Regulation of fatty acid synthase (FAS) and apoptosis in estrogen-receptor positive and negative breast cancer cells by conjugated linoleic acids.


Source

School of Life Science, The Robert Gordon University, Aberdeen, AB10 1JQ, UK.

Abstract

BACKGROUND:

Conjugated linoleic acids (CLAs) are natural dairy food components that exhibit a unique body of potential health benefits in animals and man, including anti-cardiovascular disease and anti-cancer effects. Several studies have demonstrated that fatty acid synthase (FAS) levels (protein and mRNA) are over expressed in many carcinomas. Sterol regulatory element binding proteins (SREBPs) are transcription factors that regulate genes involved in lipid metabolism, including FAS.

METHODS:

Breast cancer cell lines, MCF-7 and MDA-MB-231 were treated with CLAs to investigate the regulation of SREBP-1c and FAS expression.

RESULTS:

In MDA-MB-231 cells, SREBP-1c and FAS were co-ordinately decreased by treatment with 25µM CLA 9-11 and 10-12. In MCF-7 cells, the decrease in SREBP-1c and FAS expression was dependant on the concentration of CLA used.

CONCLUSIONS:

The data suggest a differential effect of CLAs on SREBP-1c and FAS in estrogen receptor-positive (MCF-7) compared to estrogen receptor-negative (MDA-MB-231) breast cancer cells.

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