

Product data sheet



MedKoo Cat#: 561233 Name: IBMX CAS: 28822-58-4 Chemical Formula: C ₁₀ H ₁₄ N ₄ O ₂ Exact Mass: 222.1117 Molecular Weight: 222.248		
Product supplied as:	Powder	
Purity (by HPLC):	≥ 98%	
Shipping conditions	Ambient temperature	
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years. In solvent: -80°C 3 months; -20°C 2 weeks.	

1. Product description:

IBMX is a competitive nonselective phosphodiesterase inhibitor. IBMX raises intracellular cAMP, activates PKA, inhibits TNF α and leukotriene synthesis, and reduces inflammation and innate immunity. IBMX is also a nonselective adenosine receptor antagonist.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under “QC And Documents” section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMF	5.0	22.50
DMSO	25.56	114.99
Ethanol	6.07	27.31

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	4.50 mL	22.50 mL	45.0 mL
5 mM	0.90 mL	4.50 mL	9.00 mL
10 mM	0.45 mL	2.25 mL	4.50 mL
50 mM	0.09 mL	0.45 mL	0.90 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of “Calculator”

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Han HJ, Park SK, Kang JY, Kim JM, Yoo SK, Heo HJ. Anti-Melanogenic Effect of Ethanolic Extract of Sorghum bicolor on IBMX-Induced Melanogenesis in B16/F10 Melanoma Cells. *Nutrients*. 2020 Mar 20;12(3):832. doi: 10.3390/nu12030832. PMID: 32245029; PMCID: PMC7146600.
2. Wei Y, Liao Y, Zavilowitz B, Ren J, Liu W, Chan P, Rohatgi R, Estilo G, Jackson EK, Wang WH, Satlin LM. 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. doi: 10.1152/ajprenal.00141.2014. Epub 2014 Aug 6. PMID: 25100281; PMCID: PMC4187043.

In vivo study

1. Hale BJ, Li Y, Adur MK, Ross JW. Inhibition of germinal vesicle breakdown using IBMX increases microRNA-21 in the porcine oocyte. *Reprod Biol Endocrinol*. 2020 May 11;18(1):39. doi: 10.1186/s12958-020-00603-1. PMID: 32393269; PMCID: PMC7212575.
2. Candia OA, Kong CW, Alvarez LJ. IBMX-elicited inhibition of water permeability in the isolated rabbit conjunctival epithelium. *Exp Eye Res*. 2008 Mar;86(3):480-91. doi: 10.1016/j.exer.2007.11.021. Epub 2007 Dec 23. PMID: 18234193; PMCID: PMC2288740.

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7. Bioactivity

Biological target:

IBMX is a broad-spectrum phosphodiesterase (PDE) inhibitor, with IC₅₀s of 6.5, 26.3 and 31.7 μ M for PDE3, PDE4 and PDE5, respectively.

In vitro activity

Subsequently, B16/F10 melanoma cells were treated with IBMX to analyze the effect of ESB on melanin production. As shown in Figure 4B, the level of melanin content increased to 316.85% when treated with IBMX. On the other hand, the ESB treated group (108.60%) at 10 μ g/mL concentration showed significantly decreased melanin contents compared to the IBMX treated group, and similar melanin contents compared to the arbutin group (101.79%) as a positive control.

Reference: Nutrients. 2020 Mar 20;12(3):832. <https://pubmed.ncbi.nlm.nih.gov/32245029/>

In vivo activity

There was a subsequent decrease in PDCD4 protein (0.75 ± 0.05 relative band intensity) in oocytes under IBMX inhibition at 24 h compared to control (1.2 ± 0.04 relative band intensity; $P = 0.03$; Fig. 2b). This suggests that IBMX inhibition of GVBD increased the abundance of MIR21 in the oocyte hastening the MIR21-driven decrease in PDCD4 abundance.

Reference: Reprod Biol Endocrinol. 2020 May 11;18(1):39. <https://pubmed.ncbi.nlm.nih.gov/32393269/>

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.