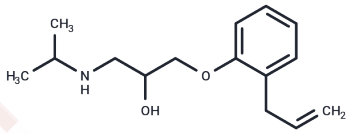
Data Sheet (Cat.No.T4560)

TargetMol

Alprenolol

Chemical Properties



CAS No. : 13655-52-2

Formula: C15H23NO2

Molecular Weight: 249.35

Storage: Store at low temperature
Powder: -20°C for 3 years
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Alprenolol (Alpheprol) is a non-selective β-adrenergic receptor (β-AR) antagonist that is also an antagonist of the serotonin (5-HT) receptor subtypes 5-HT1A and 5-HT1B.
Targets(IC50)	5-HT Receptor,Adrenergic Receptor
In vitro	Alprenolol binds to β1-, β2-, and β3-ARs expressed in CHO cells (Kds = 15, 0.91, and 117 nM, respectively, for the human receptors) and to 5-HT1A and 5-HT1B receptors in rat hippocampal and striatal membranes (Kis = 34 and 134 nM, respectively) [1,2].
In vivo	In vivo, alprenolol (40 mg/kg, i.v.) completely blocks the hyperactivity response of rats to 2-PCPA (Item No. 10010494) and L-tryptophan [3]. Alprenolol (10 µg, i.v.) inhibits decreases in heart rate and left ventricular systolic pressure induced by the β2-AR antagonist ICI 118551 in transgenic mice overexpressing the β2-AR [4]. It also reduces the level of abnormal prion fibrils (PrPSc) in the brain of mice intracerebrally infected with prion disease to less than 20% of control levels when administered in drinking water at a dose of 50 mg/L [5].

Solubility Information

Solubility	DMSO: 100 mg/mL (401.04 mM),Sonication is recommended. Ethanol: 5 mg/mL (20.05 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 2 mg/mL (8.02 mM),Sonication is recommended. 10% DMSO+90% Saline: 10 mg/mL (40.1 mM),Suspension. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.0104 mL	20.0521 mL	40.1043 mL
5 mM	0.8021 mL	4.0104 mL	8.0209 mL
10 mM	0.401 mL	2.0052 mL	4.0104 mL
50 mM	0.0802 mL	0.401 mL	0.8021 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Baker, J.G. The selectivity of β-adrenoceptor antagonists at the human β1, β2 and β3 adrenoceptors. Br. J. Pharmacol. 144(3), 317-322 (2005).
Langlois, M., et al. Structural analysis by the comparative molecular field analysis method of the affinity of β-adrenoreceptor blocking agents for 5-HT1A and 5-HT1B receptors. Eur. J. Pharmacol. 244(1), 77-87 (1993).
Costain, D.W., Green, A.R. β-Adrenoceptor antagonists inhibit the behavioural responses of rats to increased brain 5-hydroxytryptamine. Br. J. Pharmacol. 64(2), 193-200 (1978).
Bond, R.A., et al. Physiological effects of inverse agonists in transgenic mice with myocardial overexpression of the β2-adrenoceptor. Nature 374(6519), 272-276 (1995).
Miyazaki, Y., et al. Identification of alprenolol hydrochloride as an anti-prion compound using surface plasmon resonance imaging. Mol. Neurobiol. (2018).