Web: www.taiclone.com
Tel: +886-2-2735-9682
Email: order@taiclone.com

Dimethyl fumarate

Catalog No: tcsc0909

Available Sizes

Size: 5g

Specifications

CAS No:
624-49-7

Formula:
$C_6H_8O_4$

Pathway:
NF-κB

Target:
Keap1-Nrf2

Purity / Grade:
>98%

Solubility:
DMSO : 9.6 mg/mL (66.61 mM; Need ultrasonic and warming)

Alternative Names:
DMF

Observed Molecular Weight:
144.13

Product Description

Dimethyl fumarate is a nuclear factor (erythroid-derived)-like 2 (**Nrf2**) pathway activator and induces upregulation of antioxidant gene expression.

In Vitro: Dimethyl fumarate causes short-lived oxidative stress, which leads to increased levels and nuclear localization of the transcription factor nuclear factor erythroid 2-related factor 2 and a subsequent increase in glutathione synthesis and recycling in

neuronal cells[1]. Dimethyl fumarate inhibits dendritic cell (DC) maturation by reducing inflammatory cytokine production (IL-12 and IL-6) and the expression of MHC class II, CD80, and CD86. Dimethyl fumarate impairs nuclear factor κB (NF-κB) signaling via reduced p65 nuclear translocalization and phosphorylation. Dimethyl fumarate inhibits maturation of DCs and subsequently Th1 and Th17 cell differentiation by suppression of both NF-κB and ERK1/2-MSK1 signaling[2]. Dimethyl fumarate inhibits TNF-alpha-induced nuclear entry of NF-kappaB in rat heart endothelial cells (RHEC)[3]. Dimethyl fumarate, an immune modulator and inducer of the antioxidant response, suppresses HIV replication and neurotoxin release. Dimethyl fumarate attenuates CCL2-induced monocyte chemotaxis, suggesting that Dimethyl fumarate could decrease recruitment of activated monocytes to the CNS in response to inflammatory mediators[4].

In Vivo: Dimethyl fumarate inhibits nuclear entry of NF-kappaB in RHEC and reduces myocardial infarct size after ischemia and reperfusion in rats in vivo[3]. Dimethyl fumarate oral administration is shown to upregulate mRNA and protein levels of Nrf2 and Nrf2-regulated cytoprotective genes, attenuate 6-OHDA induced striatal oxidative stress and inflammation in C57BL/6 mice[5].