

**TITLE**

**Modulation of  
Kidney SGLT2  
Gene Expression in  
Response to Diabetes**

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SGLT2 is the major glucose transporter in the kidney and its expression may be enhanced in diabetic patients. We used Zucker Diabetic Fatty (ZDF) (*fa/fa*) rats, a model of type 2 diabetes, to examine the temporal changes in renal expression of SGLT2 gene. Animals at 5, 8, 12, 15, or 19 weeks (wk) of age were used. Serum and urine concentrations of glucose and serum insulin levels were measured. In addition, total RNA samples were prepared from kidney tissues and were used to examine SGLT2 gene expression by reverse transcription (RT)-real time polymerase chain reaction (PCR). Amplification of small subunit ribosomal protein 15 (S15) cDNA was used as endogenous control and normalization. Results showed that serum glucose levels steadily increased from 5 to 12 wk of age and remained elevated in 15 and 19 wk old rats. Serum insulin levels significantly increased and reached a maximum level by 8 wk of age and then sharply declined in older rats. Glucosuria developed at 8 wk of age, its levels steadily increased up to 15 wk of age, and then declined. Compared to 5 wk old rats, relative renal expression of *SGLT2* mRNA increased 1.6 folds by 8 wk of age. However, renal expression of *SGLT2* in 12 and 15 wk old animals were similar to its levels in the kidneys of 5 wk old rats and further decreased by 19 wk of age. Our findings support that renal expression of *SGLT2* gene is dysregulated in diabetes.

**Biography**

Niloofer Tabatabai received her Ph.D. from University of Wisconsin-Milwaukee in Molecular biology and Microbiology. After postdoctoral training at the Blood Research Institute of the Blood Center of Wisconsin, she held the position of Scientist at NIH/NIEHS Biomedical Sciences Center in Milwaukee. She is currently an Assistant Professor at the Departments of Medicine and Physiology at Medical College of Wisconsin and is a faculty of the Kidney Disease Center and NIEHS Children's Environmental Health Sciences Center. She has published her studies on kidney glucose transporters in high impact journals including *Kidney International* and has served as a reviewer for reputed journals.