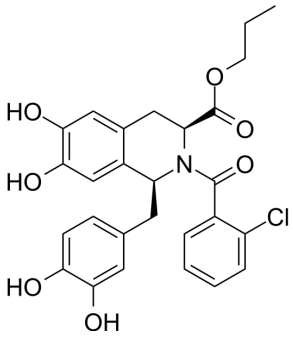
Influenza virus-IN-6

Cat. No.:	HY-152078
CAS No.:	2919303-26-5
Molecular Formula:	$C_{27}H_{26}ClNO_7$
Molecular Weight:	511.95
Target:	Influenza Virus
Pathway:	Anti-infection
Storage:	Please store the product under the recommended conditions in the Certificate of Analysis.



BIOLOGICAL ACTIVITY

Description

Influenza virus-IN-6 (Compound 35) is a potent influenza N-terminal domain of the polymerase acidic protein subunit (PA_N) endonuclease inhibitor with an IC_{50} of 0.20 μM[1].

IC_{50} & Target

IC50: 0.20 μM (PA_N)[1]
KD: 56.02 nM (PA_N)[1]

In Vitro

Influenza virus-IN-6 (Compound 35) (48 h) shows anti-influenza virus activity in MDCK cells with EC_{50}s of 1.28 ± 0.35, 1.12 ± 0.65, 0.76 ± 0.11 and 0.43 ± 0.06 μM against H1N1, H5N1, H3N2 and Flu B, respectively[1].
Influenza virus-IN-6 (5-20 μM; 24 h) affects virus replication but not virus particles, cells, and adsorption[1].
Influenza virus-IN-6 (2.5-10 μM; 24 h) inhibits influenza viral polymerase activity[1].
Influenza virus-IN-6 displayed promising stability in mouse plasma, liver microsomes, and intestinal S9-UDPGA[1].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[1]

Cell Line:	MDCK cells
Concentration:	5, 10 and 20 μM
Incubation Time:	24 h
Result:	Decreased nucleoprotein (NP) and matrix protein 2 (M2).

RT-PCR[1]

Cell Line:	MDCK cells
Concentration:	2.5, 5, 10 and 20 μM
Incubation Time:	24 h
Result:	Decreased the expression of viral NP mRNA in a well-defined dose-dependent manner. Inhibited cRNA synthesis in a dose-dependent fashion.

In Vivo

Influenza virus-IN-6 (Compound 35) (7.5-30 mg/kg/d; i.p.; twice daily for 7 days) markedly protects mice from influenza virus infection[1].

Pharmacokinetic (PK) Profile In Vivo of Influenza virus-IN-6 (Compound 35) after a Single Dose in Rats In Vivo (n = 5)[a][1]

parameter	IV (2 mg/kg)	PO (10 mg/kg)	IP (15 mg/kg)
$T_{1/2}$ (h)	0.33 ± 0.07	0.82 ± 0.16	1.07 ± 0.25
T_{max} (h)	NA	0.52	0.45
C_{max} (ng/mL)	1586.55 ± 366.48	92.20 ± 36.25	889.52 ± 233.17
AUC_{0-t} (h·ng/mL)	536.45 ± 58.72	164.30 ± 26.37	790.62 ± 188.31
CL (mL/min/kg)	53.76 ± 13.18	NA	NA
F %	NA	6.13%	29.50%

[a]IV represents intravenous injection, IP represents intraperitoneal injection, and PO represents the gastrointestinal route. $T_{1/2}$ is the half-life of the compound exposure in plasma. T_{max} is the time taken to reach the maximum concentration. C_{max} represents the highest observed concentration. $AUC_{(0-t)}$ is the area under the curve. CL (mL/min/kg) is the clearance. F % is the percent bioavailability.

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Animal Model:	Balb/C mice, H1N1 infection model[1]
Dosage:	0, 7.5, 15, and 30 mg/kg/d
Administration:	Intraperitoneal injection, twice per day for 7 days
Result:	Exhibited excellent anti-IAV activity in vivo at a dose of 30 mg/kg/d. Still showed potent antiviral activity in vivo, with a survival ratio of approximately 60% against lethal virus infection in mice at 15 mg/kg/d.

Animal Model:	SD rats[1]
Dosage:	2, 10 or 15 mg/kg
Administration:	IV, IP, or PO (Pharmacokinetic Analysis)
Result:	Showed good pharmacokinetic profiles.

REFERENCES

[1]. Liao Y, et al. Identification of N- and C-3-Modified Laudanosoline Derivatives as Novel Influenza PAN Endonuclease Inhibitors. J Med Chem. 2022 Dec 15.

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

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