

# 抗造血幹細胞抗体の検出による自己免疫性骨髄不全の診断法の確立

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# 2003 Fiscal Year Final Research Report Summary

## Establishment of a diagnostics of autoimmune bone marrow failure by means of examination of antibody to hematopoietic stem Cells

Research Project

### Project/Area Number

14570969

### Research Category

Grant-in-Aid for Scientific Research (C)

### Allocation Type

Single-year Grants

### Section

一般

### Research Field

Hematology

### Research Institution

Kanazawa University

### Principal Investigator

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### Project Period (FY)

2002 - 2003

### Keywords

autoantibody / aplastic anemia / PNH / DR15 / DRS-1 / helper T-cell / SEREX / MDS

### Research Abstract

To identify candidate antigens in aplastic anemia (AA), we screened proteins derived from a leukemia cell line with serum of an AA patient and identified diazepam-binding inhibitor-related protein I (DRS-1). Enzyme-linked immunosorbent assay (ELISA) revealed high titers of anti-DRS-1 antibodies (DRS-1 Abs) in 27 (38.0%) of 71 AA patients displaying increased paroxysmal nocturnal hemoglobinuria (PNH)-type cells (PNH+), 2 (6.3%) of 32 PNH- AA patients, 5 (38.5%) of 13 PNH+ myelodysplastic syndrome (MDS) patients, and none of 42 PNH- MDS patients. DRS-1 gene was abundantly expressed in myeloid leukemia cell lines and in CD34+ cells derived from healthy individuals. Stimulation of T cells from an AA patient displaying high DRS-1 Abs with a putative CD4+ T-cell epitope (amino acid residues [aa's] 191-204) presented by HLA-DRI5, which overlapped with a hot spot (aa's 173-198) of DRS-1 Ab epitopes, gave rise to T cells cytotoxic for L cells (murine fibroblasts) that were

transfected with DRB 1<sup>^</sup>\*1501 and DRS-1. Enzyme-linked immunospot assay demonstrated increased frequency of T-cell precursors specific to the DRS-1 peptide in other HLA-DR15+ AA patients displaying high DRS-1 Ab titers. These findings indicate that DRS-1 may serve as an autoantigen eliciting immune attack against hematopoietic stem cells in a subset of AA patients characterized by increased PNH-type cells.

## Research Products (6 results)

All 2004 2003 2002

All Journal Article

[Journal Article] Diazepam-binding inhibitor protein 1 : a candidate autoantigen in acquired aplastic anemia patients harboring a minor population of paroxysmal nocturnal hemoglobinuria-type cells 2004 ▾

[Journal Article] Diazepam-binding inhibitor protein 1 : a candidate autoantigen in acquired aplastic anemia patients harboring a minor population of paroxysmal nocturnal hemoglobinuria-type cells 2004 ▾

[Journal Article] Polyclonal hematopoiesis maintained in patients with bone marrow failure harboring a minor population of paroxysmal nocturnal hemoglobinuria-type cells 2003 ▾

[Journal Article] Polyclonal hematopoiesis maintained in patients with bone marrow failure harboring a minor population of paroxysmal nocturnal hemoglobinuria-type cells 2003 ▾

[Journal Article] Clinical significance of a minor population of paroxysmal nocturnal hemoglobinuria-type cells in bone marrow failure syndrome 2002 ▾

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