Trimebutine maleate

Cat. No.: HY-B0380A

CAS No.: 34140-59-5

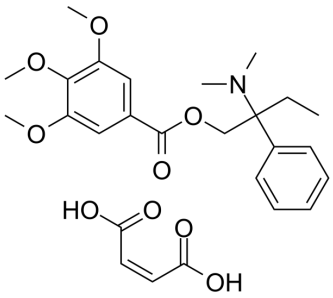
Molecular Formula: $C_{26}H_{33}NO_9$

Molecular Weight: 503.54

Target: Oct3/4; ERK; Akt; Apoptosis

Pathway: Stem Cell/Wnt; MAPK/ERK Pathway; PI3K/Akt/mTOR; Apoptosis

Storage: 4°C, sealed storage, away from moisture
* In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (198.59 mM; Need ultrasonic)
H_2O : 25 mg/mL (49.65 mM; Need ultrasonic)

Preparing Stock Solutions

Mass / Solvent / Concentration	1 mg	5 mg	10 mg
1 mM	1.9859 mL	9.9297 mL	19.8594 mL
5 mM	0.3972 mL	1.9859 mL	3.9719 mL
10 mM	0.1986 mL	0.9930 mL	1.9859 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: ≥ 2.5 mg/mL (4.96 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (4.96 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (4.96 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Trimebutine maleate is an orally anti-tumor agent. Trimebutine maleate selectively suppresses stemness and proliferation of ovarian cancer stem cells (CSCs). Trimebutine maleate reduces the colonic muscle hypercontractility, modulates gastrointestinal motility, induces apoptosis and can be used for the research of glioma/glioblastoma and irritable bowel syndrome[1][2][3][4][5][6].

In Vitro

Trimebutine maleate (1-20 μM, 60 h) dose-dependently inhibits A2780-SP cell growth [2].
Trimebutine maleate (1-10 μM, 24 h) decreases the stem cell properties of A2780-SP cells through simultaneous inhibition of the calcium and BKCa channels[2].

Trimebutine maleate (10-200 μM, 24-72 h) inhibits the cell viability, cell migration, and the ERK and AKT Signaling Pathways of glioma/glioblastoma cells [3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Proliferation Assay[2]

Cell Line:	A2780-SP cells
Concentration:	1 μM, 10 μM, 20 μM
Incubation Time:	60 h
Result:	Dose-dependently inhibited A2780-SP cell proliferation.

Cell Migration Assay [3]

Cell Line:	U-87 MG human glioblastoma cells
Concentration:	10 μM, 50 μM, 100 μM, 200 μM
Incubation Time:	24 h, 48 h, 72 h
Result:	Significantly impeded gap closure, with the most effective inhibition observed at 200 μM for all time points after 24, 48, and 72 h of incubation.

Apoptosis Analysis[2]

Cell Line:	A2780-SP cells
Concentration:	1 μM, 10 μM
Incubation Time:	24 h
Result:	Induced G0/G1 arrest and significantly increased the population of AV^+/PI^+ cells at concentrations over 1 μM.

Western Blot Analysis[2]

Cell Line:	A2780-SP cells
Concentration:	1 μM, 10 μM
Incubation Time:	24 h
Result:	Especially reduced OCT3/4 and SOX2 protein expression related to stemness and ERK phosphorylation related to cell growth, respectively.

In Vivo

Trimebutine maleate (25-50 mg/kg Oral, single dose) reduces the response to colorectal distension in C57Bl6 male mice[4].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Long Y, et al. Effectiveness of trimebutine maleate on modulating intestinal hypercontractility in a mouse model of postinfectious irritable bowel syndrome [J]. European Journal of Pharmacology, 2010, 636(1-3): 159-165.

[2]. Lee H, et al. Repositioning trimebutine maleate as a cancer treatment targeting ovarian cancer stem cells [J]. Cells, 2021, 10(4): 918.

[3]. Fan Y, et al. Trimebutine promotes glioma cell apoptosis as a potential anti-tumor agent [J]. Frontiers in Pharmacology, 2018, 9: 664.

[4]. Cenac N, et al. A novel orally administered trimebutine compound (GIC-1001) is anti-nociceptive and features peripheral opioid agonistic activity and hydrogen sulphide-releasing capacity in mice [J]. European journal of pain, 2016, 20(5): 723-730.

[5]. Long Y, et al. Effectiveness of trimebutine maleate on modulating intestinal hypercontractility in a mouse model of postinfectious irritable bowel syndrome [J]. European Journal of Pharmacology, 2010, 636(1-3): 159-165.

[6]. Lee H T, Kim B J. Trimebutine as a modulator of gastrointestinal motility [J]. Archives of pharmacal research, 2011, 34(6): 861-864.

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