

Current Role

Associate Professor, Principal Fellow, Depart. of Medicine, Kolling Institute of Medical Research, University of Sydney.

Adjunct Professor, School of Life Science, University of Technology Sydney (Honorary position).

Brief Track Record

I have had a long term engagement with the University of Sydney, first as a PhD student (completed in 2002) and then as a research academic. I have been working at the Kolling Institute for around 22 years (first joined in Dec 2000). During my career I had multiple health and family issues and was obligated to work on a 0.8 FTE ever since. I have worked around 13 years post PhD (FTE). Despite that, I have developed myself as an independent scientist with a strong national and growing international reputation. I am currently leading my own research group within the renal department, headed by Professor Carol Pollock, which consists of a junior postdoctoral researcher, 4 PhD students and 2 honours students. To date, I have published >100 manuscripts in journals with high impact and 2 provisional patent applications. In addition, I have initiated, participated in, and sustained, a wide variety of collaborative multi-disciplinary research programs with Academia and Biotech, both in Australia and overseas. I consider these to represent a major contribution to my professional practice.

I was involved in demonstrating that fluctuating glucose levels has an adverse effect on renal pathology which importantly contributed to the implementation of a new policy for monitoring postprandial glucose levels in diabetic patients. I was amongst the first in the world to demonstrate the importance of foetal programming in early onset metabolic disorders and chronic kidney disease (CKD) progression which received multiple distinction in scholarship awards from the American/Physiological society, has fundamentally changed our understanding on the origin of CKD and demonstrated that intervention during pregnancy can reduce the risk of CKD in the offspring at adulthood. This new concept has been recognized across multiple countries; adopted by different field of research; cited by journals with high impacts e.g. Nature and consensus documents for actions; disseminated via multiple media interviews (Australia and Europe) and reported in 6 press releases and on Global medical discovery, HCPLive (MD magazine that covers high impact medical news for physicians); Nicotine science policy; health medicine net; medicalxpress; get Stem; ENVIVA Paediatric Care; MedWorm; Medical Press; U R The Voice UK, medical news today, ABC news report, Dr Nemani's Neurology web, Illinois, USA; Physiol society press, ADS press and JASN. My work on E-cigarettes was presented to Brad Hazzard (NSW Health Minister) and was instrumental in including E-cigarettes in the Smoke-free Environment Amendment Bill, 2018.

I am committed to excellence in both research and research training and have been supervising students at the University of Sydney and the University of Technology Sydney where I hold an Honorary position. To date, I supervised 10 PhDs, 7 Master, 3 Honours and 2 summer students to completion. I have also trained/mentored, 6 Research Assistants, one summer student, one external PhD student, a volunteer, 4 visiting scholars (from the Polish Academy of Science, the Children's Hospital of Soochow University in China and the university of Technology Sydney) and 3 junior Postdoctoral Scientists in addition to providing work experience to 3 high school students. In addition, I have been involved in developing research projects for undergraduate Medical students, Northern Clinical School and in assessing medical student's presentations and final reports for the MD projects (tutor and examiner). I am also a regular assessor for honours students and have been involved in the HDR student's interview and annual review Process for the last 5 years (Panel Chair during the last 2 years). I have been teaching Renal Physiology and Pathophysiology at the UTS. My teaching was acknowledged by multiple teaching awards and is of a very high standard with an overall teaching score of 4.42/5.

I completed a Development Program for Research Higher Degree Supervision and the Principles and Practice of University Teaching and Learning Program and most importantly a Future Leader training program which was co-jointly funded by the Juvenile Diabetes Research Foundation and the Macquarie Group Foundation which uniquely provided me with the expertise required to assist not only high degree students to become future leaders but also junior supervisors to overcome challenges with supervising HDR students and educate them on how to apply different strategies to enhance students learning and research outputs. I am a role model for research values and academic integrity and am regularly sought after by students and staff for guidance and support. I comply with the University Code of Conduct and policies in relation to conducting research, safety issues, confidentiality and privacy of information, effective use of the university resources and protection of intellectual properties. I treat students with respect, courtesy, sensitivity and equity. I comply with the university's policy in relation to conflict of interest ensuring that students are treated fair and in a responsible and ethical manner.

I have also had multiple editorial responsibilities and administrative and leadership roles in my local, national and international research communities and professional bodies. In addition to managing internal research meetings such as the Renal Lab meetings and student's workshops and contributing to different research committees within my local community, I have acted as a Committee Chair for the New Horizons meeting, a multidisciplinary research and health conference, for 14 years. I have had a leading role in managing and developing this meeting which involved 4 research institutes and universities around Sydney and aimed to engage students with senior researchers and clinicians at the involved institutes, develop the student's presentation skills, encourage multidisciplinary collaboration and bridge basic research and health. I was successful in fundraising ~\$294,000 from commercial sponsors to support this conference and provide research and travel awards for students. The educational, translational and commercial leverage that has resulted from this meeting at a national and international level (for example the establishment of the SPARK Sydney program in collaboration with Stanford University School of Medicine USA) attest for my leadership ability. I received an eminent contribution award from the Director of SPARK to recognise my efforts. I am a member of the Scientific Advisory Board, *Orlando*, USA and a member of the Scientific Staff Council (Northern). I am also an active member of the Australian and New Zealand Society of Nephrology (ANZSN) Meeting involved in reviewing and ranking abstracts submitted to the meeting and chairing sessions. In addition, I am a member of the Education and Training Committee of the ANZSN (Leader of the Gender Equity, Diversity and Inclusiveness Liaison) and was a Co-Chair of the Scientific Committee, responsible for the Scientific Research Program and for the management of the Career sessions at the ANZSN Meeting in 2022 *which brought together clinical trainees, discovery and translational scientist students, academics and nephrologists in an attempt to highlight opportunities for mutual collaboration, describe potential career pathways (whether in biotech or academia) and encourage clinicians interested in completing a PhD.*

In addition, I have acted as an organizing committee member for the international obesity conference (Netherlands) and for the ESM in Diabetes and Endocrinology meeting, Brisbane. I am a member of the leadership committee, cardiovascular and Renal priority research area. I have acted as a PC2 manager and have been involved in making policies for PC2 research practice. I am also a regular reviewer of multiple journals in my research area and an external reviewer for PhD thesis'. I am also a regular assessor for different national and *international* funding bodies including NHMRC, Diabetes Australia Research Trust fund, Dutch Kidney Foundation Kolff Grants (*Netherlands*), Diabetes UK (*London*) and National Kidney Foundation (*Hungary*) and grants submitted to the National Science Centre (Poland) and American University of Sharjah, UAE. I have acted as a reviewer for NHMRC project grant for over 10 years, a panel member for project grants in 2018 and for Investigator grants and ideas grants since they were created in 2019. I acted as a medical panel member, Lebanese Diaspora Energy conference *Oceania* in 2019 which included government representatives, the Minister of foreign affairs and over 500 people from the community. I am a Senior Editor for Clinical Experimental and Pharmacology and Physiology, a Senior Editor for Translational Metabolic Syndrome Research, a Board member and Associate Editor for Frontiers in Endocrinology and an Editorial Board member for Nutrients.

Patents:

Novel non-invasive methods for early diagnosis of chronic kidney disease. One is based on cell autofluorescence levels (colour) and one is based on cell morphology. The methods are also applicable for monitoring of drug effects on the kidney and for the prediction and assessment of chronic kidney disease progression.

APN **2022900913** "Methods for the identification and treatment of chronic kidney disease using cell autofluorescence"

APN **2022900914** "Methods for the identification and treatment of chronic kidney disease using cell morphology and artificial intelligence"

Invited presentations 2020+

- Mechanisms of Renal Fibrosis: Australian Diabetes Society Congress. 11 – 13 November 2020; Keynote Symposium Speaker

- Renal fibrosis-Research overview. Biofocus seminar, University of New South Wales. 3 December 2020
- Epigenetic regulation and chronic kidney disease. Renal Unit lunchtime seminar series, Westmead Millenium Institute, Western Sydney Local Health District 20th July 2021.
- The Diagnostic Value of Urine Beyond Albuminuria: Autofluorescence of Exfoliated Urinary Cells. Asian Pacific Congress of Nephrology 2021, 19-23 August, *Thailand*
- Epigenetic regulation and chronic kidney disease. Australian Physiological Society Meeting (AuPS); 21-24 Nov, 2021 at Gold Coast.
- *Renal Biomarkers Discovery- PRA meeting; 27 August 2021*
- *Assessing urinary kidney cells by hyperspectral autofluorescence and deep learning- Early diagnostic of kidney disease without kidney biopsy. Cardiovascular and Renal PRA Showcase meeting; October 2021*
- *Epigenetic regulation and chronic kidney disease- Opening speaker-5th Edition of Global Webinar _Endocrinology and Diabetes; 24-25 Feb; 2022*
- The role of epigenetic regulation in fetal programming to chronic kidney disease. Global Summit on Nephrology, Urology and Kidney Transplantation; June 15-16,2022 in Zurich, Switzerland.
- Novel Research and advancement in the fields of Nephrology. Keynote Speaker at the 11th International Conference on Nephrology and Kidney Diseases”, June 18-19, 2022
- Examining urinary exfoliated proximal tubule cells by morphology - deep learning imaging cells (RELIC) to assess kidney pathology; ANZSN Meeting 2022

Publications

1. Hui Chen, David M. Van Reyk, Annabel Olivera, Yik Lung Chan, Stephanie E.L. Town, Benjamin S. Rayner, Carol A. Pollock, Sonia Saad, Jacob George, Matthew P. Padula, Brian G Oliver. Sex-dependent responses to maternal exposure to PM2.5 in the offspring. *Antioxidants*. 15 November 2022
2. Dvya Delilaa Clarence, Keshav Raj Paudel, Bikash Manandhar, Sachin Kumar Singh, Hari Prasad Devkota, Jithendra Panneerselvam, Vivek Gupta, Nitin Chitranshi, Nitin Verma, Sonia Saad, Gaurav Gupta, Philip Michael Hansbro, Brian Gregory Oliver, Thiagarajan Madheswaran, Kamal Dua, Dinesh Kumar Chellappan. Unravelling the Therapeutic Potential of Nano-Delivered Functional Foods in Chronic Respiratory Diseases. *Nutrients*. 2022 Sep 16;14(18):3828. doi: 10.3390/nu14183828.
3. Sukjamnong, S., et al., Fimbristylis ovata and Artemisia vulgaris extracts inhibited AGE-mediated RAGE expression, ROS generation, and inflammation in THP-1 cells. *Toxicological Research*, Volume 38, pages331–343 (2022)
4. Hui Chen, Yik Lung Chan, Andrew E Thorpe, Carol A Pollock, Sonia Saad, Brian Gregory George Oliver. Inhaled or ingested, which is worse, e-vaping or high-fat diet? Brief Research Report, *Front. Immunol. – Inflammation*. DOI: 10.3389/fimmu.2022.913044
5. Rodrigo, N., et al., Diet Modification before or during Pregnancy on Maternal and Foetal Outcomes in Rodent Models of Maternal Obesity. *Nutrients*, 2022. 14(10).
6. Nguyen, L.T., et al., Blood DNA Methylation Predicts Diabetic Kidney Disease Progression in High Fat Diet-Fed Mice. *Nutrients*, 2022. 14(4).
7. Larkin, B.P., et al., Low-dose hydralazine reduces albuminuria and glomerulosclerosis in a mouse model of obesity-related chronic kidney disease. *Diabetes Obes Metab*, 2022.
8. Chen, H., et al., Effects of air pollution on human health - Mechanistic evidence suggested by in vitro and in vivo modelling. *Environ Res*, 2022. 212(Pt C): p. 113378.
9. Zhang, J., et al., Correction: A Cationic-Independent Mannose 6-Phosphate Receptor Inhibitor (PXS64) Ameliorates Kidney Fibrosis by Inhibiting Activation of Transforming Growth Factor- β 1. *PLoS One*, 2022. 17(1): p. e0262725.
10. Bell, K.J., et al., Metabolite-based dietary supplementation in human type 1 diabetes is associated with microbiota and immune modulation. *Microbiome*, 2022. 10(1): p. 9.
(commentary article that has now been published online about our paper in *Immunology & Cell Biology* :) Quite a nice write up.<https://onlinelibrary.wiley.com/doi/10.1111/imcb.12558>
11. Zaky, A., et al., The Role of the Gut Microbiome in Diabetes and Obesity-Related Kidney Disease. *Int J Mol Sci*, 2021. 22(17).

12. Wang, B., et al., Maternal Particulate Matter Exposure Impairs Lung Health and Is Associated with Mitochondrial Damage. *Antioxidants* (Basel), 2021. 10(7).
13. Li, Y., C.A. Pollock, and S. Saad, Aberrant DNA Methylation Mediates the Transgenerational Risk of Metabolic and Chronic Disease Due to Maternal Obesity and Overnutrition. *Genes*, 2021. 12(11): p. 1653.
14. Larkin, B.P., et al., Novel Role of Gestational Hydralazine in Limiting Maternal and Dietary Obesity-Related Chronic Kidney Disease. *Front Cell Dev Biol*, 2021. 9: p. 705263.
15. Chen, H., et al., Differential Effects of 'Vaping' on Lipid and Glucose Profiles and Liver Metabolic Markers in Obese Versus Non-obese Mice. *Front Physiol*, 2021. 12: p. 755124.
16. Chen H, Wang B, Li G, Steele JR, Stayte S, Vissel B, Chan YL, Yi C, Saad S, Machaalani R, Oliver BG. Brain health is independently impaired by E-vaping and high-fat diet. *Brain Behav Immun*. 2021 Feb;92:57-66. doi: 10.1016/j.bbi.2020.11.028. Epub 2020 Nov 20. PMID: 33221488
17. Mahbub SB*, Nguyen LT*, Habibalahi A, Campbell JM, Anwer AG, Qadri U, Gill A, Chou A, Wong MG, Gosnell ME, Pollock CA, Saad S# and Goldys EM#. Non-invasive assessment of exfoliated kidney cells extracted from urine using multispectral autofluorescence features. *Scientific Reports* 2021. 11(1): p. 10655.
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24. Wang, B., et al., Offspring sex affects the susceptibility to maternal smoking-induced lung inflammation and the effect of maternal antioxidant supplementation in mice. *J Inflamm (Lond)*, 2020. 17: p. 24.10.21203/rs.2.19269/v2
25. Habibalahi, A., et al., Non-invasive real-time imaging of reactive oxygen species (ROS) using multispectral auto-fluorescence imaging technique: a novel tool for redox biology. *bioRxiv*, 2020: p. 2020.02.18.955112. Press release and reported on Daily Telegraph and Sunday herald (Reporter David Leahy)
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27. Li, G., et al., Replacing smoking with vaping during pregnancy: impacts on metabolic health in mice. *Reprod Toxicol*, 2020.
28. Li, G., et al., E-cigarettes damage the liver and alter nutrient metabolism in pregnant mice and their offspring. *Ann N Y Acad Sci*, 2020.
29. Larkin B, Nguyen LT, Glastras SJ, Komala Gangadharan M, Pollock CA, Saad S. Epigenetic regulation of ILDR2 in the cord blood of obese mothers. *Translational Metabolic Syndrome Research*. April 11 <https://doi.org/10.1016/j.tmsr.2020.04.003> (2020). Volume 3, 2020, Pages 6-8

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31. Nguyen LT, Saad S, Pollock CA, The renal expression of epigenetic biomarkers for diabetic nephropathy. Translational Metabolic Syndrome Research. <https://doi.org/10.1016/j.tmsr.2020.05.002> (2020)
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39. Chen H, Chan YL, Oliver BG, Pollock CA, Saad S. Maternal smoking and foetal brain outcome: mechanisms and possible solutions. The Neuroscience of Nicotine: Mechanisms And Treatment. Nicotine; Neuroscience of Nicotine 1st Edition Editors: Victor Preedy eBook ISBN: 9780128130360 Paperback ISBN: 9780128130353 Imprint: Academic Press Published Date: 21st March 2019 Page Count: 566
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