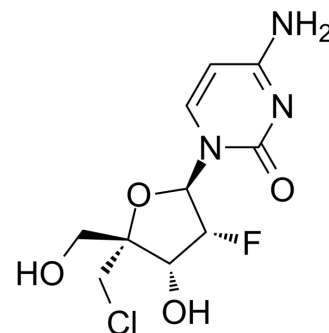


## ALS-8112

<b>Cat. No.:</b>	HY-12983		
<b>CAS No.:</b>	1445379-92-9		
<b>Molecular Formula:</b>	C <sub>10</sub> H <sub>13</sub> ClFN <sub>3</sub> O <sub>4</sub>		
<b>Molecular Weight:</b>	293.68		
<b>Target:</b>	RSV		
<b>Pathway:</b>	Anti-infection		
<b>Storage:</b>	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	2 years
		-20°C	1 year



### SOLVENT & SOLUBILITY

#### In Vitro

DMSO : ≥ 47 mg/mL (160.04 mM)  
 \* "≥" means soluble, but saturation unknown.

Concentration	Mass		
	1 mg	5 mg	10 mg
1 mM	3.4051 mL	17.0253 mL	34.0507 mL
5 mM	0.6810 mL	3.4051 mL	6.8101 mL
10 mM	0.3405 mL	1.7025 mL	3.4051 mL

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

#### In Vivo

- Add each solvent one by one: 5% DMSO >> 40% PEG300 >> 5% Tween-80 >> 50% saline  
 Solubility: ≥ 2.5 mg/mL (8.51 mM); Clear solution
- Add each solvent one by one: 5% DMSO >> 95% (20% SBE-β-CD in saline)  
 Solubility: ≥ 2.5 mg/mL (8.51 mM); Clear solution

### BIOLOGICAL ACTIVITY

#### Description

ALS-8112 is a potent and selective respiratory syncytial virus (RSV) polymerase inhibitor. The 5'-triphosphate form of ALS-8112 inhibits RSV polymerase with an IC<sub>50</sub> of 0.02 μM.

#### IC<sub>50</sub> & Target

IC<sub>50</sub>: 0.02 μM (RSV)<sup>[1]</sup>

#### In Vitro

The 5'-triphosphate form of ALS-8112 (ALS-8112-TP) is the active form of the drug and selectively inhibits RSV polymerase through chain termination of RNA synthesis<sup>[2]</sup>. ALS-008112 enters various types of epithelial cells in the respiratory tract and is subsequently phosphorylated to form an intracellular nucleoside triphosphate with a half-life of approximately 29 hours. The nucleoside triphosphate analogue inhibits RSV replication by means of chain termination<sup>[3]</sup>. ALS-8112 is a pan-strain

inhibitor of RSV replication in vitro. The RNA transcription activity of the RSV-RNP complex is dose-proportionally inhibited by ALS-8112-TP with an  $IC_{50}$  of  $0.020 \pm 0.008 \mu M$ <sup>[4]</sup>.  
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

## PROTOCOL

### Cell Assay <sup>[4]</sup>

ALS-8112 and its prodrug ALS-8176 are stored at 4°C in dimethyl sulfoxide (DMSO), and diluted in water. HEp-2 cells per well are plated in a 96-well plate. Each compound is serially diluted (1:3) up to 9 distinct concentrations. Cells are pre-incubated with compounds for 24 hours at 37°C in a 5% CO<sub>2</sub> atmosphere. After 24 hours of pre-incubation with compounds, RSV A2, Long, or B1 at a multiplicity of infection (MOI) of 0.5 is added to the cells, except for the background controls. The plate is then incubated for additional 4 days in the same conditions and at the end of the incubation 50  $\mu L$  the supernatant from each well of the plate is collected<sup>[4]</sup>.

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

## CUSTOMER VALIDATION

- Antiviral Res. 2018 Feb;150:79-92.
- Microorganisms. 2023 Jun 18, 11(6), 1608.

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## REFERENCES

- [1]. Wang G, et al. Discovery of 4'-chloromethyl-2'-deoxy-3',5'-di-O-isobutyryl-2'-fluorocytidine (ALS-8176), a first-in-class RSV polymerase inhibitor for treatment of human respiratory syncytial virus infection. *J Med Chem.* 2015 Feb 26;58(4):1862-78.
- [2]. Jordan PC, et al. Activation Pathway of a Nucleoside Analog Inhibiting Respiratory Syncytial Virus Polymerase. *ACS Chem Biol.* 2017 Jan 20;12(1):83-91.
- [3]. DeVincenzo JP, et al. Activity of Oral ALS-008176 in a Respiratory Syncytial Virus Challenge Study. *N Engl J Med.* 2015 Nov 19;373(21):2048-58.
- [4]. Deval J, et al. Molecular Basis for the Selective Inhibition of Respiratory Syncytial Virus RNA Polymerase by 2'-Fluoro-4'-Chloromethyl-Cytidine Triphosphate. *PLoS Pathog.* 2015 Jun 22;11(6):e1004995.

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

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