**Gatifloxacin**

**Cat. No.:** HY-10581  
**CAS No.:** 112811-59-3  
**Molecular Formula:** C₁₉H₂₂FN₃O₄  
**Molecular Weight:** 375.39  
**Target:** Bacterial; Topoisomerase; Antibiotic  
**Pathway:** Anti-infection; Cell Cycle/DNA Damage  
**Storage:** 4°C, stored under nitrogen  
* In solvent: -80°C, 6 months; -20°C, 1 month (stored under nitrogen)

**SOLVENT & SOLUBILITY**

| In Vitro | DMSO: 2 mg/mL (5.33 mM; Need ultrasonic)  
|          | H₂O: 1 mg/mL (2.66 mM; Need ultrasonic)  

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>Concentration</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 mM</td>
<td>2.6639 mL</td>
<td>13.3195 mL</td>
<td>26.6390 mL</td>
</tr>
<tr>
<td></td>
<td>5 mM</td>
<td>0.5328 mL</td>
<td>2.6639 mL</td>
<td>5.3278 mL</td>
</tr>
<tr>
<td></td>
<td>10 mM</td>
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</tr>
</tbody>
</table>

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

**BIOLOGICAL ACTIVITY**

**Description**  
Gatifloxacin (AM-1155; BMS-206584; PD135432) is a potent fluoroquinolone antibiotic with broad-spectrum antibacterial activity. Gatifloxacin inhibits bacterial type II topoisomerases (IC₅₀=13.8 μg/ml for S. aureus topoisomerase IV) and E. coli DNA gyrase (IC₅₀=0.109 μg/ml)[1]. Gatifloxacin can be used to treat bacterial conjunctivitis in vivo.

**IC₅₀ & Target**  
Topoisomerase II  
IC₅₀ = 36.7 μM

**In Vitro**  
Gatifloxacin is against S. aureus MS5935 topoisomerase IV, E. coli NIHJ JC-2 DNA gyrase and HeLa cell topoisomerase II with IC₅₀ values of 13.8 μg/ml, 0.109 μg/ml, and 265 μg/ml, respectively[1].  
Gatifloxacin is against S. aureus MS5935 topoisomerase IV, E. coli NIHJ JC-2 DNA gyrase and HeLa cell topoisomerase II with MIC values of 0.05 μg/ml, 0.0063 μg/ml, and 122 μg/ml, respectively[1].  
Gatifloxacin exhibits antibacterial activities for wild-type strains (MS5935, MS5952, MR5867 and MR6009) the first-, second-, third-, and fourth-step mutants with MIC values of 0.05 to 0.10 μg/ml, 0.20 μg/ml, 1.56 to 3.13 μg/ml, 1.56 to 6.25 μg/ml, and 50 to 200 μg/ml, respectively. Gatifloxacin displays the most potent activity against the second- and third-step mutants (MS5952, MR5867 and MR6009) except for the second-step mutant of strain MS5935[2].  
Gatifloxacin has potent activity against norA transformant NY12 [MIC, 0.39 μg/ml][2].
Gatifloxacin (20-100 μM; 72 hours) significantly decreases insulin content to 60% at Day 1, and continues to be reduced to 50.1% and 44.7% at Day 3 by 20 μM and 100 μM gatifloxacin, respectively[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

**In Vivo**

Gatifloxacin (subcutaneous injection; 100 mg/kg; 3 times a day; 30 days) significantly decreases the number of lesions in mouse footpad with Nocardia brasiliensis[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

<table>
<thead>
<tr>
<th>Animal Model:</th>
<th>Female BALB/c mice with Nocardia brasiliensis in the right hind footpad.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dosage:</td>
<td>100 mg/kg</td>
</tr>
<tr>
<td>Administration:</td>
<td>Subcutaneous injection; 3 times a day; 30 days</td>
</tr>
<tr>
<td>Result:</td>
<td>Reduced the production of lesions in mice.</td>
</tr>
</tbody>
</table>

**REFERENCES**


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