Curcumina inibe a N-acetiltransferase e pode ser útil no câncer de pulmão e colo-retal

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Curcumin decreases the DNA adduct formation, arylamines N-acetyltransferase activity and gene expression in human colon tumor cells (colo 205).

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The effects of curcumin on the N-acetyltransferase (NAT) activity, AF-DNA adduct formation and NAT gene expression were examined using the human colon tumor cell line (colo 205). Various concentrations of curcumin were added to the cytosol or to the medium of human colon tumor cells. The NAT activity was determined by high performance liquid chromatography assayng for the amounts of acetylated 2-aminofluorene (AAF) and p-aminobenzoic acid (N-Ac-PABA) and nonacetylated 2-aminofluorene (AF) and p-aminobenzoic acid (PABA). The NAT activity in the human colon tumor cells and cytosol was suppressed by curcumin in a dose-dependent manner. The results demonstrated that gene expression (NAT1 mRNA) in human colon tumor cells was inhibited by curcumin. The apparent values of Km and Vmax of NAT of human colon tumor cells were also decreased by curcumin in cytosol. Curcumin may act as a noncompetitive inhibitor. After the incubation of human colon tumor cells with AF with or without curcumin cotreatment, the cells were recovered and DNA was prepared, hydrolyzed to nucleotides, the adducted nucleotides were extracted into butanol and AF-DNA adducts analyzed by HPLC. The results also demonstrated that when curcumin was added to the media a decrease in AF-DNA adduct formation was seen in the human colon tumor cells. The finding of AF-DNA adduct formation in cultured human colon tumor cells suggests the usefulness of cultured cells for assessing arylamine-induced DNA damage.

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Curcumin inhibited the arylamines N-acetyltransferase activity, gene expression and DNA adduct formation in human lung cancer cells (A549).

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It is well known that N-acetyltransferase (NAT) plays an important role in the arylamine metabolism. We analysed the response of A549 human lung cancer cells for N-acetylation of 2-aminofluorene (AF) to curcumin. After curcumin treatment, the NAT activity was examined by HPLC, AF-DNA adduct formation was examined by HPLC, and NAT gene expression by polymerase chain reaction were detected. The NAT activity in the human A549 cells and cytosol was suppressed by curcumin in a dose-dependent manner. The results also demonstrated that gene expression (NAT1 mRNA) in human lung A549 tumor cells was inhibited and decreased by curcumin. After the incubation of human lung A549 tumor cells with AF with or without curcumin co-treatment, the cells were recovered and DNA was prepared and hydrolyzed to nucleotides. The adducted nucleotides were extracted into butanol and analysis of AF-DNA adducts was done by HPLC. The results also demonstrated that curcumin decreases AF-DNA adduct formation in the human lung A549 tumor cells.

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