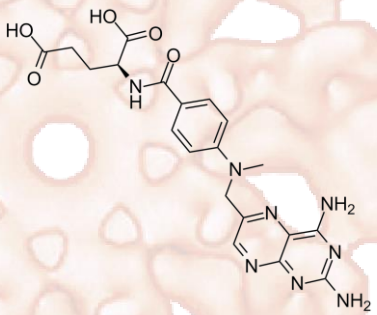
Product Data Sheet

Methotrexate



Cat. No.: A4347

CAS No.: 59-05-2

Formula: C20H22N8O5

M.Wt: 454.44

Synonyms: Amethopterin, Rheumatrex, Abitrexate, Methylaminopterin, Antifolan, Trexall, Ledertrexate

Target: Metabolism

Pathway: DHFR

Storage: Store at -20°C

Solvent & Solubility

In Vitro

≥21.55 mg/mL in DMSO,insoluble in EtOH，insoluble in H2O

Preparing Stock Solutions

Mass / Solvent / Concentration	1mg	5mg	10mg
1 mM	2.2005 mL	11.0026 mL	22.0051 mL
5 mM	0.4401 mL	2.2005 mL	4.4010 mL
10 mM	0.2201 mL	1.1003 mL	2.2005 mL

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

Biological Activity

Shortsummary	Folate antagonist,inhibits DFHR
IC_{50} & Target	

In Vitro

Cell Viability Assay

Cell Line:	activated T cells from human peripheral blood
Preparation method：	The solubility of this compound in DMSO is >21.6 mg/mL. General tips for obtaining a higher concentration: Please warm the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

	Reacting conditions:	0.1-10 μM, 1-24 h
	Applications:	Methotrexate (0.1-10 μM) induced apoptosis of activated T cells from human peripheral blood. In PBL, treatment with MTX for 8 h induced apoptosis. Methotrexate at low (0.01 μM) and high (100 μM) concentrations inhibited cell proliferation without inducing apoptosis. Methotrexate-induced apoptosis required progression to the S phase of the cell cycle.
In Vivo	**Animal experiment**	
	Animal models:	Mice
	Dosage form:	Intraperitoneal injection, 2 mg/kg, once daily
	Applications:	MTX exposure reduced thymus and spleen indices of mice. Methotrexate (≥5 mg/kg) markedly decreased white blood cells, thymic and splenic lymphocytes. Intraperitoneal injection with methotrexate for 3-4 wk increased splenocyte AICAR content, raised adenosine concentrations in exudates from carrageenan-inflamed air pouches, and markedly inhibited leukocyte accumulation in inflamed air pouches in mice.
	Other notes:	Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

Product Citations

1. Goodspeed A, Jean A, et al. "A Whole-genome CRISPR Screen Identifies a Role of MSH2 in Cisplatin-mediated Cell Death in Muscle-invasive Bladder Cancer." Eur Urol. 2019 Feb;75(2):242-250.PMID:30414698
2. Andrew Goodspeed, Annie Jean, et al. "Low MSH2 protein levels identify muscle-invasive bladder cancer resistant to cisplatin." bioRxiv. 2018 June 29.

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References

[1]. Genestier L, Paillot R, Fournel S, et al. Immunosuppressive properties of methotrexate: apoptosis and clonal deletion of activated peripheral T cells[J]. Journal of Clinical Investigation, 1998, 102(2): 322.
[2]. Gu S, Wu Y, Yang J. Screening of cytoprotectors against methotrexate-induced cytogenotoxicity from bioactive phytochemicals[J]. PeerJ, 2016, 4: e1983.
[3]. Cronstein B N, Naime D, Ostad E. The antiinflammatory mechanism of methotrexate. Increased adenosine release at inflamed sites diminishes leukocyte accumulation in an in vivo model of inflammation[J]. Journal of Clinical Investigation, 1993, 92(6): 2675.

Caution

FOR RESEARCH PURPOSES ONLY.

NOT FOR HUMAN, VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

Specific storage and handling information for each product is indicated on the product datasheet. Most APExBIO products are stable

under the recommended conditions. Products are sometimes shipped at a temperature that differs from the recommended storage temperature. Shortterm storage of many products are stable in the short-term at temperatures that differ from that required for long-term storage. We ensure that the product is shipped under conditions that will maintain the quality of the reagents. Upon receipt of the product, follow the storage recommendations on the product data sheet.

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