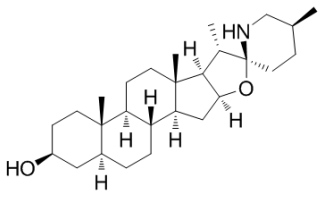
Tomatidine

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
Pathway:	NF-κB; MAPK/ERK Pathway
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 : 2.86 mg/mL (6.88 mM; Need ultrasonic)
H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions	Concentration / Solvent / Mass	1 mg	5 mg	10 mg
	1 mM	2.4059 mL	12.0294 mL	24.0587 mL
	5 mM	0.4812 mL	2.4059 mL	4.8117 mL
	10 mM	0.2406 mL	1.2029 mL	2.4059 mL

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

In Vivo

1. Add each solvent one by one: **10% DMSO >> 90% corn oil**
   Solubility: ≥ 0.29 mg/mL (0.70 mM); Clear solution
2. 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
3. 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

BIOLOGICAL ACTIVITY

Description	Tomatidine acts as an anti-inflammatory agent by blocking **NF-κB** and **JNK** signaling.	
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].

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% CO_2 atmosphere at 37°C in a humidified incubator. For all assay, cell is plated at 2×10^5 cells/cm^2 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.

REFERENCES

[1]. Chiu FL, et al. Tomatidine inhibits iNOS and COX-2 through suppression of NF-kappaB and JNK pathways in LPS-stimulated mouse macrophages. FEBS Lett. 2008 Jul 9;582(16):2407-12.

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