Figure S1

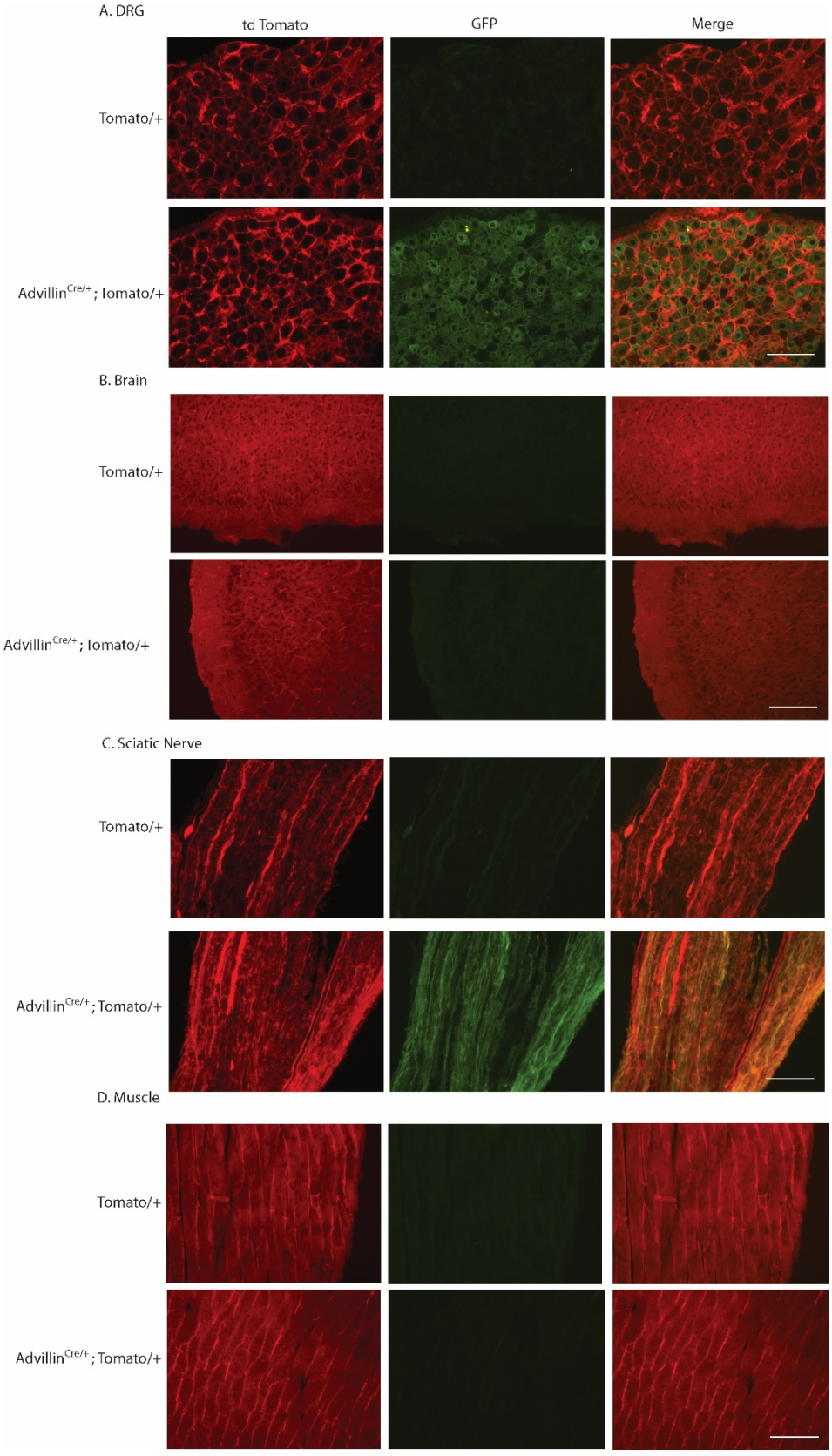
A. DRG
td Tomato
GFP
Merge
Tomato/+
Advillin$^{Cre/+}$; Tomato/+
B. Brain
Tomato/+
Advillin$^{Cre/+}$; Tomato/+
C. Sciatic Nerve
Tomato/+
Advillin$^{Cre/+}$; Tomato/+
D. Muscle
Tomato/+
Advillin$^{Cre/+}$; Tomato/+

Figure S1. Cre recombinase expression in DRG, Brain, sciatic nerve, and muscle of Advillin$^{Cre/+}$ mice. Advillin is a member of the gelosin superfamily and has recently been demonstrated to have a selective sensory neuron specific expression [1] and cre recombinase expression under control of the advillin promoter shows a similar sensory neuron specific expression [2]. Advillin$^{cre/+}$ mice are unique as compared to previously developed mice that conditionally express cre in sensory neurons. Advillin$^{cre/+}$ show cre expression in almost all sensory neurons whereas previously developed mice only had cre expression in specific neuronal subpopulations [3]. A reporter line for cre recombinase activity (Tomato) was used to confirm sensory neuron specific cre expression in Advillin$^{Cre/+}$ mice. Images of red fluorescence, green fluorescence, and merged images are shown from Advillin$^{Cre/+}$; Tomato$^{+/-}$ and Tomato$^{+/-}$ mice. A) Sensory neurons in the DRG show GFP expression in Advillin$^{Cre/+}$; Tomato$^{+/-}$ mice but not Tomato$^{+/-}$ mice. Images were taken at 20x magnification. Scale bar=100µm. B) Neither Advillin$^{Cre/+}$; Tomato$^{+/-}$ or Tomato$^{+/-}$ mice show GFP expression in the brain frontal cortex. Images were taken at 10x magnification. Scale bar=200µm. C) Strong GFP expression was visualized in the sciatic nerve of Advillin$^{Cre/+}$; Tomato$^{+/-}$ mice. GFP was not present in the sciatic nerve of Tomato$^{+/-}$ mice. Images were taken at 20x magnification. Scale bar=100µm. D) Muscle (gastrocnemius) cells from Advillin$^{Cre/+}$; Tomato$^{+/-}$ or Tomato$^{+/-}$ mice do not express GFP. Images were taken at 10x magnification. Scale bar=200µm. However, at higher magnification (40x) thin axons can be visualized expressing GFP in the muscle of Advillin$^{Cre/+}$; Tomato$^{+/-}$ mice (images not shown).

Figure S2

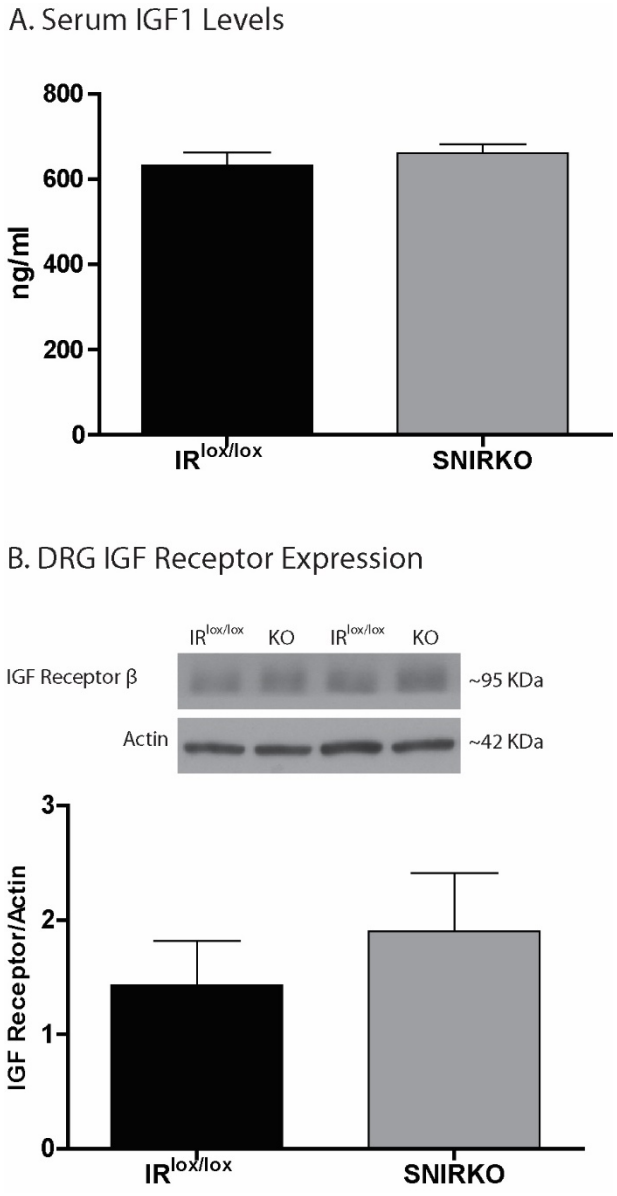
A. Serum IGF1 Levels
800
600
400
200
0
ng/ml
IR lox/lox
SNIRKO
B. DRG IGF Receptor Expression
IR lox/lox
KO
IR lox/lox
KO
IGF Receptor β
~95 KDa
Actin
~42 KDa
3
2
1
0
IGF Receptor/Actin
IR lox/lox
SNIRKO

Figure S2. The IGF1 pathway is not significantly upregulated in SNIRKO mice. One possible compensation pathway in SNIRKO mice is the IGF1 pathway. Here, IGF1 serum levels and IGF receptor expression levels in the DRG were assessed. No significant differences were observed between $IR^{lox/lox}$ and SNIRKO mice for either variable. Results were analyzed with a student's t-test. n=20 $IR^{lox/lox}$ and n=20 SNIRKO for IGF1 serum ELISA and n=14 $IR^{lox/lox}$ and n=10 SNIRKO for IGF receptor Western blot analysis.

1. Hasegawa, H., et al., *Analyzing somatosensory axon projections with the sensory neuron-specific Advillin gene.* J Neurosci, 2007. **27**(52): p. 14404-14.
2. Zurborg, S., et al., *Generation and characterization of an Advillin-Cre driver mouse line.* Mol Pain, 2011. **7**: p. 66.
3. Nassar, M.A., et al., *Nociceptor-specific gene deletion reveals a major role for Nav1.7 (PN1) in acute and inflammatory pain.* Proc Natl Acad Sci U S A, 2004. **101**(34): p. 12706-11.