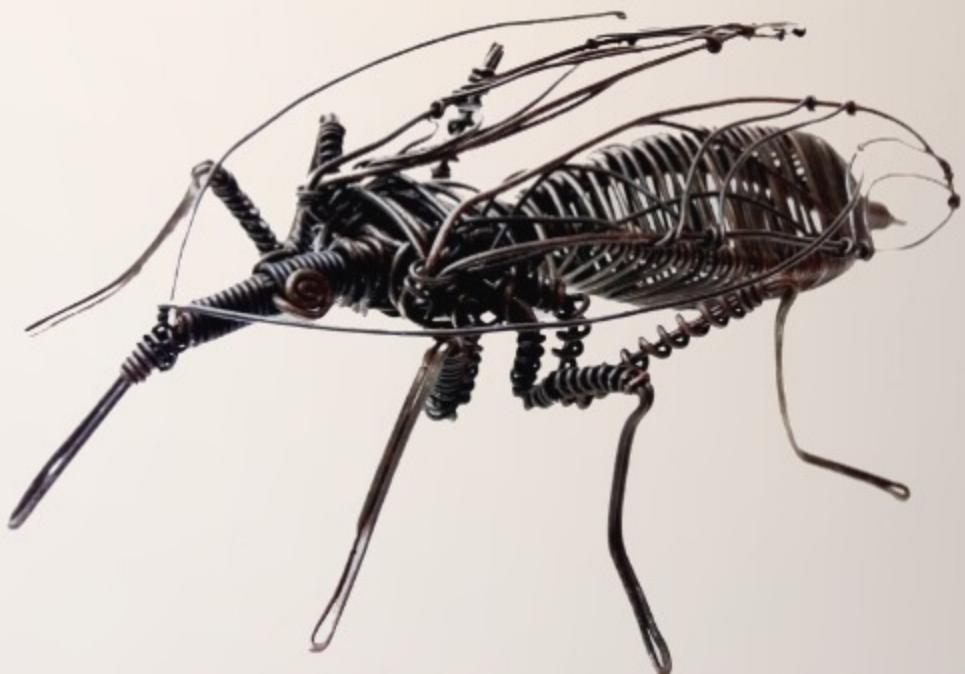


XL Annual Meeting of the Brazilian Society of Protozoology

**LI Annual Meeting on
Basic Research in
Chagas' Disease**



**Hotel Glória – Caxambu (MG), Brazil
November 10 – 12, 2025**

Abstract deadline August 5, 2025

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PROCEEDINGS
XL Meeting of the Brazilian Society of Protozoology
LI Annual Meeting on Basic Research in Chagas' Disease

Hotel Glória, Caxambu, MG, BRASIL- Caxambu
10-12 November, 2025

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RT.02 – 003 - The viral factory of Nucleocytoviricota (Giant-Viruses) and their peculiarities.

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Introduction:

The Mimivirus genus (phylum Nucleocytoviricota) of giant viruses that infect several eukaryotic cells, are particularly interesting due to their capsid size, large genome, and replication cycle, challenging established paradigms of the virosphere. These viruses form dense structures known as viral factory (VF) where virion replication occurs with the disruption of the host's intracellular structure and virions release.

Three viruses, isolated from Brazilian sources, are of particular interest; the Niemeyer virus (NYMV), Tupanvirus (TPV) and Naiavirus (NV), as they have diverse genome structures, gene composition, capsid structures and infection strategy.

This study aims to analyze the formation of the viral factory (VF) and the changes in host cell organization during virus replication in *Acanthamoeba castellanii*, using X-ray imaging techniques.

The viral particles were produced from *A. castellanii* infected cultures. Infected cells were fixed at different stages of infection and prepared for Cryo Soft X-ray Tomography (Cryo-SXT) and Nanotomography Ptychography (CXDI) experiments. The combination of Cryo-SXT and Ptychography revealed new images of the viral factory formation in the cytoplasm, highlighting significant structural changes during the infection and viral biosynthesis in its native three-dimensional form.

These techniques offer new structural analysis tools of the complex formed by the virus, contributing to a better understanding of the role of the viral factory and the changes in host cells architecture during infection, with minimal interference with the native structure of the cells and target complexes.

Keywords: Viral Factory; Nucleocytoviricota; Amoeba, *Acanthamoeba castellanii*.