Proteome Pioneers

Program

Monday 30 June 2025 – 1 Wally's Walk

Time	Session	Speaker	Location
9am - 9.30am	**Arrival and Registration**		1WW Foyer
9.30am – 9.40am	Welcome and Introduction	Mr Meena Mikhael (APAF Manager)	1WW G03 Lecture Theatre
9.40am – 10am	Opening Remarks	Prof Samuel Muller (Executive Dean, Science and Engineering)	
10am – 10.30am	Proteomics Entrepreneurs	Prof Keith Williams	
10.30am – 11am	30 Years of Proteomics	Prof Marc Wilkins	
11am - 11.30am	**Morning Tea**		1WW Foyer
11.30am - 12pm	Beyond Proteomics	Dist Prof Nicki Packer	
12am - 12.30pm	APAF 2025	Dr Gene Hart-Smith	
12.30pm - 2pm	**Lunch**		1WW Foyer
2pm - 3.30pm	Workshops OR APAF Facility Tour	Choose one of: a. Bioinformatics b. Structural Biology by MS c. Protein Analysis d. Glycomics & Glycoproteomics	1WW: 105 Learning Studio 112 Tutorial Room 114 Tutorial Room 213 Tutorial Room
3.30pm	**Close**	Networking	

Workshop Sessions

Register here

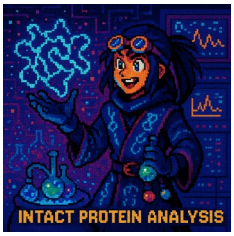
Bioinformatics

Dr Ignatius Pang | Bioinformatics Technology Manager | APAF

Gain hands-on experience with quantitative proteomics best practices using the ProteomeScholaR pipeline. This workshop covers basics of software installation, loading the data, and we will demo a "speed-run" of the data cleaning, batch effect removal and differential abundance analysis steps. Bring your laptop to participate and directly apply these powerful tools.

Structural Biology by MS

Dr Muhammad Zenaidee | Mass Spectrometry Technology Manager | APAF



Top-down and native proteomics aims to comprehensively characterise an intact protein to infer protein structure and how it relates to biological function.

This workshop will delve into cutting edge techniques for analysing intact proteins as well as providing guidance for analysing mass spectra and how to interpret them.

Protein Analysis

Dr David Cantor | Protein Analysis Technology Manager | APAF

Explore Amino Acid Analysis, Size-Exclusion Chromatography and more analytical tools for advanced protein analysis.

This workshop will demonstrate how these methods can assess protein composition/degradation/aggregation, and participants are encouraged to bring their own analysis challenges for an open, forum-based, discussion.

Glycomics and Glycoproteomics

Dr Abarna Murugan | Analytical Scientist (Glycomics and Glycoproteomics) | APAF

Glycobiology seeks to understand functional and structural characteristics of complex carbohydrates aka glycans. In recent years, the field has witnessed pioneering developments in new technologies and scientific discoveries.

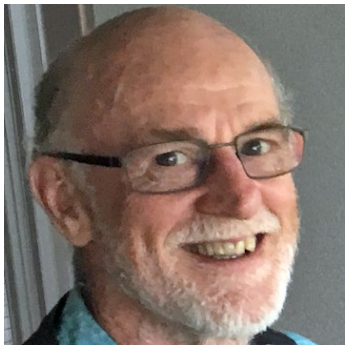
Are you a glyco-enthusiast, who is keen on incorporating new technologies to your science or an absolute glyco-novice who wants to understand what is so ‘Sweet’ about glycobiology (pun intended)? Come along for this workshop where you will learn some basics of glycobiology, sample preparation methods for LC-MS and data analysis.

Proteome Pioneers

Speaker Bios

Presenters

Prof Keith Williams AM FTSE |Technology Entrepreneur



Keith Williams returned to Australia from the Max Planck Institute for Biochemistry (Munich, Germany) to take up a Professorship in the School of Biological Sciences at Macquarie University in 1984. He established MUCAB (Centre for Analytical Biotechnology) and pioneered the area of proteomics. In 1995 Keith and his team established APAF, one the world's first government-funded Major National Proteomics Facilities, which was involved with industrialising protein science. Keith left academe with his team to found Proteome Systems Ltd in 1999 to commercialise proteomics. The company had a strong focus on intellectual property, engineering/technology and bioinformatics. As CEO he led the company to ASX listing in 2004.

Since 2005 Keith has been involved in new business development in biotech, e-health and other emerging technologies. Keith sees climate change and sustainable development as a major issue for humankind and also a major business disruptor/risk and opportunity. He has published more than 500 articles on biotech, renewable energy and electrification of transport on US online magazines Seeking Alpha and Substack.

Prof Marc Wilkins | Deputy Dean, Faculty of Science | UNSW

Marc Wilkins is a leading molecular systems biologist at UNSW Sydney, internationally recognized for coining the term proteome in 1994 and pioneering the field of proteomics. In 1997, he co-authored and co-edited the first book on proteomics, helping to establish the discipline as a cornerstone of modern molecular biology. His work has since influenced the inclusion of proteomics in biochemistry curricula worldwide. With over 260 peer-reviewed publications and two edited books, Professor Wilkins has made major contributions to understanding protein function, particularly through large-scale analytical techniques and bioinformatics. His current research focuses on protein methylation and protein-protein interactions, using advanced methods like crosslinking mass spectrometry (XL-MS). Notable recent studies include mapping the complete protein methylation network in yeast and conducting the largest XL-MS-based analysis of human protein interactions, both published in PNAS.

Beyond proteomics, he is active in genomics and transcriptomics, with highlights such as the koala genome project (Nature Genetics) and contributions to the RNA Atlas (Nature Biotechnology). He leads an ARC-funded lab in proteomics and systems biology and is the UNSW node leader for the MACSYS ARC Centre of Excellence—a $35 million, 7-year initiative. From 2011 to 2022, Professor Wilkins directed the Ramaciotti Centre for Genomics, Australia's largest university-based genomics facility, which processed over one million samples under his leadership. He also co-founded two biotechnology companies: Proteome Systems, a proteomics technology and discovery company, and Regeneus, a regenerative medicine company that developed stem cells to treat musculoskeletal disorders.

Prof Nicki Packer | Distinguished Professor of Glycomics | Macquarie University

Nicki Packer FRSC, is a Distinguished Professor at Macquarie University. Her research career has covered a wide range of analytical proteomics and glycomics across diverse biological projects. She co-founded the Australian Proteome Analysis Facility (APAF), and for 8 years was a founding shareholder and executive of Proteome Systems Ltd, an Australian biotechnology company using proteomics and glycomics to develop, manufacture and sell technology and informatics to discover biomarkers of disease. In 2007 she returned to Macquarie University as Professor of Glycoproteomics and Director of MQ Biomolecular Frontiers Research Centre as part of recruitment for their Concentrations of Research Excellence, and since 2017 has a joint appointment at the Institute for Glycomics, Griffith University. Nicki has published her research extensively and works closely with industry.

She was Deputy Director of the ARC Industrial Transformation Training Centre for Molecular Technology in the Food Industry and was Discovery Theme Leader of the ARC Centre of Excellence in NanoBioPhotonics (CNBP). From 2020 she is now a Chief Investigator in the ARC Centre of Excellence in Synthetic Biology and from 2021 is a CI in the ARC Facilitated Advancement of Australia's Bioactives (FAAB) Industrial Transformation Training Centre and is Academic Lead of the Australian Proteome Analysis Facility. Her research role in all her work is directed towards the role of glycosylation in health and disease; specifically her current projects encompass the improved analysis, and role of glycosylation, in many systems including the i) analysis and function of glycans attached to glycoproteins, glycolipids and proteoglycans, ii) cell membrane glycosylation interactions, iii) glycans as targets for bioimaging and drugs, iv) the mucin glycome-microbiome connection, v) glycoinformatics.

Dr Gene Hart-Smith | Protein Interactions Technology Manager | APAF

Gene Hart-Smith leads the protein interactions team at APAF. His PhD was completed at the UNSW School of Chemistry (2010), and focussed on utilising mass spectrometry to study synthetic polymers. He has since been applying this expertise in mass spectrometry to the study of biological systems.

From 2011 to 2019, Gene had a close association with the Wilkins Lab. He received two prestigious Australian Research Council fellowships to study biomolecular networks involving protein interactions during this time. At APAF, Gene has sought to make the methodologies developed through these fellowships available to the broader research community. He collaborates on a diverse range of research problems involving protein interactions, from projects with implications for environmental sustainability, such as studies into the molecular underpinnings of root architecture and agricultural water use in rice, to research with implications for disease treatment, including studies into the protein interactions involved in Alzheimer's Disease.