

Product Data Sheet

Product Name: Methotrexate-d3

Cat. No.: GC47650

Chemical Properties

Cas. No. 432545-63-6

SMILES NC1=NC(N)=C2C(N=CC(CN(C3=CC=C(C(N[C@H](C(O)=O)CCC(O)=O)=O)C=C3)C([2H])([2H])=N2)=N1

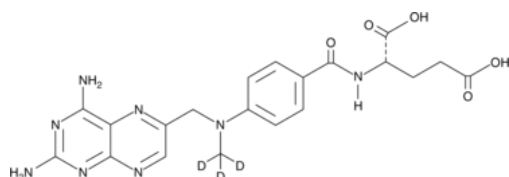
Formula C₂₀H₁₉D₃N₈O₅ M.Wt 457.5

Solubility DMF: 14 mg/ml, DMSO: 3 mg/ml, PBS (pH 7.2): 1 mg/ml Storage Store at 4°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Background

Methotrexate-d₃ is intended for use as an internal standard for the quantification of MTX by GC- or LC-MS. MTX is similar in structure to folic acid and aminopterin. 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.^{2,3,4} Formulations containing MTX have been used in the treatment of cancer, autoimmune diseases, ectopic pregnancy, and for the induction of medical abortions.^{5,6} 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.⁷

1. Tian, H., and Cronstein, B.N. Understanding the mechanisms of action of methotrexate: Implications

Caution: Product has not been fully validated for medical applications. For research use only.

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for the treatment of rheumatoid arthritisBull. NYU Hosp. Jt. Dis.65(3)168-173(2007) 2.Swierkot, J., and Szechinski, J.Methotrexate in rheumatoid arthritisPharmacol. Rep.58(4)473-492(2006) 3.Chan, E.S.L., and Cronstein, B.N.Molecular action of methotrexate in inflammatory diseasesArthritis Res.4(4)266-273(2002) 4.Wessels, J.A.M., Huizinga, T.W.J., and Guchelaar, H.J.Recent insights in the pharmacological actions of methotrexate in the treatment of rheumatoid arthritisRheumatology47249-255(2008) 5.Cutolo, M., Sulli, A., Pizzorni, C., et al.Anti-inflammatory mechanisms of methotrexate in rheumatoid arthritisAnn. Rheum. Dis.60(8)729-735(2001) 6.Christin-Maitre, S., Bouchard, P., and Spitz, I.M.Medical termination of pregnancyN. Engl. J. Med.342(13)946-956(2000) 7.Smolen, J.S., and Steiner, G.Therapeutic strategies for rheumatoid arthritisNat. Rev. Drug Dis.2(6)473-488(2003)

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