INF39

Cat. No.: HY-101868

CAS No.: 866028-26-4

Molecular Formula: $C_{12}H_{13}ClO_2$

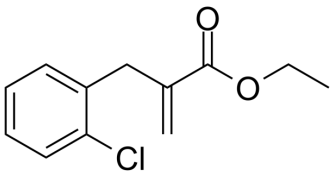
Molecular Weight: 224.68

Target: NOD-like Receptor (NLR)

Pathway: Immunology/Inflammation

Storage:

Pure form	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (445.08 mM; Need ultrasonic)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	4.4508 mL	22.2539 mL	44.5077 mL
5 mM	0.8902 mL	4.4508 mL	8.9015 mL
10 mM	0.4451 mL	2.2254 mL	4.4508 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (11.13 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (11.13 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (11.13 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

INF39 is an irreversible and noncytotoxic NLRP3 inhibitor.

In Vitro

INF39 is able to significantly inhibit ATP- and nigericin-induced IL-1β release at 10 μM. INF39 reduces caspase-1 activation and pyroptosis in the macrophages. INF39 can block not only NLRP3 activation but also the NF-κB pathway. INF39 potentially reacts with Cys-SH residues in the active site of cysteine protease caspase-1, but does not directly target caspase-1 activity. INF39 is able to reduce the steady state (or basal) BRET signal of NLRP3 without affecting the viability of cells, meaning that it can interfere with the basal NLRP3 conformation. INF39 does not block the initial conformational changes suffered by NLRP3 upon sensing the decrease of intracellular K^+; however, it affects a second step of NLRP3

	conformational change that could be related with the ATPase activity of the receptor and be independent of the decrease of intracellular K^+. INF39 reaches the intestinal epithelium without undergoing chemical modifications. After absorption into epithelial cells, it is likely to act locally at the mucosal epithelial level[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Oral administration of INF39 reduces systemic and colonic inflammation in rats treated with 2,4- dinitrobenzenesulfonic acid. Significant increments of body weight are observed in inflamed rats under treatment with INF39 (12.5, 25, and 50 mg/kg). Treatment with DNBS results in a significant increment of spleen weight (+39.3%). Such an increase is significantly reduced by administration of INF39 (+2.2, +4.3 and +4.8% at 12.5, 25, 50 mg/kg, respectively). The inhibition of NLRP3 inflammasome complex with INF39 dose-dependently attenuates the decrease in colonic length (−19, −13 and −8% at 12.5, 25, 50 mg/kg, respectively). Rats treated with INF39 displays a significant reduction of macroscopic damage score (4.7 at 12.5 mg/kg, 3.1 at 25 mg/kg, and 2.8 at 50 mg/kg). Oral administration of INF39 reduces colonic myeloperoxidase, IL-1β, and TNF Levels in DNBS-treated rats[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

PROTOCOL

Kinase Assay [1]	INF39 (100 μM final concentration, 2% DMSO) is added to wells containing immobilized NALP3 protein and preincubated for 55 min at 37°C to mimic normal experimental time (15 min preincubation+40 min incubation with ATP); in the control wells a mixture of buffer and DMSO is added. After the preincubation time the wells areished three times with reaction buffer, and ATP (250 μM) is added for 40 min at 37°C. ADP formation is measured with ADP-Glo-Assay[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
Animal Administration [1]	Rats: DNBS-untreated and DNBS treated animals are assigned to the following treatment groups: INF39 (12.5, 25, 50 mg/kg/day) or dexamethasone (DEX, 1 mg/kg/day). INF39 and dexamethasone are suspended in olive oil and 1% methylcellulose, respectively, and administered in a volume of 0.2 mL/rat. DNBS-untreated animals (control group) and DNBS-treated rats (colitis group) received drug vehicle to serve as controls. Body weight is monitored daily starting from the onset of drug treatments[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Phytomedicine. 17 November 2021, 153860.
- Am J Chin Med. 2020;48(7):1693-1713.
- Int Immunopharmacol. 2022 Dec 9;114:109523.
- Int Immunopharmacol. September 2022, 108910.
- Int Immunopharmacol. 2022 Jan 10;104:108443.

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REFERENCES

[1]. Cocco M, et al. Development of an Acrylate Derivative Targeting the NLRP3 Inflammasome for the Treatment of Inflammatory Bowel Disease.J Med Chem. 2017 May 11;60(9):3656-3671.

Caution: Product has not been fully validated for medical applications. For research use only.

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