LinkTADs

D 4.3 Workshop Report

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D4.3 Workshop Report

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PP	Restricted to other programme participants (including the Commission Services)	
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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01	24/07/2015	Preliminary version	Hua-Ji Qiu, Yuzi Luo
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Partnership

Food and Agriculture Organization of the United Nations

Animal Production and Health Section

Joint FAO/IAEA Programme for Nuclear Techniques in Food and Agriculture

Europa Media Non-profit Ltd.

Royal Veterinary College

Centre de Coopération Internationale en Recherche Agronomique pour le Développement.

National Veterinary Institute

Shanghai Veterinary Research Institute

Harbin Veterinary Research Institute

China Animal Health and Epidemiology Center

China Animal Disease Control Center

Sociedade Portuguesa de Inovação

Huazhong Agricultural University

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Workshop summary

Workshop summary

As a part of tasks of WP4, the WP4 3rd Workshop on *Novel Vaccines against Priority Transboundary Animal Diseases* organized by HVRI was held in Harbin, China on July 16-17, 2015. The major goal of LinkTADs WP4 Workshops is to establish a network for all laboratories involved in this project to exchange and discuss the diagnostic technologies and vaccine development for the LinkTADs priority diseases. Since the 1st and 2nd WP4 Workshops held in Shanghai in 2014, wide collaborations among partners have been established. The main objective of the 3rd Workshop is to strengthen these collaborations on vaccine development (e.g. new ideas, design, development, modification/update, evaluation, registration, applications, or literature review, etc.) and any efforts aimed at improved control strategies against priority transboundary animal diseases in EU and China.

During the one-and-half-day workshop, 50 participants including scientists, experts and students from 11 institutions from China and Europe attended the workshop. With respect to the gender distribution, 34% of the participants were female. Fourteen delegates, including three invited speakers from Europe and China outside the consortium, presented their research progress and challenges on the vaccine development against priority transboundary animal diseases, including porcine reproductive and respiratory syndrome (PRRS), classical swine fever (CSF), African swine fever (ASF), pseudorabies, porcine viral diarrhea (PED), Japanese encephalitis (JE) and avian influenza (AI).

Dr. Hua-Ji Qiu from HVRI hosted the workshop. Dr. Xiaomei Wang, a deputy director of HVRI, gave the welcome address, introducing the objectives of the workshop and extended thanks to the partners for their efforts to make the workshop happen.

Session on vaccines for PRRS and swine fever chaired by Zhiyong Ma from SHVRI

- Dr. Hanchun Yang from the China Agricultural University (CAU) gave an overview on the current situation and control of PRRS in China. He stressed that PRRS remains one of the major problems for swine production. The emergence of new PRRSV strains with high pathogenicity is a challenge for the control of PRRS. He suggested that attenuated live vaccines derived from HP-PRRSV must be strategically used, and relatively safe live vaccines should be considered. He also emphasized that further dissections of PRRSV pathogenesis and immunity are necessary for effective control of the disease.
- Dr. Xinyan Zhai from CADC presented a report on the isolation and identification of a HP-PRRSV strain (JXA1 strain), and the construction and evaluation of an attenuated live vaccine (JXA1-R) against HP-PRRSV.
- Dr. Paul Becher from the University of Veterinary Medicine Hannover (TiHo) presented the recent developments on the epidemiology, diagnosis and control of CSF in Europe. He concluded that, except for a small outbreak in Latvia, the EU is free of CSF, and strict control measures are essential to maintain such freedom.
- Dr. Hua-Ji Qiu from HVRI presented the development of a chimeric vector-based marker vaccine against CSF. He introduced the chimeric vector-based vaccine rAdV-SFV-E2, which was safe and able to provide sterilizing

immunity and complete protection comparable to C-strain. The vaccine represents a promising DIVA vaccine with potential to be included in CSF eradication in countries where CSF is present.

- Dr. Fernando Rodríguez from Centre de Recerca en Sanitat Animal (CReSA/IRTA) presented the current situation of ASF and the progress in vaccine development against ASF. He demonstrated that BA71.ΔfX, a recombinant live attenuated vaccine, confers protection against homologous and heterologous ASFV, and also showed how DNA immunization could become a fantastic tool to dissect both the mechanisms and the specific antigens involved in protection against ASF. He believes that a vaccine against ASF is not a utopia. It just needs working in a collaborative manner, time and resources.

Session on emerging diseases and zoonoses chaired by Dr. Fusheng Guo from FAO China

- Dr. Frederik Widén from SVA presented an overview of coronaviruses in pigs, including transmissible gastro enteritis virus (TGEV), porcine epidemic diarrhea virus (PEDV), etc., and diagnostic tools for PED.
- Dr. Pinghuang Liu from HVRI gave an overview on the epidemiology and vaccine development efforts against swine enteric coronavirus in China. He reported that PEDV is the leading pathogen causing pig viral diarrhea in China, where 60-80% pig farms are positive for PEDV followed by TGEV and PoRV. Co-infections (TGE, PED and PoRV) are also common. HVRI developed the first TGE/PED/PORV triple-combined vaccine in the world, which can effectively protect pigs against the three major agents of porcine viral diarrhea.
- Dr. Qigai He from HZAU reported on the development of a novel killed gE-negative vaccine against a re-emergent porcine pseudorabies in China.
- Dr. Zhiyong Ma from SHVRI presented the construction and characterization of porcine parvovirus-like particles harboring B and T cell epitopes of Japanese encephalitis virus (JEV).
- Dr. Flavie Goutard from CIRAD presented the tools for the evaluation of vaccination strategy. She introduced the EVADOC model for modeling the distribution of poultry immunity in the value chain network. The principle of the EVADOC model is to combine network analysis with a stochastic immunity model to assess the immunity level of the poultry population represented in the network, which is currently being adapted to evaluate the vaccination strategies against Newcastle disease.

Session on influenza vaccines and control in China chaired by Dr. Jingli Kang from CAHEC

- Dr. Chengjun Li from HVRI presented the development and applications of AI vaccines in China. He introduced the development and update of a series of new H5N1 inactivated vaccines and recombinant NDV vectored H5HA vaccines with applications in poultry, which has played an important role in the prevention and control of H5N1 HPAI in China and other countries. He also introduced the development of a platform for generation of recombinant DEV expressing H5N1 HA gene, which could work as a bivalent live vaccine for DEV and H5N1 in ducks and as a single dose vaccine for H5N1 virus in broilers. Its future applications will be a perfect solution for the low vaccination coverage rate in ducks and broilers, which is the major challenge for the complete control or eradication of the disease.

- Dr. Yin Li from CAHEC introduced the national AI survey and surveillance plan, and an overview on epidemiology of AI in China. He concluded that AI is wide spread in China, including poultry farms, water system, forest, live bird market, with multiple host and complicated ecology.
- Dr. John Edwards from FAO presented the progress made by FAO ECTAD on assisting China to control high impact influenza viruses.

Session on discussion facilitated by Dr. Lihong Liu from SVA

Dr. Lihong Liu facilitated the discussion of participants to exchange their opinions and ideas towards vaccine development and vaccination against priority transboundary animal diseases in next decade, such as PRRS and ASF, which is expected to form a possible EU-China joint proposal. The participants gave many ideas and suggestions that will be helpful for designing next-generation vaccines.

Dr. John Edwards from FAO China made the closing remarks on behalf of FAO. He summarized the workshop, appreciated those who contributed to its success and at last declared the meeting closed.

Photos of the workshop

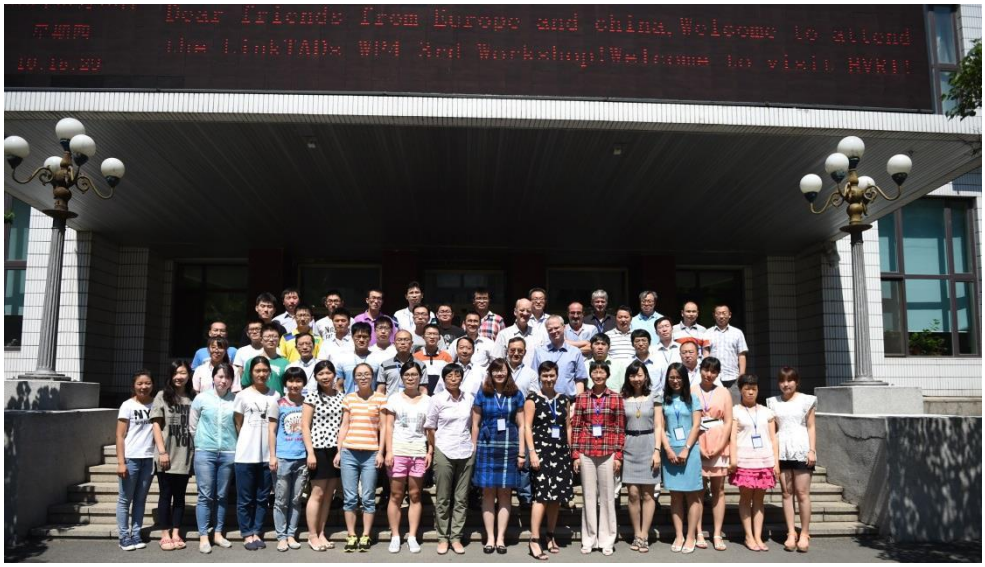

Figure 1 Group photo of the Harbin WP4 3rd Workshop

Figure 2 Audience (1)

Figure 3 Audience (2)

Figure 4 Workshop hosted by Dr. Hua-Ji Qiu, HVRI

Figure 5 Opening address by Deputy Director Xiaomei Wang, HVRI

Figure 6 Session I chaired By Dr. Zhiyong Ma, SHVRI

Figure 7 Presentation by Dr. Hanchun Yang, CAU

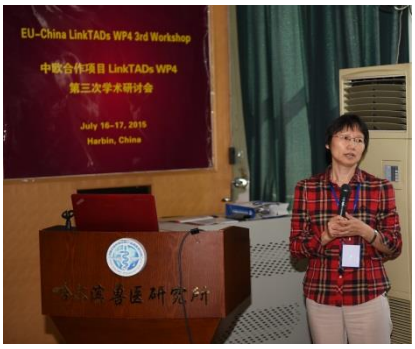

Figure 8 Presentation by Dr. Xinyan Zhai, CADC

Figure 9 Presentation by Dr. Paul Becher, TiHo

Figure 10 Presentation by Dr. Hua-Ji Qiu, HVRI

Figure 11 Presentation by Dr. Fernando Rodríguez, CReSA/IRTA

Figure 12 Session II chaired by Dr. Fusheng Guo, FAO

Figure 13 Presentation by Dr. Frederik Widén, SVA

Figure 14 Presentation by Dr. Pinghuang Liu, HVRI

Figure 15 Presentation by Dr. Qigai He, HZAU

Figure 16 Presentation by Dr. Zhiyong Ma, SHVRI

Figure 17 Presentation by Dr. Flavie Goutard, CIRAD

Figure 18 Session III chaired by Dr. Jingli Kang, CAHEC

Figure 19 Presentation by Dr. Chengjun Li, HVRI

Figure 20 Presentation by Dr. Yin Li, CAHEC

Figure 21 Presentation by Dr. John Edwards, FAO China

Figure 22 Discussion facilitated by Dr. Lihong Liu, SVA

Figure 23 Closing remarks by Dr. John Edwards, FAO China

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02.

Agenda

Date: 16-17 July, 2015

Venue: The 3rd Floor Meeting Room #317, Main Building, Harbin Veterinary Research Institute (HVRI), 427 Maduan Street, Nangang District, Harbin, China.

Participants:

- Centre de Cooperation Internationale en Recherche Agronomique pour le Developpement (CIRAD)
- Centre de Recerca en Sanitat Animal (CReSA)
- China Agricultural University (CAU)
- China Animal Disease Control Center (CADC)
- China Animal Health and Epidemiology Center (CAHEC)
- Food and Agriculture Organization of the United Nations (FAO)
- Harbin Veterinary Research Institute (HVRI) of CAAS
- Huazhong Agricultural University (HZAU)
- Shanghai Veterinary Research Institute (SHVRI) of Chinese Academy of Agriculture Sciences (CAAS)
- Statens Veterinaermedicinska Anstalt (SVA)
- University of Veterinary Medicine Hannover (TiHo)
- LinkTADs advisory board members
- Invited external participants

Description:

The major goal of LinkTADs WP4 Workshops is to establish a network for all laboratories involved in this project to exchange and discuss the diagnostic technologies and vaccine development for the LinkTADs priority diseases. Since the 1st and 2nd WP4 Workshops held in Shanghai in 2014, wide collaborations among partners have been established. The main objective of the 3rd Workshop is to strengthen these collaborations on vaccine development (e.g. new ideas, design, development, modification/update, evaluation, registration, applications, or literature review, etc.) and any efforts aimed at improved vaccines against priority transboundary animal diseases in EU and China.

Agenda	
15th July 2015 ● **Registration:** at the lobby of the Golden Century Hotel, Harbin, China ● **Dinner:** at the 2nd floor restaurant of the Golden Century Hotel	
Day 1, 16th July 2015	
8:30-8:40	**Opening address – *Deputy Director Xiaomei Wang, HVRI (10 min) (Chair: Dr. Hua-Ji Qiu, HVRI)***
8:40-12:10	**Session I PRRS and swine fever *(Chair: Dr. Zhiyong Ma, SHVRI)***
8:40-9:30	**Current situation and control of PRRS in China** – *Prof. Hanchun Yang, CAU, Beijing, China (40 min + 10 min Q&A)*
9:30-10:00	**Construction and identification of HP-PRRSV JXA1-R strain** – *Dr. Xinyan Zhai, CADC (25 min + 5 min Q&A)*
10:00-10:20	*Group photo and coffee break (20 min)*
10:20-11:00	**Epidemiology, diagnosis and control of classical swine fever in Europe: recent developments** – *Prof. Paul Becher, TiHo, Hannover, Germany (35 min + 5 min Q&A)*
11:00-11:30	**Development of a chimeric vector-based marker vaccine against CSF** – *Dr. Hua-Ji Qiu, HVRI (25 min + 5 min Q&A)*
11:30-12:10	**Vaccines and African swine fever virus: getting closer** – *Dr. Fernando Rodríguez, CReSA/IRTA, Barcelona, Spain (35 min + 5 min Q&A)*
12:10-13:30	*Lunch break (80 min)*
13:30-15:30	**Session II Emerging diseases and zoonoses *(Chair: Dr. Fusheng Guo, FAO China)***
13:30-14:00	**Coronaviruses in pigs** – *Dr. Frederik Widén, SVA (25 min + 5 min Q&A)*
14:00-14:30	**Update epidemic and vaccine development of swine enteric coronavirus in China** – *Dr. Pinghuang Liu, HVRI (25 min + 5 min Q&A)*
14:30-15:00	**Characterization of novel pseudorabies virus (PRV) and development of an inactivated gE-negative vaccine** – *Dr. Qigai He, HZAU (25 min + 5 min Q&A)*
15:00-15:30	**Construction and characterization of porcine parvovirus-like particles harboring B and T cell epitopes of Japanese encephalitis virus** – *Dr. Zhiyong*

	Ma, SHVRI (25 min + 5 min Q&A)
15:30-16:00	**EVADOC: Modeling the distribution of poultry immunity in the value chain network** – *Dr. Flavie Goutard, CIRAD (25 min + 5 min Q&A)*
16:00-18:00	***Visiting the new site of HVRI and Weike Company***
18:00-20:00	***Dinner in Weike Company***
	Day 2, 17th July 2015
8:30-10:05	**Session III Influenza vaccines and control in China *(Chair: Dr. Jingli Kang, CAHEC)***
8:30-9:05	**Development and applications of avian influenza vaccines in China** – *Dr. Chengjun Li, HVRI (30 min + 5 min Q&A)*
9:05-9:35	**Avian influenza infection in China**– *Dr. Yin Li, CAHEC (25 min + 5 min Q&A)*
9:35-10:05	**Progress made by FAO ECTAD on assisting China to control high impact influenza viruses** – *Dr. John Edwards, FAO China (25 min + 5 min Q&A)*
10:05-10:25	*Coffee break (20 min)*
10:25-12:00	***Discussion (Facilitator: Dr. Lihong Liu, SVA)*** ***Innovative vaccines and vaccination against priority transboundary animal diseases in EU and China in next decade, which is expected to form a possible EU-China joint proposal.***
12:00-12:10	***Closing remarks*** – *Dr. John Edwards, FAO (10 min)*