**PROF KARIN JANDELEIT-DAHM**

**DIABETES & KIDNEY DISEASE**

The Diabetes & Kidney disease laboratory explores the mechanisms by which high glucose and the diabetic milieu cause persisting and progressive changes within the kidney and the vasculature leading to kidney failure, heart attacks, strokes and amputations in Australia. The work spans basic biochemistry to clinical evaluation of new therapies targeting the prevention of diabetes associated complications.

**Research Brief**

Diabetic kidney disease is the major cause of renal failure in the Western World requiring dialysis or transplantation and contributing to increased cardiovascular morbidity and mortality in diabetes. Our laboratory explores mechanisms and potential targets to prevent or better treat diabetes associated kidney and cardiovascular injury. The major focus includes studies on haemodynamic and metabolic pathways such as the renin-angiotensin system and other vasoactive hormone pathways such as the endothelin system, advanced glycation end products and the interaction with their receptors including RAGE, and oxidative stress via activation of NADPH oxidases (Nox). We perform an integrated approach spanning from cell culture experiments to animal models of diabetes associated kidney disease and atherosclerosis. The laboratory has a strong track record in translating basic research findings to the clinic.

**Methodologies**

- Cell culture studies using mouse and human mesangial and tubular cells as well as podocytes. Furthermore we employ mouse and human endothelial and vascular smooth muscle cells
- Assessment of renal injury: renal functional and structural injury
- Assessment of vascular injury including endothelial dysfunction and vascular adhesion
- Assessment of plaque area, morphology, composition and stability

**Selected Publications**


**CONTACT**

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**Human podocytes NOX 4 Expression**

- Normal Glucose
- High Glucose

**Genetic deletion of Nox1 but not Nox4 reduces plaque area in diabetic mice** S Gray et al, Circulation, 2013

**RAGE deletion attenuates glomerular collagen accumulation in diabetes**

- Control
- Diabetic
- Rage KO control
- Rage KO Diabetic