

# KSN 2016 Abstract Submission

*CKD & associated complications*

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**Interleukin-22 ameliorated renal injury in diabetic nephropathy via inhibiting NLRP3 inflammasome activation**

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**Background:** Diabetic Nephropathy, characterized by progressive glomerulosclerosis and albuminuria, is a metabolic disease caused by diabetes with complicated pathogenesis and limited therapy. It has been elucidated by late-breaking studies that interleukin-22 not only had the potential of glycemic control and metabolic regulation but also could effectively preserve renal function by ameliorating kidney inflammation and decreasing renal injury. In this study, we aimed at investigating the therapeutic effects of interleukin-22 on diabetic nephropathy and the underlying molecular mechanism.

**Methods:** In the current study, we used the long-term model of streptozocin (STZ)-induced diabetic nephropathy to test therapeutic intervention. Interleukin-22 gene therapy was initiated in established diabetic nephropathy mice and continued for 12 weeks to determine its therapeutic effects on the progression of diabetic nephropathy. Levels of blood glucose, urinary albumin, and serum creatinine and urea nitrogen were measured after therapeutic intervention. Renal injury and glomerular messangial matrix accumulation were elucidated by HE staining and PAS staining, respectively. Western blot analysis was performed to determine the activation of NLRP3 inflammasome.

**Results:** We found that interleukin-22 markedly reduced blood glucose, kidney index, urinary albumin, and serum creatinine and urea nitrogen of established experimental diabetic nephropathy mice. Moreover, interleukin-22 could significantly alleviate kidney injury and glomerular messangial matrix accumulation of diabetic nephropathy. Mechanistically, the therapeutic effect of interleukin-22 for the treatment of diabetic nephropathy might be mediated by the regulation of NLRP3 inflammasome, which has been identified as key pathogenesis of diabetic nephropathy.

**Conclusion:** In conclusion, Interleukin-22 ameliorated diabetic nephropathy through inhibition of NLRP3 inflammasome activation and could be a promising therapeutic drug for diabetic nephropathy.

**Keywords:** Diabetic nephropathy, Inflammasome, Interleukin-22, Renal injury