**Product Name**: IBMX
**Catalog Number**: T1713
**CAS Number**: 28822-58-4
**Molecular Formula**: C10H14N4O2
**Molecular Weight**: 222.24

**Description**: IBMX is a pan-phosphodiesterase (PDE) inhibitor (IC50s: 6.5/26.3/31.7 μM for PDE3/PDE4/PDE5).

**Storage**: 2 years -80°C in solvent; 3 years -20°C powder;

<table>
<thead>
<tr>
<th>Solubility</th>
<th>DMSO</th>
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<td>16.7 mg/mL (75 mM)</td>
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<td>(&lt; 1 mg/ml refers to the product slightly soluble or insoluble)</td>
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**Receptor (IC50)**

<table>
<thead>
<tr>
<th>Receptor</th>
<th>IC50 (μM)</th>
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<tbody>
<tr>
<td>PDE3</td>
<td>6.5±1.2μM</td>
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<tr>
<td>PDE4</td>
<td>26.3±3.9μM</td>
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<tr>
<td>PDE5</td>
<td>31.7±5.3μM</td>
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**In vitro Activity**

At 100 μM, KMUP-1 (a xanthine derivative) and IBMX are the most effective at inducing tracheal relaxation; the magnitude of the relaxation responses induced by KMUP-1 and IBMX are not significantly different[1]. IBMX (100 μM) activates renal outer medullary K+ (ROMK) channels (n=6, P<0.05) and prevents further channel activation by ANG II (n=6, P=NS) or cGMP. Of note is that pretreatment of cortical collecting duct (CCDs) isolated from high-K+ (HK)-fed rats with IBMX (100 μM) for 20 min leads to a significant increase in tubular cAMP content to 1.43±0.35 pg/mm tubule length (n=14) compare with that measured in vehicle-treated controls (0.61±0.13 pg/mm tubule length, n=12, P<0.05)[2].

**In vivo Activity**

IBMX, a non-selective PDE inhibitor significantly decreases the liver glycogen storage (mg/g, IBMX 22±1.5 P<0.001). IBMX potentiates insulin release and in hepatocytes and adipocytes, they increase glycogenolysis and lipolysis. In comparison with the control group, IBMX and mc5 significantly increase plasma glucose (blood glucose, mg/dL, control=141±3, IBMX=210±17 P<0.001 and mc5=191±13 P<0.01) while other test compounds (mc1, mc6, MCPIP and milrinone) do not produce significant effect (control=141±3, mc1=167±7, mc6=175±9, MCPIP=179±8 and milrinone 116±2 P>0.05) also mc2 does not change plasma glucose (control=141±3 and mc2=145±5). IBMX has the highest efficacy on increasing plasma glucose[3]. Treatments with IBMX and Apocynin significantly decrease cold-induced elevation of right ventricular (RV) systolic pressure (23.5±1.8 and 24.2±0.6 mmHg, respectively) although they do not decrease RV pressure to the warm control levels. IBMX or Apocynin significantly reduces medial layer thickness (19.0±0.9, and 16.9±0.8 μm, respectively) and increases lumen diameter (62.7±4.2, and 59.5±4.3 μm, respectively) of small PAs in cold-exposed rats[4].

**Cell Assay**

IBMX is dissolved in DMSO (10 mM) and stored, and then diluted with appropriate media before use[2]. Cells are grown in 24-well plates 105 cells per well. At confluence, monolayer cells are 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 is terminated by the addition of 10% trichloroacetic acid (TCA). Cell suspensions are sonicated and then centrifuged at 2500×g for 15 min at 4°C. To remove TCA, the supernatants are extracted three times with 5 volumes of water-saturated diethyl ether. Then, the supernatants are lyophilized and the cyclic GMP or AMP of each sample is determined by using commercially available radioimmunoassay kits[2].

**Cell line:**

**Animal Experiment**

**Animal Model**: rats
Reference


2. NA


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