Web: www.taiclone.com
Tel: +886-2-2735-9682
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Asaraldehyde

Catalog No: tcsc6035

Available Sizes

Size: 100mg

Specifications

CAS No:
4460-86-0

Formula:
$C_{10}H_{12}O_4$

Pathway:
Immunology/Inflammation

Target:
COX

Purity / Grade:
>98%

Solubility:
H2O :

Alternative Names:
Asaronaldehyde;Asaraldehyde;2,4,5-trimethoxy-Benzaldehyde

Observed Molecular Weight:
196.2

Product Description

Asarylaldehyde is a natural **COX-2** inhibitor, which isolated from carrot (*Daucus carota* L.) seeds significantly inhibits cyclooxygenase II (COX-2) activity at $\mathbf{IC_{50}}$ value 100 μg/mL.

IC50 & Target: IC50: 100 μg/mL (COX-2)[1]

In Vitro:

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Asarylaldehyde (2,4,5-TMBA) is a natural COX-2 inhibitor, which isolated from carrot (*Daucus carota* L.) seeds significantly inhibits cyclooxygenase II (COX-2) activity at the concentration of 100 µg/mL compared to three commercial nonsteroidal anti-inflammatory drugs Aspinin, Ibuprofen, and Naproxen at their IC_{50} values 180, 2.52, and 2.06 µg/mL, respectively. 2,4,5-TMBA, a natural inhibitor of cyclooxygenase-2, suppresses adipogenesis and oromotes lipolysis in 3T3-L1 adipocytes. 2,4,5-Trimethoxybenzaldehyde (2,4,5-TMBA) present in plant roots, seeds, and leaves is reported to be a significant inhibitor of cyclooxygenase-2 (COX-2) activity at the concentration of 100 µg/mL. Because COX-2 is associated with differentiation of preadipocytes, the murine 3T3-L1 cells are cultured with 100 µg/mL of 2,4,5-TMBA during differentiation and after the cells are fully differentiated to study the effect of 2,4,5-TMBA on adipogenesis and lipolysis. Oil Red O staining and triglyceride assay revealed that 2,4,5-TMBA inhibited the formation of lipid droplets during differentiation; moreover, 2,4,5-TMBA down-regulated the protein levels of adipogenic signaling molecules and transcription factors MAP kinase kinase (MEK), extracellular signal-regulated kinase (ERK), CCAAT/enhancer binding protein (C/EBP)α, β, and δ, peroxisome proliferator-activated receptor (PPAR)γ, adipocyte determination and differentiation-dependent factor 1 (ADD1), and the rate-limiting enzyme for lipid synthesis acetyl-CoA carboxylase (ACC). In fully differentiated adipocytes, treatment with 2,4,5-TMBA for 72 h significantly decreased lipid accumulation by increasing the hydrolysis of triglyceride through suppression of perilipin A (lipid droplet coating protein) and up-regulation of hormone-sensitive lipase (HSL). When treated with 100 µg/mL of 2,4,5-TMBA for 24, 48, or 72 h, the viability of fully differentiated 3T3-L1 adipocytes is decreased by 8.35, 15.54, and 27.26%, respectively. When the preadiocytes are treated with 100 µg/mL of 2,4,5-TMBA for 24 h before differentiation medium is supplemented, the cell viability is decreased by 26.46%[1]. A COX-2 inhibitor 2,4,5-trimethoxybenzaldehyde (TMBA) is found to be the most abundant constituent, but is totally absent in its cultured broth and its natural host, C. kanehirae wood. 2,4,5-trimethoxybenzaldehyde (TMBA) is the major constituent in fruiting bodies[2].