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## Polyunsaturated fatty acids augment free radical generation in tumor cells in vitro.

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### Abstract

Polyunsaturated fatty acids (PUFAs) have been shown to inhibit both normal and tumor cell growth in vitro. As PUFAs are known to induce a respiratory burst and free radical generation in polymorphonuclear leukocytes and since free radicals are toxic to cells, we investigated the effect of PUFAs on a measure of free radical generation (nitroblue tetrazolium reduction) in normal human fibroblasts and breast cancer cells in vitro. Results suggested that linoleate (LA), gamma-linolenate (GLA), arachidonate (AA) and eicosapentaenoate (EPA) can enhance nitroblue tetrazolium reduction in tumor cells but not in normal cells. GLA, AA and EPA were 1 1/2 to 2 times more effective than LA in inducing free radical generation. This difference was not due to increased uptake of LA, AA and EPA by tumor cells. In fact, the uptake of LA was the same both in normal and tumor cells whereas that of AA and EPA occurred at approximately half the rate in the tumor cells compared to normal cells. This indicates that PUFA induced growth inhibition and cytotoxicity to tumor cells may, at least in part, be due to enhanced free radical generation.

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