HIGH EXPRESSION OF HSPs SUPPORTS THE SURVIVAL OF HUMAN MELANOMA CELLS

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Melanoma is an aggressive type of skin cancer, which accounts for only 2% of skin cancer cases but causes around 80% of skin cancer deaths. Its therapy remains a challenge, since in advanced stage it is refractory to conventional treatments. In order to better understand the biology of this tumor and to propose new target, we focused on the identification of proteins differentially expressed in highly human metastatic melanoma cell line (SKMEL-103) in comparison with normal primary melanocytes. Firstly, we have done proteomic analysis using LTQ Orbitrap spectrometer-mass. Subsequently, proteome data was validated by western blot, and cell viability was evaluated by MTT reduction. Proteome analysis resulted in the identification of 83 proteins differentially expressed. Interestingly, melanoma cells showed higher chaperones (HSP90 and HSP70) expression than melanocytes. Knowing that melanoma uses NFκB pathway to achieve survival, proliferation and resistance to apoptosis, and that IκBα/β are partners of HSPs, we examined the activation status of NFκB pathway. Indeed, in melanoma cells NFκB pathway is more active. Furthermore, protein kinases (ABL, AXL and PIM-1) that are also HSP partners and are involved with aggressiveness melanoma process, were found to be upregulated in melanoma cells. Accordingly, quercetin (HSP inhibitor) decreased melanoma cell viability. Therefore, our findings suggest that the use of HSP inhibitors in combination with other chemotherapics might be a good strategy to treat melanoma.

Keywords: Melanoma, HSPs, NFκB pathway.