25-Hydroxycholesterol

**Cat. No.:** HY-113134  
**CAS No.:** 2140-46-7  
**Molecular Formula:** $C_{27}H_{46}O_2$  
**Molecular Weight:** 402.65

**Target:** Endogenous Metabolite  
**Pathway:** Metabolic Enzyme/Protease

**Storage:**  
- Powder: -20°C 3 years  
- 4°C: 2 years  
- In solvent: -80°C 6 months  
- -20°C: 1 month

**SOLVENT & SOLUBILITY**

**In Vitro**

- Ethanol: 14.29 mg/mL (35.49 mM; Need ultrasonic)  
- DMSO: 5 mg/mL (12.42 mM; Need ultrasonic)

**Preparing Stock Solutions**

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Mass</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ethanol</td>
<td>5 mg</td>
<td>2.4835 mL</td>
<td>12.4177 mL</td>
<td>24.8355 mL</td>
</tr>
<tr>
<td>DMSO</td>
<td>10 mg</td>
<td>0.4967 mL</td>
<td>2.4835 mL</td>
<td>4.9671 mL</td>
</tr>
</tbody>
</table>

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

**In Vivo**

1. Add each solvent one by one: 50% PEG300 >> 50% saline  
   - Solubility: 10 mg/mL (24.84 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
   - Solubility: ≥ 0.5 mg/mL (1.24 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil  
   - Solubility: ≥ 0.5 mg/mL (1.24 mM); Clear solution

**BIOLOGICAL ACTIVITY**

**Description**

25-Hydroxycholesterol is a metabolite of cholesterol that is produced and secreted by macrophages in response to Toll-like receptor (TLR) activation. 25-hydroxycholesterol is a potent (EC$_{50}$=65 nM) and selective suppressor of IgA production by B cells.

| IC$_{50}$ & Target | Human Endogenous Metabolite | Human Endogenous Metabolite |
The synthesis of 25-hydroxycholesterol is catalyzed by the enzyme cholesterol 25-hydroxylase, which uses cholesterol and molecular oxygen as substrates and NADPH as a cofactor. 25-hydroxycholesterol is a potent bioactive lipid in the innate and adaptive immune systems[1].

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

## CUSTOMER VALIDATION

- Cell Metab. 2022 Aug 23;S1550-4131(22)00348-5.
- Int Immunopharmacol. 2021 Apr 17;96:107643.
- Viruses. 2022 Feb 8;14(2):353.

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## REFERENCES