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Steroid resistant nephrotic syndrome Type 2 from genotype to phenotype: Computational study

Khalid Elsiddig Khalid Elgorashi, Mohanad K Khalid,Ahmed Ab Alrahman and **Mohamed A Hassan**
University of Khartoum, Sudan

Nephrotic syndrome is a non-specific kidney disorder characterized by a number of signs of disease: Proteinuria, hypoalbuminemia and edema. It is characterized by an increase in permeability of the capillary walls of the glomerulus leading to the presence of high levels of protein in the urine. NPHS2 is encoding Podocin an important protein in renal filtration function. Analysis of the genetic variation that can alter the expression and the function of the NPHS2 gene was done using computational methods. Genomic analysis of NPHS1 was initiated By Sift and Polyphen-2 servers and yielded 18 mutations to be damaging, the mutant amino acids biophysical characteristics and multiple sequence alignment were demonstrated to be affecting the protein function using Align-GVGD and Panther platforms. 11 mutations affected protein function the most. Genetic co-expression profile and interactions were demonstrated by GeneMANIA server and NPHS2 is found to be co-expressed with a neuronal protein, 3D structure molding was done using Phyre2 and Chimera. Computational methods yield accurate results which can be a basis of diagnosis of steroid resistant nephrotic syndrome.

Biography

Khalid Elsiddig Khalid Elgorashi has completed his Bachelor of Medicine and Surgery from the Faculty of Medicine, University of Khartoum, Sudan.

Khalito2008@gmail.com

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