Kanamycin sulfate

Cat. No.: HY-16566A
CAS No.: 25389-94-0
Molecular Formula: C₁₈H₃₈N₄O₁₅S
Molecular Weight: 582.58
Target: Bacterial
Pathway: Anti-infection
Storage: Powder -20°C 3 years
4°C 2 years
In solvent -80°C 6 months
-20°C 1 month

SOLVENT & SOLUBILITY

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Mass (mL)</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>H₂O (171.65 mM; Need ultrasonic)</td>
<td>1 mg</td>
<td>1.7165 mL</td>
<td>8.5825 mL</td>
<td>17.1650 mL</td>
</tr>
<tr>
<td>DMSO (insoluble or slightly soluble)</td>
<td>5 mM</td>
<td>0.3433 mL</td>
<td>1.7165 mL</td>
<td>3.4330 mL</td>
</tr>
<tr>
<td></td>
<td>10 mM</td>
<td>0.1717 mL</td>
<td>0.8583 mL</td>
<td>1.7165 mL</td>
</tr>
</tbody>
</table>

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

BIOLOGICAL ACTIVITY

Description
Kanamycin sulfate is an aminoglycoside bacteriocidal antibiotic which acts by binding to the bacterial 30S ribosomes.

In Vitro
Kanamycin sulfate at the concentration above 0.0025% has a significant inhibition on the growth of B. bifidum and has no influence on the other four probiotics at incubation 12 h or 24 h. The optimum selective concentration of kanamycin sulfate in MRS media is 0.005% for selective enumeration of B.bifidum[3].

In Vivo
The neurons damage of the DCN caused by kanamycin (500 mg/kg/day) is reversible and autophagy is upregulated in the neurotoxic course of kanamycin on DCN through JNK1-mediated phosphorylation of Bcl-2 pathway in rats. The serum BUN and Cr levels are both increased at the 1st day after the period of kanamycin administration. The neurons expressing LC3 are increased at 1, 7 and 14 days after kanamycin administration in comparison to the control group. Kanamycin treatment results in the increase of autophagy in a time-dependent manner[1]. Kanamycin sulfate (5 mg/kg) and sodium ampicillin (10 mg/kg) administered intramuscularly (i.m.) separately, and then together, to five pony mares, and the ampicillin concentration exceeds 5 mg/mL in inflamed synovial fluid for some 2.5 h after
PROTOCOL

Animal Administration [1]

Sixty-six male Sprague-Dawley rats (initial body weight 125-150 g, 5-6 weeks old) have free access to water and a regular diet, and are allowed 1 week of acclimation before the first treatment. The animals are divided randomly into one control group and seven experimental groups. Control group rats (n=10) are injected subcutaneously with an equal volume of vehicle (0.9% saline) for 10 days as those in the groups of kanamycin treatment, but without kanamycin. The experimental groups (n=56, 8 for each group: 1, 7, 14, 28, 56, 70 and 140 days after kanamycin administration, respectively) receive 500 mg of kanamycin sulfate/kg/day by subcutaneous injection for 10 days. The animal body weight is monitored every day and the injection dosage of kanamycin is adjusted accordingly. Auditory thresholds are tested by ABR. The tests are taken twice for each animal, first prior to the beginning of administration and then at different observing time points after kanamycin treatment. Details for the ABR measurement is described elsewhere.

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

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REFERENCES


