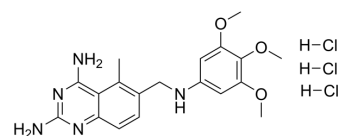


Trimetrexate trihydrochloride

Cat. No.:	HY-10373A
CAS No.:	1658520-97-8
Molecular Formula:	C ₁₉ H ₂₆ Cl ₃ N ₅ O ₃
Molecular Weight:	478.8
Target:	Antibiotic; Antifolate; Parasite; Bacterial; DNA/RNA Synthesis; Dihydrofolate reductase (DHFR)
Pathway:	Anti-infection; Cell Cycle/DNA Damage; Metabolic Enzyme/Protease
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description	Trimetrexate (CI-898) trihydrochloride is an antibiotic, also a potent and orally active dihydrofolate reductase (DHFR) inhibitor, reducing the production of DNA and RNA precursors and leading to cell death, with IC ₅₀ values of 4.74 nM and 1.35 nM for human DHFR and <i>Toxoplasma gondii</i> DHFR. Trimetrexate trihydrochloride can also inhibit the growth of various cancer cells. Trimetrexate trihydrochloride can be used for researching <i>Pneumocystis carinii</i> pneumonia (PCP) and cancer ^{[1][2][3][4][5]} .																
IC₅₀ & Target	Toxoplasma																
In Vitro	<p>Trimetrexate trihydrochloride (0.1 μM, 18 h) completely inhibits proliferation of toxoplasma in murine macrophages^[3]. Trimetrexate trihydrochloride (1 μM) can cross the toxoplasma cell membrane and rapidly reaches high intracellular concentrations (108 pmol/10⁷ cells within 10 min)^[3].</p> <p>Trimetrexate (0.1 mM; 24 h) inhibits cell growth by 50-60% in SNU-C4 and NCI-H630 cell lines^[5].</p> <p>Trimetrexate (1 and 10 mM; 24 h) produces lethality and inhibits DHFR in C4 cells^[5].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Proliferation Assay^[5]</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Cell Line:</td> <td>SNU-C4 and NCI-H630</td> </tr> <tr> <td>Concentration:</td> <td>0.1 mM</td> </tr> <tr> <td>Incubation Time:</td> <td>24 h</td> </tr> <tr> <td>Result:</td> <td>Inhibited cell growth by 50-60% in both cell lines.</td> </tr> </table> <p>Cell Proliferation Assay^[5]</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 30%;">Cell Line:</td> <td>C4 cells</td> </tr> <tr> <td>Concentration:</td> <td>1 and 10 mM</td> </tr> <tr> <td>Incubation Time:</td> <td>24 h</td> </tr> <tr> <td>Result:</td> <td>Produced 42% and 50% lethality at 1 and 10 mM, respectively.</td> </tr> </table>	Cell Line:	SNU-C4 and NCI-H630	Concentration:	0.1 mM	Incubation Time:	24 h	Result:	Inhibited cell growth by 50-60% in both cell lines.	Cell Line:	C4 cells	Concentration:	1 and 10 mM	Incubation Time:	24 h	Result:	Produced 42% and 50% lethality at 1 and 10 mM, respectively.
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In Vivo

Trimetrexate (180 mg/kg or 30 mg/kg; p.o. or i.p.; daily) trihydrochloride extends the median survival of the toxoplasma infected mice and shows antitoxoplasma activity^[3]. Trimetrexate (0-30 mg/kg; i.v.; once daily for 5 days) trihydrochloride shows chronic toxicity in rats^[4].

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Animal Model:	Toxoplasma infected female BALB/c mice weighing about 20 g ^[3]
Dosage:	180 mg/kg or 30 mg/kg
Administration:	180 mg/kg per day orally in the drinking water or 30 mg/kg per day i.p.
Result:	Extended the median survival of the infected mice to 10 d (p.o.) or 19 d (i.p.).
Animal Model:	Charles River Wistar CrI(WI)BR rats weighing approximately 150 to 200 g ^[4]
Dosage:	0, 1, 10, or 30 mg/kg
Administration:	Intravenous injection, once daily for 5 consecutive days followed by a 23-day recovery period
Result:	Showed chronic toxicity, the testicular changes persisting during the course of multiple cycles of dosing were not reversible within 21 days, but required an additional 56 days for essentially complete recovery.

REFERENCES

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- [3]. Allegra CJ, et al. Potent in vitro and in vivo antitoxoplasma activity of the lipid-soluble antifolate trimetrexate. J Clin Invest. 1987 Feb;79(2):478-82.
- [4]. Dethloff LA, et al. Chronic toxicity of the anticancer agent trimetrexate in rats. Fundam Appl Toxicol. 1992 Jul;19(1):6-14.
- [5]. Grem JL, Voeller DM, Geoffroy F, Horak E, Johnston PG, Allegra CJ. Determinants of trimetrexate lethality in human colon cancer cells. Br J Cancer. 1994 Dec;70(6):1075-84.

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

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