

PRODUCT INFORMATION



Methotrexate-d₃

Item No. 22378

CAS Registry No.: 432545-63-6

Formal Name: N-[4-[[[(2,4-diamino-6-pteridiny)methyl]methyl-d₃-amino]benzoyl]-L-glutamic acid

Synonyms: Amethopterin-d₃, MTX-d₃

MF: C₂₀H₁₉D₃N₈O₅

FW: 457.5

Chemical Purity: ≥98% (Methotrexate)

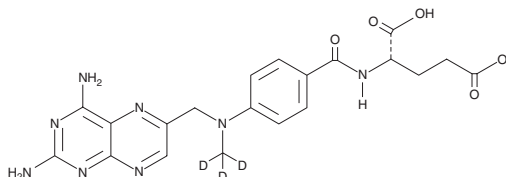
Deuterium

Incorporation: ≥99% deuterated forms (d₁-d₃); ≤1% d₀

Supplied as: A solid

Storage: 4°C

Stability: ≥2 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Methotrexate-d₃ (MTX-d₃) is intended for use as an internal standard for the quantification of MTX (Item No. 13960) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

MTX-d₃ is supplied as a solid. A stock solution may be made by dissolving the MTX-d₃ in the solvent of choice. MTX-d₃ is soluble in organic solvents such as DMSO and dimethyl formamide, which should be purged with an inert gas. The solubility of MTX-d₃ in these solvents is approximately 3 and 14 mg/ml, respectively.

Description

MTX is similar in structure to folic acid (Item No. 20515) and aminopterin (Item No. 21802). It acts by inhibiting the metabolism of folic acid and blocking key enzymes in the synthesis of purines and pyrimidines required for cell proliferation.^{1,2} MTX is known to induce adenosine release, which mediates many of its anti-inflammatory effects, including the reduction of proinflammatory cytokines.²⁻⁴ Formulations containing MTX have been used in the treatment of cancer, autoimmune diseases, ectopic pregnancy, and for the induction of medical abortions. MTX formulations are considered the gold standard of disease-modifying antirheumatic drug (DMARD) therapy to treat both the immune-inflammatory and joint destructive processes of rheumatoid arthritis.⁵

References

1. Tian, H. and Cronstein, B.N. *Bull. NYU Hosp. Jt. Dis.* **65**(3), 168-173 (2007).
2. Swierkot, J. and Szechinski, J. *Pharmacol. Rep.* **58**(4), 473-492 (2006).
3. Chan, E.S.L. and Cronstein, B.N. *Arthritis Res.* **4**(4), 266-273 (2002).
4. Wessels, J.A.M., Huizinga, T.W.J., and Guchelaar, H.J. *Rheumatology* **47**(3), 249-255 (2008).
5. Smolen, J.S. and Steiner, G. *Nat. Rev. Drug Dis.* **2**(6), 473-488 (2003).

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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