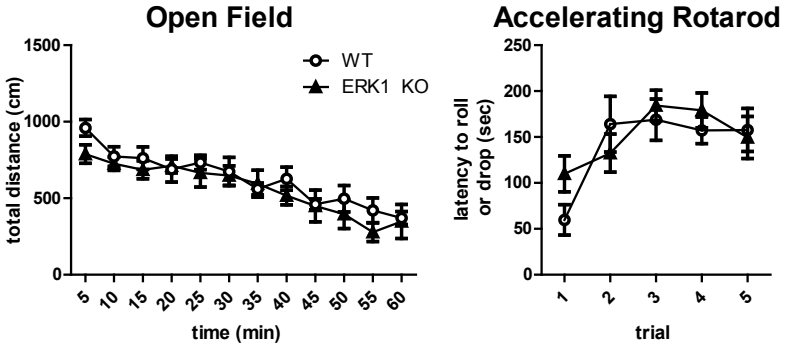
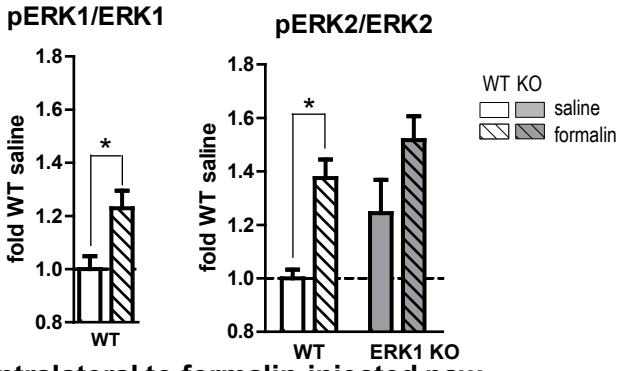
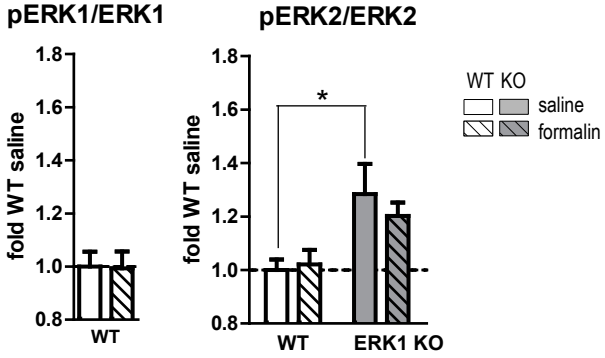


<u>Supplemental Figure S1:</u> ERK1 KO and WT mice have similar baseline locomotor behaviors. ERK1 KO (n=9) and WT (n=8) mice showed equivalent exploratory behavior on an open field task. Individual mice were placed into a box with a grid of infrared beams covering the horizontal space. Locomotor behavior was tracked for one hour. ERK1 KO mice (n=8) performed comparably to wild-type (WT) littermates (n=9) on an accelerating rotarod task. Untrained mice underwent 5 consecutive trials separated by 15 minutes, and latency to roll or drop from the rotating rod was recorded. For all graphs, mean values are plotted with error bars representing standard error of the mean (S.E.M.)

A. Ipsilateral to formalin-injected paw

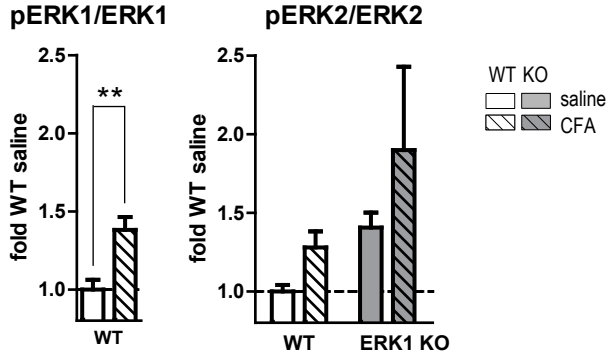


B. Contralateral to formalin-injected paw

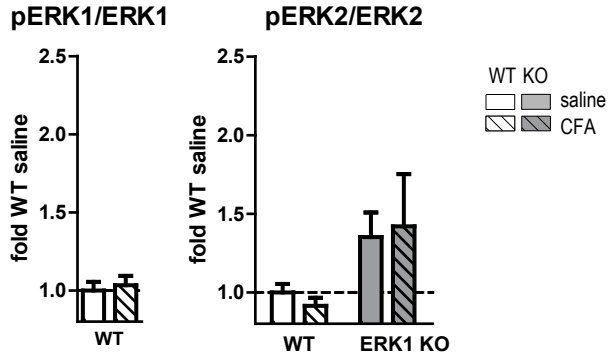


<u>Supplemental Figure S2:</u> Alternate analysis of formalin-induced ERK phosphorylation in spinal cord. pERK/ERK values from Fig. 7*A* were normalized to the average value of the WT saline group**,** in order to combine data across several Western blots. Ipsilateral (**A.**) and contralateral (**B.**) data were analyzed separately. In **A.**, an unpaired t-test indicates significant activation of pERK1 in WT mice. For pERK2/ERK2, a 2-way ANOVA indicates a significant effect of genotype ($F = 5.07$, DFn=1, DFd=20, $P=0.0357$) and a significant effect of formalin ($F = 14.32$, DFn=1, DFd=20, $P=0.0012$) with a Bonferroni post-hoc test (* $p<0.05$). In **B.**, an unpaired t-test indicates no significant effect of formalin on pERK1/ERK1 in WT mice. For pERK2/ERK2, a 2-way ANOVA indicates a significant effect of genotype ($F = 10.92$, DFn=1, DFd=20, $P= 0.0035$) with no effect of formalin ($F = 0.19$. DFn=1 DFd=20, $P=0.6691$). The elevated pERK2/ERK2 in the contralateral spinal cord likely reflects the elevated basal pERK2 in ERK1 KO mice. A similar shift upwards in pERK2/ERK2 values for both saline and formalin injected ERK1 KO mice is observed in data from the ipsilateral spinal cord, although formalin induces pERK2/ERK2 elevation in both WT and ERK1 KO mice. Error bars indicate S.E.M.

A. Ipsilateral to CFA-injected paw



B. Contralateral to CFA-injected paw



Supplemental Figure S3: Alternate analysis of CFA-induced ERK phosphorylation in spinal dorsal horn. pERK/ERK values from figure 7.B. were normalized to the average value of the WT saline group**,** in order to combine data across several Western blots. Ipsilateral (**A.**) and contralateral (**B.**) data were analyzed separately. In **A.** an unpaired t-test indicates significant activation of pERK1 in WT mice due to CFA (** $p<0.01$). For pERK2/ERK2, a 2-way ANOVA indicates the effect of genotype is not significant ($F = 3.84$, $DFn=1$, $DFd=17$, $P=0.0666$). There is no significant effect of CFA ($F = 2.18$, $DFn=1$, $DFd=17$, $P=0.1578$). In **B.** an unpaired t-test indicates no significant effect of formalin on pERK1/ERK1 in WT mice. For pERK2/ERK2, a 2-way ANOVA indicates a significant effect of genotype ($F = 5.72$, $DFn=1$, $DFd=17$, $P=0.0286$) without a significant effect of CFA ($F = 0.00$, $DFn=1$, $DFd=17$, $P=0.9612$). The elevated pERK2/ERK2 in the contralateral spinal cord likely reflects the elevated basal pERK2 in ERK1 KO mice. A similar shift upwards in pERK2/ERK2 values for both saline and CFA injected ERK1 KO mice is observed in data from the ipsilateral spinal dorsal horn. Error bars represent S.E.M.