Wilkinson's ideas will captivate Gala Dinner audiences around the country, and we warmly invite you along to discover how we might transform our societal structures to set Australia on the path towards a healthier, more prosperous future.

Medical Research: Bringing Health to Life

ASMR Research Fund

You can help build strength in Australia's Health and Medical Research Sector

The Australian Society for Medical Research is the peak body representing and supporting Australian Health and Medical Researchers. Supporting and encouraging early career researchers is an essential element in building and maintaining the Health and Medical Research sector in Australia.

In order to facilitate and promote learning and collaboration in early career researchers, the **ASMR offers two Research Awards each year**, enabling early career researchers to travel to another laboratory either within Australia (Domestic Research Award) or overseas (International Research Award) to learn and diversify their skills and networks.

The ASMR Research Awards are made possible by the generosity of ASMR members who make donations to the ASMR Research Fund.

The ASMR Research Fund was established by ASMR with the sole purpose of providing research awards to ASMR members, in particular early career members.

Without continued generosity, ASMR would not be able to continue to build strength and expertise in Australian Health and Medical Researchers via its support of early career researchers with the ASMR Research Awards.

If you would like to make a contribution to the ASMR Research Fund, and support the development of Australian Health and Medical Researchers, please follow link below.

https://asmr.org.au/research-awards/

Note: all donations to the ASMR Research Fund are tax deductible

Clinical Researcher Award Finalists

PROFESSOR CLARE HEAL

James Cook University

Alcoholic versus Aqueous Chlorhexidine for skin antisepsis- the AVALANCHE trial

Dr Clare Heal is Professor (Promotional Chair) in the department of General Practice, James Cook University Rural Clinical School in Mackay, and Professorial Research Fellow at Mackay Institute for Research and Innovation (MIRI).

Over the past ten years she has been principle investigator, or supervising co-investigator, of seven practice based randomised controlled trials investigating the management of skin cancer surgery. In 2016 her study comparing sterile to clean boxed gloves was named one of the top 20 international studies for Primary Care Physicians. She is principle author of a Cochrane review on topical antibiotic prophylaxis published in 2016.

She currently supervises four honours students and two PhD students and has had fourteen honours completions, and one PhD completion. She has published more than 50 peer reviewed journal articles. She continues to be active in clinical practice and works as a GP, and a VMO to Mackay Sexual Health Clinic.

Scientific Abstract:

Context: Skin is routinely cleansed preoperatively with antiseptic to prevent surgical site infection (SSI). Alcoholic antiseptic solutions have a higher incidence of mucosal and ocular irritation than aqueous solutions, and are more likely to remove skin markings used to establish excision margins. Australian Rural General Practice has a high minor surgery caseload

Objective: To compare preoperative skin antisepsis with alcoholic chlorhexidine (CH) against aqueous CH for prevention of surgical site infection (SSI) after 'minor skin excisions' in general practice.

Design: Prospective, multicentre, randomised controlled trial

Setting: Four private general practices in North Queensland from October 2015 to August 2016.

Patients: Consecutive adult patients presenting for minor skin excisions.

Intervention: Patients were randomly assigned to the intervention of preoperative skin antisepsis with 0.5% CH in 70% ethanol, or the control of 0.5% CH aqueous solution

Main and Secondary Outcome Measures: Our primary outcome was SSI within 30 days of excision. We also measured incidence of adverse reactions.

Results: A total of 916 patients were randomised: 454 to alcoholic CH and 462 to aqueous CH: 909 completed follow up. There was no significant difference in the incidence of SSI in the alcoholic CH arm (5.8%, 95% CI 3.6-7.9%) compared to the aqueous CH arm (6.8%, 95%CI 4.5-9.1%) in the intention to treat analysis of available cases at follow-up (p=0.5852). The attributable risk reduction was 0.010 (95%CI -0.021, + 0.042), the relative risk was 0.85 (95% CI 0.51–1.41) and the Number Needed to Treat to benefit was 100. Per protocol and sensitivity analyses produced similar results. The incidence of adverse reactions was low with no difference between groups. (p=0.6242).

Conclusions: There was no significant difference in efficacy between alcoholic and aqueous chlorhexidine for the prevention of SSI after minor skin excisions. Aqueous antiseptic solutions may be used safely for minor surgical procedures.

DR IAN VELA

Princess Alexandra Hospital
Australian Prostate Cancer Research Centre

Development of a Precision Medicine Program in Prostate Cancer

Dr Ian Vela is a consultant Urologic Oncologist at the Princess Alexandra Hospital and Movember Clinician Scientist Fellow at the Australian Prostate Cancer Research Center Queensland. He is a group head and his lab investigates “Precision Medicine” in Prostate Cancer. He completed his PhD in 2010 and has been a fellow of the Royal Australiasian College of Surgeons since 2012. In 2012-2014 he completed a fellowship in Urologic Oncology at the Memorial Sloan Kettering Cancer Center. Since then he has supervised 3 Masters and 5 PhD candidates and has been the Principal or Associate Investigator for multiple national, international and investigator initiated clinical trials. Dr Vela is an invited reviewer for 7 international journals, 3 international grant bodies, and sits on several industry advisory boards. He has published over 20 journal articles, 30 abstracts and made over 60 presentations at clinical meetings and conferences.

Scientific Abstract:

"Precision medicine" in oncology has been enthusiastically embraced with the recent and rapid technologic developments of Next Generation Sequencing (NGS). This has allowed in depth genomic and transcriptomic analyses of patient derived samples including "liquid biopsies" such as circulating tumor cells (CTCs) and cell free DNA (cfDNA). Prostate cancer has been traditionally a very challenging cancer to study due to the inability to culture in vitro. Recent development of "organoid" culture technology by myself and colleagues has allowed for the first time reproducible in vitro culture of metastatic prostate cancer and the first prostate cancer CTC cell line. Utilising this technology, cutting edge molecular imaging technology (in the form of PSMA PET CT and PSMA PET MRI), and various liquid biopsy technologies my group has established a precision medicine program at the Princess Alexandra Hospital and APCRC-Q investigating the utility of precision medicine in all phases of prostate cancer – diagnosis, treatment of localised to advanced disease. An overview of various components of the research program will be presented including clinical and translational research projects. For example, our current clinical trial investigating novel hybrid PSMA PET MRI imaging in men with biochemical recurrence following definitive therapy also has a translational research component where patient derived tissue biopsies are grown in vitro using organoid technology, allowing amplification, therapeutic drug screening and genomic and transcriptomic analysis using whole exome, and RNA seq technology. An example of a patient with intrinsic resistance to standard anti-androgen therapy due to an Androgen Receptor mutation will be provided as an illustration of how this powerful new approach could influence management of patients to improve outcomes. The overall aim of this program is to improve patient outcomes in all stages of prostate cancer through the latest technologic developments, in a clinically meaningful timeframe, in the immediate future.

DR SHELLEY WILKINSON
Mater Research Institute

Building an evidence-based maternity service – translating research into practice to improve mothers' and babies' health outcomes

Dr Shelley Wilkinson is an Advanced Accredited Practising Dietitian with a PhD in Psychology, and is the Senior Research Dietitian in the Mater Mothers' Hospitals. Her research through her Queensland Government Health Research Fellowship focuses on improving the nutrition knowledge, know-how, and capacity of statewide maternity services and clinicians.

Scientific Abstract:

Epigenetics tells us that early-life nutrition plays a role in the development of many adult chronic diseases. Pregnancy is also a natural “stress test” that can accelerate a woman’s chronic disease trajectory.

Our research at the Mater Mothers’ Hospital shows that pregnant women struggle to eat well, with less than 10% meeting nutrition guidelines for fruit and vegetables. Over 50% of women exceed gestational weight gain (GWG) guidelines and many women with gestational diabetes mellitus (GDM) do not receive care according to best practice guidelines. This is a population with one of the highest risk of developing type 2 diabetes (~30% within 5 years). With around 65,000 births in Queensland each year this has significant public health, clinical, and personal costs.

Guidelines exist that advise women and health services regarding best practice care for a healthy pregnancy, however much of this is not translated into practice. My strategic vision benefits women and their families through advancing best practice nutrition care and capability of services in the management of GDM and healthy GWG. My research systematically addresses the evidence-practice gaps identified from our 2008 service assessment through an implementation science approach. Research priorities are refined iteratively with “end-users” - women, health professionals, and the health system - that ultimately benefit from the work.

Local research outcomes include highly accessed and effective programs to promote healthy eating; increased fruit and vegetables consumption and physical activity, decreased excessive GWG, and lengthened breastfeeding times; development of a pregnancy weight-tracker with national and international interest; successful implementation of a GDM model of care into practice with reduced medication requirements; and improve adherence to and delivery of best practice GWG guidelines. Statewide outcomes include collaboration with regional centres to develop a locally-adapted GDM service model to allow scalable dissemination, plus increased local research and service capacity.

Queensland Health

Health and Medical Research

Health and Medical Research, within the Preventive Health Unit, Health Service and Clinical Innovation Division, Department of Health, provides leadership for Queensland Health in the advancement of Queensland Health's research expertise and translation of research outcomes to better healthcare for Queenslanders.

Health and Medical Research inputs into national initiatives to advance research (e.g. National Health and Medical Research Council projects to increase clinical trials) and coordinates Queensland Health's input into State Government initiatives (e.g. Queensland's Science and Innovation Action Plan and projects led by the Department of Science, Information Technology and Innovation).

Health and Medical Research oversees state-wide policy for research ethics review and governance, supports researchers through a fellowship program, and provides assistance with knowledge transfer and realising the health, commercial and social benefits of research outcomes. It is also responsible for services such as the provision and monitoring of approvals for using confidential health information for research under the *Public Health Act 2005 (Qld).*

For more information visit www.health.qld.gov.au/ohmr/default.asp.

Queensland Government

Senior Researcher Award Finalists

DR JYOTSNA BATRA
Institute of Health and Biomedical Innovation
Queensland University of Technology

A large scale association analysis of miRSNPs with prostate cancer

Dr Batra is an NHMRC Career Development Fellow at Australian Prostate Cancer Research Centre-Queensland, QUT. She has studied Biochemistry towards a Master's degree and obtained her PhD in Biotechnology working on the genetic complexity of the heredity disorders. Dr Batra is leading a research group on molecular genetics of prostate cancer. Her current research focus is to identify cancer risk-associated genetic variants and to understand their molecular consequences on cancer initiation and progression. She aims to develop better biomarker to detect cancer early and to identify genetic biomarkers which can distinguish slow growing disease from very aggressive prostate cancer at an early stage, so that better decision on therapeutic interventions can be made. Dr Batra has contributed to >75 research articles, including that in high impact journals such as Cancer Discovery, Nature Genetics.

Scientific Abstract:

Single nucleotide polymorphisms (SNPs) within a microRNA (miRNA) binding sites of its target gene, referred to as miRSNPs, are known to have functional consequences for cancer risk. We investigated the association between 2,169 putative miRSNPs and PCa risk in a large population of 22,301 cases and 22,320 controls of European ancestry from 23 participating studies within the large PCa Consortium (PRACTICAL). We identified 22 SNPs to be associated with risk of PCa, seven of which have not been previously reported by GWAS studies. We then validated the functional role KLK3 rs1058205 (T>C) SNP. We showed that miR-3162-5p has specific affinity for the KLK3 (Prostate-specific antigen aka PSA) rs1058205 SNP T-allele.

Since PSA (KLK3) is a primary diagnostic biomarker for PCa, to understand this locus further, we undertook additional fine-mapping analysis of this locus and identified a coding variant, rs17632542:T>C (I161T codon-change), within the PSA gene to be significantly associated with PCa risk. We used allele-specific expression analysis and biochemical approaches to test the hypothesis that rs17632542 SNP regulates PSA/KLK3 gene expression, affects PSA antigenicity, protein function or complexing ability with serum inhibitors and thereby the free:total PSA ratio clinically. We showed that the rs17632542 SNP had profound effects on the proliferation, migration and bone metastasis of PCa PSA overexpression cell models. These effects in part were modulated by the fact that C allele of the rs17632542 SNP reduces stability and proteolytic activity of PSA enzyme as well as effects its mRNA splicing.

Our results provide evidence that PSA coding / 3'UTR variants have a functional effects that underpins its association with PCa. Incorporating the information on these two (and additional) SNP genotypes into the current PSA test may lead to the development of a personalised serum PSA test with implications for clinical decision-making at PCa diagnosis.

DR MOTOKO KOYAMA
QIMR Berghofer Medical Research Institute

Antigen presentation in acute graft-versus-host disease following allogeneic bone marrow transplantation

Motoko Koyama graduated from the Faculty of Medicine, Okayama University, Okayama, Japan in 2000, completed medical training in 2004 and then undertook her PhD studies in Dr Takanori Teshima's lab at Okayama University. She moved to Australia in 2009 to join Prof Geoff Hill's lab at QIMR Berghofer Medical Research Institute. Her scientific career has focused on understanding the mechanisms of antigen presentation during graft-versus-host disease (GVHD).

She has shaped a number of paradigm changes in the transplant field, demonstrating that recipient dendritic cells (DC) are not required for the induction of acute GVHD and instead defining an important role for recipient non-hematopoietic antigen presenting cells (APC) in this process (Nature Medicine 2012). More recently she described how a subset of CD103+ donor DC in the colon define the severity of acute GVHD (J Exp Med 2015) and the importance of donor DC in maintaining regulatory T cell homeostasis to prevent chronic GVHD (Blood 2016). She received the Research Australia award in 2012. She was awarded a Leukaemia Foundation of Australia Fellowship in 2013 and is currently funded by NHMRC.

Scientific Abstract:

Allogeneic bone marrow transplantation (BMT) is a mainstay of curative therapy in leukaemia/lymphoma, a result of the immune-mediated graft-versus-leukaemia (GVL) effects which are closely associated with graft-versus-host disease (GVHD). Both GVL and GVHD are elicited by alloantigen presentation to donor CD4+ and CD8+ T cells. Although acute GVHD develops in only a limited number of organs, typically the gastrointestinal tract, skin and liver, the biological reasons remain unclear. We have demonstrated that host non-hematopoietic antigen presenting cells (APC) initiate potent MHC class II-dependent GVHD compared to host hematopoietic APC which include professional APC, i.e. dendritic cells (DC), macrophages, monocytes and B cells, however, are predetermined to disappear early after transplant (M. Koyama et al. *Nat Med* 2012).

More recently, we also clarified our understanding of the role of donor APC in GVHD enhancing phase. We demonstrated that donor colonic CD103+ DC (equivalent to CD141hi DC in human), activated by the signals of damage/pathogen-associated molecular patterns (DAMP/PAMP), dictate the severity of GVHD once it has been initiated by host APC (M. Koyama et al. *J Exp Med* 2015). Given that GVL has been shown to be induced by host APC, particularly host DC, these findings suggest that targeting host non-haematopoietic APC and donor colonic DC will prevent and attenuate GVHD whilst preserving anti-cancer and pathogen-specific immunity, resulting in improved survival and quality of life for patients with leukaemia/lymphoma and bone marrow failure syndromes. In addition, these findings may account for the other intestinal immune reactions and diseases.

PROFESSOR JIAN YANG
Institute for Molecular Bioscience
The University of Queensland

Understanding the genetic basis of common diseases

Jian Yang is a Professor at the Institute for Molecular Bioscience, The University of Queensland (UQ). He received his PhD in 2008 from Zhejiang University, China, before undertaking postdoctoral research at the QIMR Berghofer Medical Research Institute in Brisbane. He joined UQ in 2012. His primary research interests are in developing novel methods and software tools to better understand the genetic architecture of complex traits and diseases using high-throughput genetic and genomic data. He was the 2012 recipient of the Centenary Institute Lawrence Creative Prize, in recognition of his contribution to solving the 'missing heritability' paradox, and received a Sylvia and Charles Viertel Charitable Foundation's Senior Medical Research Fellowship in 2014. He was awarded the Australian Academy of Science Ruth Stephens Gani Medal for distinguished research in human genetics in 2015, and was part of a team awarded an NHMRC Program Grant in 2016.

Scientific Abstract:

Professor Jian Yang's most significant contribution to the field of medical genetics has been to show that genetic variation in most complex traits and diseases such as height, obesity and schizophrenia is due to a large number of genetic variants of small effect (Yang et al. 2010 and 2011 Nature Genetics; 2,069 and 521 citations). This has led to answering a fundamental question regarding why the top associated genetic variants identified by genome-wide association studies (GWAS) do not explain the majority of heritability for complex traits, the so-called 'missing heritability' problem. The method is implemented in the GCTA software tool, which has been widely used in the field (Yang et al. 2011 Am J Hum Genet; 1,398 citations).

He has also developed new methods and undertaken novel analyses to identify genes and genetic variants affecting complex traits. For instance, he developed a multi-SNP analysis approach that only requires summary-level data, and demonstrated there are a large number of gene loci at which multiple SNPs are independently associated with the trait (Yang et al. 2012 Nature Genetics), further explaining the missing heritability paradox. He performed a large-scale GWAS using ~170,000 subjects to identify variants affecting phenotypic variability for obesity (Yang et al. 2012 Nature), which is the first example in humans demonstrating a genetic variant associated with the phenotypic variability of a complex trait. His theoretical work (Yang et al. 2014 Nature Genetics) solved an important puzzle when applying the mixed linear model approach to control for population structure in GWAS. He recently led development of a method that integrates summary-level data from GWAS and genetic studies of gene expression to identify genes whose expression levels are genetically associated with a disease (Zhu et al. 2016 Nature Genetics), providing an important lead to identify drug targets for common complex diseases.

2017 Queensland Gala Dinner

Australian Society for Medical Research

ASMR Medical Research Week® 1st – 9th of June 2017

Featuring a presentation from Prof Richard Wilkinson, entitled "A Society Healthy for All" and Queensland Health & Medical Research Awards announcement and presentation

2017 ASMR Medallist:

Professor Richard Wilkinson

Professor Emeritus of Social Epidemiology – University of Nottingham

Co-Founder – The Equality Trust

Author of international bestseller "The Spirit Level"

Queensland Government

Location: The Great Windsor Room
Pullman Brisbane King George Square

Date: Friday, 2nd of June 2017

Time: 7:00pm for 7:30pm start

Tickets: $120 per Attendee ($95 for Students)

Queensland Health & Medical Research Awards and ASMR MRW® Queensland Gala Dinner supported by the Queensland Government

The University Of Queensland AUSTRALIA | IMB Institute for Molecular Bioscience

TRI Translational Research Institute Australia

The University Of Queensland AUSTRALIA AIBN Australian Institute for Bioengineering and Nanotechnology

The University Of Queensland AUSTRALIA | Faculty of Medicine

QIMR Berghofer Medical Research Institute

Mater Medical Research Institute

The University Of Queensland AUSTRALIA SCMB

AID Australian Infectious Diseases research centre The University of Queensland QIMR Berghofer

School of Biomedical Sciences www.uq.edu.au/sbms

QUT ihbi Institute of Health and Biomedical Innovation

Menzies Health Institute Queensland | Griffith University

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Postdoctoral Researcher Award Finalists

DR NATHALIE BOCK

Queensland University of Technology

Quantification of metastatic prostate cancer and anti-androgens therapies – Exploiting an in vitro engineered human bone-like microenvironment

I obtained my Master's degree from the European School for Materials Science and Engineering in France, in 2007, with a specialisation in biomaterials (training in UIUC, USA) and internship in R&D in a bone graft company (Apatech, UK). I pursued research by joining a large-scale European project for bone reconstruction, coordinated in Italy. I then joined Australia and QUT in 2010 for my PhD on therapeutic delivery for applications in regenerative medicine, where I implemented a new biomedical technique at QUT. After graduation, in 2014, I joined APCRC-Q in order to apply my tissue engineering knowledge to cancer research, developing bioengineered cancer models for prostate cancer. I subsequently became an NHMRC ECR fellow and received grant fundings from Advance Queensland, IHBI and PCFA in 2015. Two and a half years post-PhD, track record includes 14 publication documents, among which 6 first authorships, and 406 citations.

Scientific Abstract:

Androgen-deprivation and androgen-targeted therapies (ADT/ATT) are first in line in the treatment of recurrent prostate cancer (PCa). Yet, these treatments trigger the adaptive response of cancer cells which disseminate to the bone, where a permissive microenvironment assists cancer survival and ultimately leads to patient death. While tumour microenvironment is an important modulator of treatment and resistance, the failure of current treatments comes from a lack of relevant models able to provide the complex features of human bone metastatic PCa. Here we developed a reproducible 3D bone-like matrix in vitro, containing patient-derived osteoblasts and mineralised matrix, and used it to assess whether ADT/ATT were responsible for the resistance of PCa cells in the bone metastatic microenvironment. We used the 3D matrix in co-culture with PCa cell lines and mimicked ADT, with and without standard ATTs, such as Bicalutamide and Enzalutamide. We did a comprehensive screening at the gene and protein levels, and showed that co-cultures dysregulated bone markers in favour of bone overproduction, as seen in clinical metastases. This effect was highly accentuated when androgens were removed (mimicking ADT). Prostate Specific Antigen (PSA) was increased in the co-cultures, with Enzalutamide being ineffective in PSA down-regulation, questioning its use for patients with bone metastases. Next, we developed methodologies to quantitatively study the morphometric and migratory features of PCa cells in culture with the bone matrix. We observed that ADT/ATT negatively affected morphometric features of cells, displaying a more mesenchymal phenotype upon treatments. The model and methodologies presented here are a strong contribution to medicine as they represent a powerful platform to study advanced human PCa in the bone microenvironment. They allow to obtain deeper mechanistic and functional data to a level which is limited with animal models, and enable to interrogate the impact of current and future treatments in the metastatic environment.

DR TRACY O'MARA

QIMR Berghofer Medical Research Institute

Meta-analysis of genome-wide association data for 121,885 women by the Endometrial Cancer Association Consortium identifies eight new susceptibility loci for endometrial cancer

Dr Tracy O'Mara is an NHMRC Early Career Fellow in the Molecular Cancer Epidemiology Group at QIMR Berghofer. She is highly experienced in genetic association studies of cancer, with 40 publications in this field, including publications in high impact journals such as Nature Genetics and Cancer Discovery. In 2016, she was an American Society of Human Genetics Charles J Epstein Semi-finalist for Excellence in Human Genetics Research. Dr O'Mara currently co-leads the international Endometrial Cancer Association Consortium (ECAC), conducting the world's largest genetic association studies of endometrial cancer. She is skilled in bioinformatics analysis and has an interest in the integrative analysis of epigenomic, transcriptomic and genotyping data.

Scientific Abstract:

Endometrial cancer is the most common cancer of the female reproductive system in developed countries. To investigate genetics of endometrial cancer, we have established the Endometrial Cancer Association Consortium (ECAC), comprising fourteen study groups from Europe, the USA and Australia. Genome-wide association studies (GWAS) by ECAC and others have previously identified eight loci associated with endometrial cancer susceptibility. We have since conducted the largest GWAS meta-analysis for this disease. A total of 12,906 cases and 108,979 controls were derived from eight GWAS: the Illumina OncoArray platform (570K custom array); the Illumina iCOGS platform (200K custom array); other commercial GWAS platforms and two GWAS datasets generated by the Epidemiology of Endometrial Cancer Consortium (E2C2). We imputed up to 14 million genetic variants from baseline genotypes, using the October 2014 release of the 1000 Genomes project as a reference. Association testing by logistic region was performed for each study and combined by inverse variance fixed-effects meta-analysis.

Eight novel genetic regions were found to be associated with endometrial cancer risk at $P < 5 \times 10\text{-}8$. Also, a genetic region at 1p35.1, was found to be associated with endometrial cancer risk, with a P-value just above genome-wide levels of significance ($P = 5.04 \times 10\text{-}8$). Preliminary bioinformatic analysis identified candidate target genes of genetic variants including SNIP1, CDKN2B, WT1, NFE2L1, RAB11FIP4 and PAPOLG. In addition to the novel genetic regions, the SH2B3 locus, originally identified by meta-analysis of endometrial cancer and colorectal cancer GWAS, was confirmed as an endometrial cancer risk region. Assuming a log-additive association with risk, genetic variants at all 16 genome-wide significant risk regions identified to date explain 6.4% of the familial risk of endometrial cancer. These results provide insight into the biology of endometrial carcinogenesis and enhance information required for future risk stratification models.

DR AMIRALI POPAT

The School of Pharmacy and Mater Research Institute
The University of Queensland

Designer Nanoparticles for Targeted Gut Delivery of Therapeutic Proteins

Dr. Popat graduated in 2012 with a PhD in advanced drug delivery-nanomedicine from The University of Queensland. Currently, he is a NHMRC Early Career Fellow jointly appointed at The University of Queensland's School of Pharmacy and Mater Research Institute. Dr. Popat has exceptional track record in the area of novel drug delivery systems evidenced by 25 peer reviewed publications and 2 patents in the past 5 years with ~950 citations. In such a short academic career (PhD in July 2012) he has been able to raise ~$1m in total grant funding including a Co-Chief Investigator NHMRC project grant, commercial funding from pharmaceutical companies such as bioceuticals and Pharmako biotechnlogies and faculty infrastructure funding. Additionally, He also co-ordinate a 2nd year B Pharm course Dosage form Design at Pharmacy Australia Centre of Excellence at UQ.

Scientific Abstract:

Ulcerative colitis (UC) is a chronic inflammatory disease of the gastrointestinal tract. Approximately 50% of patients do not respond to, or are forced to discontinue conventional therapy due to adverse effects, and 10% of patients ultimately require colectomy. One therapeutic opportunity for UC is the administration of interleukin-22 (IL-22), a cytokine produced by leukocytes in the colon that maintains the overall integrity of the intestinal epithelium and promotes healing. The administration of IL-22 has been shown to produce a rapid and significant reduction of colonic inflammation. However, administration of IL-22 is challenging as intravenous administration produce systemic side effects, and oral administration using conventional techniques leads to rapid luminal degradation. We have for the first time spatially designed dendrimer like mesoporous silica nanoparticles (DMSNs) and evaluated their ability to encapsulate and locally deliver IL-22 to treat murine colitis. The optimized particles showed successful loading of IL-22 into DMSNs with a loading efficiency of 99%. Assessing downstream STAT3 phosphorylation in intestinal epithelial cells, IL-22 loaded into MSNs was shown to retain bioactivity, and had significantly greater stability than soluble IL-22. Furthermore, MSNs loaded with IL-22 were able to deliver cytokine across a Caco-2 epithelial monolayer, providing proof of the enhanced bioavailability. Finally, in chemically induced murine colitis intra-rectal delivery of IL-22-loaded MSNs resulted in significant changes in the expression of relevant biologic pathways consistent with targeted release of IL-22 in the distal colon. Localisation of the dose was confirmed by low serum levels of IL-22 compared to mice administered systemic IL-22. Histological analysis of colitis revealed trends of a therapeutic response to IL-22 loaded MSN treatment compared to untreated controls. This proof of concept study shows that DMSNs are promising therapeutic delivery systems for challenging proteins such as cytokines and that IL-22 loaded DMSNs could be used to treat colitis.

About the 2017 ASMR MRW® Queensland Postgraduate Student Conference

As part of Australian Society for Medical Research Medical Research Week®, ASMR Queensland holds a postgraduate student conference to showcase the high quality of research undertaken by students in universities and other institutions. The work presented at this conference is that of postgraduate students and the conference is well attended by a broad range of researchers and academics. The 2017 ASMR Queensland Postgraduate Student Conference will take place at the Translational Research Institute on Wednesday 31st May 2017.

This year the six finalists for this award are: Rhiannon Werder, Hannah Thomas, Dylan Flaws, Moe Thuzar, Christine Andrews, Richard Lobb.

We would also like to show our appreciation to all of our judges, sponsors, presenters, supervisors and registrants; without you, this conference would not be possible.


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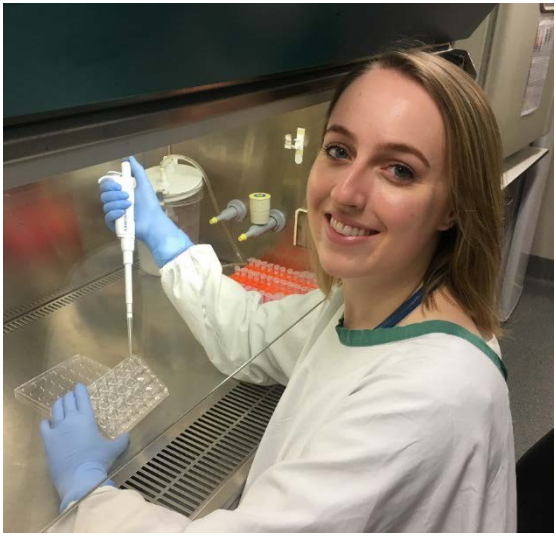
Postgraduate Student Researcher Award Finalists

MISS RHIANNON WERDER

School of Biomedical Sciences,
The University of Queensland

Persistent IL-33 in a preclinical chronic asthma model underpins rhinovirus-induced exacerbation by dampening antiviral immunity



I received my B Biomed Sci (Hons) at The University of Queensland, Australia in 2013. I am now in the final year of my PhD in A/Prof Simon Phipps' laboratory at the University of Queensland. My research focuses on defective immune responses in the onset and exacerbations of asthma. Using novel mouse models of bronchiolitis and asthma along with primary human cells in vitro I have uncovered new mediators which negatively regulate antiviral immunity leading to severe respiratory viral infections. My work highlights novel therapeutic avenues for the prevention and treatment of asthma.

Scientific Abstract:

Rhinovirus infection is the primary trigger of acute exacerbations of asthma. Expression of IL-33, an instructive cytokine of type 2 inflammation, is upregulated during experimental rhinovirus infection of asthmatic subjects and correlates with the production of type 2 cytokines and eosinophilic inflammation. Using a novel model of virus and allergen exposure, we sought to determine whether anti-IL-33 therapy attenuates a rhinovirus-induced asthma exacerbation in mice. To simulate the synergistic effects of virus infection and allergen exposure on asthma susceptibility, mice were exposed to low dose pneumonia virus of mouse (PVM; 1pfu) and low dose (1µg) cockroach antigen (CRE) in early- and later-life. Four weeks after the final CRE exposure, mice were inoculated with rhinovirus (RV-1B, TCID50 5x106). Anti-IL-33 or the corticosteroid dexamethasone were administered intraperitoneally twice/week between the final CRE and RV challenge, and then daily until euthanasia. We found that both early-life and later-life exposures to PVM and CRE were necessary for disease onset and progression. IL-33 levels were elevated immediately following the final CRE exposure and persisted in the airways until the time of RV-1B challenge. Mice co-exposed to PVM/CRE, but not CRE or PVM alone, presented with eosinophilic inflammation, elevated type 2 innate lymphoid cells, mucous hypersecretion and heightened IL-13 expression following RV challenge. Treatment with anti-IL-33 or dexamethasone attenuated the RV-1B-induced type 2 inflammation but had no effect on mucous production. PVM/CRE mice that were challenged with RV-1B had heightened viral load and impaired antiviral immunity. Critically, anti-IL-33, but not dexamethasone, promoted the expression of antiviral cytokines, accelerating RV-1B viral clearance. In conclusion, both anti-IL-33 and dexamethasone suppress the magnitude of type 2 inflammation during a rhinovirus-induced acute exacerbation; however, anti-IL-33 has the added benefit of boosting antiviral immunity and lowering viral burden. Therapies targeting IL-33 will likely alleviate the severity of rhinovirus-induced exacerbations in asthmatics.

MS HANNAH THOMAS

The University of Queensland Centre for Clinical Research
Queensland Centre for Mental health Research

Bullying behaviour in Australian youth: How common is it and what are the mental health risks?

Hannah Thomas is a post-graduate student at the UQ Centre for Clinical Research. Her research interest is in mental health prevention and early intervention. She is a graduate in psychology and in early 2017 submitted her PhD thesis on school bullying. Her PhD research was supported by a scholarship from the Bryan Foundation and ClearThinking Queensland. Hannah worked on epidemiological data to estimate the prevalence and mental health correlates of bullying in Australian youth. In addition, she developed a valid and reliable self-report measurement tool that captures different forms of bullying – physical, verbal, relational, and cyber. The tool was tested in a longitudinal study of 1,200 high school students in Queensland. This new tool will improve the accuracy of bullying measurement and be used in evaluating school-based interventions. Hannah's PhD research has been published in a number of peer-reviewed journals and has been presented at both national and international conferences.

Scientific Abstract:

Background: Bullying is a serious public health problem for children and adolescents worldwide. Prevalence estimates are limited by a lack of representative samples and adequate measurement tools. This study estimated the prevalence of bullying victimisation, perpetration, and victim-perpetration experiences in a representative sample of Australian youth. The relationship between the three classes of bullying involvement with a range of mental health symptoms and diagnoses was also examined.

Method: A randomly-selected nationally representative population-based sample aged 11-17 years (N = 2,967, Mage = 14.6 years) completed the youth component of the Second Australian Child and Adolescent Survey of Mental Health and Wellbeing. In addition, parents completed a structured face-to-face interview about a single randomly-selected child in the household. The youth survey comprised self-reported bullying victimisation and perpetration as well as self-harm, suicide attempts, and substance use. Modules from the Diagnostic Interview Schedule for Children were administered to all youth and parents to assess for mental disorder diagnoses (depression and anxiety).

Results: The prevalence of bullying victimisation was 13.3%, perpetration was 1.6%, and victim-perpetration was 1.9%. All forms of involvement in bullying were associated with increased risk of psychological distress, emotional and behavioural problems, substance use, self-harm, and attempted suicide. There were also significant associations between bullying involvement and mental disorder diagnoses (depression and anxiety). Overall, 71.4% of young people who reported being bullied experienced face-to-face bullying only, 27.4% experienced both face-to-face and cyber bullying, and 1.1% experienced cyberbullying only.

Conclusion: Bullying remains highly prevalent in among Australian youth, and face-to-face and cyber bullying typically co-occur. Any involvement in bullying is associated with increased risk of concurrent mental health problems. This study informs global estimates and international comparisons. It will also allow changing trends in bullying to be examined as efforts to address this public health issue continue to evolve.

DR DYLAN FLAWS

Royal Brisbane and Women´s Hospital
The University of Queensland

Decision Aid Derivation Methods for the Acute Coronary Syndrome Pathway

Dr Flaws, is a psychiatry registrar, and already an accomplished researcher. He has collaborated with leading investigators including Professors Alison Mudge, Gerard Byrne, Louise Cullen on numerous papers, which have been highlighted in The Lancet, and others.
The EDACS score, produced as part of his PhD thesis, is now being used to assess chest pain in Emergency Departments throughout New Zealand, and has garnered significant international attention. It has been discussed in the New England Journal of Medicine's "Journal Watch", and was recently recommended by the Indian College of Cardiology to assess low-risk chest pain in emergency departments across India. Since choosing to specialize in psychiatry, he is now applying these principles to predicting delirium. He was one of six doctors to be awarded one of the prestigious Junior Doctor Research Fellowships in 2016. He also received the Metro North "Rising Star" Junior Researcher of the Year award in 2016.

Scientific Abstract:

Background: Traditionally, chest pain presentations to the Emergency Department (ED) with normal investigations remain for 6-12 hours for serial troponins & ECGs. In 2011, we demonstrated that a low risk group of chest pain presentations can have investigations repeated at 2 hours instead, but only 10% of patients were identified as low risk using conventional risk-stratification methods.

Aim/Methods: To produce a sensitive and easy-to-use tool for identifying low risk chest pain presentations by deriving multiple tools from a prospective cohort of 1,976 patients presenting to the Emergency Department (ED). Performance was assessed in a separate validation population (n = 609), and in an international population (Vancouver, Canada n = 763). The outcome was a Major Adverse Cardiac Event within 30 days. Each tool was designed to be combined with serial Troponins and ECGs.

Tools were derived using:
1. Multiple Regression
2. Non-linear Transformation
3. CART

Results: In derivation, each method produced a tool with a target sensitivity of 99%. Regression, Non-linear Transformation, and CART achieved a specificity of 49.9%, 52.0% and 54.0% respectively. In Validation, Regression and Non-linear Transformation maintained a sensitivity of 98.7%, but CART fell to 96.2% with specificities of 62.6%, 61.2% and 51.4% respectively. In Vancouver, Regression and Non-linear Transformation maintained a sensitivity of 100.0%, but CART fell to 96.2%, with a specificity of 46.4%, 46.4% and 42.8% respectively. Regression identified a low risk group comprising 42.2%, 51.3% and 59.4% of the Derivation, Validation, and Vancouver populations respectively.

Conclusion: Regression outperformed Non-linear Transformation and CART, and produced a simple and relevant tool (now known as EDACS) for chest pain in the ED, which increased the number of patients eligible for early discharge from the traditional 10%, to 40-50%. This is now being used clinically in EDs throughout New Zealand, and was recommended by the Indian College of Cardiology.

DR MOE THUZAR

The University of Queensland
Translational Research Institute

Recruiting Brown Fat by Mineralocorticoid Blockade in Humans – A Potential Novel Target to Combat Obesity

Moe Thuzar is a PhD candidate from the School of Medicine, University of Queensland (UQ), based at the Translational Research Institute. Moe is also an Endocrinologist at the Princess Alexandra Hospital and a Senior Lecturer at the School of Medicine, UQ. She commenced her PhD study in early 2014 after completing her clinical specialist training. Her project focuses on the role of adrenal neuroendocrine system in the regulation of brown fat and metabolism in humans. She has received numerous awards for her novel work, including Australasian Women in Endocrinology Young Investigator Award, Outstanding Abstract Award and Presidential Poster Awards from the US Endocrine Society, Early Career Researcher Award from the Australian & New Zealand Obesity Society and Bryan Hudson Clinical Endocrinology Award (finalist) from the Endocrine Society of Australia.

Scientific Abstract:

Background: Brown adipose tissue (BAT) dissipates nutrient energy as heat and is metabolically significant. In rodents, BAT is regulated by mineralocorticoid hormones (MC); MC excess suppresses BAT function while MC blockade recruits BAT and prevents diet-induced obesity.

Aim: To investigate whether MC blockade recruits BAT in humans.

Method: In a randomised double-blind cross-over design, 10 healthy adults (2 men, 8 women; age mean±SEM, 28±1 year; BMI 24.4±1.2 kg/m2) underwent 2 weeks each of oral spironolactone (MC receptor antagonist) (100mg/day) and placebo treatments with intervening 2-week wash-out. After each treatment, BAT function was assessed, under standardised cooling (190C), by measuring BAT metabolic activity and volume on FDG-PET-CT, and skin temperatures overlying the supraclavicular (SCL) BAT depots by infrared thermography. Energy and substrate metabolism was assessed in response to a standardised meal using indirect calorimetry.

Results: Compared to placebo, BAT metabolic activity (standardised uptake value SUVmax 3.98±1.34 vs 6.3±2.16; P=0.04) and volume (21.6±11.8 vs 54.9±22.8cm3; P=0.047) were higher with spironolactone. SCL temperature fell by a lesser degree after cooling (-0.9±0.2 vs -0.3±0.20C; P=0.05), and rose by a higher degree postprandially (+0.1±0.1 vs +0.4±0.10C; P=0.03) with spironolactone. Meal-stimulated energy production (245±24 vs 219±34kcal/day; P=0.5) was not different between the treatments. Lipid synthesis occurred in 3 subjects postprandially during placebo but in none during spironolactone treatment (P=0.06).
Summary: Spironolactone increased BAT metabolic activity, volume and thermogenic response to cold. After a meal, it did not affect total energy production, but increased BAT thermogenesis and tended to reduce lipid synthesis.

Conclusion: MC blockade recruits BAT in humans, and may suppress postprandial lipogenesis. As energy production after a meal is the sum of energy dissipated as heat and that channelled for storage, the findings suggest that MC blockade diverts nutrient energy from storage towards wastage as heat. MC blockade may be a potential treatment for obesity.

MS CHRISTINE ANDREWS

Centre for Children's Burns and Trauma Research, Child Health Research Centre, The University of Queensland

Evidence-based injury prediction data for severe burns from exposure to hot water

Christine Andrews is a final year PhD student from the University of Queensland with the Children's Burns and Trauma Research group at the Lady Cilento Children's Hospital. Prior to undertaking her studies she worked as a veterinarian in private practice. Her research endeavors to improve outcomes for children with scald injuries by; establishing the burn conditions required for scald injuries to occur; and investigating the pathophysiological processes which occur in the skin after a burn. She serves as a member on the University of Queensland Animal Ethics Committee and is a current Youth Science Ambassador for the Wonder of Science program.

Scientific Abstract:

Objectives
To reduce the risk of a severe burn, understanding the relationship between water temperatures, duration of exposure and tissue injury severity is essential. Evidence-based injury prediction data is lacking for the burn conditions likely to result in a deep dermal scald injury.

Methods
Tissue injury in the acute post-burn period was investigated using a porcine burn model (16 pigs). Twenty burn combinations were tested including; 50 to 60^0C water for 1 to 10 minutes (immersion); and 60 to 100^0C water for 5 seconds (spill/splash). Wound examination, biopsies and Laser Doppler Imaging were performed at 1 hour and days 1, 3 and 7 post-burn. Burn conditions demonstrating mid-to-deep dermal damage histologically were followed for 21 days to assess time to re-epithelialise (8 pigs).

Results
At day 3 post-burn for immersion scalds of equivalent duration, water at 55°C caused significantly deeper dermal damage than 50°C ($p<0.05$). For spill/splash scalds at day 7, water at 90 □C significantly ($p<0.05$) greater dermal damage than water 60-85°C. Damage to ≥ 75% of the depth of dermis was associated with burns taking longer than 3 weeks to re-epithelialise. Burns not re-epithelialised by day 21 included: 50°C for > 10 minutes; 55°C for 5 minutes, 60°C for 60 seconds; 70°C for > 15 seconds; and 85-90°C for 5 seconds.

Discussion/Conclusions
Novel evidence-based injury prediction data for the heat dose required to sustain a severe scald is presented. Quantitative histological data is related to the clinically relevant outcome of time to healing. Compliance with hot tap water regulation is vital as a 5°C increase (from 50°C to 55°C) reduces the time taken to sustain a severe burn from ≥ 10 minutes to only 2 minutes. This data is crucial for guiding scald burn prevention strategies/legislation and to inform medicolegal judgements.

MR RICHARD LOBB

QIMR Berghofer Medical Research Institute

Hypoxic Exosome Signature Predicts Disease Progression in Non-Small Cell Lung Cancer Patients

Richard Lobb is conducted his doctoral studies at QIMR Berghofer Medical Research Institute. He joined the Tumour Microenvironment in 2013 where he is investigating the role of exosomes in non-small cell lung cancer (NSCLC) under the supervision of Associate Professor Andreas Möller. His group aims to understand how the tumour microenvironment promotes metastasis by priming secondary organs for the arrival of cancer cells, termed the pre-metastatic niche. To study this, his group is evaluating the impact of hypoxia on NSCLC derived exosomes, and how exosomes can initiate a pre-metastatic niche that promotes metastatic outgrowth. His current focus is on utilizing exosomes as prognostic markers in NSCLC patients and hopes to translate this into the clinic to improve patient outcomes.

Scientific Abstract:

Lung cancer is the most common cause of cancer-related death in Australia. Non-Small Cell Lung Cancer (NSCLC), which accounts for >80% of all lung cancers, has a five-year survival of approximately 14%. However, stage I/II NSCLC patients have an approximate 40 % five year survival rate, largely depending on the development of metastasis and therapy resistance. Our understanding and treatment of NSCLC contains several knowledge gaps and suffers from a lack of rapid, non-invasive prognostic markers.

Our previous work showed that hypoxia in the primary tumour is directly capable of promoting metastatic spread by secretion of factors into the blood circulation, causing systemic, pro-metastatic effects. Based on this knowledge, we postulated that hypoxia would modify the protein content of exosomes, thereby generating a protein signature capable of identifying patients at risk of developing metastasis. Using quantitative mass spectrometry to determine the content of exosomes secreted by hypoxic NSCLC cells, we found a number of proteins involved in metastatic progression of NSCLC to be at a higher abundance in hypoxic exosomes. Further investigation revealed that these exosomal proteins are secreted by NSCLC cells with a mesenchymal, stem-cell like phenotype, associated with metastatic behaviour.

Receiver operating characteristic curves revealed that our exosome signature was a perfect classifier, demonstrating a sensitivity and specificity of 100%. Exosomes were then isolated from an independent, confirmation cohort. In complete agreement with our discovery cohort, our protein signature was capable of accurately identifying patients with early relapse and those with no relapse within 5 years of initial therapy. Currently, it is not possible to predict the occurrence of chemotherapy resistance or metastasis in NSCLC patients. This work has generated a novel, urgently needed predictive tool to identify NSCLC patients at risk of developing metastatic or chemoresistant disease, providing precise treatment decisions for early stage NSCLC patient management.

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1. a postgraduate student member of the ASMR nearing completion of their studies

   or

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to undertake a short period of research in:

1. a laboratory outside of Australia ($5,000)

   or

2. in a distal laboratory within Australia ($2,000)

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Applicants for these awards must have been members of the ASMR for at least 12 months immediately preceding the year in which the Award application is to be considered.

Applications Opening Soon!

https://asmr.org.au/research-awards/

Medical Research: Bringing Health to Life

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