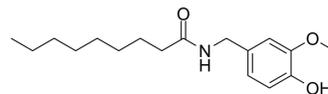


Nonivamide

Cat. No.:	HY-17568		
CAS No.:	2444-46-4		
Molecular Formula:	C ₁₇ H ₂₇ NO ₃		
Molecular Weight:	293.4		
Target:	TRP Channel		
Pathway:	Membrane Transporter/Ion Channel; Neuronal Signaling		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro	DMSO : 100 mg/mL (340.83 mM; Need ultrasonic)					
	Preparing Stock Solutions	Solvent	Mass	1 mg	5 mg	10 mg
		Concentration				
		1 mM		3.4083 mL	17.0416 mL	34.0832 mL
5 mM			0.6817 mL	3.4083 mL	6.8166 mL	
		10 mM		0.3408 mL	1.7042 mL	3.4083 mL
Please refer to the solubility information to select the appropriate solvent.						
In Vivo	<ol style="list-style-type: none"> Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (8.52 mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (8.52 mM); Clear solution Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (8.52 mM); Clear solution 					

BIOLOGICAL ACTIVITY

Description	Nonivamide is an agonist, which exhibits 4d-EC ₅₀ value of 5.1 mg/L in static toxicity tests.
IC₅₀ & Target	TRPV1 ^[1]
In Vitro	Nonivamide, a synthetic derivative of natural capsaicin, has an effective antifouling activity. Capsaicin exhibits 4d-EC ₅₀ values of 5.5±0.5 mg/L, 23±2 mg/L, 6.9±0.2 mg/L, and 15.6±0.4 mg/L in static toxicity tests conducted using <i>Pseudomonas putida</i> , Lake Erie bacteria, <i>Vibrio natriegens</i> , and <i>Vibrio parahaemolyticus</i> , respectively. A significant growth inhibitory effect

($p < 0.01$) is observed in the group treated with 1 mg/L of Nonivamide for 4 d, and the EC_{50} value (4 d- EC_{50}) is 5.1 mg/L^[1]. Nonivamide treatment causes calcium release from the ER and altered the transcription of growth arrest- and DNA damage-inducible transcript 3 (GADD153), GADD45 α , GRP78/BiP, ATF3, CCND1, and CCNG2) in a manner comparable with prototypical ER stress-inducing agents. ER calcium flux is evaluated by pretreating cells with 2.5 μ M thapsigargin for 5 min followed by addition of 2.5 μ M Nonivamide. Treatment of TRPV1-overexpressing cells with 2.5 μ M Nonivamide produces marked increases in cytosolic calcium due to release of calcium from ER stores. Treatment of TRPV1-overexpressing cells with 1 μ M Nonivamide causes an approximate 50% loss in cell viability after a 24-h period. BEAS-2B cells treated with 100 and 200 μ M Nonivamide also exhibits a shift in the relative amount of EIF2 α -P and an increase in the expression of GADD153 mRNA and protein^[2]. Treatment with Nonivamide reduces lipid accumulation to a similar extent as CAP; the effects are not different from the effects after CAP treatment at any of the tested concentrations. Compared to untreated control cells, treatment with Nonivamide decreases lipid accumulation by $5.34 \pm 1.03\%$ ($P < 0.05$) at 0.01 μ M up to $10.4 \pm 2.47\%$ ($P < 0.001$) at 1 μ M^[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Cell Assay^[3]

In the MTT assay, the reduction of yellow tetrazolium salt MTT to a purple formazan by mitochondrial and ER enzymes is used as a measure for cell viability. Cells are seeded in 96-well plates and treated with 1 nM-10 μ M CAP or Nonivamide with or without addition of 25-100 μ M BCH or the corresponding ethanol concentration (0.1-0.2% (v/v), solvent control) for 12 days after initiation of differentiation. Cell culture media is exchanged every second day. On Day 12, 100 μ L of the MTT working reagent (0.83 mg/mL MTT diluted in PBS/serum-free media (1:5)), is added to each well, and cells are incubated at 37°C for approximately 15 min. The MTT working solution is removed and the purple formazan formed during incubation is dissolved in 150 μ L DMSO per well. Absorbance is measured at 550 nm with 690 nm as reference wavelength using multiwell plate reader. The number of metabolically active cells is calculated relative to untreated control cells or the corresponding solvent control (100%)^[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

- [1]. Zhou J, et al. Toxic effects of environment-friendly antifoulant Nonivamide on *Phaeodactylum tricornutum*. *Environ Toxicol Chem*. 2013 Apr;32(4):802-9.
- [2]. Thomas KC, et al. Transient receptor potential vanilloid 1 agonists cause endoplasmic reticulum stress and cell death in human lung cells. *J Pharmacol Exp Ther*. 2007 Jun;321(3):830-8.
- [3]. Rohm B, et al. Nonivamide enhances miRNA let-7d expression and decreases adipogenesis PPAR γ expression in 3T3-L1 cells. *J Cell Biochem*. 2015 Jun;116(6):1153-63.

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

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