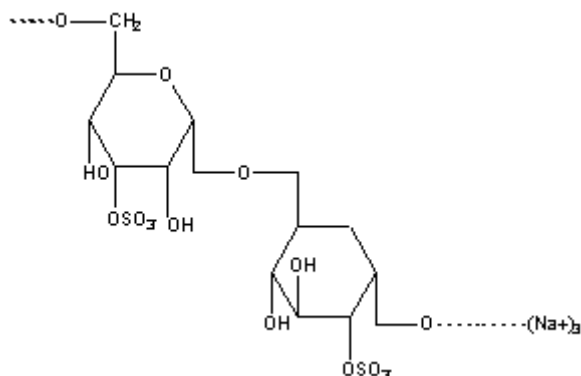


Catalog Number: 101516, 101518, 150821, 160110, 160111, 193992

Dextran sulfate sodium salt

Structure:



CAS #: 9011-18-1

Physical Description: White to off-white powder

Description: Dextran sulfate is a polyanionic derivative of dextran produced by esterification of Dextran with chlorosulphonic acid. The sulfur content is approximately 17% which corresponds to an average of 1.9 sulfate groups per glucosyl residue of the dextran molecule.

Typical Uses:

- Increases hybridization rate of nucleic acids - in the presence of 10% dextran sulfate the rate of reannealing of DNA in solution was increased by about 10 times.¹⁵ This observation was later extended to the hybridization of single or double-stranded probes to DNA or RNA immobilized on filter paper.^{9,16} The addition of 10% dextran sulfate may increase the rate of hybridization of randomly cleaved double-stranded DNA probes to immobilized nucleic acids by as much as 100 times.¹⁶
- Shows immunologically relevant activities:
 1. enhancement and suppression of humoral immunity^{3,4}
 2. polyclonal activation of B-lymphocytes, stimulating even immature B cells⁶
 3. changes in thymocyte reactivity to lectins¹
 4. inhibition of blood coagulation and platelet aggregation¹¹
 5. enhancement of blood fibrinolytic activity¹¹
 6. enhancement/suppression of cell-mediated immune responses.^{2,10}
- Precipitates LDL and VLDL lipoproteins - in the presence of magnesium ions, dextran sulfate precipitates low-density lipoproteins from human serum leaving the high-density lipoproteins in the supernatant. Removal of lipoproteins by dextran sulfate precipitation may be useful in the purification of other materials such as beta2-glycoprotein.⁸
- Shows activity as an adjuvant

Availability:

Catalog Number	Description	Size
101516	Dextran Sulfate Sodium Salt, Reagent Grade; Average molecular weight: 8000	1 g 10 g 50 g 100 g
101518	Dextran Sulfate Sodium Salt; Average molecular weight: 6000 - 8000	1 g 10 g 50 g 100 g
150821	Dextran Sulfate Sodium Salt; Average molecular weight: 1,400,000 made from Dextran molecular weight: 500000	1 g 10 g 50 g 100 g 500 g
160110	Dextran Sulfate Sodium Salt, Colitis Grade; Average molecular weight: 36000 - 50000	1 g 10 g 50 g 100 g 500 g
160111	Dextran Sulfate Sodium Salt; Average molecular weight: 400000 - 600000	1 g 10 g 50 g 100 g
193992	Dextran Sulfate Sodium Salt, molecular biology reagent; Average molecular weight: 1,400,000	1 g 10 g 50 g 100 g 500 g

Solubility: Soluble in water (100 mg/ml - clear to slightly hazy yellow solution. Higher molecular weight products may not be as soluble in water as the lower molecular weight products.). Aqueous solutions should be buffered with (e.g. with sodium bicarbonate) before autoclaving to prevent decomposition.¹⁷

References:

1. Blitstein-Willinger, E., Schutz, G. and Diamantstein, T., "Changes in thymocyte reactivity to lectins by B-cell mitogens of the type of sulphated polyanions." *Immunology*, v. **30**, 529-533 (1976).
2. Bradfield, J.W.B., Souhami, R.L., Addison, J.E., "The mechanism of the adjuvant action of dextran sulphate." *Immunology*, v. **26**, 383-386 (1974).
3. Diamantstein, T., et al., "Stimulation of humoral antibody formation by polyanions. II. The influence of sulphate esters of polymers on the immune response on mice." *Eur. J. Immunol.*, v. **1**, 340-343 (1971).
4. Diamantstein, T., et al., "Suppression of the primary immune response in vivo to sheep red blood cells by B-cell mitogens." *Immunology*, v. **30**, 401-405 (1976).

5. Finley, P.R., et al., "Cholesterol in high-density lipoprotein: Use of Mg^{+2} /dextran sulphate in its enzymatic measurement." *Clin. Chem.*, v. **24**, 931-933 (1978).
6. Granstrom, M., et al., "The polyclonal B-cell activator Dextran sulphate induces formation of colony stimulating activity." *Scand. J. Immunol.*, v. **7**, 277-284 (1978).
7. Laderman, L., Kawasaki, E.S and Szabo, P., "The rate of nucleic acid annealing to cytological preparation is increased in the presence of dextran sulphate." *Anal. Biochem.*, v. **117**, 158-163 (1981).
8. Lambin, P. and Burstein, M., "Isolation of a beta2-glycoprotein from human serum after precipitation with dextran sulphate and manganese chloride." *Biochimie*, v. **64**, 1065-1071 (1982).
9. Maniatis, T., Fritsch, E. and Sambrook, F. (eds.), *Molecular Cloning: A Laboratory Manual*, Cold Spring Harbor Laboratory (1982).
10. McCarthy, R.E. and Babcock, G.F., "Simultaneous stimulation and suppression of two different indicators of the cell-mediated immune response by the immunoregulator dextran sulphate." *Immunology*, v. **34**, 827-929 (1978).
11. Nakajima, K., et al., "Effects of dextran sulphate on blood coagulation and fibrinolysis in spontaneously hypertensive rats." *Adv. Inflamm. Res.*, v. **1**, 331-337 (1979).
12. Ricketts, C.R., "Dextran Sulphate - A synthetic analogue of Heparin." *Biochemistry*, v. **51**, 129-133 (1952).
13. Ricketts, C.R., "A basic derivative of dextran and its interaction with serum albumin." *Biochem. J.*, v. **76**, 117-120 (1960).
14. Warnick, G.R., et al., "HDL cholesterol quantitation by phosphotungstate - Mg^{2+} and by dextran sulphate - Mn^{2+} - polyethylene glycol precipitation, both with enzymatic cholesterol assay compared with the lipid research method." *Amer. J. Clin. Pathol.*, v. **78**, 718-723 (1982).
15. Wetmur, J.G., "Acceleration of DNA renaturation rates." *Biopolymers*, v. **14**, 2517-2524 (1975).
16. Wahl, G.M., et al., "Efficient transfer of large DNA fragments from agarose gels to diazobenzyloxymethyl-paper and rapid hybridization with dextran sulfate." *Proc. Natl. Acad. Sci. USA*, v. **76**, 3683 (1979).
17. *Merck Index*, **12th Ed.**, No. 2993.