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Ibandronic Acid

National Cancer Institute

Source

National Cancer Institute. *Ibandronic Acid*. NCI Thesaurus. Code C65874.

A third-generation amino-bisphosphonate with anti-resorptive and anti-hypercalcemic activities. Ibandronic acid binds to and adsorbs onto the surface of hydroxyapatite crystals in the bone matrix, thereby preventing osteoclast resorption. This agent also inhibits farnesyl pyrophosphate synthase, an enzyme involved in the mevalonate pathway. Inhibition of this enzyme prevents the formation of isoprenoids, thereby leading to a reduction in the farnesylation and geranylgeranylation of signaling proteins of G protein-coupled signaling, and, eventually, inducing apoptosis of osteoclasts. By inhibiting osteoclast-mediated bone resorption, ibandronic acid increases bone mineral density, decreases bone remodeling and turnover, as well as reduces bone pain.