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**HUMORAL IMMUNE RESPONSE IN SHEEP INOCULATED WITH
BOVINE LEUKEMIA VIRUS AND SKIN
LYMPHOSARCOMA CELLS**

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To examine the humoral immune response in sheep infected with bovine leukemia virus (BLV), five lambs were inoculated intraperitoneally with BLV material. At the same time, three lambs were inoculated intraperitoneally with skin lymphosarcoma cells. Following inoculation, lymphocyte counts were performed and serum samples were collected at one month intervals for a period of 22 months. Sera were tested for BLV antibodies by the complement-fixation test with purified glycoprotein (gp) antigen and p 24 antigen of BLV. Sera were also tested by the complement-dependent antibody cytotoxicity (CDAC) test. For the CDAC test, 2 different kinds of cells were used as target cells: FLK, fetal lamb kidney cells persistently infected with BLV and SF-28, sheep fibroblasts transformed by BLV.

1) The lymphocyte levels of the 5 BLV-infected sheep as well as those of control sheep were normal. However, the antibody against gp appeared earlier than that against p 24, and the antibody titer of gp was higher than that of p 24 during the course of the experiment. The evolution of CDAC antibody titer against FLK cells was similar to that of gp antibody.

2) The evolution of CDAC antibody titer against the SF-28 cells differed from that against the FLK cells. Serological comparison of cell surface antigens of the FLK and SF-28 cells revealed that the major antigen of the FLK cells was gp antigen of BLV while that of the SF-28 cells was a new antigen that might be associated with transformation. All of the BLV-infected sheep possessed antibodies against the new antigen expressed on the surface of the SF-28 cells.

3) Three sheep inoculated with skin lymphosarcoma cells were clinically and hematologically normal during the two years after inoculation. Neither BLV nor antibodies against BLV could be detected. These results suggested that skin lymphosarcoma may not be caused by BLV infection.