# Data Sheet (Cat.No.T36085)

TargetMol

## PKI-179 hydrochloride

### Chemical Properties

CAS No. : 1463510-35-1

Formula: C25H29ClN8O3

Molecular Weight: 525.00

Storage: Keep away from moisture
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 | PKI-179 hydrochloride is a potent and orally available dual PI3K/mTOR inhibitor. Its $IC_{50}$ values against PI3K-α, PI3K-β, PI3K-γ, PI3K-δ and mTOR are 8 nM, 24 nM, 74 nM, 77 nM and 0.42 nM respectively. It also exerts inhibitory activity against E545K and H1047R mutants with $IC_{50}$ values of 14 nM and 11 nM, and exhibits significant antitumor effects in in vivo models. |
| Targets(IC50) | mTOR,PI3K |
| In vitro | Methods: In vitro cell proliferation assays and kinase/ion channel/metabolic enzyme screening systems were used to evaluate the antitumor activity and selectivity of PKI-179 hydrochloride.<br>Results: :<br>1.PKI-179 hydrochloride significantly inhibited tumor cell proliferation, with $IC_{50}$ values of 22 nM and 29 nM for MDA361 and PC3 cells, respectively.<br>2.At concentrations higher than 30 μM, PKI-179 hydrochloride showed no obvious inhibitory effect on 361 other kinases, hERG, and multiple cytochrome P450 (CYP) isoforms, but exhibited certain inhibitory activity against CYP2C8 with an $IC_{50}$ of 3 μM [1]. |
| In vivo | Methods: Nude mice bearing MDA-361 human breast cancer xenografts were treated with oral administration to evaluate the in vivo antitumor activity, target inhibition and tolerability of PKI-179 hydrochloride. The oral bioavailability and half-life of PKI-179 hydrochloride were determined in multiple animal models including nude mice, rats, monkeys and dogs.<br>Results: :<br>1.In vivo antitumor activity and tolerability: PKI-179 hydrochloride (5-50 mg/kg, oral administration once daily for 40 days) could significantly inhibit the growth of MDA-361 human breast cancer xenografts and exhibited good tolerability in nude mice.<br>2.In vivo target signaling inhibition: PKI-179 hydrochloride (50 mg/kg, oral administration) effectively suppressed PI3K signaling in nude mice bearing MDA-361 tumor xenografts.<br>3.Oral bioavailability and half-life: PKI-179 hydrochloride displayed favorable oral bioavailability (98% in nude mice, 46% in rats, 38% in monkeys, 61% in dogs) with a long half-life (>60 minutes) [1]. |

## Solubility Information

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| Solubility | Ethanol: Slightly soluble<br>DMF: 2.00 mg/mL (3.81 mM),Sonication is recommended.<br>DMSO:PBS(pH 7.2) (1:3): 0.25 mg/mL (0.48 mM),Sonication is recommended.<br>DMSO: 16.00 mg/mL (30.48 mM),Sonication is recommended.<br>(< 1 mg/ml refers to the product slightly soluble or insoluble) |

Preparing Stock Solutions

| | 1mg | 5mg | 10mg |
|---|---|---|---|
| 1 mM | 1.9048 mL | 9.5238 mL | 19.0476 mL |
| 5 mM | 0.381 mL | 1.9048 mL | 3.8095 mL |
| 10 mM | 0.1905 mL | 0.9524 mL | 1.9048 mL |
| 50 mM | 0.0381 mL | 0.1905 mL | 0.381 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

Venkatesan AM, et, al. PKI-179: an orally efficacious dual phosphatidylinositol-3-kinase (PI3K)/mammalian target of rapamycin (mTOR) inhibitor. Bioorg Med Chem Lett.
2010 Oct 1;20(19):5869-73.
Rehan M. A structural insight into the inhibitory mechanism of an orally active PI3K/mTOR dual inhibitor, PKI-179 using computational approaches. J Mol Graph Model.
2015 Nov;62:226-234.