

Multi-omic Analysis of Kidney Disease for Precision Medicine

Kumar Sharma, M.D.

Hillis Endowed Distinguished Chair in Medicine

Director, Center for Precision Medicine

Chief, Division of Nephrology, Department of Medicine

The University of Texas Health San Antonio, San Antonio, Texas

Chronic kidney disease affects ~10% of the adult population worldwide and these patients are at high risk of kidney failure and cardiovascular mortality. With the impact of obesity and diabetes, the incidence of patients with kidney disease is increasing and the health care system cannot handle this growing population. An unrecognized population is the group of patients with low levels of proteinuria but have progressive kidney disease. Multi-omic technologies with kidney biopsies are being applied to this population and are bringing new insights to this devastating condition. System biology approaches have identified bioenergetic pathways to be intimately involved in diabetic kidney disease. The challenge in the next 5 years is to identify key molecules that will drive diagnostic biomarkers and therapeutic targets to precisely monitor patients and provide designer therapeutics to reduce kidney disease and cardiovascular complications.

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