



Fig. S1. Distributions of Hv1 in nervous system. **a** Typical RNAscope images showing the expression of *Hvcn1* in DRG in naïve rats and CFA model. **b** Quantifications of *Hvcn1* expression in DRG in naïve rats and CFA model (n = 6 sections from 3 rats, two sample *t* test). **c, d** IHC images for Hv1 and NeuN in the DRG in naïve mice (**c**) and CFA model (**d**). **e-j** Typical RNAscope images showing *Hvcn1* expression in different subtypes of DRG

neurons. **k, l** Typical IHC images showing NOX1 and NOX4 expression in DRG in naïve mice. **m** Typical RNAscope images and quantifications showing *Hvcn1* expression in the foot skins of naïve mice and CFA model (n = 10-12 sections from at least 5 mice, Mann-Whitney test). **n** IHC images for Hv1 and PGP9.5 in the foot skins of CFA model. **o** IHC images and quantifications showing the Hv1 expression in foot skins in *Hvcn1*^{-/-} mice in comparison to WT mice (n = 10-15 sections from at least 5 mice, two sample *t* test). **p** IHC images and quantifications showing the Hv1 expression in DRG in *Hvcn1*^{-/-} mice in comparison to WT mice (n = 5-7 sections from 3 mice, Mann-Whitney test). **q, r** IHC images for Hv1 and PGP9.5 in the normal abdominal skin and scar tissue from humans. Data in (**b, m, o** and **p**) are shown as mean ± SEM. ***P* < 0.01, ****P* < 0.001, *****P* < 0.0001.