(S)-Timolol maleate

Cat. No.: HY-17380

CAS No.: 26921-17-5

Molecular Formula: $C_{17}H_{28}N_4O_7S$

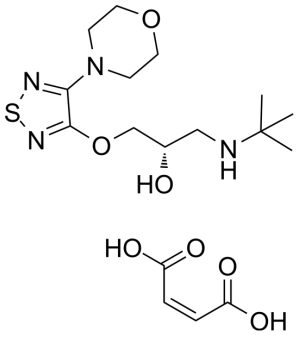
Molecular Weight: 432.49

Target: Adrenergic Receptor

Pathway: GPCR/G Protein; Neuronal Signaling

Storage: 4°C, sealed storage, away from moisture

* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (231.22 mM; Need ultrasonic)

H_2O : 50 mg/mL (115.61 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.3122 mL	11.5610 mL	23.1219 mL
5 mM	0.4624 mL	2.3122 mL	4.6244 mL
10 mM	0.2312 mL	1.1561 mL	2.3122 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 20 mg/mL (46.24 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 (5.78 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.78 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.78 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

(S)-Timolol Maleate (L-714,465 Maleate) is a non-cardioselective hydrophilic β-adrenoceptor blocker. (S)-Timolol Maleate is widely used as standard medication for intraocular pressure (glaucoma) by preventing the production of aqueous humor. (S)-Timolol Maleate can be used for hypertension, angina pectoris and myocardial infarction[1][2][3].

IC_{50} & Target

β adrenergic receptor

In Vitro	Timolol maleate represents a chiral compound with one asymmetric carbon in its structure. Single isomer, (S)-enantiomer, is a non-cardioselective β-adrenergic blocker. Its commonest application is in topical treatment of increasing intraocular pressure in patients with chronic open angle glaucoma and also in aphakic patients[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	There are reports that indicate lower biological activity of (R)-isomer compared to (S)-isomer. Namely, (R)-timolol is 49 times less potent than (S)-timolol on β-adrenoceptor in animals, 13 times less potent in constricting the airways of normal subjects[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Protein Cell. 2019 Mar;10(3):178-195.
- Patent. US20230090708A1.

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REFERENCES

[1]. Mitrović M, et al. Analytical quality by design development of an ecologically acceptable enantioselective HPLC method for timolol maleate enantiomeric purity testing on ovomucoid chiral stationary phase. J Pharm Biomed Anal. 2020 Feb 20;180:113034.

[2]. Wedian F, et al. Simultaneous spectrofluorometric analysis of tablets containing hydrochlorothiazide combined with timolol maleate or amiloride hydrochloride. Acta Pharm. 2020 Sep 1;70(3):373-385.

[3]. Sun L, et al. Fractional 2940-nm Er:YAG Laser-Assisted Drug Delivery of Timolol Maleate for the Treatment of Deep Infantile Hemangioma. J Dermatolog Treat. 2020 Feb 11:1-24.

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