



## Product Information

### Cefoxitin sodium salt

Product Number **C 4786**

Storage Temperature 2-8 °C

#### Product Description

Molecular Formula: C<sub>16</sub>H<sub>16</sub>N<sub>3</sub>O<sub>7</sub>S<sub>2</sub>Na

Molecular Weight: 450.4

CAS Number: 33564-30-6

Specific Rotation: +210°

(10 mg/ml, methanol, 25 °C)<sup>1</sup>

Synonyms: (6R-cis)-3-[[[(aminocarboxyl)oxy]-methyl]-7-methoxy-8-oxo-7-[(2-thienylacetyl)amino]-5-thia-1-azabicyclo[4.2.0]oct-2-ene-carboxylic acid sodium salt]; 3-carbamoyloxymethyl-7 $\alpha$ -methoxy-7-[2-(2-thienyl)acetamido]-3-cephem-4-carboxylic acid sodium salt<sup>1</sup>

Cefoxitin is a semi-synthetic antibiotic that is derived from cephamycin and is thought to exert antibacterial activity by the inhibition of bacterial cell wall synthesis. It is structurally different from the cephalosporins by the presence of a 7- $\alpha$ -methoxy group on the 7- $\beta$ -aminocephalosporanic acid nucleus of the molecule. Cefoxitin has notable activity against anaerobic bacteria such as *Bacteroides fragilis*.<sup>1,2</sup> An investigation of the reaction of cefoxitin with the *Aeromonas hydrophila* metallo- $\beta$ -lactamase CphA indicates that the antibiotic hydrolysis products irreversibly inactivate CphA.<sup>3</sup>

A report has described the use of cefoxitin and other antibiotics in a broth microdilution method for susceptibility testing of various *Mycobacterium* species, at cefoxitin concentrations of 2 - 256  $\mu$ g/ml.<sup>4</sup> The activity of cefoxitin and other  $\beta$ -lactam antibiotics against several permeability mutants of *Escherichia coli* and *Klebsiella pneumoniae* has been studied.<sup>5</sup>

An HPLC method for the analysis of cefoxitin in serum and tissue which uses high speed centrifugation in the sample preparation has been published.<sup>6</sup> A comparison of various methods for detection of cefoxitin in serum and tissue, including ion-exchange, reversed-phase, and ion-pair chromatography has been reported.<sup>7</sup>

#### 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), yielding a clear, faint yellow to yellow solution.

#### References

1. The Merck Index, 12th ed., Entry# 1986.
2. Martindale The Extra Pharmacopoeia, 31st ed., Reynolds, J. E. F., ed., Royal Pharmaceutical Society (London, UK: 1996), pp. 191-192.
3. Zervosen, A., et al., Inactivation of *Aeromonas hydrophila* metallo- $\beta$ -lactamase by cephamycins and moxalactam. *Eur. J. Biochem.*, **268(13)**, 3840-3850 (2001).
4. Woods, G. L., et al., Multisite reproducibility of results obtained by the broth microdilution method for susceptibility testing of *Mycobacterium abscessus*, *Mycobacterium chelonae*, and *Mycobacterium fortuitum*. *J. Clin. Microbiol.*, **37(6)**, 1676-1682 (1999).
5. Chen, H. Y., and Livermore, D. M., Activity of cefepime and other  $\beta$ -lactam antibiotics against permeability mutants of *Escherichia coli* and *Klebsiella pneumoniae*. *J. Antimicrob. Chemother.*, **32 Suppl B**, 63-74 (1993).

6. Cox, S. K., et al., Determination of cefoxitin in serum and tissue. *J. Chromatogr. B Biomed. Sci. Appl.*, **705(1)**, 145-148 (1998).
7. Garcia-Gonzalez, J. C., et al., Quantitative determination of semisynthetic cephamycins in human serum and urine by ion-exchange, reversed-phase and ion-pair chromatography. *J. Chromatogr. A*, **812(1-2)**, 197-204 (1998).

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