

Product Name:	Rapamycin
Product Number:	R001
CAS Number:	53123-88-9
Molecular Formula:	C ₅₁ H ₇₉ NO ₁₃
Molecular Weight:	914.17
Form:	Powder
Appearance:	White or off-white powder
Solubility:	Chloroform: 5 mg/mL Ethanol: Soluble Methanol: 25 mg/mL Water: Insoluble
Source:	<i>Streptomyces Hygroscopicus</i>
Melting Point:	183-185°C
Storage Conditions:	-20°C
Description:	Rapamycin (sirolimus) is a macrolide immunosuppressive and anti-tumor drug. Rapamycin is essentially insoluble in water. Chen et al. used rapamycin from TOKU-E to study the mammalian target of rapamycin. <u>"AMPA receptor–mTOR activation is required for the antidepressant-like effects of sarcosine during the forced swim test in rats: insertion of AMPA receptor may play a role"</u>
Mechanism of Action:	Rapamycin complexes with FK-binding protein (FKBP12) and inhibits mTOR (FRAP, RAFT), a member of the phosphoinositide kinase-related kinase (PIKK) family.
Cancer Applications	Rapamycin suppresses the immune system by preventing T-cell and B-cells from responding to IL-2, a cytokine that would otherwise induce cell proliferation. These properties are especially useful post-transplant to reduce the likelihood of graft rejection. Rapamycin has also demonstrated anti-tumor properties by inducing cellular apoptosis and inhibiting cell division.
References:	Law, B. K., and Et Al. "Rapamycin: An Anti-cancer Immunosuppressant?" <i>Critical Reviews in Oncology and Hematology</i> 56.1 (2005): 47-60. www.ncbi.gov . Oct. 2005. Web. 30 Aug. 2012. Dumont, F. J., and Su Q. "Mechanism of Action of the Immunosuppressant Rapamycin." <i>Life Sciences</i> 58.5 (1996): 373-95. www.ncbi.gov . Web. 30 Aug. 2012.

