**β-Apo-13-carotenone**

Cat. No.: HY-101953
CAS No.: 17974-57-1
Molecular Formula: \( \text{C}_{18}\text{H}_{26}\text{O} \)
Molecular Weight: 258.4
Target: Others
Pathway: Others
Storage: 4°C, protect from light, stored under nitrogen
* In solvent: -80°C, 6 months; -20°C, 1 month (protect from light, stored under nitrogen)

**SOLVENT & SOLUBILITY**

In Vitro

- **DMSO**: 33.33 mg/mL (128.99 mM; Need ultrasonic)
- **H\(_2\)O**: < 0.1 mg/mL (insoluble)

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>Solvent Concentration</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td>1 mM</td>
<td>3.8700 mL</td>
<td>19.3498 mL</td>
<td>38.6997 mL</td>
</tr>
<tr>
<td></td>
<td>5 mM</td>
<td>0.7740 mL</td>
<td>3.8700 mL</td>
<td>7.7399 mL</td>
</tr>
<tr>
<td></td>
<td>10 mM</td>
<td>0.3870 mL</td>
<td>1.9350 mL</td>
<td>3.8700 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: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (9.67 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (9.67 mM); Clear solution

**BIOLOGICAL ACTIVITY**

Description

β-Apo-13-carotenone (D’Orenone) is a naturally occurring β-apocarotenoid functioned as an antagonist of RXR\(\alpha\).

In Vitro

β-apo-13-carotenone is identified as enzymatic cleavage products of β-carotene in homogenates of intestinal mucosa of rat. β-apo-13-carotenone is found to antagonize the activation of RXR\(\alpha\) by 9-cis-retinoic acid and is effective at concentrations as low as 1nM. Molecular modeling studies reveal that β-apo-13-carotenone makes molecular interactions like an antagonist of RXR\(\alpha\)[1]. β-apo-13-carotenone competes for 9cRA binding to RXR\(\alpha\) with an affinity (7–8 nM) identical to 9cRA itself. β-apo-13-carotenone antagonizes 9cRA activation of full-length hRXR\(\alpha\) with a similar efficiency as the known antagonist UVI3003. β-apo-13-carotenone induces formation of the RXR\(\alpha\) transcriptionally silent tetramer but does not inhibit coactivator recruitment to the isolated LBD[2]. The uptake and/or...
metabolism of β-apo-13-carotenone does not allow for accumulation of these β-carotene metabolites in cells. 3T3-L1 adipocyte marker gene expression is induced by β-apo-carotenoid treatment\(^{[3]}\).

### PROTOCOL

**Kinase Assay**\(^{[1]}\)

| Cos-1 cells are transfected in serum-free medium with three plasmids mixed in the following amounts per well, 0.05 µg of pRL-TK, 2 µg of pRXRE-luciferase, 2.5 µg of pSG5-RXRα in triplicates. Following transfection, the plates are incubated at 37°C in 5% CO\(_2\) for 4 h. The medium is then changed to complete DMEM. Charcoal stripped FBS has been treated with activated carbon to adsorb lipophilic compounds including retinoids. Twenty hours after transfection, cells are treated with test compounds (β-Apo-13-carotenone) that are dissolved in ethanol or 0.1% ethanol alone for an additional 24 h. Cells are washed once with PBS and lysed by incubation with 500 µL passive lysis buffer for 15 min at room temperature. A 20-µL aliquot of cell lysate is then assayed for luciferase activities using a kit \(^{[1]}\). |

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

### REFERENCES


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

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