AARHUS UNIVERSITY
DEPARTMENT OF BIOMEDICINE

Virology and Immunology

Höllsberglab

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Background

The key topic of our research is how viruses interfere with their host cell and thereby cause disease. Our projects fall within two main categories:

1. Herpesviruses and host cell interactions
Although primary infection with Human Herpesvirus 6A/B (HHV-6A/B) usually is a harmless event (it causes the childhood disease exanthema subitum), the virus is able to establish lifelong latency in the host, and rather inconveniently may reactivate later in life. A reactivation may cause serious complications of high clinical relevance. Our projects aim at improving our knowledge of the cellular mechanisms controlling latency, reactivation, and host-virus interactions.

2. Multiple sclerosis - etiology and pathogenesis
Multiple sclerosis (MS) is a chronic neurologic disease with pathological changes in the brain involving demyelination. The pathogenesis of MS is unknown, but viral infection is among the factors believed to contribute to its development. Affiliated viruses include Epstein Barr virus (EBV) and Human Herpesvirus 6A/B (HHV-6A/B). Ongoing projects within this theme include: Characterization of the role of CD46 and immunoregulatory cells in MS; EBV and B cells in MS; HHV-6A/B and immune cells.

Projects and techniques

The projects we offer are based on the current status of ongoing projects. In general, as a student in our group, you will work in close collaboration with a PhD student or a postdoc, who will help you become familiar with techniques and laboratory routines.

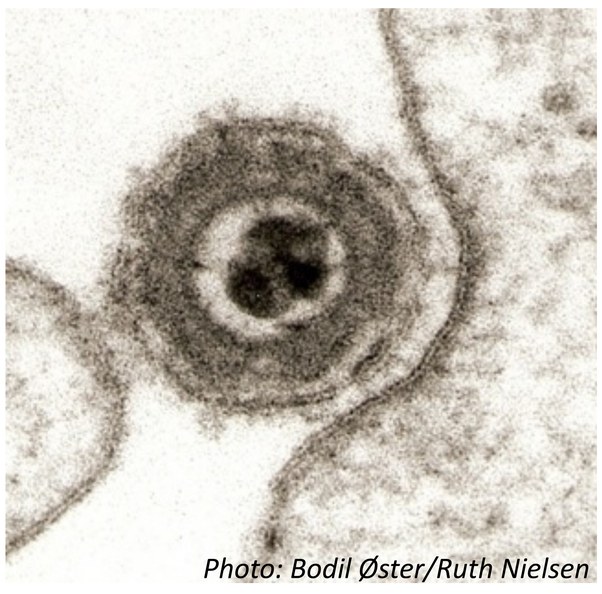

Photo: Bodil Øster/Ruth Nielsen

The techniques we use span widely, from DNA/RNA work (cloning, PCR, purification of RNA, cDNA preparation, qPCR, gene-editing by CRISPR-Cas9), to protein characterization (ELISA, Western blotting, flow cytometry, confocal microscopy), cell work (sterile work with stable cell lines and primary cells, transfections and lentiviral transduction), and viral expansion and infection. The techniques in your project will usually comprise several of the ones mentioned above, depending on your experience, and the length of your affiliation to the group.

In addition to Per Höllsberg and Vivien Schack, the Höllsberglab currently consists of one laboratory technician, one PhD student, two MSc-students, and two Bachelor-students. We hold weekly group-meetings where ongoing projects are presented and discussed.
For more information please contact Per Höllsberg or Vivien Schack.

References relevant to projects:

- Hansen AS et al., 2017. Divergent tropism of HHV-6A$_{GS}$ and HHV-6B$_{PL1}$ in T cells expressing different CD46 isoform patterns. Virology 502:160-170.
- Hansen AS et al., 2016. Non-random pairing of CD46 isoforms with skewing towards BC2 an C2 in activated an memory/effector T cells. Sci Rep. 14; 6:35406.
- Tørring C et al., 2013. The B1-cell subpopulation is diminished in patients with relapsing-remitting multiple sclerosis. J Neuroimmunol. Sep 15;262(1-2):92-9.

www.hollsberglab.au.dk