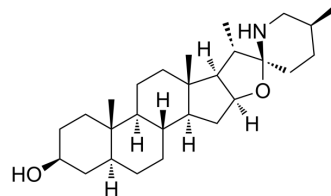


Tomatidine

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; Endogenous Metabolite		
Pathway:	NF-κB; MAPK/ERK Pathway; Autophagy; 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 : 2 mg/mL (4.81 mM; ultrasonic and warming and heat to 60°C)
 0.1 M HCL : < 1 mg/mL (insoluble)

Preparing Stock Solutions	Solvent Concentration	Mass		
		1 mg	5 mg	10 mg
	1 mM	2.4059 mL	12.0294 mL	24.0587 mL
	5 mM	---	---	---
	10 mM	---	---	---

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

In Vivo

- Add each solvent one by one: 50% PEG300 >> 50% saline
 Solubility: 5 mg/mL (12.03 mM); Suspended solution; Need ultrasonic
- 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
- 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
- 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^[1]. Tomatidine activates autophagy either in mammal cells or C elegans^[2].

IC₅₀ & Target

p65 JNK

In Vitro

Tomatidine decreases inducible NO synthase and COX-2 expression through suppression of I- κ B α phosphorylation, NF- κ B nuclear translocation and JNK activation, which in turn inhibits c-jun phosphorylation and Oct-2 expression. Tomatidine, solasodine and diosgenin (40 μ M) 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- κ B in LPS-stimulated macrophages, the effect of Tomatidine on p65 DNA-binding activity is determined. In the presence of Tomatidine at 10-40 μ M, the binding activity of NF- κ B is suppressed in a dose-dependent manner. Tomatidine inhibits the phosphorylation of I- κ B, blocks the I- κ B production, and furthermore suppresses p65 NF- κ B 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 μ g/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.

CUSTOMER VALIDATION

- iScience. 2023 Jul 13.
- Aging. 2020 Jul 5;12(13):12799-12811.
- Eur J Pharmacol. 2020 Sep 5;882:173280.
- FASEB J. 2019 Feb;33(2):2574-2586.
- Research Square Preprint. 2023 Apr 27.

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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.

[2]. Anil Ahsan, et al. Tomatidine Protects Against Ischemic Neuronal Injury by Improving Lysosomal Function. Eur J Pharmacol. 2020 Jun 21;173280.

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

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