PROTEOMIC MAPP OF OSTEOGENESIS PROCESS IN HUMAN ADIPOSE-DERIVED ADULT STEM CELL

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Adipose tissue has been appointed in recently works as a source of alternative multipotent stem cell. The stem cell derived from human adipose tissue is known as ADAS and they have renewal capacity, they are easily obtained and they have the plasticity to differentiate in several cell types including osteoblast cells. Aiming to extend the issue of osteogenic process, this work offers a proteomic boarding to characterize the proteins involved in this process using ADAS. The cells were analyzed without any kind of stimulation, with two weeks of osteogenic medium stimulation or with six weeks of osteogenic medium treatment. The stem cell culture was analyzed by flow citometry using specific antibody driving to stem cell receptors and the viability and enzymatic activity was observed by MTT and Alkaline phosphatase assays. The collagen was detected by SIRCOL. All results show that these cells have differences in membrane receptors, enzymatic activity and increase collagen amount during osteogenesis. The gene expression analyses appoint that these cells are already activated in osteogenic process before stimulation treatment indicating that mechanic shock could activate the osteogenic differentiation. The proteomics analyses of these cells by bi-dimensional electrophoreses show different protein profile, indicating a dynamic process and suggesting a group of proteins compromised by osteogenesis pathway.