

## Water channel AQP5 is a potential novel biomarker of diabetic nephropathy

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Diabetic nephropathy (DN) is the most common single cause of end-stage renal disease and one of the most significant long-term complications associated with diabetes in the US. Currently, there are no ideal biomarkers for DN. Water channel AQP5 is critical for the generation of saliva, tears and pulmonary secretions. It has little or no expression in normal mouse and human kidneys. We have reported that AQP5 is up-regulated in kidney biopsies from patients with DN. To investigate, if urinary AQP5 serves as a new potential biomarker of DN, we used an AQP5-specific enzyme-linked immunosorbent assay kit and measured serum and urinary AQP5 first in a cohort consisting of normal controls (n=26) and patients with diabetes mellitus (n=25) or diabetic nephropathy (n=33) and then in a validation cohort possessing normal controls (n=10), patients with diabetes mellitus (n=10) or diabetic nephropathy (n=14), and patients with chronic kidney disease of unknown etiology (n=10). We employed various statistical methods including Pearson's correlation coefficient, ANOVA, receiver operator curve and multiple logistic regression to analyze the data. Our results show that urinary AQP5/creatinine 1) is significantly higher in DN than in other two groups, and in DN stage V than in DN stage III; 2) correlates with serum creatinine, urinary albumin and multiple other known risk factors of the disease; and 3) improves the clinical models in distinguishing DN from normal controls and diabetes mellitus. Hence, urinary AQP5/creatinine may possess diagnostic and prognostic values as a biomarker of DN.

## Biography

Wenzheng Zhang completed his PhD from MD Anderson Cancer Center, University of Texas Health Science Center at Houston in 1998. He performed his Post-doctoral studies at Howard Hughes Medical Institute in Baylor College of Medicine. His current work is focused on kidney fibrosis, renal progenitor cells and biomarkers in the context of diabetic nephropathy and polycystic kidney disease. He has published nearly 50 papers in highly reputed journals and served in over 10 NIH study sections in the past three years.

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