Avermectin B1a

Cat. No.: HY-15308
CAS No.: 65195-55-3
Molecular Formula: \( C_{48}H_{72}O_{14} \)
Molecular Weight: 873.08
Target: Parasite; Antibiotic
Pathway: Anti-infection
Storage:
- Powder: 
  - -20°C: 3 years
  - 4°C: 2 years
- In solvent:
  - -80°C: 2 years
  - -20°C: 1 year

SOLVENT & SOLUBILITY

In Vitro
DMSO: 25 mg/mL (28.63 mM; ultrasonic and warming and heat to 60°C)

<table>
<thead>
<tr>
<th>Concentration</th>
<th>Mass 1 mg</th>
<th>Mass 5 mg</th>
<th>Mass 10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>1.1454 mL</td>
<td>5.7269 mL</td>
<td>11.4537 mL</td>
</tr>
<tr>
<td>5 mM</td>
<td>0.2291 mL</td>
<td>1.1454 mL</td>
<td>2.2907 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.1145 mL</td>
<td>0.5727 mL</td>
<td>1.1454 mL</td>
</tr>
</tbody>
</table>

Preparing Stock Solutions

Please refer to the solubility information to select the appropriate solvent.

In Vivo
1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (2.86 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (2.86 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
Avermectin B1a is an antiparasitic agent that paralyzes nematodes without causing hypercontraction or flaccid paralysis.

In Vitro
\[^{3}\text{H}]\text{AVM B1a}\) preferentially binds to synaptic membranes from several regions of rat brain. \[^{3}\text{H}]\text{AVM B1a}\) specific binding to intact monolayers of granule cells increases rapidly with time of incubation and reaches equilibrium after approximately 20 min at 24°C. Higher concentrations of \[^{3}\text{H}]\text{AVM B1a}\) leads to markedly greater nonspecific binding, 60% at 25 nM. Various AVM analogs also produce concentration-dependent inhibition of \[^{3}\text{H}]\text{AVM B1a}\) binding in intact cerebellar neurons. AVM B1a and moxidectin are similar in potency (IC\textsubscript{50} values, 120 and 126 nM, respectively)\textsuperscript{[3]}. AVMB1a-stimulated chloride efflux from mouse brain synaptic vesicles results from the activation of GABA-insensitive chloride channels and that this action is distinct from their previously documented effects on GABA-gated chloride channels in mouse brain preparations\textsuperscript{[4]}. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
**In Vivo**

Bacteria are significantly inhibited when the AVM B1a concentration is higher than 83.3 mg/kg, while fungi are less impaired in soil. Soil respiration is also inhibited by high concentration AVM B1a, which differs with soil types. The half lethal dosage (LD$_{50}$) of AVM B1a to soil earthworm is estimated as 4.63 mg x cm$^2$ in filter paper contact test, and as 24.13 and 17.06 mg/kg, respectively after treated 7 and 14 days in artificial soil$^{[1]}$. In artificial soil, the LC$_{50}$ of AVM B1a on earthworms are 24.1 mg/kg and 17.1 mg/kg, respectively, for 7 and 14 days. About 80.0% and 94.8% of the accumulated AVM B1a are eliminated respectively in two groups within 1 day after they are exposed to AVM B1a-free soil, but a trace amount of AVM B1a is found for a relative long time in earthworms$^{[2]}$.

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

**REFERENCES**


