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# Piridronic Acid

National Cancer Institute

## Source

National Cancer Institute. *Piridronic Acid*. NCI Thesaurus. Code C66420.

A synthetic pyridinyl bisphosphonate with anti-resorptive activity. Although the exact mechanism of action has yet to be fully elucidated, piridronic acid likely binds to hydroxyapatite crystals in the bone matrix and inhibits farnesyl pyrophosphate synthase, an enzyme that plays an important role in the mevalonate pathway. This inhibits the formation of isoprenoid metabolites that are substrates for protein prenylation. This prevents farnesylation and geranylgeranylation of proteins essential for osteoclast function, leading to the induction of apoptosis and eventually, osteoclast-cell death. By preventing osteoclast-mediated bone resorption, piridronic acid decreases bone turnover and stabilizes the bone matrix.