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DATASHEET

FK 506

Product overview

Name	FK 506
Cat No	HB0289
Alternative names	Tacrolimus; Fujimycin; FK-506
Biological action	Inhibitor
Purity	>99%
Description	Potent calcineurin phosphatase 2B inhibitor. Enhances osteoblastic differentiation in mesenchymal cells.

Images

Biological Data

Biological description	Potent calcineurin phosphatase 2B (PP2B) inhibitor (IC_{50} = 2 nM). Interacts with FK-506 binding protein. Also inhibits IL-2 production by activated T-cells and reduces amount of GLUT4 on human adipocytes. Enhances osteoblastic differentiation in mesenchymal cells. Displays neuroprotective, antibiotic and immunosuppressant properties.

Solubility & Handling

Storage instructions	-20°C
Solubility overview	Soluble in ethanol (100 mM) and DMSO (100 mM)
Important	This product is for RESEARCH USE ONLY and is not intended for therapeutic or diagnostic use. Not for human or veterinary use.

Chemical Data

Chemical name	(3S,4R,5S,8R,9E,12S,14S,15R,16S,18R,19R,26aS)-5,6,8,11,12,13,14,15,16,17,18,19,24,25,26,26a-Hexadecahydro-5,19-dihydroxy-3-[(1E)-2-[(1R,3R,4R)-4-hydroxy-3-methoxycyclohexyl]-1-methylethenyl]-14,16-dimethoxy-4,10,12,18-tetramethyl-8-(2-propen-1-yl)-15,19-epoxy-3H-pyrido[2,1-c][1,4]oxaazacyclotricosine-1,7,20,21(4H,23H)tetrone
Molecular Weight	804.02
Chemical structure	
Molecular Formula	$C_{44}H_{69}NO_{12}.H_2O$

Chemical name	(3S,4R,5S,8R,9E,12S,14S,15R,16S,18R,19R,26aS)-5,6,8,11,12,13,14,15,16,17,18,19,24,25,26,26a-Hexadecahydro-5,19-dihydroxy-3-[(1E)-2-[(1R,3R,4R)-4-hydroxy-3-methoxycyclohexyl]-1-methylethenyl]-14,16-dimethoxy-4,10,12,18-tetramethyl-8-(2-propen-1-yl)-15,19-epoxy-3H-pyrido[2,1-c][1,4]oxaazacyclotricosine-1,7,20,21(4H,23H)tetrone
CAS Number	104987-11-3
PubChem identifier	445643
SMILES	C[C@@H]1C[C@@H]([C@@H]2[C@H](C[C@H]([C@@](O2)(C(=O)C(=O)N3CCCC[C@H]3C(=O)O[C@@H]([C@@H]([C@H](CC(=O)[C@@H](/C=C(/C1)\C)CC=C)O)C)/C(=C/[C@@H]4CC[C@H]([C@@H](C4)OC)O)/C)O)C)OC)OC
InChi	InChI=1S/C44H69NO12/c1-10-13-31-19-25(2)18-26(3)20-37(54-8)40-38(55-9)22-28(5)44(52,57-40)41(49)42(50)45-17-12-11-14-32(45)43(51)56-39(29(6)34(47)24-35(31)48)27(4)21-30-15-16-33(46)36(23-30)53-7/h10,19,21,26,28-34,36-40,46-47,52H,1,11-18,20,22-24H2,2-9H3/
InChiKey	QJJXYPPXXYFBGM-NYOQZLQMSA-N
MDL number	MFCD11045918
Appearance	White to off-white

References

Possible nitric oxide modulation in protective effect of FK-506 against 3-nitropropionic acid-induced behavioral, oxidative, neurochemical, and mitochondrial alterations in rat brain.

Kumar P *et al* (2010) Drug Chem Toxicol 33(4)
PubMedID 20550427

The complex of FK506-binding protein 12 and FK506 inhibits calcineurin phosphatase activity and IgE activation-induced cytokine transcripts, but not exocytosis, in mouse mast cells.

Fruman DA *et al* (1995) J Immunol 154(4)
PubMedID 7530743

Cyclosporine A and Tacrolimus Reduce the Amount of GLUT4 at the Cell Surface in Human Adipocytes: Increased Endocytosis as a Potential Mechanism for the Diabetogenic Effects of Immunosuppressive Agents.

Pereira MJ *et al* (2014) J Clin Endocrinol Metab 99(10)
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Mode of action of tacrolimus (FK506): molecular and cellular mechanisms.

Thomson AW *et al* (1995) Ther Drug Monit 17(6)
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