

MicroTalks

Thursday 23 April 2026 at 13:00

**Section of Microbiology, Universitetsparken 15, University of
Copenhagen, Auditorium A, ground floor**

Both in presence and virtual attendance available

The world of viruses and its evolution

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Viruses and virus-like mobile genetic elements are ubiquitous parasites or symbionts of all cellular life forms and the most abundant biological entities on earth. The recent, unprecedented advances of comparative genomics, metagenomics, and metatranscriptomics have led to the discovery of diverse novel groups of viruses and a rapid expansion of the chartered region of the virosphere. These discoveries provide for a vastly improved understanding of the evolutionary relationships within the virosphere. Arguably, we are approaching or perhaps have already reached the point when the global architecture of the virus world can be outlined in its entirety, and the key evolutionary events in each of its domains can be reconstructed. I will present such an outline of the global organization of the virosphere and the corresponding megataxonomy, including 7 evolutionarily coherent realms of viruses, that has been recently approved by the International Committee on Taxonomy of Viruses, as well as additional candidate new realms. The expansion of the prokaryotic virosphere that now includes many groups of viruses, particularly, those with RNA genomes, previously thought to be eukaryote-specific, will be emphasized. I will further discuss the position of viruses within the wider space of replicators and the recent dramatic expansion of the “alternative virosphere” that includes viroids and diverse viroid-like viruses that seem to have evolved on multiple, independent occasions. Finally, I will present the current scenario for the origin of viruses based on the analysis of the evolutionary provenance of the key proteins involved in virion structure formation and viral genome replication.

DMS Host: Rafael Pinilla-Redondo, Section of Microbiology, University of Copenhagen

Zoom link: <https://ucph-ku.zoom.us/j/8049567638>

Registration link: https://docs.google.com/forms/d/e/1FAIpQLSdM_0XNVkv-2265TROKmxonX1xXvdyYVWVSHDnR9yU22ut6SJA/viewform

All welcome