Product Data Sheet

Product Name: Nivitol
Cat. No.: GC81846

Chemical Properties

Cas. No.	869743-37-3		
Formula	$C_{18}H_{22}O_4$	M.Wt	302.37
Solubility	DMSO: 100 mg/mL (330.72 mM; Need ultrasonic)	Storage	Store at -20°C
General tips	For obtaining a higher solubility , please warm the tube at 37 °C and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20°C for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		

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

Structure

Background

Nivitol (UP302) is a natural phenolic compound discovered from Dianella ensifolia and also acts as a Tyrosinase inhibitor. Nivitol competitively and reversibly inhibits tyrosinase, suppressing melanin production. Nivitol inhibits homogentisate 1,2-dioxygenase (HGD). In human leukemia cells, Nivitol inhibits PI3K/AKT pathway phosphorylation, increases ROS, decreases mitochondrial membrane potential, and induces G2/M cell cycle arrest, apoptosis, and PINK1/Parkin -mediated mitophagy. Nivitol exhibits inhibition of tumor growth in the MV411 xenograft mouse model. Nivitol is used for research on exogenous ochronosis, hyperpigmentation, and leukemia [1] [2] [3] [4].

In Vivo, Nivitol (UP302) (10 mg/kg; i.p.; once every two days; two weeks) significantly inhibits tumor growth in the MV411 xenograft mouse model, with favorable short-term biosafety[3].

In Vitro, Nivitol (UP302) is a novel, potent, competitive, and reversible mushroom tyrosinase inhibitor

with a Ki of 0.3 μM; it inhibits DOPA oxidase activity in B16-F1 mouse melanoma cell homogenates with an IC_{50} of 12 μM[2]. Nivitol (0-62 μM; 72 h) inhibits melanin production in B16-F1 cells and primary human epidermal melanocytes with IC_{50} values of 15 μM and 8 μM, respectively, and exhibits no cytotoxicity at concentrations up to 62 μM[2]. Nivitol (0.05-0.1%; 4-14 days) significantly inhibits melanogenesis in reconstructed human skin[2]. Nivitol (UP302) (20-120 μM; 48 h) inhibits the growth of MV411 and K562 human leukemia cell lines[3]. Nivitol (30-120 μM; 16 h) induces ROS production and decreases mitochondrial membrane potential in MV411 and K562 cells[3]. Nivitol (40-100 μM; 16 h) induces apoptosis in MV411 and K562 cells[3]. UP302 (30-90 μM; 16 h) alters the expression of apoptosis-related proteins in MV411 and K562 cells; activates mitophagy through the PINK1/Parkin pathway; inhibits the activation of the PI3K/AKT signaling pathway[3]. UP302 (50-100 μM; 16-48 h) induces autophagy and mitophagy in MV411 and K562 cells, and UP302-induced autophagy exerts a protective effect on leukemia cells MV411 and K562[3].

References:

[1]. Ramia de Cap M, et al. Exogenous ochronosis associated with dimethoxytolyl propylresorcinol (UP302). J Dermatol. 2021 Jul;48(7):e312-e313.
[2]. Nesterov A, et al. 1-(2,4-dihydroxyphenyl)-3-(2,4-dimethoxy-3-methylphenyl)propane, a novel tyrosinase inhibitor with strong depigmenting effects. Chemical & pharmaceutical bulletin. 2008 Sep;56(9):1292-6.
[3]. Wei J, et al. Dimethoxytolyl propylresorcinol induces apoptosis and mitophagy in human leukemia cells through the PI3K/AKT pathway. Journal of Cancer. 2024;15(1):103-112.
[4]. Zhang SQ, et al. Quantification of a novel natural antioxidant (UP302) in rat plasma using ultra-high performance liquid chromatography-tandem mass spectrometry. Journal of chromatography. B, Analytical technologies in the biomedical and life sciences. 2011 Dec 01;879(31):3763-6.

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