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54 **Supplemental Figure 1.** Generation of *Ltbp4*^{CC>SS} mice. **A.** Targeting
55 vector used to introduce mutations in *Ltbp4* locus. Exons are
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3 represented by open bars. The Neo cassette was inserted 373 base pairs
4 upstream of exon 26. White and black arrowheads represent loxP and
5 Frt sequences flanking the neo cassette, respectively. The exon (ex 26)
6 in which the mutations were introduced is indicated by a red asterisk. **B.**
7 Domain structure of Ltbp-4S. LTBP-4S C,C 1235, 1260 -> S,S mutations
8 are indicated by red asterisk. **C.** Nucleotide sequence of the mutated
9 exon 26. Cysteine codons are presented with blue letters. Mutated
10 nucleotides are presented in red letters. The mutated BstAPI restriction
11 site is underlined.

22 **Supplemental Figure 2.** Lung septation and elastogenesis are not
23 improved in P0.5 *Tgfb1*^{-/-};*Ltbp4S*^{-/-} compared to *Ltbp4S*^{-/-} lungs. **A.**
24 Histological analysis of WT, *Ltbp4S*^{-/-}, *Tgfb1*^{-/-} and *Tgfb1*^{-/-};*Ltbp4S*^{-/-}
25 lungs showed enlarged terminal air sacs in both *Ltbp4S*^{-/-} and *Tgfb1*^{-/-};
26 *Ltbp4S*^{-/-} compared to WT and *Tgfb1*^{-/-} lungs. **B.** Elastin staining
27 revealed fibrillar structures in WT and *Tgfb1*^{-/-} and globular aggregates
28 in *Ltbp4S*^{-/-} and *Tgfb1*^{-/-};*Ltbp4S*^{-/-} lungs.

37 **Supplemental Figure 3.** Terminal air sac septation and elastic fiber
38 assembly are not improved in P0.5 *Tgfb3*^{-/-};*Ltbp4S*^{-/-} compared to
39 *Ltbp4S*^{-/-} lungs. **A.** Histological analysis of WT, *Ltbp4S*^{-/-}, *Tgfb3*^{-/-} and
40 *Tgfb3*^{-/-} *Ltbp4S*^{-/-} P0.5 lungs revealed enlarged terminal air sacs in both
41 *Ltbp4S*^{-/-} and *Tgfb3*^{-/-};*Ltbp4S*^{-/-} compared to WT and *Tgfb3*^{-/-} lungs. **B.**
42 Elastogenesis is abnormal in both *Ltbp4S*^{-/-} and *Tgfb1*^{-/-};*Ltbp4S*^{-/-} lungs,
43 as only globular aggregates are revealed by elastin staining. In WT and
44 *Tgfb3*^{-/-} lungs, elastin appears fibrillar.

54 **Supplemental Figure 4.** *Ltbp4*^{CC>SS} is synthesized and secreted by
55 primary lung fibroblasts. Western blot analysis of conditioned medium
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3 from WT and *Ltbp4*^{CC>SS} primary lung fibroblasts with an antibody
4 against Ltbp-4 showed that Ltbp-4 and Ltbp-4^{CC>SS} are secreted from
5 WT and *Ltbp4*^{CC>SS} cells respectively in approximately similar amounts
6 and have the same molecular mass. Western blotting with an β actin
7 antibody was used as a loading control. Horizontal bars indicate position
8 of molecular weight marker bands in kDa.
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