Web: www.taiclone.com
Tel: +886-2-2735-9682
Email: order@taiclone.com

Trimethoprim

Catalog No: tcsc2718

Available Sizes

Size: 5g

Size: 10g

Specifications

CAS No:
738-70-5

Formula:
$C_{14}H_{18}N_4O_3$

Pathway:
Cell Cycle/DNA Damage

Target:
Antifolate

Purity / Grade:
>98%

Solubility:
DMSO : 50 mg/mL (172.22 mM; Need ultrasonic); H2O : 0.67 mg/mL (2.31 mM; Need ultrasonic)

Observed Molecular Weight:
290.32

Product Description

Trimethoprim is a bacteriostatic antibiotic used mainly in the prophylaxis and treatment of urinary tract infections.

Target: DHFR

Trimethoprim (TMP), an inhibitor of dihydrofolate reductase, decreases the level of tetrahydrofolate supplying one-carbon units for biosynthesis of nucleotides, proteins, and panthotenate. TMP caused induction of DnaK, DnaJ, GroEL, ClpB, and IbpA/B Hsps. Among

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these Hsps, IbpA/B were most efficiently induced by TMP and coaggregated with the insoluble proteins [1]. Trimethoprim binds to dihydrofolate reductase and inhibits the reduction of dihydrofolic acid (DHF) to tetrahydrofolic acid (THF). THF is an essential precursor in the thymidine synthesis pathway and interference with this pathway inhibits bacterial DNA synthesis. Trimethoprim\'s affinity for bacterial dihydrofolate reductase is several thousand times greater than its affinity for human dihydrofolate reductase. Sulfamethoxazole inhibits dihydropteroate synthetase, an enzyme involved further upstream in the same pathway. Trimethoprim and sulfamethoxazole are commonly used in combination due to their synergistic effects. This drug combination also reduces the development of resistance that is seen when either drug is used alone [2].