

The neural cell molecule (A) could be a novel therapeutic target for nephrotic syndrome.

■ Key Words

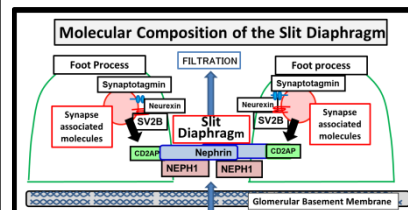
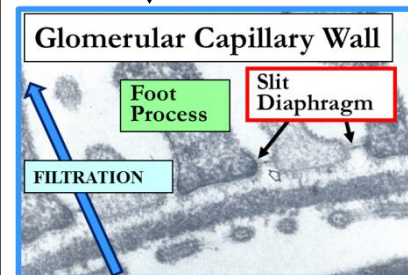
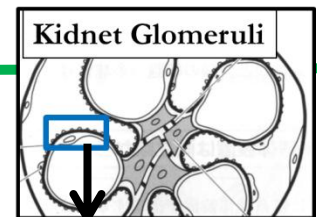
Proteinuria, Nephrotic syndrome, Chronic Kidney Disease (CKD), Podocyte, Slit Diaphragm, Synapse associated molecule, Drug Development

■ SUMMARY

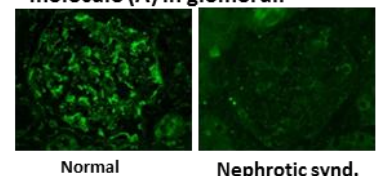
Slit Diaphragm is a cell-cell structure of kidney glomerular epithelial cell (**Podocyte**), which plays a critical role for preventing the leak of plasma protein into urine. We found that some **synapse associated molecules** are expressed in podocyte and the decrease in the molecular function of these molecules causes **Proteinuria**. The neural cell molecule (A) we identified could be a novel therapeutic target for nephrotic syndrome.

■ TOPICS

- The number of the patients with **chronic kidney disease (CKD)** is estimated to be more than **13 Millions** in Japan. Proteinuria enhances the progression of kidney diseases. The recent epidemiological study showed that **the CKD patients with proteinuria have about 3 times higher risk of cardiovascular diseases and cerebral vascular diseases**. Establishment of a novel therapy for proteinuria must be one of the most important themes in Nephrology field.
- **Slit Diaphragm** bridging neighboring foot processes of kidney glomerular epithelial cell (**Podocyte**) is a highly differentiated cell-cell junction, since neighboring foot processes derived from different cell bodies. Our group has reported the slit diaphragm functions as a final barrier to prevent the leak of plasma protein into urine. It is now accepted that dysfunction of the slit diaphragm is involved in the development of proteinuria in common glomerular diseases.
- Our group reported that some functional molecules in synapse, a cell-cell junction of neural cells, are expressed in podocyte and that the downregulation of these molecules causes proteinuria. The neural cell molecule (A) we identified could be a novel therapeutic target for nephrotic syndrome.
- The synapse associated molecule could be a marker for a novel diagnostic method for nephrotic syndromes.



Expression of Neuron associated molecule (A) in glomeruli



- ◆ We hope to collaborate with Pharmaceutical Companies to develop new drug and a novel diagnostic tool for nephritic syndrome. Please contact with us.