



D7.7 Laboratory Work Programme Report





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in China and EU

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and zoonoses

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Author list

Name	Organisation
HuajiQiu	HVRI
Lihong Liu	SVA
Yuzi Luo	HVRI
Zhiyong Ma	SHVRI

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RE	Restricted to a group specified by the consortium (including the Commission Services)	
CO	Confidential, only for members of the consortium (including the Commission Services)	

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National Veterinary Institute



Shanghai Veterinary Research Institute



Harbin Veterinary Research Institute



China Animal Health and Epidemiology Center



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Huazhong Agricultural University

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Acronyms

EU	European Union
SVA	National Veterinary Institute
HVRI	Harbin Veterinary Research Institute
SHVRI	Shanghai Veterinary Research Institute
CSF	Classical Swine Fever
ASF	African Swine Fever
PCR	Polymerase Chain Reaction



01.

Introduction

1 Introduction

1.1 Purpose

Task 7.2 Laboratory and Epidemiology Work aims to enhance collaboration between research institutes in China and EU on selected topics through bringing outstanding, interested European and Chinese scholars, researchers and other stakeholders to each other’s institutions.

Based on the research topics and diseases prioritized by European and Chinese partners, the project team will organize three exchange programmes on selected topics.

The exchange programme 1 under the title “Share and exchange technologies in development of novel diagnosis” was organized by HVRI and SVA. The objective of this exchange programme was to exchange research progress, test the newly developed diagnostic methods for CSF and ASF and discuss the possible collaborations between HVRI and SVA.

1.2 Plan of the Exchange programme 1

Exchange work plan		Notes
Topic	Share and exchange technologies in development of novel diagnosis	
Date	June 24-30, 2014/18-31 October, 2014	
Tutor	Huaji Qiu (HVRI)	
Hosting institutions	HVRI and SVA	
Participants	Lihong Liu (SVA) and Yuzi Luo (HVRI)	
Description	<p>(1) Dr.Lihong Liu from SVA visited HVRI on June 24-30, 2014. During the visit, Dr. Liu demonstrated a portable real-time PCR in Dr.Hua-Ji Qiu's lab of HVRI. They exchanged the research progress and discussed the possible collaborations between HVRI and SVA.</p> <p>(2) Dr.Yuzi Luo from HVRI visits SVA on October 18-31, 2014. During the visit, Dr.Luo evaluated several diagnostic assays for CSF and ASF developed in HVRI.</p>	



02.

Exchange activities

2. Exchange activities

2.1 Activities of Dr.Lihong Liu during the visit to HVRI

Dr.Lihong Liu from SVA visited HVRI on June 24-30, 2014. During the visit, Dr.Lihong Liu performed a number of exchange activities, namely she:

- (1) Demonstrated and performed laboratory evaluation of the portable real-time RT-PCR for detection of CSFV.
- (2) Presented results from the EU project Rapidia-field.
- (3) Participated in the round table discussion on research activities with Dr Qiu's group members.
- (4) Discussed the experience of writing scientific articles.
- (5) Discussed and finalized the proposal on the joint research laboratory between SVA and HVRI.
- (6) Outlined future collaboration with Dr Feng's group on swine enteric infectious diseases.
- (7) Visited the institute's diagnostic laboratory and exchanged views with the head of the laboratory.
- (8) Got knowledge from Dr Shengwang Liu on poultry diseases e.g. Newcastle disease in China, and feasibility of on-site detection of viruses and interests of the farm owners.

2.2 Activities of Dr.Yuzi Luo during the visit to SVA

Dr.Yuzi Luo from HVRI visited SVA on October 18-31, 2014 to implement the activities of the Joint Laboratory of Clinical Veterinary Microbiology between SVA and HVRI. During the visit, Dr.Yuzi Luo performed a number of exchange activities, which included:

- (1) Comprehensive study and communication of the metagenomics technology.
- (2) Presentation of the research progress on Pseudorabies virus: "Characterization of a pseudorabies virus variant isolated from Bartha-K61-vaccinated swine population in China and development of a gene-deleted vaccine".
- (3) Introduction of HVRI and the epidemiology and control of important swine viral diseases in China.
- (4) Inter-laboratory evaluation of the newly developed recombinant Erns-based indirect ELISA for CSFV antibody discrimination of infected from vaccinated pigs.
- (5) Inter-laboratory evaluation of the PCR assay for diagnosis of ASF.
- (6) Visiting the facilities of SVA and understanding the surveillance system of SVA for infectious diseases in animals.
- (7) Communication with a number of scientists and managers of SVA and Swedish University of Agricultural Sciences, sharing and exchanging the information on the diagnosis and surveillance of animal infectious diseases.



03.

Overview of main achievements

3 Overview of main achievements

3.1 Achievement of Dr. Lihong Liu visit

(1) SVA and HVRI have established a joint laboratory of veterinary microbiology, approved and signed by the directors from both institutes. A scientific article (Zhou et al., 2014) is jointly published in Vaccine with LinkTADs acknowledged, and several manuscripts are being prepared.

(2) A portable real-time RT-PCR for simultaneous detection and differentiation of African swine fever virus from classical swine fever virus is developed at SVA and further evaluated at HVRI. The assay can be a useful tool for field-based diagnosis of swine fever.

(3) We have expanded our collaboration to swine enteric diseases such as diarrhea. We have agreed to investigate fecal viromes in pig populations in China, Sweden and two other EU countries (Austria and Spain), by metagenomics approach following the same sample preparation and library construction procedures for IlluminaMiSeq platform.

3.2 Achievement of Dr. Yuzi Luo visit

(1) Dr. Luo comprehensively studied the metagenomics technology and communicated with the experts in SVA on the experiences and the crucial points of the procedures, which will be very helpful for HVRI to facilitate reliable diagnosis of animal diseases, discover the new species and understand the diversity of the etiology.

(2) Dr. Luo was invited to introduce and communicate her recent work on the emerging pseudorabies virus virant in China. Also, she gave a brief introduction of HVRI and exchanged the progress and experiences on the diagnosis, surveillance and control of swine viral diseases in HVRI and SVA.

(3) Dr. Luo evaluated the newly developed recombinant Erns-based indirect ELISA for CSFV antibody discrimination of infected from vaccinated pigs, which provides the basis for improving the specificity and sensitivity of the test.

(4) Dr. Luo evaluated the PCR assay for diagnosis of ASF using the ASFV DNA of reference isolates from diverse origin, which provides the reference data for surveillance, risk analysis and control of ASF in China.

(5) Dr. Luo visited the facilities of SVA, including molecular diagnostic laboratory, serodiagnostic laboratory, and P3 facilities, etc. and studying the surveillance system for infectious diseases in animals.

(6) Dr. Luo communicated with scientists and managers of SVA and Swedish University of Agricultural Sciences and exchanged the knowledge on the diverse topics, including surveillance of animal infectious diseases, metagenomic detection of unknown viruses, high throughput detection of animal diseases, ASF surveillance, and the research progress on the CSFV and PRV, etc.

3.3 Conclusion

The first exchange programme was performed by HVRI and SVA in June 24-30, 2014 and 18-31 October, 2014. Two researchers visited each other's institutions, evaluated their newly-developed diagnostic methods, exchanged the knowledge on development of novel diagnosis and discussed the future collaboration. The implementation of this exchange programme strengthened the friendship and enhanced the collaboration between HVRI and SVA on swine infectious diseases. As a main outcome of this exchange programme, a joint laboratory of veterinary microbiology was set up by HVRI and SVA, which would serve as a platform beneficial to LinkTADs implementation as well as the future EU-China collaboration.



04.

Photos of exchange programme

4. Photos of the exchange programme

4.1 Photos of Dr.Lihong Liu visit



4.2 Photos of Dr.Yuzi Luo visit



Seminar and discussion: An Brief Introduction to Harbin Veterinary Research Institute and Recent Work on Pseudorabies Virus