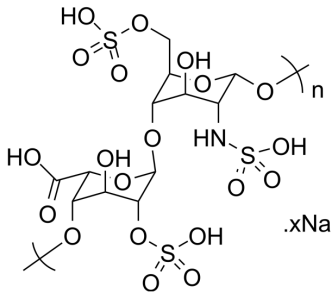
Heparin sodium salt

Cat. No.:	HY-17567A
CAS No.:	9041-08-1
Molecular Formula:	$(C_{14}H_{25}NO_{20}S_3)_n$.xNa
Target:	Autophagy; Thrombin; Factor Xa
Pathway:	Autophagy; Metabolic Enzyme/Protease
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro	H_2O : 100 mg/mL (Need ultrasonic)
In Vivo	1. Add each solvent one by one: PBS Solubility: 100 mg/mL (Infinity mM); Clear solution; Need ultrasonic and warming and heat to 60°C

BIOLOGICAL ACTIVITY

Description	Heparin sodium salt (Sodium heparin) is an anticoagulant which binds reversibly to antithrombin III (ATIII) and greatly accelerates the rate at which ATIII inactivates coagulation enzymes thrombin factor IIa and factor Xa. Heparin sodium salt significantly inhibits exosome-cell interactions.
IC_{50} & Target	Antithrombin III[1]
In Vitro	Heparin is a potent anticoagulant drug based on its ability to accelerate the rate at which antithrombin inhibits serine proteases in the blood coagulation cascade. Heparin and the structurally related heparan sulfate are complex linear polymers comprised of a mixture of chains of different length, having variable sequences. Heparin interactes most tightly with peptides containing a complementary binding site of high positive charge density. Heparin and heparan sulfate predominantly exhibit linear helical secondary structures with sulfo and carboxyl groups displayed at defined intervals and in defined orientations along the polysaccharide backbone. Heparin resembles DNA as both are highly charged linear polymers that behave as polyelectrolytes. Heparin is believed to function as an anticoagulant primarily through its interaction with AT III by enhancing AT-III-mediated inhibition of blood coagulation factors, including thrombin and factor Xa. Heparin binds to AT III and thrombin in a ternary complex, increasing the bimolecular rate constant for the inhibition of thrombin by a factor of 2000. Heparin is principally located in the granules of tissue mast cells that are closely associated with the immune response. Heparin makes numerous contacts with both FGF-2 and FGFR-1 stabilizing FGF–FGFR binding. Heparin also makes contacts with the FGFR-1 of the adjacent FGF–FGFR complex, thus seeming to promote FGFR dimerization[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Immunity. 2021 May 11;54(5):962-975.e8.
- Biomaterials. 2021 Jan;268:120585.
- Biomaterials. 2018 Aug;175:93-109.
- Allergy. 2022 Jan 7.
- Cancer Res. 2019 Sep 15;79(18):4729-4743.

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REFERENCES

[1]. Capila I, et al. Heparin-protein interactions. Angew Chem Int Ed Engl. 2002 Feb 1;41(3):391-412.

[2]. Anurag Purushothaman, et al. Fibronectin on the Surface of Myeloma Cell-derived Exosomes Mediates Exosome-Cell Interactions. J Biol Chem. 2016 Jan 22;291(4):1652-63.

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