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INDUCTION OF APOPTOSIS IN HUMAN LEUKEMIA CELL LINE (HL60) BY ICD-85 (VENOM DERIVED PEPTIDES)

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ABSTRACT

Our previous studies revealed an inhibitory effect of ICD-85 (Venom derived peptides) on breast cancer cell line MDA-MB231. ICD-85 was also confirmed by in vivo studies to suppress the breast tumor in mice. However, the exact mechanism of ICD-85 was unknown. Hence, the present study was undertaken to assess the mechanism of ICD-85 effect as an anti-proliferative agent of cancer cells. The effect of ICD-85 on proliferation of HL-60 cancer cells was determined by using the MTT assay. The morphological changes of ICD-85 treated HL-60 cells were observed under transmission electron microscope (TEM). DNA fragmentation analysis was also carried out using gel electrophoresis. ICD-85 induced marked concentration inhibition of HL60 cell proliferation with an IC₅₀ value of 0.04µg/ml following 24 h incubation. ICD-85 treated cells when compared with untreated cells, showed nuclear material condensation, endoplasmic reticulum dilation, mitochondria swelling or degradation, increased cytoplasmic vacuoles, reduction or disappearance in cytoplasmic process and decreased nuclear/cytoplasmic ratio was observed. The characteristic DNA ladder formation of ICD-85 treated cells in agarose gel electrophoresis confirmed the results obtained by electron microscopy. The results of the present study indicated that ICD-85 inhibited the cancer cell proliferation by inducing cell apoptosis.

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