FLT3/TrKA-IN-1

Cat. No.: HY-146749

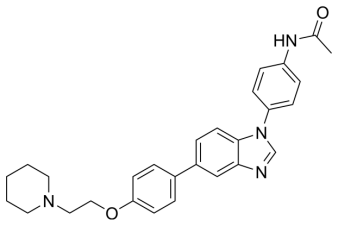
Molecular Formula: $C_{28}H_{30}N_4O_2$

Molecular Weight: 454.56

Target: FLT3; Trk Receptor; Apoptosis

Pathway: Protein Tyrosine Kinase/RTK; Neuronal Signaling; Apoptosis

Storage: Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

FLT3/TrKA-IN-1 is a potent FLT3/TrKA dual kinase inhibitor with the IC_{50}s of 43.8 nM, 97.2 nM, 92.5 nM and 23.6 nM for FLT3, FLT3-ITD, FLT3-TKD and TrKA, respectively. FLT3/TrKA-IN-1 induces cell cycle arrest at the G0/G1 phase as well as apoptosis and shows antiproliferative activity in vitro. FLT3/TrKA-IN-1 has the potential for the research of Acute myeloid leukemia (AML)[1].

IC_{50} & Target			
TrkA	FLT3	FLT3-ITD	FLT3-TKD
23.6 nM (IC_{50})	43.8 nM (IC_{50})	97.2 nM (IC_{50})	92.5 nM (IC_{50})

In Vitro

FLT3/TrKA-IN-1 (compound 4ACP) (1000, 2000, 3000, 4000, 5000 nM; 24, 48, 72 h) shows antiproliferative activity in a concentration and time-dependent pattera with IC_{50}s of 38.8 nM, 54.9 nM for MOLM-13 and MV4-11 cells, respectively[1].
FLT3/TrKA-IN-1 (500, 1000, 1500, 2000, 2500 nM) dose not elicit cytotoxic activity against GDM-1 and THP-1 AML cell lines which do not carry FLT3-ITD mutation[1].
FLT3/TrKA-IN-1 shows potent activity against colon cancer KM12 cell line with an GI_{50} value of 358 nM[1].
FLT3/TrKA-IN-1 (0, 10, 50, 100 nM; 24 h, 48 h) inhibits ERK1/2 (extracellular regulated kinases 1/2) and mTOR (mammalian target of rapamycin) in FLT3-ITD positive AML (acute myeloid leukemia) cell lines in a dose-dependent manner[1].
FLT3/TrKA-IN-1 (0, 10, 50, 100 nM; 72 h) induces cell cycle arrest at the G0/G1 phase as well as apoptosis and necrotic cell death of FLT3-ITD harboring AML cells[1].
FLT3/TrKA-IN-1 (0, 1, 10, 100, 1000 nM; 72 h) dose not elicit drastic cytotoxic effects on BNL and H9c2 cells[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay[1]

Cell Line:	MV4-11, MOLM-13 cells
Concentration:	1000, 2000, 3000, 4000, 5000 nM
Incubation Time:	24, 48, 72 h
Result:	Showed antiproliferative activity in a concentration and time-dependent pattera with IC_{50} s of 38.8 nM, 54.9 nM for MOLM-13 and MV4-11 cells, respectively.

Western Blot Analysis[1]

Cell Line:	MV4-11, MOLM-13 cells

Concentration:	0, 10, 50, 100 nM
Incubation Time:	72 h
Result:	Induced cell cycle arrest at the G0/G1 phase.

Apoptosis Analysis[1]

Cell Line:	MV4-11, MOLM-13 cells
Concentration:	0, 10, 50, 100 nM
Incubation Time:	72 h
Result:	Induced apoptosis and necrotic cell death of FLT3-ITD harboring AML cells.

Cell Cytotoxicity Assay[1]

Cell Line:	BNL, H9c2 cells
Concentration:	0, 1, 10, 100, 1000 nM
Incubation Time:	72 h
Result:	Did not elicit drastic cytotoxic effects on BNL and H9c2 cells.

REFERENCES

[1]. Dokla EME, et al. Discovery of a benzimidazole-based dual FLT3/TrKA inhibitor targeting acute myeloid leukemia. Bioorg Med Chem. 2022; 56:116596.

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