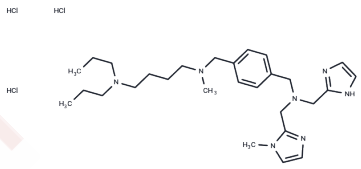
# Data Sheet (Cat.No.T39787)

TargetMol

## KRH-3955 hydrochloride

### Chemical Properties



CAS No. : 2253744-59-9

Formula: C28H48Cl3N7

Molecular Weight: 589.09

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

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|---|---|
| Description | KRH-3955 hydrochloride is a CXCR4 antagonist with oral bioavailability. It effectively inhibits the binding of SDF-1α to CXCR4, exhibiting an IC 50 of 0.61 nM. Additionally, KRH-3955 hydrochloride displays high potency and selectivity as an inhibitor of X4 HIV-1, with an EC 50 ranging from 0.3 to 1.0 nM. |
| Targets(IC50) | Others,HIV Protease,CXCR |
| In vitro | KRH-3955 effectively inhibits the replication of NL4-3 in activated peripheral blood mononuclear cells (PBMCs) sourced from eight different donors, with an EC50 value between 0.23 and 1.3 nM[1]. It also prevents the infection of CD4/CXCR4 cells by a range of recombinant drug-resistant viruses, including those resistant to protease inhibitors (PIs), nucleoside reverse transcriptase inhibitors (NRTIs), non-nucleoside reverse transcriptase inhibitors (NNRTIs), multidrug-resistant viruses, and T20-resistant viruses, showing an IC50 between 0.4 to 0.8 nM[1]. Additionally, KRH-3955, in concentrations from 10 to 100 nM, dose-dependently reduces the SDF-1α-induced rise in intracellular Ca2+ concentration[1]. It bonds to sites within the region encompassing all three extracellular loops (ECLs) of CXCR4 at concentrations ranging from 0.1 to 1000 nM and demonstrates significant binding affinity to CXCR4 with a slow dissociation rate at 10 nM [1]. Moreover, KRH-3955 impedes MAb 12G5's binding to CXCR4 mutants, with IC50 values spanning from 0.5 to 14.1 nM[1]. |
| In vivo | KRH-3955, administered at 10 mg/kg in a single oral dose, effectively inhibits X4 HIV-1 infection in human-PBL-SCID mice, demonstrating its significant antiviral activity. This compound shows moderate oral bioavailability at 25.6% and a maximum concentration (C max) of 86.3 ng/mL in the model. When given intravenously at the same dosage, KRH-3955 exhibits prolonged terminal elimination half-lives of 99 hours, attributed to its high plasma clearance rate (3.9 liters/h/kg) and extensive distribution volume (374 liters/kg). In a study involving C.B-17 SCID mice engrafted with human PBMCs and challenged with infectious X4 HIV-1 (NL4-3), a single oral administration of KRH-3955 led to a significant reduction in infection rates, with only one out of five mice treated showing infection compared to four out of five in the mock-treated group. Pharmacokinetic analysis in male Sprague-Dawley rats revealed that KRH-3955 is well absorbed, with an absolute oral bioavailability of 25.6% and a half-life of approximately 99 hours. Additionally, the compound was stable in human hepatic microsomes without significant inhibition of CYP450 liver enzymes, indicating a favorable metabolic profile. |

Preparing Stock Solutions

| | 1mg | 5mg | 10mg |
|---|---|---|---|
| 1 mM | 1.6975 mL | 8.4877 mL | 16.9753 mL |
| 5 mM | 0.3395 mL | 1.6975 mL | 3.3951 mL |
| 10 mM | 0.1698 mL | 0.8488 mL | 1.6975 mL |
| 50 mM | 0.034 mL | 0.1698 mL | 0.3395 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

Tsutomu M, et, al. The Novel CXCR4 Antagonist KRH-3955 Is an Orally Bioavailable and Extremely Potent Inhibitor of Human Immunodeficiency Virus Type 1 Infection: Comparative Studies With AMD3100. Antimicrob Agents Chemother. 2009 Jul; 53(7): 2940-8.