Zoledronic Acid

Inhibitor of bone resorption; inhibits farnesyl diphosphate (FPP) synthase

Catalog # 73572

50 mg

Product Description

Zoledronic acid is a nitrogen-containing bisphosphonate that inhibits farnesyl diphosphate (FPP) synthase (IC₅₀ = 5 nM), thereby preventing protein prenylation and osteoclast-mediated bone resorption (Dunford et al.). In addition, it has a high affinity for hydroxyapatite (Ki = 3.5 µM), which allows it to bind directly to mineralized bone (Nancollas et al.). This product is supplied as the hydrate form of the molecule.

Molecular Name: Zoledronic Acid (Hydrate)
Alternative Names: Zoledronate
CAS Number: 165800-06-6
Chemical Formula: C₅H₁₆N₂O₇P₂·H₂O
Molecular Weight: 290.1 g/mol
Purity: ≥ 95%
Chemical Name: (1-Hydroxy-2-imidazol-1-ylethylidene)diphosphonic acid monohydrate
Structure:

![Zoledronic Acid Structure](image)

Properties

Physical Appearance: A crystalline solid
Storage: Product stable at -20°C as supplied. Protect from prolonged exposure to light. Stable as supplied for 12 months from date of receipt.
Solubility: · PBS (pH 7.2) ≤ 5 mM
For example, to prepare a 1 mM stock solution in PBS, resuspend 50 mg in 172 mL of PBS (pH 7.2).

Prepare stock solution fresh before use. Information regarding stability of small molecules in solution has rarely been reported, however, as a general guide we recommend storage in PBS at -20°C. Aliquot into working volumes to avoid repeated freeze-thaw cycles. The effect of storage of stock solution on compound performance should be tested for each application.

For use as a cell culture supplement, stock solution should be diluted into culture medium immediately before use.
Published Applications

CANCER RESEARCH
- Inhibits proliferation, angiogenesis, and adhesion to bone in several cancer cell lines (Li & Davis; Zekri et al.).
- Inhibits breast and prostate carcinoma cell invasion in vitro (Boissier et al.; Li & Davis).
- Induces apoptosis of osteoclastoma cells in vitro (Benford et al.).

References

Related Small Molecules
For a complete list of small molecules available from STEMCELL Technologies, visit www.stemcell.com/smallmolecules or contact us at techsupport@stemcell.com.

This product is hazardous. Please refer to the Safety Data Sheet (SDS).