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Dorsomorphin

Catalog No: tcsc2487

Available Sizes

Size: 5mg

Size: 10mg

Size: 50mg

Size: 100mg

Specifications

CAS No:
866405-64-3

Formula:
$C_{24}H_{25}N_5O$

Pathway:
Autophagy; Epigenetics; PI3K/Akt/mTOR; TGF-beta/Smad

Target:
AMPK; Autophagy; TGF-β Receptor

Form:
Light yellow to yellow (Solid)

Purity / Grade:
98.18%

Solubility:
H2O : 1 mg/mL (2.50 mM; Need ultrasonic); H2O : 3.33 mg/mL (8.34 mM; ultrasonic and adjust pH to 6 with HCl)
DMSO : 5 mg/mL (12.52 mM; ultrasonic and warming and heat to 80°C)
Ethanol : 3.33 mg/mL (8.34 mM; Need ultrasonic); 1M HCl : 50 mg/mL

Storage Instruction:

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4°C, protect from light Shipping at room temperature if less than 2 weeks.

Alternative Names:
BML-275;Compound C Pyrazolo[1,5-a]pyrimidine, 6-[4-[2-(1-piperidinyl)ethoxy]phenyl]-3-(4-pyridinyl)

Observed Molecular Weight:
399.49

Protocol:
(Extracted from published papers and Only for reference) Cell Assay: Dorsomorphin is dissolved in DMSO (10 mM) and stored, and then diluted with appropriate media (DMSO 0.5%) before use[2]. Animal Administration: Dorsomorphin is prepared as a stock solution in DMSO[3].

References

[1]. Zhou G, et al. Role of AMP-activated protein kinase in mechanism of action. J Clin Invest. 2001 Oct;108(8):1167-74. [2]. Saito S, et al. Compound C prevents the unfolded protein response during glucose deprivation through a mechanism independent of AMPK and BMP signaling. PLoS One. 2012;7(9):e45845. [3]. Yu PB, et al. Dorsomorphin inhibits BMP signals required for embryogenesis and iron metabolism. Nat Chem Biol. 2008 Jan;4(1):33-41. [4]. Kim YM, et al. Compound C independent of AMPK inhibits ICAM-1 and VCAM-1 expression in inflammatory stimulants-activated endothelial cells in vitro and in vivo. Atherosclerosis. 2011 Nov;219(1):57-64. [5]. Guo Y, et al. AMPK inhibition blocks ROS-NFκB signaling and attenuates endotoxemia-induced liver injury. PLoS One. 2014 Jan 24;9(1):e86881.

Product Description

Dorsomorphin (Compound C) is a selective and ATP-competitive**AMPK** inhibitor, that is competitive with ATP, with $\mathbf{K_i}$=109±16 nM in the absence of AMP. Dorsomorphin (BML-275) selectively inhibits BMP type I receptors **ALK2, ALK3, and ALK6.** Dorsomorphin induces autophagy[1][2].

IC50 & Target: Ki: 109±16 nM (AMPK)[1]

In Vitro: Dorsomorphin (compound C) (0-10 μM, 18 h) suppresses 2DG-induced GRP78 promoter activity in human fibrosarcoma HT1080 cells in a dose-dependent manner but has little effect on tunicamycin-induced GRP78 promoter activity. Dorsomorphin (compound C) C also suppresses GRP78 promoter activity induced by glucose withdrawal. Dorsomorphin (compound C) has no effect on 2DG-induced PERK activation and reduces the both basal and 2DG-induced AMPK phosphorylation levels in HT1080 cells[2].[1]

In Vivo: Dorsomorphin (compound C: 10 mg/kg, intravenously once) treatment leads to a 60% increase in total serum iron concentrations, reduces basal levels of hepcidin expression and increasing serum iron concentrations in adult mice[3]. Dorsomorphin (compound C: 0.2 mg/kg, I.V., 30 min before LPS injection) reduces ICAM-1 and VCAM-1 expression in LPS-injected rat aorta[4]. Dorsomorphin (compound C; 25 mg/kg; i.p. injection; in male BALB/c mice) treatment before lipopolysaccharide (LPS) injection significantly reduces lethality in contrast to animals treated with LPS challenge only[5].

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