Product Data Sheet

Product Name: Ru360
Cat. No.: GC60330

Chemical Properties

Cas. No.			
SMILES	[NH3][Ru]([NH3])([NH3])([NH3])(O[Ru]([NH3])([NH3])([NH3])([NH3])OC=O)OC=O.[Cl-].[Cl-].[Cl-].[3+]		
Formula	$C_2H_{26}Cl_3N_8O_5Ru_2$ 3-	M.Wt	550.78
Solubility		Storage	
General tips	For obtaining a higher solubility , please warm the tube at 37 ℃ and shake it in the ultrasonic bath for a while.Stock solution can be stored below -20℃ for several months.		
Shipping Condition	Evaluation sample solution : ship with blue ice All other available size: ship with RT , or blue ice upon request.		
Structure	Ru360		

Background

Ru360, an oxygen-bridged dinuclear ruthenium amine complex, is a selective mitochondrial calcium uptake inhibitor. Ru360 potently inhibits Ca2+ uptake into mitochondria with an IC50 of 0.184 nM. Ru360 binds to mitochondria with high affinity (Kd of 0.34 nM). Ru360 has antiarrhythmic and cardioprotective effects[1][2].

Ru360 permeates slowly into the cell, and specifically inhibits mitochondrial calcium uptake in intact cardiomyocytes and in isolated heart. 1 μm Ru360 is taken up by myocardial cells and accumulated in the cytosol in a biphasic manner[1]. During pelleting hypoxia, Ru360 (10 μM) significantly improves cell viability in wild type cardiomyocytes[3].

Ru360 (15-50 nmol/kg) treatment abolishes the incidence of arrhythmias and haemodynamic dysfunction elicited by reperfusion in a whole rat model. Ru360 administration partially inhibits calcium uptake, preventing mitochondria from depolarization by the opening of the mitochondrial permeability transition pore (mPTP) [1].

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References:
[1]. G de J GarcÍa-Rivas, et al. Ru360, a Specific Mitochondrial Calcium Uptake Inhibitor, Improves Cardiac Post-Ischaemic Functional Recovery in Rats in Vivo. Br J Pharmacol. 2006 Dec;149(7):829-37.
[2]. M A Matlib, et al. Oxygen-bridged Dinuclear Ruthenium Amine Complex Specifically Inhibits Ca2+ Uptake Into Mitochondria in Vitro and in Situ in Single Cardiac Myocytes. J Biol Chem. 1998 Apr 24;273(17):10223-31.
[3]. Lukas J Motloch, et al. UCP2 Modulates Cardioprotective Effects of Ru360 in Isolated Cardiomyocytes During Ischemia. Pharmaceuticals (Basel). 2015 Aug 4;8(3):474-82.

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