3050 Spruce Street
Saint Louis, Missouri 63103 USA
Telephone 800-325-5832 • (314) 771-5765
Fax (314) 286-7828
email: techserv@sial.com
sigma-aldrich.com

ProductInformation

Cefoperazone sodium salt

Product Number **C 4292**
Storage Temperature 2-8 °C

Product Description

Molecular Formula: $C_{25}H_{26}N_9O_8S_2Na$
Molecular Weight: 667.7
CAS Number: 62893-20-3
Synonyms: [6R-[6α,7β(R*)]]-7-[[[[(4-ethyl-2,3,-dioxo-1-piperazinyl)carbonyl]amino](4-hydroxyphenyl)acetyl]amino]-3-[[(1-methyl-1H-tetrazol-5-yl)thio]methyl]-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid sodium salt; 7-[d-(—)-α-(4-ethyl-2,3-dioxo-1-piperazinecarboxamido)-α-(4-hydroxyphenyl)acetamido]-3-[[(1-methyl-1*H*-tetrazol-5-yl)thio]methyl]-3-cephen-4-carboxylic acid sodium salt[1]

Cefoperazone is a broad-spectrum third generation cephalosporin antibiotic which has similar antimicrobial activity to ceftazidime. Cefoperazone is notably active against *Pseudomonas aeruginosa*, and it has enhanced activity against Enterobacteriaceae and *Bacteroides* sp. in the presence of the β-lactamase inhibitor sulbactam. Compared to cefotaxime, cefoperazone has greater susceptibility to hydrolysis by some β-lactamases.[1,2]

Cefoperazone has been used in a study of P-glycoprotein expression in MCF-7 breast carcinoma cells at concentrations of 0.02 - 2 mg/ml.[3] Cultures of various *Arcobacter* species in the presence of cefoperazone have been utilized for development of a multiplex PCR assay for identification of these bacteria in poultry samples.[4] A campylobacter selective medium that includes cefoperazone as a component of the blood-free charcoal-based agar, for isolation of thermophilic *campylobacter* species, has been described.[5]

An HPLC method for the analysis of cefoperazone and other cephalosporins in raw bovine milk has been reported.[6] Cefoperazone has been utilized in the activity analysis of an immobilized TEM-1 α-lactamase on a Ni^{2+} chelating agarose fast flow column.[7]

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (50 mg/ml), with heat as needed, yielding a clear, faint yellow solution.

Storage/Stability

Solutions of this product are stable at pH 4.0 -7.0, slightly unstable in acid, and highly unstable in alkaline solutions.[1]

References

1. The Merck Index, 12th ed., Entry# 1981.
2. Martindale The Extra Pharmacopoeia, 31st ed., Reynolds, J. E. F., ed., Royal Pharmaceutical Society (London, UK: 1996), pp. 188-189.
3. Mealey, K. L., et al., Doxycycline induces expression of P glycoprotein in MCF-7 breast carcinoma cells. Antimicrob. Agents Chemother., **46(3)**, 755-761 (2002).
4. Houf, K., et al., Development of a multiplex PCR assay for the simultaneous detection and identification of *Arcobacter butzleri*, *Arcobacter cryaerophilus*, and *Arcobacter skirrowii*. FEMS Microbiol. Lett., **193(1)**, 89-94 (2000).
5. Aspinall, S. T., et al., A comparison of a new campylobacter selective medium (CAT) with membrane filtration for the isolation of thermophilic campylobacters including *Campylobacter upsaliensis*. J. Appl. Bacteriol., **80(6)**, 645-650 (1996).

6. Sorensen, L. K., and Snor, L. K., Determination of cephalosporins in raw bovine milk by high-performance liquid chromatography. J. Chromatogr. A, **882(1-2)**, 145-151 (2000).

7. Lawung, R., et al., Calorimetric analysis of cephalosporins using an immobilized TEM-1 α-lactamase on Ni^{2+} chelating sepharose fast flow. Anal. Biochem., **296(1)**, 57-62 (2001).

GCY/RXR 11/03