

Induction of Collagen Synthesis in Mice Dermis After Experimental Treatment with a Synthetic Peptide

Carrijo-Carvalho, L.C., Ventura, J.S., Chudzinski-Tavassi, A.M.
Laboratório de Bioquímica e Biofísica, Instituto Butantan, São Paulo, Brazil

Lopap is a prothrombin activator with serine protease-like activity isolated from the bristles of the *Lonomia obliqua* moth caterpillar. In addition to its catalytic activity towards prothrombin, Lopap display a cytoprotective effect on endothelial cells and fibroblasts in pro-apoptotic conditions. Through a peptide mapping approach the sequence region involved in the antiapoptotic effect of Lopap was identified and a synthetic peptide consisting of 11 amino acid residues, referred as AP (Antiapoptotic Peptide) was obtained by chemical synthesis. To evaluate if the AP action on fibroblasts could affect the molecular matrix content *in vivo*, female mice were treated (i.d.) with AP and the collagen content was measured in the mice dermis. Animal groups were treated with a single dose of AP (0.04-25 μ g) and were evaluated after 1 and 4 weeks. Alternatively, animals were treated with cumulative doses (0.3 μ g, once a week) and were evaluated in different time intervals from 1 to 12 weeks. After each time interval, a skin fragment of 1cm² in the treated area was surgically removed. A non-treated area, which was injected with the vehicle (saline) was also obtained from each animal as the control. The skin fragment was subjected to histological analysis (Picrosirius red coloration) and the collagen content was measured by the percentage of area covered by colored fibers. Treatment with AP resulted in a significant local increase of collagen in the mice dermis. The highest difference was observed with two doses of 0.3 μ g, inducing an increase of \approx 15% in the collagen content, which persisted after 12 weeks. The AP effect could be valuable for cosmetic and therapeutic applications that require the increase of collagen synthesis.

Keywords: *Lonomia obliqua*, *Lopap*, *peptide*, *collagen*, *skin*
Supported by: Fapesp (05/59739-9, 03/13240-8), Finep and Coinfar.