

DO-012

IN VIVO AND IN VITRO ANTI-ANGIOGENIC EFFECT OF ICD-85 (VENOM DERIVED PEPTIDES)

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ABSTRACT

Angiogenesis, the development of new blood vessels from pre-existing vasculatures essential in physiological process becomes pathological in various diseases including cancer and preventing angiogenesis can reduce tumor size and metastases. Our previous studies on ICD-85 (Venom derived peptides) revealed an inhibitory effect on breast cancer cell line, MDA-MB231. On the other hand in vivo studies showed the mice breast tumors exposed to ICD-85 were reduced in size, indicating anti-angiogenic characteristic of the compound. In the present study anti-angiogenic activity of ICD-85 was evaluated by in vivo CAM assay and in vitro tube formation assay of Human Umbilical vein Endothelial Cells (HUVECs). The anti proliferative activity of ICD-85 was also estimated through 3-(4,5-Dimethyl thiazol-2-yl)-2,5 diphenyl tetrazolium bromide assay (MTT assay) in HUVECs which revealed the anti proliferative activity of ICD-85 on HUVEC cell line with IC₅₀ of 12µg /ml. Results of CAM assay showed that the lowest concentration (0.075µg/egg) of ICD-85 decreased the size and density of blood vessels as compared to control group using only distilled water. However at higher concentrations the effect of ICD-85 was more prominent and at concentrations 0.3µg/egg and above, the angiogenesis was inhibited completely. On the other hand in vitro tube formation assay of HUVECs also indicated the complete prevention of capillary tube formation when exposed to 18µg /ml of ICD-85. In conclusion based on the results obtained, ICD-85 has an anti-angiogenic activity with dose dependent manner.

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