Traumatic Acid

Cat. No.: HY-119358

CAS No.: 6402-36-4

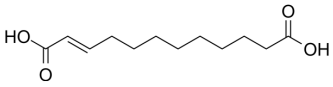
Molecular Formula: $C_{12}H_{20}O_4$

Molecular Weight: 228.28

Target: Reactive Oxygen Species; Apoptosis

Pathway: Immunology/Inflammation; Metabolic Enzyme/Protease; NF-κB; Apoptosis

Storage: 4°C, sealed storage, away from moisture
* In solvent : -80°C, 2 years; -20°C, 1 year (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 250 mg/mL (1095.15 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	4.3806 mL	21.9029 mL	43.8059 mL
	5 mM	0.8761 mL	4.3806 mL	8.7612 mL
	10 mM	0.4381 mL	2.1903 mL	4.3806 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (9.11 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (9.11 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (9.11 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Traumatic Acid is a wound healing agent and a cytokinin (phytohormone). Traumatic Acid enhances the biosynthesis of collagen in cultured human skin fibroblasts. Traumatic Acid inhibits MCF-7 breast cancer cells viability and enhances apoptosis and oxidative stress. Traumatic Acid can be used in studies of cancer, circulatory disorders (including arterial hypertension), and skin diseases associated with oxidative stress and impaired collagen biosynthesis[1][2].

IC_{50} & Target

IC50: collagen biosynthesis[1]

In Vitro

Traumatic Acid (0.1, 1 μM; 5 days) significantly increases cell number in fibroblasts[1].
Traumatic Acid (0.1, 1 μM; 5 days) increases content of GPX activity and reduced glutathione, as well as decreases

membrane phospholipid peroxidation in fibroblasts[1].
Traumatic Acid (0.1, 1 μM; 5 days) enhances the production and secretion of medium collagen in medium of fibroblasts[1].
Traumatic Acid (100, 200, 400, 600 μM; 48 h) significantly decreases live cell number, especially after 48h treatment at 100μM and 200μM in MCF-7 cells[2].
Traumatic Acid (50-600 μM; 24, 48 h) causes dose-and time-dependent reduction in cell viability and induces apoptosis in MCF-7 cells[2].
Traumatic Acid (50-200 μM; 24, 48 h) results in an oxidative damage of protein in MCF-7 cells[2].
Traumatic Acid (100, 200 μM; 24, 48 h) efficiently enhances oxidative stress level in MCF-7 cells[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay[1]

Cell Line:	Fibroblasts
Concentration:	0.1, 1 μM
Incubation Time:	5 days
Result:	Caused a significant increase in cell number, especially on day 1 at a concentration of 1 μM. Increased cell number of 133 % and 118 % compared to the untreated control cells for concentrations of 1 and 0.1 μM, respectively.

Cell Viability Assay[1]

Cell Line:	Fibroblasts
Concentration:	0.1, 1 μM
Incubation Time:	5 days
Result:	Increased total protein content of 183 % and 90% compared to the control at concentrations of 1 and 0.1 μM on day 1. Increased collagen content of 72 % at 0.1 μM (on the day 3) and of 51 % at 1 μM (on the day 1) compared to the control. Increased GPX activity by 111 % and 97 % at concentrations of 1 and 0.1 μM compared to the control. Increased content of reduced glutathione of 86 % and 80% at 0.1 and 1 μM, respectively. Decreased membrane phospholipid peroxidation.

Cell Viability Assay[2]

Cell Line:	MCF-7 cells
Concentration:	100, 200, 400, 600 μM
Incubation Time:	48 h
Result:	Decreasd live cell number of about 76% at 100 μM concentration.

Cell Viability Assay[2]

Cell Line:	MCF-7 cells
Concentration:	50-200 μM
Incubation Time:	24, 48 h
Result:	Increased thiol group content of 167% at 100μM and 24 h.

Cell Viability Assay[2]

Cell Line:	MCF-7 cells
Concentration:	100, 200 μM
Incubation Time:	24, 48 h
Result:	Increased the amount of ROS.

Apoptosis Analysis[2]

Cell Line:	MCF-7 cells
Concentration:	50-600 μM
Incubation Time:	24, 48 h
Result:	Increased level of apoptosis in a time- and dose-dependent manner.

REFERENCES

[1]. Jabłońska-Trypuć A, et al. Traumatic acid toxicity mechanisms in human breast cancer MCF-7 cells. Regul Toxicol Pharmacol. 2019 Aug;106:137-146.

[2]. Jabłońska-Trypuć A, et al. Traumatic Acid Reduces Oxidative Stress and Enhances Collagen Biosynthesis in Cultured Human Skin Fibroblasts.Lipids. 2016 Sep;51(9):1021-35.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA