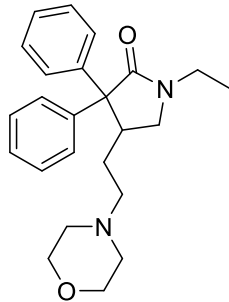


# Product data sheet



MedKoo Cat#: 319509 Name: Doxapram CAS: 309-29-5 (free) Chemical Formula: C <sub>24</sub> H <sub>30</sub> N <sub>2</sub> O <sub>2</sub> Exact Mass: 378.2307 Molecular Weight: 378.516		
Product supplied as:	Powder	
Purity (by HPLC):	≥ 98%	
Shipping conditions	Ambient temperature	
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.	

## 1. Product description:

Doxapram is a respiratory stimulant. Administered intravenously, Doxapram stimulates an increase in tidal volume and respiratory rate. Doxapram stimulates chemoreceptors in the carotid bodies of the carotid arteries, which in turn, stimulates the respiratory centre in the brain stem. Doxapram induced changes in the electrophysiological properties of pre-inspiratory and inspiratory neurones. Results suggest that respiratory activity enhancement was likely to be induced via effects on the potassium channels of pre-inspiratory and inspiratory neurones and indicate the central actions of doxapram.

## 2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

## 3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	75.0	198.14
Ethanol	75.0	198.14

## 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.64 mL	13.21 mL	26.42 mL
5 mM	0.53 mL	2.64 mL	5.28 mL
10 mM	0.26 mL	1.32 mL	2.64 mL
50 mM	0.05 mL	0.26 mL	0.53 mL

## 5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

## 6. Recommended literature which reported protocols for in vitro and in vivo study

### In vitro study

1. Cotten JF, Keshavaprasad B, Laster MJ, Eger EI 2nd, Yost CS. The ventilatory stimulant doxapram inhibits TASK tandem pore (K2P) potassium channel function but does not affect minimum alveolar anesthetic concentration. *Anesth Analg*. 2006 Mar;102(3):779-85. doi: 10.1213/01.ane.0000194289.34345.63. PMID: 16492828.

2. Anderson-Beck R, Wilson L, Brazier S, Hughes IE, Peers C. Doxapram stimulates dopamine release from the intact rat carotid body in vitro. *Neurosci Lett*. 1995 Feb 24;187(1):25-8. doi: 10.1016/0304-3940(95)11328-t. PMID: 7617294.

### In vivo study

1. Vacassenno RM, Haddad CN, Cooper RL. The effects of doxapram (blocker of K2p channels) on resting membrane potential and synaptic transmission at the Drosophila neuromuscular junction. *Comp Biochem Physiol C Toxicol Pharmacol*. 2023 Jan;263:109497. doi: 10.1016/j.cbpc.2022.109497. Epub 2022 Oct 25. PMID: 36306997.

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2. Wiedmann F, Beyersdorf C, Zhou XB, Kraft M, Paasche A, Jávorszky N, Rinné S, Sutanto H, Büscher A, Foerster KI, Blank A, El-Battrawy I, Li X, Lang S, Tochtermann U, Kremer J, Arif R, Karck M, Decher N, van Loon G, Akin I, Borggrefe M, Kallenberger S, Heijman J, Haefeli WE, Katus HA, Schmidt C. Treatment of atrial fibrillation with doxapram: TASK-1 potassium channel inhibition as a novel pharmacological strategy. Cardiovasc Res. 2022 Jun 22;118(7):1728-1741. doi: 10.1093/cvr/cvab177. PMID: 34028533.

## 7. Bioactivity

### Biological target:

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Doxapram inhibits TASK-1, TASK-3, TASK-1/TASK-3 heterodimeric channel function with EC50 of 410 nM, 37  $\mu$ M, 9  $\mu$ M, respectively.

### In vitro activity

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Doxapram inhibited TASK-1 (half-maximal effective concentration [EC50], 410 nM), TASK-3 (EC50, 37  $\mu$ M), and TASK-1/TASK-3 heterodimeric channel function (EC50, 9  $\mu$ M). Chimera studies suggested that the carboxy terminus of TASK-1 is important for doxapram inhibition.

Reference: Anesth Analg. 2006 Mar;102(3):779-85. <https://pubmed.ncbi.nlm.nih.gov/16492828/>

### In vivo activity

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The present study investigated the effects of doxapram on membrane potential and synaptic transmission using intracellular recordings of larval *Drosophila* muscles. Doxapram (1 mM and 10 mM) depolarizes the muscle and appears to depolarize motor neurons, causing an increase in the frequency of spontaneous quantal events and evoked excitatory junction potentials.

Reference: Comp Biochem Physiol C Toxicol Pharmacol. 2023 Jan;263:109497. <https://pubmed.ncbi.nlm.nih.gov/36306997/>

*Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.*