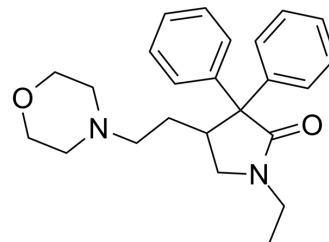


## Doxapram

Cat. No.:	HY-B0551
CAS No.:	309-29-5
Molecular Formula:	C <sub>24</sub> H <sub>30</sub> N <sub>2</sub> O <sub>2</sub>
Molecular Weight:	378.51
Target:	Potassium Channel
Pathway:	Membrane Transporter/Ion Channel
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



### BIOLOGICAL ACTIVITY

#### Description

Doxapram inhibits TASK-1, TASK-3, TASK-1/TASK-3 heterodimeric channel function with EC<sub>50</sub> of 410 nM, 37 μM, 9 μM, respectively. Target: Potassium Channel. Doxapram is a respiratory stimulant. Doxapram (15-150 μM) also evoked 3H overflow in a concentration dependent manner, and doxapram-evoked release was inhibited by the Ca<sup>2+</sup> channel blocker nifedipine (5 μM). Analysis of released tritiated compounds suggested that doxapram preferentially stimulated the release of dopamine. Our results indicate that the mechanism of action of doxapram shares similarities with that of hypoxia in the carotid body [1]. Doxapram (1-100 μM) caused rapid, reversible and dose-dependent inhibitions of K<sup>+</sup> currents recorded in type I cells (IC<sub>50</sub> approximately 13 μM). Doxapram was also seen to directly inhibit Ca<sup>2+</sup>-independent K<sup>+</sup> currents. Doxapram was a more potent inhibitor of the Ca<sup>2+</sup>-activated K<sup>+</sup> currents recorded under control conditions. Doxapram (10 μM) was without effect on L-type Ca<sup>2+</sup> channel currents recorded under conditions where K<sup>+</sup> channel activity was minimized and was also without significant effect on K<sup>+</sup> currents recorded in the neuronal cell line NG-108 15, suggesting a selective effect on carotid body type I cells. The effects of doxapram on type I cells show similarities to those of the physiological stimuli of the carotid body, suggesting that doxapram may share a similar mechanism of action in stimulating the intact organ [2].

### REFERENCES

- [1]. Cotten JF, et al. The ventilatory stimulant doxapram inhibits TASK tandem pore (K2P) potassium channel function but does not affect minimum alveolar anesthetic concentration. *Anesth Analg*, 2006, 102(3), 779-785.
- [2]. Peers, C., Effects of doxapram on ionic currents recorded in isolated type I cells of the neonatal rat carotid body. *Brain Res*, 1991. 568(1-2): p. 116-22.
- [3]. Anderson-Beck, R., et al., Doxapram stimulates dopamine release from the intact rat carotid body in vitro. *Neurosci Lett*, 1995. 187(1): p. 25-8.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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