肝細胞癌に対する遺伝子治療の基礎検討

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1996 Fiscal Year Final Research Report Summary

Basic study of gene therapy for hepatocellular carcinoma

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Project/Area Number

07457133

Research Category

Grant-in-Aid for Scientific Research (B)

Allocation Type

Single-year Grants

Section

一般

Research Field

Gastroenterology

Research Institution

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gene therapy / hepatocellular carcinoma / retroviral vector / herpes simplex thymidine kinase / ganciclovir

Research Abstract

Currently, clinical trials of suicide gene transfer with retroviral vector producer cells are being carried out for the treatment of brain tumors. The feasibility of applying this approach for the treatment of hepatocellular carcinoma is studied.
Methods : Five hepatoma cell lines were tested for retroviral mediated transduction efficiency with the herpes simplex thymidine kinase (HSV-TK) gene and for the induced drug sensitivity to ganciclovir. Different populations of HSV-TK transduced HuH7 cells were subcutaneously injected into athymic nude mice with non transduced HuH7 cells to analyze the "bystander" effect. The retroviral vector producer cells were intratumorally injected into pre-established HuH7 tumors to study the antitumor effect.
Results : Five hepatoma cell lines were transduced with the viral supernatant, and all resultant 50 transduced clones, except one, were sensitive to ganciclovir. Complete regression occurred in 21 out of 30 tumors when the inoculum consisted of as few as 10% of HSV-TK containing transduced cells. The producer cell injection into tumors and GCV treatment group was significantly smaller in size of the tumors compared to GCV treatment group ($p<0.01$).
Conclusions : This gene therapy approach could potentially be effective for the treatment of human hepatocellular carcinoma.

Research Products (13 results)

All Other

All Publications (13 results)

[Publications] Shuichi Kaneko: "Adenovirus-mediated gene therapy of hepatocellular carcinoma using cancer-specific gene expression." Cancer Research. 55. 5283-5287 (1995)

[Publications] 松下栄紀: "肝疾患の遺伝子治療はどこまで期待できるか。" medicina. 33. 544-546 (1996)

[Publications] 松下栄紀: "肝細胞癌の遺伝子治療" 医学のあゆみ. 176. 963-966 (1996)

[Publications] Shuichi Kaneko, et al: "Adenovirus-mediated gene therapy of hepatocellular carcinoma using cancer-specific gene expression." Cancer Research. 55(15). 5283-5287 (1995)

[Publications] Eiki Matsushita, Shuichi Kaneko, Kenichi Kobayashi: "Possibility of gene therapy for liver diseases." Medicina. 33(3). 544-547 (1996)

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