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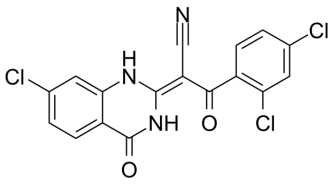
Ciliobrevin D

Cat. No.:	HY-122632
CAS No.:	1370554-01-0
Molecular Formula:	$C_{17}H_8Cl_3N_3O_2$
Molecular Weight:	392.62
Target:	Hedgehog
Pathway:	Stem Cell/Wnt
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 2 years -20°C 1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 5 mg/mL (12.73 mM; ultrasonic and warming and heat to 80°C)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.5470 mL	12.7350 mL	25.4699 mL
	5 mM	0.5094 mL	2.5470 mL	5.0940 mL
	10 mM	0.2547 mL	1.2735 mL	2.5470 mL

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

BIOLOGICAL ACTIVITY

Description

Ciliobrevin D is a cell-permeable, reversible and specific inhibitor of AAA+ ATPase motor cytoplasmic dynein. Ciliobrevin D inhibits Hedgehog (Hh) signaling and primary cilia formation. Ciliobrevin D inhibits dynein-dependent microtubule gliding and ATPase activity in vitro[1][2].

IC_{50} & Target

Cytoplasmic dynein[1][2]

In Vitro

Cells treated with Ciliobrevin D exhibits abnormal (unfocused, multipolar, or collapsed) spindles with disrupted γ-tubulin localization in NIH-3T3 cells. Similar Ciliobrevin-induced spindle defects are observed in HeLa cells, although to a lesser extent. Ciliobrevin D addition also reversibly disrupts the pre-formed spindles of metaphase-arrested cells and reduces overall microtubule levels[1].

.Ciliobrevin D reversibly inhibits melanosome aggregation, but the non-cilia-disrupting derivative had no discernible effect at comparable doses. Ciliobrevin D similarly abrogates the movement of peroxisomes in Drosophila S2 cells[1].

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

In Vivo

Knockdown of Dync1h1 or inactivation of dynein 1 by Ciliobrevin D in the testis in vivo perturbs spermatogenesis.

Knockdown of Dync1h1 or the use of Ciliobrevin D to inactivate dynein 1 in the testis in vivo perturbs MT organization through changes in the spatial expression of EB1, perturbs F-actin organization, and perturbs distribution of adhesion protein complexes at the BTB, leading to a loss of BTB integrity. F-actin disorganization in the seminiferous epithelium following Dync1h1 knockdown or dynein 1 inactivation by Ciliobrevin D is mediated by changes in the spatiotemporal expression of actin regulatory proteins Arp3 and Eps8[3].

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

CUSTOMER VALIDATION

- J Virol. 2021 Feb 24;95(10):e02436-20.

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REFERENCES

[1]. Firestone AJ, et al. Small-molecule inhibitors of the AAA+ ATPase motor cytoplasmic dynein. Nature. 2012 Mar 18;484(7392):125-9.

[2]. Miao Y, et al. Dynein promotes porcine oocyte meiotic progression by maintaining cytoskeletal structures and cortical granule arrangement. Cell Cycle. 2017;16(21):2139-2145.

[3]. Wen Q, et al. Dynein 1 supports spermatid transport and spermiation during spermatogenesis in the rat testis. Am J Physiol Endocrinol Metab. 2018 Nov 1;315(5):E924-E948.

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