

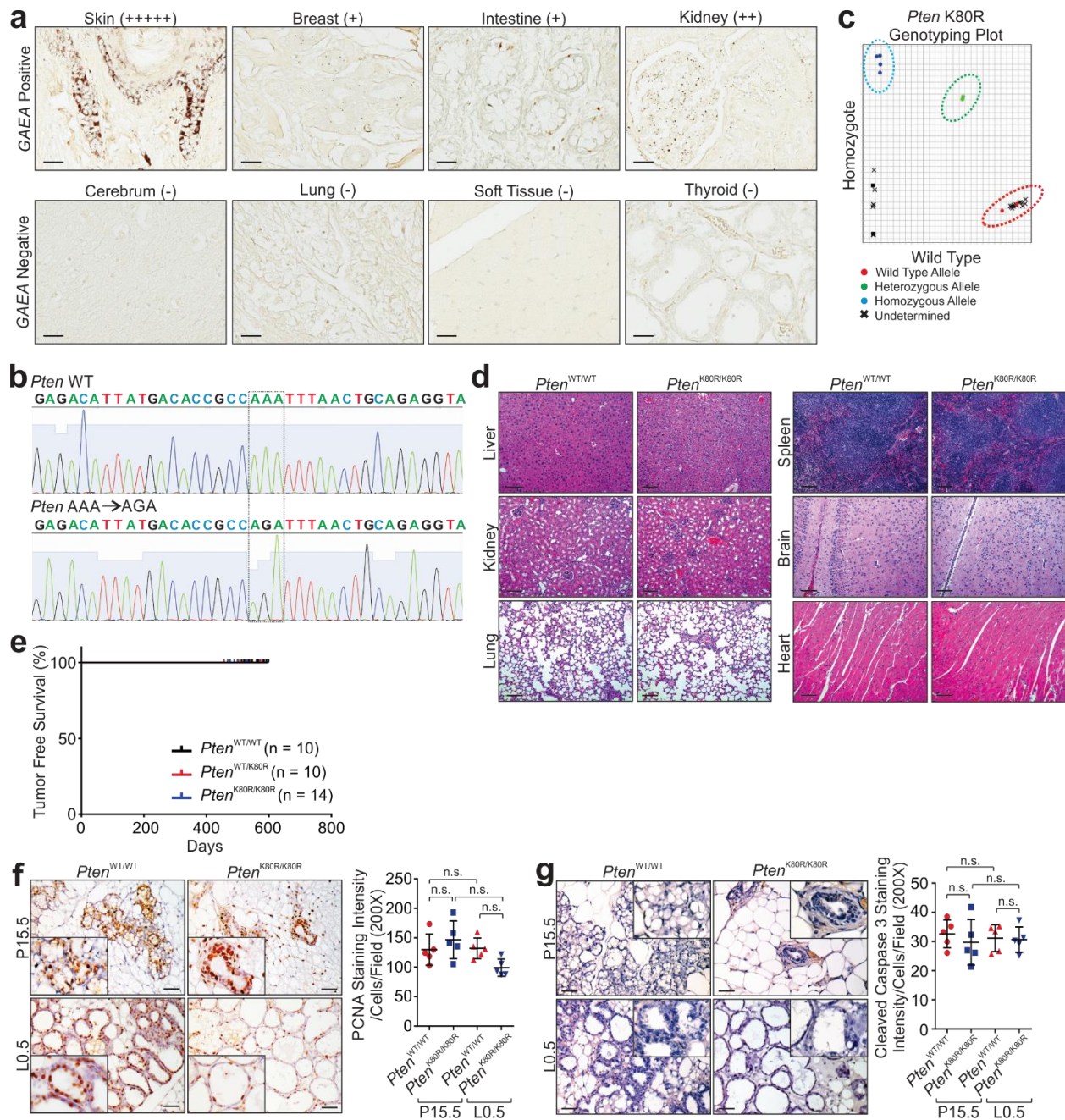


Figure S12: Generation and characterization of *Pten*^{K80R/K80R} animals.

(a) RNAscope staining using probes targeting *GAEA* in indicated normal human tissues. Scale bars, 100 μ m. (b) Genomic DNA PCR and further sequence confirmed mutant of *Pten* in knockin mouse. (c) Genotyping plot of *Pten*^{WT/WT} and *Pten*^{K80R/K80R} animals. (d) H&E staining of indicated organs in *Pten*^{WT/WT} and *Pten*^{K80R/K80R} animals. Scale bars, 100 μ m. (e) Tumor free survival of

Pten^{WT/WT}, *Pten*^{WT/K80R}, and *Pten*^{K80R/K80R} animals (n = 10, 10 and 14, log rank test). (f-g) Representative images of IHC detection of PCNA (f) or cleaved caspase 3 (g) of alveoli in the *Pten*^{WT/WT} and *Pten*^{K80R/K80R} luminal epithelial cells during different stages of pregnancy (P15.5 and L0.5) (left panel) and quantification of the percent alveoli per fat pad (right panel) (n = 5 animal per group). Scale bar: 100 μ m. All error bars, SD, Student's t-test (n.s. $p > 0.05$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$, **** $p < 0.0001$).