

Dextran sulfate sodium salt (MW 36000-50000)

Cat. No.:	HY-116282C		
CAS No.:	9011-18-1		
Target:	Apoptosis; HIV		
Pathway:	Apoptosis; Anti-infection		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month

Dextran sulfate sodium salt (MW 35000-45000)

SOLVENT & SOLUBILITY

In Vitro	H ₂ O : 5.5 mg/mL (ultrasonic and warming and heat to 60°C) DMSO : < 1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble or slightly soluble)
In Vivo	1. Add each solvent one by one: PBS Solubility: 25 mg/mL (Infinity mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description	Dextran sulfate sodium salt (MW 36000-50000) is a polymer of anhydroglucose and is a potent inducer of colitis. Dextran sulfate sodium salt (MW 36000-50000) may be related to macrophage dysfunction, intestinal flora dysbiosis, and is particularly toxic to the colonic epithelium. Dextran sulfate sodium salt (MW 36000-50000) also inhibits human immunodeficiency virus replication by preventing viral adsorption to host cells. Dextran sulfate sodium salt (MW 36000-50000) is also used to bind to insulin, encapsulate it in gold nanoparticles, and serve as an insulin carrier to bind to insulin receptors to achieve the purpose of slowly releasing insulin and prolonging insulin activity ^{[1][2][3][4][5]} .
In Vitro	Dextran sulfate (average molecular weight=35,000-45,000 Da, AuNPs@Dextran) can be used to target insulin through molecular recognition with a dissociation constant of approximately 5.3 μM ^[1] . MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	Induction of Colitis ^{[2][3][4][5]}
	<p>Background</p> <p>Adding dextran sulfate sodium (DSS) to the drinking water of mice or rats can induce colon epithelial damage and a strong inflammatory response that lasts for several days, inducing colitis^[5]. Clinical manifestations of colitis typically include watery diarrhea, hematochezia, and weight loss [6]. The induced symptoms are very similar to human</p>

ulcerative colitis (UC) and can be used to study the occurrence and development mechanisms of acute and chronic colitis. Models can be created in many species of animals: mice, rats, zebrafish, pigs, fruit flies, etc.

Specific Modeling Methods

Mice: Male C57BL/6J mice • 9-week-old

Administration: 1% w/v • po (added in drinking water) • administered in 7 days cycles

Mice: Male SPF-grade C57BL/6 mice • 6-8 weeks old

Administration: 2.8% w/v • po (added in drinking water) • administered in 7 days cycles

Rat: Sprague-Dawley male rats • 7-9 weeks old • 170-200 g

Administration: 4.5%-6.0% w/v • po (added in drinking water) • administered in 7 days cycles

Note

1. Mice were administered in cycles, with each cycle lasting 7 days and 10 days between cycles (normal drinking water is provided during this period). Acute colitis can be induced for one cycle, and chronic colitis can be treated repeatedly for three cycles.
2. The dosage of the acute phase model of the mouse model is usually 3-5% (w/v), and the dosage of the chronic model is usually 1-3% (w/v). The specific experimental needs and animals The applicable concentration of the type should continue to be explored.
3. Use sterile water to prepare DSS drinking water, and then filter it with a 0.22 μm filter membrane; or use autoclaved sterile water to prepare it.

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Clinical symptoms: weight loss; increased DAI (disease activity index score); tissue edema, congestion, and inflammation. (DAI mainly evaluates and scores from three aspects, namely body weight, fecal viscosity, fecal occult blood, etc.)

Colon changes: The length of the colon is shortened, and inflammatory cell infiltration is obvious in colon tissue sections. Increased, even ulcer formation.

Changes at the cellular level: Goblet cells fall off, epithelial cells and goblet cells disappear, glandular crypt openings expand, crypt abscesses occur, and the muscle layer thickens and detaches.

Correlated Product(s): Oxazolone (HY-126360)

Opposite Product(s): Carpalasionin (HY-N7533)

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- Front Immunol. 2022 Oct 18;13:1013686.

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REFERENCES

- [1]. Lee KC, et al. Using Dextran-encapsulated gold nanoparticles as insulin carriers to prolong insulin activity. *Nanomedicine (Lond)*. 2017 Aug;12(15):1823-1834.
- [2]. Shen B, et al. Dextran Sulfate Sodium Salt-Induced Colitis Aggravates Gut Microbiota Dysbiosis and Liver Injury in Mice With Non-alcoholic Steatohepatitis. *Front Microbiol*. 2021 Nov 2;12:756299.
- [3]. Li H, et al. *Rabdosia serra* alleviates dextran sulfate sodium salt-induced colitis in mice through anti-inflammation, regulating Th17/Treg balance, maintaining intestinal barrier integrity, and modulating gut microbiota. *J Pharm Anal*. 2022 Dec;12(6):824-838.
- [4]. Whittam CG, et al. Murine Colitis modeling using Dextran Sulfate Sodium (DSS). *J Vis Exp*. 2010 Jan 19;(35):1652.
- [5]. Martin JC, et al. Dextran Sulfate Sodium (DSS)-Induced Acute Colitis in the Rat. *Methods Mol Biol*. 2016;1371:197-203.
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Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA