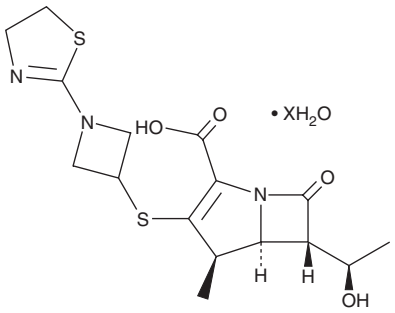
PRODUCT INFORMATION

Tebipenem (hydrate)

Item No. 33875

Formal Name: (4R,5S,6S)-3-[[1-(4,5-dihydro-2-thiazolyl)-3-azetidinyl]thio]-6-[(1R)-1-hydroxyethyl]-4-methyl-7-oxo-1-azabicyclo[3.2.0]hept-2-ene-2-carboxylic acid, hydrate



Synonyms: LJC 11,036, SPR859, TBPM

MF: $C_{16}H_{21}N_3O_4S_2 \bullet XH_2O$

FW: 383.5

Purity: ≥95%

UV/Vis.: λ_{max}: 210, 305 nm

Supplied as: A 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

Tebipenem (hydrate) is supplied as a solid. A stock solution may be made by dissolving the tebipenem (hydrate) in the solvent of choice, which should be purged with an inert gas. Tebipenem (hydrate) is soluble in the organic solvent DMSO at a concentration of approximately 1 mg/ml.

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 tebipenem (hydrate) can be prepared by directly dissolving the solid in aqueous buffers. The solubility of tebipenem (hydrate) in PBS (pH 7.2) is approximately 1 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Tebipenem is a carbenapenem antibiotic.[1,2] It is active against a panel of clinical isolates from a variety of bacterial species (MIC_{50}s = ≤0.0039-8 µg/ml), including methicillin-resistant strains of *S. aureus* and *S. epidermidis* and penicillin-resistant *S. pneumoniae*.[1] Tebipenem inhibits β-lactamase in a concentration-dependent manner.[2] It decreases the number of colony forming units (CFUs) in the lungs in a mouse model of penicillin-resistant *S. pneumoniae* infection when administered at doses ranging from 0.32 to 3.2 mg/kg.[1]

References

1. Fujimoto, K., Takemoto, K., Hatano, K., *et al.* Novel carbapenem antibiotics for parenteral and oral applications: *In vitro* and *in vivo* activities of 2-aryl carbapenems and their pharmacokinetics in laboratory animals. *Antimicrob. Agents Chemother.* **57(2)**, 697-707 (2013).
2. Hazra, S., Xu, H., and Blanchard, J.S. Tebipenem, a new carbapenem antibiotic, is a slow substrate that inhibits the β-lactamase from *Mycobacterium tuberculosis*. *Biochemistry* **53(22)**, 3671-3678 (2014).

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