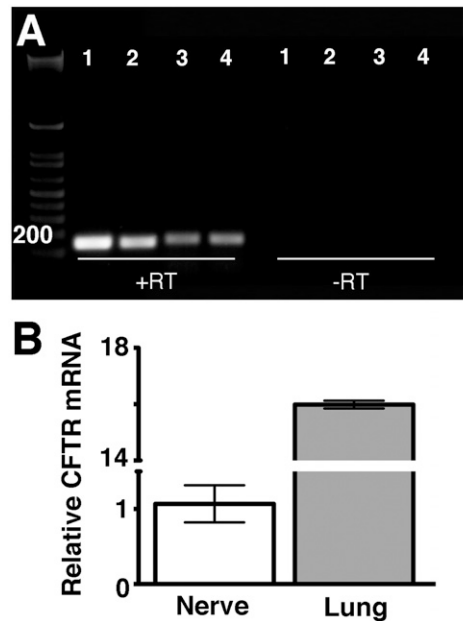
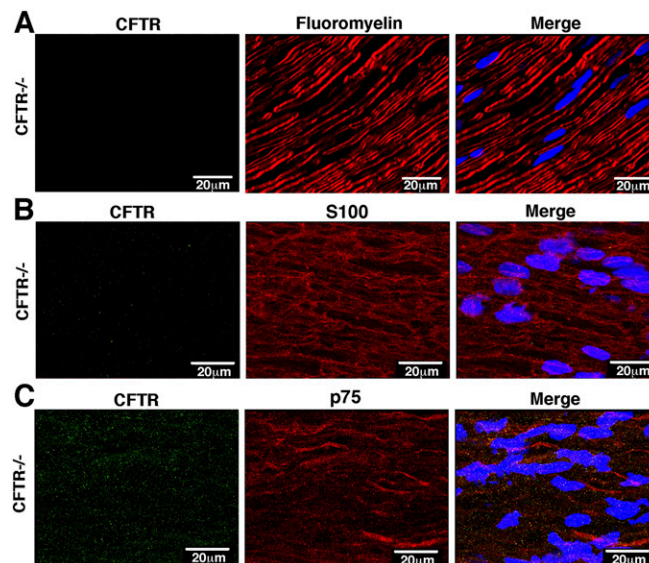


# Supporting Information

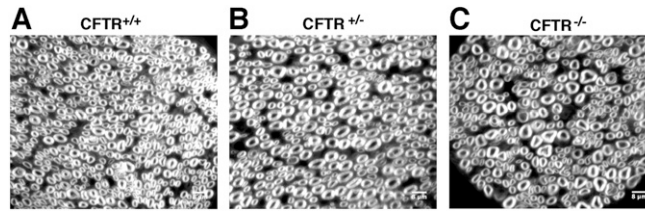
Reznikov et al. 10.1073/pnas.1222729110



**Fig. S1.** Cystic fibrosis transmembrane conductance regulator (*CFTR*) mRNA is detected in the peripheral and central nervous systems. (A) RT-PCR of trigeminal nerve (lane 1), trigeminal ganglion (lane 2), optic nerve (lane 3), and cerebellum (lane 4). A 155-bp product is the predicted size for *CFTR* mRNA, and bands were sequenced for verification. –RT indicates absence of reverse transcriptase. (B) Quantitative RT-PCR of *CFTR* mRNA from nerves and airway epithelia ( $n = 3$  *CFTR*<sup>+/+</sup> pigs). Values are expressed relative to nerve fraction.



**Fig. S2.** Lack of cystic fibrosis transmembrane conductance regulator (*CFTR*) detection in *CFTR*<sup>-/-</sup> pigs. No *CFTR* staining was observed in transverse and sagittal cross-sections of *CFTR*<sup>-/-</sup> trigeminal nerves, demonstrating specificity of *CFTR* immunohistochemical detection. Staining for fluoromyelin (A), S100 (B), and p75 (C) is shown. Tissues were obtained and treated identically to *CFTR*<sup>+/+</sup> tissues, and images were prepared at the same time as those in Fig. 2. In merged images, nuclei are stained with DAPI (blue). (Scale bar, 20 μm.)



**Fig. S3.** Axon density is reduced in *cystic fibrosis transmembrane conductance regulator* ( $CFTR^{+/-}$ ) and  $CFTR^{-/-}$  trigeminal nerve. Representative confocal images of trigeminal nerve cross-sections demonstrating differences in axon density across genotypes. Cross-sections of an outer fascicle from  $CFTR^{+/+}$  (A),  $CFTR^{+/-}$  (B), and  $CFTR^{-/-}$  (C) newborn pigs are shown. Note the reduction in abundance of axons and the increase in axon size in  $CFTR^{+/-}$  and  $CFTR^{-/-}$  compared with  $CFTR^{+/+}$ .

**Table S1. Conduction velocity, amplitude, and total area of compound action potential**

Measurement	$CFTR^{+/+}$	$CFTR^{+/-}$	$CFTR^{-/-}$
<b>Trigeminal nerve</b>			
Conduction velocity (m/s)	$22.3 \pm 0.7$	$22.2 \pm 0.9$	$19.6 \pm 0.6^*$
CAP Amplitude (mV)	$9.0 \pm 0.5$	$7.9 \pm 0.3$	$9.0 \pm 0.6$
Area under curve	$13.2 \pm 0.8$	$11.4 \pm 1.2$	$13.5 \pm 1.0$
<b>Sciatic nerve</b>			
Conduction velocity (m/s)	$32.8 \pm 3.1$	—	$25.3 \pm 2.5$
CAP amplitude (mV)	$5.1 \pm 0.7$	—	$5.7 \pm 0.3$
Area under curve	$5.9 \pm 1.1$	—	$6.2 \pm 0.3$

Data are mean  $\pm$  SEM. \* $P < 0.05$  compared with  $CFTR^{+/+}$ . *CFTR*, *cystic fibrosis transmembrane conductance regulator*.

**Table S2. Summary of in vivo defects in auditory brainstem response of  $CFTR^{-/-}$  pigs**

Measurement	$CFTR^{+/+}$	$CFTR^{-/-}$
Wave I (ms)	$0.53 \pm 0.01$	$0.55 \pm 0.01^*$
Wave II (ms)	$1.10 \pm 0.02$	$1.19 \pm 0.02^*$
Wave III (ms)	$2.79 \pm 0.02$	$2.76 \pm 0.05$
Wave V (ms)	$3.97 \pm 0.08$	$3.89 \pm 0.07$
Wave I-II interval (ms)	$0.57 \pm 0.02$	$0.64 \pm 0.02^*$
Wave I-III interval (ms)	$2.33 \pm 0.06$	$2.20 \pm 0.05$
Wave III-V interval (ms)	$1.12 \pm 0.07$	$1.13 \pm 0.04$
Wave I-V interval (ms)	$3.45 \pm 0.07$	$3.34 \pm 0.07$
Peak-to-peak amplitude ( $\mu$ V)	$1.07 \pm 0.09$	$1.21 \pm 0.15$

Data are mean  $\pm$  SEM. \* $P < 0.05$  compared with  $CFTR^{+/+}$ .