

# 新生児NaiveT細胞の機能的特異性とMemoryT細胞への分化・成熟

著者	宮脇 利男
著者別表示	Miyawaki Toshio
雑誌名	平成3(1991)年度 科学研究費補助金 一般研究(B) 研究成果報告書概要
巻	1990 1991
ページ	2p.
発行年	1993-03-15
URL	<a href="http://doi.org/10.24517/00067312">http://doi.org/10.24517/00067312</a>



# 1991 Fiscal Year Final Research Report Summary

## Functional Characteristics of Neonatal Naive T cell and Their Maturation into Memory T cell

Research Project

### Project/Area Number

02454268

### Research Category

Grant-in-Aid for General Scientific Research (B)

### Allocation Type

Single-year Grants

### Research Field

Pediatrics

### Research Institution

Kanazawa University

### Principal Investigator

**MIYAWAKI Toshio** Kanazawa University Hospital Assistant Professor, 医学部附属病院, 講師 (10143885)

### Co-Investigator(Kenkyū-buntansha)

TANIGUCHI Noboru Kanazawa University School of Medicine Professor, 医学部, 教授 (10019888)

### Project Period (FY)

1990 – 1991

### Keywords

Neonatal T cells / Naive T cells / Memory T cells / CD45 isoforms / Tgammadelta<sup>+</sup> cells / Interleukin-6 / Cytokines / T cell activation

### Research Abstract

Naive and memory T cell populations can be discriminated by differential expression of CD45 isoforms. These studies were undertaken to elucidate some functional characteristics of neonatal inherently naive T cells and their maturation steps into memory T cells following increased antigenic exposure after birth. Obtained results are follow as.

- 1) Although neonatal T cells share with adult naive T cells in terms to CD45RA expression, they have strong suppressor activity and less helper activity for B cell differentiation even after memory cells-like phenotypic changes by activation.
- 2) BB3<sup>+</sup> subsets within T-gamma/delta<sup>+</sup> T cells, but not deltaTCS-1<sup>+</sup> cells, express CD45RO and have the ability to respond to the antigen.
- 3) Naive CD4<sup>+</sup> T cells, unlike memory ones, are hyporesponsive to anti-CD2 stimulation, based on their inability to produce IL-6.

- 4) Both CD4<sup>+</sup> and CD8<sup>+</sup> T cell populations express CD45RO as well as HLA-DR antigens, indicating strong stimulation with Epstein-Barr infection.
- 5) Memory T cells express IL-2 receptor subunits (alpha or chains) and respond well to exogenous IL-2.
- 6) A novel population of CD4<sup>+</sup> T cells with naive (CD45RA<sup>+</sup>, CD45RO<sup>-</sup>) phenotype expressing IL-2R alpha-chain, which express memory-like functions, are identifiable in the blood of newborns and young children. This population represents the cells at the transitional stage from naive to memory T cells.
- 7) Full-term newborns can produce IL-6 in response to bacterial pathogens, but IL-6-producing capabilities of preterm babies are still immature.

## Research Products (12 results)

All Other

All Publications (12 results)

- [Publications] Miyawaki, T. et al.: "Differential expression of CD45RO (UCHL1) and its functional relevance in two subpopulations of circulating TCR-g/d<sup>+</sup> lymphocytes" *Journal of Experimental Medicine*. 171. 1833-1838 (1990) ▼
- [Publications] Kasahara, Y. et al.: "Role of interleukin 6 for differential responsiveness of naive and memory CD4<sup>+</sup> T cells in CD2-mediated activation" *Journal of Experimental Medicine*. 172. 1419-1424 (1990) ▼
- [Publications] Miyawaki, T. et al.: "Expression of CD45RO (UCHL1) by CD4<sup>+</sup> and CD8<sup>+</sup> T cells as a sign of in vivo activation in infectious mononucleosis" *Clinical Experimental Immunology*. 83. 447-451 (1991) ▼
- [Publications] Taga, K. et al.: "Preferential expression of IL-2 receptor subunits on memory populations within CD4<sup>+</sup> and CD8<sup>+</sup> T cells" *Immunology*. 72. 15-19 (1991) ▼
- [Publications] Kanegane, H. et al.: "A novel subpopulation of CD45RA<sup>+</sup> CD4<sup>+</sup> T cells expressing IL-2 receptor alpha-chain (CD25) and having a functionally transitional nature into memory cells" *International Immunology*. 3. 1349-1356 (1991) ▼
- [Publications] Uehara, T. et al.: "Apoptotic cell death of primed CD45RO<sup>+</sup> T lymphocytes in Epstein-Barr virus-induced infectious mononucleosis" *Blood*. ▼
- [Publications] Miyawaki, T. et al.: "Differential expression of CD45RO (UCHL1) and its functional relevance in two subpopulations of circulating TCR-gamma/delta<sup>+</sup> lymphocytes." *J. Exp. Med.* 171. 1833-1838 (1990) ▼
- [Publications] Kasahara, T. et al.: "Role of interleukin 6 for differential responsiveness of naive and memory CD4<sup>+</sup> T cells in CD2-mediated activation." *J. Exp. Med.* 172. 1419-1424 (1990) ▼
- [Publications] Miyawaki, T. et al.: "Expression of CD45RO (UCHL1) by CD4<sup>+</sup> and CD8<sup>+</sup> T cells as a sign of in vivo activation in infectious mononucleosis." *Clin. Exp. Immunol.* 83. 447-451 (1991) ▼
- [Publications] Taga, K. et al.: "Preferential expression of IL-2 receptor subunits on memory populations within CD4<sup>+</sup> and CD8<sup>+</sup> T cells." *Immunology*. 72. 15-19 (1991) ▼
- [Publications] Kanegane, K. et al.: "A novel subpopulation of CD45RA<sup>+</sup> CD4<sup>+</sup> T cells expressing IL-2 receptor alpha-chain (CD25) and having a functionally transitional nature into memory cells." *Int. Immunol.* 3. 1349-1356 (1991) ▼
- [Publications] Uehara, T. et al.: "Apoptotic cell death of primed CD45RO<sup>+</sup> T lymphocytes in Epstein-Barr virus-induced infectious mononucleosis." *Blood*. ▼

URL: [https://kaken.nii.ac.jp/report/KAKENHI-PROJECT-02454268/024542681991kenkyu\\_seika\\_hokoku\\_](https://kaken.nii.ac.jp/report/KAKENHI-PROJECT-02454268/024542681991kenkyu_seika_hokoku_)

Published: 1993-03-15