Cefpodoxime Proxetil
PRODUCT DATA SHEET

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Product Name:	Cefpodoxime Proxetil
Product Number:	C015
CAS Number:	87239-81-4
Molecular Formula:	$C_{21}H_{27}N_5O_9S_2$
Molecular Weight:	557.60
Form:	Powder
Appearance:	White or off-white powder
Source:	Synthetic
Water Content (Karl Fischer):	≤3.0%
Optical Rotation:	+35° to +48°
Storage Conditions:	-20°C, protect from light
Description:	Cefpodoxime Proxetil is a s a pro-drug tht is de-esterified *in vivo* to its active metabolite Cefpodoxime, a broad-spectrum, third-generation cephalosporin β-lactam antibiotic. It is soluble in DMSO. We also offer: • Cefpodoxime Sodium (C096) • Cefpodoxime Free Acid(C016)
Mechanism of Action:	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.
Spectrum:	Cefpodoxime Proxetil 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.<

Microbiology Applications

Cefpodoxime Proxetil 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.

- *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:

Borin MT (1991) A review of the pharmacokinetics of defpodoxime proxetil. Drugs. 42(3):13-21

Georgopapadakou NH (1992) Mechanisms of action of Cephalosporin 3'-quinolone esters, carbamates, and tertiary amines in *Escherichia coli*. *Antimicrob. Agents and 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

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