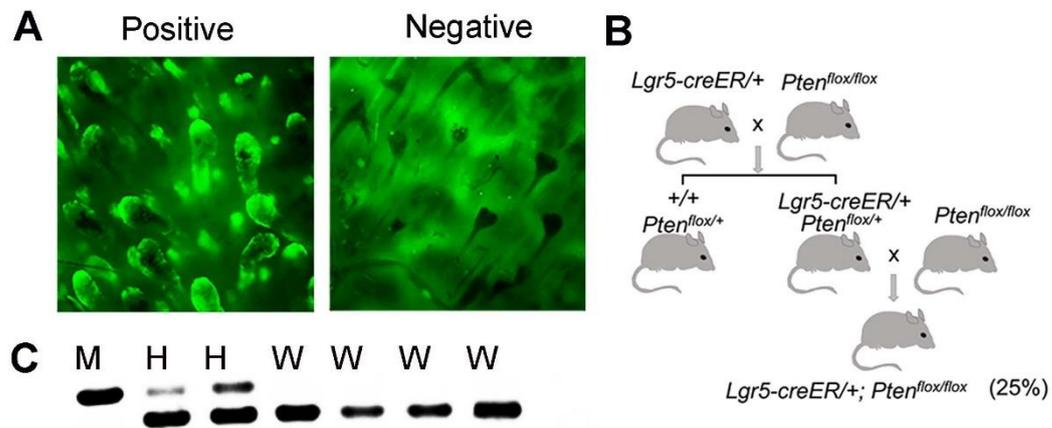
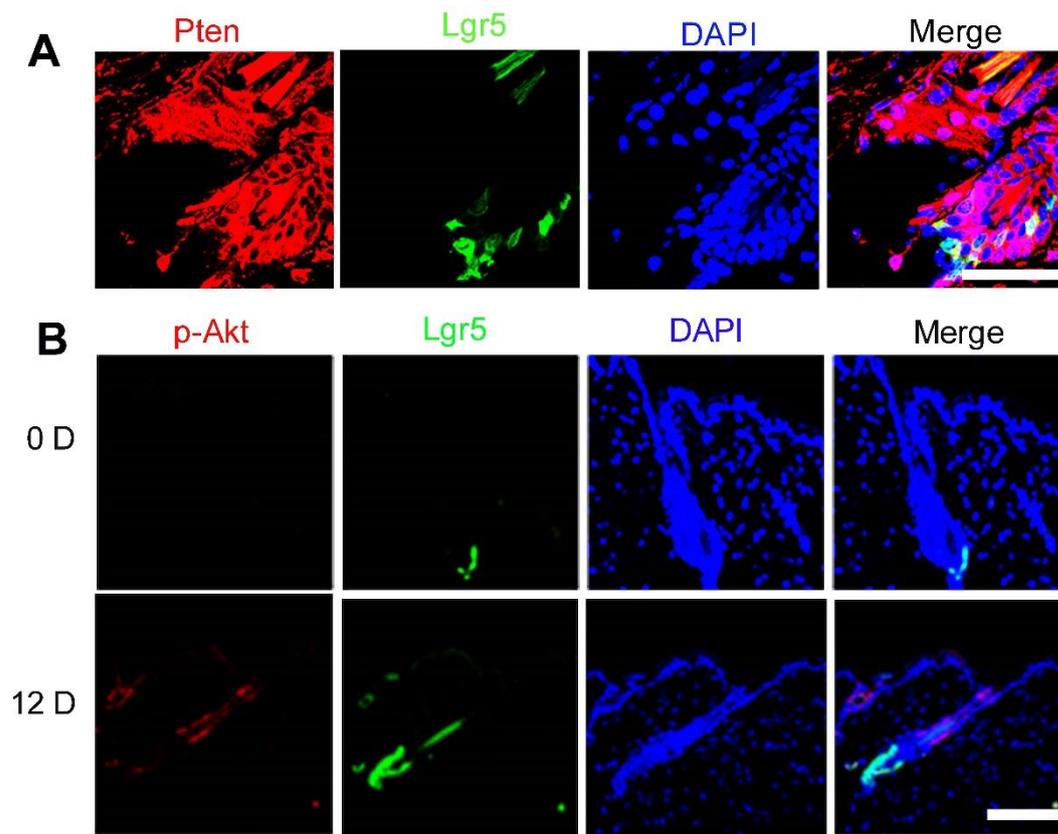


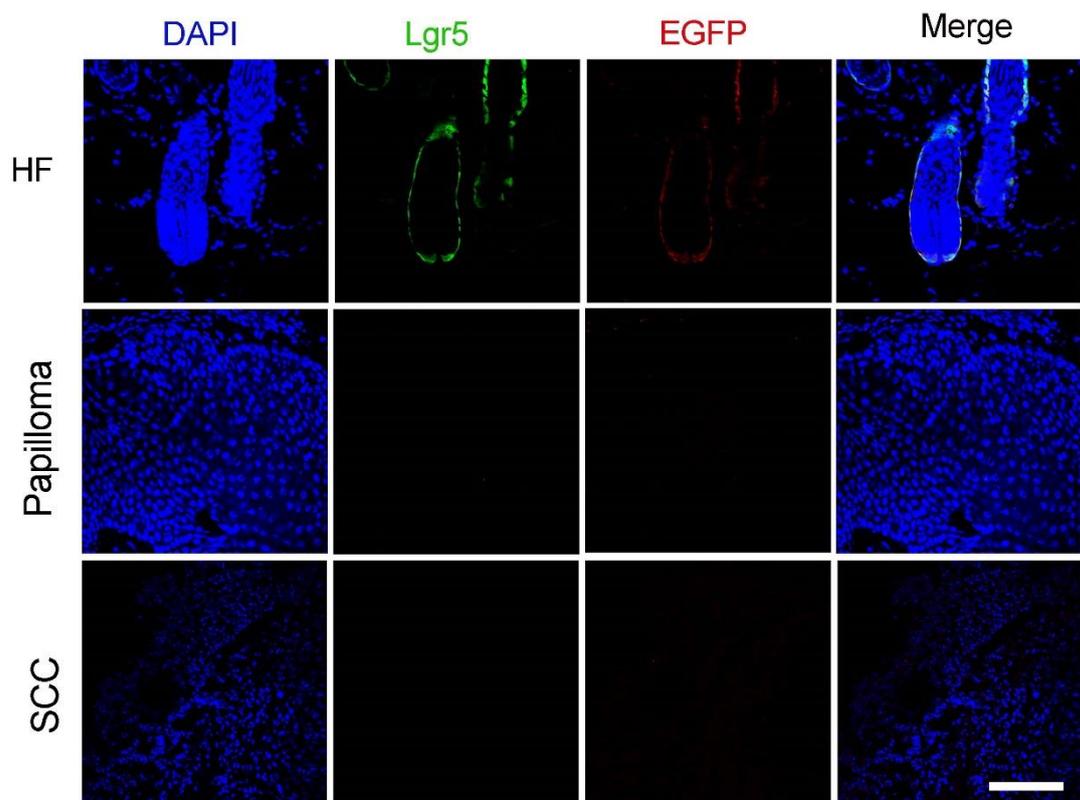
Supplementary Figures



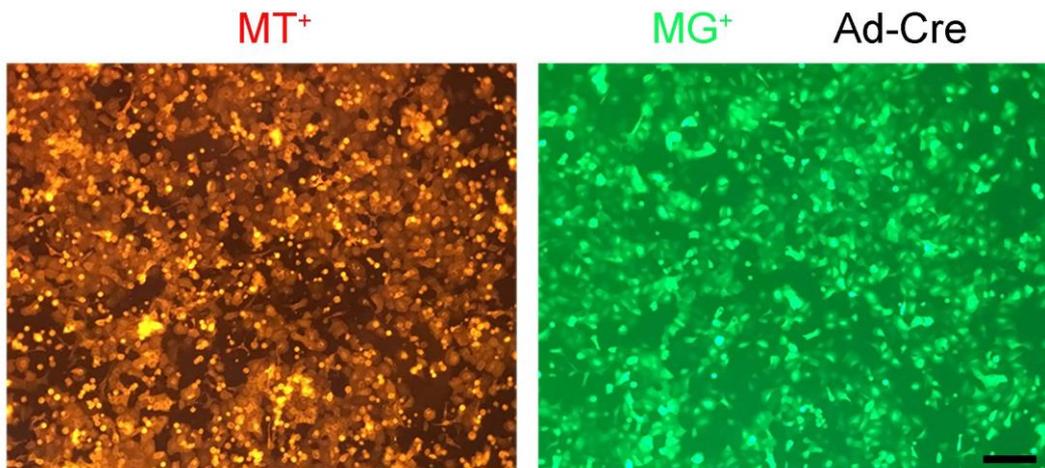
**Figure S1.** (A) *Lgr5-EGFP-IRES-creERT2* positive and negative hair follicles. (B) The mating map of *Lgr5-CreER;Pten<sup>lox/lox</sup>* mice. The genotype of *Pten<sup>lox/lox</sup>* mice. M: mutant; H: heterozygote; W: wild type.



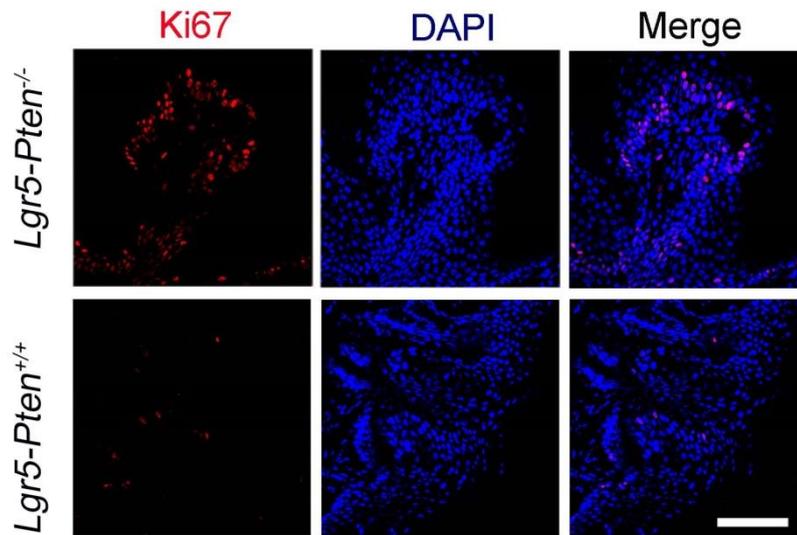
**Figure S2.** After intraperitoneal injection of tamoxifen for 12 days in *Lgr5-CreER*; *Pten*<sup>lox/lox</sup> mice, immunofluorescence stain analysis of the dorsal skin tissue of the mice did not detect the expression of Pten in Lgr5<sup>+</sup> HFSCs (A), while the expression of p-Akt in Lgr5<sup>+</sup> HFSCs increased (B). Scale bars, 100 μm. D, days.



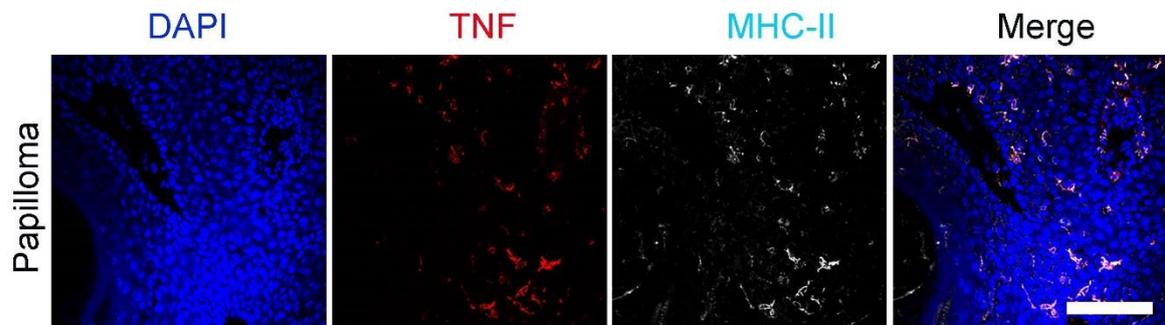
**Figure S3. Expression of Lgr5 in papilloma and SCC.** Tissue sections of the dorsal skin of *Lgr5-CreER;Pten<sup>flox/flox</sup>* mice, and papillomata and SCCs from *Lgr5-Pten<sup>-/-</sup>* mice were subjected to immunofluorescence analysis for Lgr5 expression. Lgr5-expressing cells were detected in the HF of *Lgr5-CreER;Pten<sup>flox/flox</sup>* mice which were also positive for EGFP, but not in papillomata and SCCs. Scale bar, 100  $\mu$ m.



**Figure S4.** Epidermal stem cells isolated from *Pten<sup>lox/lox</sup>*; *Rosa-mTmG* mice were cultured and infected with 40  $\mu\text{L}$   $1 \times 10^{10}$  pfu Ad-Cre virus. After 24 h, cells were viewed under fluorescence microscope. Scale bar, 50  $\mu\text{m}$ .



**Figure S5. Ki67 expression in papillomata.** Representative images of immunofluorescence stain showing more Ki67 expressing cells in papilloma developed in *Lgr5-Pten*<sup>-/-</sup> mice compared to that in *Lgr5-Pten*<sup>+/+</sup> mice. Scale bar, 100  $\mu$ m.



**Figure S6. TNF expression in papilloma.** Immunofluorescence analysis of papilloma tissue sections for the expression of TNF and MHC-II showed that TNF was largely present in MHC-II<sup>+</sup> cells. Scale bar, 100  $\mu$ m.