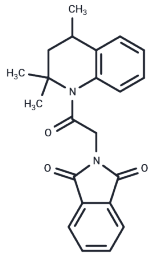
Data Sheet (Cat.No.T23004)

TargetMol

ML-SA1

Chemical Properties



CAS No. : 332382-54-4

Formula: C22H22N2O3

Molecular Weight: 362.42

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	ML-SA1 (Mucolipin synthetic agonist 1) is a selective TRPML agonist, inhibits Dengue virus 2 (DENV2) and Zika virus (ZIKV) by promoting lysosomal acidification and protease activity. The IC50 value of ML-SA1 against DENV2 RNA and ZIKV RNA is 8.3 μM and 52.99 μM, respectively[1].
Targets(IC50)	Anti-infection,TRP/TRPV Channel
In vitro	ML-SA1 (25 μM; 0~14 hours; A549 cells) potentially affects the entry of DENV2 into host cells[1]. ML-SA1 (0~200 μM; A549 cells) shows no cytotoxicity at concentrations up to 200 μM. It significantly suppresses DENV2 RNA levels with an IC50 of 8.93 μM[1]. ML-SA1 also reduces ZIKV RNA and protein levels in a dose-dependent manner, with an IC50 of 52.99 μM against ZIKV RNA. As an activator of TRPMLs, ML-SA1 is a potent inhibitor of DENV2 and ZIKV in vitro, promoting lysosomal acidification and protease activity to inhibit viral infection, and can induce autophagy in Huh7 or A549 cells[1].

Solubility Information

Solubility	DMSO: 17 mg/mL (46.91 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: 2 mg/mL (5.52 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	2.7592 mL	13.7961 mL	27.5923 mL
5 mM	0.5518 mL	2.7592 mL	5.5185 mL
10 mM	0.2759 mL	1.3796 mL	2.7592 mL
50 mM	0.0552 mL	0.2759 mL	0.5518 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

Xia Z, et al. ML-SA1, a selective TRPML agonist, inhibits DENV2 and ZIKV by promoting lysosomal acidification and protease activity. Antiviral Res. 2020;182:104922.
Xia Q, Zheng H, Li Y, et al.SMURF1 controls the PPP3/calcineurin complex and TFEB at a regulatory node for lysosomal biogenesis.Autophagy.2023: 1-17.
Xia Q, Liu X, Zhong L, et al.SMURF1 mediates damaged lysosomal homeostasis by ubiquitinating PPP3CB to promote the activation of TFEB.Autophagy.2024 (just-accepted).