

# Product data sheet



MedKoo Cat#: 318682 Name: Salbutamol CAS#: 18559-94-9 (free base) Chemical Formula: C <sub>13</sub> H <sub>21</sub> NO <sub>3</sub> Exact Mass: 239.1521 Molecular Weight: 239.31		
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:

Salbutamol, also known as Albuterol, is a  $\beta$ 2-AR agonist. Salbutamol is a short-acting, selective beta2-adrenergic receptor agonist used in the treatment of asthma and COPD.

## 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
DMSO	100	417.87

## 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	4.18 mL	20.89 mL	41.7868 mL
5 mM	0.84 mL	4.18 mL	8.3574 mL
10 mM	0.42 mL	2.10 mL	4.1787 mL
50 mM	0.08 mL	0.42 mL	0.84 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

- Mukherjee M, Cingolani E, Pritchard DI, Bosquillon C. Enhanced expression of Organic Cation Transporters in bronchial epithelial cell layers following insults associated with asthma - Impact on salbutamol transport. Eur J Pharm Sci. 2017 Aug 30;106:62-70. doi: 10.1016/j.ejps.2017.05.052. Epub 2017 May 23. PMID: 28549677.
- Rivero EM, Piñero CP, Gargiulo L, Entschladen F, Zänker K, Bruzzone A, Lüthy IA. The  $\beta$  2-Adrenergic Agonist Salbutamol Inhibits Migration, Invasion and Metastasis of the Human Breast Cancer MDA-MB- 231 Cell Line. Curr Cancer Drug Targets. 2017;17(8):756-766. doi: 10.2174/1568009617666170330151415. PMID: 28359245.

### In vivo study

- Kumar A, Prajapati P, Singh G, Kumar D, Mishra V, Kim SC, Raorane CJ, Raj V, Kushwaha S. Salbutamol Attenuates Diabetic Skeletal Muscle Atrophy by Reducing Oxidative Stress, Myostatin/GDF-8, and Pro-Inflammatory Cytokines in Rats. Pharmaceuticals. 2023 Aug 8;15(8):2101. doi: 10.3390/pharmaceutics15082101. PMID: 37631314; PMCID: PMC10458056.
- Cardoso-Sousa L, Aguiar EMG, Caixeta DC, Vilela DD, Costa DPD, Silva TL, Cunha TM, Faria PR, Espindola FS, Jardim AC, Vieira AA, Oliveira TL, Goulart LR, Sabino-Silva R. Effects of salbutamol and phlorizin on acute pulmonary inflammation and disease severity in experimental sepsis. PLoS One. 2019 Sep 19;14(9):e0222575. doi: 10.1371/journal.pone.0222575. PMID: 31536570; PMCID: PMC6752759.

## 7. Bioactivity

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## Biological target:

Salbutamol is a short-acting, selective beta2-adrenergic receptor agonist that is 29 times more selective for beta2 receptors than beta1 receptors giving it higher specificity for pulmonary beta receptors versus beta1-adrenergic receptors located in the heart.

## In vitro activity

This study suggests that that salbutamol could be an effective adjuvant drug for the treatment of metastatic breast cancer. In IBH-6 and MDA-MB-231 cell lines, salbutamol significantly diminished cell migration. Also, salbutamol inhibited invasion of both breast cancer cell lines and enhanced adhesion to extracellular matrix. Salbutamol treatment was also able to decrease the expression of pro-metastatic genes in MDA-MB-231 cells.

Reference: Curr Cancer Drug Targets. 2017;17(8):756-766. <https://pubmed.ncbi.nlm.nih.gov/28359245/>

## In vivo activity

Salbutamol treatment significantly improved muscle strength and muscle coordination, and increased lean muscle mass in diabetic rats. Feret's diameter and cross-sectional area of GN muscle were increased by Salbutamol treatment, indicating the amelioration in diabetic rat muscle. Salbutamol treatment resulted in the restoration of perturbed metabolites, including histidine-to-tyrosine, phenylalanine-to-tyrosine, and glutamate-to-glutamine ratios and succinate, sarcosine, and 3-hydroxybutyrate in diabetic rats.

Reference: Pharmaceutics. 2023 Aug 8;15(8):2101. <https://pubmed.ncbi.nlm.nih.gov/37631314/>

*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.*