Salmeterol

Cat. No.: HY-14302

CAS No.: 89365-50-4

Molecular Formula: $C_{25}H_{37}NO_4$

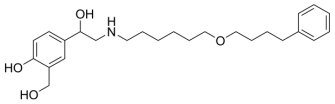
Molecular Weight: 415.57

Target: Adrenergic Receptor

Pathway: GPCR/G Protein; Neuronal Signaling

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (240.63 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.4063 mL	12.0317 mL	24.0633 mL
5 mM	0.4813 mL	2.4063 mL	4.8127 mL
10 mM	0.2406 mL	1.2032 mL	2.4063 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (6.02 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (6.02 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (6.02 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Salmeterol (GR33343X) is a potent and selective human β2 adrenoceptor agonist. Salmeterol shows potent stimulation of cAMP accumulation in CHO cells expressing human β2, β1 and β3 adrenoceptors with pEC_{50}s of 9.6, 6.1, and 5.9, respectively [1].

IC_{50} & Target	β2 adrenoceptor	β1 adrenoceptor	β3 adrenoceptor
	9.6 (pEC50)	6.1 (pEC50)	5.9 (pEC50)

In Vitro

Salmeterol (0.001-25 μM) inhibits human T lymphocyte proliferation[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay[2]

Cell Line:	Human T lymphocytes (THP-1 cells)
Concentration:	0.001, 0.01, 0.05, 0.2, 1, 5, and 25 μM
Incubation Time:	
Result:	The proliferation of Th2 cells was inhibited in a concentration dependent manner.

In Vivo

Salmeterol (0.16 mg/kg), Formoterol (0.32 mg/kg) and combined treatment have therapeutic effects in mice with chronic obstructive pulmonary disease (COPD)[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male C57BL/6 mice (6-8 weeks old, body weight: 32-35 g)[3]
Dosage:	Salmeterol (0.16 mg/kg) and/or Formoterol (0.32 mg/kg)
Administration:	The therapeutic efficacy of co-treatment was investigated in this model over a 56-day-long observation period.
Result:	COPD assessment test scores were markedly improved in mice with COPD.

CUSTOMER VALIDATION

- Nat Commun. 2020 Sep 25;11(1):4857.
- Cell Rep. 2019 Dec 3;29(10):2929-2935.e4
- Neurobiol Dis. 2020 Jul;140:104874.
- J Pharmaceut Biomed. 2020, 113870.
- Drug Test Anal. 2020 Aug 27.

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REFERENCES

[1]. Panayiotis A Procopiou, et al. The discovery of long-acting saligenin β_2 adrenergic receptor agonists incorporating a urea group. Bioorg Med Chem. 2011 Oct 15;19(20):6026-32.

[2]. Malcolm Johnson. Effects of beta2-agonists on resident and infiltrating inflammatory cells. J Allergy Clin Immunol. 2002 Dec;110(6 Suppl):S282-90.

[3]. Zhiyuan Wang, et al. Efficacy of salmeterol and formoterol combination treatment in mice with chronic obstructive pulmonary disease. Exp Ther Med. 2018 Feb;15(2):1538-1545.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA