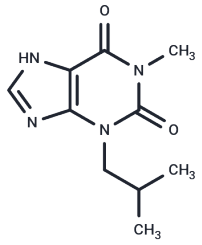
Data Sheet (Cat.No.T1713)

TargetMol
YOUR TARGET MOLECULES

IBMX

Chemical Properties



CAS No. : 28822-58-4

Formula: C10H14N4O2

Molecular Weight: 222.24

Appearance: no data available

Storage: store at low temperature
Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	IBMX (Methylisobutylxanthine) is a broad-spectrum phosphodiesterase (PDE) inhibitor with inhibitory activity against PDE3, PDE4, and PDE5 (IC50=6.5/26.3/31.7 μM). IBMX enhances the intracellular cAMP level.
Targets(IC50)	PDE
In vitro	**METHODS**: CCDs isolated from HK-fed rats were pretreated with IBMX (100 μM) for 20 min and examined the effect of ANG II or cGMP on channel activity. **RESULTS**: IBMX activated ROMK channels and prevented further channel activation by ANG II. [1] **METHODS**: Primary cultures of guinea pig TSMC were assayed for the effect of KMUP-1 on cAMP and cGMP levels in the presence of IBMX (100 μM). **RESULTS**: IBMX and KMUP-1 significantly increased cAMP and cGMP levels. The effect of KMUP-1 alone on cAMP and cGMP levels was not significantly different from that in the presence of IBMX. [2] **METHODS**: Mammalian cell CHO was treated with IBMX (10-1000 μM) and whole cell currents were measured using the membrane clamp technique. **RESULTS**: A steady-state dose-response curve for the effect of IBMX on THIK-1 currents could be fitted with a Hill coefficient of 1 and an IC50 of 120 μM.[3]
In vivo	**METHODS**: To test the metabolic effects on mice, IBMX (1 mg/kg) was injected subcutaneously into mice twice daily for seven days. **RESULTS**: IBMX significantly increased blood glucose levels in mice (blood glucose, mg/dl, control=141, IBMX=210). [4] **METHODS**: To test the metabolic effects on hyperglycemic mice, glucose (0.5 g/kg) and IBMX (1 mg/kg) were injected i.v. in femoral veins into Wistar rats. **RESULTS**: In hyperglycemic rats, IBMX lowered blood glucose, IBMX did not change plasma insulin levels, and IBMX decreased hepatic glycogen stores. [4]
Cell Research	Intracellular cyclic GMP and cyclic AMP concentrations in guinea-pig TSMCs were assayed as previously described. In brief, cells were grown in 24-well plates 10^5 cells per well. At confluence, monolayer cells were washed with phosphate buffer solution (PBS) and then incubated with KMUP-1 (0.1–100 μM) in the presence of 100 μM IBMX for 20 min. Incubation was terminated by the addition of 10% trichloroacetic acid (TCA). Cell suspensions were sonicated and then centrifuged at 2500 × g for 15 min at 4°C. To remove TCA, the supernatants were extracted three times with 5 volumes of water-saturated diethyl ether. Then, the supernatants were lyophilized and the cyclic GMP or

	AMP of each sample was determined by using commercially available radioimmunoassay kits [1].
Animal Research	Male mice (25-35 g), obtained from the animal house of Faculty of Medicine, were kept in controlled environmental conditions (temperature: 23±2 oC; light-dark cycle: 7 a.m. to 7 p.m.) and were divided randomly into groups of seven. All test compounds were dissolved in DMSO and diluted to desired concentration with less than 1% DMSO. For the experiment, the test compound (IBMX, milrinone, MCPIP, mc1, mc2, mc5 or mc6) or solvent (control) was injected subcutaneously to mice at 1 mg/kg dosage twice a day (8:00 a.m. and 8:00 p.m.) for 7 days. On day 8, animals were anesthetized with intraperitoneal injection of thiopental (80 mg/kg) and blood samples were obtained from their hearts and then the liver was dissected. Each sample was centrifuged for 5 min and its serum was separated [3].

Solubility Information

Solubility	H2O: 2.22mg/mL (10mM),Sonication is recommended. DMSO: 16.7 mg/mL(75 mM), Ethanol: 22.24mg/mL (100mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.4996 mL	22.4982 mL	44.9964 mL
5 mM	0.8999 mL	4.4996 mL	8.9993 mL
10 mM	0.450 mL	2.2498 mL	4.4996 mL
50 mM	0.090 mL	0.450 mL	0.8999 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.

Reference

Wei Y, et al. Angiotensin II type 2 receptor regulates ROMK-like K^+ channel activity in the renal cortical collecting duct during high dietary K^+ adaptation. Am J Physiol Renal Physiol. 2014 Oct 1;307(7):F833-43.