

Rapamycin, Inhibitor

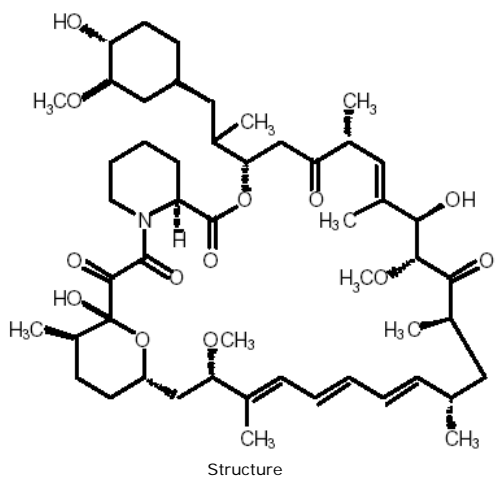
Product Specifications	
Catalog Number:	HPK-109
Application Notes:	This product is not sterile
Molecular Weight:	914.2
Purity:	98% (TLC: 10% MeOH/Methylene Chloride; R _f = 0.51)
Format:	Off white or pale yellow solid, soluble in DMSO (25 mg/mL)
Storage: <i>Shipping conditions may differ from the recommended storage temperature</i>	Store as supplied at -20°C; store solutions at -20°C for up to 3 months.
Related Products:	
905-687-100	mTOR Polyclonal Antibody
905-765-100	Raptor Monoclonal Antibody (10E10)

Background:

Rapamycin is a macrocyclic lactone antibiotic produced by *Streptomyces hygroscopicus* that was originally developed as an anti-fungal drug but more recently utilized as an anti-cancer and immunosuppressive agent¹. Rapamycin binds the immunophilin FK506 binding protein (FKBP12) via its methoxy group, enabling this complex to inhibit the mTOR (molecular Target Of Rapamycin) signaling pathway. Inhibition of mTOR by rapamycin prevents phosphorylation of downstream mTOR substrates, including key regulators of apoptosis, transcription and translation such as eEF2, p70S6K, and 4E-BP1²⁻⁵. Inhibition of mTOR reduces G0 to G1 cell cycle progression by increasing cyclin D1 turnover and stabilizing the cyclin dependent kinase inhibitor p27⁶⁻⁷.

References:

1. Vignot, S., *et al.* (2005) *Ann Onc.* **26**, 525-537.
2. Gingras, A.C., *et al.* (1998) *Genes Dev.* **12**, 502-513.
3. Heesom, K.J., *et al.* (1999) *FEBS Lett* **457**, 489-493.
4. Hara, K., *et al.* (1998) *J Biol Chem.* **273**, 14484-14494.
5. McLeod, L.E. *et al.* (2002) *FEBS Lett.* **531**, 448-452.
6. Takuwa, N., *et al.* (1999) *Mol Cell Biol.* **19**, 1346-1358.
7. Pene, F., *et al.* (2002) *Oncogene* **21**, 6587-6597.



The pharmacological and toxicological properties of this product have not been fully investigated. Exercise caution in use and handling. This product must not be used in humans.

FOR RESEARCH USE ONLY; NOT FOR THERAPEUTIC OR DIAGNOSTIC USE

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Last Revised: 05/11/2009