### Supplementary materials

**Supplementary Table 1.** Primers used for RT-PCR and genotyping.

| Name                         | Forward (5'-3')            | Reverse (5'-3')            |
|------------------------------|-----------------------------|----------------------------|
| Mouse Notch1                 | GATGGCCTCAAATGGGTACAAG      | TCGTTGTTGTTGGATGTCACAGT    |
| Mouse Notch2                 | GACTGCCAATACCTCCACCTCT      | CCAATTTTCGCAAGGATGAGAT    |
| Mouse Notch3                 | TGCCAGAGTTCAGTGGTGGG        | CACAGGCCAAATCGGCCATC       |
| Mouse Notch4                 | CTCTTGCACAATTTCCCTCT        | TTGCAGAGTGGTGATCCCTC      |
| Mouse Jagged1                | CCTCGGTCAGTCAGTGGCTG        | CACTGACTGACACCTTTGAGTA    |
| Mouse Hes1                   | GATAGCTCCCGGCATTCCAAG       | GCGCGGTATTTCACCCCAAC      |
| Mouse Hey1                   | CATGAAGAGAGCTCAACCCAGA      | CGCCGAACTCAAGTCCC         |
| Mouse RBPj                   | CACTGTTCACATCGCCTC          | AGTCACTGAGCACACAA        |
| Mouse β-actin                | GGCTGTATTCCCCTCCATCG        | CCAGTTGGAACAAATGCCATGT    |
| Mouse TIMP1                  | ATGACTGGGGGTAGCCCGTA        | TCAGAGCCAAAGCAGTGAGC      |
| Mouse MMP8                   | TGCCACGATGTGTGAGTAGAG       | AGGCATTCAATTCACCCATG      |
| Mouse MMP9                   | GCAGAGGCATCTCTGAGCCAG       | TGAATTTACATGGTGCCACTTG    |
| Mouse MMP12                  | GGCTGTCCATCCATGAACTGAC      | CCAGAGTGGATGAGTCCAGT      |
| Mouse MMP13                  | TGTCTGAGACGACTACTAGGAA      | CAGTCACCTCTAAAGCCCAAAGAA |
| Mouse a-SMA                  | CCCAGACATCGGGAGTAAATGG      | TCTATCGGATACCTCAGCGTCA    |
| Mouse Collagen1              | TAAGGCTCCTCCAATGTTGAGAG     | GGGTCCCTCGACTCTACAT       |
| Mouse HGF                    | ATGTGGGGGCACAAACTTCTG       | GGAATGGCCAAGGACAG         |
| Mouse Ngfr                   | CTAGGGGTGTTCTCTGGAGATG      | CAGGGTTTACACACCGGCT       |
| Mouse Septin4                | TGAGCTGAGCAATTTCCGTGAA      | ACAAGAGGCTCAATAACTCCAC    |
| Human Hes1                   | TCAAACGACACCCGATAAAAC       | GCCGCGAGCTATTTTCTTTGCA    |
| Human a-SMA                  | TCTACGGGAGTGGAGTCTGCTTG     | TCGTGCCGCAATGGCGACGGT    |
| Human GAPDH                  | TTCATCGGAGAGCTCGCTG         | CTCACGAGCTACAGCG         |
| Cre N1                       |                             |                            |
| Cre N2                       |                             |                            |
| R3                           |                             |                            |
| R4                           |                             |                            |
**Supplementary Table 1.** Antibodies used in this study.

| Name               | Supplier                      | Purpose |
|--------------------|-------------------------------|---------|
| Anti-NICD          | Abcam: ab8925                 | IHC     |
| Anti-Collagen1     | Abcam:ab34710                 | IHC     |
| Anti- β -actin     | Cell Signaling Technology     | WB      |
| Goat anti-Rabbit-HRP | Cell Signaling Technology   | WB      |
| Rabbit anti-Mouse-HRP | Cell Signaling Technology D3V2A | WB      |
| Rabbit Anti-Hes1   | Sigma: SAB2108472             | IHC     |
| Anti-Sm22α         | Abcam: ab14106                | IF      |
| mouse Anti-a-SMA   | Servicebio: GB13044           | IF      |
| mouse Anti-Desmin  | Servicebio: GB12081           | IF      |
| Anti-F480          | Ebioscience: 14-4801-82       | IF      |
| Anti-Lyve          | Relia Tech: 103-M130          | IF      |
| Donkey anti-Rat Alexa fluo594 | Invitrogen    | IF      |
| Goat anti-Rabbit FITC | Jackson Immuno Research   | IF      |
| Goat anti Rabbit Cy3 | Jackson Immuno Research  | IF      |
| Goat anti Mouse Cy3 | ServiceBio                 | IF      |
| Anti-Hes1          | Cell Signaling Technology     | WB      |
| Anti-Bax           | Abcam: ab182733               | WB      |
| Anti-Cleaved Caspase3 | Cell Signaling Technology  | WB      |
Supplementary Figure S1. Blockage of Notch signaling restricted to hepatic VMSCs has no effect on the liver of healthy mice. (A) Schedule of induction in Sm22αCreER-RBPjMF-KO mice without CCl4 administration. (B) HE and Collagen1 IHC staining of liver section. (C) IF staining of Desmin and α-SMA of liver section. (D) Fenestra of LSEC by SEM. (E) qPCR showed the relative mRNA level in liver. (F) Serum liver function by biochemical detection. (Bars = means ± SD, n=3, *P < 0.05, **P < 0.01, ***P < 0.001, ns, not significant).