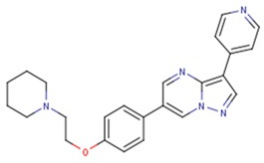
Data Sheet (Cat.No.T1977)

TargetMol
A DRUG SCREENING EXPERT

Dorsomorphin

Chemical Properties



CAS No.:	866405-64-3
Formula:	C24H25N5O
Molecular Weight:	399.49
Appearance:	Solid
Storage:	0-4℃ for short term (days to weeks), or -20℃ for long term (months).

Biological Description

Description	Dorsomorphin is an effective and specific inhibitor of AMPK (AMP-activated protein kinase), which is induced by AICAR and metformin.
Targets(IC_{50})	AMPK: 109nM(Ki)
In vitro	Dorsomorphin inhibits ACC inactivation by either AICAR or metformin, and also attenuates AICAR and metformin's effect to increase fatty acid oxidation or suppress lipogenic genes in hepatocytes. [1] Inhibition of AMPK activity by Dorsomorphin almost completely inhibits autophagic proteolysis in HT-29 cells. [2] in addition, Dorsomorphin selectively inhibits the BMP type I receptors ALK2, ALK3 and ALK6, and thus blocks BMP-mediated SMAD1/5/8 phosphorylation, target gene transcription and osteogenic differentiation. [3]
In vivo	Dorsomorphin (10 mg/kg) reduces basal levels of hepcidin expression and increases serum iron concentrations in adult mice. [3] Dorsomorphin (0.2 mg/kg, i.v.) significantly reduces VCAM-1 and ICAM-1 expression in the thoracic aorta of LPS-treated rats. [4]
Kinase Assay	HT1080 cells are seeded in 24-well plates (2×104 cells per well) and treated with Dorsomorphin in the presence or absence of glucose or 10 mM 2DG for 2 h. HT1080 cells that overexpressed the wild-type and dominant negative AMPKα1 are prepared by transfecting plasmid DNA (pAMPKα1-wt, pAMPKα1-D168A and pcFlag as a control) in 6-well plates, seeding in 24-well plate and treating with UPR inhibitors. Cells are lysed with cell lysis buffer (20 mM Tris-HCl, pH 7.5, 250 mM NaCl, 10% glycerol, 0.5% NP-40, 1 mM EDTA, 1 mM EGTA, 0.2 mM PMSF, 1 μg/mL pepstatin, 0.5 μg/mL leupeptin, 5 mM NaF, 2 mM Na3Vo4, 2 mM β-glycerophosphate, 1 mM DTT). Relative AMPK kinase activity (mean±SD of duplicate determinations) to control sample (vehicle or pcFlag under normal growth conditions) is determined using the CycLex AMPK kinase assay kit[2].

Cell Research	Dorsomorphin is dissolved in DMSO (10 mM) and stored,and then diluted with appropriate media (DMSO 0.5%) before use[2].HeLa and 786-O cells are treated with various concentrations of Dorsomorphin (0,0.3,1,3,10 μM),Versipelostatin and Phenformin in the presence or absence of 10 mM 2DG or 1 μg/mL of Tunicamycin as a stressor for 30 h in 96-well plates.For the combination study,786-O cells are treated with various concentrations of UPR inhibitors in the presence or absence of 10 mM 2DG for 24 h.The medium is then replaced with fresh growth medium,and cells are cultured for a further 15 h.Subsequently,MTT is added to the culture medium,and the absorbance of each well is determined.For the viability assay under glucose-withdrawal conditions,HT1080 cells are treated with various concentrations of Dorsomorphin and phenformin in 12-well plates in the presence or absence of glucose for 18 h,seeded in 96-well plates with growth medium,and then cultured for a further 48 h before MTT is added.Relative cell survival (mean±SD of quadruplicate determinations) is calculated by setting each control absorbance from untreated cells as 100%.The effects of drug combinations at concentrations producing 80% cell growth inhibition (IC80) are analyzed using the isobologram method[2].
Animal Research	Animal Model：Iron-replete mice

Solubility Information

Solubility	DMSO: 10mM (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.503 mL	12.516 mL	25.032 mL
5 mM	0.501 mL	2.503 mL	5.006 mL
10 mM	0.25 mL	1.252 mL	2.503 mL
50 mM	0.05 mL	0.25 mL	0.501 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. The storage conditions and period of the stock solution: - 80 ℃ for 6 months; - 20 ℃ for 1 month. Please use it as soon as possible.

Reference

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