

Product Data Sheet

Product Name: ML324
Cat. No.: GC12557

Chemical Properties

Cas. No. 1222800-79-4

Chemical Name N-(3-(dimethylamino)propyl)-4-(8-hydroxyquinolin-6-yl)benzamide

SMILES CN(CCCNC(=O)C1=CC=C(C2=CC(O)=C3C(C=CC=N3)=C2)C=C1)C

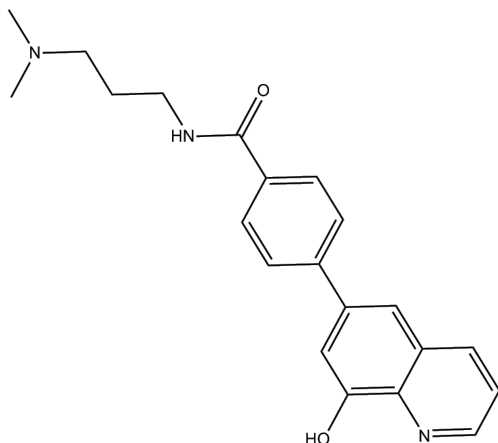
Formula $C_{21}H_{23}N_3O_2$ M.Wt 349.43

Solubility $\geq 17.45\text{mg/mL}$ in DMSO 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.

Structure



Protocol

Cell experiment [1]:

Cell lines HFF cells

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

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Preparation method The solubility of this compound in DMSO is > 17.5 mg/mL. General tips for obtaining a higher concentration: Please warm the tube at 37 °C for 10 minutes and/or shake it in the ultrasonic bath for a while. Stock solution can be stored below - 20 °C for several months.

Reacting condition 5 ~ 50 µM

Applications Compared with DMOG (IC₅₀ = 0.75 mM), ML324 potently reduced IE gene expression, with an IC₅₀ value of 10 µM. Besides, ML324 did not affect the expression of the cellular controls Sp1, S15 and TBP. In HFF cells infected with HSV-1, ML324 lowered viral yields in a dose-dependent manner (~ 4 ~ 5 logs at 25 µM) while 1.5 mM of DMOG was required to cause the same reduction.

Animal experiment [1]:

Animal models A mouse ganglia explant model of latently infected mice

Dosage form 50 µM; 48 hrs

Applications In a mouse ganglia explant model of latently infected mice, ML324 significantly inhibited viral activity. At the concentration of 50 µM, ML324 reduced the viral yield by 4.5 logs for each ganglia. Immunofluorescent staining of explanted ganglia sections showed that ML324 inhibited viral reactivation events. However, the withdrawal of ML324 resulted in marked viral replication.

Other notes Please test the solubility of all compounds indoor, and the actual solubility may slightly differ with the theoretical value. This is caused by an experimental system error and it is normal.

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References:

[1]. Rai G, Kawamura A, Tumber A, Liang Y, Vogel JL, Arbuckle JH, Rose NR, Dexheimer TS, Foley TL, King ON, Quinn A, Mott BT, Schofield CJ, Oppermann U, Jadhav A, Simeonov A, Kristie TM, Maloney DJ. Discovery of ML324, a JMJD2 demethylase inhibitor with demonstrated antiviral activity. 2012 Dec 17 [updated 2013 Sep 16]. Probe Reports from the NIH Molecular Libraries Program [Internet]. Bethesda (MD): National Center for Biotechnology Information (US); 2010-.

Background

ML324 is a potent and cell-permeable JMJD2 demethylase inhibitor ($IC_{50} = 920$ nM). [1]
Jumonji-domain-containing proteins (JMJD) is the largest class of N ϵ -methyl lysine demethylase, an enzyme that demethylates the tri-methylated H3K9. JMJD takes part in gene transcription regulation. [1]

ML324 acted as an antiviral agent that effectively inhibited HSV and hCMV IE gene expression in HFF and MRC-5 cells, resulted in suppression of HSV plaques formation and inhibition of HSV infection spread. [1]

ML324 also blocked HSV-1 reactivation and inhibited the formation of HSV plaque in mouse ganglia explant model of latently infected mice. [1]

References:

1. Rai G, Kawamura A, Tumber A, Liang Y, Vogel JL, Arbuckle JH, Rose NR, Dexheimer TS, Foley TL, King ON, Quinn A, Mott BT, Schofield CJ, Oppermann U, Jadhav A, Simeonov A, Kristie TM, Maloney DJ. Discovery of ML324, a JMJD2 demethylase inhibitor with demonstrated antiviral activity. 2012 Dec 17 [updated 2013 Sep 16]. Probe Reports from the NIH Molecular Libraries Program [Internet]. Bethesda (MD): National Center for Biotechnology Information (US); 2010-.

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