Heparan sulfate

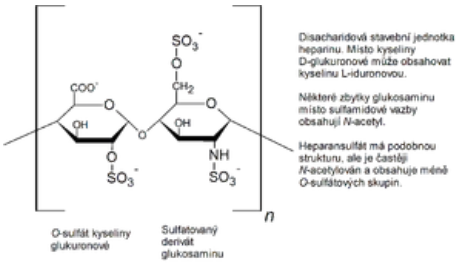
Heparan-sulfate:

Heparan sulfate is a linear polysaccharide. It is most often found in the human body in the form of proteoglycan, when its molecules are bound to an axis protein .

The role of heparan sulfate in the glomerular membrane

In the filtration membrane of the kidney glomerulus, heparan sulfate acts as **an ion filter** . When the *lamina basalis* of the podocyte and the *lamina basalis* of the capillary fuse, a **three-layered membrane** is formed Consists of

1. *lamina rara subendothelialis*,
2. *lamina densa*,
3. *lamina rara subepithelialis*.



Structure of heparin

Lamina densa serves as a mechanical filter. *Laminae rarae* are rich in **heparan sulfate**, which has the already mentioned ion filtering function. Due to the fact that heparan sulfate carries a negative charge, positively charged particles pass through this part of the membrane most easily, neutral ones pass through more difficult, and negative ions pass through the most difficult.

Anticoagulant effect of heparan sulfate

Heparan sulfate is found on endothelial cells. It binds to **antithrombin III** and increases its inhibitory capacity.

Thanks to this, the activity of thrombin and other coagulation factors is reduced.

Heparan sulfate and metabolic syndrome

Increased accumulation of heparan sulfate and other proteoglycans is the essence of some mucopolysaccharidoses. These are diseases in which proteoglycans accumulate in tissues. The essence is usually a defect in an enzyme that is responsible for breaking down the given proteoglycan.

Links

References

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