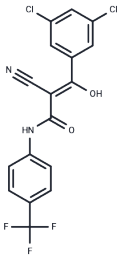
Data Sheet (Cat.No.T36805)

TargetMol

TPC2-A1-N

Chemical Properties



CAS No. : 136186-07-7

Formula: C17H9Cl2F3N2O2

Molecular Weight: 401.17

Storage: Store at low temperature
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	TPC2-A1-N is a novel lipophilic, membrane-permeable subtype-selective TPC2 small molecule agonist that activates endogenous TPC2 to moderately increase lysosomal pH in untransfected cells in a time-dependent manner, and can be used to assay the differential function of TPC2 channels in intact cells.
Targets(IC50)	Calcium Channel
In vitro	Two-pore channels (TPC1-3) are ancient members of the voltage-gated ion channel superfamily, expressed throughout the endo-lysosomal system, and regulate the trafficking of various cargoes. TPC2 mediates different physiological and potentially pathophysiological effects depending on its activation, with its ion selectivity being agonist-dependent. TPC2 uniquely conducts different ions in response to different activating ligands. TPC2-A1-N (10 μM) reproducibly evokes Ca2+ signals, achieving its plateau faster than TPC2-A1-P, with an EC50 of 7.8 μM in cells stably expressing TPC2L11A/L12A. TPC2-A1-N (10 μM) induces Ca2+ influx through TPC2 in TPC2L11A/L12A-expressing cells but not in TPC2L11A/L12A/L265P-expressing cells. TPC2-A1-N responses can be selectively blocked by Tetrandrine, Raloxifene, and Fluphenazine by removing extracellular Ca2+[1]. In endo-lysosomal patch-clamp experiments, TPC2-A1-N (30 μM) elicits Na+ currents in vacuolin-enlarged endo-lysosomes isolated from HEK293 cells transiently expressing human TPC2 (hTPC2) but not in cells expressing TPC1[1]. Furthermore, TPC2-A1-N (30 μM) induces larger currents in endo-lysosomes from cells expressing the gain-of-function TPC2M484L variant compared to the wild-type isoform, with an EC50 of 0.6 μM for TPC2-A1-N[1].

Solubility Information

Solubility	DMSO: 200 mg/mL (498.54 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: 5 mg/mL (12.46 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	2.4927 mL	12.4635 mL	24.9271 mL
5 mM	0.4985 mL	2.4927 mL	4.9854 mL
10 mM	0.2493 mL	1.2464 mL	2.4927 mL
50 mM	0.0499 mL	0.2493 mL	0.4985 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

Gerndt S,et al. Agonist-mediated switching of ion selectivity in TPC2 differentially promotes lysosomal function. Elife. 2020 Mar 16;9:e54712.
Jin X,et al. Targeting Two-Pore Channels: Current Progress and Future Challenges. Trends Pharmacol Sci. 2020 Aug;41(8):582-594.