κ-Carrageenan

Cat. No.:	HY-138962		
CAS No.:	11114-20-8		
Target:	Apoptosis		
Pathway:	Apoptosis		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month

SOLVENT & SOLUBILITY

In Vitro

H_2O : 8.33 mg/mL (ultrasonic and warming and heat to 80°C)
DMSO : 8.33 mg/mL (ultrasonic and warming and heat to 80°C)

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 8.33 mg/mL (Infinity 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: ≥ 0.83 mg/mL (Infinity mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 0.83 mg/mL (Infinity mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 0.83 mg/mL (Infinity mM); Clear solution

BIOLOGICAL ACTIVITY

Description

κ-Carrageenan is a natural polymer which predominantly available in red seaweeds. κ-Carrageenan is an effective agent carrier to deliver curcumin in cancer cells and to induce apoptosis. κ-carrageenan serves as a potential inflammatory agent that magnifies existing intestinal inflammation[1][2].

In Vitro

κ-Car- Curcumin (Cur) (0-500 μg/mL; 24-72 hours) effectively involves in cancer cell growth inhibition at lower concentrations of 40 μg/mL[1].
The cytotoxicity of the Cur loaded κ-Car has a significantly high apoptotic activity in selected lung cancer cells of A549[1].
κ-Carrageenan (1-60 μg/mL; 0.5-24?hours) enhances LPS-induced IL-8 secretion in HT-29 cells[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[1]

Cell Line:	A549 cells
Concentration:	0-500 μg/mL
Incubation Time:	24, 48 and 72 hours

Result:	The dose response effects of cells treated with Cur loaded κ-Car after incubation of 24, 48 and 72 h exhibited a significant IC_{50} values of 65, 50 and 40 μg/mL respectively, for 24, 48, 72 h ours.

In Vivo

κ-Carrageenan can be used in animal modeling to establish rat and mouse paw edema models.

κ-Carrageenan (1.7-41.7 mg/kg; p.o. for 1 week prior to C. freundii DBS100 treatment) can synergistically activate LPS-induced inflammatory through the Bcl10-NF-κB pathway, as indicated by its aggravation of C. freundii DBS100-induced colitis in mice[2].
κ-Carrageenan enhances the C. freundii DBS100-dependent induction of TLR4 and NF-κB in the intestinal mucosa of infected mice[2].
κ-Carrageenan aggravates the TNBS-induced intestinal inflammation, and such an effect could be associated with the oxidative stress and activation of TLR4-NF-κB and MAPK/ERK1/2 pathway[3]
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male and female NIH (s) mice[2]
Dosage:	1.7 mg/kg, LOW; 8.3 mg/kg, MED; or 41.7 mg/kg, HIG
Administration:	Orally administered for 1 week prior to C. freundii DBS100 treatment
Result:	Enhanced the C. freundii DBS100-dependent induction of TLR4 and NF-κB in the intestinal mucosa of infected mice.

REFERENCES

[1]. Sathuvan M, et al. κ-Carrageenan: An effective drug carrier to deliver curcumin in cancer cells and to induce apoptosis. Carbohydr Polym. 2017;160:184-193.

[2]. Wu W, et al. κ-Carrageenan Enhances Lipopolysaccharide-Induced Interleukin-8 Secretion by Stimulating the Bcl10-NF-κB Pathway in HT-29 Cells and Aggravates C. freundii-Induced Inflammation in Mice. Mediators Inflamm. 2017;2017:8634865.

[3]. Wei W, et al. Enhanced effect of κ-carrageenan on TNBS-induced inflammation in mice. Int Immunopharmacol. 2016;39:218-228.

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