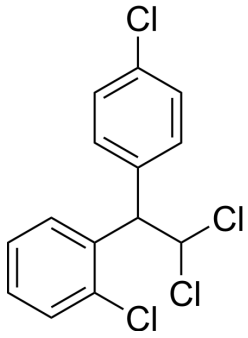
# Mitotane

| | |
|---|---|
| **Cat. No.:** | HY-13690 |
| **CAS No.:** | 53-19-0 |
| **Molecular Formula:** | $C_{14}H_{10}Cl_4$ |
| **Molecular Weight:** | 320.04 |
| **Target:** | Apoptosis |
| **Pathway:** | Apoptosis |
| **Storage:** | Powder -20°C 3 years<br>4°C 2 years<br>In solvent -80°C 2 years<br>-20°C 1 year |




## SOLVENT & SOLUBILITY

**In Vitro**

DMSO : ≥ 100 mg/mL (312.46 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 | 3.1246 mL | 15.6230 mL | 31.2461 mL |
| 5 mM | 0.6249 mL | 3.1246 mL | 6.2492 mL |
| 10 mM | 0.3125 mL | 1.5623 mL | 3.1246 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 (7.81 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: 2.5 mg/mL (7.81 mM); Suspended solution; Need ultrasonic
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (7.81 mM); Clear solution

## BIOLOGICAL ACTIVITY

**Description**

Mitotane (2,4'-DDD), an isomer of DDD and derivative of dichlorodiphenyltrichloroethane (DDT), is an antineoplastic agent, can be used to research adrenocortical carcinoma. Mitotane exert its adrenocorticolytic effect at least in part through lipotoxicity induced by intracellular free cholesterol (FC) accumulation. Mitotane can have direct pituitary effects on corticotroph cells. Mitotane can induce CYP3A4 gene expression via steroid and xenobiotic receptor (SXR) activation, and has agent-agent interactions[1][2][3][4].

| | |
|---|---|
| **$IC_{50}$ & Target** | Apoptosis[1] |
| **In Vitro** | Mitotane (1 nM-100 μM; 6 days) significantly reduces H295R cell proliferation[1].<br>Mitotane (10-100 μM; 6 or 48 h; TαT1 cells) reduces TαT1 cell viability in time- and dose-dependent manners; significantly and dose dependently increases caspase 3/7 activity from 60 μM to 80 μM; induced a significant and dose-dependent reduction in TSH secretion and TSH β-subunit mRNA expression from 40 μM to 100 μM[2].<br>Mitotane (1-30 μM; 24 h; HepG2) increases transcription of the CYP3A4 and CYP2B6 gene in a dose-dependent manner[3].<br>Mitotane (20 and 40 μM; 6 h) significantly reduces the number of neutral lipid droplets per cell in HepaRG, also induces a significant decrease in triacylglycerol-labeled lipid droplets; decreases the expression levels of PLIN1 and PLIN3[4].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |

Cell Proliferation Assay[1]

| | |
|---|---|
| Cell Line: | H295R cells |
| Concentration: | 1 nM-100 μM |
| Incubation Time: | 6 days |
| Result: | Significantly reduced H295R cell proliferation with an $IC_{50}$ of 22.8 μM. |

Cell Viability Assay[2]

| | |
|---|---|
| Cell Line: | TαT1 cells |
| Concentration: | 10, 40, 60, 80 and 100 μM |
| Incubation Time: | 6 or 48 h |
| Result: | Did not modify cell viability at 10-80 μM, while significantly ($P < 0.01$) reduced cell viability (-56%) at 100 μM, after 6 h incubation.<br>Did not modify cell viability at 10-60 μM, whereas cell viability was significantly reduced at 60 μM (-31%; $P < 0.05$), 80 μM (-53%; $P < 0.01$), and 100 μM (-75.5%; $P < 0.01$), after 48 h incubation. |

RT-PCR[3]

| | |
|---|---|
| Cell Line: | HepaRG cells and human hepatocytes |
| Concentration: | 0.1, 1, 10, 20, 30, or 40 μM |
| Incubation Time: | 24 or 48 h |
| Result: | Increased mRNA levels of CYP3A4 and CYP2B6. |

Western Blot Analysis[4]

| | |
|---|---|
| Cell Line: | H295R |
| Concentration: | 20, 40 and 50 μM |
| Incubation Time: | 6 h |
| Result: | Decreased the expression levels of PLIN1 and PLIN3. |

| | |
|---|---|
| **In Vivo** | Mitotane (440 mg/kg; i.p. or p.o,; 5 days a week, for 7 weeks) significantly reduces the volume of xenografts at an early time point after H295R cells inoculation[1].<br>MCE has not independently confirmed the accuracy of these methods. They are for reference only. |

| | |
|---|---|
| Animal Model: | NOD/SCID/$\gamma_c^{null}$ mice (4-week-old; inoculated subcutaneously $6 \times 10^6$ H295R cells into the right flank)[1] |
| Dosage: | 440 mg/kg |
| Administration: | i.p. or p.o,; 5 days a week, for 7 weeks |
| Result: | Significantly reduced the volume of xenografts at an early time point (day 13) after H295R cells inoculation.<br>The effect of oral mitotane treatment became non-significant by day 20 after H295R cells inoculation, while the effect of i.p. mitotane lasted until day 34. |

## CUSTOMER VALIDATION

- J Transl Med. 2022 Oct 2;20(1):444.

See more customer validations on www.MedChemExpress.com

## REFERENCES


[1]. Doghman M, et al. Lack of long-lasting effects of mitotane adjuvant therapy in a mouse xenograft model of adrenocortical carcinoma. Mol Cell Endocrinol. 2013 Dec 5;381(1-2):66-9.

[2]. Zatelli MC, et al. Therapeutic concentrations of mitotane (o,p'-DDD) inhibit thyrotroph cell viability and TSH expression and secretion in a mouse cell line model. Endocrinology. 2010 Jun;151(6):2453-61.

[3]. Warde KM, et al. Mitotane Targets Lipid Droplets to Induce Lipolysis in Adrenocortical Carcinoma. Endocrinology. 2022 Sep 1;163(9):bqac102.

[4]. Takeshita A, Igarashi-Migitaka J, Koibuchi N, Mitotane induces CYP3A4 expression via activation of the steroid and xenobiotic receptor. J Endocrinol. 2013 Feb 15;216(3):297-305.





Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA