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Alendronate Sodium

National Cancer Institute

Source

National Cancer Institute. *Alendronate Sodium*. NCI Thesaurus. Code C973.

The sodium salt of alendronate, a second generation bisphosphonate and synthetic analog of pyrophosphate with bone anti-resorption activity. Alendronate sodium binds to and inhibits the activity of geranyltranstransferase (farnesyl pyrophosphate synthetase), an enzyme involved in terpenoid biosynthesis. Inhibition of this enzyme prevents the biosynthesis of isoprenoid lipids (FPP and GGPP) that are donor substrates of farnesylation and geranylgeranylation during the post-translational modification of small GTPase signalling proteins, which is important in the process of osteoclast turnover. As a result, osteoclast activity is inhibited and bone resorption and turnover are reduced.