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**Short communication**

## Delta opioid receptors contribute to the cardiorespiratory effects of biphalin in anesthetized rats

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**Abstract:**

Biphalin expresses almost equal affinity for  $\mu$ - and  $\delta$ -opioid receptors. The aim of this study was to delineate a possible role of  $\delta$ -opioid receptors in the cardio-respiratory effects of systemic injection of biphalin in anesthetized, spontaneously breathing rats. In control animals, an intravenous bolus of biphalin (0.3  $\mu$ mol/kg) evoked apnea, followed by a decreased breathing rate and increased tidal volume, hypotension and bradycardia. Blockade of  $\delta$ -opioid receptors with naltrindole (4.2  $\mu$ mol/kg) significantly reduced the duration of apnea, slowdown of respiration, immediate post-challenge hypotension and bradycardia induced by biphalin administration. These results indicate that the activation of  $\delta$ -opioid receptors adds to the depressive response produced by biphalin.

**Key words:**

biphalin, respiration, opioid receptors, naltrindole

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