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STUDIES OF MEMBRANE ANTIGENS IN CULTURES INFECTED WITH HERPESVIRUS OF TURKEY

Fujio INAGE

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

Herpesvirus of turkey (HVT) is antigenically related to Marek's disease herpesvirus. By using immunofluorescent techniques, the membrane antigens (MA) are detected on the surface of cultured cells infected with HVT, and the viral capsid antigen (VCA) is detected in the cultured cells. The purpose of the present study was to examine the nature of MA in cultured cells infected with HVT. The results were as follows:

1) In the cultured cells infected with HVT, omission of the individual amino acids from Eagle's MEM resulted in inhibition of MA and VCA syntheses, but the degree of the inhibition varied in respective cultures deprived of the individual amino acids.

2) In the arginine-deficient cultured cells infected with HVT, the appearance of MA had two peaks at 8 hours (early-appearing MA (EMA)) and 24 hours (late-appearing MA (LMA)) after virus inoculation; however, the appearance of VCA was markedly inhibited in the same experimental period.

3) Absorption of anti-HVT chicken serum with MA positive cells removed the staining activity of the serum against MA, but not against VCA. The neutralizing capacity of the serum tended to decrease.

4) Absorption of the anti-HVT chicken serum with EMA positive cells decreased its staining activity against EMA, but not against LMA and VCA. The serum absorbed with LMA positive cells decreased its staining activity against LMA, but not against EMA and VCA, and also decreased in its neutralization titer.

5) When 48 sera from HVT infected chickens were examined and the titers of anti-MA, anti-VCA, and serum neutralization were compared, no correlation was found between any two of the titers. However, when these sera were examined and the titers of anti-EMA and anti-LMA were compared with the titer of serum neutralization, an apparent correlation was noted between the anti-LMA and neutralization titer, but not between the anti-EMA and neutralization titer.

From these results, it may be concluded that 1) MA and VCA are antigenically different from each other; 2) there are two different kinds of MA, one of

which is EMA, and the other of which is LMA ; and 3) LMA is closely related to a virus envelope antigen.

THE EFFECT OF BURSECTOMY ON THE PATHOGENESIS OF MAREK'S DISEASE

Hiroshi ISOGAI

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

The effect of bursectomy on the development of Marek's disease in chickens (White Leghorn, Line-M, without maternal antibody for MDV) was studied histopathologically.

Two experiments were designed, and divided into two groups, which consisted of untreated and bursectomized groups. In experiment I, 19 untreated and 28 bursectomized chickens were examined at 2, 3, 5, 7, 9 and 12 weeks old. In experiment II, 55 chickens including 28 bursectomized ones were inoculated with MDV at two weeks old.

In experiment I, the neonatal bursectomized chickens showed several morphological and functional changes in comparison with the untreated chickens. The results were as follows :

- 1) Histopathologically, severe depletion of lymphocytes in the bursa-dependent areas and aplasia of the germinal centers in the spleen were observed.
- 2) There was a lack of antibody synthesis against *Salmonella pullorum*.
- 3) There was no reduction of phytohemagglutinin skin reaction observed.

In experiment II, chickens were examined at 1, 3, 5, 7 and 10 weeks post inoculation with MDV. The results were as follows :

- 1) Initial cytolytic lesions in the lymphoid tissues were not observed in the bursectomized group.
- 2) Both bursectomized and untreated groups showed a high and almost same frequency of MD tumor development in the various organs and tissues.

Consequently, it is suggested that the function of the bursa of Fabricius is not essential for the tumorigenesis of Marek's disease.