Miquelianin

Cat. No.: HY-13930
CAS No.: 22688-79-5
Molecular Formula: C_{21}H_{18}O_{13}
Molecular Weight: 478.36
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

DMSO: ≥ 30 mg/mL (62.71 mM)
* "≥" means soluble, but saturation unknown.

<table>
<thead>
<tr>
<th>Preparing Stock Solutions</th>
<th>Solvent Concentration</th>
<th>Mass</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 mM</td>
<td></td>
<td>2.0905 mL</td>
<td>10.4524 mL</td>
<td>20.9048 mL</td>
</tr>
<tr>
<td></td>
<td>5 mM</td>
<td></td>
<td>0.4181 mL</td>
<td>2.0905 mL</td>
<td>4.1810 mL</td>
</tr>
<tr>
<td></td>
<td>10 mM</td>
<td></td>
<td>0.2090 mL</td>
<td>1.0452 mL</td>
<td>2.0905 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 (5.23 mM); Clear solution

2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (5.23 mM); Clear solution

3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (5.23 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
Miquelianin (Quercetin 3-O-glucuronide) is a metabolite of quercetin and a type of natural flavonoid.

IC_{50} & Target
Human Endogenous Metabolite
In Vitro

Miquelianin shows an antioxidant effect in human plasma. At 50 μM, miquelianin suppresses the consumption of the three antioxidants lycopene, β-carotene and α-tocopherol significantly[1]. In vitro studies indicate that miquelianin is able to reach the central nervous system from the small intestine[2]. Miquelianin significantly reduces the generation of β-amyloid (Aβ) peptides by primary neuron cultures generated from the Tg2576 AD mouse model. It is also capable of interfering with the initial protein-protein interaction of Aβ1–40 and Aβ1–42 that is necessary for the formation of neurotoxic oligomeric Aβ species[3]. Treatment with 0.1 μM miquelianin suppresses ROS generation, cAMP and RAS activation, phosphorylation of ERK1/2 and the expression of HMOX1, MMP2, and MMP9 genes. Miquelianin suppresses invasion of MDA-MB-231 breast cancer cells and MMP-9 induction, and inhibits the binding of [3H]-NA to b2-AR. Miquelianin may function to suppress invasion of breast cancer cells by controlling b2-adrenergic signaling, and may be a dietary chemopreventive factor for stress-related breast cancer[4].

In Vivo

Miquelianin treatment, compared to vehicle-control treatment, significantly improves AD-type deficits in hippocampal formation basal synaptic transmission and long-term potentiation[3]. A flavonoid fraction obtained from a crude extract of Hypericum perforatum (St. John’s wort) is remarkably active in the forced swimming test. Miquelianin is one of the compound separated from the fraction[5].

PROTOCOL

Animal Administration [5]

Rats: Miquelianin is administered orally using the gavage techniques. The rats are treated with 0.6 mg/kg miquelianin for 12 days. Antidepressant activity is performed using the Forced Swimming Test[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES


