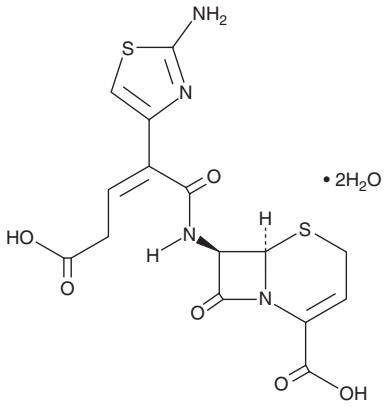
PRODUCT INFORMATION

Ceftibuten (hydrate)

Item No. 25334



CAS Registry No.:	118081-34-8
Formal Name:	(6R,7R)-7-[[(2Z)-2-(2-amino-4-thiazolyl)-4-carboxy-1-oxo-2-buten-1-yl]amino]-8-oxo-5-thia-1-azabicyclo[4.2.0]oct-2-ene-2-carboxylic acid, dihydrate
Synonym:	SCH 39720
MF:	$C_{15}H_{14}N_4O_6S_2 \bullet 2H_2O$
FW:	446.5
Purity:	≥98%
UV/Vis.:	λ_{max}: 218, 262 nm
Supplied as:	A crystalline solid
Storage:	-20°C
Stability:	≥4 years

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

Ceftibuten (hydrate) is supplied as a crystalline solid. A stock solution may be made by dissolving the ceftibuten (hydrate) in the solvent of choice. Ceftibuten (hydrate) is soluble in organic solvents such as DMSO and dimethyl formamide, which should be purged with an inert gas. The solubility of ceftibuten (hydrate) in these solvents is approximately 5 and 2 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of ceftibuten (hydrate) can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of ceftibuten (hydrate) in PBS, pH 7.2, is approximately 0.1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Ceftibuten is an orally bioavailable broad-spectrum cephalosporin antibiotic that inhibits the growth of *B. catarrhalis*, *H. influenzae*, pathogenic *Neisseria*, *Streptococcus*, penicillin-susceptible *S. pneumoniae*, and eleven *Enterobacteriaceae* strains (MICs = 0.25, ≤0.06, ≤0.06, 0.5-1, 4, and ≤0.06-0.5 µg/ml, respectively).[1,2] Ceftibuten is also active against *E. coli* expressing β-lactamase type I, III, and V and *K. oxytoca* expressing β-lactamase type IV (MICs = 8, 0.25, 0.5, and ≤0.06 µg/ml, respectively) as well as a panel of eight bacterial stains expressing plasmid-encoded extended spectrum β-lactamases, including *E. coli* CTX-M and *K. pneumoniae* SHV-2 (MICs = 1 and 0.25 µg/ml, respectively). *In vivo*, ceftibuten reduces the number of mice killed within 6 days of a *K. pneumoniae*, *E. coli*, *S. pneumoniae*, or *S. aureus* infection by 50% when administered subcutaneously at doses of 0.125, 2, 1,024, and >512 mg/kg, respectively.[3] Formulations containing ceftibuten have been used in the treatment of bacterial infections including bronchitis, pneumonia, and enteritis.

References

1. Bauernfeind, A. *Diagn. Microbiol. Infect. Dis.* **14(1)**, 89-92 (1991).
2. Jones, R.N. and Barry, A.L. *Antimicrob. Agents Chemother.* **32(10)**, 1576-1582 (1988).
3. Onyeji, C.O., Nicolau, D.P., Nightingale, C.H., *et al. Antimicrob. Agents Chemother.* **38(5)**, 1112-1117 (1994).

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