

NSW Big Ideas Oncology Seminar Series

Professor Roger Reddel

UNSW-USYD



Monday 24 February 2025



Seminar: 12:30-13:30
Networking: 13:30-14:00



**Kirby Level 6 Seminar Room,
Wallace Wurth**



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Roger Reddel is the Executive Director of Children's Medical Research Institute and the Sir Lorimer Dods Professor of The University of Sydney. Trained as a medical oncologist, his research interests include the molecular biology of cancer cell immortalisation. In 2016 he co-founded ProCan®, an internationally collaborative program that aims to enable the routine use of cancer tissue proteomic data in adult and paediatric clinical oncology.

A protein-centric view of cancer biology

This presentation will argue the case for the utility of a protein-centric view of cancer biology. Inherited cancer risk is deduced primarily from genomic information enhanced by an understanding of the functional consequences of genomic changes. In contrast, to understand cancer biology there is great value in considering cancers primarily as protein ecosystems. A cancer's behaviour, including its aggressiveness and its response to treatments, is mostly determined by its proteome, which may be regarded as using DNA as its spare parts manufacturing information repository for the replacement of worn-out proteins and to enable adjustment of protein levels in response to changes in its external environment. Cancer clinicians currently access information about a very limited number of cancer proteins via immunohistochemistry and deduce valuable information about other proteins from genomic data. However, the protein ecosystem maintains and modifies itself, so it is not possible to accurately predict the protein composition of a cancer from the genome or the transcriptome. New technologies will make it possible in the very near future to directly access information about the proteome of any cancer sample, which will complement the great advances that have been made in cancer genomics and may have major implications for the practice of clinical oncology.



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