Product Data Sheet

Product Name: Haloperidol
Cat. No.: GC17599

Chemical Properties

Cas. No.	52-86-8		
Chemical Name	4-[4-(4-chlorophenyl)-4-hydroxypiperidin-1-yl]-1-(4-fluorophenyl)butan-1-one		
SMILES	C1CN(CCC1(C2=CC=C(C=C2)Cl)O)CCCC(=O)C3=CC=C(C=C3)F		
Formula	$C_{21}H_{23}ClFNO_2$	M.Wt	375.86
Solubility	100mg/mL in DMSO（ultrasonic and warming and heat to 60°C)	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

Caution: Product has not been fully validated for medical applications. For research use only.
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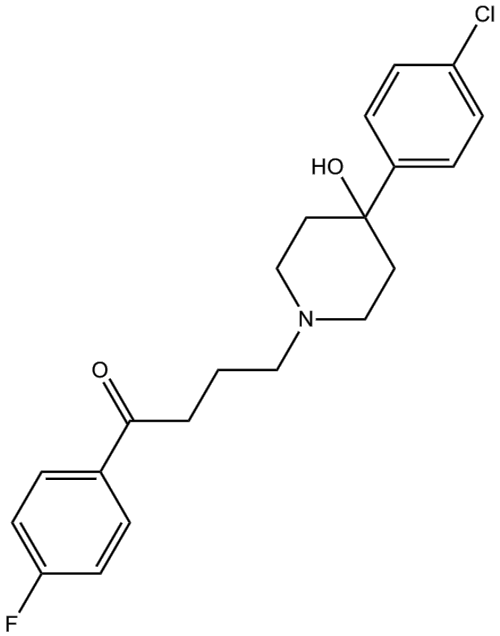
Structure



Protocol

Cell experiment [1]:

Cell lines	U87 and U251 cell lines
Preparation Method	U87 and U251 cells were exposed to increasing concentrations of Haloperidol for 72 h, and cell viability was measured using the MTT assay.
Reaction Conditions	5, 10, 20, 50 and 100 μM, 72 h

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Applications	Haloperidol inhibited the viability of U87 and U251 cells with IC_{50} values of 23 μM and 38 μM, respectively.

Animal experiment [2]:

Animal models	Adult female Long-Evans rats
Preparation Method	After intraperitoneal injection of haloperidol, the rats were decapitated and the brain tissue was removed for frozen sections.
Dosage form	1, 2.5, 5, 7.5 or 10 mg/kg, 2 h, i.p.
Applications	Haloperidol in large doses reduces the cataleptic response and increases noradrenaline metabolism in the brain of the rat.

References:

[1] Papadopoulos F, Isihou R, Alexiou G A, et al. Haloperidol induced cell cycle arrest and apoptosis in glioblastoma cells[J]. Biomedicines, 2020, 8(12): 595.

[2] Toru M, Takashima M. Haloperidol in large doses reduces the cataleptic response and increases noradrenaline metabolism in the brain of the rat[J]. Neuropharmacology, 1985, 24(3): 231-236.

Background

Haloperidol is a classic antipsychotic and dopamine D2-like receptor antagonist, as well as an ion channel inhibitor that inhibits a variety of ion channels, such as G-protein-activated inwardly rectifying potassium channels, calcium-activated potassium channels, HERG and HEAG potassium channels, as well as L-, N- and P-type calcium channels[1-4].

Haloperidol (5-100 μM) treatment significantly decreased the viability of U87, U251, and T98 cells with IC_{50} values of 23, 38, and 35 μM, respectively. Haloperidol induced apoptosis of glioblastoma cells in a dose-dependent manner and inhibited cell migration and expression of CD24 and CD44[2].

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Nontoxic concentrations of Haloperidol (1-30 μM) showed a dose-dependent enhancement of VBL cytotoxicity in VBL-resistant human leukemia (K562/VBL) cells, but had no similar effect in parent cells[3].

In adult male Sprague-Dawley rats, Haloperidol (0.05 and 2 mg/kg) had no effect on cell proliferation in the dentate gyrus (DG) and the number of surviving newly generated neurons in DG after bromodeoxyuracil (BrdU) administration[4]. In adult male Wistar rats treated with Haloperidol (1-10 mg/kg), levels of the thiobarbituric acid (TBA) active substance (TBAR) in the striatum (ST) were increased and TBAR levels in the cortex (CX) were decreased[5].

References:
[1] Yang S B, Proks P, Ashcroft F M, et al. Inhibition of ATP-sensitive potassium channels by haloperidol[J]. British journal of pharmacology, 2004, 143(8): 960-967.
[2] Papadopoulos F, Isihou R, Alexiou G A, et al. Haloperidol induced cell cycle arrest and apoptosis in glioblastoma cells[J]. Biomedicines, 2020, 8(12): 595.
[3] Kataoka Y, Ishikawa M, Miura M, et al. Reversal of vinblastine resistance in human leukemic cells by haloperidol and dihydrohaloperidol[J]. Biological and Pharmaceutical Bulletin, 2001, 24(6): 612-617.
[4] Halim N D, Weickert C S, McClintock B W, et al. Effects of chronic haloperidol and clozapine treatment on neurogenesis in the adult rat hippocampus[J]. Neuropsychopharmacology, 2004, 29(6): 1063-1069.
[5] Toru M, Takashima M. Haloperidol in large doses reduces the cataleptic response and increases noradrenaline metabolism in the brain of the rat[J]. Neuropharmacology, 1985, 24(3): 231-236.

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