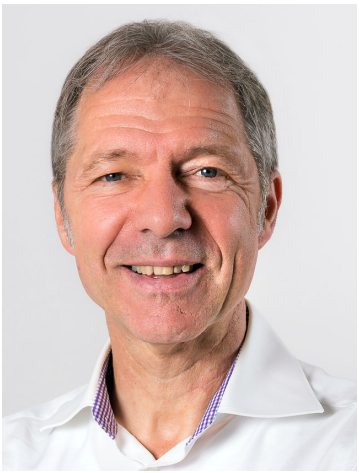
# COVID-19 research seminar



## Ralf Bartenschlager

Heidelberg University Hospital, DKFZ

**Talk title:**
Architecture and biogenesis of ER-derived viral replication organelles

## Kristian Sandberg

Uppsala University, SciLifeLab

**Talk title:**
Establishing a drug discovery platform for corona virus disease at SciLifeLab

**Wednesday, December 1, 2021, at 15:15-16:45**

**Online via Zoom**

**Ralf Bartenschlager** is a virologist and cell biologist working in the field of RNA viruses. He researches the interaction between these viruses and their host cells with a special focus on the multiplication strategy of RNA viruses and the use of these findings for antiviral therapy. Another focus is the control of viral infection by the innate immune response. The work is mainly carried out with flaviviruses, hepatitis C virus and SARS-CoV-2.

**Kristian Sandberg** is an immunologist with extensive experience of drug discovery in inflammation, autoimmunity and respiratory disease as well as neuroscience. Kristian is co-Director of the SciLifeLab Drug Discovery and Development platform.

**Abstracts**

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## Ralf Bartenschlager

Talk title:
Architecture and biogenesis of ER-derived viral replication organelles

Plus-strand RNA viruses comprise a large group of human pathogens such as flaviviruses, to which Dengue virus and Zika virus belong, hepatitis C virus (HCV) and SARS-CoV-2. These viruses replicate in the cytoplasm where they induce distinct membranous structures. These are often derived from the ER and serve as sites of viral RNA replication by providing a shielded environment against hostile cellular attacks and facilitating the coordination of the different steps of the viral replication cycle. Morphologically, these replication organelles correspond to membrane invaginations (e.g. flaviviruses) or double-membrane vesicles (HCV and SARS-CoV-2). In my presentation I will use a comparative analysis of HCV and SARS-CoV-2 to show that in spite of their phylogenetic distance, both viruses exploit similar host cell factors and pathways to build up their replication organelle and how this process differs from the one induced by flaviviruses.

## Kristian Sandberg

Talk title:
Establishing a drug discovery platform for corona virus disease at SciLifeLab

The Covid-19 pandemic hit the world in early 2020. At this time, SciLifeLab was not prepared tackle the urgent responses to counter this new disease and this was also true to support the development of new anti-viral treatments. In my presentation I will describe how the Drug Discovery and Platform at SciLifeLab and industry jointly made our resources available and how new promising drug candidates have been discovered in collaboration with national and international academic scientists. In the team, we decided to focus our efforts on the main protease of SARS-CoV2 and we have identified novel, selective and high affinity (<100 nM) inhibitors of coronavirus with interesting pharmacological properties that merits them for further development.

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