

Product Name:	Methotrexate, EvoPure®
Product Number:	M091
CAS Number:	59-05-2
Molecular Formula:	C ₂₀ H ₂₂ N ₈ O ₅
Molecular Weight:	454.44
Form:	Powder
Description:	<p>Methotrexate, EvoPure® is a highly pure form of Methotrexate that is free of toxic impurities and has been fully characterized by FTIR, HNMR, HPLC, and mass spectrometry. It is suitable as an ancillary material in upstream bioprocessing.</p> <p>Methotrexate is a selective agent for dihydrofolate reductase (DHFR)-transfected cells, and acts as a nucleic acid synthesis inhibitor. It also has immunosuppressive effects for rheumatoid arthritis research and exhibits anti-cancer properties.</p> <p>We also offer:</p> <ul style="list-style-type: none"> • Methotrexate sodium salt (M031) • Methotrexate, EvoPure® (M091) <p>This product is considered a dangerous good. Quantities above 1 g may be subject to additional shipping fees. Please contact us for questions.</p>
Mechanism of Action:	Methotrexate acts as an allosteric inhibitor of dihydrofolate reductase (DHFR), an enzyme involved in the folic acid metabolic pathway. Folic acid is essential in cells because it is required for thymidine and purine synthesis. Methotrexate therefore acts as a nucleic acid synthesis inhibitor.
Cancer Applications	Methotrexate acts as a chemotherapeutic agent by inhibiting nucleic acid synthesis in cancer cells.
Insect Biology Applications	Methotrexate is effective against pyrimethamine-resistant Plasmodium vivax malaria parasites.

References:

Fairbanks, LD et al (1999) Methotrexate inhibits the first committed step of purine biosynthesis in mitogen-stimulated human T-lymphocytes: A metabolic basis for efficacy in rheumatoid arthritis? *Biochem. J* 342 (1):143-52

Kingston RE, Kaufman RJ, Bebbington CR and Rolfe MR (2002) Amplification using CHO cell expression vectors. *Curr. Protoc. Mol. Biol.* Chapter 16:Unit 16.23 PMID 18265304

Maleki H et al (2017) Methotrexate-loaded PLGA nanoparticles: Preparation, characterization and their cytotoxicity effect on human glioblastoma U87MG cells. *Med. Nano. Res.* 4(1):020

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