Synucleozid hydrochloride

Cat. No.: HY-135902A

CAS No.: 2741856-68-6

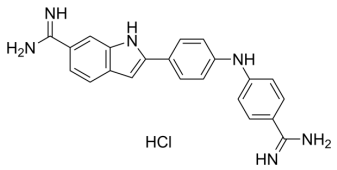
Molecular Formula: $C_{22}H_{21}ClN_6$

Molecular Weight: 404.9

Target: DNA/RNA Synthesis

Pathway: Cell Cycle/DNA Damage

Storage: 4°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (308.72 mM; Need ultrasonic)
H_2O : 2 mg/mL (4.94 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.4697 mL	12.3487 mL	24.6975 mL
	5 mM	0.4939 mL	2.4697 mL	4.9395 mL
	10 mM	0.2470 mL	1.2349 mL	2.4697 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 (5.14 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (5.14 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Synucleozid hydrochloride (NSC 377363 hydrochloride) is a potent inhibitor of the ***SNCA*** mRNA that encodes α-synuclein protein. Synucleozid selectively targets the α-synuclein mRNA 5′ UTR at the designed IRE site, decreases the amount of SNCA mRNA loaded into polysomes and thereby inhibits SNCA translation. Synucleozid has the potential for the investigation of Parkinson's disease[1].

In Vitro

Synucleozid (0.25-1 μM; 24 hours) abrogates cytotoxicity induced by α-synuclein preformed fibrils, which act as seeds and recruit endogenous α-synuclein to aggregate[1].
Synucleozid (0-1 μM; 24 hours) binds to the A bulge near the base of the IRE hairpin, reduced levels of α-synuclein in a dose-dependent manner with an IC_{50} of 500 nM, and inhibits α-synuclein protein expression in SH-SY5Y neuroblastoma cells[1].
Synucleozid (100 nM-100 μM; 24 hours) binds to 2-AP-labeled and native IRE RNA with similar affinities. It decreases 2-AP

emission with an EC_{50} value of 2.7 ± 0.4 μM, recovery of 2-AP emissions is observed as a function of unlabeled SNCA IRE RNA (RNA-0) concentration, affording a competitive K_d of 1.5 ± 0.3 μM[1].
Synucleozid (0.25-1 μM; 24 hours) decreases α-synuclein and other proteins that have IREs in their mRNA's UTR including APP, PrP, Ferritin and TfR as a dose-dependent mannner. All panels is completed in SH-SY5Y cells, except for PrP protein which is assessed in Neuro-2A cells[1].

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

Cell Viability Assay[1]

Cell Line:	SH-SY5Y neuroblastoma cells
Concentration:	0.25 μM, 0.5 μM, 1 μM
Incubation Time:	24 hours
Result:	Decreased LDH release as a dose-dependent manner.

Western Blot Analysis[1]

Cell Line:	SH-SY5Y neuroblastoma cells
Concentration:	0.25 μM, 0.5 μM, 1 μM
Incubation Time:	24 hours
Result:	Decreased α-synuclein expression as a concentration-dependent manner.

REFERENCES

[1]. Zhang P, et al. Translation of the intrinsically disordered protein α-synuclein is inhibited by a small molecule targeting its structured mRNA.Proc Natl Acad Sci U S A. 2020 Jan 21;117(3):1457-1467.

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