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Microglia attenuate the opioid-induced depression of preBötzinger Complex (preBötC) inspiratory rhythm in vitro via a TLR4-independent pathway

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Abstract

Opioids activate neurons via opioid receptors (Rs) but also activate microglia via toll like receptors (TLR). Activation of microglial TLR4 impairs the ability of opioids to suppress pain and is hypothesized as pivotal in opioid-mediated reward and tolerance. Here we test the contribution of microglia and TLR4 to the opioid-induced respiratory depression. Using rhythmic medullary slices from neonatal rats we compared the duration of apneas evoked by locally injecting DAMGO (μ-opiate R agonist; 50μM) into the preBötC before and after 40 min incubation in minocycline (inhibits microglial activation, 500 nM). Minocycline increased the duration of DAMGO-evoked apnea 9.3±4.7-fold from 33±7 to 295±76 s (n=3). In time-matched controls, the second DAMGO-evoked apnea

evoked by DAMGO (300nM) or Fentanyl (1μM) in the bath. In

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Figures References Related Details

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