COMPARISON OF IN SITU HYBRIDIZATION AND IMMUNOHISTOCHEMISTRY IN CHICKS INFECTED WITH MAREK'S DISEASE VIRUS

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The persistence and expression of Marek's disease virus (MDV) in chicks infected with MDV were investigated by in situ hybridization (ISH) with a ^{35}S-labeled MDV-specific DNA prove and immunohistochemistry with MDV-specific monoclonal antibodies.

One-day-old specific-pathogen-free chicks were placed in contact with donors inoculated with strain MDV-Md/5, and various tissues from the bodies of the affected chicks were chronologically obtained and examined. Spleen lymphomas induced by MDV-Md/5 infection and skin lymphomas caused by MDCC-MSB1-clo. 18 inoculation were also obtained and examined by the same methods.

By the ISH technique, MDV DNA was detected in small numbers of cells in the spleen, thymus and bursa of Fabricius at 3 days postinfection (DPI). Intense positive reactions were observed in acute cytolytic lesions of lymphoid tissues at 7 DPI. The positive reactions decreased as lesions subsided at 10 DPI, though results indicated latent infection, and it appeared again in feather follicle epithelia at 14 DPI. Labeling by ISH almost matched the distribution of MDV antigens detectable by immunohistochemistry.

However, results differed somewhat betwwen the techniques: immunohistochemistry could not detect MDV antigens in tissues at stages of infection as early as 3 DPI.

Lymphoid cells of spleen lymphomas did not hybridize with MDV DNA probes, though reticular cells and small lymphocytes in red pulp hybridized with MDV DNA probes.

MDCC-MSB1-cho. 18 cells of skin lymphomas were also mostly negative for MDV antigen and MDV DNA.

These results demonstrate that ISH and immunohistochemistry are techniques of comparable sensitivity for the detection of MDV in sections of MDV-infected organs, and revealed that ISH cannot detect MDV DNA well in latently infected cells and tumor cells.