PRODUCT INFORMATION

Cefotiam (hydrochloride hydrate)

Item No. 32871

Formal Name: (6R,7R)-7-[[2-(2-amino-4-thiazolyl)acetyl]amino]-3-[[[1-[2-(dimethylamino)ethyl]-1H-tetrazol-5-yl]thio]methyl]-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid, dihydrochloride, hydrate

Synonyms: Cephotiam, CGP 14221, CGP 14221/E, CTM, SCE 963

MF: $C_{18}H_{23}N_9O_4S_3$ • 2HCl [XH_2O]

FW: 598.5

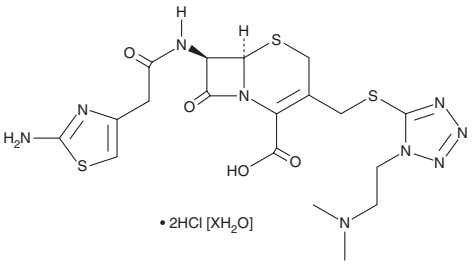
Purity: ≥80%

UV/Vis.: λ_{max}: 259 nm

Supplied as: A crystalline solid

Storage: -20°C

Stability: ≥4 years



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

Laboratory Procedures

Cefotiam (hydrochloride hydrate) is supplied as a crystalline solid. A stock solution may be made by dissolving the cefotiam (hydrochloride hydrate) in the solvent of choice, which should be purged with an inert gas. Cefotiam (hydrochloride hydrate) is soluble in organic solvents such as DMSO and dimethyl formamide (DMF). The solubility of cefotiam (hydrochloride hydrate) in these solvents is approximately 10 and 5 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of cefotiam (hydrochloride hydrate) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of cefotiam (hydrochloride hydrate) in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Cefotiam is a broad-spectrum cephalosporin antibiotic.[1] It inhibits the growth of the Gram-positive bacterium *S. aureus* (MIC_{50} = 0.26 µg/ml) and the Gram-negative bacteria *P. aeruginosa*, *E. coli*, and *H. influenzae* (MIC_{50}s = 1, 0.06, and 0.01 µg/ml, respectively). Cefotiam increases survival in mouse models of infection with the 853E and 630E strains of *S. aureus* (ED_{50}s = 3.5 and 8.3 mg/kg, respectively) and various strains of *E. coli* (ED_{50}s = 0.5-25 mg/kg).[2] Formulations containing cefotiam have previously been used in the treatment of bacterial infections.

References

1. Limbert, M., Klesel, N., Seeger, K., *et al.* Cefodizime, an aminothiazolylcephalosporin. I. *In vitro* activity. *J. Antibiot. (Tokyo)* **37(8)**, 892-900 (1984).
2. Acred, P., Ryan, D.M., Sowa, M.A., *et al.* The *in-vivo* antibacterial activity of ceftazidime (Gr 20263)—a comparison with other new β-lactam antibiotics and gentamicin. *J. Antimicrob. Chemother.* **8(Suppl. B)**, 247-255 (1981).

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