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## Micromorphological changes in MDCK cells infected with measles virus

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## **Abstract**

There are many electron microscopic observations of the cells infected with measles virus (1-6), and all of them appear to be concerned mainly with observation on the inclusion bodies and not any seems to have described the morphology of mature virus particles located within the infected cell.

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## MICROMORPHOLOGICAL CHANGES IN MDCK CELLS INFECTED WITH MEASLES VIRUS

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There are many electron microscopic observations of the cells infected with measles virus (1—6), and all of them appear to be concerned mainly with observation on the inclusion bodies and not any seems to have described the morphology of mature virus particles located within the infected cell.

The cells used in this experiment were MDCK cells supplied by Dr. IMAGAWA (University of California). The cells were infected with  $10^3$ — $10^4$  TCID<sub>50</sub> per milliliter of measles virus (Edmonston strain), fixed at different time intervals, cut into ultrathin sections, and observed in Hitachi electron microscope HU-11. The methods of preparing the specimens for electron microscopy were reported previously (3).

Figure 1 shows the picture of the cell 20 hours after the inoculation of the virus. It reveals several virus particles contained in a cytoplasmic vesicle of which the membrane is partially indistinct. The size of these virus particles ranges from 200 to 300 m $\mu$ , and the granular structures in virus particles are actually the cross sections of the strand of nucleocapsid. The size of these cross sections is about 20 m $\mu$  in diameter. Fig. 2 shows the picture of a part of the cytoplasm 24 hours after the inoculation of the virus. There can be observed amorphous material within a vesicle, and this seems to be the stage where virus particles within the cytoplasmic vesicle, after being phagocytosed, are about to be destroyed.

The virus particles seen in Fig. 1 resemble, in their size and inner structures, closely the negatively stained free virus particles (7). NISHI *et al.* (8) demonstrated such structures in the ultrathin sections of FL cells infected with measles virus and they considered them to resemble virus particles. Judging from the lapse of time after the virus inoculation, the virus particles in the cytoplasmic vesicle of Figs. 1 and 2 are the phagocytosed ones and not the ones newly formed within the cell.

This report is presented because so far there has appeared no paper on electron microscopic picture showing the presence of measles virus particles within the cell.

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Explanation of Figures

- (1) This shows a section of the MDCK cell 20 hours after inoculation of measles virus. Several virus particles are seen in the cytoplasmic vesicle, and the internal structure of the virus particles are visible.
- (2) This shows a large vesicle within the cytoplasm of the cell 24 hours after inoculation. It seems to show the various stages of destruction of the virus particles.

