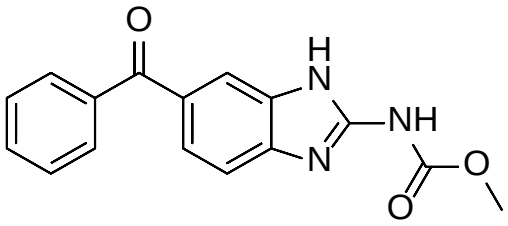
Product data sheet

MedKoo Cat#: 318175 Name: Mebendazole CAS: 31431-39-7 Chemical Formula: $C_{16}H_{13}N_3O_3$ Exact Mass: 295.0957 Molecular Weight: 295.298	
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:
Mebendazole is an Antihelminthic. Mebendazole is a benzimidazole that acts by interfering with carbohydrate metabolism and inhibiting polymerization of microtubules. Mebendazole interferes with the reproduction and survival of helminths by inhibiting the formation of their cytoplasmic microtubules, thereby selectively and irreversibly blocking glucose uptake. This results in a depletion of glycogen stores and leads to reduced formation of ATP required for survival and reproduction of the helminth.

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	5.09	17.22

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	3.39 mL	16.93 mL	33.87 mL
5 mM	0.68 mL	3.39 mL	6.77 mL
10 mM	0.34 mL	1.69 mL	3.39 mL
50 mM	0.07 mL	0.34 mL	0.68 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. Larsen AR, Bai RY, Chung JH, Borodovsky A, Rudin CM, Riggins GJ, Bunz F. Repurposing the antihelmintic mebendazole as a hedgehog inhibitor. Mol Cancer Ther. 2015 Jan;14(1):3-13. doi: 10.1158/1535-7163.MCT-14-0755-T. Epub 2014 Nov 5. PMID: 25376612; PMCID: PMC4297232.

2. Mukhopadhyay T, Sasaki J, Ramesh R, Roth JA. Mebendazole elicits a potent antitumor effect on human cancer cell lines both in vitro and in vivo. Clin Cancer Res. 2002 Sep;8(9):2963-9. PMID: 12231542.

In vivo study

1. Liu C, Zhang H, Yin J, Hu W. In vivo and in vitro efficacies of mebendazole, mefloquine and nitazoxanide against cyst echinococcosis. Parasitol Res. 2015 Jun;114(6):2213-22. doi: 10.1007/s00436-015-4412-4. Epub 2015 Mar 15. PMID: 25773183.

2. Bai RY, Staedtke V, Aprhys CM, Gallia GL, Riggins GJ. Antiparasitic mebendazole shows survival benefit in 2 preclinical models of glioblastoma multiforme. Neuro Oncol. 2011 Sep;13(9):974-82. doi: 10.1093/neuonc/nor077. Epub 2011 Jul 15. PMID: 21764822; PMCID: PMC3158014.

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7. Bioactivity

Biological target:

Mebendazole is a highly effective, broad-spectrum antihelmintic against nematode infestations. Mebendazole also exhibits inhibitory effect against glioblastoma multiforme (GBM), inhibits Hedgehog pathway and tubulin polymerization.

In vitro activity

In human cells, mebendazole suppressed the formation of the primary cilium, a microtubule-based organelle that functions as a signaling hub for Hh pathway activation.

Reference: Mol Cancer Ther. 2015 Jan;14(1):3-13. https://pubmed.ncbi.nlm.nih.gov/25376612/

In vivo activity

Mebendazole disrupted microtubule formation in GBM cells, and in vitro activity was correlated with reduced tubulin polymerization. Subsequently, this study showed that mebendazole significantly extended mean survival up to 63% in syngeneic and xenograft orthotopic mouse glioma models.

Reference: Neuro Oncol. 2011 Sep;13(9):974-82. https://pubmed.ncbi.nlm.nih.gov/21764822/

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.