



## D7.8 Laboratory work programme report

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in China and EU

Instrument:

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and zoonoses

**D7.8**

**(D7.8 LABORATORY WORK PROGRAMME REPORT)**

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Partnership



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China Animal Health and Epidemiology Center



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## Acronyms

SVA	Statens Veterinaermedicinska Anstalt
SHVRI	Shanghai Veterinary Research Institute
CRSA	Centre de Recerca en Sanitat Animal
JEV	Japanese Encephalitis Virus
PEDV	porcine epidemic diarrhea virus



# 01.

## Introduction

## 1. Introduction

This task 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.

The exchange programme with the topic of "Collaboration on emerging swine diseases" was performed between SHVRI and SVA (and CReSA). Two scientists from SVA and one from CReSA visited SHVRI from July 19 to 23, 2015. Two young scientists from SHVRI visited SVA from September 21 to 25, 2015.

### 1.1. SVA visit to SHVRI

Between the 19<sup>th</sup> and 23<sup>th</sup> of July 2015, two scientists from SVA and one from CReSA visited SHVRI to participate in the Kick-Off meeting of the JEV project "Eco-epidemiology and Risk Analysis of Genotype Shift of Japanese Encephalitis Virus in Pigs and Mosquitoes". The JEV project was funded as a mirroring project of the LinkTADs by the China-EU international S&T collaboration program, ministry of S&T, China. The purposes of the visit were (i) to bring together the partners of the consortium in order to discuss the strategic and operational issues linked to the JEV project implementation; (ii) to exchange the knowledge and research projects on emerging swine diseases; and (iii) to identify potential collaborations.

Information of the participants from SVA and CReSA is as follows:

- Dr Lihong Liu, PhD, Researcher at Department for Virology, Immunobiology and Parasitology, SVA, Uppsala, Sweden. Research activities include genomic of swine pathogens.
- Dr Frederik Widén, PhD, Senior Researcher/Veterinary Lab Diagnostician, Department of Virology, Immunobiology and Parasitology SVA, Uppsala, Sweden. Research activities include genomic of swine pathogen and hepatitis E virus.
- Dr Fernando Rodríguez, PhD, Principal investigator at CReSA. Research activities include Vaccinology and African swine fever virus.

### 1.2. SHVRI visit to SVA

Between the 21<sup>th</sup> and 25<sup>th</sup> of September 2015, two young scientists from SHVRI visited SVA. The purposes of the visit were (i) to exchange the knowledge and research projects on emerging swine diseases, such as porcine epidemic diarrhea, and (ii) to identify potential collaborations.

Information of the participants from SHVRI is as follows:

- Dr Ke Liu, PhD, virologist at SHVRI, department of swine infectious diseases, is focused on the immune response and pathogenesis of Japanese encephalitis (JE) and porcine reproductive and respiratory syndrome



(PRRS). Research activities include identification of molecules and pathways responsible for immune response and pathogenesis of the viruses.

- Dr Tongling Shan, PhD, virologist at SHVRI, department of swine infectious diseases, is working on porcine epidemic diarrhea virus (PEDV). Research activities include the isolation and identification of viruses related to pig's diarrhea, development of diagnosis and vaccine for PEDV.



# 02.

## Specific activities

## 2. Overview of specific activities

During the exchanges, specific activities included the presentation of research progress, participation to the Kick-off meeting of JEV project and the lab meeting, visiting laboratories, and discussion of potential collaborations.

### 2.1. Presentations

Scientists and students participated in the exchanges presented their knowledge and research projects to understand in depth each other's organisations. The presentations were as follows.

#### 2.1.1. SVA visit to SHVRI

- Coronaviruses in pigs by Dr Frederik Widén from SVA.
- Vaccines and African swine fever virus: getting closer by Dr Fernando Rodríguez from CReSA.

#### 2.1.2. SHVRI visit to SVA

- The molecule mechanism of mosCTL24 mediate JEV transmission in mosquitoes by Dr Ke Liu from SHVRI.
- [Viral Metagenomic in Swine with Diarrhea](#) Dr Tongling Shan from SHVRI.

### 2.2. Kick-Off meeting of the JEV project

Scientists from SVA and students from Dr Zhiyong Ma's group at SHVRI took part in the Kick-Off meeting of the JEV project. Dr Zhiyong Ma introduced the overview of the JEV project, showed the experimental flow chart of implementation, and raised the issues linked to implementation. Dr Frederik Widén and Dr Lihong Liu from SVA and Dr Fernando Rodríguez from CReSA reviewed the implementation plan and the experimental progress, and gave their suggestions and comments in details. Particularly, participants discussed the development of an ELISA method that distinguish the antibodies specific to genotype I and III JEV. Dr Lihong Liu suggested a multiplex microsphere immunoassay to distinguish the antibodies and shared his publications.

- Introduction of the project of "Eco-epidemiology and risk analysis of genotype shift of JEV in pigs and mosquitoes" by Dr Zhiyong Ma from SHVRI.
- Scientists from SVA and SHVRI went to a water village near Shanghai to understand the environments that support JEV transmission cycle in Shanghai area.

### 2.3. Lab meeting

Dr Frederik Widén and Dr Lihong Liu from SVA and Dr Fernando Rodríguez from CReSA took part in the lab meeting of Dr Zhiyong Ma's group. Three young scientists from SHVRI introduced their research projects and presented their research progress. The participants discussed the problems raised during their research.

- Gene expression profiles of pulmonary macrophages in porcine respiratory disease complex (PRDC) by Dr Yafeng Qiu.
- Detection, prevalence and analysis of porcine circovirus type 2 isolates newly emerging genotype PCV2d predominate in PCVAD cases in eastern China by Dr Jianchao Wei.
- The molecular mechanism of mosCTL24 mediate Japanese encephalitis virus transmission in mosquitoes by Dr Ke Liu.

### 2.4. Discussion of collaboration

Dr Frederik Widén and Dr Lihong Liu from SVA, and Dr Fernando Rodríguez from CReSA visited the laboratories of SHVRI and discussed with scientists from SHVRI. Several common interests potential for collaboration in the future were identified. SHVRI and SVA agreed to establish a joint laboratory of animal infectious diseases that will serve as platform for scientific exchange and application of research project.



03.

Achievements

### 3. Achievements

Scientists and students from SVA, CReSA and SHVRI exchanged their research progress, discussed the experimental plan of the JEV project, and identified a potential collaboration during the exchange. The following achievements were remarkable:

- Further understanding of the research activities, interests and advantages of each other and strengthened the collaborations by the presentations and laboratory visit.
- The implementation plan of the JEV project were extensively discussed and re-designed. It will be helpful for the achievement of the JEV project.
- During the exchange, SHVRI and SVA established a good friendship, agreed to sign up an agreement for collaboration on animal infectious diseases, and intend to establish a joint laboratory of animal infectious diseases that will serve as platform for scientific exchange and application of research project.



# 04.

## Appendix



## 4.1 Photos of the exchange



Kick-Off meeting of the JEV project at SHVRI, China



Seminars at SVA, Sweden



## 4.2. Agenda of the exchange programme

### SVA visit to SHVRI

Topic	Collaboration on emerging swine diseases
Date	July 19–23, 2015
Description	Scientists from SVA and CReSA attend the Kick-Off Meeting of JEV China-EU international S&T collaboration project, discuss on the strategic and operational issues linked to the project implementation and exchange the research results and experience on JE and other emerging diseases.
Participants	Drs. Bo Frederik Widén and Lihong Liu (SVA); Dr. Fernando Rodríguez (CReSA); Scientists of SHVRI.
Agenda	<p>Day 1: arrival</p> <p>Day 2:</p> <ul style="list-style-type: none"> <li>(1) Presentations by Drs Bo Frederik Widén and Fernando Rodríguez.</li> <li>(2) Introduction of the JEV project by Dr Zhiyong Ma.</li> </ul> <p>Day 3:</p> <ul style="list-style-type: none"> <li>(1) Lab meeting on emerging swine diseases.</li> <li>(2) Discussion on the strategic and operational issues linked to the JEV project implementation.</li> </ul> <p>Day 4:</p> <ul style="list-style-type: none"> <li>(1) Visit the labs of SHVRI and a water village.</li> <li>(2) Discuss potential collaboration.</li> </ul> <p>Day 5: departure</p>

### SHVRI visit to SVA

Topic	Collaboration on emerging swine diseases
Date	September 21–25, 2015
Description	Scientists from SHVRI, discuss on operational issues linked to the project implementation and exchange the research results and experience on JE and other emerging swine diseases.
Participants	Drs. Ke Liu and Tongling Shan (SHVRI); Scientists of SVA.
Agenda	<p>Day 1: arrival</p> <p>Day 2:</p> <ol style="list-style-type: none"> <li>(1) Introduction of SVA's mission and organization structure.</li> <li>(2) Safety procedures for all visitors.</li> <li>(3) Guided visit to departments, laboratories and sequencing facilities at SVA and also at SLU.</li> </ol> <p>Day 3:</p> <ol style="list-style-type: none"> <li>(1) Two seminars on swine diseases by Drs Shan and Liu.</li> <li>(2) Round-table discussion on swine diseases with SVA experts.</li> <li>(3) Short meetings with SVA's research group leaders.</li> </ol> <p>Day 4:</p> <ol style="list-style-type: none"> <li>(1) Short meetings with SVA's research group leaders (cont).</li> <li>(2) Plan for future collaboration.</li> </ol> <p>Day 5: departure</p>