

Product Name: Dorsomorphin dihydrochloride

Catalog No.: 3093

Batch No.: 4

CAS Number: 1219168-18-9

IUPAC Name: 6-[4-[2-(1-Piperidinyl)ethoxy]phenyl]-3-(4-pyridinyl)-pyrazolo[1,5-a]pyrimidine dihydrochloride

1. PHYSICAL AND CHEMICAL PROPERTIES

Batch Molecular Formula: $C_{24}H_{25}N_5O \cdot 2HCl \cdot 1\frac{1}{4}H_2O$

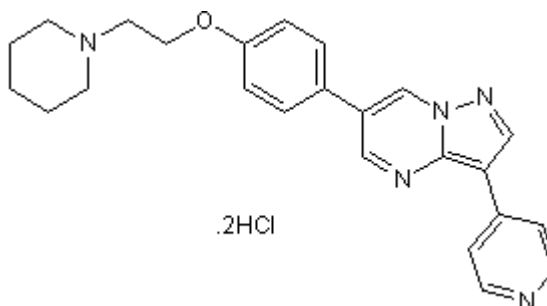
Batch Molecular Weight: 494.93

Physical Appearance: Yellow solid

Solubility: water to 100 mM
DMSO to 20 mM

Storage: Desiccate at RT

Batch Molecular Structure:



2. ANALYTICAL DATA

HPLC: Shows 98.6% purity

¹H NMR: Consistent with structure

Mass Spectrum: Consistent with structure

Microanalysis:

	Carbon	Hydrogen	Nitrogen
Theoretical	58.24	6.01	14.15
Found	58.21	5.89	14.12

Caution - Not Fully Tested • Research Use Only • Not For Human or Veterinary Use

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Description:

Potent and selective inhibitor of AMP-activated protein kinase (AMPK) ($K_i = 109$ nM). Displays no significant activity on several structurally related kinases including ZAPK, SYK, PKC θ , PKA and JAK3. Inhibits AMPK activation induced by AICAR (Cat. No. 2840) and metformin (Cat. No. 2864). Also inhibits bone morphogenetic protein (BMP) type I receptors (ALK2, ALK3 and ALK6). Promotes cardiomyogenesis in mouse embryonic stem cells (ESCs) in vitro. Shown to induce autophagy in cancer cell lines via a mechanism independent of AMPK inhibition.

Physical and Chemical Properties:

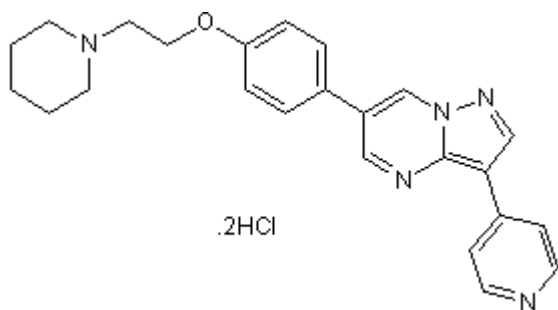
Batch Molecular Formula: C₂₄H₂₅N₅O.2HCl.1 ¼ H₂O

Batch Molecular Weight: 494.93

Physical Appearance: Yellow solid

Minimum Purity: >98%

Batch Molecular Structure:



Storage: Desiccate at RT

Solubility & Usage Info:

water to 100 mM

DMSO to 20 mM

CAUTION - This product is hygroscopic and we recommend that it is desiccated upon arrival.

Stability and Solubility Advice:

Some solutions can be difficult to obtain and can be encouraged by rapid stirring, sonication or gentle warming (in a 45-60°C water bath).

Information concerning product stability, particularly in solution, has rarely been reported and in most cases we can only offer a general guide. Our standard recommendations are:

SOLIDS: Provided storage is as stated on the product label and the vial is kept tightly sealed, the product can be stored for up to 6 months from date of receipt.

SOLUTIONS: We recommend that stock solutions, once prepared, are stored aliquoted in tightly sealed vials at -20°C or below and used within 1 month. Wherever possible solutions should be made up and used on the same day.

References:

Zhou et al (2001) Role of AMP-activated protein kinase in mechanism of metformin action. J.Clin.Invest. **108** 1167. PMID: 11602624.

Yu et al (2008) Dorsomorphin inhibits BMP signals required for embryogenesis and iron metabolism. Nat.Chem.Biol. **4** 33. PMID: 18026094.

Hao et al (2008) Dorsomorphin, a selective small molecule inhibitor of BMP signaling, promotes cardiomyogenesis in embryonic stem cells. PLoS ONE **3** 2904. PMID: 18682835.

Vucicevic et al (2011) Compound C induces protective autophagy in cancer cells through AMPK inhibition-independent blockade of Akt/mTOR pathway. Autophagy **7** 40. PMID: 20980833.

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