

PRODUCT INFORMATION



Chlortetracycline

Item No. 23302

CAS Registry No.: 57-62-5
Formal Name: (4S,4aS,5aS,6S,12aS)-7-chloro-4-(dimethylamino)-1,4,4a,5,5a,6,11,12a-octahydro-3,6,10,12,12a-pentahydroxy-6-methyl-1,11-dioxo-2-naphthacenecarboxamide

Synonym: 7-Chlortetracycline

MF: C₂₂H₂₃ClN₂O₈

FW: 478.9

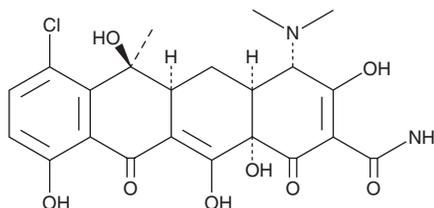
Purity: ≥98%

Supplied as: A solid

Storage: -20°C

Stability: ≥4 years

Item Origin: Bacterium/*Streptomyces* sp.



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

Laboratory Procedures

Chlortetracycline is supplied as a solid. A stock solution may be made by dissolving the chlortetracycline in the solvent of choice. Chlortetracycline is soluble in organic solvents such as ethanol, methanol, DMSO, and dimethyl formamide, which should be purged with an inert gas.

Chlortetracycline is sparingly soluble in aqueous solutions. To enhance aqueous solubility, dilute the organic solvent solution into aqueous buffers or isotonic saline. If performing biological experiments, ensure the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. We do not recommend storing the aqueous solution for more than one day.

Description

Chlortetracycline is a broad-spectrum antibiotic originally isolated from *S. aureofaciens*.^{1,2} It inhibits growth of both Gram-positive and Gram-negative bacteria at a range of 0.1-100 µg/ml against *A. aerogenes*, *D. pneumoniae*, *E. coli*, *K. pneumoniae*, *P. morgani*, and several species of *Haemophilus*, *Neisseria*, *Salmonella*, and *Staphylococcus*.² Chlortetracycline protects mice from infection by various strains of *S. aureus* with protective doses (PD₅₀s) of 0.2-7.5 mg/kg, and from infection by *E. coli* (PD₅₀ = 3 mg/kg) and *K. pneumoniae* (PD₅₀ = 75 mg/kg).³ It acts by inhibiting protein synthesis, and it binds to a single site on the 30S ribosome subunit.¹ Chlortetracycline is an ionophore and is selective for calcium over sodium, potassium, magnesium, strontium, and barium.⁴ It transports calcium from an aqueous phase into an organic phase environment or into multilamellar vesicles. Chlortetracycline is also a fluorescent dye that can be used to monitor calcium flux.⁵

References

1. Chopra, I., Hawkey, P.M., and Hinton, M. *J. Antimicrob. Chemother.* **29(3)**, 245-277 (1992).
2. Paine, T.F., Jr., Collins, H.S., and Finland, M. *J. Bacteriol.* **56(4)**, 489-497 (1948).
3. Cacciapuoti, A., Moss, E., Jr., Menzel, F., Jr., et al. *J. Antibiot. (Tokyo)* **40(10)**, 1426-1430 (1987).
4. White, J.R. and Pearce, F.L. *Biochemistry* **21(24)**, 6309-6312 (1982).
5. Cerella, C., Mearelli, C., De Nicola, M., et al. *Ann. N.Y. Acad. Sci.* **1099**, 490-493 (2007).

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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