Trans-Anethole

Cat. No.: HY-N0367

CAS No.: 4180-23-8

Molecular Formula: $C_{10}H_{12}O$

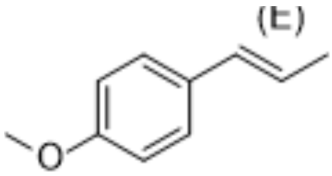
Molecular Weight: 148.2

Target: Endogenous Metabolite

Pathway: Metabolic Enzyme/Protease

Storage:

Pure form	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (674.76 mM; Need ultrasonic)

H_2O : 1 mg/mL (6.75 mM; ultrasonic and warming and heat to 80°C)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	6.7476 mL	33.7382 mL	67.4764 mL
5 mM	1.3495 mL	6.7476 mL	13.4953 mL
10 mM	0.6748 mL	3.3738 mL	6.7476 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 50 mg/mL (337.38 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (16.87 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (16.87 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (16.87 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Trans-Anethole ((E)-Anethole) is an orally active phenylpropene derivative found in Foeniculum vulgare that is estrogenic at low concentrations and cytotoxic at high concentrations in tumor cell lines. Trans-Anethole also has anti-aflatoxin, anti-thrombotic and anti-diabetic activities. Trans-Anethole is an important odor component in plants such as fennel, myrtle, liquorice, and camphor[1][2][3][4][5][6][7].

In Vitro

Trans-Anethole (0.25-2 mM; 3 h) causes concentration and time-dependent cell death in isolated rat hepatocytes at doses greater than 1 mM[2].
Trans-Anethole (0.25-1 mM; 3 h) produces metabolites 4MCA and 4OHPB sulfate that increases over time in isolated rat hepatocytes cultured at 0.5 and 1 mM doses, while metabolite 4OHPB increases over time only at 1 mM dose[2].
Trans-Anethole (0.5, 1 mM; 3 h) enhances and accelerates the killing of rat hepatocytes in vitro by DCNP (50 mM) and the loss of cellular ATP[2].
Trans-Anethole (0.1 mM; 6 d) has a certain degree of cytotoxicity against human breast cancer MCF-7 cells[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[2]

Cell Line:	MCF-7 cells
Concentration:	0.1 mM
Incubation Time:	6 d
Result:	Reduced cell viability by 80% compared to untreated cells.

In Vivo

Punicic acid (10, 30, 100 mg/kg, p.o.; once daily for 5 days) shows antithrombotic activity in male Swiss mice at a dose of 30 mg/kg[4].
Punicic acid (80 mg/kg, p.o.; once daily for 45 days) normalizes the levels of glucose metabolizing enzymes in the liver and kidney and improves the liver and muscle glycogen content in Streptozotocin (HY-13753) induced diabetic rats[5].
Punicic acid (80 mg/kg, p.o.; once daily for 1-8 days) causes impaired hormonal balance, impaires implantation, and dose-dependent inhibition of pregnancy in adult albino rats[6].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	streptozotocin induced diabetic rats[5].
Dosage:	20, 40, 80 mg/kg
Administration:	45 d
Result:	Inhibited the increase of blood sugar and significantly reverse the insulin level, and the effect is more significant at a dose of 80 mg/kg. Restored the activities of hexokinase and glucose-6-phosphate dehydrogenase, glucose-6-phosphatase and fructose-1,6-bisphosphatase in the liver tissue of diabetic rats to normal levels at a dose of 80 mg/kg. Prevented the decrease of glycogen content in the liver and muscles at a dose of 80 mg/kg.

CUSTOMER VALIDATION

- bioRxiv. 2023 Jun 3.

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REFERENCES

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[7]. Fahlbusch, et al. "Flavors and Fragrances", Ullmann's Encyclopedia of Industrial Chemistry, Weinheim: Wiley-VCH.

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