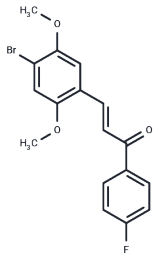
Data Sheet (Cat.No.T61392)

TargetMol

NLRP3-IN-10

Chemical Properties



CAS No. : 2641826-39-1

Formula: C17H14BrFO3

Molecular Weight: 365.19

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	NLRP3-IN-10 (ZVN26391) is a potent NLRP3 inhibitor. NLRP3-IN-10 inhibits IL-1β release with an IC50 value of 251.1 nM. NLRP3-IN-10 attenuates ASC speck formation, leading to suppress activation of NLRP3 inflammasome.
Targets(IC50)	NOD-like Receptor (NLR),NOD
In vitro	NLRP3-IN-10 (compound 14c) significantly inhibits NLRP3 inflammasome activation in THP-1 cells by LPS-MSU, demonstrating dose-dependent efficacy at 0.4-6.4 μM over 40 minutes. It is non-toxic to THP-1 cells at 0.1-6.4 μM after 1.5 hours and prevents Nigericin-induced pyroptosis at 0.1 and 0.4 μM. The compound reduces caspase-1 p20 and IL-1β production dose-dependently at 0.1, 0.2, and 0.4 μM, and decreases LPS-induced TNF-α production at 3 and 5 μM. NLRP3-IN-10 also reduces ASC specks formation at 0.2 and 0.8 μM, indicating interruption of ASC oligomerization. Furthermore, it inhibits LPS-induced NLRP3 priming by directly interacting with NLRP3 at 1, 10, and 100 μM, demonstrating potential in regulating both priming and activation steps in the NLRP3 inflammasome pathway.
In vivo	NLRP3-IN-10 (compound 14c), administered via a single intravenous (i.v.) dose of 10 mg/kg, effectively reduced peritoneal neutrophil influx and IL-1β levels in the spleen in a LPS-primed mouse model with MSU-induced peritonitis. Additionally, oral administration of NLRP3-IN-10 at doses of 10, 30, and 90 mg/kg demonstrated very low systemic exposure (14.6 to 23.53 μg·h/L), limited bioavailability (2.47 to 13.79%), and high plasma clearance rates (2201.58 to 5551.12 L/h/kg), indicating significant challenges in its pharmacokinetic profile when administered orally. Pharmacokinetic data revealed an area under the curve (AUC) ranging from 14.60 to 23.53 μg·h/L, clearance (CL) rates between 2201.58 and 5551.12 L/h/kg, and maximal concentration (Cmax) values from 3.35 to 81.97 μg/L across different administration routes and dosages. The study was conducted on 7-week-old male C57BL/6J mice induced with MSU-induced peritonitis and primed with LPS (1 mg/kg, i.p.), showing a notable reduction in spleen IL-1β release and peritoneal neutrophil influx following a 6-hour treatment with a 10 mg/kg intravenous dose of NLRP3-IN-10, when compared to the control group.

Solubility Information

Solubility	DMSO: 4.4 mg/mL (12.05 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.7383 mL	13.6915 mL	27.383 mL
5 mM	0.5477 mL	2.7383 mL	5.4766 mL
10 mM	0.2738 mL	1.3692 mL	2.7383 mL
50 mM	0.0548 mL	0.2738 mL	0.5477 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 R, et al. New Highly Potent NLRP3 Inhibitors: Furanochalcone Velutone F Analogues. ACS Med Chem Lett. 2022 Mar 7;13(4):560-569.