



D4.8 Project Applications





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

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Due date of deliverable: **M18**

Start date of project: November 1st 2013

Duration: 3 years

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

Author list

| Name | Organisation |
|------------------------|---------------------|
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| Project co-funded by the European Commission within the Seventh Framework Programme (2014-2016) | | |
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| Dissemination Level | | |
| PU | Public | X |
| 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 | 29/04/2015 | First draft | Hua-Ji Qiu, HVRI Lihong Liu, SVA |
| 02 | 30/04/2015 | Revision | Hua-Ji Qiu, HVRI Jingfei Wang, HVRI Zhiyong Ma, SHVRI Daniel Beltran-Alcrudo, FAO |

Partnership



Food and Agriculture Organization of the United Nations



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



Beijing Chinese Center for Disease Control and Prevention



Sociedade Portuguesa de Inovação



Huazhong Agricultural University



Project Applications summary

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Joint proposal 1

As an outcome of the exchange activities of LinkTADs and the WP4 workshops in Shanghai, SVA and HVRI together with several external partners made a project proposal (see below) on African swine fever virus (ASFV). The proposal was aimed to elucidate the pivotal signaling pathways involved in the pathogenicity of ASFV, which is a devastating virus currently present (and spreading) in most Sub-Saharan Africa and in Eastern Europe. The project application is also part of the activities within the Joint Laboratory of Veterinary Microbiology between HVRI and SVA, which was established under the framework of the LinkTADs project.

Title of the proposal

Key signaling pathways related to different pathogenicity of African swine fever virus

Description of the proposal

ASFV is a large, complex, icosahedral double-stranded DNA virus causing a hemorrhagic disease with up to 100% mortality, called African swine fever (ASF). Historically present in most Sub-Saharan Africa, the disease has spread rapidly since its incursion in 2007 throughout the Caucasus region and the Russian Federation, Ukraine and Belarus. Since 2014, the disease has been confirmed in both domestic pigs and wild boar in the European Union, i.e. Poland and the Baltic States (Estonia, Latvia, and Lithuania), thus posing a huge threat to the swine industry in Sweden and other EU member states. Outbreaks of ASF in domestic pigs would have great social-economic impacts not only on animal health and welfare but also on the ecology and environment in affected countries.

In this proposal, we will perform *in vivo* infection with a unique pair of the highly virulent ASFV E75 strain and its cell culture adapted virus, E75CV1, in order to better understand the pathobiology and host responses to ASFV infection. We plan to use some advanced technologies including high-throughput RNA sequencing (RNA-Seq), bioinformatics, and proteomics, to investigate transcriptomic and proteomic signatures that are related to the infection with highly virulent and attenuated ASFV isolates. By taking into account the clinical presentations and pathological changes, we will be able to understand more about host responses at both gene expression and protein levels, and the virus-host interactions upon infections. Knowledge gained from this study would be valuable for a rational design of efficient and safe vaccines against ASF, which are not available up to now.

Co-applicants

- Lihong Liu, National Veterinary Institute (SVA) in Sweden
- Fernando Rodríguez, Campus de la Universitat Autònoma de Barcelona in Spain
- Hua-Ji Qiu, Harbin Veterinary Research Institute (HVRI) in China
- Charles Masembe, Makerere University in Uganda
- Raffaele Calogero, University of Torino in Italy

- Mikael Leijon, SVA in Sweden
- Frederik Widén, SVA in Sweden
- Karl Ståhl, SVA in Sweden

Time frame of the project

The project was designed to run for three years from 1/1/2016 to 31/12/2018.

Status of the proposal

The proposal was submitted by SVA to The Swedish Research Council Formas on April 16th, 2015, and the decision of evaluation will be available by the end of November, 2015.

Joint proposal 2

Title of the proposal

China-UK collaboration: Risk assessment and modelling for more effective surveillance and control of major infectious diseases of animals.

Objectives of the proposal

- To share knowledge and experience in relation to risk assessment for the introduction of exotic infectious animal diseases, such as African swine fever (ASF), amongst scientific communities in China and the UK.
- To share knowledge and experience in relation to infectious disease modelling in order to improve the understanding of the epidemiology of major endemic animal diseases in China and the UK, such as peste des petits ruminants (PPR), avian influenza H5N1 and H7N9, brucellosis, Schmallenberg virus, bluetongue or bovine tuberculosis, and enhance their surveillance and control.
- To develop collaborative research projects with Chinese partners specifically aimed at assessing the risk of introduction of relevant exotic animal diseases and at improving the understanding of the epidemiology of major endemic animal diseases.
- To strengthen scientific links between UK and Chinese veterinary epidemiologists for the benefit of improved and bilaterally proportionate animal health policy development
- To strengthen epidemiological research in China to support the development of science-led policy for the control of infectious diseases, thereby supporting global health as well as being consistent with the BBSRC strategic priorities.

Co-applicants of the proposal

- Dirk Pfeiffer, Royal Veterinary College (RVC)
- Jingfei Wang, Harbin Veterinary Research Institute (HVRI)
- Jingli Kang, China Animal Health and Epidemiology Centre (CAHEC).

Time frame of the project

The project was designed to run for three years from 1/1/2015 to 31/12/2017.

Status of the proposal

The proposal was submitted by RVC to The Biotechnology and Biological Sciences Research Council (BBSRC) of UK on December 12, 2014, and unfortunately, was not approved.

Joint proposal 3

Title of the proposal

Eco-epidemiology and risk analysis of genotype shift of Japanese encephalitis virus in pigs and mosquitos

Objectives of the proposal

- To explore the mechanisms of Japanese encephalitis virus (JEV) genotype shift and identify the ecological and epidemiological factors associated with JEV genotype shift;
- To assess the risks of JEV genotype shift on the control of Japanese encephalitis.

Co-applicants of the proposal

- Zhiyong Ma, Shanghai Veterinary Research Institute (SHVRI)
- Julien Cappelle, Centre de Coopération Internationale en Recherche Agronomique pour le Développement (CIRAD)
- Frederik Widén, National Veterinary Institute (SVA)
- Lihong Liu, SVA

Time frame of the project

The project was designed to run for three years from 1/1/2016 to 31/12/2018.

Status of the proposal

The proposal was submitted by SHVRI to the Ministry of Science and Technology of China in the early 2014. The project was granted. The total budget of the China-EU international S&T collaboration project is 1,270,000 RMB. The 3-year project will run from 1/1/2015 to 31/12/2017.