

Product data sheet



MedKoo Cat#: 329850 Name: Mabuterol free base CAS: 56341-08-3 (free base) Chemical Formula: C ₁₃ H ₁₈ ClF ₃ N ₂ O Exact Mass: 310.106 Molecular Weight: 310.7452	
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:

Mabuterol is a selective β₂ adrenoreceptor agonist. Mabuterol has a specific effect on beta 2-adrenoceptors with no beta 1-stimulation. Mabuterol inhibited the positive inotropic effect of isoprenaline at 10(-7) g/ml and decreased the maximum driving frequency at 3 X 10(-6) g/ml. Mabuterol was 3 times more potent in relaxing the isolated rat uterus, but 700 times less potent than isoprenaline in relaxing the rabbit jejunum. Mabuterol (p.o.) depressed the intestinal propulsion and was equipotent to isoprenaline and 2.5 times less potent than salbutamol.

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	30.0	96.54
DMSO	30.0	96.54
Ethanol	30.0	96.54

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.22 mL	16.09 mL	32.18 mL
5 mM	0.64 mL	3.22 mL	6.44 mL
10 mM	0.32 mL	1.61 mL	3.22 mL
50 mM	0.06 mL	0.32 mL	0.64 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. Gu Y, Yu X, Li X, Wang X, Gao X, Wang M, Wang S, Li X, Zhang Y. Inhibitory effect of mabuterol on proliferation of rat ASMCs induced by PDGF-BB via regulating [Ca²⁺]_i and mitochondrial fission/fusion. *Chem Biol Interact.* 2019 Jul 1;307:63-72. doi: 10.1016/j.cbi.2019.04.023. Epub 2019 Apr 19. PMID: 31009640.
2. Song X, Zhao C, Dai C, Ren Y, An N, Wen H, Pan LI, Cheng M, Zhang Y. Suppression of the increasing level of acetylcholine-stimulated intracellular Ca²⁺ in guinea pig airway smooth muscle cells by mabuterol. *Biomed Rep.* 2015 Nov;3(6):778-786. doi: 10.3892/br.2015.502. Epub 2015 Aug 4. PMID: 26623015; PMCID: PMC4660599.

In vivo study

1. Nakamura M, Yamaya M, Fukushima T, Sekizawa K, Sasaki H, Takishima T. Effect of mabuterol on tracheal mucociliary clearance of magnetized iron particles in anesthetized dogs. *Respiration.* 1991;58(1):33-6. doi: 10.1159/000195893. PMID: 1677208.

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2. Akahane K, Furukawa Y, Ogiwara Y, Haniuda M, Chiba S. Beta-adrenoceptor blocking effects of a selective beta 2-agonist, mabuterol, on the isolated, blood-perfused right atrium of the dog. Br J Pharmacol. 1989 Jul;97(3):709-16. doi: 10.1111/j.1476-5381.1989.tb12007.x. PMID: 2474351; PMCID: PMC1854580.

7. Bioactivity

Biological target:

Mabuterol is a selective β_2 adrenoceptor agonist.

In vitro activity

The inhibitory effect of Mab on S phase of ASM cell cycle induced by PDGF-BB was analyzed by flow cytometry (FCM). Fluo-3/AM, Ca^{2+} fluorescent probe, was used to detect Ca^{2+} fluorescence intensity by inverted microscope and flow cytometry. The results from inverted microscope and flow cytometry showed that Mab inhibited $[Ca^{2+}]_i$ in rat ASMCs induced by PDGF-BB. Cell cycle concept map illustrated that Mab significantly controlled the S phase of ASM cell cycle induced by PDGF-BB.

Reference: Chem Biol Interact. 2019 Jul 1;307:63-72. <https://pubmed.ncbi.nlm.nih.gov/31009640/>

In vivo activity

This study studied the effect of mabuterol on the tracheal mucociliary clearance of magnetized iron particles in anesthetized dogs. Mabuterol (10 micrograms/kg) increased clearance as much as isoproterenol (10 micrograms/kg) 30 min after intravenous injection relative to control measurement (p less than 0.01). These results suggest that mabuterol is useful to promote clearance.

Reference: Respiration. 1991;58(1):33-6. <https://pubmed.ncbi.nlm.nih.gov/1677208/>

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.