VBIT-4

Cat. No.: HY-129122

CAS No.: 2086257-77-2

Molecular Formula: $C_{21}H_{23}ClF_3N_3O_3$

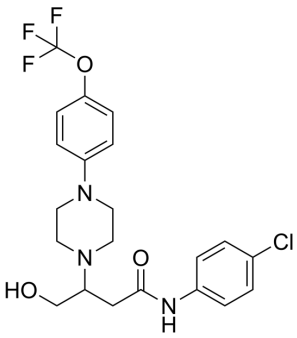
Molecular Weight: 457.87

Target: VDAC

Pathway: Membrane Transporter/Ion Channel

Storage:

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



SOLVENT & SOLUBILITY

In Vitro

DMSO : 125 mg/mL (273.00 mM; Need ultrasonic)

H_2O : 1 mg/mL (2.18 mM; ultrasonic and adjust pH to 3 with HCl)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	2.1840 mL	10.9201 mL	21.8403 mL
5 mM	0.4368 mL	2.1840 mL	4.3681 mL
10 mM	0.2184 mL	1.0920 mL	2.1840 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% saline
   Solubility: 5 mg/mL (10.92 mM); Suspended solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (4.54 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (4.54 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

VBIT-4 is an inhibitor of voltage-dependent anion channel 1 (VDAC1) oligomerization with a binding affinity (K_d) of 17 μM. VBIT-4, as an apoptosis inhibitor, can be used for therapeutic purposes in apoptosis-associated disorders, such as neurodegenerative and cardiovascular diseases[1].

IC_{50} & Target

Kd: 17 μM (VDAC1)[1]

Apoptosis[1]

In Vitro

VBIT-4 targets the mitochondrial protein VDAC1, inhibiting apoptosis and protecting against mitochondria dysfunction. VBIT-4 (0.1-10 μM) inhibits VDAC1 oligomerization, Cyto c release from mitochondria and apoptosis in HEK-293 cells with IC_{50}s of 1.9±0.08 μM, 1.8±0.24 μM, and 2.9±0.12 μM, respectively[1].

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

Apoptosis Analysis[1]

Cell Line:	HEK-293 cells
Concentration:	0.1, 1, and 10 μM
Incubation Time:	
Result:	Inhibited apoptosis with an IC_{50} of 2.9±0.12 μM.

CUSTOMER VALIDATION

- Cell. 2020 Oct 29;183(3):636-649.e18.
- Immunity. 2022 Aug 9;55(8):1370-1385.e8.
- Nat Commun. 2023 Feb 16;14(1):872.
- Autophagy. 2021 Jan 19;1-17.
- Sci Rep. 2023 Nov 17;13(1):20126.

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REFERENCES

[1]. Ben-Hail D, et al. Novel Compounds Targeting the Mitochondrial Protein VDAC1 Inhibit Apoptosis and Protect against Mitochondrial Dysfunction. J Biol Chem. 2016 Nov 25;291(48):24986-25003.

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