ABSTRACT

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Title of the diploma thesis: Evaluation of marine alkaloid fascaplysin as a potential antithrombotic agent

Fascaplysin, a pentacyclic indole alkaloid isolated from marine sponge *Fascaplysinopsis bergquist* sp., is one of the agents of marine origin that is receiving increasing attention and for which significant advances have been made. Fascaplysin is being investigated for, among other things, antineoplastic properties, where fascaplysin shows promising biological effect as a kinase inhibitor.

In this study, the potential antithrombotic properties of this substance, which have not yet been sufficiently investigated, were analysed. For this purpose, plasma from 10 healthy donors was used. Aggregation experiments were performed on an optical aggregometer using platelet-rich plasma prepared from blood. Collagen or arachidonic acid (AK) was used to induce aggregation with or without a pre-incubation with fascaplysin at various concentration ranges. Fascaplysin significantly inhibited platelet aggregation for both agents tested. Collagen induction was inhibited at a significantly lower concentration than AK. Fascaplysin also was not toxic to platelets. Moreover, the effect of fascaplysin on coagulation was evaluated using activated partial time of thromboplastin (aPTT), prothrombin time (PT) and thrombin time (TT). No significant changes in coagulation pathways were observed, although fascaplysin was able to inhibit the activity of both thrombin and factor Xa in specific *in vitro* enzymatic assay.

Fascaplysin is an interesting biologically active molecule with promising antiplatelet properties. Additional studies should determine the potential application of the agent for clinical practice, as this information is still lacking.