Thymoquinone (IL-17A Inhibitor)

Catalog No.: NBP2-26241  
Description: Solid Powder; molecular weight 164.20  
Storage: The powder form of the inhibitor is stable in the desiccator at -20°C for 1 year. DMSO-reconstituted inhibitor solution is stable for up to two months at -20°C.

Background:

Thymoquinone is an active ingredient extracted from Nigella sativa. Thymoquinone has been known for its potent biological activities including anti-oxidant, anti-inflammatory, and anti-tumor activities (1, 2). Thymoquinone suppresses NF-κB-dependent antiapoptotic gene products in various cancer cells, and abrogates the progression of prostate cancer cells from G1 to S phase (1). Molecular targets of thymoquinone also include up-regulation of p21 and p27, and down-regulation of androgen receptor and elongation 2 factor-1 (E2F-1) (1). Thymoquinone also inhibited production of key proinflammatory cytokines that induce the pathogenesis of allergic inflammation such as IL-5 and IL-13 (3). Thymoquinone suppressed NF-κB-dependent antiapoptotic gene products in various cancer cells, and abrogates the progression of prostate cancer cells from G1 to S phase (1). Molecular targets of thymoquinone also include up-regulation of p21 and p27, and down-regulation of androgen receptor and elongation 2 factor-1 (E2F-1) (1). Thymoquinone also inhibited production of key proinflammatory cytokines that induce the pathogenesis of allergic inflammation such as IL-5 and IL-13 (3).  

Preparation:

Note: Please read the entire data sheet before using this product.

1. To make 100 mM stock solution, dissolve 10 mgs of inhibitor in 610 ul anhydrous dimethyl sulfoxide (DMSO) by gentle vortex.
2. Divide into useable aliquots and store them at -20°C.
3. The stock inhibitor solution may be diluted further to make working solutions in DMSO. The final DMSO concentration in the cells to be analyzed should not exceed 1%.

Usage:

The IL-17A Prom/LUCPorter™ cell line (NBP2-26283), which is a semi-constitutively active cell line, is a useful positive control model system for studying inhibition of IL-17A induction by thymoquinone (Figure 1). The anti-CD3/CD28-stimulated peripheral blood mononuclear cells (PBMC) are another model system for studying inhibition of IL-17A production (Figure 2).

Data Summary: Thymoquinone inhibited the IL-17A promoter induction in a dose-response manner, of which IC50 was measured as 19.16 µM.

Research purposes only. Not for diagnostic use.
Figure 2. Thymoquinone suppresses IL-17A production in human PBMC stimulated with anti-CD3/CD28. Peripheral blood mononuclear cells (PBMC) were stimulated with anti-CD3/CD28 in the presence or absence of inhibitor (0.5, 5 and 50 µM) for 3 days. IL-17A was then measured from the cell culture media using the Human IL-17A ActivELISA™ (NBP2-31046).

Data Summary: PBMCs that were stimulated with anti-CD3/CD28 produced IL-17A, of which induction was inhibited by thymoquinone. Vehicle: DMSO, Nil: no anti-CD3/CD28 stimulated PBMCs.

Product Citations:

