

Effects of Fatty Acids Withdrawal in Culture Medium on RINm5F Cells Death Susceptibility

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The systemic impact of a lipid-deficient diet has been studied for more than 90 years and under different conditions. However, very few works have focused on the molecular effects of fatty acids withdrawal in the cell functioning. In pancreatic β -cells, besides its importance for controlling cellular functions, fatty acids play an important role in insulin secretion. Therefore, it would be interesting to study how β -cells respond to death stimuli when cultivated in the absence of fatty acids. In this way, the aim of this study was to analyze the effects of fatty acids withdrawal in culture medium on RINm5F cells death susceptibility to staurosporine and on its lipidic content. Cells were grown in medium with conventional fetal calf serum (CS) or with lipid-reduced fetal calf serum (RS) and incubated with 500 nM staurosporine for 24 h. Cell viability and DNA fragmentation were analyzed by flow cytometry and the lipid content of the sera by HPLC. Cells grown in the presence of the SR for 24 or 48h have presented a slightly, but not significant increase ($p < 0.05$) in its susceptibility to staurosporine toxicity. HPLC analyses have shown that RS presents only traces of fatty acids, when compared to conventional serum. Based on our previous data we showed that only the absence of fatty acids is not enough to induce cell death after 24 or 48 hours of culture, but seems to induce a mild susceptibility to the toxic effects of staurosporine.

Key words: fatty acids withdrawal, RINm5F, cell death susceptibility

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