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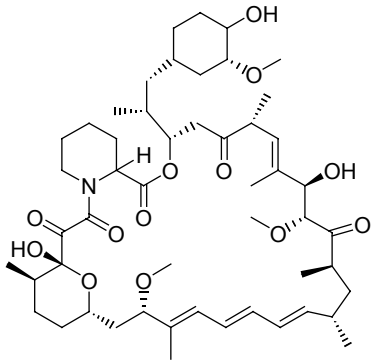
PRODUCT DATA SHEET

Rapamycin

Code: **BIA-R1183**

Pack sizes: **25 mg, 100 mg**



Synonyms : **Sirolimus, Antibiotic AY 22989, Antibiotic SIIA 9268A**

Specifications

CAS #	:	**53123-88-9**
Molecular Formula	:	**$C_{51}H_{79}NO_{13}$**
Molecular Weight	:	**914.2**
Source	:	***Streptomyces hygroscopicus* MST-AS4510**
Appearance	:	**White solid**
Purity	:	**>99% by HPLC**
Long Term Storage	:	**-20°C**
Solubility	:	**Soluble in ethanol, methanol, DMF or DMSO. Slightly soluble in water.**

Application Notes

Rapamycin is a triene macrolide discovered in 1995 as a metabolite of *Streptomyces hygroscopicus* found in a soil obtained on Rapi Nui (Easter Island). Rapamycin displayed potent and selective antifungal activity, notably against *Candida albicans*. Interest in the metabolite waned until the structural relationship to the potent immunosuppressant fujimycin (Antibiotic FK506) was recognised in the mid-1980s. This recognition led to the re-discovery of rapamycin as a highly selective antitumor and immunosuppressant. Rapamycin inhibits the activity of the protein, mTOR (mammalian target of rapamycin) which functions in a signalling pathway to promote tumor growth. Rapamycin binds to a receptor protein (FKBP12). The rapamycin/FKB12 complex then binds to mTOR and prevents interaction of mTOR with target proteins in this signalling pathway.

References

1. Rapamycin (AY-22,989), a new antifungal antibiotic. I. Taxonomy of the producing streptomycete and isolation of the active principle. Vezina C. et al., J. Antibiot. **1975**, 28, 721.
2. Rapamycin (AY-22,989), a new antifungal antibiotic. II. Fermentation, isolation and characterization. Sehgal S.N. et al.; J. Antibiot. **1975**, 28, 727.
3. Rapamycin, a potent immunosuppressive drug, causes programmed cell death in B lymphoma cells. Muthukkumar S. et al., Transplantation **1995**, 60, 264.
4. Rapamycin inhibition of the G1 to S transition is mediated by effects on cyclin D1 mRNA and protein stability. Hashemolhosseini S. et al., J. Biol. Chem. **1998**, 273, 14424.

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