Introduction and Aims: We reported about the nephrotic syndrome model mice induced by anti-mouse nephrin antibody (α-mNep-Ab) used by gene-immunization in ERA-EDTA 2013. We have used C57BL/6N strain, but there is nothing about nephrotic syndrome model mice using other strains even now. So we tried to develop this model mice using BALB/c.

Methods: The vector containing full length nephrin cDNA or control vector was administered into Rabbits. Four mg of α-mNep-Ab administered into C57BL/6N mice (n=7) at once, while 0.5 mg of α-mNep-Ab into BALB/c (n=6) mice intravenously. Urinary protein excretion, the development of glomerulosclerosis and the number of podocyte marker (WT1) in mouse kidney were evaluated at Day 14. The statistical difference was determined by Student’s t-test.

Results: C57BL/6N and BALB/c model mice with α-mNep-Ab showed massive proteinuria from Day 1 to sacrificed. In both line mice, glomerulosclerosis score increased in comparison with control (p<0.001, respectively). Furthermore, the glomerulosclerosis score was higher in BALB/c compared with C57BL/6N (41.5 (BALB/c) vs. 22.1 (C57BL/6N), p<0.001). In both line mice, the number of podocytes decreased in comparison with control (p<0.001, respectively). On the other hand, there was no significant difference of that number between both mice treated with α-mNep-Ab. (3.51/µm² (C57BL/6N) vs. 3.49/µm² (BALB/c), p=0.89)

Conclusions: We succeeded the making nephrotic syndrome model mice induced by α-mNep-Ab using BALB/c as well as C57BL/6N. An advantage of using BALB/c is what only small amount of α-mNep-Ab need to making the diseased mice compared with using C57BL/6N.