

# Inhibition of Gene Expression from the Human c-erb B Gene Promoter by a Retroviral Vector Expressing Anti-gene RNA

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# 1996 Fiscal Year Final Research Report Summary

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## Inhibition of Gene Expression from the Human c-erb B Gene Promoter by a Retroviral Vector Expressing Anti-gene RNA

Research Project

### Project/Area Number

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07457310

### Research Category

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Grant-in-Aid for Scientific Research (B)

### Allocation Type

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Single-year Grants

### Section

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一般

### Research Field

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Cerebral neurosurgery

### Research Institution

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KANAZAWA UNIVERSITY

### Principal Investigator

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### Project Period (FY)

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1995 - 1996

### Keywords

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triple stranded DNA / anti-gene strategy / retrovirus vector / c-erb B gene / glioma

## Research Abstract

Anti-gene is a potent inhibitor of transcriptional promoter activity and subsequent gene expression. Since the number of copies of DNA is much fewer than those of transcribed mRNA, anti-gene oligonucleotides targeted against the promoter region would have an advantage over antisense oligonucleotides with an mRNA as a target. This property has been exploited to suppress the expression of a variety of oncogenes for regulating tumor proliferation or viral activities. We developed a novel retroviral vector designed to express human c-erb B anti-gene RNA and to reduce the promoter activity in the cells. Mouse fibroblast NIH3T3 cells were stably transfected with an expression construct containing a truncated human c-erb B gene promoter fused to the firefly luciferase reporter gene. Addition to these cells of the c-erb B anti-gene retroviral vector targeted to the 26 bp pyrimidine-rich element in the human c-erb B gene promoter resulted in a dose-dependent decrease in the luciferase activity of the cells. The results suggest that the reduction of the luciferase activity is due to the effect of the transcribed human c-erb B anti-gene RNA on initiation of transcription of the luciferase gene. The anti-gene RNA produced by a retroviral vector is expected to suppress the expression of an appropriate oncogene and to retard the growth of tumor cells in vivo.

## Research Products (18 results)

All Other

All Publications (18 results)

- [Publications] Yamashita J, Okada T, 他: "Occult intrasacral meningocele associated with spina bifida : A case report" *Surg Neurol.* 46. 147-149 (1996) ▼
- [Publications] Fueki T, Sugiura S, Yamaguchi K, 他: "Open strands adjacent to iterons promote the binding of the replication initiation protein (Rep) of pSC101 to the unit sequence of the iterons in vitro" *Biochemica et Biophysica Acta.* 1305. 181-188 (1996) ▼
- [Publications] Yamashita J, Yamashita T, 他: "Transient brain ischemia provokes Ca<sup>2+</sup>, PIP<sub>2</sub> and calpain responses prior to delayed neuronal death in monkeys" *Eur J Neurosci.* 8. 1932-1944 (1996) ▼
- [Publications] Yamashita J, Kohda Y, 他: "Dynamic changes of cathepsins B and L expression in the monkey hippocampus after transient ischemia" *Biochem Biophys Res Comm.* 228. 616-622 (1996) ▼
- [Publications] Yamashita J, Kawamura T, 他: "Whole-cell analysis of NGK2 (mKv3.1a) K<sup>+</sup> channels stably expressed in mouse fibroblast cells" *Neuroscience Letters.* 197. 164-168 (1996) ▼
- [Publications] Yamashita J, Sakuda K, 他: "Expression of NF2 gene product merlin in arachnoid villi and meningiomas" *Brain Tumor Pathol.* 13. 145-148 (1996) ▼
- [Publications] 山下純宏、山嶋哲盛, 他: "髄膜腫 最新内科学大系72 : 脳脊髄の腫瘍、外傷、奇形、脊椎異常II" 中山書店, 26-36, (1996) ▼
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- [Publications] Yamashita T, Saido T, Takita M, Miyazawa A, Yamano J, Miyakawa A, Nishijo H, Yamashita J, Kawashima S, Ono T, Yoshioka T: "Transient brain ischemia provokes Ca<sup>2+</sup>, PIP<sub>2</sub> and calpain responses prior to delayed neuronal death in monkeys" *Eur J Neurosci.* 8. 1932-1944 (1996) ▼
- [Publications] Okada T, Imae S, Igarashi S, Koyama T, Yamashita J: "Occult intrasacral meningocele associated with spina bifida : A case report" *Surg Neurol.* 46. 147-149 (1996) ▼
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- [Publications] Sakuda K, Kohda Y, Matsumoto T, Park C, Seto A, Tohma Y, Hasegawa M, Kida S, Nitta H, Yamashita T, Yamashita J: "Expression of NF2 gene product merlin in arachnoid villi and meningiomas" *Brain Tumor Pathol.* 13. 145-148 (1996) ▼
- [Publications] Park C, Tachibana O, Okamoto Y, Hayashi Y, Yamashita T, Yamashita J: "Induction of apoptosis in malignant glioma cells by anti-Fas antibody" In Nagai M (ed) : *Brain tumor Research and Therapy, Springer-Verlag, Tokyo.* 293-301 (1996) ▼

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