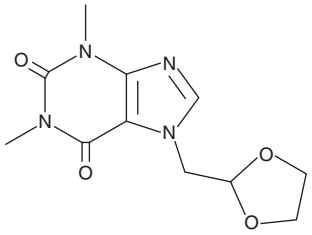
PRODUCT INFORMATION

Doxofylline

Item No. 18746

CAS Registry No.:	69975-86-6
Formal Name:	7-(1,3-dioxolan-2-ylmethyl)-3,7-dihydro-1,3-dimethyl-1H-purine-2,6-dione
Synonyms:	ABC 12/3, 2-(7'-Theophyllinemethyl)-1,3-dioxolane
MF:	$C_{11}H_{14}N_4O_4$
FW:	266.3
Purity:	≥98%
UV/Vis.:	λ_{max}: 273 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Doxofylline is supplied as a crystalline solid. A stock solution may be made by dissolving the doxofylline in the solvent of choice, which should be purged with an inert gas. Doxofylline is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of doxofylline in ethanol is approximately 0.5 mg/ml and approximately 20 mg/ml in DMSO and DMF.

Doxofylline is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, doxofylline should first be dissolved in DMSO and then diluted with the aqueous buffer of choice. Doxofylline has a solubility of approximately 0.5 mg/ml in a 1:1 solution of DMSO:PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

Description

Doxofylline is a methylxanthine bronchodilator.[1] It inhibits phosphodiesterase 2A1 (PDE2A1) and is an adenosine A_{2A} receptor antagonist (IC_{50}s = 0.74 and 0.9 mM, respectively).[2] Doxofylline (10 µM) reduces superoxide production induced by LPS or PMA (Item No. 10008014) in isolated human monocytes.[3] It delays platelet-activating factor-induced bronchoconstriction in isolated guinea pig lungs when used at concentrations ranging from 0.28 to 1.5 mM. Doxofylline (1 mg/kg) inhibits LPS-induced neutrophil recruitment to the lungs and IL-6 and TNF-α release into bronchoalveolar fluid (BALF) in mice.[4]

References

1. Franzone, J.S., Cirillo, R., and Biffignandi, P. Doxofylline exerts a prophylactic effect against bronchoconstriction and pleurisy induced by PAF. *Eur. J. Pharmacol.* **165(2-3)**, 269-277 (1989).
2. van Mastbergen, J., Jolas, T., Allegra, L., *et al.* The mechanism of action of doxofylline is unrelated to HDAC inhibition, PDE inhibition or adenosine receptor antagonism. *Pulm. Pharmacol. Ther.* **25(1)**, 55-61 (2012).
3. Talmon, M., Massara, E., Brunini, C., *et al.* Comparison of anti-inflammatory mechanisms between doxofylline and theophylline in human monocytes. *Pulm. Pharmacol. Ther.* **59**, 101851 (2019).
4. Riffo-Vasquez, Y., Man, F., and Page, C.P. Doxofylline, a novofylline inhibits lung inflammation induced by lipopolysacharide in the mouse. *Pulm. Pharmacol. Ther.* **27(2)**, 170-178 (2014).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.**CAYMANCHEM**.COM