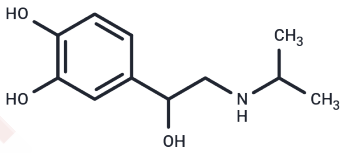
Data Sheet (Cat.No.T21411)

TargetMol

Isoprenaline

Chemical Properties



CAS No. : 7683-59-2

Formula: C11H17NO3

Molecular Weight: 211.26

Storage: Store at low temperature
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Isoprenaline(Norisodrine) is a non-selective and orally active β-adrenoceptor agonist. Isoproterenol is a potent peripheral vasodilator and bronchodilator.Isoproterenol can be used in the study of bradycardia and bronchial asthma for the treatment of heart block, bradycardia.
Targets(IC50)	Endogenous Metabolite,Adrenergic Receptor
In vitro	Isoproterenol (300 nM, 3 minutes) increased the activity of low-Km cAMP Phosphodiesterase (cAMP PDE) inhibited by granule cGMP and cilotamide by about 100% in intact rat adipocytes.[1] Isoprenaline (20 nM) increases the amplitude of total iK and causes a negative shift of approximately 10 mV in the activation curve for iK, both in the absence and in the presence of 300 nM nisoldipine to block the L-type Ca2+ current. Isoprenaline increases the spontaneous pacemaker rate of sino-atrial node pacemaker cells by 16% in rabbit-isolated pacemaker cells.[5]
In vivo	Isoproterenol (0.27-0. 64 μg/kg; oral; dog) is widely metabolized in dogs through relatively small amounts of reactions.[6]

Solubility Information

Solubility	DMSO: 120 mg/mL (568.02 mM),Sonication is recommended. H2O: Insoluble, (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Saline: 10 mg/mL (47.34 mM),Solution. *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	4.7335 mL	23.6675 mL	47.335 mL
5 mM	0.9467 mL	4.7335 mL	9.467 mL
10 mM	0.4734 mL	2.3668 mL	4.7335 mL
50 mM	0.0947 mL	0.4734 mL	0.9467 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

Degerman E, et al. Evidence that insulin and isoprenaline activate the cGMP-inhibited low-Km cAMP phosphodiesterase in rat fat cells by phosphorylation. Proc Natl Acad Sci U S A. 1990;87(2):533-537.
Chen S, Zhou X, Li W, et al.Development of a novel peptide targeting GPR81 to suppress adipocyte-mediated tumor progression.Biochemical Pharmacology.2023: 115800.
Nichtova Z, et al. Morphological and functional characteristics of models of experimental myocardial injury induced by isoproterenol. Gen Physiol Biophys. 2012 Jun;31(2):141-51.
Delpy E, et al. Effects of cyclic GMP elevation on isoprenaline-induced increase in cyclic AMP and relaxation in rat aortic smooth muscle: role of phosphodiesterase Br J Pharmacol. 1996;119(3):471-478.
Müller FU, et al. Isoprenaline stimulates gene transcription of the inhibitory G protein alpha-subunit Gi alpha-2 in rat heart. Circ Res. 1993;72(3):696-700.
Lei M, et al. Modulation of delayed rectifier potassium current, iK, by isoprenaline in rabbit isolated pacemaker cells. Exp Physiol. 2000;85(1):27-35.
Conolly ME, et al. Metabolism of isoprenaline in dog and man. Br J Pharmacol. 1972;46(3):458-472.
Yu C, et al. Cardioprotective effect of ocotillol, a derivate of pseudoginsenoside F11, on myocardial injury induced by isoproterenol in rats. Arzneimittelforschung. 2007;57(9):568-572.