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LS-7-P-5934 Ultrastructural aspects of the tunic wound repair in Styela plicata and Ciona intestinalis (Tunicata)

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After an injury or surgery of integumentary tissues that are in permanent contact with the environment, an orchestrated process begins to protect the organisms against pathogens and heal the wound to restore the tissue continuity and functioning. The tunic is the intermediary tissue between the exterior and the interior of the body of ascidians, marine organisms belonging to the subphylum of tunicates representing the sister group of vertebrates [1]. It is a specialized tissue covering the mantle epithelium or epidermis, and consists of a leathery or gelatinous matrix containing microfibrils of polysaccharides linked to proteins, and free living cells randomly distributed within it. Apart from its role as a support and mechanical protection, the tunic owning to its cellular component, is also involved in many biological functions [2 and references therein]. Tunicates lack an adaptive immune system but they rely on a robust innate immunity which consists of both humoral and cellular responses [3,4]. Tunic damage caused by the environment and by encrusting organisms, triggers repair mechanisms to prevent microbes from gaining access and spreading throughout the body. A simple defence reaction leading to wound healing, maintenance of tunic tightness, and neutralization of foreign microorganisms occurs. The present study reports on ultrastructural aspects of both *Styela plicata* and *Ciona intestinalis* tunic physical wounding occurring in the natural habitat. The most remarkable differences here reported between intact and wounded tunics, are: a) thinning of the tunic b) high presence of bacteria and protozoans within the tunic c) inflammatory aspects Moreover, the presence of natural AMP molecules was immunolocalized in the extracellular space of the wounded tunic. The study aims to compare the cellular reactions in naïve *S*. *plicata* and *C. intestinalis*, significative animal models for the study of the phylogenetic relationship with vertebrates.

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