

# 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

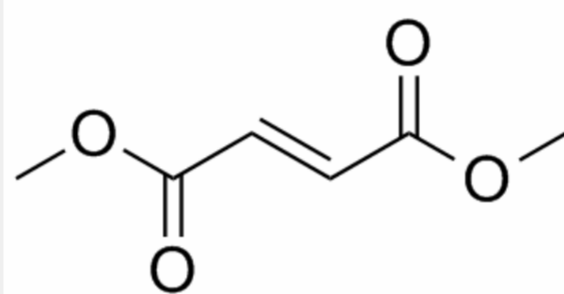
## Product Description

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<sup>[1]</sup>. 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  $\kappa$ B (NF- $\kappa$ B) signaling via reduced p65 nuclear translocation and phosphorylation. Dimethyl fumarate inhibits maturation of DCs and subsequently Th1 and Th17 cell differentiation by suppression of both NF- $\kappa$ B and ERK1/2-MSK1 signaling<sup>[2]</sup>. Dimethyl fumarate inhibits TNF- $\alpha$ -induced nuclear entry of NF- $\kappa$ B in rat heart endothelial cells (RHEC)<sup>[3]</sup>. 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<sup>[4]</sup>.

***In Vivo:*** Dimethyl fumarate inhibits nuclear entry of NF- $\kappa$ B in RHEC and reduces myocardial infarct size after ischemia and reperfusion in rats *in vivo*<sup>[3]</sup>. 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<sup>[5]</sup>.



All products are for RESEARCH USE ONLY. Not for diagnostic & therapeutic purposes!