神経膠芽腫浸潤に関与する蛋白分解酵素と細胞外基質のクロストーク及び転写因子の解析

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	作成者: 渡邉, 卓也, Watanabe, Takuya
	メールアドレス:
	所属:
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2005 Fiscal Year Final Research Report Summary

Analysis of transcription factors and of crosstalk between proteinase and extracellular matrix that are related to invasive process of glioblastoma

Research Project

Project/Area Number

15390431

Research Category

Grant-in-Aid for Scientific Research (B)

Allocation Type

Single-year Grants

Section

一般

Research Field

Cerebral neurosurgery

Research Institution

Department of Neurosurgery, Graduate School of Medical Science, Kanazawa University, Kanazawa

Principal Investigator

WATANABE Takuya Kanazawa University, Department of Neurosurgery, Graduate School of Medical Science, Assistant, 医学系研究科, 助手 (90399775)

Project Period (FY)

2003 – 2005

Keywords

glioma invasion / matrix metalloproteinase / extracellular matrix / Testican / Crk 1 / Apaf-1 / TP53 / ADAMTS

Research Abstract

Our main purpose is to analyze interaction between proteinase and extracellular matrix on glioma invasion.
In the year of 2003, we published a review on relationship between matrix metalloproteinase and glioma invasion. We had cloned N-Tes (Patented in 2001), which belongs Testican family and inhibits glioma invasion previously. In addition to this, we found other Testican family (Testican-1 and 3) also suppress invasion of glioma, while Testican-2 contributes invasive activity. Then, we reported that phosphorylation of an adapter protein of Crk I is related to glioma invasion. We also reported that low expression level of Apaf-1 which is an apoptosis inducing protein is related to loss of heterozygosity on chromosome 12 in glioblastoma.
In the year of 2004, we reported that almost all the glioblastoma originated from basal ganglia has mutation in TP53 gene.
In the year of 2005, we reported that ADAMTS-5,which belongs to ADAMTS family metalloproteinase, is highly expressed in glioblastoma. We also found ADAMTS-5 can degrade brevican which is the most abundant extracellular matrix in brain. In addition to this, we reported that cyclin D1 is related to good prognosis in medulloblastoma and that cyclin D1 is also highly expressed in atypical teratoid/rhabdoid tumor. Then, we edited a book titled, "Brain Tumor Surgery- new strategy based on biological behavior of brain tumors", containing 47 articles of current knowledge on brain tumor therapy.

These results are quite fruitful, since we have added some important knowledge on mechanism of invasive process and genetic mutation in glioblastoma, which is the most lethal of brain tumor.

Research Products (28 results)

All | 2006 | 2005 | 2004 | 2003

All | Journal Article | Book

[Journal Article] Differential neurogenic potential of progenitor cells in dentate gyrus and CA1 sector of the postischemic adult monkey hippocampus. 2006

[Journal Article] Transcription factor protein expression patterns by neural or neuronal progenitor cells of adult monkey subventricular zone 2006

[Journal Article] Surgical pathology of spinal schwannoma : has the nerve of its origin been preserved or already degenerated during tumor growth? 2005

[Journal Article] Cyclin D1 is overexpressed in atypical teratoid/rhabdoid tumor with hSNF5/INI1 gene inactivation 2005

[Journal Article] Correlation of gamma-catenin expression with good prognosis in medulloblastomas 2005

[Journal Article] Human glioblastomas overexpress ADAMTS-5 that degrades brevican 2005

[Journal Article] LOH 1p,19qに基づいたoligodendroglial tumorの治療戦略 2005

[Journal Article] テント上脳実質内腫瘍手術におけるnavigation system下fence-post catheter法の有用性 2005

[Journal Article] Enhanced proliferation of progenitor cells in the subventricular zone and limited neuronal production in the striatum and neocortex of adult macaque monkeys after global cerebral ischemia. 2005

[Journal Article] Neuroprotective effects of minocycline against in vitro and in vivo retinal ganglion cell damage. 2005

[Journal Article] Minocycline inhibits oxidative stress and decreases in vitro and in vivo ischemic neuronal damage. 2005

[Journal Article] Cyclin D1 is overexpressed in atypical teratoid/rhabdoid tumor with hSNF5/INI1 genes inactivation. 2005

[Journal Article] Correlation of gamma-catenin expression with good prognosis in medulloblastomas. 2005

[Journal Article] Human glioblastomas overexpress ADAMTS-5 that degrades brevican. 2005

[Journal Article] Therapeutic strategy of oligodendroglioma based on LOH 1p and 19q. 2005

[Journal Article] Catheter guided brain tumor surgery (fence-post catheter technique) using navigation system, especially on supratentorial intra-axial tumors. 2005

[Journal Article] Molecular genetic analysis of deep-seated glioblastomas 2004

[Journal Article] Autologous amnion graft for repair of myelomeningocele : technical note and clinical implication 2004

[Journal Article] Autologous amnion graft for repair of myelomeningocele : technical note and clinical implication. 2004

[Journal Article] Oxidized galectin-1 stimulates the migration of Schwann cells from both proximal and distal stumps of transected nerves and promotes axonal regeneration after peripheral nerve injury 2003

[Journal Article] Testican 2 abrogates inhibition of membrane-type matrix metalloproteinases by other testican family proteins. 2003

[Journal Article] CrkI adapter protein modulates cell migration and invasion in glioblastoma. 2003

[Journal Article] Frequent LOH at chromosome 12q22-23 and Apaf-1 inactivation in glioblastoma. 2003

[Journal Article] The role of matrix metalloproteinases in glioma invasion 2003

[Journal Article] Molecular analysis of the rhabdoid predisposition syndrome in a child : a novel germline hSNF5/INI1 mutation and absence of c-myc amplification 2003

[Journal Article] Oxidized galectin-1 stimulates the migration of Schwann cells from both proximal and distal stumps of transected nerves and promotes axonal regeneration after peripheral nerve injury. 2003

[Book] 脳腫瘍の外科-Biological behaviorにのっとった新しい治療戦略- 2005

[Book] Brain Tumor Surgery-new strategy based on biological behavior of brain tumors- 2005

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