

# Technical Data Sheet

## Heparin sodium salt

for cell biology

Order number: 1170

Heparin is a mixture of endogenous polysaccharides with an anticoagulant effect. Heparin belongs to the glycosaminoglycans and has a strong negative charge due to its numerous sulphate residues. As a result, heparin interacts with a large number of proteins and basic molecules through ionic and hydrogen bonds. It is involved in a variety of fundamental biological processes, including proliferation, differentiation, tissue homeostasis and viral pathogenesis. The most significant effect of heparin is probably its contribution to blood clotting: the circulating protease inhibitor antithrombin III inhibits clotting factors such as thrombin and factor Xa. The binding of heparin to antithrombin III increases the effectiveness of this interaction: the binding to the clotting factors can now take place thousands of times faster.

### Origin and activity

Heparin sodium salt for cell biology is isolated from porcine intestinal mucosa and has an activity of at least 150 I.U./mg.

### Application

Heparin is mainly used to prevent blood clotting. In the field of cell culture, there are also other applications, such as

- x a stimulator for the growth of primary epithelial cells and stem cells
- x a mediator for cell adhesion to culture surfaces (to investigate heparin-protein interactions)
- x an anti-cancer agent in cancer research
- x to prevent cell aggregation in serum-free media
- x to prevent coagulation in media with human platelet lysate as a FBS substitute

For almost any use, it is recommended to prepare a stock solution in water. (e.g. 20 - 50mg/ml). Since heparin is very susceptible to microbial contamination, the solution must always be made sterile by filtration (0.1 - 0.2 µm). **Caution:** Do not autoclave, as the high temperature leads to cross-linking of the sugars and disruption of the heparin structure.

### Storage

Both the powder and the solution should be stored protected from light at 2-8°C. The sterile-filtered heparin solution can be stored for up to 2 years if stored properly.

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