Product Name: Meropenem, USP
Product Number: M002
CAS Number: 119478-56-7
Molecular Formula: C_{17}H_{25}N_{3}O_{5}S \cdot 3H_{2}O
Molecular Weight: 437.52
Form: Powder
Appearance: almost white or yellowish crystalline powder
Solubility: sparingly soluble in aqueous solution (5.63 mg/ml)
Source: Synthetic
Water Content (Karl Fischer): 11.4-13.4%
pH: 4.0 - 6.0
Optical Rotation: -17.0° to -21.0°
Storage Conditions: 2-8 °C
Description: Meropenem is a β-lactam antibiotic in the carbapenem class, and targets the bacterial cell wall. It has found utility against extended spectrum β-lactamase (ESBL) producing Enterobacteriaceae that are resistant to many first line β-lactam antibiotics and certain cephalosporins. Meropenem is sparingly soluble in aqueous solution.
We also offer:
- Meropenem with sodium carbonate (M028)

Mechanism of Action: β-lactams 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 β-lactams is commonly due to cells containing plasmid encoded β-lactamases. Like many carbapenems, meropenem is highly resistant to the degradative effects of β-lactamases.

Spectrum: Meropenem is a broad-spectrum antibiotic targeting a wide range of bacteria especially those causing meningitis.
**Microbiology Applications**  
Meropenem is commonly used in clinical *in vitro* microbiological antimicrobial susceptibility tests (panels, discs, and MIC strips) against Gram-positive and Gram-negative microbial isolates. Meropenem has also shown high potency against high-resistant superbug strains. Medical microbiologists use AST results to recommend antibiotic treatment options. Representative MIC values include:

- *Staphylococcus epidermidis* 0.06 µg/mL - 16 µg/mL
- *Neisseria meningitis* 0.002 µg/mL – 0.03 µg/mL
- For a complete list of Meropenem MIC values, [click here.](#)

**Media Supplements**

Meropenem can be used as a selective agent in several types of isolation media:

- **VRE Medium - VRE Selective Supplement**

**Plant Biology Applications**

Meropenem can be used to suppress the overgrowth of *Agrobacterium* in tobacco, tomato, and rice transformation, with 25 mg/L suppressing outgrowth (Ogawa and Mii, 2007).

Meropenem suppressed growth of *Agrobacterium* during transformation of *Phalaenopsis* at 5 mg/L and had no phytotoxic effect on the cells themselves (Sjahril and Mii, 2005).

**References:**


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