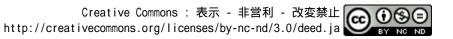
## EBV感染におけるT細胞の活性化と細胞死のメカニズ ムに関する研究

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## 1994 Fiscal Year Final Research Report Summary

# A Study on cellular requirements for apoptotic cell death of activated T cells in EBV infection

**Research Project** 

Project/Area Number	
05454284	
Research Category	
Grant-in-Aid for General Scientific Research (B)	
Allocation Type	
Single-year Grants	
Research Field	
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Research Institution	
Kanazawa University	
Principal Investigator	
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1993 – 1994	
Keywords	
Apoptosis / EBV / Infectious mononucleosis / Activated T cells / IMN3.1 / Fas antigen / Bcl-2 / p53	

#### **Research Abstract**

We employed EBV-induced infectious mononucleosis (IM) as a model of activated T cell death to elucidate cellular requirements for induction of T cell death by activation with viral infection. Obtained results are as follows :

1)Both activated T cells in acute IM patients and memory T cells in normal persons express CD45RO and Fas antigen, which can mediate apoptosis. Unlike memory T cells, activated T cells in IM easily undergo apoptotic cell death after on a simple incubation in vitro. By immunizing mice with IM cells, we obtained a novel mouse monoclonal antibody, termed IMN3.1, which was marked to react with apoptosis-prone T cells. Molecular cloning of IMN3.1-identified antigen is in progress.

2)Seemingly supporting their susceptibility to apoptosis, activated T cells in IM lacked expression of Bcl-2, which have a preventive function against apoptotic cell death. Low or absent expression of Bcl-2 was observed on granulocytes and monocytes, both of which have shorter life-spans. The important finding was that anti-Fas antibody could accelerated apoptotic cell death in granulocytes and monocytes. These observations suggest that the Fas antigen/ligand system may play a key role in resolution of inflammatory and immune responses.

3)The mutation of the p53 oncogene is thought to lead to oncogenosis in human malignancies. Expression of p53 was not found in activated T cells in IM patients, although they were sucseptible to apoptosis. Ionizing irradiation could induce p53 expression on the whole population of peripheral blood lymphocytes, concomitant with marked apoptosis. However, we found a marked difference of lymphocyte subpopulations regarding p53 induction. Induction of p53 in CD4^+ T,CD8^+ T and B cells after irradiation was prominent. In contrast, neither TCR-gamma/delta^+ T cells nor NK cells showed identifiable levels of p53. The results suggest that radiation-induced lymphocytic apoptosis may be mediated by p53-dependent orindependent mechanisms.

### Research Products (14 results)

	All Other		Other	
	All P	ublications	s (14 res	ults)
[Publications] Uehara, T.et al.: "A novel T-cell activation antigen identified by monoclonal IMN3.1 antibody and expressed proceeds susceptible to apoptotic cell death." J.Immunol.150. 3243-3253 (1993)	referen	tially on hu	man T	~
[Publications] Tamaru,Y.et al.: "Absence of bcl-2 expression by activated CD45RO^+T lymphocytes in acute infectious mono susceptibility to programmed cell death" Blood. 82. 521-527 (1993)	nonucle	osis suppor	ting their	~
[Publications] Hasui, M.et al.: "Mature helper T cell requirement for immunoglobulin production by neonatal naive B cells inje severe combined immunodeficient (SCID) mice Clin. Exp. Immunol. 95. 357-361 (1994)	jected i	intraperiton	eally into	~
[Publications] Tsuji,T.et al.: "Efficient induction of immunoglobulin production in neonatal naive B cells by memory CD4^+T homing receptor L-selectin" J.Immunol.152. 4417-4424 (1994)	r cell su	ubset expre	essing	~
[Publications] Iwai,K.et al.: "Diffrential expression of bcl-2 and suscebtibility to anti-Fas-mediated cell death in peripheral blood lymphocytes, monocytes and neutrophils" Blood. 84. 1201-1208 (1994)	lood			~
[Publications] Seki,H.et al.: "Ionizing radiation induces apoptotic cell death in human TcR-γ/δ^+ T and NK cells without det Eur.J.Immunol.24. 2914-2917 (1994)	tectable	e p53 prote	in."	~
[Publications] 宮脇利男(共著): "Annual Review 血液1993" 中外医学社, 241 (1993)				~
[Publications] 宮脇利男(共著): "周産期の感染と免疫" 南江堂, 194 (1994)				~
[Publications] Uehara, T.et al.: "A novel T-cell activation antigen identified by monoclonal IMN3.1 antibody and expressed pr cells susceptible to apoptotic cell death." J.Immunol.Vol.150. 3243-3253 (1993)	oreferer	ntially on hu	uman T	~
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[Publications] Hasui, M.et al.: "Mature helper T cell requirement for immunoglobulin production by neonatal naive B cells inj into severe combined immunodeficient (SCID) mice." Clin.Exp.Immunol.Vol.95. 357-361 (1994)	ijected	intraperitor	neally	~
[Publications] Tsuji, T.et al.: "Efficient induction of immunoglobulin production in neonatal naive B cells by memory CD4^+ homing receptor L-selectin." J.Immunol.Vol.153. 4417-4424 (1994)	T cell	subset expr	ressing	~
[Publications] Iwai, K.et al.: "Differential expression of bcl-2 and susceptibility to anti-Fasmediated cell death in peripheral b monocytes and neutrophils." Blood. Vol.84. 1201-1208 (1994)	blood ly	ymphocytes	5,	~
[Publications] Seki, H.et al.: "Ionizing radiation induces apoptotic cell death in human TcR-gamma/delta^+ T and NK cells v protein." Eur.J.Immunol.Vol.84. 2914-2917 (1994)	withou	t detectable	e p53	~

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