Role of glucose, glutamine and palmitate in endothelial and tumor metabolism

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Glucose and glutamine are the major sources of energy for mammalian cells. In tumors, Warburg effect and glutaminolysis have been largely studied. On the other hand, a major role of glucose in angiogenesis has been established, and fatty acids have been discovered to promote proliferation in endothelial cells. In this work, we used HMEC and MDA-MB-231 cells in order to study the relevance of glucose, glutamine and fatty acids in endothelial and tumor cells. Preliminary results show an apparent relevance of glutamine for HMEC proliferation. Moreover, as angiogenesis may be a pathological process supporting tumor progression, we also studied the possible effects of well-characterized anti-angiogenic compounds on endothelial and tumor metabolism. Our results show that dimethylfumarate and toluquinol modulate glucose uptake and/or lactate production in these cells.

[Our experimental work is supported by grants BIO2014-56092-R (MINECO and FEDER) and P12-CTS-1507 (Andalusian Government and FEDER) and funds from group BIO-267 (Andalusian Government). The "CIBER de Enfermedades Raras" is an initiative from the ISCIII (Spain). This communicaction has the support of a travel grant "Universidad de Málaga. Campus de Excelencia Internacional Andalucía Tech"].