

Rapamycin

Catalog No: tcsc0063



Available Sizes

Size: 50mg

Size: 100mg

Size: 200mg

Size: 500mg

Size: 1g

Size: 2g

Size: 5g



Specifications

CAS No:

53123-88-9

Formula:

$C_{51}H_{79}NO_{13}$

Pathway:

Anti-infection; Apoptosis; Autophagy; Immunology/Inflammation; Metabolic Enzyme/Protease; PI3K/Akt/mTOR

Target:

Antibiotic; Autophagy; Endogenous Metabolite; FKBP; Fungal;mTOR

Form:

White to off-white (Solid)

Purity / Grade:

99.94%

Solubility:

H₂O : Ethanol : 50 mg/mL (54.69 mM; Need ultrasonic).

Storage Instruction:

2-8°C

Alternative Names:

Sirolimus; AY 22989

Observed Molecular Weight:

914.17

References

[1]. Edwards SR, et al. The rapamycin-binding domain of the protein kinase mammalian target of rapamycin is a destabilizing domain. *J Biol Chem*, 2007, 282(18), 13395-13401. [2]. Rangaraju S, et al. Rapamycin activates autophagy and improves myelination in explant cultures from neuropathic mice. *J Neurosci*. 2010 Aug 25;30(34):11388-97. [3]. Niu H, et al. Rapamycin potentiates cytotoxicity by RP-56976 possibly through downregulation of Survivin in lung cancer cells. *J Exp Clin Cancer Res*. 2011 Mar 10;30:28. [4]. Zhang JW, et al. Metformin synergizes with rapamycin to inhibit the growth of pancreatic cancer in vitro and in vivo. *Oncol Lett*. 2018 Feb;15(2):1811- 1816.

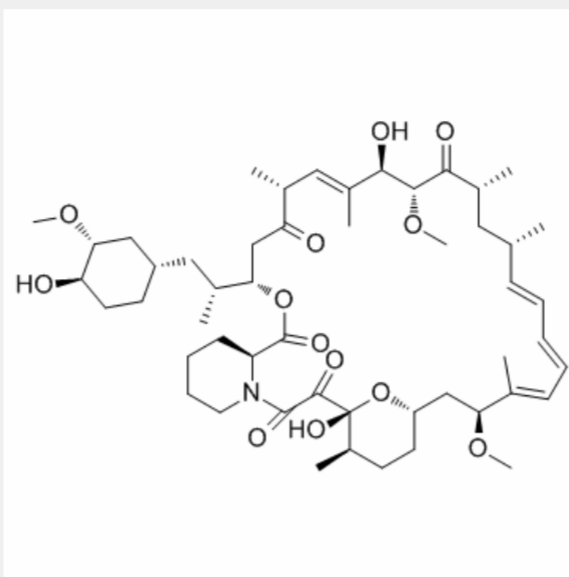
Product Description

Rapamycin (Sirolimus) is a potent and specific **mTOR** inhibitor with an **IC₅₀** of 0.1 nM.

IC₅₀ & Target: IC₅₀: 0.1 nM (mTOR)^[1]

In Vitro: Rapamycin inhibits endogenous mTOR activity in HEK293 cells with IC₅₀ of 0.1 nM, more potently than iRap and AP21967 with IC₅₀ of 5 nM and 10 nM, respectively^[1]. Rapamycin exerts its antitumor effect on malignant glioma cells by inducing autophagy and suggest that in malignant glioma cells a disruption of the PI3K/Akt signaling pathway could greatly enhance the effectiveness of mTOR inhibitors. Rapamycin inhibits cell viability in all three cell lines in a dose-dependent manner, but their sensitivities varied. The IC₅₀ levels of T98G, U87-MG, and U373-MG cells are 2 nM, 1 μM, and >25 μM, respectively^[3].

In Vivo: Treatment with Rapamycin (i.p, 1.5 mg/kg) almost completely prevents the hypertrophic increases in plantaris muscle weight and fibre size at 7 and 14 days^[4]. WT or *LS/+* mice are treated daily Rapamycin (2 mg/kg body weight i.p.) for 4 weeks, follows by an additional 4 weeks of weekly injections of the same dose. There is significant reversal of the abnormal fetal gene expression profile of hearts from Rapamycin-treated *LS/+* mice^[5].



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