HDAC Inhibitor MPT0E028

National Cancer Institute

Source

National Cancer Institute. HDAC Inhibitor MPT0E028. NCI Thesaurus. Code C120312.

An orally bioavailable N-hydroxyacrylamide-derived inhibitor of both human pan-histone deacetylase (HDAC) enzymes and the serine/threonine protein kinase Akt (protein kinase B), with potential antineoplastic activity. Upon administration, HDAC inhibitor MPT0E028 selectively binds to and inhibits HDACs, which inhibits deacetylation of histone proteins and leads to the accumulation of highly acetylated histones. This may result in both an induction of chromatin remodeling, and the selective transcription of tumor suppressor genes. This prevents cell division and induces both cell cycle arrest and apoptosis, which may inhibit the proliferation of susceptible tumor cells. In addition, MPT0E028 inhibits the phosphorylation and activation of Akt, which prevents the activation of downstream signaling pathways, independent of its HDAC inhibitory activity. HDACs, upregulated in many tumor cell types, are a family of enzymes that deacetylate histone proteins. Akt, overexpressed in many tumor cell types, plays a key role in tumor cell proliferation and survival.