Phenoxodiol

Cat. No.: HY-13721

CAS No.: 81267-65-4

Molecular Formula: $C_{15}H_{12}O_3$

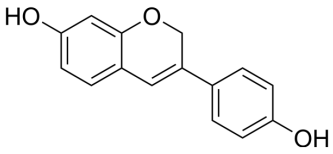
Molecular Weight: 240

Target: Caspase; Apoptosis; Topoisomerase

Pathway: Apoptosis; Cell Cycle/DNA Damage

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (416.67 mM)

H_2O : < 0.1 mg/mL (insoluble)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	4.1667 mL	20.8333 mL	41.6667 mL
5 mM	0.8333 mL	4.1667 mL	8.3333 mL
10 mM	0.4167 mL	2.0833 mL	4.1667 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (10.42 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (10.42 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (10.42 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Phenoxodiol (Idronoxil), a synthetic analog of Genestein, activates the mitochondrial caspase system, inhibits XIAP (an apoptosis inhibitor), and sensitizes the cancer cells to Fas-mediated apoptosis. Phenoxodiol also inhibits DNA topoisomerase II by stabilizing the cleavable complex. Phenoxodiol induces cell cycle arrest in the G1/S phase of the cell cycle and upregulates $p21^{WAF1}$ via a p53 independent manner[1][2].

IC_{50} & Target	Caspase, DNA topoisomerase II[1][2].

In Vitro

Phenoxodiol (Idronoxil) (0-10 μg/mL; 24 h) decreases cell viability of primary ovarian cancer cells[1].

Phenoxodiol (0-10 μg/mL; 24 h) induces apoptosis and restores sensitivity to Fas-mediated apoptosis in ovarian cancer cells [1].

Phenoxodiol (0-10 μg/mL; 24 h) induces caspase-8 activation and FLIP downregulation through the Akt-pathway. Phenoxodiol-induced apoptosis involves activation of the mitochondrial pathway and is caspase dependent. Phenoxodiol treatment results in downregulation and cleavage of XIAP[1].

Phenoxodiol (10 and 30 μM; 24 and 48 h) induces cell cycle arrest in the G1/S phase of the cell cycle in prostate cancer cells[2] .

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	R182s, R127, Hey, CP70, A2780, R187, R188, R207 and OSE cells
Concentration:	0, 0.01, 0.1, 1 and 10 μg/mL
Incubation Time:	24 h
Result:	A significant decrease in cell viabilityin all the ovarian cancer cell cultures was observed at a concentration of 10 μg/mL (41.6 μM) and did not affect ovarian surface epithelial (OSE) cells' viability. In CP70 cells, the IC_{50} was 1.35 μM.

Apoptosis Analysis[1]

Cell Line:	CP70 and OSE cells
Concentration:	10 μg/mL
Incubation Time:	24 h
Result:	Induced apoptosis and resulted in a twofold increase in caspase-3 activity. No change incaspase-3 activity was found in normal OSE cells.

Western Blot Analysis[1]

Cell Line:	Ovarian cancer cells
Concentration:	10 μg/mL
Incubation Time:	24 h
Result:	Induced caspase-8 activation, characterized bycleavage of procaspase-8 into its p43/41 andp28 forms and in downregulation of the p43 form of FLIPC in all the primarycultures as well as in the CP70 and Hey cell lines. Decreased the levels of Akt expression. Resulted in XIAP downregulation and cleavage to its 30 kDa inactive form.

Cell Cycle Analysis[2]

Cell Line:	LNCaP, DU145 and PC3 cells
Concentration:	10 and 30 μM
Incubation Time:	24 and 48 h
Result:	Induced significantly decreased G2 phase cell populations versus DMSO vehicle control, over 24 hours for both 10 μM and 30 μM treatments. The S phase cell population was found to increase versus DMSO vehicle control.

RT-PCR[2]

Cell Line:	LNCaP, DU145 and PC3 cells
Concentration:	10 and 30 μM
Incubation Time:	24 and 48 h
Result:	PC3 cells were found to significantly increase the expression of c-Myc at 30 μM after 48 h. Decreased the expression of Cyclin-D1 after 24 hours of treatment with 30 μM in DU145 and PC3 cells. Decreased the expression of Ki-67 after 24 hours of treatment with 10 and 30 μM in LNCaP and PC3 cells. Increased the expression of p21 in LNCaP and PC3 cells.

REFERENCES

[1]. Kamsteeg M, et al. Phenoxodiol--an isoflavone analog--induces apoptosis in chemoresistant ovarian cancer cells. Oncogene. 2003 May 1;22(17):2611-20.

[2]. Mahoney S, et al. The effects of phenoxodiol on the cell cycle of prostate cancer cell lines. Cancer Cell Int. 2014 Nov 8;14(1):110.

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