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Pamidronic Acid

National Cancer Institute

Source

National Cancer Institute. *Pamidronic Acid*. NCI Thesaurus. Code C61875.

An amino- bisphosphonate with anti-resorptive and anti-hypercalcemic activities. Pamidronic acid binds to and adsorbs onto hydroxyapatite crystals in the bone matrix, thereby preventing osteoclast resorption. This agent also binds to 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 of osteoclasts. By preventing osteoclast-mediated bone resorption, pamidronic acid decreases bone turnover rate, stabilizes the bone matrix and reduces hypercalcemia.