

## Supplementary information

### A new minimally-invasive method for microinjection into the mouse spinal dorsal horn

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#### Supplementary Figure 1 Titer- and time-dependent transgene expression by intra-SDH injection of AAV2/5-gfaABC<sub>1</sub>D-GFP

(a) mRNA expression of GFP 28 days after intra-SDH injection of vehicle or rAAV ( $10^{11}$ – $10^{13}$  GC/ml). Values represent the relative ratio of mRNA (normalized to *Gapdh* mRNA) to the ipsilateral side of  $10^{11}$  GC/ml injected group (n=6-8, <sup>##</sup> $P<0.01$  versus ipsilateral side of  $10^{11}$  GC/ml injected group). (b) mRNA expression of GFP 14, 28 and 56 days after intra-SDH injection of rAAV ( $10^{12}$  GC/ml). Values represent the relative ratio of mRNA (normalized to *Gapdh* mRNA) to the ipsilateral side of 14 days after virus-injected group (n=6-8, <sup>##</sup> $P<0.01$  versus ipsilateral side of 14 days after virus-injected group).

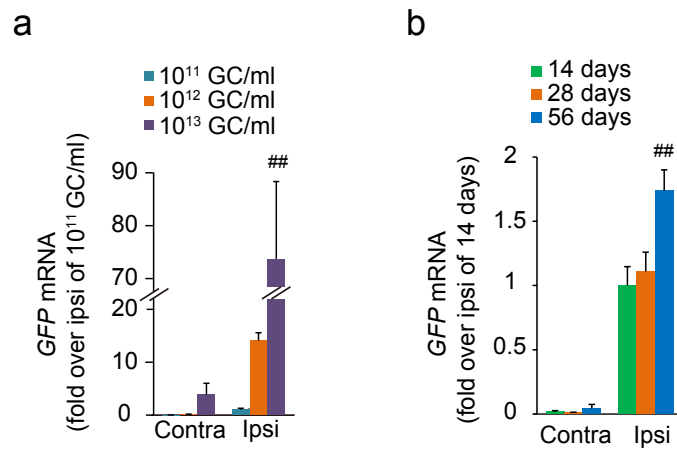
#### Supplementary Figure 2 Conditional disruption of astrocytic STAT3 inhibits PNI-induced allodynia

(a) PWT of *Stat3<sup>fl/fl</sup>* and *Gfap-cre;Stat3<sup>fl/fl</sup>* mice before (day 0) and after PNI. (n=10; <sup>\*\*</sup> $P<0.01$  versus day 0. <sup>##</sup> $P<0.01$  versus the ipsilateral side of *Stat3<sup>fl/fl</sup>* mice). (b) Real-time PCR analysis of mRNA in *Stat3<sup>fl/fl</sup>* and *Gfap-cre;Stat3<sup>fl/fl</sup>* mice 14 days after PNI.

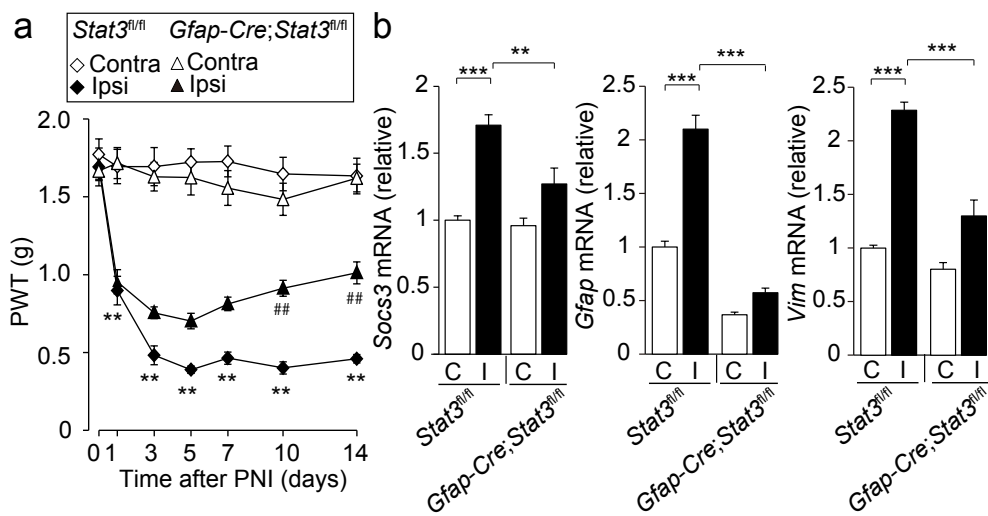
Values represent the relative ratio of mRNA (normalized to *Gapdh* mRNA) to the contralateral side of *Stat3<sup>fl/fl</sup>* mice (n=9, \*\* $P < 0.01$ ; \*\*\* $P < 0.001$ ).

**Supplementary Figure 3 Cre recombinase activity in the L4 spinal cord and DRG of *Gfap-cre;CCE* mice**

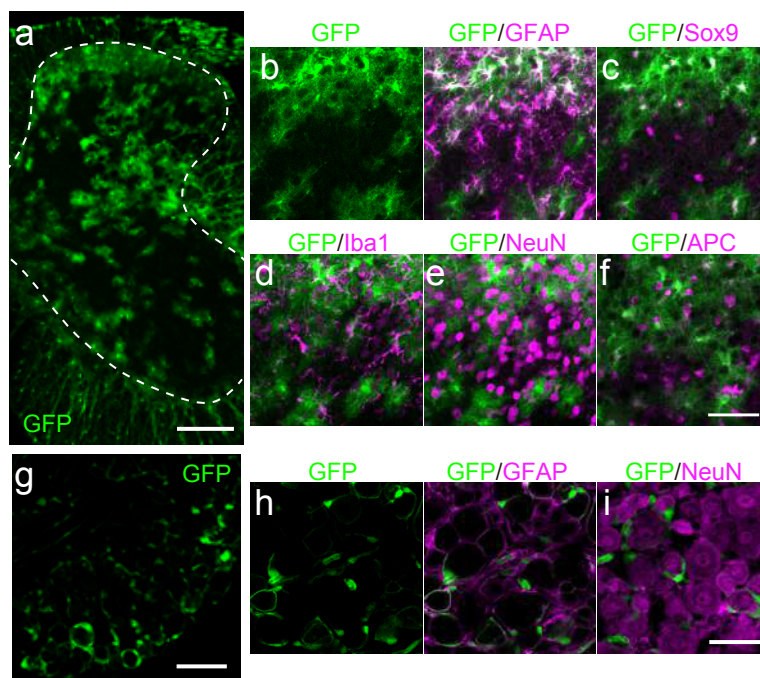
(a) GFP expression in the L4 spinal cord of *Gfap-cre;CCE* mice (Scale bar, 200  $\mu\text{m}$ ). (b-f) Immunohistochemical identification of GFP-expressing cells using cell-type markers (magenta; b, GFAP; c, Sox9; d, Iba1; e, NeuN; f, APC) in the L4-SDH sections of *Gfap-cre;CCE* mice (Scale bar, 50  $\mu\text{m}$ ). (g) GFP expression in the L4 DRG of *Gfap-cre;CCE* mice (Scale bar, 100  $\mu\text{m}$ ). (h,i) Immunohistochemical identification of GFP-expressing cells using cell-type markers (magenta; h, GFAP; i, NeuN) in the L4-DRG sections of *Gfap-cre;CCE* mice (Scale bar, 50  $\mu\text{m}$ ).



Supplementary Figure 1  
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Supplementary Figure 2  
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Supplementary Figure 3  
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