

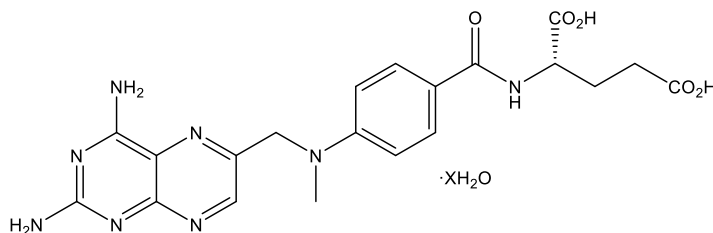
**Catalog # 10-1260**

**Methotrexate**

CAS# 133073-73-1

N-[4-[(2,4-Diamino-6-pteridinyl)methyl]methylamino]benzoyl]-L-glutamic acid; Amethopterin; CL-14377;  
NSC740

Lot # X101623



A synthetic folic acid analog with immunosuppressant and cancer chemotherapeutic activity.<sup>1</sup> Inhibits thymidylate synthetase and de novo purine synthesis.<sup>2,3</sup> Displays beneficial effects in rheumatoid arthritis by inhibiting the production of cytokines induced by T-cell activation<sup>4</sup> and stimulation of adenosine release<sup>5</sup>. It is the classic disease-modifying antirheumatic drug (DMARD).<sup>6</sup>

- 1) Wessels *et al.* (2008), *Recent insights in the pharmacological actions of methotrexate in the treatment of rheumatoid arthritis*; Rheumatology (Oxford), **47** 249
- 2) Allegra *et al.* (1987), *Evidence for direct inhibition of de novo purine synthesis in human MCF-7 breast cells as a principal mode of metabolic inhibition by methotrexate*; J. Biol. Chem., **262** 13520
- 3) Chu *et al.* (1990), *Mechanism of thymidylate synthase inhibition by methotrexate in human neoplastic cell lines and normal human myeloid progenitor cells*; J. Biol. Chem., **265** 8470
- 4) Gerards *et al.* (2003), *Inhibition of cytokine production by methotrexate. Studies in healthy volunteers and patients with rheumatoid arthritis*; Rheumatology (Oxford), **42** 1189
- 5) Friedman and Cronstein (2019), *Methotrexate mechanism in treatment of rheumatoid arthritis*; Joint Bone Spine, **86** 301
- 6) Smolen and Steiner (2003), *Therapeutic strategies for rheumatoid arthritis*; Nat. Rev. Drug Discov., **2** 473

**PHYSICAL DATA**

Molecular Weight:	683.63
Molecular Formula:	C <sub>20</sub> H <sub>22</sub> N <sub>8</sub> O <sub>5</sub> ·XH <sub>2</sub> O
Purity:	>98% by HPLC
	NMR: (Conforms)
Solubility:	DMSO (45 mg/ml)
Physical Description:	Yellow solid
Storage and Stability:	Store as supplied at -20°C for up to 2 years from the date of purchase. Solutions in DMSO may be stored at -20°C for up to 1 month.

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