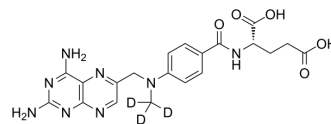


## Methotrexate-d3

<b>Cat. No.:</b>	HY-14519S		
<b>CAS No.:</b>	432545-63-6		
<b>Molecular Formula:</b>	C <sub>20</sub> H <sub>19</sub> D <sub>3</sub> N <sub>8</sub> O <sub>5</sub>		
<b>Molecular Weight:</b>	457.46		
<b>Target:</b>	Antifolate; DNA/RNA Synthesis; ADC Cytotoxin; Apoptosis		
<b>Pathway:</b>	Cell Cycle/DNA Damage; Antibody-drug Conjugate/ADC Related; Apoptosis		
<b>Storage:</b>	Powder	-20°C	3 years
	In solvent	-80°C	6 months
		-20°C	1 month



### BIOLOGICAL ACTIVITY

<b>Description</b>	Methotrexate-d3 (Amethopterin-d3) is the deuterium labeled Methotrexate. Methotrexate (Amethopterin), an antimetabolite and antifolate agent, inhibits the enzyme dihydrofolate reductase, thereby preventing the conversion of folic acid into tetrahydrofolate, and inhibiting DNA synthesis. Methotrexate, 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) <sup>[1][2][3]</sup> .
<b>In Vitro</b>	Stable heavy isotopes of hydrogen, carbon, and other elements have been incorporated into drug molecules, largely as tracers for quantitation during the drug development process. Deuteration has gained attention because of its potential to affect the pharmacokinetic and metabolic profiles of drugs <sup>[1]</sup> . MCE has not independently confirmed the accuracy of these methods. They are for reference only.

### REFERENCES

- [1]. Russak EM, et al. Impact of Deuterium Substitution on the Pharmacokinetics of Pharmaceuticals. *Ann Pharmacother*. 2019;53(2):211-216.
- [2]. 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.
- [3]. Swierkot J, et al. Methotrexate in rheumatoid arthritis. *Pharmacol Rep*. 2006 Jul-Aug;58(4):473-92.
- [4]. Ehab Tousson, et al. The Effect of L-carnitine on Amethopterin-induced Toxicity in Rat Large Intestine.
- [5]. 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.

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

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