Epizone short scientific mission at The Pirbright Institute **(24-28 June; 12-16 August 2019)**

Thanks to the financial support given by the EPIZONE short term mission, I had the opportunity to visit The Pirbright Institute, Surrey, England. My visit was hosted by Dr. Pip Beard and her Large DNA viruses group. The short term mission was split in two weeks: one in June, 24-28 and the second in August, 12-16. During the first visit, in June I was given a tour of the institute and visited different labs. I had the occasion to enter in the high containment area and see procedures like MDBK cells infection with capripoxviruses, cell sonication and virus purification. Dr. Ismar Haga, a post-doc from the group, explained me all these procedures and we discussed about how I can adjustmy methods back home at the University of Zürich where I am based. I had the chance to see some cell plates with lumpy skin disease virus (LSDV) foci (cytopathic effect-CPE) fixed with Chrystal violet. Lumpy skin disease virus has a different CPE in cells compared with other viruses; it is characterized by cell round in and cell aggregation. It has been explained to me how to look at this specific CPE and how to differentiate it. Dr Petra Fay, another post-doc from the group, showed and explained me the serological assays they use to quantify the humoral immune response to LSDV. They use an optimised immunofluorescent virus neutralisation test and immunofluorescent monolayer assay which were developed and compared using serum from infected cattle with LSDV. I also got in contact with scientists from the Entomology group headed by Dr. Simon Carpenter. Dr. Jessica Stokes and Zoe Langlands gave me a tour of the insectary and their labs. I was able to see all the colony of insects they had and how they are breed and fed. They showed me the trapping systems they use in the field and we also discussed and exchanged ideas of the potential sites where *Stomoxys calcitrans* can be captured. Dr Adrian Zagrajek showed me the colony of *Stomoxys calcitrans*, he explained me in detail all the procedure from starting the colony and maintaining it. Thanks to his rigours protocol and explanation I was able to start our *Stomoxys calcitrans* colony back in Zürich and successfully use it for my LSDV experiments. At the end of my first week visit I gave a presentation of our work in Zürich. I received good feedback and suggestions of what should I do to improve my work. Afterwards we discussed about our research studies and we agreed that we are trying to answer the similar questions regarding LDSV but using different methods.

The second week of visit was focused on animal experiments study. It was already two weeks since the experiment started and 4 calves were challenged with LSDV. Out of them, one gave clinical signs (lumps all over the body, and high temperature, 41°C). I had the chance to enter every day in the animal high containment with either Dr. Beard or Dr. Beatriz Sanz-Bernardo. I could participate in the daily clinical examination of animals. Dr. Beatriz Sanz-Bernardo has a good experience with large animals and experimental studies on them. She explained me very well the status of the animal showing clinical signs of LSDV. She showed me different types of lumps which could be observed on the animal, lumps in the muscular area, which were quite big and firm and covered with skin and fur compared with skin lumps which were more superficial, necrotic, and others which had exudate coming out. Some lumps became “sitfast”, a characteristic of lumpy skin disease, which means there was a hemorrhagic exudate subjacent to the necrotic center of a papule. She also explained me how the insect feeding of *Stomoxys calcitrans*, *Culicoides nubeculosus* or *Aedes aegypti* took place on the animal. We exchanged opinions and experience on viral DNA extraction from insects and attempting to isolate the virus in cell culture. This method seems quite difficult and challenging. She kindly shared with me her protocol which I will further use in my experiments.

This experience had a huge impact on me as a veterinarian, because it was the first time when I was part in an animal experiment. It is different involvement to see the live animal compared with photos and this remains forever in the memory.

In summary, I achieved almost all the proposed objectives of my mission (except the technique of immunolabeling of arthropod cryosections, because no one was available at the time of my visit there) and I received a lot of advices and suggestions which I already started to apply in my research work. Furthermore, I met a lot of scientists from my area of expertise with which I could exchange experience from the lab work and discuss future collaborations. Some of them I we could already see again at the Epizone annual meeting in Berlin.

With this, I would like to thank Dr. Karin Darpel, head of Orbivirus Research in Pirbright, for giving me the idea to apply for a short mission with Epizone.