

MODEL FOR ABSTRACT

EVALUATION OF 3,3' – DIINDOLYLMETHANE IN TREATMENT AND PREVENTION OF PROSTATE CANCER

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OBJECTIVES: The potential beneficial effects of the diet - Indole derivative, 3,3'- Diindolylmethane (DIM), on proliferation and apoptosis in prostate cancer cell lines using *in vitro* and *in vivo* systems.

MATERIALS: Human prostate cancer cell lines with different p53 status (LNCaP; p53 wild-type, DU145; p53 mutant and PC3, deficient in p53 gene), and mouse prostate cancer cells (TRAMP-C2), were grown in different media. 6 weeks of Male C57BL/6 mice were purchased from Harlan Laboratories (Israel). DIM was obtained from Sigma (St. Louis, MO, USA).

RESULTS: The DIM derivative suppressed growth and DNA synthesis, and induce apoptosis of human and mouse prostate cancer cells, in a dose - and time-dependent manner. The induction of apoptosis in these cells was p53-independent.

Mice were injected with 2 or 5 million TRAMP-C2 cells subcutaneous and tumors were observed after 2 weeks from injection. Then, animals were treated IP, 3 times per week with different concentrations of DIM for three weeks. We found that DIM (5 and 10 mg/kg) caused a significant decreased in the volumes and weights of tumors. Moreover, apoptotic cells were observed in histological sections of tumors from treated animals.

Treatment of animals with DIM for three weeks before injection of prostate cancer cells reduced significantly tumor development.

CONCLUSIONS: The findings suggest that such Indole derivative may be effective in induction of apoptosis and inhibiting proliferation of human prostate cancer cells as well as effective and non-toxic therapeutic means against tumor growth in rodents. DIM may serve as a potential natural anti - tumorigenic compound in humans.

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