

Dextran Sulfate Sodium Salt (MW 36,000–50,000)

Catalogue No.:	E146
Size:	1g
CAS No.:	9011-18-1
Molecular Weight:	36,000-50,000 Da
Molecular Formula:	$(C_6H_7Na_3O_{14}S_3)_n$
Grade:	Colitis Grade

Storage:

Store at room temperature for 2 years, protected from light and moisture, in a tightly sealed container.

Background:

Dextran sulfate sodium salt (DSS) is a polyanionic derivative of dextran, produced by esterification of dextran with chlorosulfonic acid. This product is of Colitis Grade and is the most widely used reagent worldwide for inducing inflammatory bowel disease (IBD) in animal models.

Product Properties:

Appearance:	White to off-white or light yellow powder
Sulfur content Approx.:	17%-20%
Solubility:	Freely soluble in water, slightly soluble in ethanol
pH (1% aqueous solution) :	5.0-7.5
Water content:	≤ 10%
Specific optical rotation:	+75°~ +105°
Purity:	≥ 99%

Major Applications:

1. Animal Colitis Model Induction (Core Application)

DSS (MW 36,000–50,000) is the most common and effective compound for inducing ulcerative colitis (UC) in animal models. The histological features, clinical manifestations, affected sites, and cytokine profiles closely resemble those of human UC.

Induction method: DSS is dissolved in purified water or drinking water and administered ad libitum.

Acute colitis model: Use a higher concentration (e.g., 3%–5% DSS solution) for 4–7 days.

Chronic colitis model: Use a lower concentration (e.g., 1% DSS solution) for extended periods (up to 120 days).

Combination use: Can be combined with azoxymethane (AOM) to establish an immune-related colorectal cancer model.

Mechanism of action: DSS disrupts the colonic mucosal barrier, causes dysbiosis of the intestinal microbiota, and induces macrophage/lymphocyte dysfunction, leading to intestinal inflammation. Long-term use can induce colorectal cancer due to colonic epithelial toxicity.

2. Molecular Biology Hybridization

In a solution containing 10% dextran sulfate, the re-annealing rate of DNA strands can be increased approximately 10-fold, significantly enhancing nucleic acid hybridization signals.

3. Lipoprotein Precipitation and Separation

In the presence of Mg^{2+} , dextran sulfate can precipitate low-density lipoprotein (LDL) and very low-density lipoprotein (VLDL) from human serum, allowing separation and purification of lipoproteins.

Precautions:

1. Laboratory safety: Wear laboratory coats and disposable gloves during handling. Avoid inhalation of powder.
2. Batch-to-batch variability: DSS is a polymer; different batches may exhibit variations in molecular weight, which can significantly affect colitis induction results. It is recommended to purchase a sufficient quantity of the same batch for a single experimental project to minimize experimental variables.
3. Intended use: This product is for research use only. It must not be used for clinical diagnosis, human therapy, pharmaceutical formulations, or food additives. Our company assumes no liability for any use other than that stated herein.