Lithium chloride hydrate

Cat. No.:	HY-W094474
CAS No.:	85144-11-2
Molecular Formula:	$LiCl \cdot xH_2O$
Target:	GSK-3; Apoptosis
Pathway:	PI3K/Akt/mTOR; Stem Cell/Wnt; Apoptosis
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)

$LiCl \bullet xH_2O$

SOLVENT & SOLUBILITY

In Vitro	H_2O : ≥ 50 mg/mL DMSO : 25 mg/mL (Need ultrasonic) * "≥" means soluble, but saturation unknown.
In Vivo	1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline Solubility: ≥ 2.5 mg/mL (Infinity mM); Clear solution 2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline) Solubility: ≥ 2.5 mg/mL (Infinity mM); Clear solution 3. Add each solvent one by one: 10% DMSO >> 90% corn oil Solubility: ≥ 2.5 mg/mL (Infinity mM); Clear solution

BIOLOGICAL ACTIVITY

Description	Lithium chloride hydrate, an orally active mood stabilizer, is a potent virus inhibitor and effective immunomodulatory agent. Lithium chloride hydrate has antidepressant activity by inhibiting GSK3β and promoting neurogenesis. Lithium chloride hydrate alleviates cognition dysfunction and the symptoms of acute mania and depression. Lithium chloride hydrate can also be used for research of virus infection and Alzheimer's disease[1][2][3].
IC_{50} & Target	GSK-3β
In Vitro	Lithium chloride hydrate (5 and 20 mM, 36 h) inhibits cytopathy and IBV replication in IBV Beaudette-infected BHK cells[1]. Lithium chloride hydrate (5 and 20 mM, 36 h) inhibits IBV-induced BHK cell apoptosis and inflammation[1]. Lithium chloride hydrate (1 mg/mL) improves the efficiency of induced pluripotent stem cell-derived neurospheres[4]. Lithium chloride hydrate (1.2 mM, 72 h) protects PC12 cells from Morphine (HY-P1701)-induced apoptosis[5]. MCE has not independently confirmed the accuracy of these methods. They are for reference only. RT-PCR[1] Cell Line: BHK cells Concentration: 5 and 20 mM

Incubation Time:	36 h
Result:	Blocked the expression of NF-κB, NLRP3, TNF-α, and IL-1β. Blocked levels of Caspase-3, Bax and increased Bcl-2 level.

In Vivo

Lithium chloride hydrate (60 mg/kg, i.p., twice a day) improves Sevoflurane (SEV)-induced memory impairment in rats[2].
Lithium chloride hydrate (150 mg/kg, p.o., every other day) stimulates bone formation in extraction socket repair in rats[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Rats[5]
Dosage:	150 mg/kg
Administration:	Oral administration (p.o.), every other day
Result:	Produced greater proportion of newly formed bone (NB). Lowered the rate of TRAP-stained cells.

Animal Model:	Sevoflurane-induced memory impairment rats[2]
Dosage:	60 mg/kg
Administration:	Intraperitoneal injection (i.p.), twice a day.
Result:	Reduced escape latency, increased time in the objective quadrant and raised platform crossings. Suppresses SEV-induced oxidative stress reduces and reduced SEV-induced apoptosis in the hippocampus.

REFERENCES

[1]. Liu X, et al. Lithium chloride inhibits infectious bronchitis virus-induced apoptosis and inflammation. Microb Pathog. 2022 Jan;162:105352.

[2]. Wang, et al. Lithium chloride ameliorates cognition dysfunction induced by sevoflurane anesthesia in rats. FEBS Open Bio. 2020 Feb;10(2):251-258.

[3]. Wang Z, et alL. Baicalin Coadministration with Lithium Chloride Enhanced Neurogenesis via GSK3β Pathway in Corticosterone Induced PC-12 Cells. Biol Pharm Bull. 2022 May 1;45(5):605-613.

[4]. Tafreshi AP, Set al. Lithium chloride improves the efficiency of induced pluripotent stem cell-derived neurospheres. Biol Chem. 2015 Aug;396(8):923-8.

[5]. Sahebgharani M, et al. Lithium chloride protects PC12 pheochromocytoma cell line from morphine-induced apoptosis. Arch Iran Med. 2008 Nov;11(6):639-48.

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