LinkTADs

D4.4 Workshop Report

This project has received funding from the European Union's Seventh Programme for research, technological development and demonstration under grant agreement No: 613804

Project no.: 613804

Project acronym: LinkTADs

Project title: Linking Epidemiology and Laboratory Research on Transboundary Animal Diseases and Zoonoses in China and EU

Instrument:

KBBE.2013.1.3-04: Coordination of research between EU and China on major infectious diseases of animals and zoonoses

D4.4
(Workshop Report)

Due date of deliverable: Month 24

Start date of project: November 1st 2013 Duration: 3 years

Organisation name of lead contractor for this deliverable: (**HVRI**) (7)

Author list

Name	**Organisation**
Ivancho Naletoski	Joint FAO/IAEA Division
Hua-Ji Qiu	HVRI

Project co-funded by the European Commission within the Seventh Framework Programme (2007-2013)		
Dissemination Level		
PU	Public	×
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)	

History			
Version	**Date**	**Reason**	**Revised by**
01	30/10/2015	Preliminary version	Ivancho Naletoski, FAO/IAEA
02	30/10/2015	Minor editing	Hua-Ji Qiu (HVRI), Liliya Levandovska (EM)
03	31/10/2015	Major editing	Daniel Beltran-Alcrudo (FAO), Ian Sprouse (FAO)
04	31/10/2015	Approval	PMC

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

Contents

Summary 7

The WP4 Meeting on New Diagnostic Technologies 9

The Meeting on Research Coordination 15

Conclusions 21

Appendix 23

LinkTADs

01.

Summary

Summary

In the period from 12-14 October 2015, the LinkTADs project has organized a series of meetings at the IAEA Headquarters in Vienna on: i) New Diagnostic Technologies, ii) coordination of research; and iii) Veterinary Laboratory Systems and Policy. The first two meetings fall within the scope of WP4, while the last one incorporates WP4 and WP5. This Deliverable summarizes WP5 meeting, while more details will be provided in D5.2.

The aim of the meetings was to review and discuss the current development of the advanced laboratory technologies in the field of animal health, the main streams in the research field in the diagnostic area and the instruments and adaptations needed to integrate the updated diagnostic platforms into the on-going control strategies and programmes. Forty four participants attended the meeting, including 16 speakers, out of which 9 were external invited lecturers.

All the presentations have been uploaded to the e-resources section of the LinkTADs website: http://linktads.com/e_resources/laboratory_science. They are marked as protected, meaning that to view and download them a user would need to register on the LinkTADs Member area.

LinkTADs

02.

The WP4 Meeting on New Diagnostic Technologies

The WP4 meeting on new diagnostic technologies

The WP4 meeting on the new diagnostic technologies was held on 12 October 2015. This first session covered some of the latest diagnostic technologies being developed and used, e.g. molecular platforms, high throughput technologies, next generation sequencing, bioinformatics, field applications, etc.

The meeting was initiated by the presentation of Akbar Dastjerdi from the Animal Health Veterinary Laboratories Agency in Addlestone, UK. The speaker gave a comprehensive overview of the development, maintenance and upgrade of the laboratory infrastructures, the role and the responsibilities of the laboratories in the border controls, surveillance programmes, human resources (expertise), quality control issues during testing, policy and science policy makers, as well as the field delivery of the laboratory techniques.

In the part on infrastructure, a historical overview of the legal status and the role of APHA over the decades was discussed, starting from the from 1922 establishment of the "Veterinary Investigation Service" (1922), until merging the laboratory into the Animal and Plant Health Agency (APHA) in 2014. APHA closely supports and collaborates with the UK laboratory network on early diseases detection. This network covers the whole territory of the UK and is comprised of port and airport border inspection points, specialist services (centers for international trade), veterinary investigation centers, post-mortem examination centers, diagnostic & research facility (APHA-Weybridge), policy makers (staff based in Cardiff, Edinburgh and London), field services and support corporate offices at Worcester & Weybridge.

Together with the laboratory network, APHA is involved in the diseases surveillance programmes (horizon scanning) aimed to facilitate the early disease detection and/or to mitigate disease impacts. The laboratory is also a center of expertise and acts as international reference laboratory for multiple diseases (enzootic bovine leucosis, equine viral arthritis, equine infectious anemia, equine and porcine encephalomyelitis, classical swine fever, Auyeszky's disease, infectious bovine rhinotracheitis, bovine viral diarrhea, schmallenberg virus and others). It is also a center for multidisciplinary expertise to tackle novel and emerging viral diseases and offers continuous services for quality control (QC), testing capability, capacity building and organizing and evaluation of international ring-trials. APHA works also on development, validation and maintenance of recognized and accredited tests for statutory modifiable diseases, and on the establishment of tools & methods for detection and investigation of new and emerging viruses. These are mainly based on the "pan-virus" PCRs platforms (pan-Herpesvirus, pan-Pestivirus, pan-Flavivirus, pan-Adenovirus),

other multiplex assays, pathogen microarray technologies, MassTag and the Next Generation Sequencing (NGS).

Sylvie Lecollinet from the Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail (ANSES) presented the dynamic developments of molecular platforms and high throughput technologies for the detection of emerging and re-emerging vector borne diseases, in the one health environment. The diagnostic solutions developed at ANSES are based on two main approaches: i) Multiplex or syndrome-based assays (based on a) Luminex serological and molecular assays and DNAChip, a real time PCR Chip), and ii) Pathogen discovery (based on a. Resequencing microarrays and b. NGS. Main characteristics of the Luminex technology include the possibility of multiplexing (up to 100 targets, identified using beads by their fluorochrome ratio), they are available in 96-well format and can be used for detection of DNA, antibody or antigen targets. Its application is spreads through the fields of immunology, infectiology, cancerology and others. DNAChip platforms can be used for more than 2,300 DNA targets (spots identified by their position). They are used in the fields of infectiology, response to infection (transcriptomics), cancerology, genetics and others.

Sylvie Lecollinet presented the work of her team on the Luminex based multiplex serological assay for simultaneous detection of IgM and IgG of flavivirus infections in horses (West Nile Fever Virus, Japanese Encephalitis Virus and Tick Borne Encephalitis Virus). She also presented the use of DNAChip technology for simultaneous detection of multiple pathogens in multiple tick carriers (*Ixodes ricinus, I. hexagonus and I. persulcatus; Dermacentor reticulatus, D. marginatus*).

The targeted pathogens included in the assay were 25 bacterial species (*Anaplasma phagocytophilum, A. marginale, A. platys, A. ovis, A. centrale, Bartonella henselae, B. quintana, Borrelia burgdorferi ss, B. garinii, B. afzelii, B. valaisiana, B. lusitaniae, B. spielmanii, B. bissettii, B. miyamotoi, Coxiella burnetii, Francisella tularensis, Ehrlichia chaffeensis, E. ruminantium, E. canis, Neoehrlichia mikurensis, Rickettsia conorii, R. slovaca, R. massiliae, R. helvetica*); 1 general group (*spotted fever group*); 1 genus (*Borrelia spp.*); 12 parasitic species (*Babesia divergens, B. microti, B. venatorum (EU1), B. canis, B. vogeli, B. bovis, B. caballi, B. bigemina, B. major, B. ovis, Theileria equi, T. Annulata)*, and 22 virus species (*Asfarviridae: Genus Asfivirus = African swine fever virus (ASFV); Orthomyxoviridae : Thogoto virus and Dhori virus; Reoviridae: Genus Orbivirus = Kemerovo virus Genus Coltivirus = Colorado tick fever virus, Eyach virus; Bunyaviridae: Genus Nairovirus = Crimean-Congo Hemorragic fever virus (CCHF), Dugbe virus, Nairobi sheep disease virus; Genus Phlebovirus = Uukuniemi virus; Genus Orthobunyavirus = Schmallenberg; Flaviviridae: Genus Flavivirus : Tick-Borne Encephalitis virus (3 subtypes), Louping Ill virus, Powassan virus, Deer tick virus, Omsk hemorragic*

fever virus, Kyasanur forest disease virus, Langat virus , West Nile virus, Meaban virus). The use of resequencing technology for detection of flaviviruses and alphaviruses was also presented, as well as the use of NGS technologies in detection of novel pathogens, with Schmalenberg virus as an example.

Marion Koopmans presented on the potentials of the new generation sequencing platforms in the monitoring and control of the re-emerging diseases in Europe, through the Horizon 2020 financed project "**Co**llaborative **M**anagement **P**latform for detection and **A**nalyses of (**Re**-) emerging and food borne outbreaks in Europe" (COMPARE). The project has been developed as a response to the current trends in the evolving of emerging and re-emerging diseases, caused primarily from: i) Changes in the dynamics of common infectious diseases as a consequence of the demographic changes, changes in the population density, anti-vaccine movement, etc; ii) Frequent emergence of new diseases due to deforestation, population growth, health systems inequalities, travel, trade, climate change and others; iii) Difficulties to predict the disease effects due to complexity of problems and iv) Unequal capacities of public health and surveillance systems for response to disease challenges. The presented project aims to develop standardized protocols for risk analysis models and risk-based strategies, harmonized protocols for samples collection and samples processing, protocols for high throughput sequencing and protocols for data analysis (bioinformatics) and sharing.

The ultimate goal of the project is to disseminate and integrate the achievements among the competent stakeholders involved in the implementation of the disease control programs. This includes the development of practical solutions for political, ethical, administrative, regulatory and legal (PEARL) barriers, that hamper the timely and openly sharing of data through COMPARE.

Ioannis Xenarios from the Center for Integrative Genomics, University of Geneva, Switzerland (FAO - Bioinformatics Reference Center) presented the current strategies for management of the bottlenecks in processing bioinformatics data, as well as the potential future solutions for easier, faster and wider dissemination of the bioinformatics solutions. He has emphasized the enormous rise in the sequencing data in the last few decades and the need of exchange and integration of sequencing information in order to facilitate the data analysis and interpretation, as well as the need for upgrade of the existing hardware used for data management. For the field of virology, integration of the existing information platforms such as the International Committee on Taxonomy for Viruses (ICTV), National Center for Biotechnology Information (NCBI), OpenFlu / IRD (ViPR) database and others is required in order to generate appropriate information

knowledge in virus evolutions. The importance of establishment of reference sequences as standards for sequence diversity was also emphasized.

Johannes Peham showed the existing trends in the development of modern diagnostic platforms for diagnosis of zoonotic diseases at the Austrian Institute of Technology (AIT). The AIT is oriented on the development of biomarkers, diagnostic biosensors, assay development, bioinformatics and integration of all these components in the point of care packages for real-time detection of disease pathogens. The above mentioned areas are integrated into four projects dedicated on: i) samples preparation (primarily cell lysis using electrical fields), ii) protein analysis using automated immunoassays for immunomonitoring, iii) infectious diseases diagnostics (point of care devices for bacterial and viral pathogens, and antibiotic resistance testing and iv) links to the veterinary diagnostics.

Mikael Leijon and Lihong Liu from SVA, Sweden focused on the New Methods for Rapid On-Site Molecular Diagnostics, initially developed for detection of multiple variants of the avian influenza and the new castle disease virus, as well as on the use of portable devices for field molecular detection of animal pathogens. Their team has developed a novel general detection concept based on three main steps: i) the pre-amplification (general detection with high sensitivity), ii) the specific multiplex recognition / tagging (high specific and adaptable) and iii) generic amplification and tag-based detection. The assay has been used for direct pathotyping of the avian influenza and the Newcastle disease viruses, without the need of sequencing and sequence analysis of the cleavage site. The assay has been also packed in a field applicable hardware called SmartCap™ System. A variation of the principle has been developed for the detection of a broad spectrum of Flaviviruses, West Nice Fever, Dengue fever and other RNA viruses (BVD, BDV, CSF, APMV, AIV, JEV and others).

The last speaker of the day, Hua-Ji Qiu summarized the importance of the animal industry in China (51% of the total pork production, 40% of poultry egg production and 6.4% of the global milk production) and gave a review of the institutions responsible for development and validation of diagnostic techniques in China (mentioned above). He also gave an overview of the conventional diagnostic techniques routinely used for priority animal and zoonotic diseases in China, such as the CSF, PRRS, PR/AD, PED, AI, NDV, IBR, FMD, PPR, brucellosis, tuberculosis, rabies and ASF.

From the panel of novel technologies, Hua-Ji Qiu has presented the multiplex PCR platforms for simultaneous detection of AIV strains (H3N2+H1N1+H1N2 strains; H3+H9 subtypes; H3_H4 subtypes; JEV+SIV+PRRS; PCV2+PRRS+PRV; PRRS+CSV; PEDV+TGEV and PRV+PPV+PCV2+PRRS+CSF+JEV). He has also presented the GenomeLab Gene Expression Profiler

(GeXP), a combination of multiplex PCR and capillary electrophoresis, a platform used for detection of multiple species specific pathogens, such as the simultaneous detection of 8 porcine viruses (CSF, SIV-H1/H3, PRRS, JEV, PRV, PCV2 and PPV) and an assay for simultaneous detection of 9 chicken pathogens (H5/H7/H9 AIV, NDV, IBV, ILTV, *Mycoplasma gallisepticum, M. Synoviae, Haemophillus paragallinarum*). Another novel technologies used by the Chinese partners are the Locked Nucleic Acid (LNA) based PCR for simultaneous differentiation of PRV, PCV2 and PPV and the LNA PCR for differentiation between the virulent and avirulent strains of the NDV isolates. Assays for isothermal amplification (the Loop Mediated Isothermal Amplification-LAMP and the Cross Priming Amplification (CPA) were also presented. NGS is used for identification of pseudorabies vaccine variants and the Mycobacterium tuberculosis as well as for the detection of novel pathogens (mamastrovirus, bocavirus, circovirus, iflavirus and orthohepadnavirus in bats and retrovirus and paramyxovirus in bats. DNA chips and other alternative technologies, such as the Systematic Evolution of Ligands by Exponentiental Enrichment (SELEX), Immunosensor and NanoPCR were also presented.

LinkTADs

03.

The Meeting on Research Coordination

The second session on Coordination of Research (13 October) aimed to describe the main research initiatives in the EU, China and across the globe. The first two presentations were web-streamed through an open access platform, and were followed by 70 people in 21 institutions,

The first presentation was given by Alex Morrow who presented the activities performed under the project "Global Strategic Alliances for the Coordination of Research on the Major Infectious Diseases of Animals and Zoonoses" (STAR-IDAZ). The project aims to cover the current gaps in doubling and overlapping of research efforts, trying to establish clear communication lined within the global research community to harmonize research goals as well as information sharing.

The STAR-IDAZ plan for working together on the research agenda is to map current activities (with a particular emphasis on in-country coordiantion), identify topics of common interest, align/realign research activities and openness/data-sharing. Concerning joint/collaborative funding of research, there exists relationships between EU Member States and China. There are joint specific initiatives, such as the BBSRC (UK) – DBT (India) call relating to animal health. Joint agreements between research funders also exist, such as BBSRC-Brazil. Other intiatives, such as Newton UK-China Research partnership fund, exist.

Alex Morrow also discussed the H2020 2016 seventeen work programmes and their impact on ongoing research of animal health related issues. The programms are: support for international research on animal health, understanding host-pathogen interactions, breeding livestock for resilience and efficiency, research and approaches for emerging diseases in plants and terrestrial livestock, validation of diagnostic tools for animal and crop health, bee health and sustainable pollination, alternative production system to address anti-microbial usage, animal welfare and the impact on health, co-fund on "One Health" (zoonoses-emerging threats). Much of these programms include over €3 million in funding of research and innovation actions.

Jean Charles Cavitte presented the recently launched Horizon 2020 programme of the EU commission with emphasis on the possibilities to finance common EU/China research consortia. The Horizon 2020 programme is founded on three pillars: excellence science, industrial leadership and societal challenges. Of particular importance to LinkTADs is the societal challenge SC2, which focuses on "food security, sustainable agriculture and forestry, marine nad maritime and inland water research and the Bioeconomy". The Horizon 2020 work programme 2016-2017 proposes the following solutions to global challenges: feed 9 billion people by 2050 by improving farming and food systems' capacity to sustainable supply sufficient and healthy food, unlock the potential of seas and oceans which cover 70% of the Earth's surface and host 50% of known species, raise the sustainable growth potential of rural areas and their ability to cope with demographic climatic and economic

change, and boost bio-based markets to create over 36% growth/year in sector and 90,000 new jobs. There are four calls in Societal Challenge 2 (SC2): sustainable food security, blue growth, rural renaissance, bio-based innovation for sustainable goods and services. Each one of these calls has specific areas of interest within it. For example, an area of interest within sustainable food security is "resilient, resource efficient value chains". There are numerous livestock-related topics in the draft 2016-2017 plan. Partners should note that official publication and opening of calls was on 14 October.

Yafeng Qiu from SHVRI presented the animal health research infrastructure for development of diagnostics in China and the potentials for financing and application of the research in the field. Main veterinary research institutions in China are functioning at National level (subordinated to the Ministries and Agriculture and the Ministry of Education) and at Provincial level (subordinated to the Provincial Academies of Agricultural Sciences, Provincial Animal Disease Control Centers and Agricultural Universities). The Chinese Academy of Agricultural Sciences (CAAS) plays a key role in the prevention and control of animal diseases in China. It integrates research and development of vaccines and diagnostic techniques for animal disease. There are two key national laboratories operating under CAAS and two reference laboratories. CAAS plays an important role in training veterinary researchers including master, PhD, postdoc etc. Recently, graduate school of veterinary medicine is established in Harbin. CAAS is also a collaborative center for international research and maintains continuous communication with external partners, including EU. There are 6 veterinary institutes operating under CAAS: i) the Harbin Veterinary Research Institute (HVRI), ii) the Lanzhou Veterinary Research Institute (LVRI), iii) the Shanghai Veterinary Research Institute (SHVRI), iv) Beijing Animal Husbandry and Veterinary Research Institute (BAHVRI), v) the Lanzhou Institute of Animal Husbandry and Veterinary Pharmaceutical Sciences (LIAHVPS), and vi) the Jilin Institute of Special Wild Economic Animals and Plant Sciences (JISWEAPS). The scope of the research at these institutes are spitted in 5 activities: i) Avian infectious diseases (Avian influenza; IBD; ND; IB; MD; AL; DP; DVH; etc), ii) Swine infectious diseases (CSF; PRRS; PrV; TGE; PED; PCV2; Swine influenza; etc), iii) Large animal infectious diseases (FMD; PPR; EIA; bluetongue; equine influenza; etc), iv) Zoonoses (rabies; brucellosis; tuberculosis; etc) and v) Small animal and pet animal infectious diseases (CD; CPD; RHD; etc). The areas covered within the specific activities are focused on Epidemiology, Immunology, Diagnosis, Vaccinology, Basic research (pathogenesis, transmission, host-pathogen interaction…), Risk analysis and Food safety. The funding of the research is organized through the Central (Ministry of Science and Technology, National Natural Science Foundation of China, China Scholarship Council and the Ministry of Agriculture), and the Provincial Governments (Scientific and

Technological Commission and the Agricultural Bureau). Each of the funding entities runs thematical programmes under which the project proposals are submitted.

Gwenaelle Dauphin gave an update on the avian influenza research agendas, with detailed description of the activities included in the OFFLU, US, EU research agendas. As described by Gwenaelle, the goal of the 2009 WHO Public Health Research Agenda for Influenza was to support the development of evidence needed for limiting the impact of pandemic, zoonotic and seasonal influenza. The five streams of this agenda was reducing risk, liimiting spread, minimizng impact, optimizing treatment, and promoting tools. Currently, a progress review has been conducted, and a revision of WHO public health research agenda is under planning.

OFFLU's animal influenza research priority list is to provide guidance, assist labs in refocusing of existing resources, and assist government and non-government funding agencies in indetifying important research needs. The first OFFLU agenda (2011) for influenza research established 4 areas/groups: avian influenza (wild birds and ecology), avian influenza (poultry and agricultural systems), equine influenza, and swine influenza. The agenda was completed and posted to the web in January of 2011. The second global animal influenza research agenda (2014) is a partnership between OFFLU and STAR-IDAZ. It involves a feedback survey and expert meetings for data summarization, analysis, and strategiziation. The agenda is focused on six subject areas and seeks to provide guidance on continuing avian influenza research.

The EU workshop on research priorities to fight animal influenza (Jan. 2015) was organized b the European Commission (EC) and the European Food Safety Agency (EFSA). It involves the expert consultation on the state of play, knowledge gaps and priorities for research subjects on animal influenza. There were four themes proposed during the workshop: host-pathogen interactions, diangostics, surveillance and risk assessment, and prevention and control. A major outcome of the agenda was the call for international cooperation on research in animal influenza.

Gwenaelle provided the conclusion that influenza is a global issue with global risks for humans and animals. Influenza attracts a lot of attention, but there is less funding for control and research. Search co-funding is required on global research agenda.

The discussions on the topic were mainly focused on coordination and harmonization of the research agendas. The role of international coordination through the existing international bodies of UN (such as FAO, IAEA, and others), was specifically accented. Some specific ideas were discussed in terms of potential follo-up funding strategies for LinkTADs activities, such as ERA-NET (co-funding between EU and China), or the specific calls focusing on China under H2020.

During the afternoon of the 13th October 2015 the participants o visited the Animal Production and Health Laboratory (APHL) of the Joint FAO/IAEA Division in Seibersdorf, Austria. The participants were informed on the research activities of APHL, in the field of ASF, PPR, AIV and Trypanosoma, the development and validation of diagnostic assays for syndromic diseases, as well as the adaptation of the advanced molecular platforms, such as the Ion Torrent NGS. The Technical Officers at the Seibersdorf laboratories also explained the role APHS has in the capacity building and technology transfer through the Technical Cooperation Programme of IAEA, as many of the Member States fellowships and training courses are organized at APHL. Additionally, large components of the Coordinated Research Programme of IAEA, together with the partners in Member States is performed at the facilities of the APHL in Seibersdorf.

LinkTADs

04.

Conclusion

Conclusions

The LinkTADs workshops have given an opportunity for both sides (EU and China), to familiarize with the concepts, research directions and solutions in the development and applications of novel diagnostic platforms, as well as their integration into the ongoing disease surveillance and control systems. They have also given an outline of the research priorities for both sides, which can be used to direct the current and future efforts of the research teams on both sides. The outcomes of the activities discussed during the three above-mentioned meetings cover a wide area of protection of the animal and human health, preventing economic losses at regional, national and global levels and facilitating international trade and personnel exchange.

All the presentations have been uploaded to the e-resources section of the LinkTADs website: http://linktads.com/e_resources/laboratory_science. They are marked as protected, meaning that to view and download them a user would need to register on the LinkTADs Member area.

LinkTADs

05.

Appendix

Participants at the LinkTADs meetings 12-16 October 2015, IAEA HQ, Vienna Austria (speakers are highlighted in yellow)

Name	Address	Email, tel,
Guo Fusheng	FAO ECTAD CHINA office Tayuan Diplomatic office building 2-151C No.14 Liangmahe Nanlu, Chaoyang District BEIJING 100600, P.R.CHINA	Fusheng.Guo@fao.org +86 10 8532 3634
Li Shuo	FAO ECTAD CHINA office Tayuan Diplomatic office building 2-151C No.14 Liangmahe Nanlu, Chaoyang District BEIJING 100600, P.R.CHINA	shuo.li @fao.org +86 10 8532 3634 ext. 106
Kang Jingli	China Animal Health and Epidemiology Centre (CAHEC) 369 Nanjing Road, QINGDAO, Shandong Province, 266032 P.R. CHINA	kangjingli@cahec.cn
Qiu Yafeng	Shanghai Veterinary Research Institute SHVRI Chinese Academy of Agricultural Sciences 518 Ziyue Road, Minhang District 200241 SHANGHAI, P.R. CHINA	yafengq@shvri.ac.cn Tel: +86-21-34680292 Fax: +86-21-54081818
Shao Donghua	Shanghai Veterinary Research Institute SHVRI Chinese Academy of Agricultural Sciences 518 Ziyue Road, Minhang District 200241 SHANGHAI, P.R. CHINA	shaodonghua@shvri.ac.cn Tel: +86-21-34293635 Fax: +86-21-54081818
Zhai Xinyan	China Animal Disease Control Center(CADC) No. 17 Tiangui Street, Biomedical Base, Daxing District, BEIJING, P.R.CHINA 102618	TEL：010-59198898 FAX：010-59198899 Email: zhaixy2010@sina.cn
Wu Jiajun.	China Animal Disease Control Center(CADC) No. 17 Tiangui Street, Biomedical Base, Daxing District, BEIJING, P.R.CHINA 102618	TEL：010-59198898 FAX：010-59198899
Qiu Hua-Ji	Harbin Veterinary Research Institute (HVRI) No. 427 Maduan Street, Nangang District, HARBIN 150001, P.R. CHINA	Email: mailto:qiuhuaji@163.com Tel: +86-189-4606 6041 Mobile: +86 130 1901 1305
Luo Yuzi	Harbin Veterinary Research Institute (HVRI) No. 427 Maduan Street, Nangang District, HARBIN 150001, P.R. CHINA	Email: yuziluo@hvri.ac.cn Tel: +86-189-4606 6041 Mobile: + 86 187 2461 3386
Shenye Yu	Harbin Veterinary Research Institute (HVRI)	Email: Yushenye@163.com Tel: +86-189-4606 6041

	No. 427 Maduan Street, Nangang District, HARBIN 150001, P.R. CHINA	
Zengjun Lu	Chinese Academy of Agricultural Sciences-CAAS Lanzhou Veterinary Research Institute (LVRI) Xujiaping 11, Yanchangbao, LANZHOU GANSU 730046 CHINA	email luzengjun@caas.cn, tel +86-931-8343390, fax +86-931-8440977
Daniel Beltran Alcrudo	AGAH, Animal Production and Health Division Food & Agriculture Organization of the United Nations Viale delle Terme di Caracalla, Rome, Italy 00153	Daniel.BeltranAlcrudo@fao.org
Dauphin Gwenaelle	AGAH, Animal Production and Health Division Food & Agriculture Organization of the United Nations Viale delle Terme di Caracalla, Rome, Italy 00153	Gwenaelle.Dauphin@fao.org
Beatrice Mouille	AGAH, Animal Production and Health Division Food & Agriculture Organization of the United Nations Viale delle Terme di Caracalla, Rome, Italy 00153	Beatrice Mouille@fao.org
Ivancho Naletoski	Animal Production and Health Section, Joint FAO/IAEA Division for Nuclear Applications in Food and Agriculture, Department of Nuclear Sciences and Applications | International Atomic Energy Agency | Vienna International Centre, PO Box 100, 1400 Vienna, Austria	i.naletoski@iaea.org T: (+43-1) 2600-26054 F: (+43-1) 26007-26052
Marion Bordier	Veterinary Officer Ministry of Agriculture, the food processing industry and forestry (France) Directorate-General for Food 215 rue de Vaugirard 75 015 Paris, France	+33(0)1 49 55 47 92 marion.bordier@agriculture.gouv.fr
Marion Koopmans	Erasmus MC P.O. Box 2040, 3000 CA Rotterdam, The Netherlands office Ee-1726, Wytemaweg 80, 3015 CN Rotterdam, The Netherlands	m.koopmans@erasmusmc.nl
Mikael Leijon	Department of Virology SVS; Parasitology and Virology; Swedish University of Agricultural Sciences (SLU) Ulls Vag 2B SE-751 89 Uppsala Sweden	Mikael.Leijon@sva.se
Giovanni Cattoli	Istituto Zooprofilattico Sperimentale delle Venezie Viale dell'Università 10 35020 LEGNARO ITALY	gcattoli@izsvenezie.it
Akbar Dastjerdi	Animal Health Veterinary Laboratories Agency (AHVLA)	Akbar.Dastjerdi@apha.gsi.gov.uk

	Woodham Lane New Haw Addlestone KT15 3NB Surrey United Kingdom	
Julien Capelle	CIRAD, UR AGIRs Institut Pasteur du Cambodge, Epi-SP 5, Boulevard Monivong BP 983, Phnom Penh, Cambodia	julien.cappelle@cirad.fr +855 23426009 Ext.278 http://ur-agirs.cirad.fr/ http://www.cirad.fr
Liliya Levandovska	Europa Media Non-Profit Ltd. Graphisoft Park, Building A 7 Zahony Street H-1031 Budapest, Hungary	liliya.levandovska@europa media.org Tel.: +36 1 505 3381 Fax: +36 1 505 3382 www.europamedia.org
Ms Gabrialla Lovasz	Europa Media Non-Profit Ltd. Graphisoft Park, Building A, 7 Zahony Street H-1031 Budapest, Hungary	gabriella.lovasz@europamedia.org
Mr Thimothee Vergne	The Royal Veterinary College Hawkshead Lane North Mymms Hatfield Hertfordshire AL9 7TA United Kingdom	tvergne@rvc.ac.uk
MsKai (Grace) Zhang	Sociedade Portuguesa de Inovação (SPI) Avenida Marechal Gomes da Costa, 1376 4150-356 Porto Portugal	kaizhang@spi.pt +351 21 421 22 49 +351 21 421 12 01 fax
Lihong Liu	National Veterinary Institute, SVA SE-751 89 Uppsala, Sweden	Lihong.Liu@sva.se
Frederik Widen	National Veterinary Institute, SVA SE-751 89 Uppsala Sweden	frederik.widen@sva.se
Ulrich Herzog	Bundesministerium für Gesundheit Radetzkystr. 2, 1030 Wien	Assistant: anita.chvatal@bmg.gv.at
Johannes Peham	AIT Austrian Institute of Technology GmbH Donau-City-Straße 1 1220 Vienna Austria	Johannes Peham@ait.ac.at
Sylvie Lecollinet	ANSES - Maisons-Alfort Laboratory for Animal Health 23, avenue du Général de Gaulle 94706 Maisons Alfort France	Sylvie.LECOLLINET@anses.fr
Emmanuelle Robardet	ANSES - Maisons-Alfort Laboratory for Animal Health 23, avenue du Général de Gaulle 94706 Maisons Alfort France	Emmanuelle.ROBARDET@anses.fr
Joannis Xenarios	SIB | Swiss Institute of Bioinformatics Quartier Sorge - Bâtiment Génopode - CH 1015 Lausanne - Switzerland	Assistant : Muriel.Metrailler@isb-sib.ch'
Alex Morrow	Department for Environment Food & Rural Affairs Nobel House 17 Smith Square	alex.morrow@defra.gsi.gov.uk

	London SW1P 3JR United Kingom	
Dejan Vidanovic	Veterinary Specialized Institute Kraljevo (VSI KV) Zicka 34 36000 Ribnica Kraljevo Serbia	vidanovic@vsikv.com
Milanko Sekler	Veterinary Specialized Institute Kraljevo (VSI KV) Zicka 34 36000 Kraljevo Serbia	milankosekler@yahoo.com
Miso Kolarevic	Veterinary Specialized Institute Kraljevo (VSI KV) Zicka 34 36000 Kraljevo Serbia	kolarevic@vsikv.com
Jose Luis Gonzales	Central Veterinary Institute , Wageningen University P. O. Box 65, 8200 AB Lelystad Netherlands	jose.gonzales@wur.nl
Vladimir Polacek,	Scientific Veterinary Institute "Novi Sad" Rumenacki put 20 21000 Novi Sad Serbia	vlade@niv.ns.ac.rs
Tamas Petrovic	Scientific Veterinary Institute "Novi Sad" Rumenacki put 20 21000 Novi Sad Serbia	tomy@niv.ns.ac.rs
Venugopal Nair	The Pirbright Institute Ash Road, Pirbright, Woking, GU24 0NF United Kingdom	venugopal.nair@pirbright.ac.uk
Veronica Fowler	The Pirbright Institute Ash Road, Pirbright, Woking, GU24 0NF United Kingdom	veronica.fowler@pirbright.ac.uk
Denis Kolbasov	National institute of veterinary virology & microbiology VNIIVViM Pokrov Vladimir reg. Russia	tel./fax +7 49243 62125 kolbasovdenis@gmail.com
Peter Daniels	Chair, OFFLU Steering Committee Member, OIE Biological Standards Commission	+61 419103262 danielspeter19@gmail.com
Fangzhou Guo	Europa Institut Saarland University POBox 151150 D-66041 Saarbruecken	guoxx312@umn.edu
Xiaoping Yang	Thermo Fisher Scientific Prionics AG Wagistrasse 27A | 8952 Schlieren-Zurich, Switzerland	Tel: +41 (0) 44 200 2122 | Mobile: +41 (0) 79 342 6372 xiaoping.yang@thermofisher.com

Meeting Agendas

12 October 2015 (Monday) **WP4 New Diagnostic Technologies**

Title	Time	Speaker
Morning Session *Chairperson Ivancho Naletoski, IAEA, Austria*		
Introductory Remarks	**9:00-9:15**	**TBD,** *IAEA. Austria* **Daniel Beltran-Alcrudo,** *FAO, Italy*
How to approach new and emerging viral diseases?	**9:15-10:00**	**Akbar Dastjerdi** *APHA, UK*
Molecular platforms and high throughput technologies and automatic stations for detection of emerging and re-emerging vector-borne zoonotic diseases, in the one health environment	**10:00-10:45**	**Sylvie Lecolinet** *ANSES, France*
Coffee Break	10:45-11:10	
Infectious disease detection in the era of next generation sequences: opportunities, challenges, and the COMPARE project	**11:10-11:55**	**Marion Koopmans** *Erasmus, the Netherlands*
How bioinformatics can support new animal disease diagnosis	**11:55-12:40**	**Ioannis Xenarios,** *SIB, Switzerland*
Lunch	12:40-13:40	
Afternoon Session *Chairperson Hua-Ji Qiu, HVRI, China*		
Novel technologies for point-of-care diagnostics in human health	**13:40-14:25**	**Johannes Peham** *AIT, Austria*
New diagnostic tools for field application and their role in early diseases detection and rapid enforcement of control measures (RAPIDIA)	**14:25-15:10**	**Mikael Leijon** and **Lihong Liu** *SVA, Sweden*
Coffee Break	15:10-15:35	
Applications of molecular diagnostic tools in transboundary animal diseases in China	**15:35-16:20**	**Hua-Ji Qiu** *HVRI, China*
Discussion: The impact of new technologies on future laboratory functions and animal disease surveillance (early warning, genotyping, screening).	**16:20-17:30**	**Moderator:** *Ivancho Naletoski, IAEA, Austria*

13 October 2015 (Tuesday) **Coordination of Research**

Title	Time	Speaker
Morning Session *Chairperson: Daniel Beltran-Alcrudo, FAO*		
STAR-IDAZ: Global Coordination of Animal Disease Research	**9:00-9:40**	**Alex Morrow** Defra, UK
Improving opportunities for collaborative research in animal health between EU and China • **Horizon 2020: the EU research and framework programme for 2014-2020** • **Opportunities in the field of animal health for 2016-2017**	**9:40-10:20**	**Jean-Charles Cavitte & Johanna Trieb,** *DG Research and Innovation, EC*
Coffee Break	10:20-10:35	
Mapping of veterinary research institutions in China and opportunities for research collaboration with European institutions (funding and administration)	**10:35-11:15**	**Yafeng Qiu** *SHVRI, China*
Avian influenza research agendas (OFFLU, US, EU research agendas)	**11:15-11:45**	**Gwenaelle Dauphin** *FAO*
Discussion: How to work together on the research agenda and fund research?	**11:45-12:15**	**Moderators:** *Alex Morrow (Defra) & Gwenaelle Dauphin (FAO)*
Lunch	12:15-13:00	
Afternoon: Visit to IAEA laboratory in Seibersdorf, Austria	**13:00-17:00**	
Dinner at Napoleon-Der Bier Freihof **http://www.napoleon.at/de** **Lat, Lon: 48.248278, 16.449469** **Kagranerplatz 33, A-1220 Wien** **Tel: +43 1 20 33 400**	**19:30**	

Pictures

Figure 1 – Meeting room

Figure 2 – Presentation by Ulrich Herzog

Figure 3 – Intervention by Guo Fusheng

Figure 4 – Presentation by Gwenaelle Dauphin

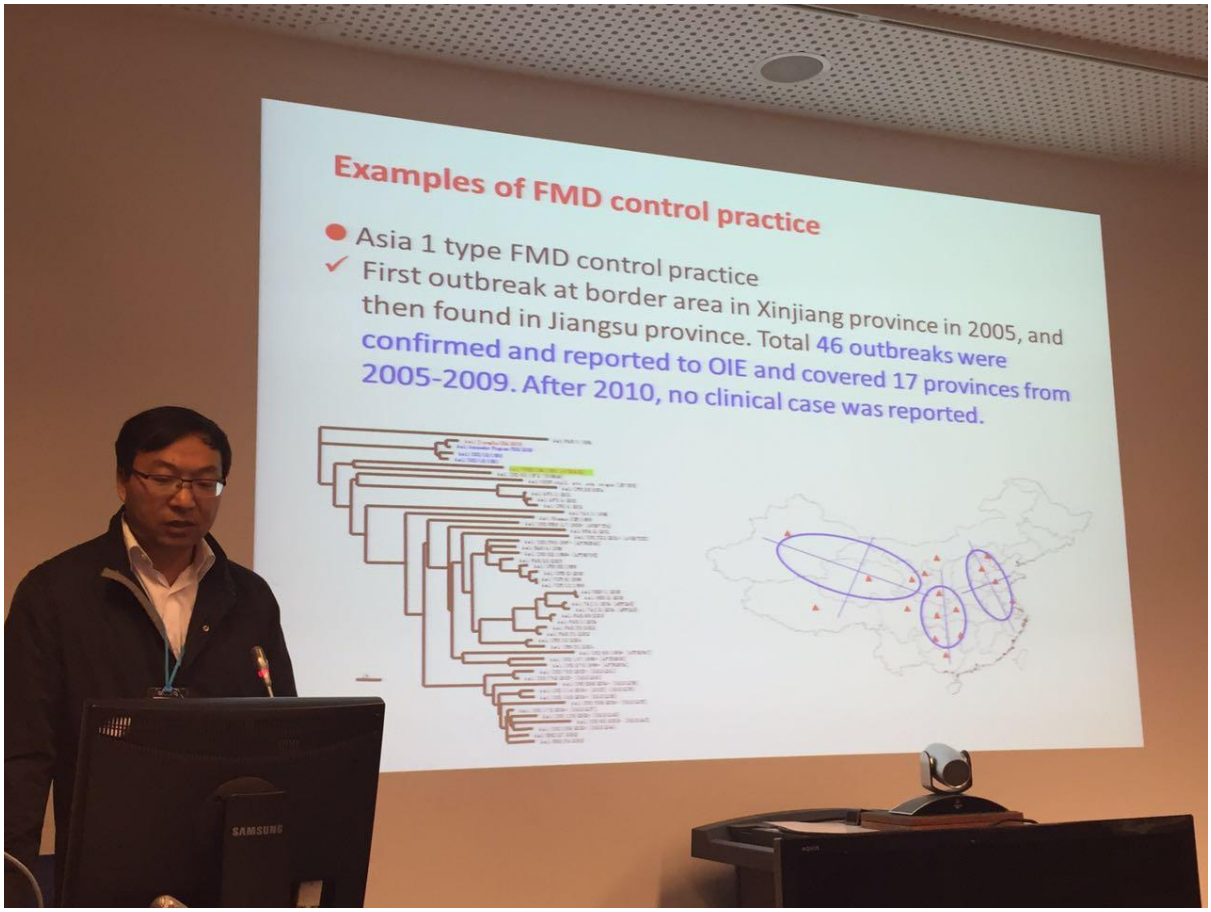

Figure 5 – Presentation by Zengjun Lu

Figure 6 – Presentation by Zhai Xinyan