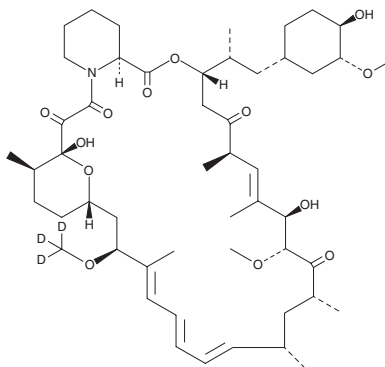


# PRODUCT INFORMATION



## Rapamycin-d<sub>3</sub> Item No. 22093

**CAS Registry No.:** 392711-19-2  
**Formal Name:** 7-O-demethyl-7-O-(methyl-d<sub>3</sub>)-rapamycin  
**Synonym:** Sirolimus-d<sub>3</sub>  
**MF:** C<sub>51</sub>H<sub>76</sub>D<sub>3</sub>NO<sub>13</sub>  
**FW:** 917.2  
**Chemical Purity:** ≥80% (mixture of isomers)  
**Deuterium Incorporation:** ≥98% deuterated forms (d<sub>1</sub>-d<sub>3</sub>); ≤2% d<sub>0</sub>  
**UV/Vis.:** λ<sub>max</sub>: 268, 278, 289 nm  
**Supplied as:** A solution in ethanol  
**Storage:** -20°C  
**Stability:** ≥1 year



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Description

Rapamycin-d<sub>3</sub> is intended for use as an internal standard for the quantification of rapamycin (Item No. 13346) by GC- or LC-MS. The accuracy of the sample weight in this vial is between 5% over and 2% under the amount shown on the vial. If better precision is required, the deuterated standard should be quantitated against a more precisely weighed unlabeled standard by constructing a standard curve of peak intensity ratios (deuterated versus unlabeled).

Rapamycin-d<sub>3</sub> is supplied as a solution in ethanol. To change the solvent, simply evaporate the rapamycin-d<sub>3</sub> under a gentle stream of nitrogen and immediately add the solvent of choice. Solvents such as methanol, DMSO, and chloroform purged with an inert gas can be used. The solubility of rapamycin-d<sub>3</sub> in methanol and DMSO is approximately 25 mg/ml and approximately 5 mg/ml in chloroform.

### Description

Rapamycin is an allosteric inhibitor of the mammalian target of rapamycin (mTOR) complex 1 (mTORC1).<sup>1</sup> It interacts with FKBP prolyl isomerase 1A (FKBP12) to form a complex that binds to and inhibits the kinase activity of mTORC1. Rapamycin inhibits growth of Rh1 and Rh30 rhabdomyosarcoma cells in serum-free medium, with 50% inhibition observed at concentrations of 0.1 and 0.5 ng/ml, respectively, and increases apoptosis in these cells at 100 ng/ml.<sup>2</sup> It also induces autophagy in a variety of cell types.<sup>1</sup> Rapamycin inhibits IL-2-induced proliferation of IL-2-dependent T cells by 50% when used at concentrations less than 5 pM.<sup>3</sup> Formulations containing rapamycin have been used as immunosuppressive agents in the prevention of organ transplant rejection.

### References

1. Kim, Y.C., and Guan, K.-L. mTOR: A pharmacological target for autophagy regulation. *J. Clin. Invest.* **125**(1), 25-32 (2015).
2. Hosoi, H., Dilling, M.B., Shikata, T., *et al.* Rapamycin causes poorly reversible inhibition of mTOR and induces p53-independent apoptosis in human rhabdomyosarcoma cells. *Cancer Res.* **59**(4), 886-894 (1999).
3. Kay, J.E., Kromwel, L., Doe, S.E.A., *et al.* Inhibition of T and B lymphocyte proliferation by rapamycin. *Immunology* **72**(4), 544-549 (1991).

#### WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

#### SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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