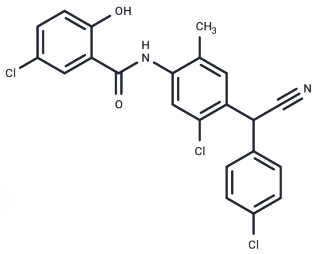
Data Sheet (Cat.No.T39566)

TargetMol

ZT-1a

Chemical Properties



CAS No. : 212135-62-1

Formula: C22H15Cl3N2O2

Molecular Weight: 445.73

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year
Actual storage temperature shall be subject to the COA.

Biological Description

Description	ZT-1a is a SPAK inhibitor.ZT-1a inhibits SPAK.ZT-1a can be used for the prevention and treatment of neurodegenerative and neurocognitive disorders.
Targets(IC50)	Others,Na-K-Cl cotransporter
In vitro	ZT-1a inhibits the Na-K-2Cl cotransporter (NKCC1) and stimulates the K-Cl cotransporter (KCC) by reducing its SPS1-related proline/alanine-rich kinase (SPAK) dependent phosphorylation[1].At 1 μM ZT-1a, NKCC1 p-Thr203/207/212 phosphorylation is inhibited by 72±5.2%, and in HEK-293 cells, KCC phosphorylation at sites 1/2 is inhibited by 65-77% at 3 μM ZT-1a[1].Phosphorylation of SPAK at the Ser373 site is inhibited by 70±3.8% at 3-10 μM ZT-1a[2]. ZT-1a (10 μM) inhibits NKCC1 but stimulates KCC3 activity[2].
In vivo	ZT-1a inhibits the SPAK-dependent upregulation of NKCC1 and KCC3 phosphorylation in ischemic brains.post-stroke treatment with ZT-1a protects both gray and white matter tissues in ischemic brains[1].

Solubility Information

Solubility	DMSO: 8 mg/mL (17.95 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 1 mg/mL (2.24 mM),Sonication is recommended. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.2435 mL	11.2176 mL	22.4351 mL
5 mM	0.4487 mL	2.2435 mL	4.487 mL
10 mM	0.2244 mL	1.1218 mL	2.2435 mL
50 mM	0.0449 mL	0.2244 mL	0.4487 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

Zhang J,et al. Modulation of brain cation-Cl- cotransport via the SPAK kinase inhibitor ZT-1a. Nat Commun. 2020 Jan 7;11(1):78.