

Product Data Sheet

Product Name: 4-Methoxycinnamic acid ethyl ester

Cat. No.: GC81761

Chemical Properties

Cas. No. 1929-30-2

Formula $C_{12}H_{14}O_3$ M.Wt 206.24

Solubility DMSO: 100 mg/mL (484.87 mM; Need ultrasonic) Storage Store at 4°C, sealed storage, away from moisture and light

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution : ship with blue ice All other available size: ship with RT, or blue ice upon request.

Structure



Background

4-Methoxycinnamic acid ethyl ester (Ethyl p-methoxycinnamate) is an orally active natural compound found. 4-Methoxycinnamic acid ethyl ester exerts anti-inflammatory effects by inhibiting cyclooxygenase (COX-1 (IC₅₀ = 1.12 μM) and COX-2 (IC₅₀ = 0.83 μM)), NF-κB (IC₅₀ = 88.7 μM) and cytokine production (TNF-α (IC₅₀ = 96.84 μg/mL) and IL-1β (IC₅₀ = 166.4 μg/mL)). 4-Methoxycinnamic acid ethyl ester inhibits tumor cell proliferation, migration and cancer metabolism and induces apoptosis. 4-Methoxycinnamic acid ethyl ester inhibits VEGF expression, thereby inhibiting angiogenesis. 4-Methoxycinnamic acid ethyl ester has a significant inhibitory effect on

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dengue virus and Mycobacterium tuberculosis. 4-Methoxycinnamic acid ethyl ester has analgesic effects in rats [1] [2] [3] [4] [5] [6] [7].

In Vivo, 4-Methoxycinnamic acid ethyl ester (100-800 mg/kg, i.g., single dose) inhibited paw edema in a dose-dependent manner in rats^[4]. 4-Methoxycinnamic acid ethyl ester (200-800 mg/kg, i.g., once daily for 7 days) inhibits the formation of chronic granuloma in a dose-dependent manner in rats^[2]. 4-Methoxycinnamic acid ethyl ester (200-800 mg/kg, i.g., single dose) prolongs the tail-flick latency of rats in a dose-dependent manner, showing a significant analgesic effect^[2].

In Vitro, 4-Methoxycinnamic acid ethyl ester (25-200 µg/mL, 0-48 h) inhibits the growth of HUVECs with an IC₅₀ of 160 µg/mL and suppresses the migration ability of HUVECs through VEGF [2]. 4-Methoxycinnamic acid ethyl ester (50-200 µg/mL, 6-24 h) dose-dependently impairs the ability of HUVECs to form tube-like structures on Matrigel^[2]. 4-Methoxycinnamic acid ethyl ester (50-200 µg/mL, 5 d) significantly inhibits the sprouting and growth of microvessels from rat aortic rings^[2]. 4-Methoxycinnamic acid ethyl ester (0.03-0.97 mM, 7 d) inhibits M. tuberculosis H37Ra, H37Rv, drug susceptible and multidrug resistant (MDR) clinical isolates (MIC: 0.242-0.485 mM) and is ineffective against common bacteria such as Mycobacterium smegmatis, Escherichia coli, and Staphylococcus aureus^[3]. 4-Methoxycinnamic acid ethyl ester (50 µM, 12 h) significantly reduces the phosphorylation levels of p-p65 (Ser536) and p-Akt (Ser473) in melanoma cells^[4]. 4-Methoxycinnamic acid ethyl ester (50 µM, 24 h) significantly inhibits the migration and invasion ability of melanoma cells^[4]. 4-Methoxycinnamic acid ethyl ester (1-50 µM, 12-24 h) reverses the resistance of melanoma cells to Paclitaxel [4]. 4-Methoxycinnamic acid ethyl ester (125-500 µM, 24 h) exhibits broad-spectrum antiviral activity against all four dengue serotypes (DENV-1, DENV-2, DENV-3, DENV-4), with EC₅₀ values of 22.58 and 6.17 µM for DENV-2 in HepG2 and A549 cells, respectively^[5]. 4-Methoxycinnamic acid ethyl ester (100 µM, 1-24 h) inhibits de novo fatty acid synthesis, rather than glycolysis, to deplete ATP in ehrlich ascites cancer cells (EATCs)^[6]. 4-Methoxycinnamic acid ethyl ester (48 h) shows moderate cytotoxicity against MCF-7, HT-29, HCT-116 (IC₅₀ = 42.1 µg/mL), U-937, PC-3 (IC₅₀ = 39 µg/mL), K-562 cells^[7]. 4-Methoxycinnamic acid ethyl ester (50-200 µg/mL, 12-48 h) inhibits cell migration and induces apoptosis via the mitochondrial pathway in HCT-116 cells^[7]. 4-Methoxycinnamic acid ethyl ester (200 µg/mL, 8 h) significantly activates all tested caspases,

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including Caspase-9, Caspase-8, and Caspase-3/7 in HCT-116 cells^[7].

References:

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- [3]. Lakshmanan D, et al. Ethyl p-methoxycinnamate isolated from a traditional anti-tuberculosis medicinal herb inhibits drug resistant strains of Mycobacterium tuberculosis in vitro. *Fitoterapia*. 2011 Jun;82(4):757-61.
- [4]. Lallo S, et al. Ethyl P-Methoxycinnamate: An Active Anti-Metastasis Agent and Chemosensitizer Targeting NF κ B from Kaempferia galanga for Melanoma Cells. *Life (Basel)*. 2022 Mar 24;12(4):337.
- [5]. Tarasuk M, et al. Dual action effects of ethyl-p-methoxycinnamate against dengue virus infection and inflammation via NF-kB pathway suppression. *Sci Rep*. 2024 Apr 23;14(1):9322.
- [6]. Sasaki Y, et al. Ethyl p-methoxycinnamate inhibits tumor growth by suppressing fatty acid synthesis and depleting ATP. *Sci Rep*. 2025 May 2;15(1):15317.
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