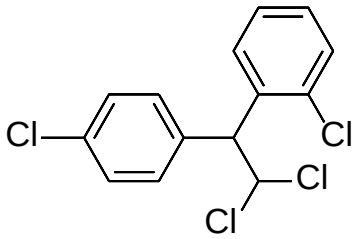
Product data sheet

MedKoo Cat#: 100640 Name: Mitotane CAS: 53-19-0 Chemical Formula: $C_{14}H_{10}Cl_4$ Exact Mass: 317.9537 Molecular Weight: 320.034	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:
Mitotane is a synthetic derivative of the insecticide dichlorodiphenyl trichloroethane (DDT) with anti-adrenocorticoid properties. Following its metabolism in the adrenal cortex to a reactive acyl chloride intermediate, mitotane covalently binds to adrenal proteins, specifically inhibiting adrenal cortical hormone production.

2. CoA, QC data, SDS, and handling instruction
SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMF	30.0	93.74
DMSO	64.67	202.06
DMSO:PBS (pH 7.2) (1:2)	0.33	1.03
Ethanol	42.0	131.24

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	**1 mg**	**5 mg**	**10 mg**
1 mM	3.12 mL	15.62 mL	31.25 mL
5 mM	0.62 mL	3.12 mL	6.25 mL
10 mM	0.31 mL	1.56 mL	3.12 mL
50 mM	0.06 mL	0.31 mL	0.62 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator
Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study
In vitro study

1. Warde KM, Lim YJ, Ribes Martinez E, Beuschlein F, O'Shea P, Hantel C, Dennedy MC. Mitotane Targets Lipid Droplets to Induce Lipolysis in Adrenocortical Carcinoma. Endocrinology. 2022 Sep 1;163(9):bqac102. doi: 10.1210/endocr/bqac102. PMID: 35797592; PMCID: PMC9342684.
2. Sbiera S, Leich E, Liebisch G, Sbiera I, Schirbel A, Wiemer L, Matysik S, Eckhardt C, Gardill F, Gehl A, Kendl S, Weigand I, Bala M, Ronchi CL, Deutschbein T, Schmitz G, Rosenwald A, Allolio B, Fassnacht M, Kroiss M. Mitotane Inhibits Sterol-O-Acyl Transferase 1 Triggering Lipid-Mediated Endoplasmic Reticulum Stress and Apoptosis in Adrenocortical Carcinoma Cells. Endocrinology. 2015 Nov;156(11):3895-908. doi: 10.1210/en.2015-1367. Epub 2015 Aug 25. PMID: 26305886.

In vivo study

1. Innocenti F, Cerquetti L, Pezzilli S, Bucci B, Toscano V, Canipari R, Stigliano A. Effect of mitotane on mouse ovarian follicle development and fertility. J Endocrinol. 2017 Jul;234(1):29-39. doi: 10.1530/JOE-17-0203. Epub 2017 Apr 27. PMID: 28450646.

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7. Bioactivity

Biological target:

Mitotane (2,4'-DDD), an isomer of DDD and derivative of dichlorodiphenyltrichloroethane (DDT), is an antineoplastic agent.

In vitro activity

Cell viability was measured by quantifying propidium iodide-positive cells following mitotane treatment and pharmacological inhibitors of lipolysis. Decreased lipid droplets were associated with increased lipolysis in H295R and in MUC-1 at toxic mitotane concentrations. Pharmacological inhibition of lipolysis attenuated mitotane-induced toxicity in both models.

Reference: Endocrinology. 2022 Sep 1;163(9):bqac102. https://pubmed.ncbi.nlm.nih.gov/35797592/

In vivo activity

These results revealed that treatment of CD1 mice with MTT (mitotane) induces a decrease in early antral follicles with a subsequent increase in the secondary follicles, measured by the increased levels of anti-Mullerian Hormone ($P < 0.05$) and decreased levels of FSH receptor ($P < 0.05$).

Reference: J Endocrinol. 2017 Jul;234(1):29-39. https://pubmed.ncbi.nlm.nih.gov/28450646/

Note: The information listed here was extracted from literature. MedKoo has not independently retested and confirmed the accuracy of these methods. Customer should use it just for a reference only.