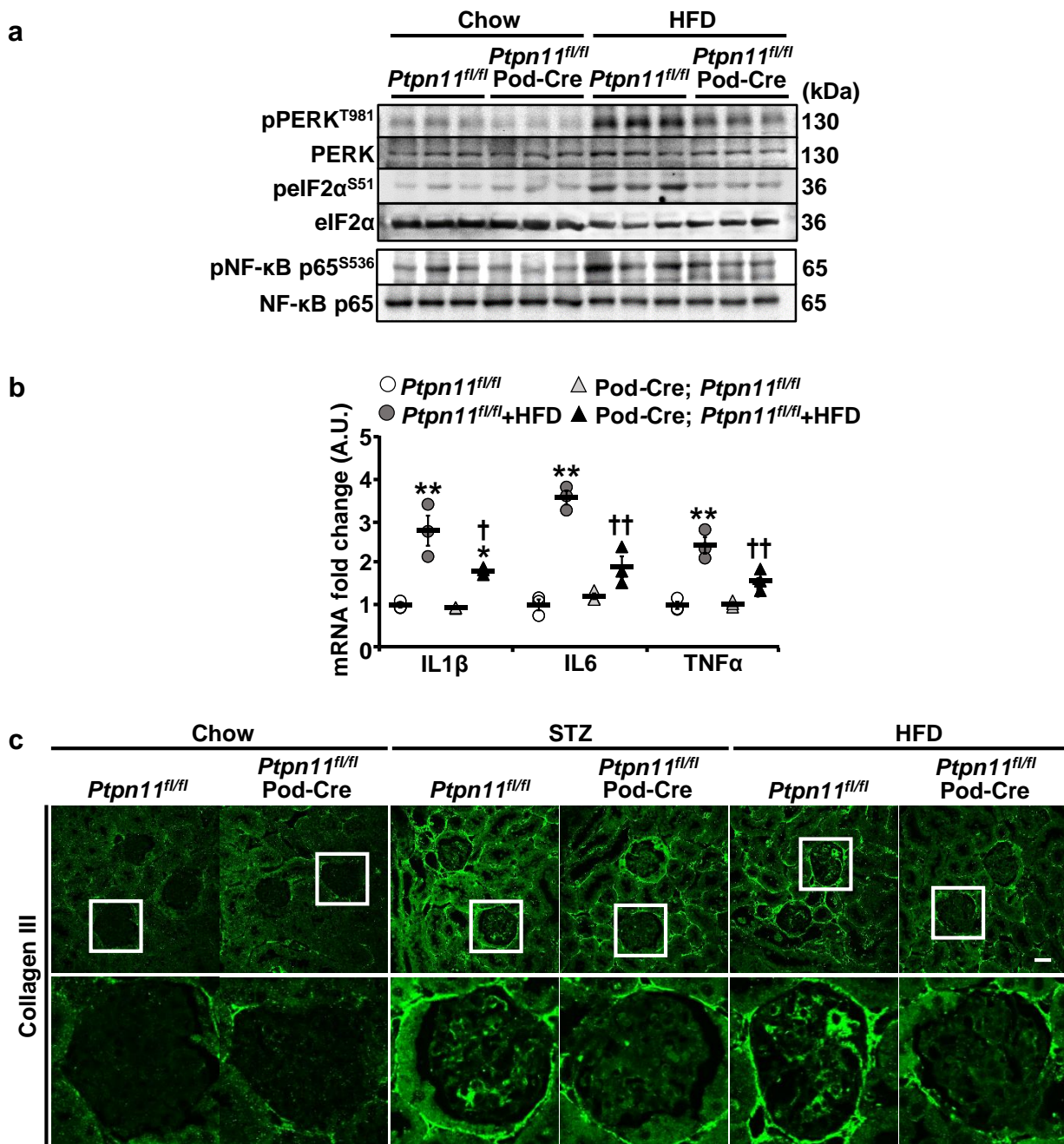
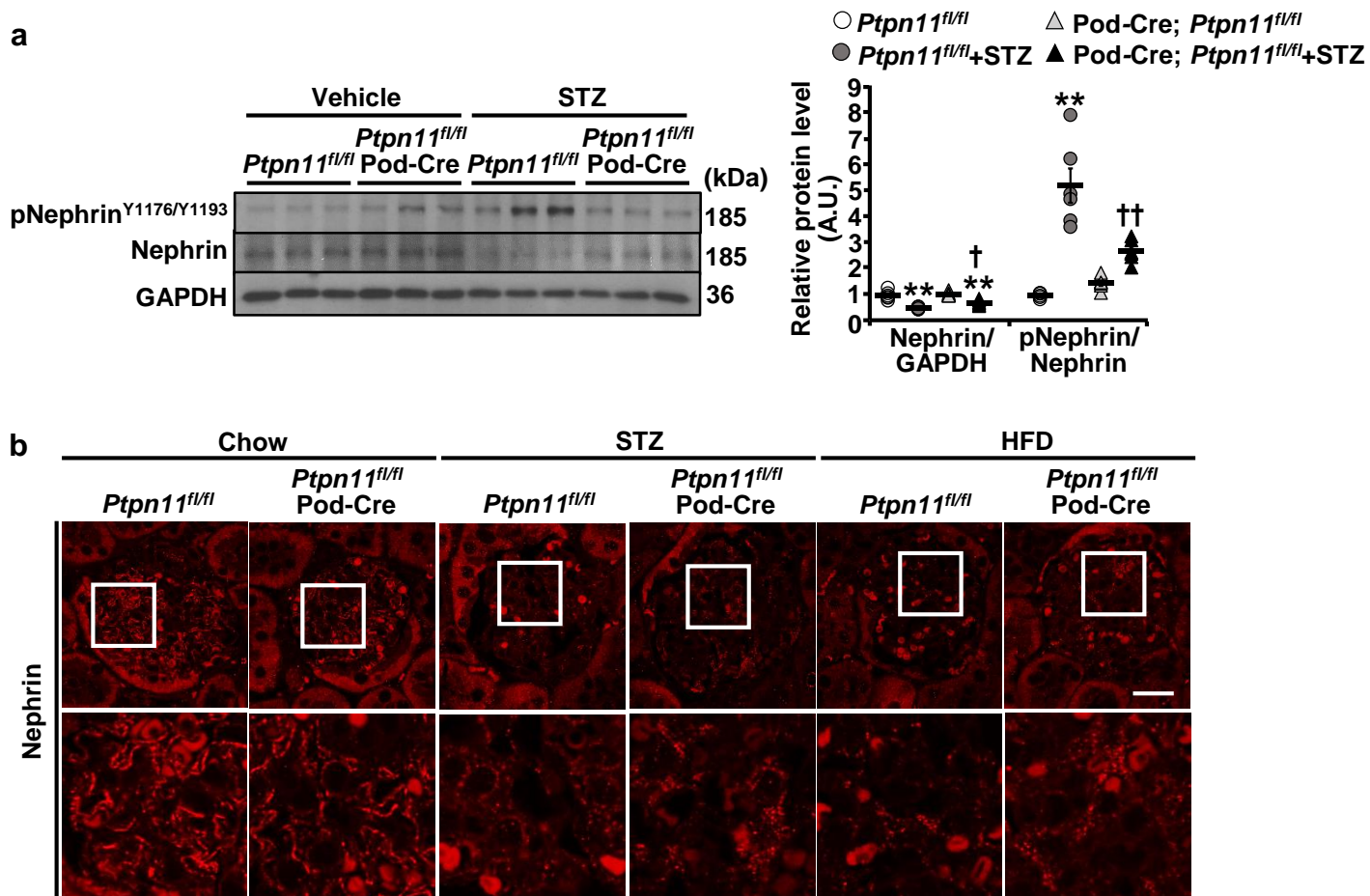


**Supplementary Fig. 1:** Body weight, kidney weight, and kidney/body weight ratio of *Ptpn11<sup>fl/fl</sup>* and *Ptpn11<sup>fl/fl</sup>; Pod-Cre* mice treated (a) without (vehicle) and with STZ (160  $\mu$ g/g body weight, 20 weeks), and (b) fed chow and HFD (24 weeks). The sample number for each group was indicated in dot plots. \* $p \leq 0.05$ , \*\* $p \leq 0.01$  vehicle versus STZ (a), and chow versus HFD (b) of mice with the same genotype.



**Supplementary Fig. 2: a,b** Immunoblots of (a) pPERK T981, PERK, peIF2 $\alpha$  S51, eIF2 $\alpha$ , pNF- $\kappa$ B p65 S536, and NF- $\kappa$ B p65, and (b) mRNA expression of inflammatory cytokines IL1 $\beta$ , IL6, and TNF $\alpha$  in kidney samples (n=3 each group) from *Ptpn11<sup>fl/fl</sup>* and *Ptpn11<sup>fl/fl</sup>*; Pod-Cre mice fed chow and HFD (24 weeks). \* $p \leq 0.05$ , \*\* $p \leq 0.01$  vehicle versus STZ of mice with the same genotype. † $p \leq 0.05$ , †† $p \leq 0.01$  *Ptpn11<sup>fl/fl</sup>* versus *Ptpn11<sup>fl/fl</sup>*; Pod-Cre under the same treatment. A.U.: arbitrary unit. c Confocal images of kidney sections from chow, STZ-treated (160  $\mu$ g/g body weight, 20 weeks), and HFD-fed (24 weeks) *Ptpn11<sup>fl/fl</sup>* and *Ptpn11<sup>fl/fl</sup>*; Pod-Cre mice immunostained for Collagen III. Lower panel images are enlarged areas as highlighted by white boxes. Scale bar: 20  $\mu$ m.



**Supplementary Fig. 3: a** Immunoblots of pNephrin<sup>Y1176/Y1193</sup>, Nephrin, and GAPDH in kidney lysates from *Ptpn11<sup>fl/fl</sup>* and *Ptpn11<sup>fl/fl</sup>; Pod-Cre* mice treated without (vehicle) and with STZ (160  $\mu\text{g/g}$  body weight, 20 weeks). Nephrin expression was normalized to GAPDH, and phosphorylation level was normalized to Nephrin. \*\* $p \leq 0.01$  vehicle versus STZ of mice with the same genotype. † $p \leq 0.05$ , †† $p \leq 0.01$  *Ptpn11<sup>fl/fl</sup>* versus *Ptpn11<sup>fl/fl</sup>; Pod-Cre* under the same treatment. A.U.: arbitrary unit. **b** Confocal images of kidney sections from chow, STZ-treated (160  $\mu\text{g/g}$  body weight, 20 weeks), and HFD-fed (24 weeks) *Ptpn11<sup>fl/fl</sup>* and *Ptpn11<sup>fl/fl</sup>; Pod-Cre* mice immunostained for Nephrin. Lower panel images are enlarged areas as highlighted by white boxes. Scale bar: 20  $\mu\text{m}$ .