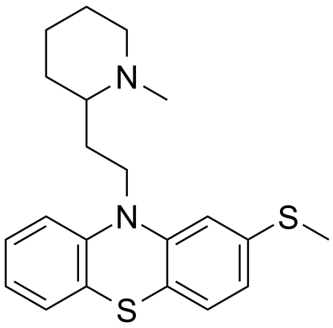
Thioridazine

Cat. No.:	HY-B0965A
CAS No.:	50-52-2
Molecular Formula:	$C_{21}H_{26}N_2S_2$
Molecular Weight:	370.57
Target:	Dopamine Receptor; Apoptosis; 5-HT Receptor; Autophagy; Bacterial
Pathway:	GPCR/G Protein; Neuronal Signaling; Apoptosis; Autophagy; Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Thioridazine, an antagonist of the dopamine receptor D2 family proteins, exhibits potent anti-psychotic and anti-anxiety activities. Thioridazine is also a potent inhibitor of PI3K-Akt-mTOR signaling pathways with anti-angiogenic effect. Thioridazine shows antiproliferative and apoptosis induction effects in various types of cancer cells, with specificity on targeting cancer stem cells (CSCs)[1][2][3][4].

In Vitro

Thioridazine (0.01-100 μM; 48 h) reduces the cell viability of NCI-N87 and AGS cells in a concentration-dependent manner[2].
Thioridazine (15 μM; 24 h) reduces cell viability of the cervical (HeLa, Caski and C33A) and endometrial (HEC-1-A and KLE) cancer cells[4].
Thioridazine (1-15 μM; 24-48 h) induces gastric cancer cell death via the mitochondrial apoptosis pathway and mitochondrial pathway[2].
Thioridazine (15 μM; 24 h) modulates the regulation of cell cycle progression by interfering with the PI3K/Akt pathway and induces G_1 cell cycle arrest in cervical and endometrial cancer cells [4].
Thioridazine inhibits the growth of antibiotic-sensitive and multidrug-resistant strains of A. baumannii[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	NCI-N87 and AGS cells.
Concentration:	0.01, 0.1, 0.5, 1, 5, 10, 20, 50, 100 μM.
Incubation Time:	48 hours.
Result:	Exhibited cytotoxicity in gastric cancer cells.

Western Blot Analysis[1]

Cell Line:	NCI-N87 and AGS cells
Concentration:	1, 5, 10, 15 μM.
Incubation Time:	24, 48 hours.
Result:	Downregulated the precursors of caspase-9, caspase-8 and caspase-3.

In Vivo

Thioridazine (25 mg/kg; i.p. every 3 days for 3 weeks) extends the survival of tumor-bearing mice and reduces the number of

pluripotent embryonal carcinoma (EC) cells within tumors[5].
Thioridazine (1.0-5.0 mg/kg; s.c.) reduces oral behavior and selectively blocks repetitive head bobbing[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Nude and Rag2KO mice were injected with iPS cells or NT2D1 cells[5]
Dosage:	25 mg/kg.
Administration:	I.p. every 3 days for 3 weeks.
Result:	Reduced the number of OCT4-expressing cells within malignant teratocarcinomas and extended the survival of tumor-bearing mice. With no effect on fertility.

CUSTOMER VALIDATION

- Int J Biol Macromol. 25 December 2021.
- Pol J Microbiol. 2019 Dec;68(4):477-491.

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REFERENCES

[1]. Tschanz JT, et, al. Atypical antipsychotic drugs block selective components of amphetamine-induced stereotypy. Pharmacol Biochem Behav. 1988 Nov;31(3):519-22.

[2]. Mu J, et, al. Thioridazine, an antipsychotic drug, elicits potent antitumor effects in gastric cancer. Oncol Rep. 2014 May;31(5):2107-14.

[3]. Kang S, et, al. Thioridazine induces apoptosis by targeting the PI3K/Akt/mTOR pathway in cervical and endometrial cancer cells. Apoptosis. 2012 Sep;17(9):989-97.

[4]. Loehr AR, et, al. Targeting Cancer Stem Cells with Differentiation Agents as an Alternative to Genotoxic Chemotherapy for the Treatment of Malignant Testicular Germ Cell Tumors. Cancers (Basel). 2021 Apr 23;13(9):2045.

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