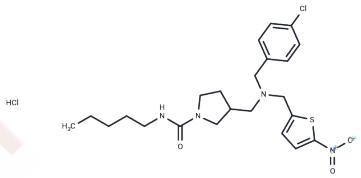
Data Sheet (Cat.No.T39473)

TargetMol

SR9011 hydrochloride

Chemical Properties



CAS No. : 2070014-94-5

Formula: C23H32Cl2N4O3S

Molecular Weight: 515.49

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

Description	SR9011 hydrochloride is a REV-ERBα/β agonist, exhibiting IC50 values of 790 nM for REV-ERBα and 560 nM for REV-ERBβ.
Targets(IC50)	Others,REV-ERB
In vitro	SR9011 enhances REV-ERB's repressive activity in a dose-dependent manner, as demonstrated in HEK293 cells equipped with both a chimeric Gal4 DNA Binding Domain (DBD)-REV-ERB ligand binding domain (LBD) α or β and a Gal4-responsive luciferase reporter, with IC50 values of 790 nM for REV-ERBα and 560 nM for REV-ERBβ. Additionally, SR9011 effectively inhibits transcription through a cotransfection assay using full-length REV-ERBα and a luciferase reporter under the control of the Bmal1 promoter (IC50 = 620 nM). This compound also downregulates BMAL1 mRNA expression in HepG2 cells via REV-ERBα/β. Notably, SR9011 inhibits the proliferation of breast cancer cell lines, irrespective of their ER or HER2 status, by inducing cell cycle arrest before the M phase, possibly through direct suppression of Cyclin A (CCNA2) expression, a known target of REV-ERB. This action leads to an accumulation of cells in the G0/G1 phase and a concurrent reduction in the S and G2/M phases, hinting at REV-ERB activation's role in impeding progression from G1 to S phase and/or from S to G2/M phase.
In vivo	SR9011 demonstrates adequate plasma exposure, influencing the expression of genes responsive to REV-ERB in mice liver after different dosages for 6 days. The gene for plasminogen activator inhibitor type 1 (Serpine1), targeted by REV-ERB, shows a dose-dependent decrease in expression following SR9011 treatment. Similarly, the cholesterol 7α-hydroxylase (Cyp7a1) and sterol response element binding protein (Srepf1) genes, both responsive to REV-ERB, exhibit dose-dependent suppression with increased SR9011 dosages. After 12 days under constant darkness, a single SR9011 injection at CT6 disrupts circadian-related locomotor activity, with normal activity resuming after a cycle, indicative of the drug's clearance within 24 hours. This effect, as well as the dose-dependent decrease in wheel running behavior under constant darkness, suggests SR9011's potency (ED50 = 56 mg/kg) is comparable to its efficacy in suppressing the Srebf1 gene in vivo (ED50 = 67mg/kg).

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	1.9399 mL	9.6995 mL	19.399 mL
5 mM	0.388 mL	1.9399 mL	3.8798 mL
10 mM	0.194 mL	0.970 mL	1.9399 mL
50 mM	0.0388 mL	0.194 mL	0.388 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

Solt LA, et al. Regulation of circadian behaviour and metabolism by synthetic REV-ERB agonists. Nature. 2012 Mar 29;485(7396):62-8.

Wang Y, et al. Anti-proliferative actions of a synthetic REV-ERBα/β agonist in breast cancer cells. Biochem Pharmacol. 2015 Aug 15;96(4):315-22.