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Research Note

REPLICATION OF DENGUE VIRUS TYPE 2, BRAZILIAN STRAIN, IN MOSQUITO CELL CULTURES

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A new dengue virus appeared in the cities of Rio de Janeiro and Niterói by the end of April 1990. Virus isolation in mosquito cell cultures and immunofluorescence technique were applied; the virus was identified as a dengue virus type 2 (dengue-2) (R. M. R. Nogueira et al., 1990, *Mem. Inst. Oswaldo Cruz, 85:* 253).

Strains of dengue-2 virus, as reported by Hase et al. (1989, *Subcell. Biochem., 15:* 275-305), have different forms of replication inside mosquito $C_{6/36}$ cell cultures. The Puerto Rico/South Pacific PR-159 strain multiplies like an alphavirus, presenting a great amount of virus particles budding at the cell membrane or into cell vacuoles from where they are released by vacuole membrane rupture. Another dengue-2 virus tested by Hase et al., strain NGC, replicates like a dengue-1 virus and other flaviviruses (O. M. Barth & H. G. Schatzmayr, 1990, VIIIth Intern. Congr. Virol., Berlin) into the rough endoplasmic reticulum (RER).

By testing the Brazilian dengue-2 strain isolated recently from 10 pacients, electron microscope observations revealed a typical flavivirus replication mechanism (Figs 1, 2); a similar mechanism was observed at dengue-1 virus isolated some years ago from the same population (H. G. Schatzmayr et al., 1986, *Mem. Inst. Oswaldo Cruz, 81:* 245-246; O. M. Barth, 1989, An. XII Colóquio Soc. Bras. Microsc. Eletrônica, Caxambu, Brasil: 97-98).

Some morphological diferences of the mosquito cells infected by the Brazilian isolates of dengue-1 and dengue-2 viruses were observed, as e. g. a variety of nuclear modifications and cell capping, different smooth membrane structures (SMs) inside the RER and the occurrence of some supposed protein coated virus particles inside the RER beside naked virus particles in the case of dengue-2 infections.

The present dengue-2 strain is certainly different from the PR-159 strain, but similar to the NGC strain. Other dengue-2 virus isolates are being observed by electron microscope cell ultrastructure studies.

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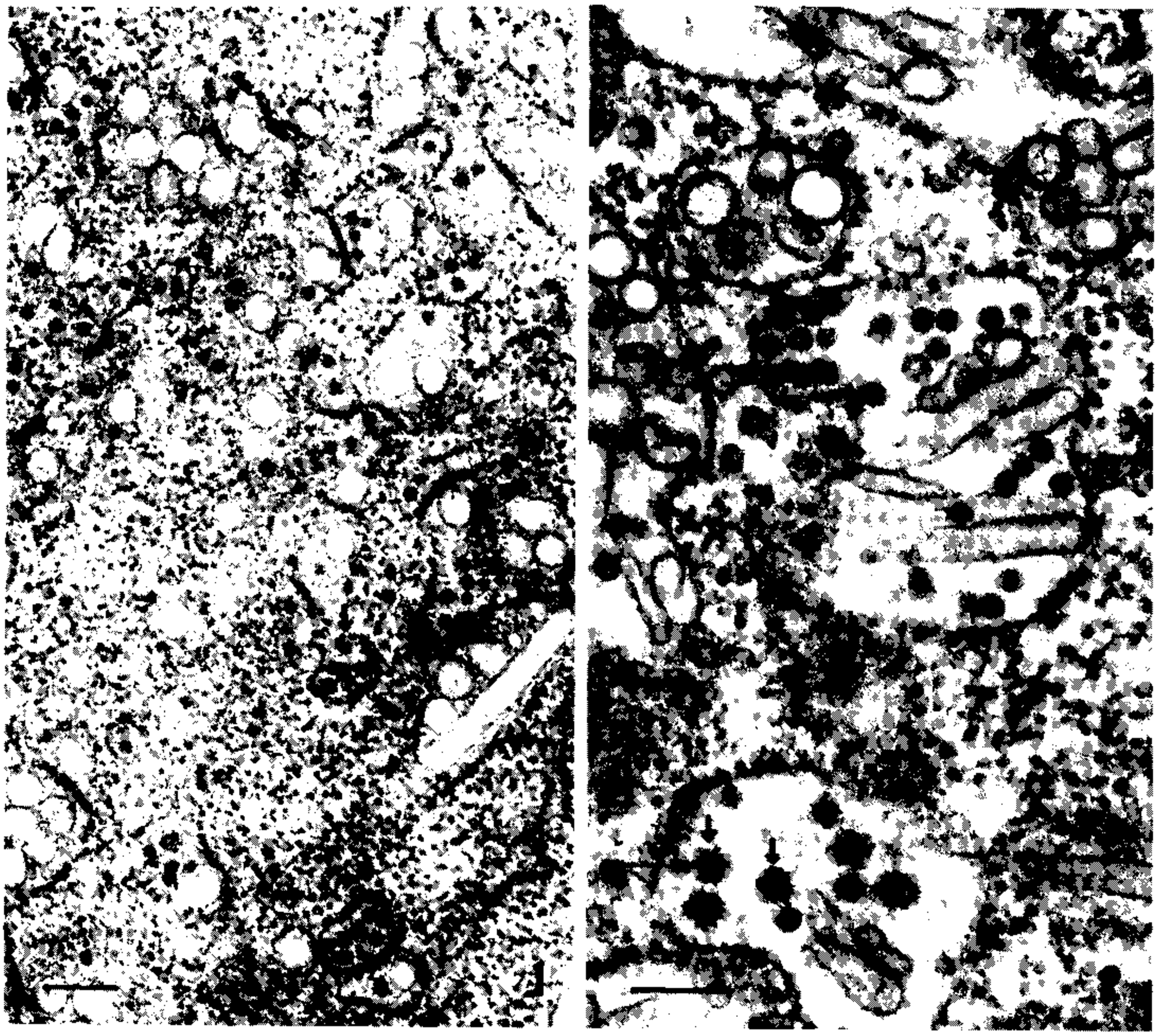

Fig. 1: dengue-1 infected mosquito cell. Virus particles (arrows) occur inside the rough endoplasmic reticulum (RER) beside smooth membrane structures (SMs), 45.000 x. Fig. 2: dengue-2 infected mosquito cell. Large amounts of virus particles inside the distended RER compartments occur simultaneously with some coated virus particles (arrows), 60.000 x, (Bar = 200 nm).