

# Distinct Pattern of Oncogenic $\beta$ -catenin Activation in Colorectal Cancer

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# 2002 Fiscal Year Final Research Report Summary

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## Distinct Pattern of Oncogenic $\beta$ -catenin Activation in Colorectal Cancer

Research Project

### Project/Area Number

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13671289

### Research Category

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Grant-in-Aid for Scientific Research (C)

### Allocation Type

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Single-year Grants

### Section

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一般

### Research Field

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Digestive surgery

### Research Institution

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Kanazawa University

### Principal Investigator

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### Co-Investigator(Kenkyū-buntansha)

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### Project Period (FY)

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2001 – 2002

### Keywords

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Colorectal cancer / Oncogene /  $\beta$ -catenin / Oncogenic signaling / Molecular diagnosis / APC / K-ras /  $\beta$ TrCP

### Research Abstract

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It is fairly far from our expectation at the time when  $\beta$ -catenin was first identified as one of the key molecules in cell adhesion machinery that it is in central in the Wnt/  $\beta$ -catenin/Tcf signaling pathway, which plays pivotal roles in normal embryonic development and differentiation and in malignant transformation of cells. Different mechanisms underlie oncogenic  $\beta$ -catenin activation ; i.e., mutations in its phospho-acceptor sites, failure to recruit GSK3 $\beta$  because of APC mutation, or inhibition of GSK3 $\beta$  activity by Wnt-secreted proteins or PI3K/Akt signaling ; a consequence of them is abrogation of  $\beta$ -catenin phosphorylation. This leads to stabilization of  $\beta$ -catenin and its translocation to the nucleus where it exerts oncogenic activities by transactivating certain effector genes including c-myc, cyclin D1, and MMP-7.

Unlike extensive characterization of K-ras that is another oncogene of great interest, many studies to clarify basic mechanisms of  $\beta$ -catenin's oncogenic functions have been c... More

## Research Products (26 results)

	All	Other
	All Publications (26 results)	
[Publications] Ronai Z, Minamoto T.: "Early detection of gene mutation in cancer diagnosis"Principle and Practice of Oncology. 15 · 1. 1-16 (2001)		▼
[Publications] Buschmann T, Minamoto T, et al.: "Jun NH2-terminal kinase phosphorylation of p53 on Thr-81 is important for p53 stabilization and transcriptional activities in response to stress"Molecular and Cellular Biology. 21 · 8. 2743-2754 (2001)		▼
[Publications] Minamoto T, Buschmann T, et al.: "Distinct pattern of p53 phosphorylation in human tumors"Oncogene. 20 · 26. 3341-3347 (2001)		▼
[Publications] Ougolkov AV, Minamoto T, et al.: "Abnormal expression of E-cadherin, $\beta$ -catenin and c-erbB-2 in advanced gastric cancer : its association with liver metastasis"Proceedings of 4 <sup>th</sup> International Gastric Cancer Congress, Monduzzi Editore S. p. A., Medimond Inc., Bologna. 765-770 (2001)		▼
[Publications] Minamoto T, Ronai Z.: "Gene mutation as target for early detection in cancer diagnosis"Critical Review in Oncology and Hematology. 40 · 3. 195-213 (2001)		▼
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[Publications] Hirano K, Mianamoto T, et al.: "Non-Hodgkin's lymphoma in a patient with probable hereditary nonpolyposis colorectal cancer. Report of a case and review of the literature"Disease of the Colon & Rectum. 45 · 2. 273-279 (2002)		▼
[Publications] Ougolkov AV, Minamoto T, et al.: "Abnormal expression of E-cadherin, $\beta$ -catenin and c-erbB-2 in gastric cancer with liver metastasis"International Journal of Colorectal Diseases (Clinical and Molecular Gastroenterological Surgery). 18 · 2. 160-166 (2002)		▼
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