Pefloxacin mesylate dihydrate
PRODUCT DATA SHEET

issue date 01/06/2020

Product Name:	Pefloxacin mesylate dihydrate
Product Number:	P004
CAS Number:	149676-40-4
Molecular Formula:	$C_{17}H_{20}FN_3O_3 \cdot CH_4O_3S \cdot 2H_2O$
Molecular Weight:	465.49
Form:	Powder
Appearance:	Cream colored powder
Solubility:	Water: Freely soluble
Source:	Synthetic
pH:	3.5-4.5
Melting Point:	271°C
Storage Conditions:	2-8°C
Description:	Pefloxacin Mesylate Dihydrate is a broad-spectrum, synthetic, third-generation fluoroquinolone antibiotic. Perfloxacin, an analog of Norfloxacin, was discovered in 1979. Pefloxacin, like other fluoroquinolones, inhibit bacterial DNA gyrase and Topoisomerase IV, which disrupts bacterial cell division. Novel derivatives of Pefloxacin were found to have anti-cancer properties. Pefloxacin mesylate dihydrate is freely soluble in aqueous solution. We also offer: • Pefloxacin (P015)
Mechanism of Action:	Fluoroquinolone antibiotics like Pefloxacin target bacterial DNA gyrase, a type II topoisomerase enzyme which reduces DNA strain during replication. Because DNA gyrase is required during DNA replication, subsequent DNA synthesis and ultimately cell division is inhibited. This enzyme is the primary target for Gram-negative bacteria. Pefloxacin inhibits topoisomerase IV, the primary target for Gram-positive bacteria. Since this enzyme is required to separate replicated DNA, the inhibition results in strand breakage of the bacterial chromosome, which ultimately inhibits DNA replication and transcription.
Spectrum:	Pefloxacin is a broad spectrum antibiotic which targets a wide range of Gram-positive and Gram-negative organisms including a few *Mycoplasma* species such as *M. bovis, M. tuberculosis*, and *M. africanum.*

Microbiology Applications

Pefloxacin is commonly used in clinical *in vitro* microbiological antimicrobial susceptibility tests (panels, discs, and MIC strips) against Gram- positive, Gram-negative, and *Mycoplasma* microbial isolates. Medical microbiologists use AST results to recommend antibiotic treatment options for infected patients. Representative MIC values include:

- *Helicobacter pylori* 1 µg/mL - 8 µg/mL
- *Mycoplasma bovis* 8 µg/mL
- For a representative list of Pefloxacin MIC values, click here.

Cancer Applications

The i*n vitro* effect of Pefloxacin on growth of normal hematopoietic progenitor stem cells and on leukemic cell lines was investigated. It was found to have a dose-dependent inhibition of colony formation both from normal bone marrow cells and from the leukemic line K-562 cells and HL-60 cells when used at ≥ 25 µg/ml (Somekh et al, 1989).

An evaluation of Pefloxacin derivatives and their biological activity was screened against human Pc-3 cancer cell lines and the compounds demonstrated anti-cancer properties (Allaka et al, 2016).

References:

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Pallavicini F, ANtinori A, Federico G, Fantoni M and Nervo P (1989) Influence of two quinolones, ofloxacin and pefloxacin, on human myelopoiesis in vitro. Antimicrob. Agents. Chemother. 33(1):122-123 PMID 2712545

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