

Comment on “Effects of adipocyte-secreted factors on cell cycle progression in HT29 cells” published by Eur J Nutr

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Obesity is associated with one-third of colon cancer. This is related to altered adipocyte-secreted factors including increased leptin and decreased adiponectin levels [3]. These risk factors cause increased signal pathways important in the carcinogenesis of colon cancer. We read with great interest the paper “Effects of adipocyte-secreted factors on cell cycle progression in HT29 cells” published in your journal [8]. The author screened 30 conditional adipocyte media on HT29 cell growth. In 11 of these, positive responses were found. Furthermore, the author also demonstrated that leptin upregulates ERK pathway, which was inhibited by genistein [6, 7].

In addition to ERK, leptin can also stimulate Src/PI3K/Akt signal pathway [5]. Src/PI3K/Akt is also an important signal pathway in the carcinogenesis of colon cancer. Activation of the pathway can cause increased cell proliferation and decreased apoptosis in colon cancer as well as cytoskeleton change. Inhibition of this pathway has great potential for the treatment of colon cancer [2]. In Jaffe’s study, leptin is shown to form lamellipodia via Src/rac and this is related to invasion of colon cancer. Thus, two carcinogenic signal pathways MAPK and Src/PI3K/Akt may have synergistic effect in leptin-causing carcinogenesis. Usually, these multiple signal pathways are necessary for the carcinogenesis [4]. Genistein also inhibits PI3K/Akt pathway except MAPK [1, 7].

In conclusion, leptin may cause colon cancer through both PI3K/Akt and ERK pathways. Combinational inhibition could provide better therapy for the disease.

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