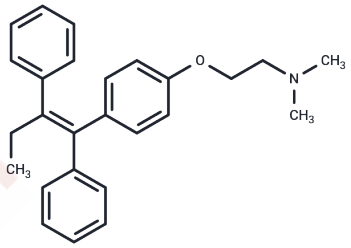
Data Sheet (Cat.No.T6906)

TargetMol

Tamoxifen

Chemical Properties



CAS No. : 10540-29-1

Formula: C26H29NO

Molecular Weight: 371.51

Storage: Keep away from direct sunlight,Keep away from moisture
Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	Tamoxifen is an orally active selective estrogen receptor modulator (SERM) that acts as an estrogen antagonist in breast cells and an agonist in bone, liver, and uterine cells. It can be used to induce gene knockout and liver injury models in mice, and also exhibits multiple biological activities, including activation of Hsp90, induction of autophagy and apoptosis, and inhibition of EBOV and MARV viral infections.
Targets(IC50)	Apoptosis,Estrogen Receptor/ERR,HSP,Estrogen/progestogen Receptor,Autophagy
In vitro	**METHODS**: Human breast cancer cells MCF-7 were treated with Tamoxifen (0.25-4 μM) for 24 h. Cell viability was measured using the CCK-8. **RESULTS**: Tamoxifen significantly inhibited the proliferation of MCF-7 cells in a dose-dependent manner. [1] **METHODS**: ER-negative breast cancer cells SK-BR3, MDA-MB-453, MDA-MB-468, MDA-MB-231, and HCC-1937 were treated with Tamoxifen (1-10 μM) for 24-36 h, and apoptosis was detected using Flow Cytometry. **RESULTS**: Tamoxifen induced apoptosis in MDA-MB-231, MDA-MB-468, MDA-MB-453 and SK-BR3 cells in a dose- and time-dependent manner, while no significant apoptotic effect was observed in HCC-1937 cells. [2]
In vivo	**METHODS**: To test the antitumor activity in vivo, Tamoxifen (100 mg/kg) was administered orally to NCr athymic nude mice bearing ER-negative breast cancer tumors MDA-MB-468 or HCC-1937 three times per week for four to five weeks. **RESULTS**: Tamoxifen significantly inhibited the growth of MDA-MB-468 tumors, whereas the growth of HCC-1937 tumors was not affected. [2] **METHODS**: To test the effect on mouse behavior, Tamoxifen (75 mg/kg in 10% ethanol+90% sunflower seed oil) was administered intraperitoneally to C57BL/6 mice once a day for seven days. **RESULTS**: Tamoxifen affects motor activity, socialization, and anxiety in mice. [3]

Solubility Information

Solubility	DMSO: 12.5 mg/mL (33.65 mM),Sonication is recommended. Ethanol: 100 mg/mL (269.17 mM),Sonication and heating are recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

In vivo Formulation	Corn oil: 40 mg/mL (107.67 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.6917 mL	13.4586 mL	26.9172 mL
5 mM	0.5383 mL	2.6917 mL	5.3834 mL
10 mM	0.2692 mL	1.3459 mL	2.6917 mL
50 mM	0.0538 mL	0.2692 mL	0.5383 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.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Li W, et al. Tamoxifen promotes apoptosis and inhibits invasion in estrogen-positive breast cancer MCF-7 cells. Mol Med Rep. 2017 Jul;16(1):478-484.

Li J, Yu F, Guo H, et al. Crystal structure of plant PLDα1 reveals catalytic and regulatory mechanisms of eukaryotic phospholipase D. Cell Research. 2020, 30(1): 61-69.

Liu CY, et al. Tamoxifen induces apoptosis through cancerous inhibitor of protein phosphatase 2A-dependent phospho-Akt inactivation in estrogen receptor-negative human breast cancer cells. Breast Cancer Res. 2014 Sep 17;16(5):431.

Li W, Lin J, Shi Z, et al. Clomiphene citrate induces nuclear translocation of the TFEB transcription factor and triggers apoptosis by enhancing lysosomal membrane permeabilization. Biochemical Pharmacology. 2019 Apr; 162:191-201

Estrogen-induced FXR1 promotes endocrine resistance and bone metastasis in breast cancer via BCL2 and GPX4

Li X, et al. The effects of tamoxifen on mouse behavior. Genes Brain Behav. 2020 Apr;19(4):e12620.

Li W, Lin J, Shi Z, et al. Clomiphene citrate induces nuclear translocation of the TFEB transcription factor and triggers apoptosis by enhancing lysosomal membrane permeabilization[J]. Biochemical pharmacology. 2019 Apr; 162:191-201.

Li J, Yu F, Guo H, et al. Crystal structure of plant PLDα1 reveals catalytic and regulatory mechanisms of eukaryotic phospholipase D[J]. Cell Research. 2020, 30(1): 61-69.