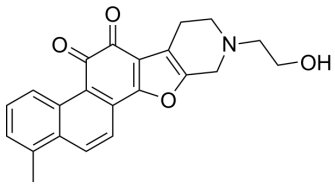
NLRP3-IN-15

Cat. No.:	HY-149122
CAS No.:	2767369-71-9
Molecular Formula:	$C_{22}H_{19}NO_4$
Molecular Weight:	361.39
Target:	NOD-like Receptor (NLR)
Pathway:	Immunology/Inflammation
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

NLRP3-IN-15 is a potent and selective NLRP3 inflammasome inhibitor. NLRP3-IN-15 inhibits IL-1β release with an IC_{50} of 0.114 μM. NLRP3-IN-15 can be used for the research of inflammation[1].

IC_{50} & Target

NLRP3 inflammasome

In Vitro

NLRP3-IN-15 (Compound 12a) inhibits IL-1β release with an IC_{50} of 0.114 μM (ELISA assay)[1].
NLRP3-IN-15 (2 μM, 3 h) inhibits the secretion of IL-1β (p17) and caspase-1 (p20) in mice peritoneal macrophages (PMs)[1].
NLRP3-IN-15 inhibits the formation of the NLRP3 inflammasome complex by inhibiting ASC oligomerization[1].
NLRP3-IN-15 shows metabolic stability in both human and mouse liver microsomes ($T_{1/2}$: 693 min; Cl_{int}: 2.0 μL/min/mg)[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[1]

Cell Line:	Mice peritoneal macrophages(PMs)
Concentration:	2 μM
Incubation Time:	3 h
Result:	Inhibited the secretion of IL-1β (p17) and caspase-1 (p20), without affecting pro-IL-1β and pro-caspase-1.

In Vivo

NLRP3-IN-15 (Compound 12a) (50 mg/kg; i.p.) shows anti-inflammatory effect in septic mouse model[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	LPS-induced inflammatory septic mouse model[1]
Dosage:	50 mg/kg
Administration:	i.p.
Result:	Decreased the release of IL-1β in mouse serum. Relieved thickening of the alveolar wall in lung.

Animal Model:	Mice[1]
Dosage:	20 mg/kg
Administration:	p.o. or i.p.
Result:	Pharmacokinetic profile of NLRP3-IN-15 (compound 12a).

parameter	dose (mg/kg)	$T_{1/2}$ (h)	T_{max} (h)	F (%)
PO	20	1.659	0.5	9.6
IP	20	1.807	0.167	21.2

REFERENCES

[1]. Li J, et al. Scaffold Hybrid of the Natural Product Tanshinone I with Piperidine for the Discovery of a Potent NLRP3 Inflammasome Inhibitor. J Med Chem. 2023 Feb 23;66(4):2946-2963.

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