Product Data Sheet

Product Name: Maduramicin
Cat. No.: GC11509

Chemical Properties

Cas. No.	79356-08-4
Chemical Name	(2R,3S,4S,5R,6S)-6-[(1R)-1-[(2S,5R,7S,8R,9S)-2-[(2S,2'R,3'S,5R,5'R)-3'-[(2,6-dideoxy-3,4-di-O-methyl-β-L-arabino-hexopyranosyl)oxy]octahydro-2-methyl-5'-[(2S,3S,5R,6S)-tetrahydro-6-hydroxy-3,5,6-trimethyl-2H-pyran-2-yl][2,2'-bifuran]-5-yl]-9-hydroxy-2,8-d
SMILES	CO[C@@H]1[C@@H](OC)[C@H](C)O[C@@](O[C@@H]2[C@@]([C@]3(C)CC[C@@]([C@@]4(C)O[C@@]5(C[C@H](O)[C@@H](C)[C@]([C@@H](C)[C@]6([H])O[C@@](CC(O)=O)(O)[C@@H](C)[C@H](OC)[C@H]6OC)([H])O5)CC4)([H])O3)([H])O[C@]([C@]7([H])[C@@H](C)C[C@@H](C)[C@@](C)(O)O7)([H])C2)
Formula	$C_{47}H_{80}O_{17}$
M.Wt	917.1
Solubility	DMF: soluble,DMSO: soluble,Ethanol: soluble,Methanol: soluble
Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.
Structure	Maduramicin

Background

IC50: 20.7 μM: inhibits ATP synthesis in spinach chloroplasts [1].

IC50: 96.6 μM: blocks H+ uptake in spinach chloroplasts [1].

Maduramicin, a natural polyether antibiotic, is cytotoxic against Cryptosporidium spp. and Plasmodium gametocytes, isolated from the actinomycete Actinomadura rubra. As a broad-spectrum anticoccidial, maduramicin, which is commonly used in veterinary

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medicine as an anti-coccidial agent, is active against Treponema and Cryptosporidium. Maduramicin is an ionophore which can form complexes with monovalent cations with a higher affinity for K+ than Na+.

In vitro: Maduramicin concentration-dependently blocked cell growth and inhibited cell proliferation in a concentration- and time-dependent fashion in skeletal muscle cells, mouse myoblasts (C2C12) and human rhabdomyosarcoma (RD and Rh30) cells. Also, maduramicin triggered cleavage of poly ADP ribose polymerase in a concentration-dependent manner, which was the hallmark of caspase-dependent apoptosis in C2C12 and RD cells. It was determined that maduramicin caused cell death via caspase-dependent and -independent manner in C2C12 cells [2].

In vivo: Severe combined immune deficient (SCID) mice were administered with maduramicin at 3 mg/kg of body weight per day by oral gavage for 28 days. Maduramicin treatment decreased the fecal parasite load after 21 days of treatment. Also, maduramicin treatment elicited weight loss in SCID mice. In addition, Maduramicin exerted remarkable anticryptosporidial activities with concomitant moderate toxicity on SCID mice [3].

References:
[1]. Gutiérrez-Lugo, M., Lotina-Hennsen, B., Farrés, A., Sánchez, S., & Mata, R. Phytotoxic and Photosynthetic Activities of Maduramicin and Maduramicin Methyl Ester. Zeitschrift Für Naturforschung C. 1999; 54(5-6).
[2]. Chen, X., Gu, Y., Singh, K., Shang, C., Barzegar, M., Jiang, S., & Huang, S. Maduramicin Inhibits Proliferation and Induces Apoptosis in Myoblast Cells. Plos ONE.2014; 9(12): e115652.
[3]. Mead, J., You, X., Pharr, J., Belenkaya, Y., Arrowood, M., Fallon, M., & Schinazi, R. Evaluation of maduramicin and alborixin in a SCID mouse model of chronic cryptosporidiosis. Antimicrobial Agents and Chemotherapy. 1995; 39(4): 854-858.