Possible Involvement of Stratum Corneum Chymotryptic Enzyme in a Psoriasis Model

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Proteases are involved in several biological processes, such as the control of differentiation and proliferation of different cells, including keratinocytes. Psoriasis, a skin inflammatory disease, is characterized by infiltration of leukocytes, hiperproliferation of keratinocytes, with consequent thickening of the epidermis and abnormal differentiation of these cells. In this disease, it is also observed an up-regulation of some proteases, like stratum corneum chymotryptic enzyme (SCCE), cathepsins and neutrophil elastase (NE). Recently, we described a psoriasis model, induced by application of NE in mice skin, and observed thickening of epidermis and abnormal enzymatic activity. Therefore, the aim of this study was to identify enzymes that could contribute to the morphological and biochemical alterations observed in the model. The pH of treated samples was higher than the observed in the control group, and their amidolytic activity on Z-FR-AMC was totally inhibited in the presence of Cu^{2+} and Zn^{2+}. The treated group showed higher rates of hydrolysis of Abz-GFSPFRSSRQ-EDDnp, Abz-SAPRILSPVQ-EDDnp and Abz-SAPRTLSPVQ-EDDnp than the control group. The tissue kallikrein inhibitor PPACK II decreased the hydrolytic activity, suggesting the presence of a kallikrein-like enzyme. Besides, the topical application of CeKI – *Caesalphinia echinata* kallikrein inhibitor – was able to decrease the thickness of the skin down to the control levels. Since the activity observed was inhibited *in vitro* and *in vivo* by specific kallikrein inhibitors, as CeKI and PPACK II, and by Zn^{2+} and Cu^{2+}, there is a strong possibility that a SCCE-like enzyme might be involved in this model and also actively contributing for the observed morphological and biochemical alterations (Supported by FAPESP, CAPES and CNPq).