Induction of apoptosis in a non-small cell human lung cancer cell line by isothiocyanates is associated with P53 and P21

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Abstract

This study was aimed at examining the effects of glucosinolate derivatives including phenylethyl isothiocyanate (PEITC), benzyl isothiocyanate (BITC), and indole-3-carbinol (I3C), on the induction of apoptosis in human non-small cell lung carcinoma A549 cells. The results indicated that all tested compounds inhibited the growth of A549 cells in a concentration-dependent manner. Flow cytometric analyses and annexin V staining showed that induction of apoptosis occurred at low concentrations of PEITC and BITC (10 μM), and that necrosis occurred at higher concentrations of PEITC and BITC (25 μM); however, apoptosis was not the major pathway for the antiproliferative effects of I3C. Furthermore, Western blot analyses demonstrated that increased expression of P53 and P21 proteins, but not Bax protein, were associated with PEITC- and BITC-induced apoptosis.