

Supplemental Figure legends

Supplemental Figure S1. (A) Fasting blood sugar in type 2 diabetic podocin-Cre; Rosa26^{fsTRAP}; eNOS^{-/-}; *db/db* mice. **P* < 0.05, n = 6. (B) PAS staining showed more severe mesangial expansion and nodular glomerular sclerosis in 6 months old than 3 months old podocin-Cre; Rosa26^{fsTRAP}; eNOS^{-/-}; *db/db* mice. (C) Fasting blood sugar in streptozotocin (STZ)-induced type 1 diabetic podocin-Cre; Rosa26^{fsTRAP}; eNOS^{-/-}-mice (C). **P* < 0.05, n = 6. (D) PAS staining showed mesangial expansion in podocin-Cre; Rosa26^{fsTRAP}; eNOS^{-/-}-mice 3 weeks after STZ injection but mesangial expansion and nodular glomerular sclerosis were observed in podocin-Cre; Rosa26^{fsTRAP}; eNOS^{-/-}-mice 24 weeks after STZ injection. Scale bar=100 μ m.

Supplemental Figure S2. Top 20 GO_BP, GO_MF, and KEGG enriched in 735 enriched genes in podocytes shows podocyte development and other pathways.

Supplemental Figure S3. Volcano plot distribution shows enriched genes in podocytes in an early stage (3 months old) of type 2 diabetic podocin-Cre; Rosa26^{fsTRAP}; eNOS^{-/-}; *db/db* mice.

Supplemental Figure S4. Volcano plot distribution shows enriched genes in podocytes in an advanced stage (6 months old) of type 2 diabetic podocin-Cre; Rosa26^{fsTRAP}; eNOS^{-/-}; *db/db* mice.

Supplemental Figure S5. Volcano plot distribution shows enriched genes in podocytes in an early stage (3 weeks) of streptozotocin-induced type 1 diabetic podocin-Cre; Rosa26^{fsTRAP}; eNOS^{-/-} mice.

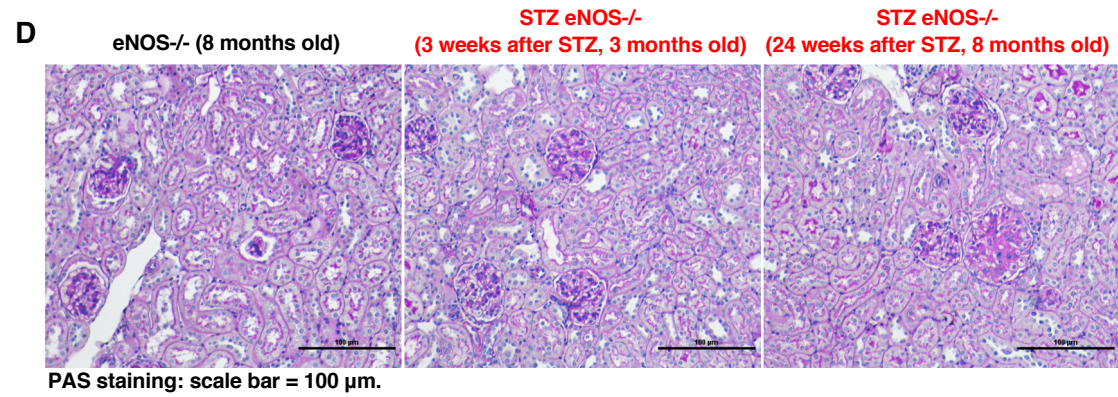
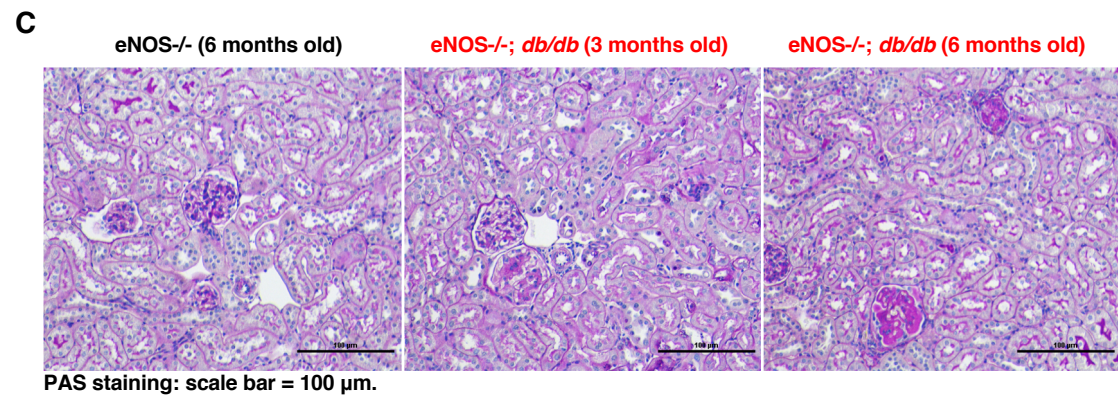
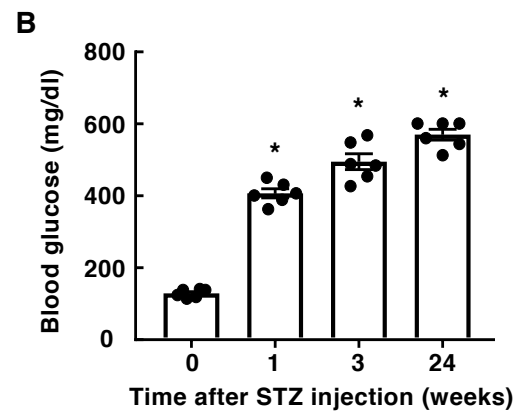
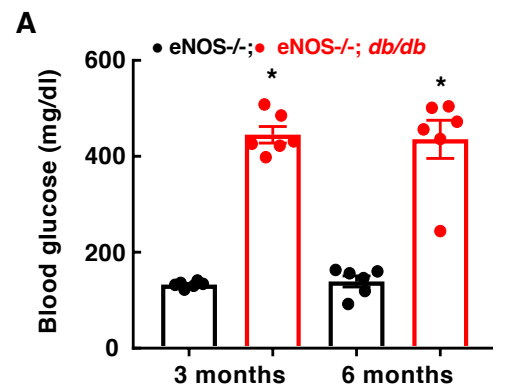
Supplemental Figure S6. Volcano plot distribution shows enriched genes in podocytes in a later stage (24 weeks) of streptozotocin-induced type 1 diabetic podocin-Cre; Rosa26^{fsTRAP}; eNOS^{-/-} mice.

Supplemental Figure S7. Immunohistochemical staining showed that both Ngb and claudin 5 staining was primarily restricted to glomeruli in normal wild type mice. Original magnification: x 200.

Supplemental Figure S8. Claudin 5 and tetraspanin 2 expression in podocytes in T2DN and T1DN. **A.** Podocyte TRAP *Cldn5* levels were decreased in early and later stages of T2DN and T1DN. **P* < 0.05, n = 3-5. Claudin 5 expression in podocytes was decreased in type 2 diabetic podocytes. **B.** In normal wild type mice, claudin 5 was primarily colocalized with nephrin, a podocyte marker. **C.** Podocyte TRAP *Tspan2* levels were increased in early T2DN. **P* < 0.05, n = 3-5. Tetraspanin 2 expression in podocytes was higher in eNOS^{-/-}; *db/db* than eNOS^{-/-} mice. Magnification: x 600 for all.

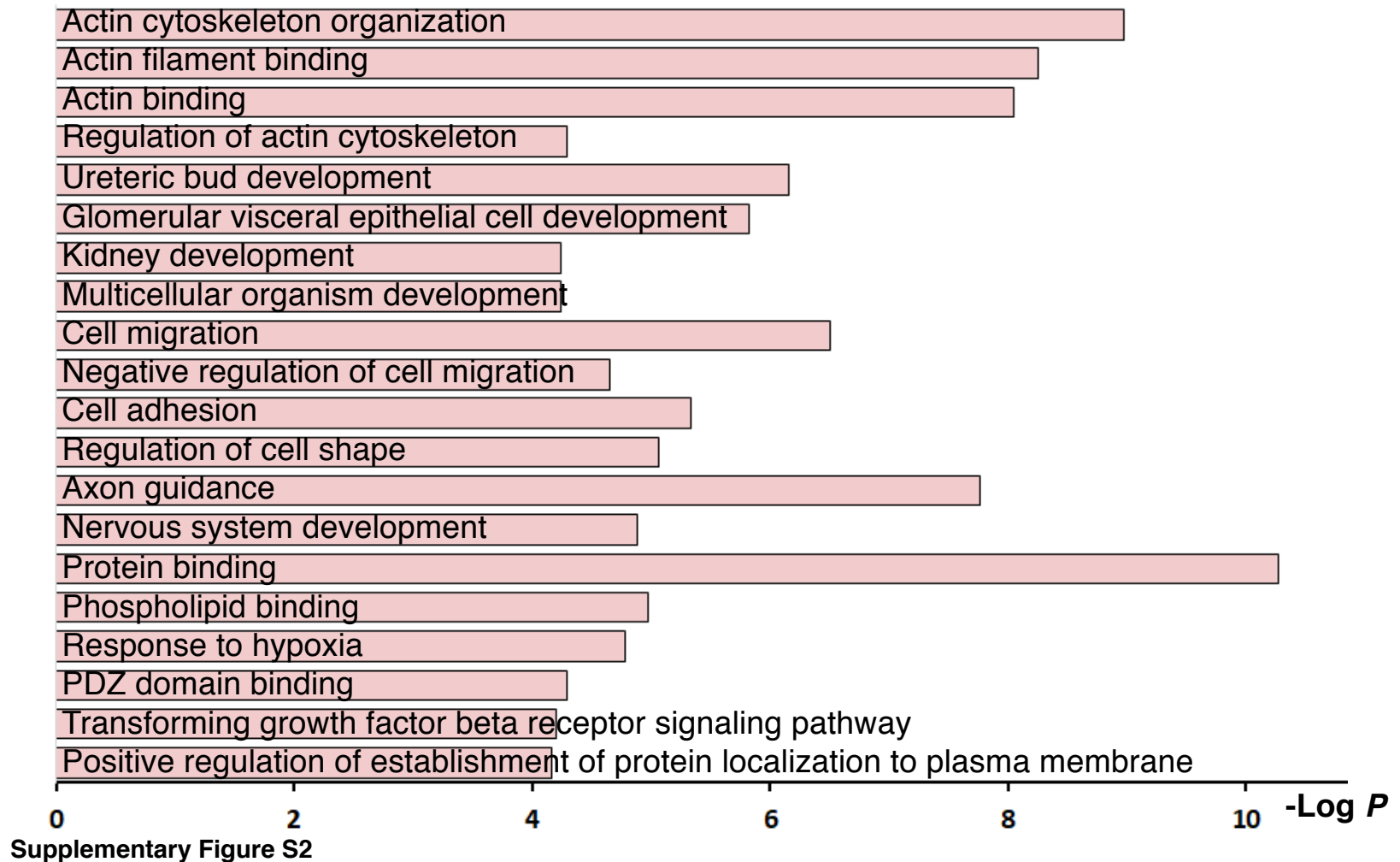
Supplemental Figure S9. Magi2 expression in eNOS^{-/-} mice (6 months old), STZ-treated eNOS^{-/-} mice (24 weeks after STZ), and eNOS^{-/-}; *db/db* mice (6 months old). Original magnification: x 600.

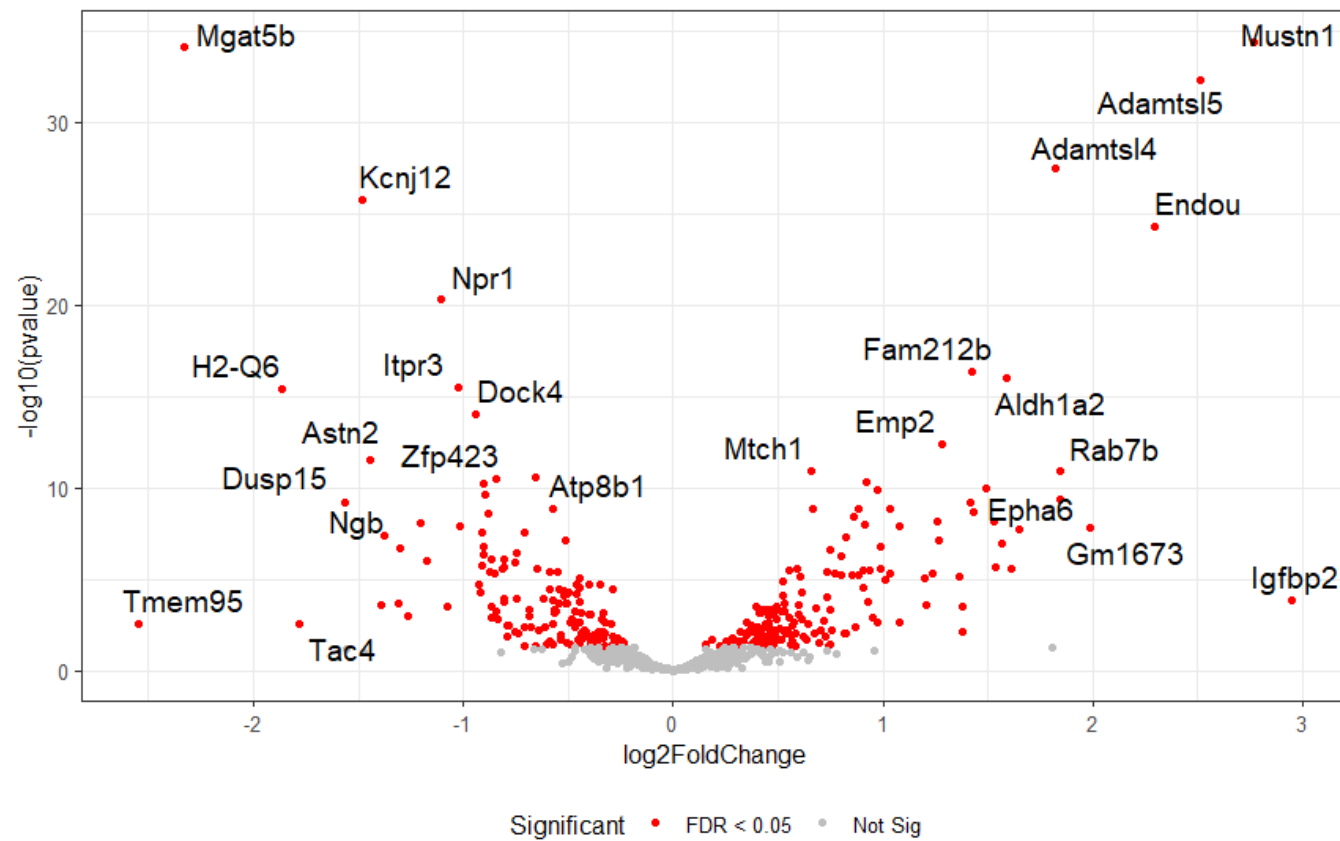
Supplemental Figure S10. Podocyte TRAP Npr1 and Npr3 levels were decreased in type 2 and type 1 diabetic nephropathy. Type 2 diabetic podocin-Cre; Rosa26^{fsTRAP}; eNOS^{-/-}; *db/db* mice and streptozotocin-induced type 1 diabetic podocin-Cre; Rosa26^{fsTRAP}; eNOS^{-/-}-mice were used. **A.** Podocyte TRAP Npr1 levels were decreased in early and later stages of type 2 diabetic nephropathy (T2DN) and T1DN. **B.** Podocyte TRAP Npr3 levels were decreased in early and laterstages of type 2 diabetic nephropathy (T2DN) and T1DN.



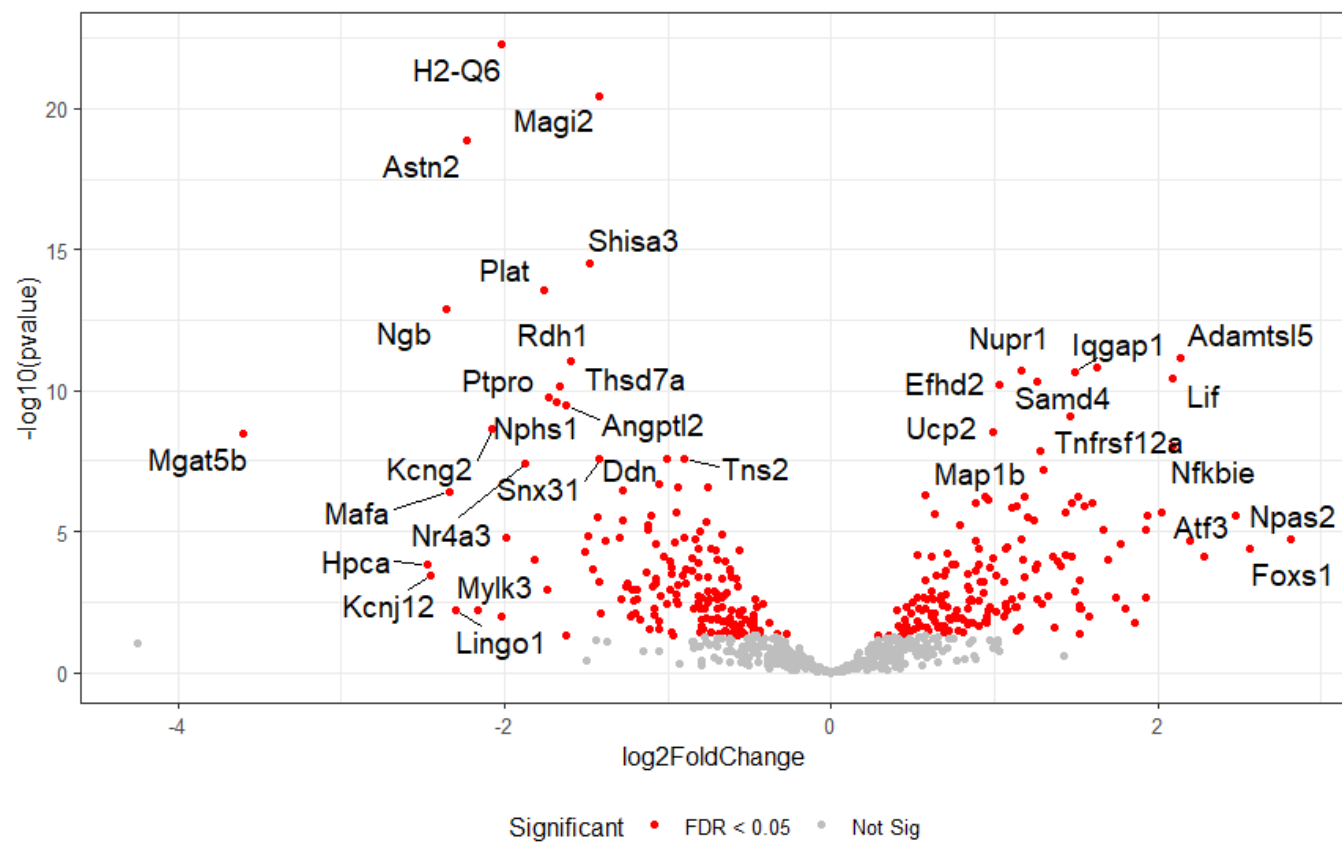
Supplementary Figure S1

Top 20 GO/ KEGG pathways enriched in all 735 podocyte enriched genes

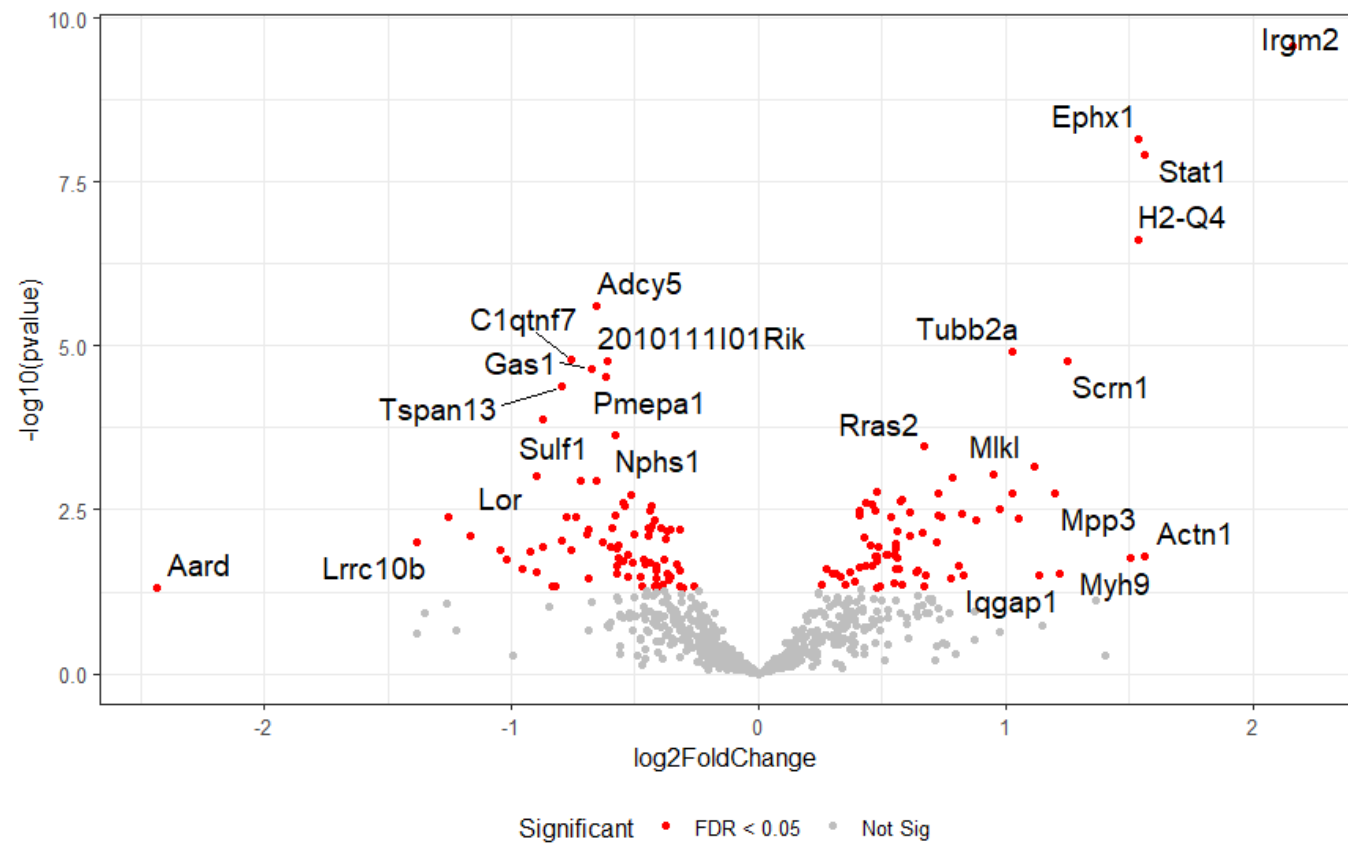




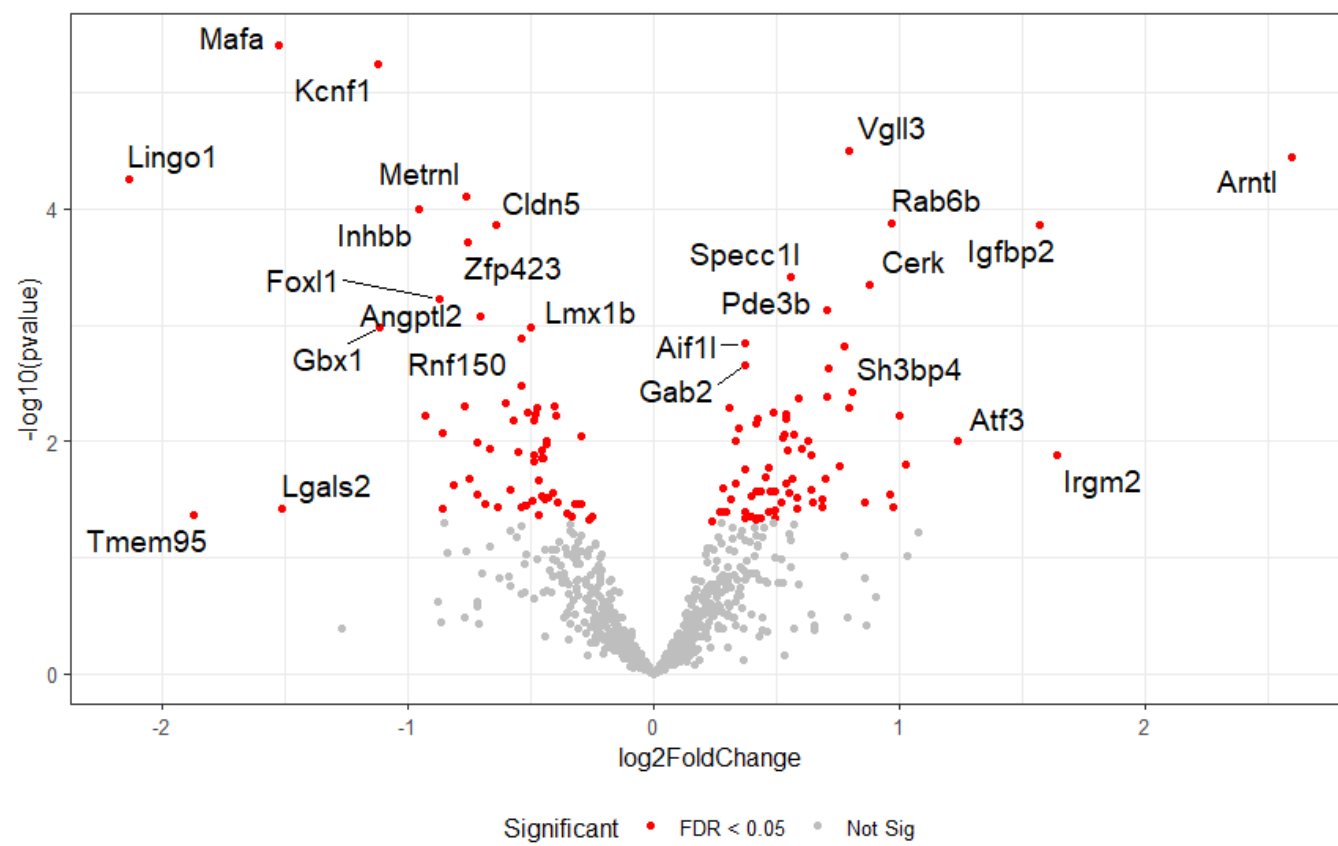
Supplementary Figure S3



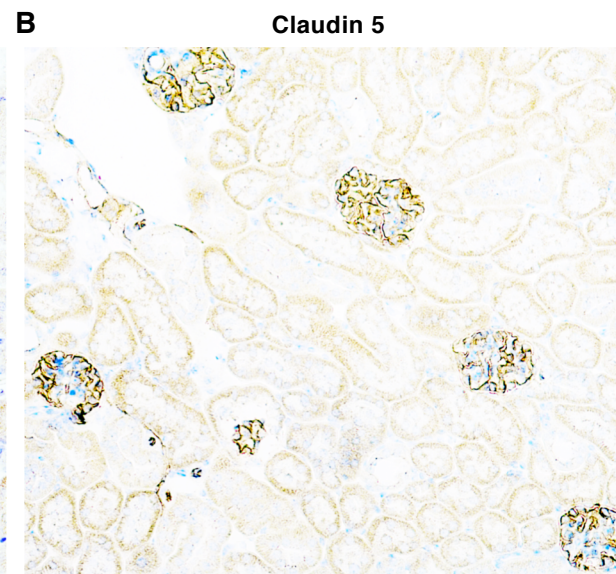
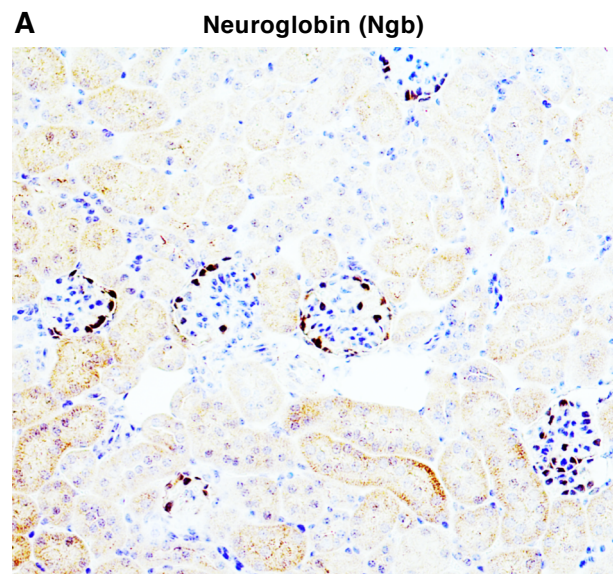
Supplementary Figure S4



Supplementary Figure S5

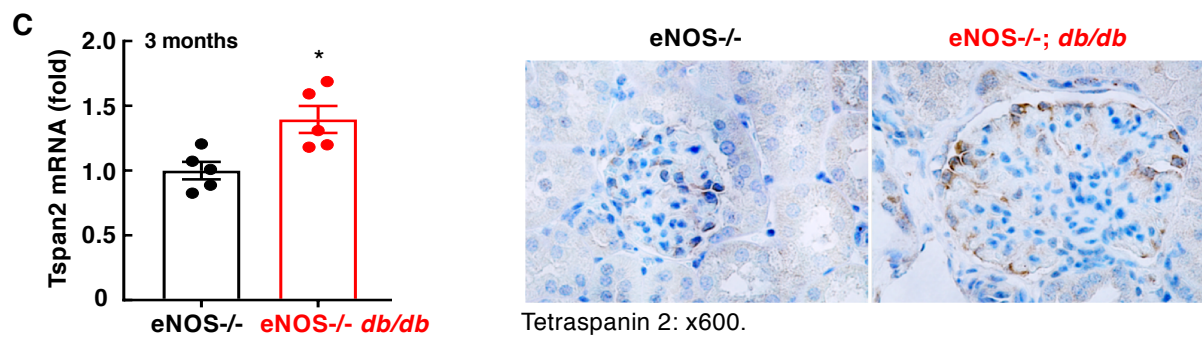
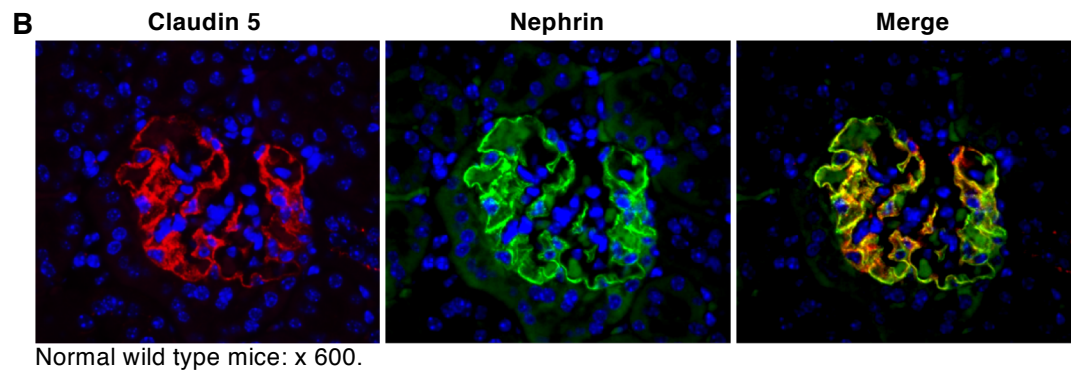
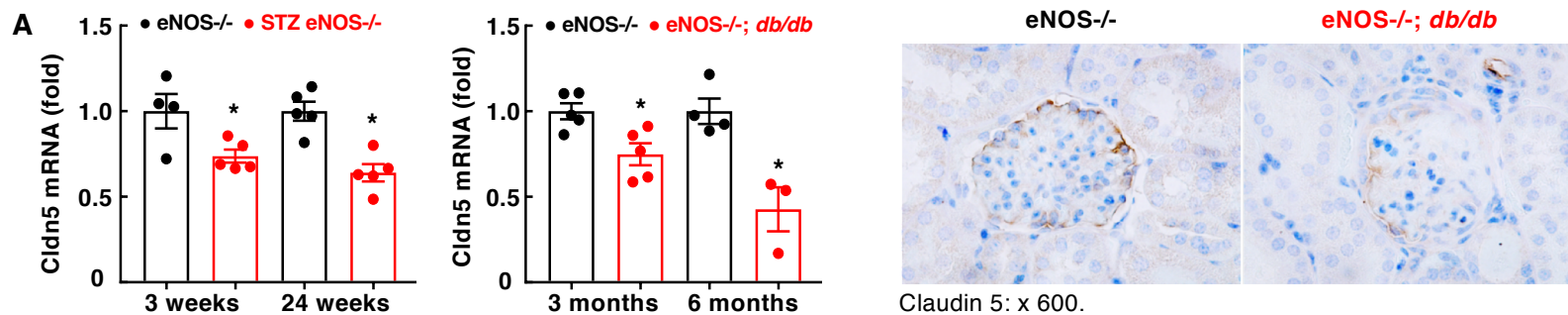


Supplementary Figure S6

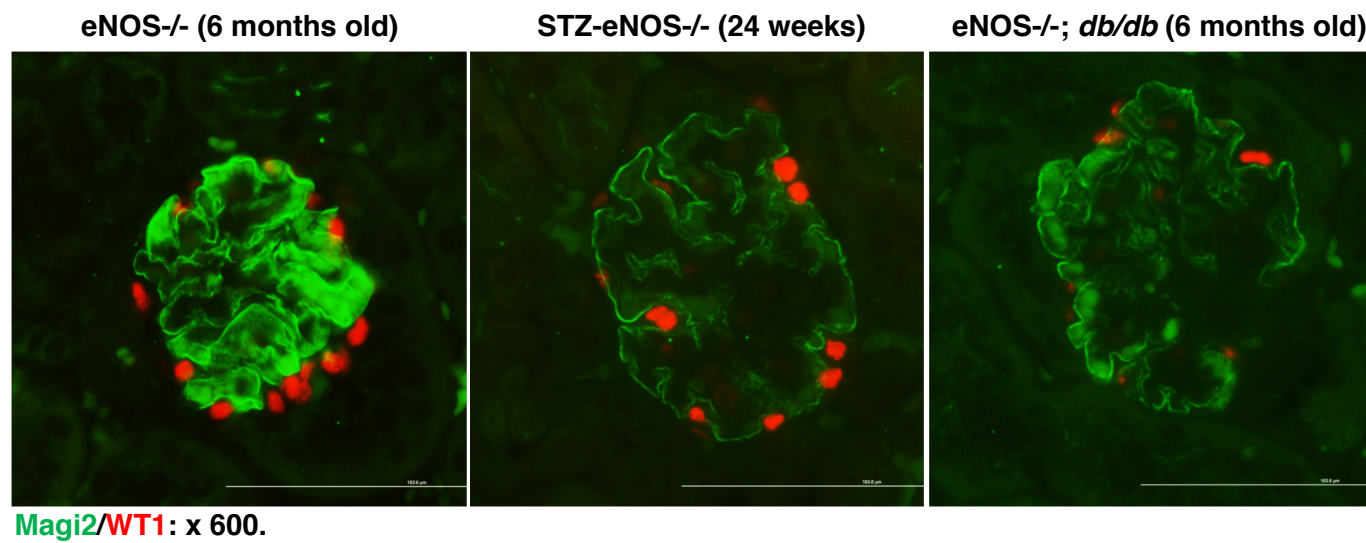


Original magnification: x 200.

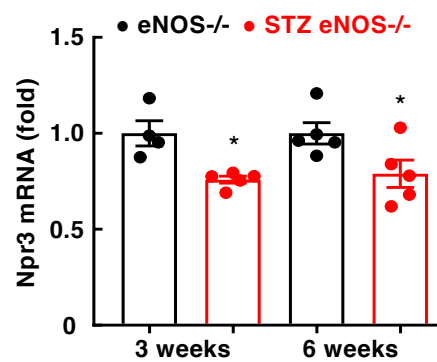
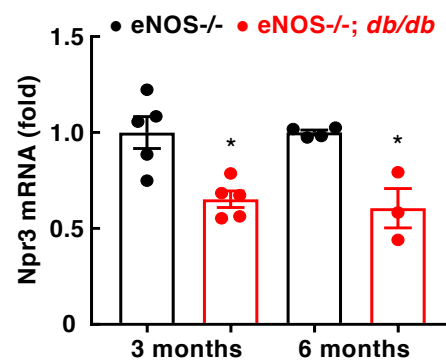
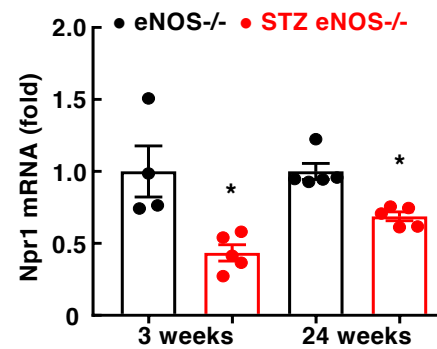
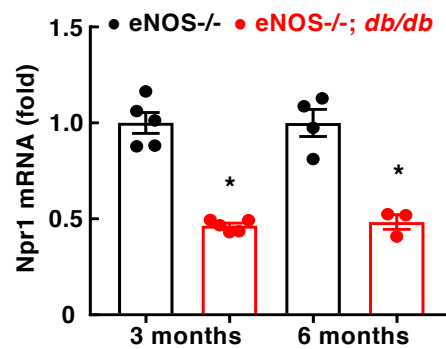
Supplementary Figure S7



Supplementary Figure S8



Supplementary Figure S9



Supplementary Figure S10