Pathological observations during treatment with the biological response modifier Maruyama vaccine in cancer: implications for collagen production in the prevention of cancer invasion and metastasis.

Kimoto T.

Author information

- Fujisaki Institute, Hayashibara Biochemical Laboratories Incorporated, Okayama, Japan.

Abstract

The antitumor effects of Maruyama vaccine (SSM) include the activation of immunocompetent cells and promotion of collagen production in tumors, thereby acting as a biological response modifier (BRM). On the basis of clinical observations of patients responding to treatment with SSM long term, experiments in vitro and in vivo have been conducted to define the mechanisms of action of SSM, and the results indicate that SSM does not exhibit direct cytotoxic effects on cancer cells, but that it accelerates a marked production of collagen fibers and acts as a BRM. Proliferating collagen fibers consist of type IV collagen inside tumor tissues, and types I and III collagens and fibronectin around tumor tissues encapsulating tumors and their metastasis, and possibly inducing necrosis in certain malignancies. These dense collagen fibers arise from the stroma, cancer cells themselves, and extracellular matrices confined within the cancerous lesion. After treatment with SSM, patients and experimental animals bearing tumors remained alive with tumors long term. We conclude from these results that SSM acts by inducing encapsulation of tumor growths, possibly preventing their spread and metastasis, and that SSM may benefit patients in whom tumor is inoperable and resistant to conventional chemotherapy.

PMID:9674877