Yoda 1

Cat. No.: HY-18723

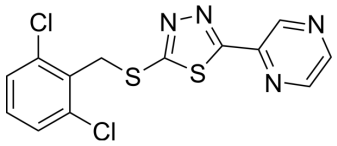
CAS No.: 448947-81-7

Molecular Formula: $C_{13}H_8Cl_2N_4S_2$

Molecular Weight: 355.27

Target: Piezo Channel; Akt; ERK; Potassium Channel

Pathway: Membrane Transporter/Ion Channel; PI3K/Akt/mTOR; MAPK/ERK Pathway; Stem Cell/Wnt



Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	1 year
	-20°C	6 months

SOLVENT & SOLUBILITY

In Vitro

DMSO : 15.62 mg/mL (43.97 mM; ultrasonic and warming and heat to 60°C)
Ethanol : 5 mg/mL (14.07 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.8148 mL	14.0738 mL	28.1476 mL
	5 mM	0.5630 mL	2.8148 mL	5.6295 mL
	10 mM	0.2815 mL	1.4074 mL	2.8148 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 1.56 mg/mL (4.39 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 1.56 mg/mL (4.39 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Yoda 1 is a potent and selective Piezo1 agonist. Yoda 1 activates purified Piezo1 channels. Yoda 1 potently inhibits macropinocytosis induced by epidermal growth factor (EGF). Yoda 1 enhances Ca^{2+} influx followed by activation of the calcium-activated potassium channel KCa3.1 and inhibition of Rac1 activation[1][2][3].

IC_{50} & Target	ERK1	ERK2

In Vitro

Yoda1 (0-6 μM, 5 min) induces the activation of both Akt and ERK1/2, which is not dependent on Piezo1[2].
Yoda1 (1.5 μM, 5 min) inhibits Rac1 activation[3].

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

Western Blot Analysis

Cell Line:	human coronary artery endothelial cells (HCAECs)[2], A431 cells[3]
Concentration:	0, 1.5, 3.0, and 6.0 μM
Incubation Time:	5 min
Result:	Induced the activation of both Akt and ERK1/2, and increased the phosphorylation levels of both Akt and ERK1/2 in a dose-dependent manner. Inhibited EGF-induced increase in the amount of Rac1-GTP, and inhibited Rac1 activation

CUSTOMER VALIDATION

- Cancer Commun (Lond). 2022 Oct 1.
- Adv Sci (Weinh). 2023 Oct 22:e2303369.
- J Adv Res. 2023 Sep 25;S2090-1232(23)00289-8.
- Cancer Lett. 2023 Dec 23, 216597.
- JCI Insight. 2022 Mar 1;e152330.

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REFERENCES

[1]. Dela Paz NG, et al. Yoda1-induced phosphorylation of Akt and ERK1/2 does not require Piezo1 activation. Biochem Biophys Res Commun. 2018 Feb 26;497(1):220-225.

[2]. Kuriyama M, et al. Piezo1 activation using Yoda1 inhibits macropinocytosis in A431 human epidermoid carcinoma cells. Sci Rep. 2022 Apr 15;12(1):6322.

[3]. Syeda R, et al. Chemical activation of the mechanotransduction channel Piezo1. Elife. 2015 May 22;4.

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