عنوان مقاله:

Breast Cancer Cells Reaction to Serum Starvation and SteroidRestriction

محل انتشار:

دهمین کنگره بین المللی سرطان پستان (سال: 1393)

تعداد صفحات اصل مقاله: 2

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خلاصه مقاله:

Breast cancer is still one of the most deadly diseases in women. Beyond synthesizing new anticancer agents, a proper cancer treatment needs a better understanding about the biology of the cancer, to provide a better view on newer chemotherapeutics. The cells at the center of a tumor bear metabolic stress and suboptimal growth conditions and following chemotherapy and tumor shrinkage they face favorable growth conditions. In the current study, the reactions of human breast adenocarcinoma cell line, MCF-7, in harsh metabolic stress conditions was studied. In this regards, the cells in culture plates were exposed to different serum concentrations (10%, 0.5%, 0.25% and 0%) with/out steroids for up to 6 days. At 24-hour intervals, cell morphology (inverted light microscopy), Cell cycle (flow cytometry), mitochondrial content (MTT assay) and protein content (SRB and Biorad protein assay) were analyzed. In addition, in each day, the cells were released in media containing 10% serum and the cells were analyzed with the above-mentioned tests. The results of this study showed that serum starvation could cause a delayed G1-S transition and re-stimulation with serum could facilitate this transition. Furthermore, sub-G1 population of the cells does not increase dramatically along with starvation. Serum starvation did not decrease cell proliferation; rather increased cell proliferation was observed, accompanied by decreasedcell size. In this status, intracellular content of cells mitochondria and protein was also increased. However, when steroid restriction was also exerted, besides reduced growth rate and proliferation, cells protein content was also reduced, while mitochondrial content of the cells was not decreased. Releasing the cells in 10% serum led to increased foci formation (as a marker of cell aggressiveness), cell size, protein and mitochondrial content. These results along with the evidences of low cell death in the form of apoptosis or autophagy, confirmed that MCF-7 is a relatively resistant cell line to harsh metabolic stress, and even after a long period of 6-day starvation, re-exposing the cells to optimal environmental conditions can facilitate their reentry to normal cell life again

کلمات کلیدی:

MCF-7, Serum Starvation, Steroid