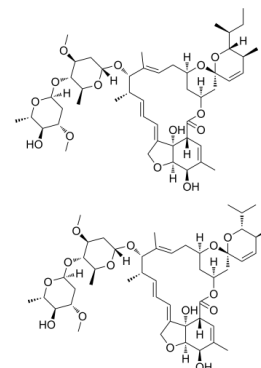


## Data Sheet

<b>Product Name:</b>	Avermectin B1
<b>Cat. No.:</b>	CS-0721
<b>CAS No.:</b>	71751-41-2
<b>Molecular Formula:</b>	C <sub>48</sub> H <sub>72</sub> O <sub>14</sub> (for Avermectin B1a)
<b>Molecular Weight:</b>	873.09
<b>Target:</b>	Antibiotic; Apoptosis; Autophagy; Parasite; Reactive Oxygen Species
<b>Pathway:</b>	Anti-infection; Apoptosis; Autophagy; Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB
<b>Solubility:</b>	DMSO : ≥ 247 mg/mL (142.60 mM)



### BIOLOGICAL ACTIVITY:

Avermectin B1 (Abamectin) is a mixture of two similar segments of avermectin. Avermectin B1 is an orally **anti-infection** agent, which can be used in the research of parasitic worms, insect pests, agriculture and animal husbandry. Avermectin B1 can also induce the production of ROS and induces **cytotoxicity**, **apoptosis** and **autophagy**<sup>[1][2][4]</sup>. *In Vitro*: Avermectin B1 (0-80 μM, 12 h) induces cytotoxicity through MAPK and ATM/ATR pathway in mouse embryonic fibroblast (MEF) cells, and induces ROS-mediated DNA damage<sup>[1]</sup>.

? Avermectin B1 (36 μg/mL, 72 h) has strong nematicidal effect of on *G. pallida* in aqueous solution, and negatively influences viability and infectivity of *G. pallida* J2 detected in potato roots(cv. Spunta)<sup>[2]</sup>.

? Abamectin (10 μM, 24 h) induces significant cytotoxicity by overproduction of ROS in haemocytes of *Eriocheir sinensis*<sup>[3]</sup>.

? Abamectin (4 μM, 24 h) induces apoptosis and autophagy by inhibiting ROS-mediated PI3K/AKT signaling in MGC803 cells<sup>[4]</sup>. *In Vivo*: Avermectin B1 (oral administration, 0.2 mg/kg for a single dose) is highly efficacious against intestinal strongyles and *Onchocera microfilaria* in horses<sup>[5]</sup>.

### References:

- [1]. [1] Yiran Liang, et al. Abamectin induces cytotoxicity via the ROS, JNK, and ATM/ATR pathways. PLoS One. Environ Sci Pollut Res Int. 2020 Apr;27(12):13726-13734.
- [2]. Nicola Sasanelli, et al. Abamectin Efficacy on the Potato Cyst Nematode *Globodera pallida*. Plants (Basel). 2019 Dec 19;9(1):12.
- [3]. Yi Huang, et al. Cytotoxicity induced by abamectin exposure in haemocytes of Chinese mitten crab, *Eriocheir sinensis*. Environ Toxicol Pharmacol. 2020 Jul;77:103384.
- [4]. Shanshan Zhu, et al. Abamectin induces apoptosis and autophagy by inhibiting reactive oxygen species-mediated PI3K/AKT signaling in MGC803 cells. J Biochem Mol Toxicol. 2019 Jul;33(7):e22336.
- [5]. Mogg TD, et al. Efficacy of avermectin B1 given orally against equine intestinal strongyles and *Onchocera microfilaria*. Aust Vet J. 1990 Nov;67(11):399-401.
- [6]. Peyami Sari, et al. Pharmacokinetics of Abamectin/Levamisole Combination in a Medium Chain Mono and Diglyceride-Based Vehicle and an In Vitro Release and In Vitro In Vivo Correlation Study for Levamisole. AAPS PharmSciTech. 2017 May;18(4):1254-1260.

### CAIndexNames:

A mixture of Avermectin B1a (at least 80%) and Avermectin B1b

**SMILES:**

C[C@@H](CC)[C@]1([H])[C@@H](C)C=C[C@@]2(O[C@@]3([H])C[C@]([H])(OC([C@@]4([H])[C@@]/C(CO5)=C/C=C/[C@H](C)[C@H](O[C@@]6([H])C[C@H](OC)[C@@H](O[C@]7([H])O[C@@H](C)[C@H](O)[C@@H](OC)C7)[C@H](C)O6)/C(C)=C/C3(O)[C@@]5([H])[C@H](O)C(C)=C4)=O)C2)O1.C[C@@H]8C=C[C@@]9(O[C@@]10([H])C[C@]([H])(OC([C@@]11([H])[C@@]/C(CO%12)=C/C=C/[C@H](C)[C@H](O[C@@]13([H])C[C@H](OC)[C@@H](O[C@]14([H])O[C@@H](C)[C@H](O)[C@@H](OC)C%14)[C@H](C)O%13)/C(C)=C/C%10(O)[C@@]12([H])[C@H](O)C(C)=C%11)=O)C9)O[C@@H]8C(C)C

**Caution: Product has not been fully validated for medical applications. For research use only.**

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