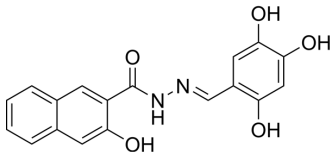
Hydroxy-Dynasore

Cat. No.:	HY-13863
CAS No.:	1256493-34-1
Molecular Formula:	$C_{18}H_{14}N_2O_5$
Molecular Weight:	338.31
Target:	Dynamin
Pathway:	Cytoskeleton

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (147.79 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.9559 mL	14.7793 mL	29.5587 mL
	5 mM	0.5912 mL	2.9559 mL	5.9117 mL
	10 mM	0.2956 mL	1.4779 mL	2.9559 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (6.15 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Hydroxy Dynasore (Dyngo-4a), a structural analog of Dynasore (HY-15304), is an potency improved, low cytotoxicity and non‐specific binding dynamin inhibitor with IC_{50} values of 0.38 μM and 2.3 μM for brain dynamin I and recombinant rat dynamin II, respectively. Hydroxy Dynasore inhibits dynamin‐dependent endocytosis of transferrin with an IC_{50} of 5.7 μM in vitro.

In Vitro

Dynamin is a large GTPase enzyme that severs membrane‐bound clathrin‐coated vesicles. Endocytosis internalizes portions of cells' plasma membrane along with extracellular material, is fundamentally important in cell physiology.
Hydroxy Dynasore inhibits Dynamin I (Dyn I) activity with IC_{50} values of 2.7 μM and 0.38 μM with or without 0.06% Tween‐80 in the GTPase assay[1].
Hydroxy Dynasore shows an IC_{50} of 5.7 μM in clathrin‐mediated endocytosis (CME) assay for inhibition of Tfn‐A594 uptake in U2OS cells[1].
Hydroxy Dynasore shows IC_{50} values of 0.38 μM and 1.1 μM in absence of Tween-80, and exhibits IC_{50} values of 4.9 μM and 30.0 μM in presence of Tween-80, respectively. Hydroxy Dynasore is 2.1‐fold selective for DynI versus DynII from Sf21 cells]

and DynII (recombinant protein from Sf21 cells) in this GTPase assay[1].
Hydroxy Dynasore prevents the uptake of BoNT/A-Hc in cultured hippocampal neurons and in motor nerve terminals[2].
Hydroxy Dynasore (1-100μM; 20 min prior to the addition of Alexa Fluor 488-BoNT/A-Hc) results in depolarization of Hippocampal neurons, it dose-dependently inhibits internalization of Alexa Fluor 488-BoNT/A-Hc with an IC_{50} of 16.0 ± 1.2 μM[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Hydroxy Dynasore (intraperitoneal injection; 30 mg/kg; 1.5-2 h before BoNT/A injection) provides protection again BoNT/A-induced paralysis in the phrenic nerve-hemidiaphragm twitch model in CD-1 mice[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	CD-1 mice[2].
Dosage:	30 mg/kg
Administration:	Intraperitoneal injection; 1.5–2 h before BoNT/A injection
Result:	Protected BoNT/A-induced paralysis in vivo.

CUSTOMER VALIDATION

- Traffic. 2022 Nov 22.

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REFERENCES

[1]. Adam McCluskey, et al. Building a Better Dynasore: The Dyngo Compounds Potently Inhibit Dynamin and Endocytosis. Traffic. 2013 Dec;14(12):1272-89.

[2]. Callista B Harper, et al.Dynamin Inhibition Blocks Botulinum Neurotoxin Type A Endocytosis in Neurons and Delays Botulism.J Biol Chem. 2011 Oct 14;286(41):35966-76.

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