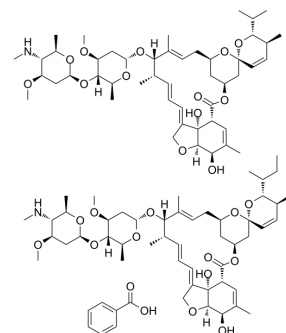


Emamectin Benzoate

Cat. No.:	HY-B0837
CAS No.:	155569-91-8
Molecular Formula:	C ₄₉ H ₇₅ NO ₁₃ ·C ₇ H ₆ O ₂
Target:	Parasite; GABA Receptor; Reactive Oxygen Species; Apoptosis
Pathway:	Anti-infection; Membrane Transporter/Ion Channel; Neuronal Signaling; Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB; Apoptosis
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro	DMSO : ≥ 31 mg/mL * "≥" means soluble, but saturation unknown.
In Vivo	<ol style="list-style-type: none"> Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.08 mg/mL (Infinity mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.08 mg/mL (Infinity mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.08 mg/mL (Infinity mM); Clear solution

BIOLOGICAL ACTIVITY

Description	Emamectin Benzoate (MK-244) is an orally active nervous system toxicant by binding g-aminobutyric (GABA) receptor in insects. Emamectin Benzoate is one of semi-synthetic derivative of Avermectin (HY-15311) with a broad spectrum of insecticidal and acaricidal activity. Emamectin Benzoate induces ROS-mediated DNA damage and cell apoptosis. Emamectin Benzoate, a mixture of the natural Emamectin B1a benzoate and Emamectin B1b benzoate, has the main component of Emamectin B1a benzoate ^{[1][2]} .
IC₅₀ & Target	GABA Receptor
In Vitro	<p>Emamectin Benzoate (MK-244; 2.5-40 μM; 12 and 24 h) decreases cell viability in a time- and dose-dependent manner^[1]. Emamectin Benzoate (2.5-20 μM; 24 hours) induces apoptosis and DNA damage in 16HBE cells. Emamectin Benzoate induces ROS generation in 16HBE cells^[1].</p> <p>Emamectin Benzoate (2.5-20 μM; 12 hours) increases the amounts of cytochrome-c, caspase-3, cas-pase-9, cleaved-PARP, Bax/Bcl-2^[1].</p> <p>Emamectin Benzoate (2.5, 5, 10, 15 μM; 72 h) inhibits cell viability with an IC₅₀ of 3.72 μM in Trichoplusia Tn5B1-4 cell. Emamectin Benzoate induces chromatin condensation in nuclei and cell apoptosis^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p> <p>Cell Viability Assay^[1]</p>

Cell Line:	human normal bronchial epithelial cell line 16HBE
Concentration:	2.5, 5, 7.5, 10, 15, 20, 40 μ M
Incubation Time:	12 and 24 hours
Result:	Decreased cell viability in a time- and dose-dependent manner with IC_{50} s of 11.88 μ M and 9.67 μ M in 12 and 24 hours, respectively.

Apoptosis Analysis^[1]

Cell Line:	human normal bronchial epithelial cell line 16HBE
Concentration:	2.5, 5, 10, 20 μ M
Incubation Time:	24 hours
Result:	Induced apoptosis and caused chromatin shrinkage and nuclear fragmentation.

Western Blot Analysis^[1]

Cell Line:	human normal bronchial epithelial cell line 16HBE
Concentration:	2.5, 5, 10, 20 μ M
Incubation Time:	12 hours

Caution: Product has not been fully validated for medical applications. For research use only.
 Result: Increased the amounts of cytochrome-c, caspase-3, caspase-9, cleaved-PARP, Bax/Bcl-2.
 Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

In Vivo

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA
 Emamectin Benzoate (MK-244; oral; 25-100 mg/kg/day; for 14 days) causes a marked induction of oxidative damage in liver tissue^[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	10 weeks old Swiss albino male mice (25-30 g) ^[3]
Dosage:	25, 50, 100 mg/kg
Administration:	Oral; daily; for 14 days
Result:	Caused a marked induction of oxidative damage in liver tissue as demonstrated by an increased level of TBARS and reduced GSH level.

REFERENCES

- [1]. Chenguang Niu, et al. Toxic effects of the Emamectin Benzoate exposure on cultured human bronchial epithelial (16HBE) cells. Environ Pollut. 2020 Feb;257:113618.
- [2]. Shaorong Luan, et al. Emamectin benzoate induces ROS-mediated DNA damage and apoptosis in Trichoplusia Tn5B1-4 cells. Chem Biol Interact. 2017 Aug 1;273:90-98.
- [3]. Özge Temiz, et al. Biopesticide emamectin benzoate in the liver of male mice: evaluation of oxidative toxicity with stress protein, DNA oxidation, and apoptosis biomarkers. Environ Sci Pollut Res Int. 2020 Jun;27(18):23199-23205.