



Product Specification Sheet

Product Name: Rapamycin (Sirolimus)
Catalog Number: C7272-5 (powder)
C7272-5s (10mM in DMSO)
Package Size: 5 mg

Technical information:

Chemical Formula: C₅₁H₇₉NO₁₃

CAS #: 53123-88-9

Molecular Weight: 914.17

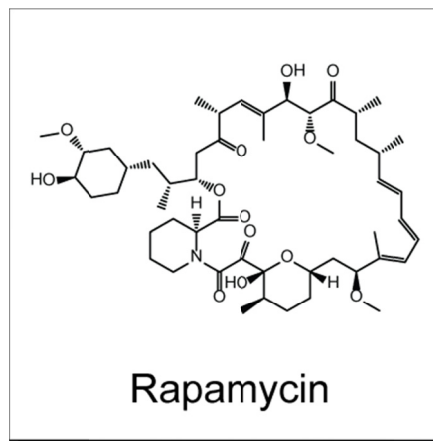
Purity: >98%

Formulation: White solid

Solubility: Soluble in DMSO up to 50 mM

Chemical Name: (3S,6R,7E,9R,10R,12R,14S,15E,17E,19E,21S,23S,26R,27R,34aS)-9,10,12,13,14,21,22,23,24,25,26,27,32,33,34,34a-hexadecahydro-9,27-dihydroxy-3-[(1R)-2-[(1S,3R,4R)-4-hydroxy-3-methoxycyclohexyl]-1-methylethyl]-10,21-dimethoxy-6,8,12,14,20,26-hexamethyl-23,27-epoxy-3H-pyrido[2,1-c][1,4]-oxaazacyclohentriacontine-1,5,11,28,29(4H,6H,31H)-pentone

Storage: Store solid powder at 4°C desiccated;
Store DMSO solution at -20°C.



- Handling:**
- For C7272-5 (powder), add 914 µL of DMSO to make 10 mM solution.
 - For C7272-5s, before open the vial, centrifuge the vial at 500rpm x 1 min in a 50 mL conical tube to ensure full sample recovery.

Biological Activity: Rapamycin binds to the cytosolic protein FK-binding protein 12 (FKBP12) and inhibits mTOR pathway by directly binding to the mTOR Complex1 (mTORC1).
Rapamycin has variety of usages in vitro and in vivo. It is an immunosuppressant drug used to prevent rejection in organ transplantation. It showed lifespan extension in mice. Its antiproliferative effects led to treat tuberous sclerosis complex and several cancers.

- Reference:**
1. Vézina C et al. Rapamycin (AY-22,989), a new antifungal antibiotic. *J. Antibiot.* 1975; 28 (10): 721.
 2. Price, D.J., et al. Rapamycin-induced inhibition of the 70-kilodalton S6 protein kinase. *Science.* 1992; 257: 973-977.
 3. Heitman, J., et al. Targets for cell cycle arrest by the immunosuppressant rapamycin in yeast. *Science.* 1991; 253: 905-909.
 4. Wells, A.D. et al. Requirement for T-cell apoptosis in the induction of peripheral transplantation tolerance. *Nat. Med.* 1999; 5: 1303-1307.
 5. Harrison DE, et al. Rapamycin fed late in life extends lifespan in genetically heterogeneous mice. *Nature* 2009; 460 (7253): 392-5.
 6. Wendel HG, et al. "Survival signalling by Akt and eIF4E in oncogenesis



- and cancer therapy". Nature 2004;428 (6980): 332–7
7. Ehninger D. et al. Reversal of learning deficits in a Tsc2+/- mouse model of tuberous sclerosis. Nat. Med. 2008;14 (8): 843–8
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