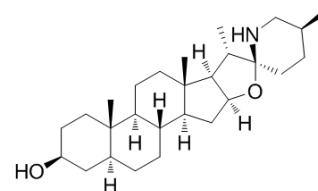


## Tomatidine

<b>Cat. No.:</b>	HY-N2149		
<b>CAS No.:</b>	77-59-8		
<b>Molecular Formula:</b>	C <sub>27</sub> H <sub>45</sub> NO <sub>2</sub>		
<b>Molecular Weight:</b>	415.65		
<b>Target:</b>	NF-κB; JNK; Autophagy		
<b>Pathway:</b>	NF-κB; MAPK/ERK Pathway; Autophagy		
<b>Storage:</b>	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)  
 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	0.4812 mL	2.4059 mL	4.8117 mL
	10 mM	---	---	---

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

#### In Vivo

- 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<sup>[1]</sup>. Tomatidine activates autophagy either in mammal cells or C elegans<sup>[2]</sup>.

#### IC<sub>50</sub> & 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  $\mu\text{M}$ ) 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- $\kappa\text{B}$  in LPS-stimulated macrophages, the effect of Tomatidine on p65 DNA-binding activity is determined. In the presence of Tomatidine at 10-40  $\mu\text{M}$ , the binding activity of NF- $\kappa\text{B}$  is suppressed in a dose-dependent manner. Tomatidine inhibits the phosphorylation of I- $\kappa\text{B}$ , blocks the I- $\kappa\text{B}$  production, and furthermore suppresses p65 NF- $\kappa\text{B}$  translocation to the nucleus and modulated binding activity<sup>[1]</sup>. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## PROTOCOL

### Cell Assay <sup>[1]</sup>

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  $\mu\text{g}/\text{mL}$ ) in a 5%  $\text{CO}_2$  atmosphere at 37°C in a humidified incubator. For all assay, cell is plated at  $2 \times 10^5$  cells/ $\text{cm}^2$  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<sup>[1]</sup>. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## CUSTOMER VALIDATION

- FASEB J. 2019 Feb;33(2):2574-2586.
- Eur J Pharmacol. 2020 Sep 5;882:173280.

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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.**

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA