

JOINT EVENT

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Mimivirus on a bad hair day

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Acanthamoeba polyphaga mimivirus (APMV) is the first giant virus discovered almost 15 years ago. It has uncommon characteristics such as a stargate shape in one of its vertices through which its dsDNA is released into the cytoplasm. It also has an external thick fibril layer that was shown to be important for adhesion. This finding was based on mimivirus strain that suffered a drastic reduction in the number of its fibrils after a third of its genes lost activity during continuous passaging in germ-free amoebae (PMID:21646533). Here, we subcultured mimiviruses under normal conditions and continually passed them through 0.45 μm filter. Thus, a population of hair deficient (HD) viruses was enriched and particles were cloned and imaged. Genomic analysis of the filtered viruses revealed three mutations that affected only three genes. One of the mutations showed an in-frame deletion in L71 gene, a collagen-like protein that eliminated almost all of its collagen motif sequences. The resulting HD viruses revealed a significant reduction in their infection titer as well as substantially reduced virus yield. HD-infected amoebae also burst less readily.

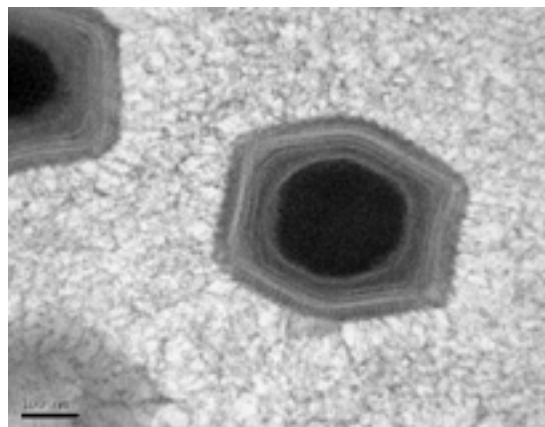


Figure 1: Transmission electron microscopy sectioning of mimiviruses. Left: Hair-deficient mimivirus. Right: Wild-type.

Recent Publications

1. Fridmann Sirkis Y, et al. (2016) Efficiency in complexity: composition and dynamic nature of mimivirus replication factories. *Journal of Virology* 90:10039-10047.

Biography

Yael Fridmann Sirkis has her expertise in Structural Biology as well as characterizing protein-protein interactions. She is currently working in the protein analysis unit at the Weizmann Institute of Science in Israel.

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