Differential response of human healthy lymphoblastoid and CCRF-SB leukemia cells to sulforaphane and its two analogues: 2-oxohexyl isothiocyanate and alyssin

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Abstract:
The chemopreventive effect of sulforaphane and two of its analogues on human B-lymphocytes derived cells was evaluated in this study. Two cell lines used in the experiments were: human lymphoblastoid cells and human B-leukemia CCRF-SB. Both cell lines were treated with three structurally related isothiocyanates: sulforaphane, 2-oxohexyl isothiocyanate and alyssin. The viability of cells, induction of a phase II enzyme-quinone reductase, apoptosis induction, GSH content and ROS formation were evaluated. The results indicate the differences between the chemopreventive properties and apoptosis-inducing activity of three isothiocyanates. The significant differences in response to these compounds were observed between healthy lymphoblastoid and leukemia CCRF-SB cells.

Key words:
isothiocyanates, sulforaphane, 2-oxohexyl isothiocyanate, alyssin, apoptosis, chemoprevention, phase II enzymes