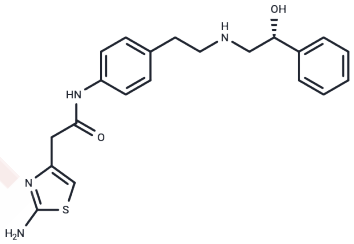
Data Sheet (Cat.No.T1671)

TargetMol

Mirabegron

Chemical Properties



CAS No. : 223673-61-8

Formula: C21H24N4O2S

Molecular Weight: 396.51

Storage: 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	Mirabegron (YM178) is a beta-3 adrenergic agonist that is used for treatment of overactive bladder syndrome.
Targets(IC50)	Adrenergic Receptor
In vitro	In anesthetized rats, intravenous injection of Mirabegron (3 mg/kg) was found to reduce the frequency of rhythmic bladder contractions without affecting the amplitude of contractions.
In vivo	In CHO cells expressing human β3-adrenergic receptors, Mirabegron increases intracellular cAMP accumulation in a concentration-dependent manner. Mirabegron can induce relaxation in rat bladder smooth muscle (EC50=5.1 μM) and human bladder smooth muscle (EC50=0.78 μM) pre-treated with carbachol at concentrations of 10^-6M or 10^-7M.
Cell Research	Mirabegron (YM178) is dissolved in 100% DMSO and diluted with assay buffer[1]. CHO cells (105) are seeded in each well of a 24-well culture plate and subcultured. Three days later, the medium is exchanged with 250 μL/well Hanks' balanced salt solution containing 0.1 mM 3-isobutyl-1-methylxanthine, pH 7.4. The cells are incubated with each compound (isoproterenol, Mirabegron, BRL37344, and CL316,243 at final concentrations of 10-10 to 10-4 M) for 10 min at 37°C, after which incubation is stopped by the addition of 250 μL of 0.2 M HCl. cAMP concentration in the reaction mixture is measured by radioimmunoassay using an 125I-cAMP assay system using a gamma counter. Fifty microliters of reaction mixture is incubated with 50 μL of succinyl agent for 10 min at room temperature, after which the reaction is stopped by the addition of 400 μL of buffer solution. Fifty microliters of succinylated sample is incubated with 50 μL of 125I-cAMP and 50 μL of anti-cAMP antibody for 24 h at 4°C. At the end of the incubation period, 250 μL of charcoal suspension is added and centrifuged for 10 min at 2800 g at 4°C. Two hundred and fifty microliters of supernatant is transferred into a tube and counted for 1 min using a gamma counter. The intrinsic activity (I.A.) relative to isoproterenol for each β-adrenoceptor agonist is calculated using the maximal response of each compound[1].

Solubility Information

Solubility	Ethanol: 8 mg/mL (20.18 mM),Sonication is recommended. DMSO: 252.5 mg/mL (636.81 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 (5.04 mM),Sonication is recommended. *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	2.522 mL	12.610 mL	25.220 mL
5 mM	0.5044 mL	2.522 mL	5.044 mL
10 mM	0.2522 mL	1.261 mL	2.522 mL
50 mM	0.0504 mL	0.2522 mL	0.5044 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

Takasu T, et al. J Pharmacol Exp Ther, 2007, 321(2), 642-647.
Takusagawa S, et al. Xenobiotica, 2012, 42(12), 1187-1196.
Aizawa N, et al. Eur Urol, 2012, 62(6):1165-1173.
Hatanaka T, et al. Naunyn Schmiedebergs Arch Pharmacol, 2013, 386(1), 71-78.