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Bee venom induces apoptosis and inhibits expression of cyclooxygenase-2 mRNA in human lung cancer cell line NCI-H1299.

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Abstract

To investigate whether bee venom (BV) induces apoptosis, the 3-(4,5-dimethylthiazol-2-yl)-2,5-diphenyltetrazolium bromide assay, terminal deoxynucleotidyl transferase- mediated dUTP nick end-labeling assay, 4,6-diamidino-2-phenylindole staining, flow cytometric analysis, and DNA fragmentation assay were performed on NCI-H1299 lung cancer cells treated with BV. Through morphological and biochemical analyses, it was demonstrated that NCI-H1299 cells treated with BV exhibit several features of apoptosis. In addition, reverse transcription-polymerase chain reaction and prostaglandin E(2) (PGE(2)) immunoassay were performed to verify whether BV possesses an inhibitory effect on the expression of cyclooxygenase (COX) and PGE(2) synthesis. Expression of COX-2 mRNA and synthesis of PGE(2) were inhibited by BV. These results suggest the possibility that BV may exert an anti-tumor effect on human lung cancer.

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