

Interplay between glucose and palmitate uptake in breast carcinoma *in vitro*

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One of the most studied tumor cells lines *in vitro* is the breast carcinoma MDA-MB-231 cell line. Several studies have proved its glycolytic profile, namely known as the Warburg effect. Glutamine oxidation is also important for its metabolism. Nevertheless, the use of fatty acids for obtaining energy in these cells is still rising. Palmitic acid is the most common saturated fatty acid, containing sixteen carbons in its structure. However, the use of palmitate for metabolic studies in MDA-MB-231 is not very extended due to its pro-apoptotic effect in this cell line after certain time exposure. Nonetheless, in this work we used palmitate as a metabolic fuel for just 30 minutes in order to see the almost immediate response of the cells to its presence, after a 30 minutes fast period. Our results show that MDA-MB-231 cells are not able of oxidizing palmitate nor producing lactate from it. Simultaneous presence of palmitate with glucose or with glutamine does not affect glucose nor glutamine uptake in these cells. However, we observed that even low concentrations of glucose increase palmitate uptake in MDA-MB-231 after a 30 minutes incubation. Treatment with 5 mM 2-deoxyglucose also for 30 minutes counters this rise, since 2-deoxyglucose diminishes palmitate uptake. Increasing glucose concentration to the same dosis of 2-deoxyglucose leads to a prevalence of the glucose effect on palmitate uptake. The exact role of glucose and glucose derivatives should be further studied in order to know more about palmitate metabolism in this cell line.

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