Carbenoxolone disodium

Cat. No.: HY-B1367

CAS No.: 7421-40-1

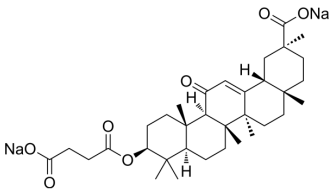
Molecular Formula: $C_{34}H_{48}Na_2O_7$

Molecular Weight: 614.72

Target: Gap Junction Protein; Orthopoxvirus; 11β-HSD

Pathway: Cytoskeleton; Anti-infection; Metabolic Enzyme/Protease

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



SOLVENT & SOLUBILITY

In Vitro

H_2O : 50 mg/mL (81.34 mM; Need ultrasonic)
DMSO : 12.5 mg/mL (20.33 mM; ultrasonic and warming and heat to 60°C)

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	1.6268 mL	8.1338 mL	16.2676 mL
5 mM	0.3254 mL	1.6268 mL	3.2535 mL
10 mM	0.1627 mL	0.8134 mL	1.6268 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 6.25 mg/mL (10.17 mM); Clear solution; Need ultrasonic and warming and heat to 60°C
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 1.25 mg/mL (2.03 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 1.25 mg/mL (2.03 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 1.25 mg/mL (2.03 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Carbenoxolone disodium is the active metabolite of Glycyrrhizic acid (HY-N0184) and the inhibitor of human 11β-HSD and bacterial 3α, 20β-HSD[1]. Carbenoxolone disodium is an uncoupling agent for gap junctions and a potent inhibitor of Vaccinia virus replication[2]. Carbenoxolone disodium is used for the study of peptic, esophageal and oral ulceration and inflammation. Carbenoxolone disodium inhibits Vaccinia virus replication.

IC_{50} & Target

IC50: human 11β-HSD; bacterial 3α, 20β-HSD[1]; gap junction; Vaccinia virus[2]

In Vitro

Carbenoxolone disodium (6-150 μM; pre-treatment 1 hour) inhibits Vaccinia virus (VACV) replication in a gap junction-independent in HaCaT cells, and it has toxicity effects on VACV-A5L-EGFP infected cells at 48 h[2].
Carbenoxolone (30 μM; pre-treatment 1 hour) does not upregulate PP2A expression, but induces the late protein A27 expression in hacat cells[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[2]

Cell Line:	HaCaT cells
Concentration:	6 μM, 12 μM, 30 μM, 60 μM, 150 μM
Incubation Time:	Pre-treatment 1 hour
Result:	Had no toxicity until 48 hours at high dose in virus-infected cells.

Western Blot Analysis[2]

Cell Line:	HaCaT cells
Concentration:	30 μM
Incubation Time:	Pre-treatment 1 hour
Result:	Presented an obvious upregulation of A27.

In Vivo

Carbenoxolone (intraperitoneal injection; 100, 200 and 300 mg/kg; 30, 60 and 60 min before Diazepam) does not induce a muscle relaxant activity and shows muscle relaxant activity compared to normal saline, and this effect was more than diazepam in the traction test[3].
Carbenoxolone (intraperitoneal injection; 100, 200 and 300 mg/kg; 30, 60 and 60 min before Pentylenetetrazole) significantly increases sleeping time and decreases latency in mice as a dose-dependent manner in Pentylenetetrazole (PTZ) Seizure model. The ED_{50} value is 83.3 mg/kg (%95 CL:556.29)[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male BALB/c mice[3]
Dosage:	100, 200 and 300 mg/kg
Administration:	Intraperitoneal injection; 30, 60 and 60 min before Pentylenetetrazole
Result:	Significantly increased the sleeping time in mice.

CUSTOMER VALIDATION

- Food Chem Toxicol. 2024 Mar 12:114594.

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REFERENCES

[1]. Ismar R Haga, et al. Carbenoxolone-mediated cytotoxicity inhibits Vaccinia virus replication in a human keratinocyte cell line. Sci Rep. 2018 Nov 16;8(1):16956.

[2]. W L Duax, et al. Steroid Dehydrogenase Structures, Mechanism of Action, and Disease. Vitam Horm. 2000;58:121-48.

[3]. Hossein Hosseinzadeh, et al. Anticonvulsant, Sedative and Muscle Relaxant Effects of Carbenoxolone in Mice. BMC Pharmacol. 2003 Apr 29;3:3.

[4]. Ismar R Haga, et al. Carbenoxolone-mediated Cytotoxicity Inhibits Vaccinia Virus Replication in a Human Keratinocyte Cell Line. Sci Rep. 2018 Nov 16;8(1):16956.

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