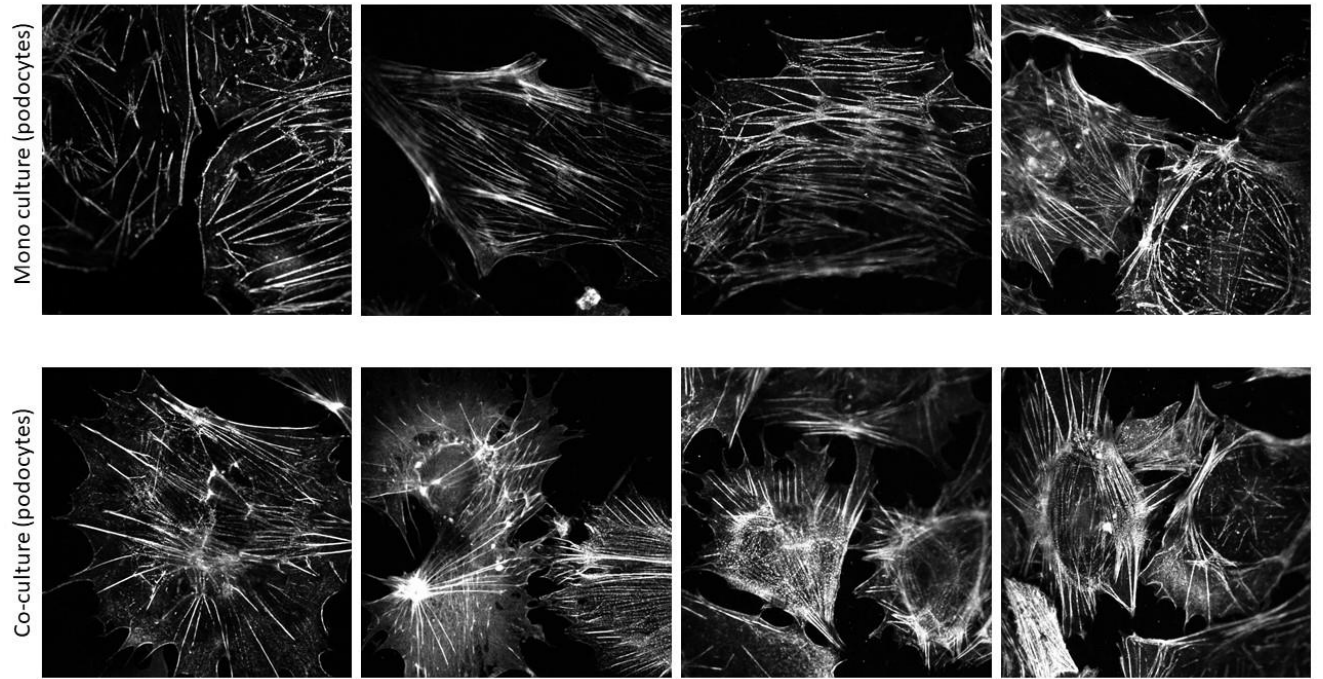


**Figure S1. Co-culture of mGENC and MPC-5 is required for barrier function against 40-kDa sulphated dextran-FITC.** mGENC were seeded in the top channel of the chip and were allowed to grow for 1 week on the top of the membrane. One week prior to seeding mGENC, MPC-5 were seeded in the bottom channel of the chip and were allowed to grow for 2 weeks on the bottom side of the membrane. Fold change in fluorescent intensity of 40-kDa sulphated dextran-FITC in chips without cells, in chips with a mono-culture mGENC, in chips with a mono-culture of MPC-5 and chips with a co-culture of mGENC of MPC-5. \*\*  $p < 0.01$ .



**Figure S2.** Schematic model of custom designed 3D printed lids.



**Figure S3. Additional figures corresponding Fig.4a+b+c.** Podocytes are visualized either when cultured in mono culture (top row) or in co-culture with mGEnC (down row).