

Cell biology of zoonotic viral infections: from reservoirs to humans

Meeting report of the 18th Workshop “Cell Biology of Viral Infections” of the German Research Platform for Zoonoses and German Society of Virology (GfV) in Schöntal, October 23rd–25th, 2019.

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Group picture with 2019 workshop participants in front of the main building of Kloster Schöntal.

This year, the workshop “Cell Biology of Viral Infection” was a joint initiative of the German Research Platform for Zoonoses and the German Society of Virology (GfV). New cell biological tools and approaches are clearly needed to understand fundamental principles of zoonotic viral infections, which may then enable preclinical research. The research of the four keynote speakers of the 2019 meeting perfectly illustrates this view.

As in 2017 and 2018, Dr. Pierre-Yves Lozach (Heidelberg) and Dr. Gisa Gerold (Hannover) organized the annual workshop. The conference was held at Kloster Schöntal, Germany, for the sixth consecutive time; this year from October 23rd to 25th 2019. All participants stayed directly at the conference site, which stimulated active discussions during lunch and dinner gatherings as well as during the social events such as the wine tasting in the cellar.

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The theme of this year was “Cell biology of zoonotic viral infections: from reservoirs to humans”. The program included four keynote lectures, a workshop on scientific editing, 20 oral presentations, and a poster session. The workshop resonance was again great with 48 participants, including among others 33 students and postdocs.

The majority of the junior scientists were virologists from various German academic research institutes, but also many scientists from Pasteur Institute in Paris came to the former Cistercian monastery. The four excellent keynote speakers from England, Scotland, and Germany as well as the enthusiastic participants significantly contributed to the success of the workshop. We were extremely satisfied that students actively participated in the lively discussions with their colleagues including the keynote speakers.

The workshop opened with the inspiring keynote lecture “Exploring the diversity of mosquito-borne viruses” given by PD Sandra Junglen from the Charité Universitätsmedizin, Berlin. PD Junglen investigates mosquito-borne viruses in Africa and discussed the role of the mosquito vectors in virus spread and transmission to human populations.

Prof. Stephan Becker from the University Marburg gave the second enlightening keynote, entitled “Reaching borders: intracellular transport of filoviruses”. Prof. Becker devoted his career to studying filoviruses, among others Ebola and Marburg viruses. His work is an excellent illustration of how virus research can contribute to a better understanding of complex cell biological processes such as actin dynamics.

The third exciting keynote, “Tick cell lines: tools for zoonotic virus research”, was given by Dr. Lesley Bell-Sakyi from the University of Liverpool, United-Kingdom. Dr. Bell-Sakyi dedicated her career to studying ticks. She established more than 30 tick cell lines. In her talk, she put a particular emphasis on the Tick Cell Biobank, through which scientists can acquire cell lines from various ticks and other arthropods. Dr. Bell-Sakyi then explained how these cells constitute important tick vector model systems that can help to improve our

understanding of the numerous zoonotic pathogens transmitted by ticks.

Prof. Alain Kohl from the MRC-University of Glasgow, United Kingdom, gave the final keynote on “Zika virus interactions with innate immunity and neurotropism”. He beautifully described latest cutting-edge research on the globally emerging flavivirus Zika. His work shows the importance to better define the cell biology of emerging viruses to prevent infection of humans and other mammalian hosts.

This year, for the third time an interactive session on scientific editing was organized. To this end, Prof. Karen Mossman, MacMaster University, Hamilton, Canada, was invited as an academic editor at PLoS Pathogens. She gave an entertaining and insightful talk on “Combatting “fake news”: how to structure and disseminate research findings to effectively reach your targeted audience”. The presentation addressed the editorial process and pitfalls during manuscript submission. Prof. Mossman also gave a lot of hints to improve the writing and presentation of a manuscript. This provided an excellent platform for students to interactively discuss questions regarding the submission of their scientific work to international peer-reviewed journals such as PLoS Pathogens.

Among the many excellent student presentations, the prize committee had the hard task to select one prizewinner for the best oral presentation. Dr. Yasutsugu Suzuki from the group of Dr. Maria-Carla Saleh at Pasteur Institute, Paris, France was awarded the prize of the best oral presentation for his work entitled “Functional investigation of endogenous flaviviral elements in *Aedes* mosquitoes”.

As the last two years, the 2019 workshop featured a poster session in addition to the oral presentations. The poster session was extremely well attended with many fruitful discussions in a friendly environment. This year, the audience voted for the best poster presentation. Dr. Psylvia Léger from the Lozach lab, University of Heidelberg, received the award for the best poster presentation for her work on a “Virus-encoded amyloidogenic protein”.

According to immediate feedback from participants ranging from students to keynote speakers, everybody praised the high quality of all presentations, the friendly and engaging discussions that lasted until the last glass of wine. In particular the students appreciated the feedback on their work and also the possibility to discuss career perspectives in research with young and senior PIs.

The organizers would like to thank the German Research Platform for Zoonoses, the German Society for Virology (GfV), and the German Society for Cell Biology (DGZ) for their support. The workshop would also not have been possible without generous contributions from the Chica and Heinz Schaller (CHS) Foundation as well as the company ReBlikon.

This was the third and final year for Dr. Pierre-Yves Lozach and Dr. Gisa Gerold to host the workshop. The co-coordinator positions have been passed, upon voting, to Dr. Thomas Hoenen from Friedrich-Loeffler-Institut and Dr. Eva Herker from the University of Marburg. They will continue the tradition of a lively and student friendly meeting at the Kloster Schoental. More information and updates can be found on the workshop's website (<https://cellviro.g-f-v.org/>).