

# Establishment of tumor maker test using tumor-derived nucleic acids in plasma

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# 2003 Fiscal Year Final Research Report Summary

## Establishment of tumor maker test using tumor-derived nucleic acids in plasma

Research Project

### Project/Area Number

14572177

### Research Category

Grant-in-Aid for Scientific Research (C)

### Allocation Type

Single-year Grants

### Section

一般

### Research Field

Laboratory medicine

### Research Institution

KANAZAWA UNIVERSITY

### Principal Investigator

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### Project Period (FY)

2002 - 2003

### Keywords

Plasma DNA / PCR / Immunoglobulin gene / CDR3 / NHL

### Research Abstract


In B cell lymphoid malignancies, malignant cells proliferate monoclonally with the same immunoglobulin gene rearrangement. This rearrangement can be detected by the use of the polymerase chain reaction (PCR). Recently, it has been reported that proliferation of clonal cells could be demonstrated by PCR analyzing DNA extracted from patients' plasma with B cell malignancies. The question, however, still remains whether amplified products were derived from tumor cells or not. In this study, using DNA extracted from both malignant cells and plasma of the same patients with B cell leukemia, I attempted to amplify immunoglobulin heavy chain (IgH) complementarity determining region 3 (CDR3) by semi-nested PCR and to analyze the sequences respectively. The results showed that sequences of DNA from plasma were identical with that of DNA from tumor cells in all cases. In addition, some of them showed homology to CDR3 that was previously reported. These findings indicate that plasma DNA is


released from tumor cells. In the next stage, it is necessary to raise the sensitivity, and if it works, IgH-PCR using plasma DNA might be useful tool for diagnosing patients and evaluating the efficacy of treatment, especially in patients with critical condition under which any biopsies were difficult.


## Research Products (14 results)


All Other

All Publications


[Publications] Zhu J, Okumura H, Ohtake S et al.: "The molecular mechanism of arsenic trioxide-induced apoptosis and oncosis in leukemia/lymphoma cell lines"Acta Haematol.. 110. 1-10 (2003) 


[Publications] Suzuki R, Ohtake S, et al.: "Prognostic significance of CD7+CD56+ phenotype and chromosome 5 abnormalities for acute myeloid leukemia MO."Int J Hematol.. 77. 482-489 (2003) 

[Publications] Zhu J, Okumura H, Ohtake S et al.: "Arsenic trioxide induces apoptosis in leukemia/lymphoma cell lines via the CD95/CD95L system"Oncol Rep.. 10. 705-709 (2003) 


[Publications] Miyazaki Y: "Cytogenetic heterogeneity of acute myeloid leukaemia (AML) with trilineage dysplasia : Japan Adult Leukaemia Study Group-AML 92 study"Br J Haematol. 120. 56-62 (2003) 


[Publications] Ohtake S: "Chronic myelogenous leukemia with p190BCR-ABL expression : the missing link with monocytosis"Intern Med. 41. 1092-1093 (2002) 


[Publications] Terasaki Y Okumura H, Ohtake S, et al.: "Accelerated telomere length shortening in granulocytes. A diagnostic marker for myeloproliferative diseases"Exp Hematol. 30. 1399-1404 (2002) 


[Publications] 大野 竜三, 大竹茂樹, 他: "白血病・悪性リンパ腫治療プロトコール集"医薬ジャーナル社. 187 (2003) 


[Publications] Ohtake S: "Chronic myelogenous leukemia with p190BCR-ABL expression : the missing link with monocytosis."Intern Med.. 41(12). 1092-1093 (2002) 


[Publications] Terasaki Y, Okumura H, Ohtake S, Nakao S.: "Accelerated telomere length shortening in granulocytes. A diagnostic marker for myeloproliferative diseases."Exp Hematol.. 30(12). 1399-1404 (2002) 

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[Publications] Suzuki R, Ohtake S, et al.: "Prognostic significance of CD7+CD56+ phenotype and chromosome 5 abnormalities for acute myeloid leukemia MO."Int J Hematol.. 77(5). 482-489 (2003) 

[Publications] Zhu J, Okumura H, Ohtake S, et al.: "The molecular mechanism of arsenic trioxide-induced apoptosis and oncosis in leukemia/lymphoma cell lines."Acta Haematol.. 110(1). 1-10 (2003) 

[Publications] Ozaki J, Okumura H, Ohtake S, et al.: "Refractory Crow-Fukase Syndrome (POEMS Syndrome)Successfully Treated with High-Dose Melphalan followed by Autologous Peripheral Blood Stem Cell Transplantation."Int J Hematol.. 79(1). 95-99 (2004) 

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