Combination of gene therapy with targeting-radio-therapy against prostate cancer using anti-PSA antibody

1998 Fiscal Year Final Research Report Summary

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Research Project

Project/Area Number

09470344

Research Category

Grant-in-Aid for Scientific Research (B)

Allocation Type

Single-year Grants

Section

一般

Research Field

Urology

Research Institution

Kanazawa University

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Project Period (FY)

1997 – 1998

Keywords

prostate cancer / Gene therapy / Targeting radiotherapy

Research Abstract

Sensitivity of human prostate cancer cell lines : LNCaP, DU-145, PC-3 to 5FU in vitro was as follows ; LNCaP>DU-145>PC-3. Cytotoxic effect of 5FC to these cell lines to which cytosine deaminase gene was transfected, was shown for only LNCaP/CD, mostly depending on the efficiency of gene transfection. The order of sensitivity to 5FC was the same as that of intact cell lines to 5FU following selection of these cells with G418. Then we developed an in vivo model by injection of LNCaP or LNCaP/CD cells into the testis of SCID mice. A significant anti-tumor effect was shown by systemic administration of 15 mg/kg, 30 mg/kg of 5FU with mild weight loss. Also equivalent anti-tumor effect was shown for LNCaP/CD tumor by administration of 5FC without weight loss. The tissue and serum concentration of 5FU corresponded to the anti-tumor effect and the adverse reaction observed. This might represent the advantages of the gene therapy. Then the potential of combination with radioimmunotherapy was investigated. I-131 labeled anti-PSA Ab was injected following 5FC administration to enhance anti-tumor effect. However, no anti-tumor effect was obtained in combination of RIT and gene therapy, probably due to poor accumulation of the Ab to tumors. We need dose escalation study of I-131 labeled Ab and to improve the specificity of the Ab as well.

Research Products (10 results)

All | Other

All | Publications (10 results)

[Publications] K.Koshida et al: "Enhanced tumorigenic and metastatic potencial at an androgen sensitive human, cancer cell line LNcap, by intratesticular modulation on SCID mice" International Journal of Oncology. 11. 513-517 (1997)

[Publications] K.Koshida et al.: "Factors contributing to imaging of xenografts using anti-placental allcaline phosphatase" Journal of Urology. 157. 1941-1945 (1997)

[Publications] K.Koshida et al.: "Immunolcalization of anti-placental alkaline phosphatase monoclonal antibody in mice with testicular tumor and lymph mode metastasis" Urological Research. 26. 23-28 (1998)

[Publications] T.Kobayashi et al.: "A chick embryo model for metastatic human prostate cancer" Evropear Urology. 34. 154-160 (1998)

[Publications] T.Imao et al.: "Natural interferon enhances expression of placental phosphatate in human seminoma xenograft" Urological Research. 26. 377-382 (1998)

[Publications] K.Koshida, Y.Endo, T.Kobayashi, T.Imao, H.Konaka, Y.kadono, T.Uchibayashi, T.Sasaki, M.Namiki: "Enhanced tumorigenic and metastatic potential of an androgen-sensitive human prostate cell line, LNCap, by intratesticular inculation in SCID mice." Int J Oncol. 11. 513-519 (1997)

[Publications] K.Koshida, K.Yokoyama, T.Uchibayashi, H.Yamamoto, K.Hirano, M.Namiki: "Factors contributing to imaging of xenografts using anti-placental alkaline phosphatase monoclonal antibody." J Urol. 157. 1941-1945 (1997)

[Publications] T.Kobayashi, K.Koshida, Y.Endo, T.Imao, T.Uchibayashi, T.Sasaki, M.Namiki: "A chick embryo model for metastatic human prostate cancer." Eur Urol. 34. 154-160 (1998)

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