Effects of cytokine network on tumor metastasis and progression of chemokine gene transfected cells in vivo

1995 Fiscal Year Final Research Report Summary

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応用薬理学・医療系薬学

Research Institution

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Research Abstract

Effects of chemokine on tumor progression and metastasis were studied. Cachexia-inducing adenocarcinoma cell line cells (colon 26, clone 20) were transfected with either a control plasmid or chemokine (MCAF) cDNA.The production of MCAF reached 1.9 ng/ml in vitro when transfectant cells were cultured at a cell density of 5*10^4 cells/ml for 3 days. Transfection of MCAF cDNA did not affect the growth rate in vitro. Also, MCAF-

transfectants formed a similar size of tumors and induced the same degree of cachexia after intra-footpad inoculation as the parental cells. When the primary tumors were resected on the 10th day after inoculation, the incidence rate of spontaneous lung metastasis was less than 20% in both transfectant and parental cells. The number of endothelial cells in the primary tumor rapidly increased from the 10th to the 14th day after inoculation. In accordance with enhanced angiogenesis, the incidence rates of spontaneous metastasis increased when the primary tumors were resected on the 14th day after inoculation. Moreover, spontaneous lung metastases as well as experimental lung metastases were augmented in the animals injected with MCAF-transfectants compared to those injected with parental cells with a concomitant increase of angiogenesis. These results suggested that MCAF may augment the metastatic potential by modulating tumor associated angiogenesis.