LinkTADs

D4.6 Collaboration Report

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D4.6
(Collaboration Report)

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01.

Summary

Summary

The objective of WP4 is to select, upgrade and/or implement the cutting-edge diagnostic technologies for early and rapid detection of animal pathogens including zoonotic pathogens via collaboration between EU and Chinese laboratories. Collaborations between HVRI and TPI, SVA and SHVA, HVRI and IAEA, CADC and OIE/FAO, and SHVRI and CIRAD have been established, and a number of collaborative/exchange activities have been carried out.

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02.

Collaboration between HVRI and TPI

Collaboration between HVRI and TPI

Prof. Xiaomei Wang and Prof. Yulong Gao from Harbin Veterinary Research Institute (HVRI) visited The Pirbright Institute (TPI), UK, from June 28 to July 3, 2015. They attended the 2015 Global Alliance for Research on Avian Diseases (GARAD) Conference and presented the research progress and achievements on the avian diseases in China.

Prof. Xiaomei Wang has been selected as one of the experts of the global union advisory committee on avian diseases. During the visit, they also attended the meeting of the TPI partners, gave an introduction of HVRI and discussed the collaboration of control strategies on avian diseases with the experts from UK, the United States and India, etc. In addition, they discussed joint research on avian tumor diseases such as Marek's disease and avian leucosis, application of joint proposals, exchange of visiting students with Prof. Venugopal Nair from TPI. HVRI has agreed to provide the TPI the B lymphocyte cell lines and monoclonal antibodies for Marek's disease virus and introduce 7 SPF chicken stock lines from TPI for avian disease studies.

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03.

Collaboration between HVRI and IAEA

Collaboration between HVRI and IAEA

Dr. Zhe Hu from HVRI attended the *Regional Training Course on Early Detection of Animal Diseases in Post Flooding Environment, with Emphasis on Water Borne and Vector Borne Diseases, Vienna, Austria, 15-16 June 2015*.

During the two-weeks training, Dr. Zhe Hu and another 22 participants from 12 Asia Member States had a series of theoretical classes and practical laboratory sessions with the Seibersdorf-based Animal Production and Health Laboratory, mainly about

- The early diagnostic assays of leptospirosis, bluetongue and West Nile using PCR, real-time PCR and ELISA kits.
- Basic knowledge and experimental stills.
- Data collection, data management and visualization.
- Web resources for technical information on diseases. And so on.

It was a very useful training, the knowledge and experience can help the participants feed into their national surveillance and control programs for flood-related diseases. It was an important platform for the researchers to communicate with each other. It also served as a very fruitful start for Chinese researchers to be involved in creating a network for the diagnosis of diseases at an early stage and rapid dissemination of information to international veterinary authorities.

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04.

Collaboration between SVA and SHVRI

Collaboration between SVA and SHVRI

To enhance collaboration between research institutes in China and the EU, an exchange plan with the topic of "Collaboration on emerging swine diseases", was carried on between SHVRI and SVA (and CReSA).

Description of activities:

There are two visiting activities included in the plan: 1) Two scientists from SVA and one from CReSA visited SHVRI from July 19 to 23, 2015; 2) Two young scientists from SHVRI visited SVA from September 21 to 25, 2015.

1. **SVA and CReSA visit SHVRI:**

Between the 19th and 23th of July 2015, two scientists from SVA (Dr. Lihong Liu and Frederik Widén) and one from CReSA (Dr. Fernando Rodríguez) 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", which was funded as a mirroring project of the LinkTADs by the China-EU international S&T collaboration program, Ministry of S&T, China. During this visit, the researcher from China and EU (SVA and CReSA) gave the presentations for exchange of research information. The research presentations covered progress on prevention and control of swine hepatitis E infections, African swine fever virus infections, Japanese encephalitis virus infection, porcine circovirus type 2 infeciton and swine ploymicrobial lung infections.

2. SHVRI visits SVA:

Furthermore, to exchange knowledge and research projects on emerging swine diseases, especially porcine epidemic diarrhea disease, between the 21th and 25th of September 2015, two young scientists from SHVRI (Dr. Ke Liu and Tongling Shan) visited SVA. During this visit, the researchers from SVA and SHVRI, had broad discussiones on the control and prevention of emerging swine diseases including porcine epidemic diarrhea disease.

Major Achievements:

- 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 projects.
- The partners initiated and implemented the collaborative research on the joint JEV project.
- In addition, several other common interests with potential for collaboration in the future were identified such as control and prevention of porcine epidemic diarrhea disease, porcine respiratory disease and so on.

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05.

CADC and OIE/FAO training on swine diseases

CADC and OIE/FAO training on swine diseases

On April 13-17, Veterinary Bureau of the Ministry of Agriculture of China and World organization for Animal Health (OIE) jointly held the Regional Hands-on Laboratory Training on PRRS and Other Swine Disease Diagnosis in Beijing, China. The training was organized by China Animal Disease Control Center (CADC).

As one of the largest countries for pig farming in the world, China owns more than 50% of worlds' pig population and the Chinese government attaches great importance to reginal collaboration on animal disease prevention and control. At present, there is a diversity in diagnostic capacity among national level veterinary laboratories in Asian countries, which affects the implementation of regional prevention and control strategy of swine diseases. In order to tackle this problem, China launched a 'swine disease prevention and control project in Asia' under the support of World organization for Animal Health (OIE). One of the important activities of the project was the hands-on laboratory training on PRRS and other swine disease diagnosis aimed at improving regional laboratory diagnostic ability and gradually achieving regional control of major swine diseases.

About 15 trainees from 9 countries participated the training, such as Mongolia, Cambodia, Indonesia and Thailand. Mr Zhang Zhongqiu, China CVO gave the welcoming address. He pointed out that an information sharing platform should be set up between the regional reference laboratories and national veterinary diagnostic institutes in member states. The exchange and collaboration in swine diseases diagnosis should be improved and the disease diagnostic ability and the whole prevention and control ability strengthened. During the training, the experts from OIE reference laboratories delivered lectures and practical demonstrations on laboratory diagnostic technologies, such as serological diagnosis, virus diagnosis and molecular biology diagnosis, and guided the trainees through the hands-on session.

The Training agenda is included in the Annex.

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06.

Joint publications

Joint publications

HVRI, SVA and TiHo:

Luo Y, Li L, Austermann-Busch S, Dong M, Xu J, Shao L, Lei J, Li N, He WR, Zhao B, Li S, Li Y, Liu L, Becher P, Sun Y, Qiu HJ. Enhanced expression of the E^{rns} protein of classical swine fever virus in yeast and its application in an indirect enzyme-linked immunosorbent assay for antibody differentiation of infected from vaccinated animals. J Virol Methods. 2015 Sep 15;222:22-7

FLI, CAU, SHVRI, and HVRI:

Wendlandt S1, Shen J2, Kadlec K1, Wang Y2, Li B3, Zhang WJ4, Feßler AT1, Wu C2, Schwarz S5. Trends Microbiol. Multidrug resistance genes in staphylococci from animals that confer resistance to critically and highly important antimicrobial agents in human medicine. 2015 Jan;23(1):44-54. doi: 10.1016/j.tim.2014.10.002.

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07.

Agreement on collaborative research on JEV between SHVRI and CIRAD

Agreement on collaborative research on JEV between SHVRI and CIRAD.

With the help of LinkTADs project, and also collaboration of JEV project which has been founded by the China-EU international S&T collaboration program, Ministry of S&T, China, SHVRI and CIRAD plan to set up a joint laboratory of vector-borne Zoonoses. The aim of the joint laboratory is to improve control and prevention of vector-borne Zoonoses through the following joint activities:

-Enhancing research collaboration on selected topic like eco-epidemiology of some vector-borne pathogens;

-Jointly applying for grants from China and France or EU;

-Exchange and training of scientists and students;

-Exchange of disease information and protocals for epidemiologic assay, diagonostic assay.

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08.

Conclusions

Conclusions

To achieve the goal of WP4, a collaborative network has been established within the LinkTADs project, including collaborations between HVRI and TPI, SVA and SHVRI, HVRI and IAEA, CADC and OIE/FAO, and SHVRI and CIRAD. This network provides a platform for researchers to communicate and collaborate between China and EU on the diagnosis and control of important animal infectious disease. A number of short-term visits and collaborative/exchange activities have been carried out. The next steps will be to expand the existing collaboration network and to organize more exchange activities and collaborations within the network.

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09.

Annex

Regional Hands-on Laboratory Training on PRRS and Other Swine Disease Diagnosis

13-17 April 2015, Beijing, China

Provisional Agenda

DAY 1	MONDAY	
8:30 - 9:00	Registration	
9:00 - 9:20	Opening session	
	Remarks by China	CVO of China
	Remarks by OIE RRAP	Hirofumi Kugita
9:20 - 9:35	Introduction of CADC, RL	Shengpeng Xin
9:35 - 9:45	Outline of the training	Xinyan Zhai
9:45- 9:50	Group photo	
9:50 - 10:10	Tea break *	
10:10 - 11:50	Country report: brief national swine disease diagnostic systems and main constraints (Mongolia, Cambodia, Chinese Taipei, Indonesia, Laos, Myanmar, Philippines, Thailand and Vietnam)	Xinyan Zhai
11:50 - 12:00	Discussion and set trainees into 2 groups	Zhi Zhou
12:00 - 13:00	**Lunch**	
13:00 - 13:20	General procedures of collection, submission and storage of live viral diagnostic specimens	Lin Yuan
13:20 - 15:10	Group 1: cell culture (Marc-145), cell passage	Lin Yuan
	Group 2: Instruction of fluorescent antibody test (FAT), immunoperoxidase monolayer assay (IPMA), virus neutralisation test (VN) for PRRSV and CSFV*	Zhi Zhou
15:10 - 17:00	Groups rotated	

18:00 - 19:30	Welcome dinner	Hirofumi Kugita

DAY 2	TUESDAY	
8:30 - 9:30	General standards for managing biorisk in the veterinary laboratory	Xinyan Zhai
9:30 - 9:50	Discussion	Xinyan Zhai
9:50 - 12:00	General procedures of tissue specimens collection, preparation for virus isolation (saliva, tissue grinding, RT-PCR test preparedness)	Lin Yuan
12:00 - 13:00	**Lunch**	
13:00 - 15:00	PRRSV isolation and culture (Group 1)	Lin Yuan
	Practice of PRRS serological tests (FAT/IPMA) (Group 2)	Zhi Zhou
15:00 - 17:00	Groups rotated	

DAY 3	WEDNESDAY	
8:30 - 10:00	Instruction of fluorescence real-time RT-PCR for PRRSV/FMDV/PEDV	Jiajun Wu
10:00 - 10:30	Discussion	
10:30 - 12:00	Practice of PRRSV VN test	Jiajun Wu
12:00 - 13:00	**Lunch**	
13:00 - 17:00	Practice of PRRSV real-time RT-PCR	Jiajun Wu

DAY 4	THURSDAY	
8:30 - 9:30	Instruction of ELISA for PRRSV/FMDV/CSFV*	Yingyi Liu
9:30 - 9:50	Discussion	Yingyi Liu
9:50 - 12:00	Practise of ELISA for PRRSV	Yingyi Liu
12:00 - 13:00	**Lunch**	Yingyi Liu
13:00 - 15:00	Interpretation of results of ELISA	Yingyi Liu
15:00 - 17:00	Observation of cytopathic effect (CPE) of PRRSV	Lin Yuan

DAY 5	FRIDAY	
8:30 - 9:30	Instruction of TCID50	Zhi Zhou
9:30 - 9:50	Discussion	Zhi Zhou
9:50 - 12:00	Observation of TCID50 and VN	Lin Yuan

12:00 - 13:00	**Lunch**	
13:00 - 15:00	Summarisation and discussion for further cooperation	Xinyan Zhai
15:00 - 17:00	Wrap up, certification offering	OIE/CADC
	Close training	

* Morning / afternoon tea breaks are available in a flexible time during the training.