Cefditoren (Pivoxil)

Cat. No.: HY-17452A

CAS No.: 117467-28-4

Molecular Formula: $C_{25}H_{28}N_6O_7S_3$

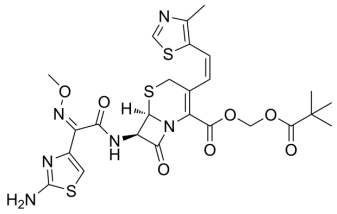
Molecular Weight: 620.72

Target: Bacterial; Antibiotic; Beta-lactamase

Pathway: Anti-infection

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (161.10 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	1.6110 mL	8.0552 mL	16.1103 mL
5 mM	0.3222 mL	1.6110 mL	3.2221 mL
10 mM	0.1611 mL	0.8055 mL	1.6110 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (4.03 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (4.03 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (4.03 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Cefditoren Pivoxil (ME 1207) is a broad-spectrum, third-generation, oral cephalosporin antibacterial with enhanced stability against many common β lactamases. Cefditoren Pivoxil has activity against Gram-negative organisms and Gram-positive organisms. Cefditoren Pivoxil can be used in the research of infection diseases such as acute exacerbations of chronic bronchitis, community-acquired pneumonia (CAP), streptococcal pharyngitis/tonsillitis, or uncomplicated skin and skin structure infections[1][2].

IC_{50} & Target	β-lactam

In Vitro

Cefditoren (Pivoxil) shows good activity against pneumoniae, S. pyogenes, Staphylococcus aureus, H. influenzae and H. parainfluenzae, M. catarrhalis[1].

Organism	MIC50 (mg/L)	MIC90 (mg/L)
Gram-positive organisms		
Streptococcus pneumoniae (untyped)[a]	0.015-0.25	0.12-1
PS	≤0.008-0.03	0.015-0.25
PI	0.06-0.5	0.25-0.5
PR	0.25-1	0.5-2
S. pyogenes	≤0.008-0.03	0.015-0.03
Staphylococcus aureus (MS)	0.12-0.5	0.5-1
Gram-negative organisms		
Haemophilus	≤0.008-≤0.03	0.015-0.13
influenzae (untyped)[b]		
β-Lactamase +	≤0.008-0.03	0.015-0.06
β-Lactamase -	≤0.008-0.03	0.015-0.06
H. parainfluenzae[b]	≤0.03	0.06
Moraxella	0.03-0.5	0.25-1
catarrhalis (untyped)[b]		
β-Lactamase +	≤0.03-0.25	0.12-0.5
β-Lactamase -	≤0.008-0.03	0.015-0.06

[a] Including PS, PI and PR strains.

[b] Including both β-lactamase-positive and -negative strains.

$MIC_{50/90}$=mean minimum inhibitory concentrations required to inhibit the growth of 50% or 90% of bacterial strains; MS =susceptible to meticillin; PI=intermediate susceptibility to penicillin; PR=resistant to penicillin; PS=susceptible to penicillin.

In Vivo

Pharmacokinetics in mice[1]

Cefditoren (mg/kg)	C_0 (μg/ml)	t1/2 (h)	AUC_{last} (μg× h/ml)
6.25	53.0	0.9	30.4
12.5	168.4	1.1	64.1
25	232.5	0.9	101.3
50	290.6	1.1	124.4

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Wellington K, et al. Cefditoren pivoxil: a review of its use in the treatment of bacterial infections. Drugs. 2004;64(22):2597-618.

[2]. Cafini F, et al. Enhanced in vivo activity of cefditoren in pre-immunized mice against penicillin-resistant S. pneumoniae (serotypes 6B, 19F and 23F) in a sepsis model. PLoS One. 2010 Aug 10;5(8):e12041.

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