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USE OF MULTICHANNEL FLOW-CYTOMETRY IN BIOMEDICINE AND EXPERIMENTAL BIOLOGY

SUMMARY

Flow-cytometry is a process on which large numbers of single cells are quantitatively and qualitatively analyzed. This method gives information about size, granularity surface or intracellular markers of every single cell in suspension. In modern biology is worthy to perform quick, objective multiparametric analyses of cell phenotype. This project was focused on cells, which analyses are complicated by extreme rareness or lack of clearly identifying specific markers.

Analysis of stromal cells of the investigated tumors (histiocytoma and tumor fibroblasts originating in squamous epithelium: basalioma (BCCF) and spinalioma (SCCF) elucidated alteration of gene expression induced by tumor cells. Tumor-derived stromal fibroblasts acquire distinct properties to shape a microenvironment conducive to altering the phenotypic characteristics of normal epithelial cells in vitro.

Reproducible, quick and highly sensitive method of detection extremely rare non-haematopoetic cells (EPC, CEC) was established. Numbers of CFU-En correlate neither with circulating endothelial progenitors nor with matured endothelial cells detected by flow-cytometry. These colonies are formed in cooperation of CD14 + and CD4+ cells. Numbers of endothelial progenitors and matured endothelial cells are closely related with vessel endothelium damage caused by system disease. They further change in response to disease state.

Our findings can bring new approaches to skin cancers treatment and have certain potential in diagnosis/prognosis of system diseases