## Abstract

### BACKGROUND:

The long-term goal of this work is to develop a new therapeutic regimen for the treatment of colon cancer in humans which will include hyperthermic intraperitoneal perfusion of verapamil as an alternative to administration of chemotherapy.

### METHODS AND RESULTS:

Hyperthermia and verapamil caused a significant inhibition of the growth of human colon cancer (HT-29) xenografts. Both apoptosis detection assays, TUNEL and H and E staining, have shown that approximately 50% of human colon cancer cells underwent apoptosis after hyperthermia and verapamil administration. The TUNEL assay has demonstrated that DNA strand breaks appeared fairly rapidly and maximum breakage occurred at 2 hours after the treatment. Histopathological assay has showed maximum apoptotic morphological changes at 12 hours after treatment.

### CONCLUSION:

Thus, the results of our in vivo experiments confirmed our previously obtained in vitro data concerning the significant ability of the combination of hyperthermia and verapamil to inhibit human colon cancer cell growth through programmed cell death.

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