

# Product data sheet



MedKoo Cat#: 120206 Name: Ibandronate sodium CAS: 138844-81-2 (sodium) Chemical Formula: C <sub>9</sub> H <sub>23</sub> NO <sub>7</sub> P <sub>2</sub> Molecular Weight: 341.2123		
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:

Ibandronate sodium is a potent bisphosphonate drug developed by Hoffman La Roche and used in the prevention and treatment of osteoporosis and metastasis-associated skeletal fractures in people with cancer. It may also be used to treat hypercalcemia (elevated blood calcium levels). Ibandronate is indicated for the treatment and prevention of osteoporosis in post-menopausal women. In May 2003, the U.S. Food and Drug Administration (FDA) approved Ibandronate as a daily treatment for post-menopausal osteoporosis. Ibandronate is efficacious for the prevention of metastasis-related bone fractures in multiple myeloma, breast cancer, and certain other cancers.

## 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
TBD	TBD	TBD

## 4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	2.93 mL	14.65 mL	29.31 mL
5 mM	0.59 mL	2.93 mL	5.86 mL
10 mM	0.29 mL	1.47 mL	2.93 mL
50 mM	0.06 mL	0.29 mL	0.59 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

- Han J, Yang J, Wang Q, Yin X, Sun Z, Huang C, Chen G, Zheng L, Jiang D. Ibandronate promotes autophagy by inhibiting Rac1-mTOR signaling pathway in vitro and in vivo. Cell Death Discov. 2022 Apr 9;8(1):186. doi: 10.1038/s41420-022-00995-6. PMID: 35397636; PMCID: PMC8994753.
- Lotz EM, Cohen DJ, Ellis RA, Wayne JS, Schwartz Z, Boyan BD. Ibandronate Treatment Before and After Implant Insertion Impairs Osseointegration in Aged Rats with Ovariectomy Induced Osteoporosis. JBMR Plus. 2019 Mar 6;3(7):e10184. doi: 10.1002/jbm4.10184. PMID: 31372590; PMCID: PMC6659452.

### In vivo study

- Ishimoto T, Saito M, Ozasa R, Matsumoto Y, Nakano T. Ibandronate Suppresses Changes in Apatite Orientation and Young's Modulus Caused by Estrogen Deficiency in Rat Vertebrae. Calcif Tissue Int. 2022 Jun;110(6):736-745. doi: 10.1007/s00223-021-00940-2. Epub 2022 Jan 6. PMID: 34989822; PMCID: PMC9108105.
- Takeda S, Sakai S, Tanaka K, Tomizawa H, Serizawa K, Yogo K, Urayama K, Hashimoto J, Endo K, Matsumoto Y. Intermittent Ibandronate Maintains Bone Mass, Bone Structure, and Biomechanical Strength of Trabecular and Cortical Bone After

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Discontinuation of Parathyroid Hormone Treatment in Ovariectomized Rats. *Calcif Tissue Int.* 2017 Jul;101(1):65-74. doi: 10.1007/s00223-017-0255-6. Epub 2017 Feb 28. PMID: 28246925; PMCID: PMC5486915.

## 7. Bioactivity

Biological target:

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Ibandronate Sodium is a highly potent nitrogen-containing bisphosphonate used for the treatment of osteoporosis.

### In vitro activity

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In lines with western blot, the results of autophagy flux and TEM assay further confirmed that autophagy, occurred in Ang II + IBAN group, was higher than that in the untreated and Ang II or IBAN-treated groups (Fig. 2B, C). Therefore, these findings demonstrated that IBAN promoted autophagy in Ang II-treated HUVECs and human pulmonary microvascular endothelial cells (HPMECs).

Reference: *Cell Death Discov.* 2022 Apr 9;8(1):186. <https://pubmed.ncbi.nlm.nih.gov/35397636/>

### In vivo activity

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Administration of IBN (ibandronate) at 1 µg/kg (IBN\_1) was insufficient for the suppression of bone loss and morphological change in trabeculae; however, administration of 3 µg/kg (IBN\_3) and 10 µg/kg (IBN\_10) significantly suppressed the osteoporotic changes induced by estrogen deficiency.

Reference: *Calcif Tissue Int.* 2022 Jun;110(6):736-745. <https://pubmed.ncbi.nlm.nih.gov/34989822/>

*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.*