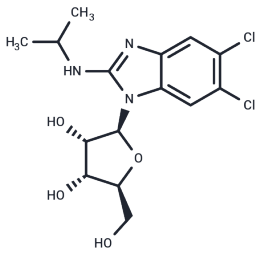
Data Sheet (Cat.No.T2162)

TargetMol

Maribavir

Chemical Properties



CAS No. : 176161-24-3

Formula: C15H19Cl2N3O4

Molecular Weight: 376.24

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	Maribavir (GW257406X) is an orally available benzimidazole riboside compound with activity against cytomegalovirus (CMV). Maribavir is a selective ATP competitor of the viral UL97 kinase, which is involved in viral nuclear maturation events, such as viral DNA assembly and movement of viral capsids from the nucleus of infected cells. Maribavir has activity against strains of CMV that are resistant to standard anti-CMV agents.
Targets(IC50)	HCV Protease,Antifection,Virus Protease
In vitro	Maribavir effectively inhibits the autophosphorylation of both the wild type and the major Ganciclovir (GCV)-resistant UL97 mutants, showing a mean IC50 of 35 nM. The M460I mutation increases sensitivity to Maribavir, decreasing its IC50 to 4.8 nM. However, a Maribavir-resistant UL97 mutant (L397R) exhibits significantly reduced kinase activity, functioning at approximately 10% of the wild type levels for both GCV kinase and protein kinase activities. Enzyme kinetic studies reveal that Maribavir acts as a competitive inhibitor against ATP, with a Ki of 10 nM. Furthermore, Maribavir inhibits viral replication in a dose-dependent manner, achieving an IC50 of 0.12±0.01 μM as per a multicycle DNA hybridization assay, and strongly inhibits pUL97 protein kinase with a 50% inhibition concentration of 3 nM.
Kinase Assay	Enzyme kinetic analysis is performed on the purified wild type and mutant UL97 protein species using increasing concentrations of ATP (2 μM to 20 μM). The amount of incorporated radiolabelled phosphate is plotted against the concentration of ATP in a Lineweaver Burke plot to determine the Km for ATP for each UL97 species. The effect of Maribavir upon the rate of radiolabelled phosphate incorporation by wild type or mutant UL97 is determined by protein kinase assays at a fixed concentration of Maribavir (0.5 μM) as above, or with increasing concentrations of Maribavir (0.01 μM to 5.0 μM) to determine the IC50 of Maribavir for each UL97 species. In order to determine the nature of the inhibition mediated by Maribavir, plots of 1/v vs 1/ATP with increasing concentrations of Maribavir are constructed. Competitive inhibition is evident if the family of lines cconverged on the y-axis at 1/Vmax. The change in slope caused by the addition of Maribavir is used to calculate the Ki[1].
Cell Research	Maribavir (1263W94) is dissolved in DMSO and stored, and then diluted with appropriate media before use[2]. For these studies MRC-5 cells are seeded in 24-well plates at ~5×104 cells/well and grown for 3 days in MEM 8-1-1 to confluence (~1.1×105 cells/well). The cells are infected with AD169 in MEM 2-1-1 at an MOI ranging from 1 to 3 and incubated at 37°C for 90 min to allow viral adsorption. The unadsorbed virus is

Cell Research	removed and replaced with 1 mL of MEM 2-1-1. To test the effect of compounds on viral DNA synthesis or maturation, Maribavir, BDCRB, or GCV is added to the medium at the concentrations indicated for each experiment[2].

Solubility Information

Solubility	DMSO: 240 mg/mL (637.89 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+90% Saline: < 10 mg/mL (26.58 mM),Lower concentrations may be soluble, but exact solubility limit is unknown. 10% DMSO+40% PEG300+5% Tween 80+45% Saline: 10 mg/mL (26.58 mM),Solution. *Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.6579 mL	13.2894 mL	26.5788 mL
5 mM	0.5316 mL	2.6579 mL	5.3158 mL
10 mM	0.2658 mL	1.3289 mL	2.6579 mL
50 mM	0.0532 mL	0.2658 mL	0.5316 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

Shannon-Lowe CD, et al. The effects of Maribavir on the autophosphorylation of ganciclovir resistant mutants of the cytomegalovirus UL97 protein. Herpesviridae. 2010 Dec 7;1(1):4.

Biron KK, et al. Potent and selective inhibition of human cytomegalovirus replication by 1263W94, a benzimidazole L-riboside with a unique mode of action. Antimicrob Agents Chemother. 2002 Aug;46(8):2365-72.