Cefdinir
PRODUCT DATA SHEET

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Product Name:	Cefdinir
Product Number:	C049
CAS Number:	91832-40-5
Molecular Formula:	$C_{14}H_{13}N_5O_5S_2$
Molecular Weight:	395.42
Form:	Powder
Appearance:	White or light yellow powder
Solubility:	Freely soluble in aqueous solution (87.2 mg/ml)
Source:	Synthetic
Water Content (Karl Fischer):	≤3.0%
Optical Rotation:	-67° to -61°
Storage Conditions:	-20°C
Description:	Cefdinir is a broad-spectrum, third-generation cephalosporin resistant to many β-lactamase enzymes. It is structurally similar to Cefixime. It was patented in 1979 by Fujisawa Pharmaceutical. It has been found to be involved in inflammation, as an inhibitor of neutrophil myeloperoxidases. Cedinir is highly soluble in aqueous solution.
Mechanism of Action:	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, Cefdinir is not typically inactivated by this mechanism. Cefdinir is an inhibitor of neutrophil myeloperoxidases. It can also interact with the dipeptide transporters PEPT1 and PEPT2.
Spectrum:	Cefdinir targets both Gram-positive and Gram-negative bacteria, including those responsible for ear, sinus and skin infections.

Microbiology Applications Cefdinir 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:

- *Haemophilus influenzae* 0.05 µg/mL – 3.13 µg/mL
- *Staphylococcus aureus* 0.125 µg/mL - >128 µg/mL
- For a representative list of Cefdinir MIC values, click here.

References:

Reference for TOKU-E product:

Kaul M et al (2016) Combining the FtsZ-targeting prodrug TXA709 and the cephalosporin Cefdinir confers synergy and reduces the frequency of resistance in Methicillin-resistant *Staphylococcus aureus.* Antimicrob. Agents Chemother. 60(7):4290-4296 Link to article

Other 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

Inamoto, Y et al (1988) FK 482, a new orally active cephalosporin synthesis and biological properties. J. Antibiotic. 41(6):828-830 PMID 3255303