Complement Enzyme Antibody Method and Application of Nucleic Acid Research by Enzyme Antibody Method

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The complement required antigen-antibody reaction system with anti-complement (C3) were successfully applied to the detection of the tumor associated antigen of Burkitt lymphoma (EBNA) which was not able to detect by routine enzyme antibody method. The advantages of the method were not only able to detect the antigen with IgG and IgM class antibodies but also expected the higher sensibility than that of the routine method.

The detection of single stranded DNA in cell nucleus in situ was performed by the enzyme antibody method using the anti-thymine antibody. Anti-thymine was prepared by conjugation of carrier protein (BSA). It was proved that the antibody only reacted with single stranded DNA but not with double stranded DNA and RNA. This fact was also confirmed by the experiments using heteroduplex of DNA. The positive reaction products were detected in the nuclei of regenerating rat liver cell and of culture cell. The characterization of single stranded region was performed using bacteria which were known about DNA replication.

Vaccinia Virus Infection in vitro Studied by Peroxidase-Labeled Antibody Method

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Ultrastructural studies on multiplication and development of various viruses in infected cells are numerous. Principal steps so far established with these studies are as follows: 1) attachment of virus to a cell surface, 2) engulfment of the virus by the cell, 3) disappearance of the viral coating (uncoating), 4) assembly of new infectious viruses in inclusion bodies, 5) release of the infectious viruses from the cell. However, the steps between the uncoating(Step 3) and the appearance of new virus(Step 4) are unobservable with routine electron microscopic techniques.

In this study, the sequence of the infection of vaccinia virus and the appearance of new infectious virus were investigated with particular emphasis on the stages between the uncoating and the reappearance in LLC-MK2 cells in vitro with the peroxidase-labeled antibody method.

Rabbit antisera against LS antigen were used throughout this study. The rabbit antibody against the LS antigen was digested with pepsin and the Fab' of the