Antiinflammatory Effects of Heparin Isolated of the Ascidian S*tyela plicata*.

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Introduction: Heparin is one of the most used natural products in the clinic. The unfractioned heparin is an anticoagulant polysaccharide that presents a significant antiinflammatory effect, due to the inhibition of binding of L and P-selectins to sialyl Lewis in endothelium. Nevertheless, its use is limited because of its side effects, for example, bleeding. **Aim**: The current studies were performed to evaluate the anti-inflammatory activity of ascidians tunicates (*Styela plicata* heparin) using *in vivo* and *in vitro* models. **Results**: The antiinflammatory potential, analyzed for method ELISA, was observed in function of the capacity of the heparin of the ascidian in modulating the production of TNF-α in the supernatants of monocytes of human blood (PBMC) stimulated by LPS (lipopolysaccharide); The cytotoxic effect or cellular viability of the heparin of the ascidian was carried through by MTT assays [3- (4,5-dimethylthiazol-2-yl) - 2,5-diphenyl tetrazolium bromide]. In the present study, *Styela plicata* heparin decreased TNF-α production by LPS-stimulated mononuclear cells. The assay of the MTT demonstrated that to the heparin of the ascidians not cause alterations in the cellular viability. In mice treated with 10mg/kg heparin we observed a significant decrease almost 100% in neutrophils migration. **Conclusion**: Our results show that heparin have a significant antiinflammatory activity due its capacity of modulating the TNF-α production in vitro and reducing the migration of neutrophils *in vivo*. **Financial support**: CNPQ; FAPERJ, FUJB; ALFAMA U.S.A.