

Old viruses and new techniques: Investigations of host-range mechanisms of Cowpox viruses

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Poxviruses comprise a fascinating virus family. Not only is the most prominent poxvirus, the orthopoxvirus Variola virus, the first virus for which an effective vaccination has been developed, but also is the disease caused by Variola virus, smallpox, still the only infectious disease that could be eradicated by systematic worldwide vaccination. After declaration of the successful eradication of smallpox by WHO in 1980, vaccinations were halted to prevent vaccination-related severe adverse effects. Since then, the number of zoonotic infections with orthopoxviruses has been increasing. In South America infections of animals and humans with Vaccinia virus-related orthopoxviruses are being observed. Monkeypox viruses, causing overall mortality rates of 10%, are endemic in Africa, and in Europe we are witnessing increasing numbers of animal and human infections with Cowpox viruses.

In contrast to Variola virus, which had been exclusively infecting humans, the host range of the zoonotic poxviruses is generally higher, with Cowpox viruses representing a species that has been shown to infect a large variety of vertebrate species. The mechanisms that explain the ability of certain poxviruses to cross species barriers are not understood at all.

In this talk an overview of the peculiarities of Cowpox virus and the transcriptome- and proteome-based approaches to elucidate the pathogenic potential of cowpox viruses is presented.

Biography

Andreas Nitsche is a virologist who received his PhD from the Free University of Berlin in 2001. Today he is head of the Centre for Biological Security 1 "Highly Pathogenic Viruses" of the Robert Koch Institute, head of the German Reference Laboratory for Poxviruses and head of the RKI Core Facility for DNA Sequencing. He has published more than 80 papers in renowned journals with a focus on molecular diagnostics and poxviruses.

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