Doripenem hydrate
PRODUCT DATA SHEET

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Product Name:	Doripenem hydrate
Product Number:	D004
CAS Number:	364622-82-2 (hydrate); 148016-81-3 (anhydrous)
Molecular Formula:	$C_{15}H_{24}N_4O_6S_2 \cdot H_2O$
Molecular Weight:	438.52
Form:	Powder
Solubility:	sparingly soluble in aqueous solution
Melting Point:	>186 °C
Storage Conditions:	2-8 °C
Description:	Doripenem hydrate is a β-lactam antibiotic of the carbapenem class. It is effective against extended spectrum beta-lactamase (ESBL) producing *Enterobacteriaceae,* a microbe resistant to many first line beta-lactam antibiotics and certain cephalosporins. Doripenem hydrate is sparingly soluble in aqueous solution.
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; however, carbapenems, including doripenem, are highly resistant to β-lactamases.
Spectrum:	Doripenem hydrate is a broad spectrum antibiotic targeting a wide range of Gram-positive and Gram-negative bacteria including *Pseudomonas aeruginosa.*
Microbiology Applications	Doripenem 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 for infected patients. Representative MIC values include: • *Bacteroides fragilis* 0.125 µg/mL – 8 µg/mL • *Pseudomonas aeruginosa* 8 µg/mL - 32 µg/mL • For a complete list of doripenem MIC values, click here.

References:

Guzmán, Flavio, MD. "Beta Lactams Antibiotics (penicillins and Cephalosporins) Mechanism of Action." *Medical Pharmacology.* Pharmacology Corner, 29 Nov. 2008. Web. 21 Aug. 2012.

Pitout JD, Sanders CC, Sanders WE Jr. Antimicrobial resistance with focus on beta-lactam resistance in gram-negative bacilli. Am J Med 1997; 103:51.