# Data Sheet (Cat.No.T61737)

TargetMol
YOUR TARGET MOLECULES

FtsZ-IN-4

## Chemical Properties

CAS No. :

Formula: C21H16ClF2NO2

Molecular Weight: 387.81

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

## Biological Description

| | |
|---|---|
| Description | FtsZ-IN-4, an orally active inhibitor of FtsZ (filamenting temperature-sensitive mutant Z), demonstrates remarkable antibacterial activity and favorable pharmaceutical properties. With low cytotoxicity (CC 50 >20 μg/mL) [1], FtsZ-IN-4 exhibits promising potential for therapeutic applications. |
| In vitro | FtsZ-IN-4, identified as compound 30, exhibits potent antibacterial effects against B. subtilis and S. aureus, with minimum inhibition concentrations (MIC) of 0.008-0.25 μg/mL, according to standards [1]. This compound demonstrates rapid bactericidal activity, achieving significant reductions in bacterial population within 3 hours at concentrations of 0.064 μg/mL or 0.5 μg/mL, with minimum bactericidal concentration (MBC) to MIC ratios of ≤4, indicating efficacy within Clinical and Laboratory Standards Institute (CLSI) guidelines [1]. Additionally, at concentrations exceeding 20 μg/mL over 72 hours, FtsZ-IN-4 shows minimal cytotoxicity towards Vero cells, with a 50% cytotoxic concentration (CC50) >20 μg/mL [1]. It notably disrupts bacterial cell division, elongating B. subtilis ATCC9372 within 3 hours at 0.016 μg/mL and induces aberrant cell division leading to bacterial cell death [1]. Furthermore, FtsZ-IN-4 enhances SaFtsZ polymerization at 10 μg/mL within 0-15 minutes and inhibits SaFtsZ's GTPase activity in a dose-dependent manner within 30 minutes across concentrations of 0-35 μg/mL [1]. In cell proliferation assays, the compound significantly decreased populations of S. aureus ATCC25923 and B. subtilis ATCC9372 to below detectable limits within 3 hours at multiples of the MIC, establishing its effective bactericidal capabilities [1]. |
| In vivo | FtsZ-IN-4 (compound 30) demonstrates moderate pharmacokinetic exposure (AUC (0-t) = 544.2 h*ng/mL) and an oral bioavailability (F) of 61.2% following a 5 mg/kg oral (p.o.) administration in mice [1]. Administered intravenously (i.v.) at a dose of 25 mg/kg, it shows significant in vivo efficacy, reducing bacterial burden in male ICR mice infected with S. aureus ATCC25923 to levels comparable with vancomycin, as evidenced by its pharmacokinetic profile which includes a half-life (T 1/2) of 0.28 hours and a peak concentration (Cmax) of 480.5 ng/mL following a 1 mg/kg dose, and enhanced exposure metrics (AUC (0-t) = 544.2 h*ng/mL) at a 5 mg/kg dose, confirming its effectiveness as an intraperitoneal injection [1]. |

Preparing Stock Solutions

| | 1mg | 5mg | 10mg |
|---|---|---|---|
| 1 mM | 2.5786 mL | 12.8929 mL | 25.7858 mL |
| 5 mM | 0.5157 mL | 2.5786 mL | 5.1572 mL |
| 10 mM | 0.2579 mL | 1.2893 mL | 2.5786 mL |
| 50 mM | 0.0516 mL | 0.2579 mL | 0.5157 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.