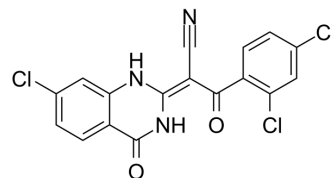


Ciliobrevin D

Cat. No.:	HY-122632		
CAS No.:	1370554-01-0		
Molecular Formula:	C ₁₇ H ₈ Cl ₃ N ₃ O 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)

Concentration	Solvent	Mass		
		1 mg	5 mg	10 mg
Preparing Stock Solutions	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]}.

IC₅₀ & 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.

Caution: Product has not been fully validated for medical applications. For research use only.

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