Alprenolol

Cat. No.: HY-B1517

CAS No.: 13655-52-2

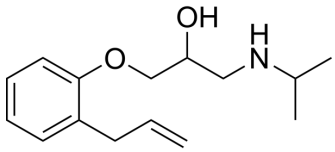
Molecular Formula: $C_{15}H_{23}NO_2$

Molecular Weight: 249.35

Target: 5-HT Receptor

Pathway: GPCR/G Protein; Neuronal Signaling

Storage: Powder -20°C 3 years
4°C 2 years
* The compound is unstable in solutions, freshly prepared is recommended.



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (401.04 mM; Need ultrasonic)
H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	4.0104 mL	20.0521 mL	40.1043 mL
5 mM	0.8021 mL	4.0104 mL	8.0209 mL
10 mM	0.4010 mL	2.0052 mL	4.0104 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 4 mg/mL (16.04 mM); Clear solution; Need ultrasonic and warming and heat to 60°C
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (10.03 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (10.03 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (10.03 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Alprenolol ((RS)-Alprenolol; dl-Alprenolol) is an orally active non-selective β-adrenoceptor antagonist and an antagonist of 5-HT1A and 5-HT1B receptors. Alprenolol is used as an anti-hypertensive, anti-anginal and anti-arrhythmic agent[1][2][3].

IC_{50} & Target

$5\text{-}HT_{1A}$ Receptor

In Vivo	Alprenolol (p.o., 50 mg/kg) causes a significant drop in blood pressure which averages 20 mm Hg (at 3-hr) and an increase in heart rate by 39 beats/min (at 3-hr) in conscious renal hypertensive dogs[1]. Alprenolol (i.p., 5 mg/kg) effectively blockes the anxiolytic effects of indorenate and ipsapirone but do not reduce the motor activity in adult male Swiss Webster mice[2]. Alprenolol (intravenous injection, 0.5 or 1.0 mg/kg) can decrease systolic pressure by a mean of 10 mm Hg, diastolic pressure by a mean of 10 mm Hg) and heart rate by 23 beats/min, as well as slightly reduce both myocardial and liver blood flows by mean of 17% and 15% respectively at a dose of 1.0 mg/kg in cats[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Nat Commun. 2020 Sep 25;11(1):4857.
- Nat Chem Biol. 2023 Aug 14.
- J Pharmaceut Biomed. 2020, 113870.
- J Chromatogr B. 2023 Jun 20, 123804.
- bioRxiv. 2020 Jan.

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REFERENCES

[1]. Himori N, et al. Effects of beta-adrenoceptor blocking agents, pindolol, alprenolol and practolol on blood pressure and heart rate in conscious renal hypertensive dogs. Arch Int Pharmacodyn Ther. 1977 Jan;225(1):152-65.

[2]. Fernández-Guasti A, et al. Evidence for the involvement of the 5-HT1A receptor in the anxiolytic action of indorenate and ipsapirone. Psychopharmacology (Berl). 1990;101(3):354-8.

[3]. Parratt JR, et al. Myocardial and haemodynamic effects of the beta-adrenoceptor blocking drug alprenolol (H56/28) in anaesthetized cats. Br J Pharmacol. 1969 Oct;37(2):357-66.

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