FK-506
Item No. 10007965

CAS Registry No.: 104987-11-3
Formal Name: 5,6,8,11,12,13,14,15,16,17,18,19,24,25,26,26aS-hexahydro-5S,19R-dihydroxy-3S-[(1E)-2-(4R-hydroxy-3R-methoxy cyclohexyl)-1R-methyl ethenyl]-14S,16S-dimethoxy-4R,10,12S,18R-tetramethyl-8R-(2-propenyl)-15R,19R-epoxy-3H-pyrido[2,1-c][1,4]oxazacyclotriosine-17,20,21,(4H,23H)-tetrone
Synonym: Tacrolimus
MF: C44H69NO12
FW: 804.0
Purity: ≥99%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid

Laboratory Procedures

For long term storage, we suggest that FK-506 be stored as supplied at -20°C. It should be stable for at least two years.

FK-506 is supplied as a crystalline solid. A stock solution may be made by dissolving the FK-506 in an organic solvent purged with an inert gas. FK-506 is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF).

The solubility of FK-506 in ethanol and DMF is approximately 30 mg/ml and in DMSO it is approximately 20 mg/ml.

FK-506 is sparingly soluble in aqueous buffers. For maximum solubility in aqueous buffers, FK-506 should first be dissolved in ethanol and then diluted with the aqueous buffer of choice. FK-506 has a solubility of approximately 0.15 mg/ml in a 1:5 solution of ethanol PBS (pH 7.2) using this method. We do not recommend storing the aqueous solution for more than one day.

FK-506 is a potent, clinically-useful immunosuppressant in the same molecular class as cyclosporin A and rapamycin. Its mechanism of action involves the formation of a high affinity complex (Ki = 0.2 nM) with FK-506 Binding Protein 12 (FKBP12). This complex then inhibits the activity of the calcium/calcmodulin-dependent protein phosphatase, calcineurin, leading to disruption of T-cell activation. The physiological effects of FK-506 also include regulation of nitric oxide (FKBP12). This complex then inhibits the activity of the calcium/calmodulin-dependent protein phosphatase, calcineurin, leading to disruption of T-cell activation.2 The physiological effects of FK-506 also include regulation of nitric oxide neurotoxicity, neurotransmitter release, and regulation of Ca2+ release via the ryanodine and inositol-(1,4,5)-trisphosphate (IP3) receptors.3 In the latter case, FKBP12 forms a tight complex with both ryanodine and IP3 receptors which can be disrupted by FK-506, thereby rendering the receptors ‘leaky’ to Ca2+.

References

Related Products
For a list of related products please visit: www.caymanchem.com/catalog/10007965

WARNING: THIS PRODUCT IS FOR LABORATORY RESEARCH ONLY; NOT FOR ADMINISTRATION TO HUMANS. NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

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