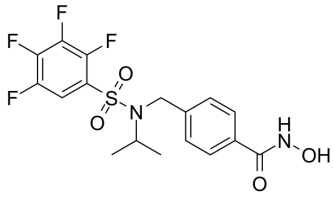
NN-390

Cat. No.:	HY-143877
CAS No.:	2490284-25-6
Molecular Formula:	$C_{17}H_{16}F_4N_2O_4S$
Molecular Weight:	420.38
Target:	HDAC
Pathway:	Cell Cycle/DNA Damage; Epigenetics
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

NN-390 is a potent and selective HDAC6 inhibitor, with an IC_{50} of 9.8 nM. NN-390 penetrates the blood-brain barrier (BBB). NN-390 shows study potential in metastatic Group 3 MB (medulloblastoma)[1].

IC_{50} & Target

HDAC6 9.8 nM (IC_{50})	HDAC3 >1 μM (IC_{50})	HDAC8 >1 μM (IC_{50})	HDAC11 >1 μM (IC_{50})
HDAC1 >5 μM (IC_{50})	HDAC2 >5 μM (IC_{50})		

In Vitro

NN-390 exhibits cellular potency with IC_{50} values of 1.19 μM in MV4-11 cells and 1.38 μM in MM.1S cells while having minimal effects on noncancerous counterparts (IC_{50} > 50 μM in MRC-9)[1].

NN-390 (72 h) strongly decreases proliferation in HD-MB03 cells, with an IC_{50} of 0.13 μM, and significantly impairs self-renewal of BTIC-enriched HD-MB03s[1].

NN-390 (0-2 μM, 1 h) markedly increases acetylation of α-tubulin and minimally changes acetylated histone H3[1].

NN-390 (6 h) results in acetylation of α-tubulin from concentrations as low as 0.1 μM (0-0.2 μM), and dose-dependent increases in acetylation of α-tubulin (0-0.2 μM)[1].

NN-390 (0-2 μM, 24 h) promotes cancer cells apoptosis in MV4-11 cells[1].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Immunofluorescence

Cell Line:	HeLa cells[1]
Concentration:	0, 0.1, 0.25, 1, 2 μM
Incubation Time:	1 h
Result:	Markedly increased acetylation of α-tubulin and minimally changed acetylated histone H3.

Western Blot Analysis

Cell Line:	AML (MV4-11) cells[1]
Concentration:	0, 0.1, 0.5, 1, 5 μM
Incubation Time:	6 h

Result:	Resulted in acetylation of α-tubulin from concentrations as low as 0.1 μM and with limited acetylation of histone H3 at only the highest concentration of 5 μM.

Western Blot Analysis

Cell Line:	Group 3 MB (HD-MB03) cells[1]
Concentration:	0, 0.053, 0.106, 0.158, 0.211 μM
Incubation Time:	6 h
Result:	Dose-dependent increased in acetylation of α-tubulin from the lowest concentration of 53 nM, with no observable change in acetylation of off-target histone H3 up to 211 nM.

Apoptosis Analysis

Cell Line:	MV4-11 cells[1]
Concentration:	0, 0.25, 0.75, 1, 2 μM
Incubation Time:	24 h
Result:	Promoted cancer cells apoptosis, 39% of cancer cells were undergoing late-stage apoptosis after 18 h at 2 μM, and 11% of cells were in the late apoptosis stage at 0.25 μM.

In Vivo

NN-390 (male CD-1 mice, 20 mg/kg, IP, single dose) increases plasma stability[1].
NN-390 can improve PAMPA (parallel artificial membrane permeability assay)-BBB (blood-brain barrier) score[1].
Pharmacokinetic Parameters of NN-390 in male male CD-1 mice[1].

Compound	KT-531	5a; NN-390
$t_{1/2}$ (h)	1.05	1.90
C_{max} (ng/mL)	493	750
AUC_{last} (h*ng/mL)	1576	2523
AUC_{Inf} (h*ng/mL)	1519	2548
AUC/D (h*ng/mL)	79	126

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	CD-1 mice (male, n=3)[1]
Dosage:	20 mg/kg
Administration:	IP, single dose (Pharmacokinetic Analysis)
Result:	Had a half-life of 115 min in human plasma, a 2.8-fold increase in stability.

REFERENCES

[1]. Nawar N, Bukhari S, Adile AA, et al. Discovery of HDAC6-Selective Inhibitor NN-390 with in Vitro Efficacy in Group 3 Medulloblastoma. J Med Chem. 2022;65(4):3193-3217.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA