Tomatidine

Cat. No.: HY-N2149
CAS No.: 77-59-8
Molecular Formula: C_{27}H_{45}NO_{2}
Molecular Weight: 415.65
Target: NF-κB; JNK; Autophagy
Pathway: NF-κB; MAPK/ERK Pathway; Autophagy
Storage: Powder -20°C 3 years
 Storage: 4°C 2 years
 In solvent: -80°C 6 months
 In solvent: -20°C 1 month

SOLVENT & SOLUBILITY

In Vitro
DMSO : 2.86 mg/mL (6.88 mM; Need ultrasonic)
0.1 M HCL : < 1 mg/mL (insoluble)

Preparing Stock Solutions

<table>
<thead>
<tr>
<th>Solvent</th>
<th>Mass Concentration</th>
<th>1 mg</th>
<th>5 mg</th>
<th>10 mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 mM</td>
<td>2.4059 mL</td>
<td>12.0294 mL</td>
<td>24.0587 mL</td>
<td></td>
</tr>
<tr>
<td>5 mM</td>
<td>0.4812 mL</td>
<td>2.4059 mL</td>
<td>4.8117 mL</td>
<td></td>
</tr>
<tr>
<td>10 mM</td>
<td>...</td>
<td>...</td>
<td>...</td>
<td></td>
</tr>
</tbody>
</table>

In Vivo
1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 0.29 mg/mL (0.70 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 0.29 mg/mL (0.70 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 0.29 mg/mL (0.70 mM); Clear solution

BIOLOGICAL ACTIVITY

Description
Tomatidine acts as an anti-inflammatory agent by blocking NF-κB and JNK signaling\cite{1}. Tomatidine activates autophagy either in mammal cells or C elegans\cite{2}.

IC_{50} & Target
p65      JNK

In Vitro
Tomatidine decreases inducible NO synthase and COX-2 expression through suppression of I-κBα phosphorylation, NF-κB
nuclear translocation and JNK activation, which in turn inhibits c-jun phosphorylation and Oct-2 expression. Tomatidine, solasodine and diosgenin (40 μM) show 66%, 22% and 41% inhibition of nitrite production, respectively. The iNOS protein is barely detectable in unstimulated cells but markedly increases after LPS treatment, and Tomatidine causes dose-dependent inhibition of LPS-induced iNOS expression. p65 is the major component of NF-κB in LPS-stimulated macrophages, the effect of Tomatidine on p65 DNA-binding activity is determined. In the presence of Tomatidine at 10-40 μM, the binding activity of NF-κB is suppressed in a dose-dependent manner. Tomatidine inhibits the phosphorylation of I-κB, blocks the I-κB production, and furthermore suppresses p65 NF-κB translocation to the nucleus and modulated binding activity[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay[1]

RAW 264.7 cells, derived from murine macrophages, are cultured in DMEM supplemented with 10% endotoxin-free, heat-inactivated fetal calf serum, Penicillin (100 units/mL), and Streptomycin (100 μg/mL) in a 5% CO₂ atmosphere at 37°C in a humidified incubator. For all assay, cell is plated at 2×10^5 cells/cm² in culture dishes or plates. Treatment with vehicle (0.1% DMSO or 0.1% ethanol), test compounds and/or LPS is carried out under serum-free conditions[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

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REFERENCES
