

THE HEMOLYMPH OF THE ASCIDIAN *Styela plicata* CONTAINS HEPARIN IN INTRACELLULAR GRANULES OF BASOPHIL-LIKE CELLS

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In vertebrate, heparin is synthesized on a specific protein core, forming the Serglycin proteoglycan (PGs). These PGs occur in granules of the mast cells and basophils. In mast cells, the Serglycin is glycosylated with heparin, whereas in basophil, chondroitin sulfate is the component of the Serglycin.

Ascidians, an invertebrate, contain different types of immunologic cells, occurring in the tissue or circulating in the hemolymph. These cells display morphological and biochemical characteristics that resemble vertebrate mast cells and basophils. In the ascidian *Styela plicata*, a heparin was shown to co-localize with histamine in intracellular granules of one type of hemocyte, granulocyte. Imuno-eletron microscopy and western blotting analysis with anti-serglycin antibody indicates that a serglycin-like protein co-localize with heparin and histamine in intracellular granules of the ascidians' basophil-like cell. Moreover, biochemical analysis indicates that the granulocyte heparin is linked to a serglycin core protein. These results suggest that in primitive basophil-like cells, the serglycin PGs are glycosylated with heparin chains.