

Research activities within the Nephrology unit encompass a broad range of technologies all aimed at improving the understanding and treatment of kidney disease.

About us

The staff at St. Vincent's Nephrology Department are involved in the care of patients with a wide range of kidney diseases. Most of the patients suffer the burden of chronic kidney disease, with wide-ranging effects on their lives and the lives of their families. When damage in the kidneys progresses to the degree that less than 10 per cent of kidney function remains, the term end-stage kidney disease (ESKD) is used. Patients must undergo dialysis or kidney transplant to replace the role of the kidneys and sustain life. Currently, around 10,000 people Australia-wide are undergoing dialysis therapy. These patients also have restricted diets and need to take additional medications.

The precise mechanisms that lead to the initiation and progression of kidney disease are still largely unknown. A more thorough understanding of the molecular basis is needed in order to identify the specific factors contributing to kidney disease. Our research team works on the analysis of human kidney biopsy tissue using a number of technologies to identify some of these factors, in the anticipation of more robust diagnostic and therapeutic measures.

Projects in progress or completed

- Unlocking the secrets of the renal biopsy – our research team has developed a number of strategies that enable the molecular analysis of very small pieces of surplus kidney tissue. Studies have been conducted on archival kidney biopsy samples from kidneys with specific diseases, as well as on biopsies from kidney transplants with declining function.
- In 2004 we established a collaborative centralised store of prospectively collected surplus biopsy tissue for subsequent molecular analysis. Since then, the Australia and New Zealand Renal Biopsy Bank (ANZRBB) has grown to include eight renal units contributing to the biopsy bank with three more units awaiting ethics approval. The ANZRBB

has many biopsies representing different disease categories that have been centrally processed, along with clinical data available for translational analysis. The use of new techniques such as gene array analysis, in conjunction with real-time PCR, will be used to explore abnormalities of gene expression. The ANZRBB has important collaborative links with the European cDNA Renal Bank, further strengthening the power of large population analysis.

- Unlocking the secrets of the urine sample – our group has been active in establishing collaborative studies with other researchers that aim to identify urinary markers of disease in conditions that do not necessarily affect the kidney. Inflammatory conditions that affect the eyes and systemic inflammation that manifest as skin disease are both examples of clinical conditions that may have specific markers of disease and disease activity in the urine of patients with these conditions.

The team

Assoc Prof Robyn Langham, Director of Nephrology; Dr Sandra Crikis; Dr Karen Dwyer, Nephrologist; Dr Hilton Gock, Senior Nephrologist; Dr David Goodman, Nephrologist; Olga Ischenko, Research Assistant; Dr Marc Lanteri, Renal Physician

Collaborations

International

– University of Michigan

National

Australian and New Zealand Renal Biopsy Bank (ANZRBB) – Ballarat Health Services, Cairns Base Hospital, Darwin Royal Hospital, Dunedin Hospital, Geelong Hospital and Nambour General Hospital

Centre for Eye Research (CERA), Royal Victorian Eye and Ear Hospital

Publications

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