

Ultrastructural aspects of sylvatic dengue virus infection in Vero cell

ABSTRACT

Introduction: Dengue virus (DENV), the causative agent of dengue disease exists in sylvatic and endemic ecotypes. The cell morphological changes and viral morphogenesis of two dengue ecotypes were examined at the ultrastructural level to identify potential similarities and differences in the surrogate model of enzootic host. **Materials and methods:** Vero cells were inoculated with virus at a multiplicity of infection (MOI) of 0.1. Cell cultures were harvested over a time course and processed for transmission electron microscopic imaging. **Results:** The filopodia protrusions on cell periphery preceded virus entry. Additionally, sylvatic DENV infection was found spreading slower than the endemic DENV. Morphogenesis of both dengue ecotypes was alike but at different level of efficiency in the permissive cells. **Conclusions:** This is the first ultrastructural study on sylvatic DENV and this comparative study revealed the similarities and differences of cellular responses and morphogenesis of two dengue ecotypes in vitro. The study revealed the weaker infectivity of sylvatic DENV in the surrogate model of enzootic host, which supposed to support better replication of enzootic DENV than endemic DENV.

Keyword: Sylvatic dengue virus; Endemic dengue virus; Cell morphological changes; Viral
Sylvatic dengue virus; Transmission electron microscopy