

“Liquid Organelles”

Meeting report of the 19th Workshop “Cell Biology of Viral Infections” of the German Society of Virology (GfV) in Schöntal, October 20th–22nd, 2021.

By Thomas Hoenen¹ and Eva Herker²



Group photo with 2021 workshop participants in front of the main building of the Cistercian Monastery Schöntal.

This year, the Workshop “Cell Biology of Viral Infection” of the German Society of Virology (GfV) was focused on Liquid Organelles. The lectures of the four keynote speakers of the 2021 meeting perfectly illustrated different aspects of principles of liquid-liquid phase separation, ranging from biophysical principles to disease-related processes and viral replication organelle formation.

In 2020, Dr. Thomas Hoenen (Friedrich-

Loeffler-Institute) and Dr. Eva Herker (Philipps-University Marburg) took over organizing the annual workshop. Due to the SARS-CoV-2 pandemic, the 2020 meeting on Liquid Organelles had to be postponed. It now took place from October 20th to 22nd 2021 as an in-person meeting, following 2G rules of Baden-Württemberg, at the Monastery Schöntal, Germany. We were very pleased that almost all participants were able to directly stay at the

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conference site, which stimulated active discussions during the poster session, lunch and dinner gatherings, as well as at the social events.

The theme of this year was “Liquid Organelles”, an emerging field in cell biological research that is key to replication of many negative-stranded RNA viruses and likely beyond. The program included four keynote lectures, 24 oral presentations, and a poster session. The workshop resonance was again great with 48 on-site participants, including among others 38 students and post-docs.

The majority of the participants were virologists from Germany, but also scientists from Switzerland, Poland, France and Portugal attended the meeting. The four excellent keynote speakers from the Netherlands, Switzerland, France, and Italy, as well as the enthusiastic participants significantly contributed to the success of the workshop. Noteworthy was the active participation of students and postdocs in the discussions during and after the sessions.

The workshop opened with the exciting keynote lecture “Phase separated compartments in the nucleus and protein quality control” given by Dr. Mark Steffen Hipp from the University of Groningen, Netherlands. His research focusses on the investigation of toxic effects of protein aggregates in phase-separated compartments in the nucleus and the interactions of multiple different disease-associated proteins with the cellular quality control machinery, highlighting the impact of phase separation on neurological disorders.

Dr. Yves Gaudin from CNRS, Institut de Biologie Intégrative de la Cellule in Gif sur Yvette, France, underscored the importance of liquid-liquid phase separation for the formation of replication organelles, in this case of rabies virus, a negative-stranded RNA virus. The research he presented focused on the exciting interplay between viral factories and innate immunity during rabies virus infection.

The third insightful keynote lecture presented by Dr. Monika Fuxreiter from the University of Padova, Italy, illustrated the biophysical principles that guide the formation of liquid

organelles as well as protein interactions in within these condensates. Her work also illustrated the utility of computational tools and in vitro studies to elucidate the role of conformational states of proteins in condensation.

Finally, Dr. Lucas Pelkmans from the University of Zurich, Switzerland, presented his exciting work on DYRK kinases, which act as regulators of intracellular condensate formation. His work revealed cellular signaling pathways that can be manipulated to control the formation of liquid organelles.

Among the many excellent presentations from junior scientists, the audience voted on the prize winner for the best oral presentation. Sophie Winter from Petr Chlanda’s group at the University of Heidelberg, Germany, was awarded the prize for the best oral presentation for her work entitled “Cryo-electron tomography reveals Ebola virus uncoating at low pH”.

As in previous years, the workshop featured a poster session in addition to the oral presentations. This year, the two keynote speakers Yves Gaudin and Mark Steffen Hipp had the difficult task to pick the best poster presentation. Georgios Vavouras Syrigos from Michael Schindler’s lab at the University of Tübingen, Germany, was selected for his work on “Regulation of SAMHD1 upon HCMV infection and potential of CDK4/6 inhibitors to suppress HCMV replication in macrophages”.

According to immediate feedback from participants, the fact that the meeting took place as an in-person workshop was highly appreciated. Students, postdocs, and PIs lauded the exciting contents and quality of the keynote lectures. Everyone praised the high quality of all presentations and the friendly and engaging atmosphere in which the meeting took place.

The organizers would like to thank the German Society for Virology (GfV), the German Society for Cell Biology (DGZ), and the company ReBlikon for their support. The workshop would not have been possible without these generous contributions.

The date, topic, and venue for the next workshop are already decided on: The 20th Workshop “Cell Biology of Viral Infection” of the German Society of Virology (GfV) will take place from October 12th to 14th 2022 at the Monastery

Schöntal. The exciting topic will be “Organoids”. More information and updates can be found on the workshop’s website:

<https://cellviro.g-f-v.org/>



Photos of the winners of the prize for the best oral (left) and poster (right) presentation of the 2021 workshop.