

Supplemental Data

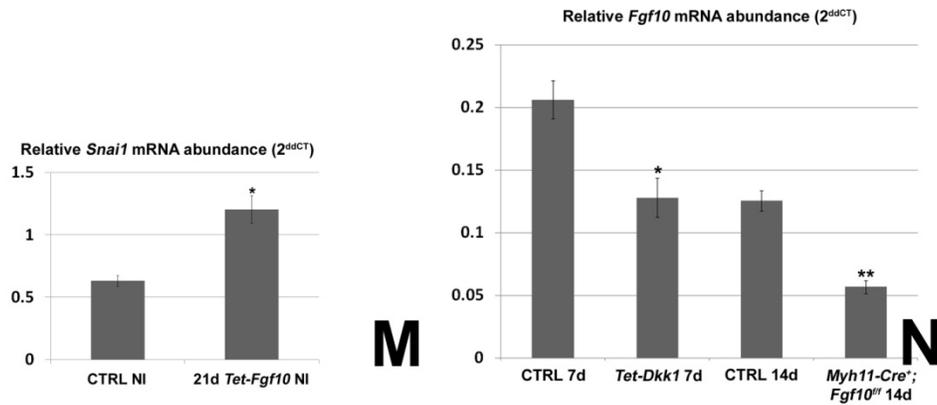
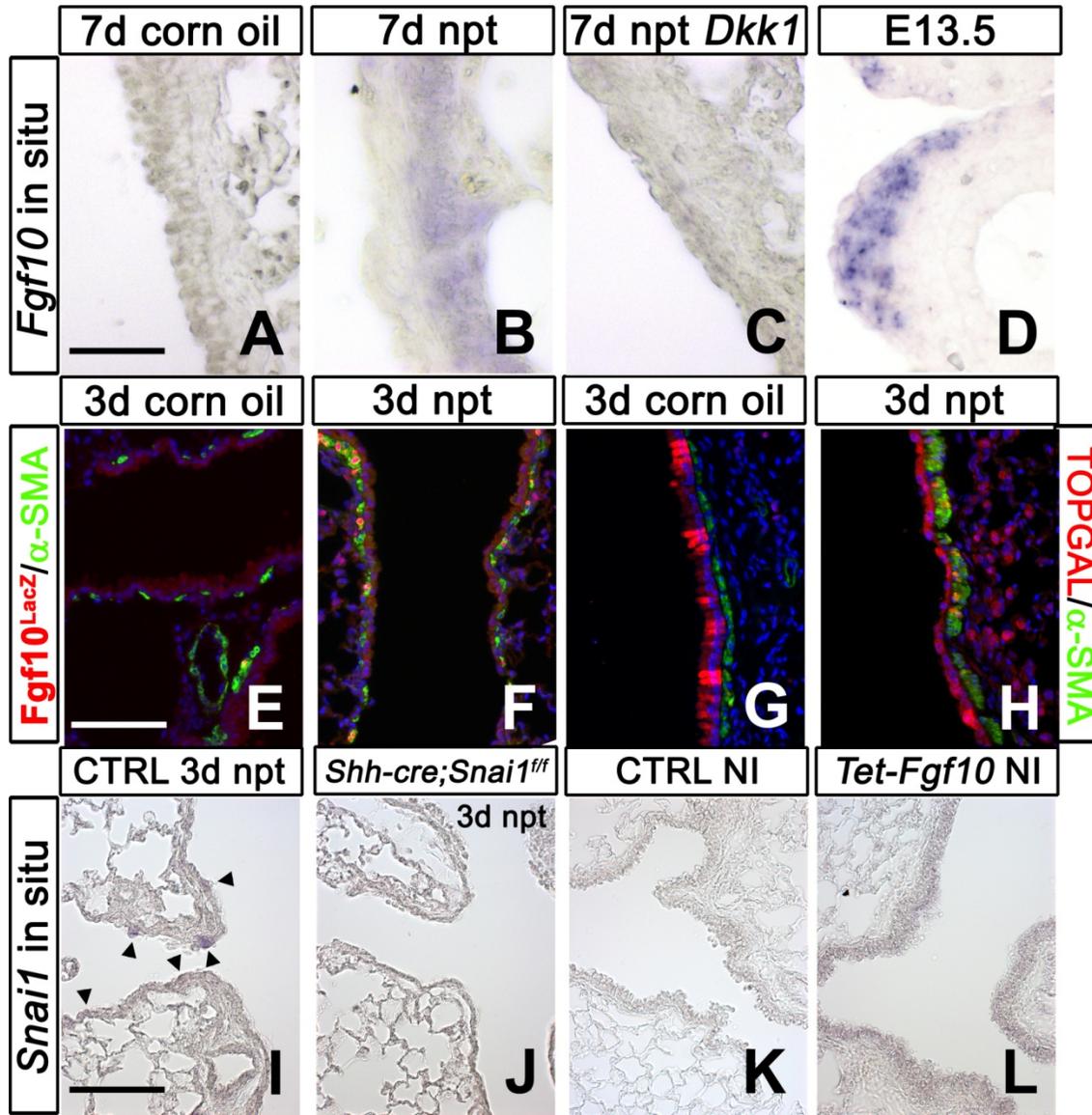


Figure S1: Wnt-induced FGF10 secreted by the PSMCs induces *Snai1* expression in the epithelium. *Fgf10* in situ hybridization on sections of control lungs 7 days after corn oil treatment (A), control lungs 7 days after naphthalene treatment (B), *Rosa26-rtTa;Tet-Dkk1* lungs 7 days after naphthalene treatment (C) and WT E13.5 lungs as positive control (D). Immunostaining for β -gal and α -SMA on *Fgf10^{LacZ}* lungs 3 days after corn oil treatment (E) and *Fgf10^{LacZ}* lungs 3 days after naphthalene treatment (F). Immunostaining for β -gal and α -SMA on TOPGAL lungs 3 days after corn oil treatment (G) and after naphthalene treatment (H). *Snai1* in situ hybridization on sections of control lungs 3 days after naphthalene treatment (arrowheads) (I), *Shh-Cre⁺;Snai1^{fl/fl}* mice 3 days after naphthalene treatment (J), non-injured lungs from control (K) and *Rosa26-rtTa;Tet-Fgf10* mice 14 days after dox treatment (L). qPCR analysis of relative *Snai1* mRNA abundance in non-injured lungs from control and *Rosa26-rtTa;Tet-Fgf10* mice 21 days after dox treatment (M). qPCR analysis of relative *Fgf10* mRNA abundance in lungs from control and *Rosa26-rtTa;Tet-Dkk1* mice 7 days after naphthalene as well as *Myh11-Cre⁻;Fgf10^{fl/fl}* and *Myh11-Cre⁺;Fgf10^{fl/fl}* mice 14 days after naphthalene treatment (N). ** $P < 0.01$; * $P < 0.05$. $n \geq 3$. Scale bars: 50 μm (A-D), 100 μm (E-L).

Relative *Wnt* mRNA abundance (2^{ddCT}) 3d npt vs. CO

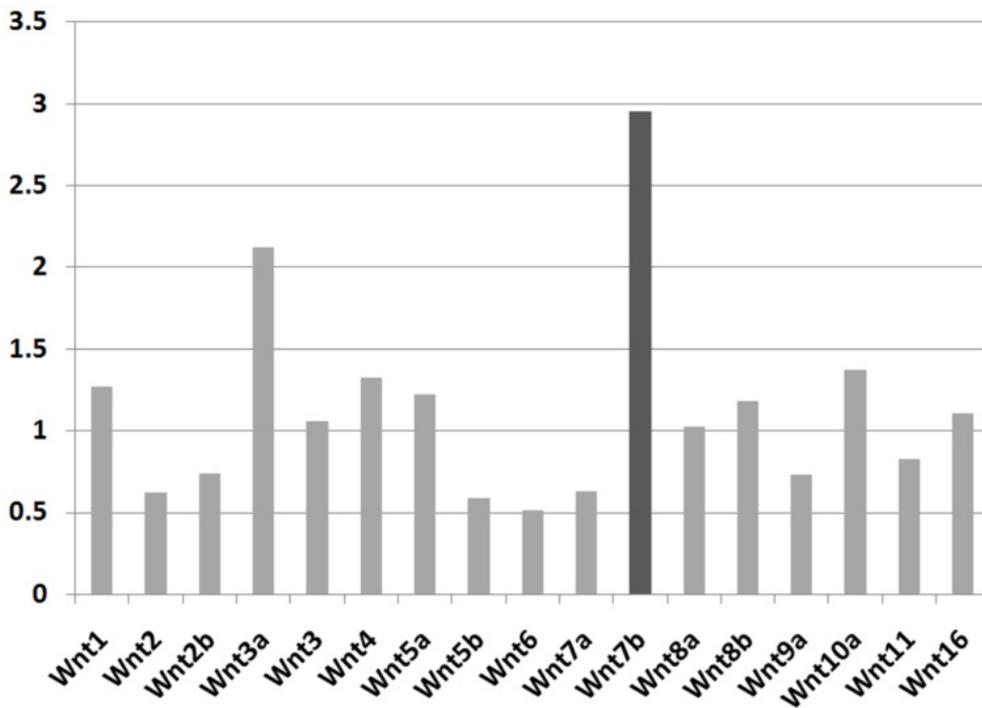


Figure S2: Wnt ligand qPCR array on wild type lungs 3 days after naphthalene injury. qPCR array analysis for relative *Wnt* ligand mRNA abundance in 2 month old wild type lungs 3 days after corn oil treatment vs. naphthalene treatment. (CO: corn oil).

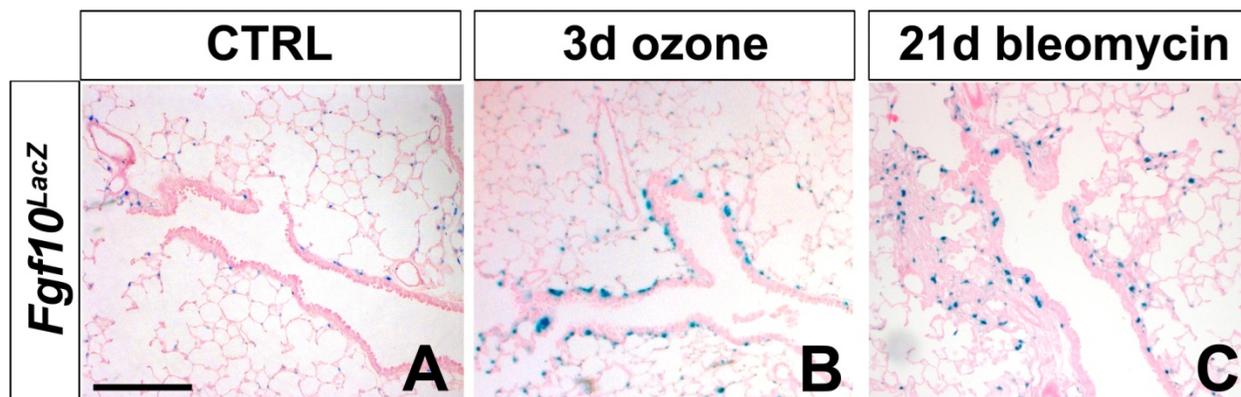


Figure S3: *Fgf10* expression is induced in PSMCs after ozone and bleomycin-mediated epithelial injury. β -gal staining on 2 month old *Fgf10*^{LacZ} lungs during normal homeostasis (**A**), 3 days after ozone-mediated epithelial injury (**B**) and 21 days after bleomycin-mediated epithelial injury (**C**). $n \geq 3$. Scale bar: 200 μ m.

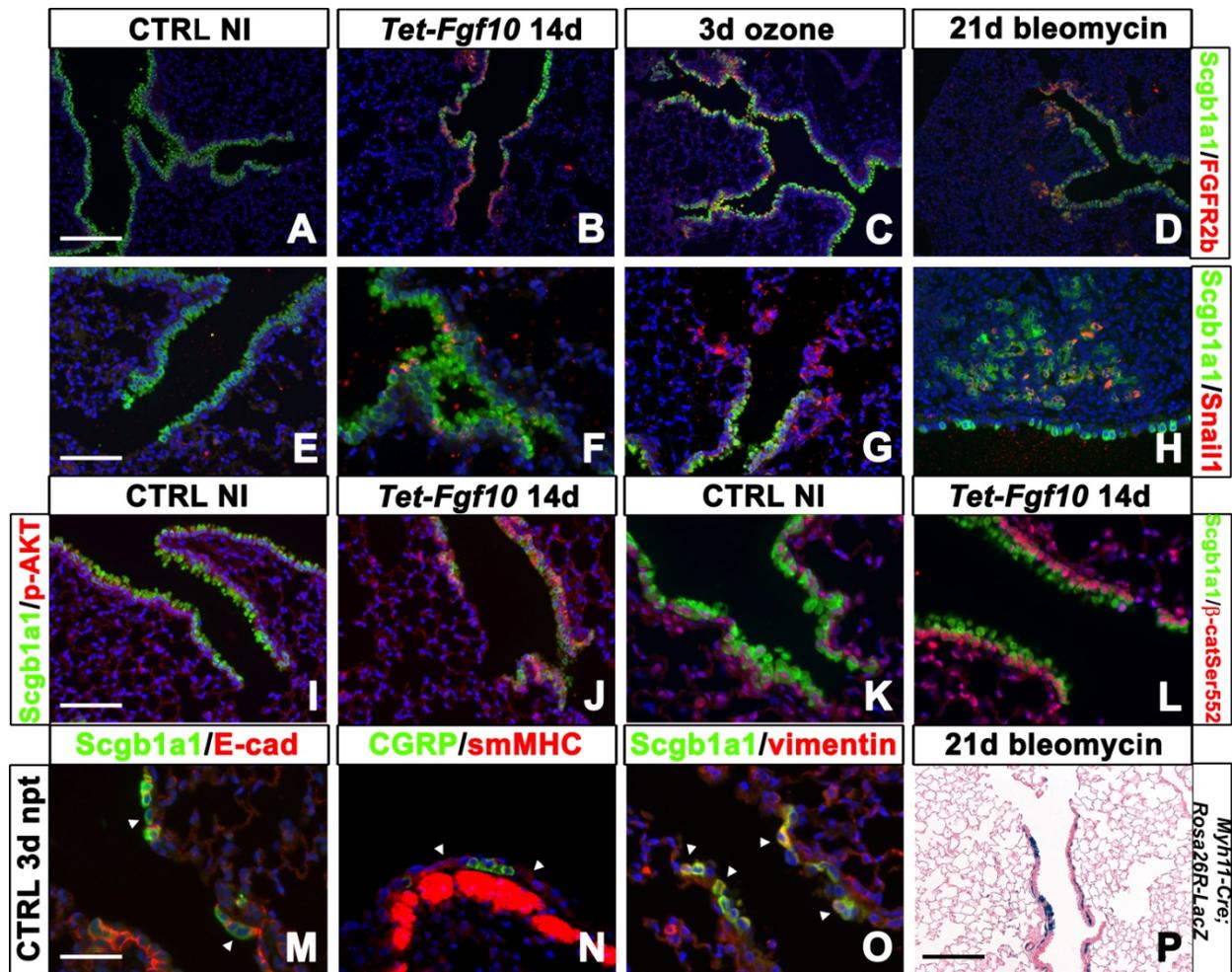


Figure S4: variant Clara cells become activated and undergo a transient EMT in response to FGF10.

Immunostaining for FGFR2b and Scgb1a1 on non-injured lungs from control (A) and *Rosa26-rtTa;Tet-Fgf10* mice 14 days after dox treatment (B), control lungs 3 days after ozone injury (C) and control lungs 21 days after bleomycin injury (D). Immunostaining for Snail1 and Scgb1a1 on non-injured lungs from control (E) and *Rosa26-rtTa;Tet-Fgf10* mice 14 days after dox treatment (F), control lungs 3 days after ozone injury (G) and control lungs 21 days after bleomycin injury (H). Immunostaining for p-AKT and Scgb1a1 on non-injured lungs from control (I) and *Rosa26-rtTa;Tet-Fgf10* mice 14 days after dox treatment (J). Immunostaining for phospho β -catenin-Ser552 and Scgb1a1 on

non-injured lungs from control (**K**) and *Rosa26-rtTa;Tet-Fgf10* mice 14 days after dox treatment (**L**). Immunostaining for E-cadherin and Scgb1a1 on control lungs 3 days after naphthalene injury (arrowheads) (**M**). Immunostaining for smMHC and CGRP on control lungs 3 days after naphthalene injury (arrowheads) (**N**). Immunostaining for vimentin and Scgb1a1 on control lungs 3 days after naphthalene injury (arrowheads) (**O**). Lineage tracing of activated variant Clara cells that have undergone a transient EMT in *Myh11-Cre⁺;Rosa26-LacZ* control lungs 21 days after bleomycin injury (**P**). Scale bars: 200 μm (**A-D** and **P**), 100 μm (**E-L**), 50 μm (**M-O**).

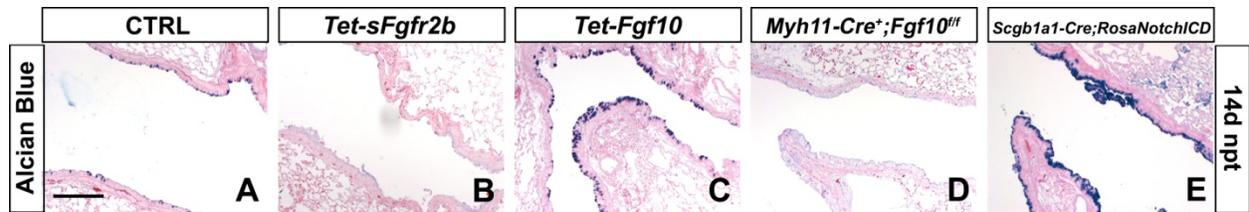


Figure S5: PSMC secreted FGF10 can induce Clara cell to goblet cell transdifferentiation possibly through activation of Notch signaling. Alcian Blue staining for goblet cells on lungs 14 days after naphthalene treatment isolated from control (A), dox induced *Rosa26-rtTa;Tet-sFgfr2b* (B), dox induced *Rosa26-rtTa;Tet-Fgf10* (C), *Myh11-Cre⁺;Fgf10^{ff}* (D) and dox induced *Scgb1a1-rtTA;Tet-*o*-Cre;RosaNotchICD* (E) mice. Scale bar: 200 μ m.