

Adoptive Immunotherapy for Malignant Brain Tumors Using Killer T Lymphocytes Enhanced by Interferon Gamma Gene Transfer

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Adoptive Immunotherapy for Malignant Brain Tumors Using Killer T Lymphocytes Enhanced by Interferon Gamma Gene Transfer

Research Project

Project/Area Number

62480307

Research Category

Grant-in-Aid for General Scientific Research (B)

Allocation Type

Single-year Grants

Research Field

Cerebral neurosurgery

Research Institution

Kanazawa University (1988-1989)
Kyoto University (1987)

Principal Investigator

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Keywords

Interferon gamma / Gene transfer / Retroviral vector / Gytotoxic T lymphocytes / Major histocompatibility complex / Immunotherapy / Brain neoplasms

Research Abstract

A mouse interferon (IFN) gamma cDNA was transferred to mouse neuroblastoma cell line, C1300 of A/Jax origin, with a chimeric retrovirus containing the IFN gamma gene. Two infected subclones C-gamma-3 and C-gamma-22 were obtained as a low and a high producers, respectively. These subclones were similar to the original clone in respects of in vitro growth pattern, morphology, and antigen expression of neurofilaments, except the expression of major histocompatibility complex (MHC) class I antigens, which were extremely augmented at the surface expression level as well as at the transcription level, regardless the difference in amount of their IFN-gamma production. The in vivo tumorigenicity was reduced in the high producer, C-gamma-22, but not in the low producer, C-gamma-3. The in vivo tumor growth rate was suppressed in both subclones, as compared to the parental line. It was therefore

suggested that the suppression of tumor formation is more closely associated with constitutive IFN-gamma production rather than the MHC antigen expression, and that the tumor growth rate is affected by the high expression of the surface antigens. As a next step, the cDNA encoding mouse IFN-gamma was transferred into a specific cytotoxic T lymphocyte (CTL) clone, designated E-4, against 203-glioma (a 20-methylcholanthrene-induced glioma line of C57/BL mouse origin). The efficacy of IFN-gamma production from the exogenous gene on augmentation of tumor targeting was confirmed. Out of five, two gene-transferred subclones constitutively produced 8 to 10 times higher amount of IFN-gamma as compared with the parental E-4. Correspondingly, these two subclones exhibited 2 to 3 times higher killing activity against 203-glioma as compared with the parental line. It was thought that tumor cells, in the vicinity of the constitutively IFN-gamma-producing CTLs, may be stimulated to induce or enhance the expression of surface antigens, including the MHC antigens as well as the tumor associated antigens relevant to immune recognition. In summary, it was hopefully suggested that retrovirus-mediated transfer of cytokine genes would be useful for a modified immunotherapy of cancer.▲ Less

Research Products (39 results)

All Other

All Publications (39 results)

- [Publications] Yamashita J,Handa H: "Importance of extensive tumor removal in the treatment of medulloblastomas." Proceedings of the First International Symposium on Pediatric. 102-103 (1987) ▼
- [Publications] 山下純宏: "informixによるデータベース管理,脳腫瘍患者管理データベースの紹介" 月刊メディカルパソコン. 2. 137-148 (1987) ▼
- [Publications] 山下純宏,菊池晴彦,藤沢一郎: "特集:脳腫瘍の画像診断,視床下部・下垂体近傍腫瘍のMRI" 臨床画像. 3. 28-39 (1987) ▼
- [Publications] 山下純宏,徳力康彦,菊池晴彦: "がんの脳転移" Mebio. 4. 11-19 (1987) ▼
- [Publications] 山下純宏: "Phacomatosisの画像診断" Clin Neurosci. 5. 1028-1031 (1987) ▼
- [Publications] 山下純宏: "脳腫瘍の腫瘍マーカー" Geriat Med. 25. 1673-1677 (1987) ▼
- [Publications] Yamagami T,Handa H,Yamashita J,Okumura T,Paine J,Haebara H,Furukawa F: "An immunohistochemical study of intracranial germ cell tumours" Acta Neurochir. 86. 33-41 (1987) ▼
- [Publications] 石川正恒,菊池晴彦,山下純宏: "Gliomatosis cerebriの1例" 北野病院紀要(荒木千里記念大阪脳外科症例検討会記録). 32. 166-170 (1987) ▼
- [Publications] 山本章代,徳力康彦,山下純宏,菊池晴彦,米川泰弘: "中頭蓋窩に発生したchondroblastomaの1例" 北野紀要. 32. 103-108 (1987) ▼
- [Publications] 森竹造三,山下純宏: "体内埋込式薬剤注入ポンプ(infusaid)" Clin Neurosci. 5. 351 (1987) ▼
- [Publications] 石川正恒,米川泰弘,山下純宏,滝和郎,小林映,鳥塚莞爾,棚田修二,米倉義晴,千田道雄,西沢貞彦,福山秀直: "123I-iodoamphetamineの臨床的有用性" CT研究. 9. 17-25 (1987) ▼
- [Publications] 橋本信夫,山下純宏,山上達人,小島正行,半田肇,加藤譲,竹内重二: "GH産生腫瘍の長期治療成績" 第5回下垂体腫瘍Workshop講演集(1986.1.23). 91-93 (1987) ▼
- [Publications] 平井収,菊池晴彦,山下純宏: "MRI,X線CTからみた髄膜腫の硬さ" CT研究. 9. 579-583 (1987) ▼
- [Publications] 奥村禎三,山下純宏,徳力康彦,半田肇,岩川精吾,塚本豊久,奥村勝彦,堀了平: "ACNU動注療法における薬物動態について" Neurol Med Chir. 27. 491-487 (1987) ▼
- [Publications] 山本章代,徳力康彦,山下純宏,菊池晴彦,米川泰弘: "中頭蓋窩に発生したchondrosarcomaの1例" 北野病院紀要. 32. 103-108 (1987) ▼
- [Publications] Yamashita J,Handa H: "Diagnosis and treatment of pineal tumours.Kyoto University experience(1941-1984)" Acta Neurochir. 42. 137-141 (1988) ▼
- [Publications] Yamasaki T,Kikuchi H,Yamashita J,Handa H,Kuwata S,Taguchi M,Namba Y,Hanaoka M: "Immunoregulatory effects of interleukin 2 and interferon on syngeneic murine malignant glioma-specific cytotoxic T-lymphocytes." Cancer Res. 48. 2981-2987 (1988) ▼
- [Publications] Miyatake S,Kikuchi H,Iwasaki K,Yamashita J,Zu-You Li,Namba Y,Hanaoka M: "Specific cytotoxic activity of T lymphocyte clones derived from a patient with gliosarcoma" J Neurosurg. 69. 751-759 (1988) ▼

- [Publications] 奥村禎三,山下純宏,徳力康彦,菊池晴彦,織田祥史,半田肇: "浸潤能からみた脳腫瘍細胞の動態…Invasion testによるヒト脳腫瘍87例の検討" *Neurol Med Chir(Tokyo)*. 28. 436-441 (1988) ▼
- [Publications] 石川正恒,菊池晴彦,山下純宏,西沢貞彦,米倉義晴,小西淳二: "グリオ-マにおける局所ブドウ糖代謝と主要内血流量、血液量の検討" *CT研究*. 10. 687-696 (1988) ▼
- [Publications] 山本章代,徳力康彦,山下純宏,岩崎孝一,菊池晴彦: "頭蓋内伸展を示したchondroblastomaの1例" *脳神経外科*. 16. 1095-1099 (1988) ▼
- [Publications] 平井収,菊池晴彦,山下純宏: "血管撮影上著明な腫瘍陰影を呈した傍鞍部脊索腫の1例" *脳神経外科*. 16. 757-761 (1988) ▼
- [Publications] 宮武伸一,岩崎孝一,山下純宏,菊池晴彦,難波雄二郎,渡部好彦,花岡正男: "IFN- β による腫瘍抗原発現の調節" *Biotheray*. 2. 25-29 (1988) ▼
- [Publications] 山下純宏: "転移性脳腫瘍の手術適応" *日本医事新報*. 3386. 131 (1989) ▼
- [Publications] 山下純宏,石川正恒,菊池晴彦(分担執筆): "PET「図解臨床癌シリーズNo.15脳腫瘍」" メジカルビュー社, (1987) ▼
- [Publications] 石田陽一,影山直樹,高倉公明,吉田純,河本圭司,山下純宏(共編): "「脳腫瘍病理カラ-アトラス」" 医学書院, (1987) ▼
- [Publications] 山下純宏(分担執筆): "Astroblastoma「脳腫瘍病理カラ-アトラス」" 医学書院, (1988) ▼
- [Publications] 山下純宏(分担執筆): "Epidermoid and dermoid cyst「脳腫瘍病理カラ-アトラス」" 医学書院, (1988) ▼
- [Publications] 山下純宏,菊池晴彦(分担執筆): "松果体部腫瘍:Infratentorial supracerebellar approach「脳神経外科疾患の手術とその適応」" 朝倉書店, (1988) ▼
- [Publications] 杉浦和朗,塚本泰,馬杉則彦,馬場元毅,山下純宏(共著): "「脳神経外科の看護」" 医歯薬出版, (1988) ▼
- [Publications] Yamashita J: "Importance of extensive tumor removal in the treatment of medulloblastomas." 102-103 (1987) ▼
- [Publications] Yamagami T: "An immunohistochemical study of intracranial germ cell tumors." *Acta Neurochirur*. 42. 137-141 (1988) ▼
- [Publications] Yamasaki T: "Immunoregulatory effects of interleukin 2 and interferon on syngeneic murine malignant glioma-specific cytotoxic T-lymphocytes." *Cancer Res*. 48. 2981-2987 (1988) ▼
- [Publications] Miyatake S: "Specific cytotoxic activity of T lymphocyte clones derived from a patient with gliosarcoma" *J Neurosurg*. 69. 751-759 (1988) ▼
- [Publications] Miyatake S: "Augmentation of therapeutic potential of glioma specific cytotoxic T-lymphocytes by retroviral expression of IFN gamma cDNA." *Cancer Res*. (1989) ▼
- [Publications] Shibamoto Y: "Treatment of intracranial germinoma as a function of the irradiated volume" *Int J Radiation Oncology Biol Phys*. 15. 285-290 (1988) ▼
- [Publications] Shibamoto Y: "Improvements in the treatment results of primary intracranial non-Hodgkin's lymphoma" *Int J Radiology Oncology Biol Phys*. 15. 227 (1988) ▼
- [Publications] Mutoh K: "Ipsilateral atrophy in children with hemispheric cerebral tumors: CT findings" *J Comput Assist Tomogr*. 12. 740-743 (1988) ▼
- [Publications] Nishihara K: "Effects of transferred mouse IFN-gamma cDNA in cytotoxic T lymphocyte for mouse glioma cell line by using retrovirus vector" *Cancer Res*. (1989) ▼

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