

Product Name: Methotrexate sodium salt

Product Number: M031

CAS Number: 7413-34-5

Molecular Formula: $C_{20}H_{20}N_8Na_2O_5$

Molecular Weight: 498.40

Form: Powder

Appearance: Yellow Powder

Solubility: Water: Soluble

Source: Synthetic

Storage Conditions: -20 °C

Description: Methotrexate sodium salt is a selective agent for dihydrofolate reductase (DHFR)- transfected cells, and a nucleic acid synthesis inhibitor in protein expression systems, thus can be used as an ancillary material in upstream biomanufacturing applications. It also has immunosuppressive effects for rheumatoid arthritis research and has anti-cancer properties. Methotrexate sodium salt is freely soluble in aqueous solution.

We also offer:

- Methotrexate ([M027](#))
- Methotrexate, EvoPure® ([M091](#))

This product is considered a dangerous good. Quantities above 1 g may be subject to additional shipping fees. Please contact us for questions.

Mechanism of Action: In cancerous cells, 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 sodium salt acts as a chemotherapeutic agent by inhibiting nucleic acid synthesis in cancer cells.

Insect Biology Applications Methotrexate is effective for 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

If you need any help, contact us: info@toku-e.com. Find more information on: www.toku-e.com/