Role of the anti-apoptotic protein BAG3 in tissue homeostasis.

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Data from the University of Salerno demonstrated the anti-apoptotic role of BAG3 protein. BAG3 is a cytoplasmatic protein of 74 kD whose expression in some cell types is induced by stressful stimuli, mainly through the activation of the transcription factor Heat Shock Factor (HSF) -1. BAG3 pro-survival activity in cardiocytes and various tumour types, where the protein is expressed constitutively, has been described. On the other hand, the role of BAG3 in tissue homeostasis is poorly known. Our group is involved in investigating this issue, in two models: skin and endothelial homeostasis in ulcers; and hormone- dependent changes in endometrium. Our study starts with ex vivo human specimens, through immunohistochemistry and RT-PCR experiments for determining BAG3 expression levels in cells in different proliferative and functional states. On the basis of the obtained ex vivo evidence, we are developing in vitro models to analyse the effects of BAG3 expression on the levels and/or activities of tissue- specific molecules involved in the process of tissue regeneration. For our work we use BAG3- specific reagents (monoclonal antibodies, viral vector, small interfering RNAs) produced in the University of Salerno and protected by patents granted in Europe and United States.