

FK506

Calcineurin inhibitor and Autophagy inducer - InvitroFit™

Catalog code: inh-fk5-5

<https://www.invivogen.com/fk506>

For research use only

Version 23114-MM

PRODUCT INFORMATION

Contents

- 5 x 10 mg FK506 - InvitroFit™

Storage and stability

- FK506 is provided as a translucent film and shipped at room temperature. Upon receipt, store at -20 °C.
- Upon resuspension, prepare aliquots of FK506 and store at -20°C. Avoid repeated freeze-thaw cycles. Resuspended product is stable for 1 month at -20°C when properly stored.

Quality control

- The inhibitory activity has been validated using cellular assays.
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

DESCRIPTION

FK506 (Tacrolimus) is commonly used as an immunosuppressant to prevent the rejection of organ transplants. Similar to cyclosporin A (CsA), FK506 blocks the activation of calcineurin through the formulation of complexes with immunophilins. FK506 binds to a different immunophilin than CsA, called FK506 binding protein (FKBP)¹. Further, it has been demonstrated that the FK506-FKBP complex suppresses the activation of the calcineurin-dependent NFAT pathway and calcineurin-independent activation pathway for JNK and p38^{2,3}.

1. Powell J.D. & Zheng Y., 2006. Dissecting the mechanism of T-cell anergy with immunophilin ligands. *Curr Opin Investig Drugs*. 7(11):1002-7. 2. Matsuda S. *et al.*, 2000. Two distinct action mechanisms of immunophilinligand complexes for the blockade of T-cell activation. *EMBO Rep*. 1(5):428-34. 3. Vafadari R. *et al.*, 2012. Inhibitory effect of tacrolimus on p38 mitogenactivated protein kinase signaling in kidney transplant recipients measured by whole-blood phosphospecific flow cytometry. *Transplantation*. 93(12):1245-51.

CHEMICAL PROPERTIES

CAS number: 104987-11-3

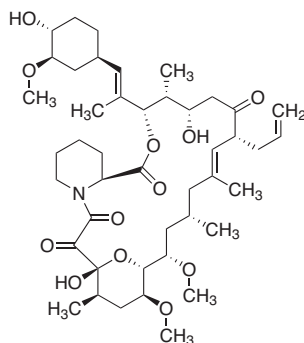
Formula: C₄₄H₆₉NO₁₂

Molecular weight: 804.02 g/mol

Solubility: DMSO (100 mg/ml)

Working concentration: 1-100 nM

Structure:



METHODS

Preparation of FK506 stock solution (20 mM)

1. Add 608 µl DMSO to 10 mg of FK506.
2. Vortex until completely resuspended.
3. Prepare aliquots and store stock solution at -20 °C.
4. Further dilutions can be prepared using aqueous buffers. We do not recommend storing the aqueous solution for more than one day.

Calcineurin signaling inhibition using Jurkat-Lucia™ NFAT cells:

[Jurkat-Lucia™ NFAT cells](#) were derived from the human T Lymphocyte-based Jurkat cell line by stable integration of an NFAT-inducible Lucia reporter construct. These cells induce the activation of NFAT in response to [phorbol myristate acetate](#) (PMA) and T-lymphocyte mitogens, such as [concanavalin A](#) (ConA). Levels of Lucia luciferase are readily measurable in the cell culture supernatant when using [QUANTI-Luc™ 4 Lucia/Gaussia](#), a luciferase detection reagent. For more information, visit www.invivogen.com/jurkat-lucia-nfat-cells.

1. Prepare a [Jurkat-Lucia™ NFAT cell](#) suspension ~2.5 x 10⁶ cells/ml in IMDM medium and add 160 µl of the cell suspension per well.
2. Add 20 µl of FK506 (1-100 nM final concentration) in a well of a 96-well plate and incubate the plate for 1 h at 37 °C, 5% CO₂.
3. Add 20 µl of [Concanavalin A](#) (30 µg/ml final concentration) per well.
4. Incubate the plate for 18-24 h at 37 °C, 5% CO₂.
5. Determine Lucia luciferase levels using [QUANTI-Luc™ 4 Lucia/Gaussia](#), a coelenterazine-based luminescence assay reagent.

RELATED PRODUCTS

Product	Description	Cat. Code
Concanavalin A	NFAT activator	inh-cona
Jurkat-Lucia™ NFAT Cells	Reporter T lymphocytes	jktl-nfat
PMA	NF-κB Activator	tlrl-pma
QUANTI-Luc™ 4 Lucia/Gaussia	Luciferase detection reagent	rep-qlc4lg1

TECHNICAL SUPPORT

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