

Product Name:	Cefpodoxime Sodium
Product Number:	C096
CAS Number:	82619-04-3
Molecular Formula:	$C_{15}H_{16}N_5NaO_6S_2$
Molecular Weight:	449.44
Form:	powder
Appearance:	brown crystalline powder
Source:	synthetic
Water Content (Karl Fischer):	report results
Storage Conditions:	-20°C. Protect from light.
Description:	<p>Cefpodoxime Sodium is a broad-spectrum, third-generation cephalosporin β-lactam antibiotic that interferes with bacterial cell wall. It is effective against a wide range of Gram-positive and Gram-negative bacteria. Cefpodoxime Sodium is soluble in DMSO.</p> <p>We also offer:</p> <ul style="list-style-type: none">• Cefpodoxime Proxetil (<u>C015</u>)• Cefpodoxime Free Acid (<u>C016</u>)
Mechanism of Action:	<p>Like β-lactams, cephalosporins interfere with PBP (penicillin binding protein) activity involved in the final phase of peptidoglycan synthesis. PBP's are enzymes which catalyze a pentaglycine crosslink between alanine and lysine residues providing additional strength to the cell wall. Without a pentaglycine crosslink, the integrity of the cell wall is severely compromised and ultimately leads to cell lysis and death. Resistance to cephalosporins is commonly due to cells containing plasmid encoded β-lactamases. However, like many cephalosporins, cefpodoxime is stable in the presence of β-lactamases.</p>
Spectrum:	<p>Cefpodoxime Sodium is a broad-spectrum antibiotic which targets a wide variety of Gram-positive and Gram-negative bacteria especially those which cause otitis media and pharyngitis.</p>

Microbiology Applications Cefpodoxime Sodium is commonly used in clinical *in vitro* microbiological antimicrobial susceptibility tests (panels, discs, and MIC strips) against Gram-positive and Gram-negative microbial isolates. Medical microbiologists use AST results to recommend antibiotic treatment options. Representative MIC values include:

- *Klebsiella pneumoniae* 8 µg/mL - 64 µg/mL
- *Haemophilus influenzae* 0.032 µg/mL – 1 µg/mL
- For a complete list of cefpodoxime MIC values, [click here](#).

Cefpodoxime from TOKU-E was used as a reference compound when characterizing the extended-spectrum AmpC (ESAC) B-lactamase enzymes (Lahiri et al, 2014).

In vitro kinetic modeling can be used to study the pharmacokinetic-pharmacodynamic modelling of the antibacterial activity of cefpodoxime. This approach has more detailed information than the MIC about the time course of efficacy (Liu et al, 2005).

References:

Georgopapadakou NH (1992) Mechanisms of action of cephalosporin 3'-quinolone esters, carbamates, and tertiary amines in *Escherichia coli*. Antimicrob. Agents. Chemother. 37(3):559-565

Lahiri SD, Giacobbe RA, Johnstone MR and Alm RA (2014) Activity of avibactam against *Enterobacter cloacae* producing an extended-spectrum class C β-lactamase enzyme. J. Antimicrob. Chemother. 69(11):2942–2946 PMID

Liu P, Rand KH, Obermann B and Derendorf H (2005) Pharmacokinetic-pharmacodynamic modelling of antibacterial activity of cefpodoxime and cefixime in *in vitro* kinetic models. Int. J. Antimicrob. Agents 25(2):120-129 PMID 15664481

Wise R, Andrews JM, Ashby JP and Thornber D (1990) The *in-vitro* activity of cefpodoxime: a comparison with other oral cephalosporins. J. Antimicrob. Chemother. 25(4):541–550 PMID 2351624

Alm et al. used cefpodoxime from TOKU-E against *Escherichia coli* NDM isolates in microdilution MIC assays. "[Characterization of *Escherichia coli* NDM isolates with decreased susceptibility to aztreonam/avibactam: role of a novel insertion in PBP3.](#)"

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