



Title	BOVINE LEUKEMIA VIRUS (BLV) ENVELOPE ANTIGEN-SPECIFIC T CELL-MEDIATED IMMUNITY INDUCED BY A RECOMBINANT VACCINIA VIRUS
Author(s)	YAMAMOTO, Satoshi
Citation	Japanese Journal of Veterinary Research, 40(1), 65-65
Issue Date	1992-05-29
Doc URL	http://hdl.handle.net/2115/2398
Type	bulletin (article)
File Information	KJ00002377590.pdf



[Instructions for use](#)

BOVINE LEUKEMIA VIRUS (BLV) ENVELOPE ANTIGEN-SPECIFIC
T CELL-MEDIATED IMMUNITY INDUCED BY
A RECOMBINANT VACCINIA VIRUS

Satoshi YAMAMOTO

*Department of Epizootiology,
Faculty of Veterinary Medicine,
Hokkaido University, Sapporo 060, Japan*

Cell-mediated immunity in mice induced by a recombinant vaccinia virus (rVVenv) containing the envelope (env) gene of bovine leukemia virus (BLV) was investigated. In order to investigate cell-mediated immunity in cattle an attempt to develop a retroviral shuttle vector for expression of the exogenous gene was made.

Ecotropic and amphotropic recombinant retroviruses containing the env gene of BLV were constructed. A-31 cells derived from BALB/c mice were infected with a recombinant retrovirus of ecotropic host range (A-31/BLVenv). These infected cells expressed BLVenv antigen and were used as stimulating cells in lymphocyte proliferation assay and target cells in ^{51}Cr -release cytotoxicity assay. Bovine cells (MDBK) were also infected with a recombinant retrovirus of amphotropic host range and detected BLVenv antigen expression.

In lymphocyte proliferation assay, splenocytes from BALB/c mice immunized with rVVenv were found to proliferate after stimulation with X-ray-irradiated A-31/BLVenv cells. It was revealed that the Thy1.2⁺ subset of T lymphocytes, predominantly the CD4⁺ subset, were responsible for the proliferative reaction against BLVenv antigen.

Cytotoxic T lymphocyte responses to A-31/BLVenv cells could not be detected in mice immunized with rVVenv. However, in mice immunized with BLV-producing ovine cells (FLK), cytotoxic responses to A-31 cells infected with rVVenv were detected, but those to A-31/BLVenv cells were not. It was revealed that A-31/BLVenv cells were not suitable for target cells in cytotoxicity assay. It was likely that immunization with rVVenv induced cytotoxic responses in mice.

The present experiment showed that BLVenv antigen-specific T cell-mediated immunity was induced by rVVenv in mice. Moreover, amphotropic recombinant retroviral vector lead bovine cells to the expression of BLVenv antigen which could be recognized by immune lymphocytes. This approach may provide an experimental system to study cell-mediated immunity to BLV in cattle.