

Product Name:	Maduramicin
Product Number:	M046
CAS Number:	79356-08-4
Molecular Formula:	C ₄₇ H ₈₀ O ₁₇
Molecular Weight:	917.1
Appearance:	White solid
Solubility:	soluble in ethanol, methanol, DMF or DMSO but exhibits poor water solubility.
Source:	Actinomadura yumaensis (formerly Nocardia sp. X-14868)
Storage Conditions:	-20°C
Description:	<p>Maduramicin is a monovalent glycoside polyether ionophore antibiotic and broad-spectrum anticoccidial. As a ionophore, it forms complexes with monovalent cations, with a higher affinity for K⁺ than Na⁺. Maduramicin is soluble in ethanol, methanol, DMF or DMSO but exhibits poor water solubility.</p> <p>We also offer:</p> <ul style="list-style-type: none">• Maduramicin ammonium (<u>M047</u>)
Mechanism of Action:	<p>Maduramicin can form complexes with cations (particularly Na⁺, K⁺ and Ca²⁺), thereby promoting their transport across the cell membrane and increasing the osmotic pressure in the coccidia, which inhibits certain mitochondrial functions such as substrate oxidation and ATP hydrolysis, eventually leading to protozoal cell death.</p> <p>In cell culture studies, Maduramicin was found to cause accumulation of the cells at G0/G1 phase of the cell cycle, and induces cellular apoptosis. It can also downregulate protein expression of cyclin D1, cyclin-dependent kinases, and upregulate expression of CDK inhibitors.</p>
Spectrum:	It is effective against Gram-positive bacteria, and exhibits a broad spectrum of anticoccidial activity against the most frequently occurring <i>Eimeria</i> species, and is also active <i>Cryptosporidium</i> and <i>Treponema</i> .
Microbiology Applications	Maduramicin is currently used to combat coccidiosis in poultry.

References:

Chen X et al (2014) Maduramicin inhibits proliferation and induces apoptosis in myoblast cells. PloS One. 9(12):e115652

Liu CM et al (1983) Novel polyether antibiotics X-14868A, B, C, and D produced by a Nocardia. Discovery, fermentation, biological as well as ionophore properties and taxonomy of the producing culture. J. Antibiot. 36:343

Maxim I et al (2016) Maduramicin rapidly eliminates malaria parasites and potentiates the gametocytocidal activity of the pyrazoleamide PA21A050. Antimicrob. Agents. Chemother 60(3): 1492-1499

Mead JR et al (1995) Evaluation of maduramicin and alborixin in a SCID mouse model of chronic cryptosporidiosis. Antimicrob. Agents. Chemother. 39 (4) 854-858

You X et al (1996) A chemiluminescence immunoassay for evaluation of *Cryptosporidium parvum* growth *in vitro*. FEMS Microbiol Lett 136(3):251-256

If you need any help, contact us: info@toku-e.com. Find more information on: www.toku-e.com/