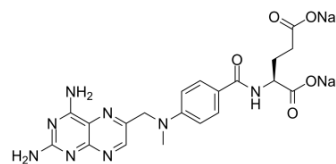


Methotrexate disodium

Cat. No.:	HY-14519A
CAS No.:	7413-34-5
Molecular Formula:	C ₂₀ H ₂₀ N ₈ Na ₂ O ₅
Molecular Weight:	498.4
Target:	Antifolate; DNA/RNA Synthesis; ADC Cytotoxin; Apoptosis
Pathway:	Cell Cycle/DNA Damage; Antibody-drug Conjugate/ADC Related; Apoptosis
Storage:	4°C, sealed storage, away from moisture and light * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture and light)



SOLVENT & SOLUBILITY

In Vitro

H₂O : 50 mg/mL (100.32 mM; Need ultrasonic)

DMSO : 5 mg/mL (10.03 mM; ultrasonic and warming and adjust pH to 5 with HCl and heat to 60°C)

Concentration	Solvent	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM	2.0064 mL	10.0321 mL	20.0642 mL
	5 mM	0.4013 mL	2.0064 mL	4.0128 mL
	10 mM	0.2006 mL	1.0032 mL	2.0064 mL

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

BIOLOGICAL ACTIVITY

Description

Methotrexate (Amethopterin) disodium, an antimetabolite and antifolate agent, inhibits the enzyme dihydrofolate reductase, thereby preventing the conversion of folic acid into tetrahydrofolate, and inhibiting DNA synthesis. Methotrexate disodium, also an immunosuppressant and antineoplastic agent, is used for the research of rheumatoid arthritis and a number of different cancers (such as acute lymphoblastic leukemia)^{[1][2][3]}.

IC₅₀ & Target

Traditional Cytotoxic Agents

In Vivo

Methotrexate (Amethopterin) disodium reduces thymus and spleen indices of mice. Methotrexate disodium markedly decreases white blood cells, thymic and splenic lymphocytes at dose ≥5 mg/kg. However, there is a significant difference between the treatment plus control group and the model group (p<0.01). The combination of grape seed proanthocyanidins and Siberian ginseng eleutherosides obviously diminishes the effects of Methotrexate exposure on indices of thymus and spleens in mice^[2].

Methotrexate (MTX) disodium (2 mg/kg; i.p.; once in a week for 5 weeks) is effective in Freund's complete adjuvant-induced arthritis. The combination of Methotrexate disodium (1 mg/kg; i.p.; once in a week for 5 weeks) and Curcumin (30 mg/kg and 100 mg/kg, thrice a week for 5 weeks; i.p.) shows a significant anti-arthritis action and protection from hematological

toxicity^[4].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell Death Dis. 2020 Nov 12;11(11):976.
- Cancers (Basel). 2019 Oct 25;11(11). pii: E1654.
- Acta Pharmacol Sin. 2020 May 12.
- J Mol Med (Berl). 2019 Aug;97(8):1183-1193.
- J Biol Chem. 2019 Dec 27;294(52):20084-20096.

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REFERENCES

- [1]. Tian H, et al. Understanding the mechanisms of action of methotrexate: implications for the treatment of rheumatoid arthritis. Bull NYU Hosp Jt Dis. 2007;65(3):168-73.
- [2]. Swierkot J, et al. Methotrexate in rheumatoid arthritis. Pharmacol Rep. 2006 Jul-Aug;58(4):473-92.
- [3]. Swierkot J, et al. Methotrexate in rheumatoid arthritis. Pharmacol Rep. 2006 Jul-Aug;58(4):473-92.
- [4]. Banji D, et al. Evaluation of the concomitant use of methotrexate and curcumin on Freund's complete adjuvant-induced arthritis and hematological indices in rats. Indian J Pharmacol. 2011;43(5):546-550.
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Caution: Product has not been fully validated for medical applications. For research use only.

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