

Supplemental Figure 1. Histology and cell differentiation in *Notch1*^{Δ/Δ} embryonic lungs.

A. Overall morphology and H&E-stained sections of *Notch1*^{Δ/Δ} and *Notch1*^{fl/fl} (control) lungs at two embryonic stages. Panels “a” to “d”, E15.5, & Panels “e” to “h”, E18.5 lungs. **B.** Clara cell differentiation in E18.5 lungs. **C.** NE, ciliated and alveolar type I cell differentiation in E18.5 lungs (Panels “m” to “r”). Expression of SP-C, SP-B and NKX2.1 in E18.5 lungs (Panels “s” to “x”).

Supplemental Figure 2. Histology and cell differentiation in *Notch1*^{Δ/Δ} adult lung.

H&E staining analysis of *Notch1*^{fl/fl} and *Notch1*^{Δ/Δ} adult lungs (Panels a & b). Clara and ciliated cell differentiation in *Notch1*^{fl/fl} and *Notch1*^{Δ/Δ} adult lungs (Panels c & d).

Supplemental Figure 3. Cell differentiation in *Notch1*^{Δ/Δ} embryonic lungs.

CC10, *Foxj1*, *PGP9.5*, *Sp-B*, *Sp-C* and *Nkx2.1* in E18.5 *Notch1*^{fl/fl} and *Notch1*^{Δ/Δ} lungs were analyzed by real-time PCR.

Supplemental Figure 4. Colocalization of activated NOTCH1 with markers for Clara or ciliated cells in wild-type E18.5 lungs.

Immunolocalization of activated NOTCH1 and CC10 (Panel a) or β-tubulin (Panel b) in wild-type E18.5 lungs. Double positive cells (arrow) and single positive cells (triangle).

Supplemental Figure 5. PGP9.5^{positive} cells are not ciliated cells in injured and non-injured lungs.

Immunolocalization of PGP9.5 and β-tubulin in uninjured lungs (Panels a & c) and lungs after 3 days of naphthalene injury (Panels b & d). PGP9.5^{positive} (red, arrow) and β-tubulin^{positive} (green, triangle).

Supplemental Figure 6. Quantification of cell proliferation after Naphthalene injury.

A. Percentage of proliferating cells (Ki67^{positive}) on days 2, 3, 5 and 7 post-injury. Oil was used as injury control. **B.** Percent proliferating Clara cells (double Ki67^{positive}; CC10^{positive} cells) in airways of control and mutant mice. **C.** Percent proliferating PGP9.5^{positive} cells (double Phospho-Histone3^{positive}; PGP9.5^{positive} cells) in the airways of mutant and control mice. Cell numbers were determined by manual counting on multiple random fields (n=10).