

## INFLUENCE OF CHOLESTEROL IN THE ORGANIZATION OF ALPHAVIRUS ENVELOPE

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Alphaviruses are enveloped viruses that enter host cells through receptor-mediated endocytosis. The subsequent envelope fusion to endosomal membrane is triggered by low pH and requires the presence of both cholesterol and sphingolipids in the target membrane. In this study, we have examined the role of cholesterol in Mayaro virus obtained from mammalian (cholesterol enriched) and mosquito (cholesterol auxotrophic) cells, using methyl- $\beta$ -cyclodextrin depletion. The pretreatment of virions with methyl- $\beta$ -cyclodextrin efficiently depleted envelope cholesterol and significantly reduced Mayaro virus infectivity. Negative-staining electron microscopy analysis revealed that envelope cholesterol depletion markedly affected the morphology of virus obtained from vertebrate cells, by permeabilization of the viral membrane, suggesting that this lipid plays a role in the maintenance of virus particle integrity. On the other hand, in virus obtained from invertebrate cells, cholesterol depletion apparently had no effect on virus morphology. Analysis of Laurdan fluorescence allowed us to investigate the effect of the treatment with methyl- $\beta$ -cyclodextrin on the lipid packing of virus envelope. Our results suggest that different factors are involved in the membrane organization of Mayaro virus obtained from mammalian and mosquito cells.

Financial support: CAPES, CNPq, FAPERJ, FUJB and PRONEX.

Key words: *Alphavirus*, cholesterol, membrane.