GSK3-IN-3

Cat. No.: HY-153089

CAS No.: 331963-27-0

Molecular Formula: $C_{24}H_{35}N_3O_4$

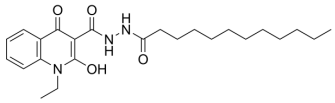
Molecular Weight: 429.55

Target: GSK-3; Mitophagy

Pathway: PI3K/Akt/mTOR; Stem Cell/Wnt; Autophagy

Storage:

Powder	-20°C	3 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 4.17 mg/mL (9.71 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.3280 mL	11.6401 mL	23.2802 mL
	5 mM	0.4656 mL	2.3280 mL	4.6560 mL
	10 mM	---	---	---

Please refer to the solubility information to select the appropriate solvent.

BIOLOGICAL ACTIVITY

Description

GSK3-IN-3 is a mitophagy inducer, inducing Parkin-dependent mitophagy. GSK3-IN-3 is also a GSK-3 inhibitor with an IC_{50} value of 3.01 μM. GSK3-IN-3 is non-ATP nor substrate competitive and is neuroprotective against 6-OHDA[1][2][3].

IC_{50} & Target

IC50: 3.01 μM (GSK-3)[3]

In Vitro

GSK3-IN-3 (VP07) (25 μM; 24 h) induces mitophagy in Parkin-expressing U2OS-iMLS cells with restricted potency[1].

GSK3-IN-3 (1.56-25 μM; 24 h) results in mitochondria fission with mitochondrial morphology change in U2OS-iMLS-Parkin cells[1].

GSK3-IN-3 (VP0.7) (5 μM, 10 μM;) shows neuroprotection against 6-OHDA albeit in a Parkinson's disease in vitro cellular model in SH-SY5Y cells[2].

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

Immunofluorescence[1]

Cell Line:	Parkin-expressing U2OS-iMLS cells
Concentration:	1.56 μM, 3.12 μM, 6.25 μM, 12.5 μM, and 25 μM;

Incubation Time:	24 hours
Result:	Induced a mitochondrial morphology change from a filament-shaped network to a more round-shaped network.

Cell Viability Assay[2]

Cell Line:	SH-SY5Y cells
Concentration:	0.5 μM, 1 μM, 3 μM, 5 μM, and 10 μM
Incubation Time:	16 hours; with 35 μM 6-OHDA
Result:	Inhibited cell growth with an IC_{50} value of 2.57 μM.

REFERENCES

[1]. Maestro I, et al. Phenotypic Assay Leads to Discovery of Mitophagy Inducers with Therapeutic Potential for Parkinson's Disease. ACS Chem Neurosci. 2021 Dec 15;12(24):4512-4523.

[2]. Morales-García JA, et al. Glycogen synthase kinase-3 inhibitors as potent therapeutic agents for the treatment of Parkinson disease. ACS Chem Neurosci. 2013 Feb 20;4(2):350-60.

[3]. Palomo V, et al. Exploring the binding sites of glycogen synthase kinase 3. Identification and characterization of allosteric modulation cavities. J Med Chem. 2011 Dec 22;54(24):8461-70.

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