

# The analysis of transcription factor and ECM degradation enzyme associated with invasion of glioblastoma

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# 2002 Fiscal Year Final Research Report Summary

The analysis of transcription factor and ECM degradation enzyme associated with invasion of glioblastoma

Research Project

## Project/Area Number

13470290

## Research Category

Grant-in-Aid for Scientific Research (B)

## Allocation Type

Single-year Grants

## Section

一般

## Research Field

Cerebral neurosurgery

## Research Institution

Kanazawa University

## Principal Investigator

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## Co-Investigator(Kenkyū-buntansha)

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## Project Period (FY)

2001 – 2002

## Keywords

glioblastoma / invasion / MMP / testican / ECM

## Research Abstract

Proteolytic extracellular matrix (ECM) degradation is a key step in glioblastoma invasion. Although various proteinases are involved in the process, members of matrix metalloproteinases (MMPs), especially MMP-2, may play a central role in the degradation. To exert its enzymatic activity, pro-MMP-2 requires proteolytic activation by membrane-type MMPs (MT-MMPs) such as MT1-MMP. In the present study, we have screened a human fetal cDNA library by expression cloning for the regulator of pro-MMP-2 processing mediated by MT1-MMP and isolated a cDNA whose product interfered with pro-MMP-2 activation. It encodes N-terminal 313 amino acids regions of testican 3, and thus it was named N-Tes. Expression of testican 1 and testican 3 but not testican 2 also inhibited pro-MMP-2 activation by MT1-MMP. Deletion and substitution of amino acids residues in N-Tes revealed that N-terminal 110 amino acid region of N-Tes is enough for the inhibition of pro-MMP-2 activation by MT1-MMP. In addition, we showed

## Research Products (12 results)

		All	Other
		All	Publications (12 results)
[Publications]	Nakada M: "The role of matrix metalloproteinase on glioma invasion"Frontiers in Bioscience. (in press).		▼
[Publications]	Nakada M: "Suppression of membrane-type 1 matrix metalloproteinase(MMP)-mediated MMP-2 activation and tumor invasion by testican 3 and its splicing variant gene product, N-Tes"Cancer Research. 61. 8896-8902 (2001)		▼
[Publications]	Kita D: "Expression of dominant negative form of Ets-1 suppresses fibronectin-stimulated cell adhesion and migration through down-regulation of integrin α5 expression in U251 glioma cell line"Cancer Research. 61. 7985-7991 (2001)		▼
[Publications]	Nakada M: "Roles of membrane type 1 matrix metalloproteinase and tissue inhibitor of metalloproteinases 2 in invasion and dissemination of human malignant glioma"Journal of Neurosurgery. 94. 464-473 (2001)		▼
[Publications]	Misaki K: "Contrast-enhanced fluid-attenuated inversion-recovery MRI is useful to detect the CSF dissemination of glioblastoma"Journal of Computer Assisted Tomography. 25. 953-956 (2001)		▼
[Publications]	中田光俊: "MT1-MMP制御分子;N-Tesの同定とグリオーマ浸潤抑制効果の解析"ポストシークエンス時代における脳腫瘍の研究と治療. 119-127 (2002)		▼
[Publications]	Nakada M., Miyamori H., Yamashita J., Hiroshi Sato: "Testican 2 abrogates inhibition of membrane-type matrix metalloprotemases by other testican family proteins."Cancer Res. in submission		▼
[Publications]	Nakada M., Okada Y., Yamashita J.: "The role of matrix metalloproteinase on glioma invasion"Frontiers in Bioscience. in press		▼
[Publications]	Nakada M., Yamada A., Takino T., Miyamori H., Takahashi T., Yamashita J., Sato H.: "Suppression of membrane-type 1 matrix metalloproteinase (MMP)-mediated MMP-2 activation and t**or invasion by testican 3 and its splicing variant gene product, N-Tes."Cancer Res. 61. 8896-8902 (2001)		▼
[Publications]	Nakada M., Kita D., Futami K., Yamashita J., Fujimoto N., Sato H., Okada Y.: "Roles of membrane type 1 matrix metalloproteinase and tissue inhibitor of metalloproteinases 2 in invasion and dissemination of human malignant glioma."J Neurosurg. 94. 464-473 (2001)		▼
[Publications]	Kita D., Takino T., Nakada M., Takahashi T., Yamashita J., Sato H.: "Expression of dominant negative form of Ets-1 suppresses fibronectin-stimulated cell adhesion and migration through down-regulation of integrin α5 expression in U251 glioma cell line."Cancer Res. 61. 7985-7991 (2001)		▼
[Publications]	Misaki K., Nakada M., Hayashi Y., Tachibana O., Yamashita J., Ueda F., Suzuki M.: "Contrast-enhanced fluid-attenuated inversion-recovery MRI is useful to detect the CSF dissemination of glioblastoma."J Comput Assist Tomogr. 25. 953-956 (2001)		▼

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