

PX-12

Chemical Properties

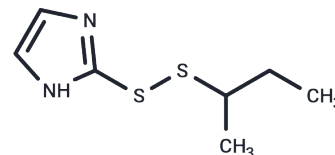
CAS No. : 141400-58-0

Formula: C7H12N2S2

Molecular Weight: 188.31

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year



Biological Description

Description	PX-12 (PX12) (1-methylpropyl 2-imidazolyl disulfide) is a small-molecule inhibitor of Trx-1 (thioredoxin-1), stimulates apoptosis, down-regulates HIF-1 α and vascular endothelial growth factor (VEGF) and inhibits tumor growth in animal models. Since high levels of Trx-1 have been associated with colorectal, gastric and lung cancers, PX-12 is indicated as a potential cancer treatment in combination with chemotherapy for patients with advanced metastatic cancer. Initial trials correlated doses of Px-12 with increased patient survival.
Targets(IC50)	Thioredoxin
In vitro	In MCF-7 and HT-29 cells, PX-12 prevents the hypoxia (1% oxygen)-induced increase in HIF-1 α protein, and decreases HIF-1-trans-activating activity, VEGF formation, and inducible nitric oxide synthase. PX-12 also inhibits the growth of MCF-7 and HT-29 cells with IC50s of 1.9 μ M and 2.9 μ M, respectively. [1] PX-12 also inhibits HIF-1 α protein levels through an Nrf2/PMF-1-mediated increase. [2] In A549 cells, PX-12 inhibits cell growth via G2/M phase arrest, and Bax-mediated and ROS-dependent apoptosis. [3] In hepatocellular carcinoma cells, PX-12 exerts a synergistic effect with 5-FU to significantly suppress tumorigenicity. [4]
In vivo	In mice bearing MCF-7 tumor xenografts, PX-12 (12 mg/kg, i.p.) decreases HIF-1 α and VEGF protein levels and microvessel density. [1]
Cell Research	Cell growth is measured using the 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide assay. Cells are exposed to a range of concentrations of PX-12 or pleurotin for 16 h in air or hypoxia (1% oxygen). The cells are then washed with warm drug-free medium and grown in air for the remainder of the 72-h incubation.(Only for Reference)

Solubility Information

Solubility	H2O: < 1 mg/mL (insoluble or slightly soluble), Ethanol: 38 mg/mL (201.79 mM), DMSO: 18.8 mg/mL(100 mM), < 1 mg/ml refers to the product slightly soluble or insoluble)
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Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	5.3104 mL	26.552 mL	53.1039 mL
5 mM	1.0621 mL	5.3104 mL	10.6208 mL
10 mM	0.531 mL	2.6552 mL	5.3104 mL
50 mM	0.1062 mL	0.531 mL	1.0621 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Welsh SJ, et al. Mol Cancer Ther. 2003, 2(3), 235-243.

Kim YH, et al. Cancer Chemother Pharmacol. 2011, 68(2), 405-413.

Inhibitor · Natural Compounds · Compound Libraries · Recombinant Proteins

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Tel: 781-999-4286 E_mail: info@targetmol.com Address: 36 Washington Street, Wellesley Hills, MA 02481