**Schisandrin A**

Cat. No.: HY-N0693  
CAS No.: 61281-38-7

**Molecular Formula:** C₂₄H₃₂O₆  
**Molecular Weight:** 416.51

**Target:** Cytochrome P450; Autophagy  
**Pathway:** Metabolic Enzyme/Protease; Autophagy

**Storage:**  
Powder  
-20°C, 3 years  
4°C, 2 years

In solvent  
-80°C, 6 months  
-20°C, 1 month

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**SOLVENT & SOLUBILITY**

**In Vitro**

DMSO: 50 mg/mL (120.05 mM; Need ultrasonic)  
H₂O: <0.1 mg/mL (insoluble)

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Mass (ml)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mg</td>
<td>2.4009 mL</td>
</tr>
<tr>
<td>5 mg</td>
<td>12.0045 mL</td>
</tr>
<tr>
<td>10 mg</td>
<td>24.0090 mL</td>
</tr>
</tbody>
</table>

Preparation of Stock Solutions

- 1 mM
- 5 mM
- 10 mM

<table>
<thead>
<tr>
<th>Concentration</th>
<th>Stock Solution</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>2.4009 mL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 mM</td>
<td>0.4802 mL</td>
<td></td>
<td>2.4009 mL</td>
<td>4.8018 mL</td>
</tr>
<tr>
<td>10 mM</td>
<td>0.2401 mL</td>
<td>1.2005 mL</td>
<td>2.4009 mL</td>
<td></td>
</tr>
</tbody>
</table>

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 (6.00 mM); Clear solution

2. Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 2.5 mg/mL (6.00 mM); Clear solution

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**BIOLOGICAL ACTIVITY**

**Description**  
Schisandrin A inhibits CYP3A activity with an IC₅₀ of 6.60 μM and Kᵢ of 5.83 μM, respectively.

**IC₅₀ & Target**  
CYP3A  
6.6 μM (IC₅₀)  
Autophagy

**In Vitro**  
Schisandrin A (Sch A) strongly inhibits microsomal midazolam 1-hydroxylation catalyzed by CYP3A, with an IC₅₀ of 6.60 μM. The recovery of enzyme activity in the absence or presence of Schisandrin A is shown in dilution assay plots. The Kᵢ value for Schisandrin A is obtained from the Dixon plots and is 5.83 μM. The inactivation of rat liver
microsomal midazolam 1-hydroxylation activity by Schisandrin A in the presence of NADPH is found to be time- and concentration-dependent. The \( K_{\text{inact}} \) and \( K_i \) are estimated to be 0.134/min and 4.51 \( \mu \)M, respectively for Schisandrin A [1].

In Vivo  
Schisandrin A (SchA) significantly inhibits CYP3A activity in rat hepatic microsomes and \( V_{\text{max}} \) value of each group in a concentration-dependent manner. The double-reciprocal plots and the secondary plot show that Schisandrin A inhibits CYP3A activity, with an apparent \( K_i \) value of 30.67 mg/kg. In each Schisandrin A-treated group, Schisandrin A also significantly decreases 1-hydroxymidazolam plasma concentrations compared with the negative group (to levels similar to the positive group)[2].

### PROTOCOL

**Kinase Assay** [1]  
For the inactivation of CYP3A4 activity, microsomes are preincubated with inhibitors (Schisandrin A, 2.4 \( \mu \)M, 7.2 \( \mu \)M and 12.0 \( \mu \)M; or Sch B) at 37°C for up to 15 min in the presence of NADPH. Reactions are initiated with the addition of substrate midazolam and incubated at 37°C for 10 min. The enzyme inactivation is analyzed. Duplicates are prepared and tested[1].  
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

**Animal Administration** [2]  
Rats[2]  
**Healthy male Sprague-Dawley rats**, weighing 250-280 g and 2-3 months of age, are used. The rats are randomly divided into five groups with 16 rats in each group. The animals are administered once daily for three consecutive days. The Schisandrin A-treated groups are administered intragastrically with doses of 32, 16 or 8 mg/kg of **Schisandrin A** (physiological saline as vehicle), and the rats are similarly administered with equal volume of vehicle in the negative control group and **Ketoconazole** (75 mg/kg) in the positive control group. All animals are allowed free access to food but are fasted overnight before scarification to reduce the intestinal content, and each group is randomly divided into two parts with eight rats in each part[2].  
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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### REFERENCES


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

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