



**Linking Epidemiology and Laboratory Research on Transboundary Animal Diseases and
Zoonoses in China and EU**

中欧跨界动物疫病流行病学和实验室研究合作项目

Daniel Beltran-Alcrudo (FAO), LinkTADs Coordinator

Kunming, 19 October 2016

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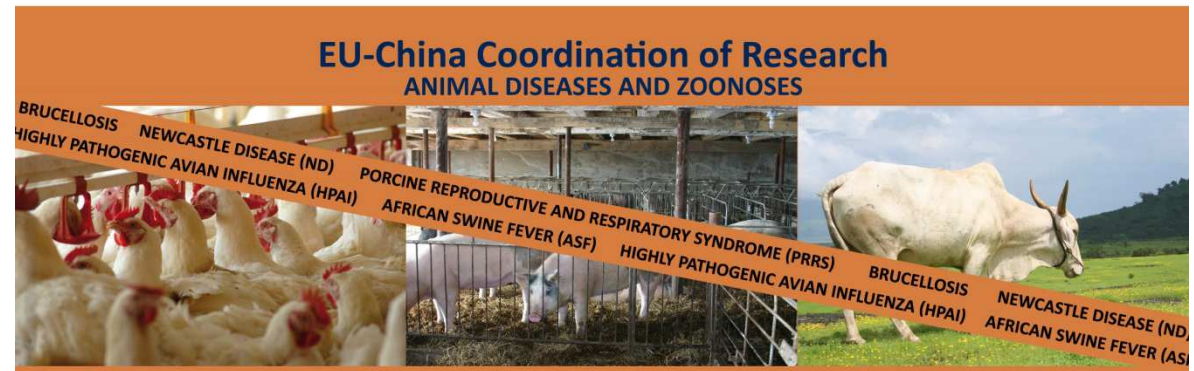


LinkTADs - Linking Epidemiology and Laboratory Research on Transboundary Animal Diseases and Zoonoses in EU and China

中欧跨界动物疫病流行病学和实验室研究合作项目

Some basic data 基本信息:

- Activity Code 项目代码:
KBBE.2013.1.3-04
- Duration 时间:
1 Nov 2013 - 31 Oct 2016 (3 years) 2013年11月1日-2016年10月31日 (3年)
- 11 partners; 6 from Europe and 5 from China
11个参与机构; 6个来自欧盟, 5个来自中国



Animal Health Control Food Security

Systematic approach – Linkages
Coordinated Planning





Participant 参与机构



Type 类型	Organization name 机构名称		
IA	Food and Agriculture Organization of the United Nations (including the Joint FAO/IAEA Division) 联合国粮农组织 (包括FAO/IAEA联合司)	FAO	Italy 意大利
SME	Europa Media Non-profit Ltd. 欧洲媒体非营利公益有限公司	EM	Hungary 匈牙利
U	Royal Veterinary College 皇家兽医学院	RVC	UK 英国
RC	Centre de Coopération Internationale en Recherché Agronomique pour le Développement. 法国国际农业研究合作发展中心	CIRAD	France 法国
RC	Staten Veterinaermedicinska Anstalt 瑞典国立兽医研究所	SVA	Sweden 瑞典
RC	Shanghai Veterinary Research Institute 中国农业科学院上海兽医研究所	SHVRI	China 中国
RC	Harbin Veterinary Research Institute 中国农业科学院哈尔滨兽医研究所	HVRI	China 中国
RC	China Animal Health and Epidemiology Center 中国动物健康与流行病学中心	CAHEC	China 中国
RC	China Animal Disease Control Center 中国动物疫病预防控制中心	CADC	China 中国
SME	Sociedade Portuguesa de Inovação 仕博创新管理咨询公司	SPI	Portugal 葡萄牙
U	Huazhong Agricultural University 华中农业大学	HZAU	China 中国



Work Packages (WPs) 工作组

WP 工作组

WP1 - Management and coordination 协调管理

WP2 - Analysis of animal health and food security 动物健康与食品安全分析

WP3 - Animal Health Science (Epidemiology) 流行病学

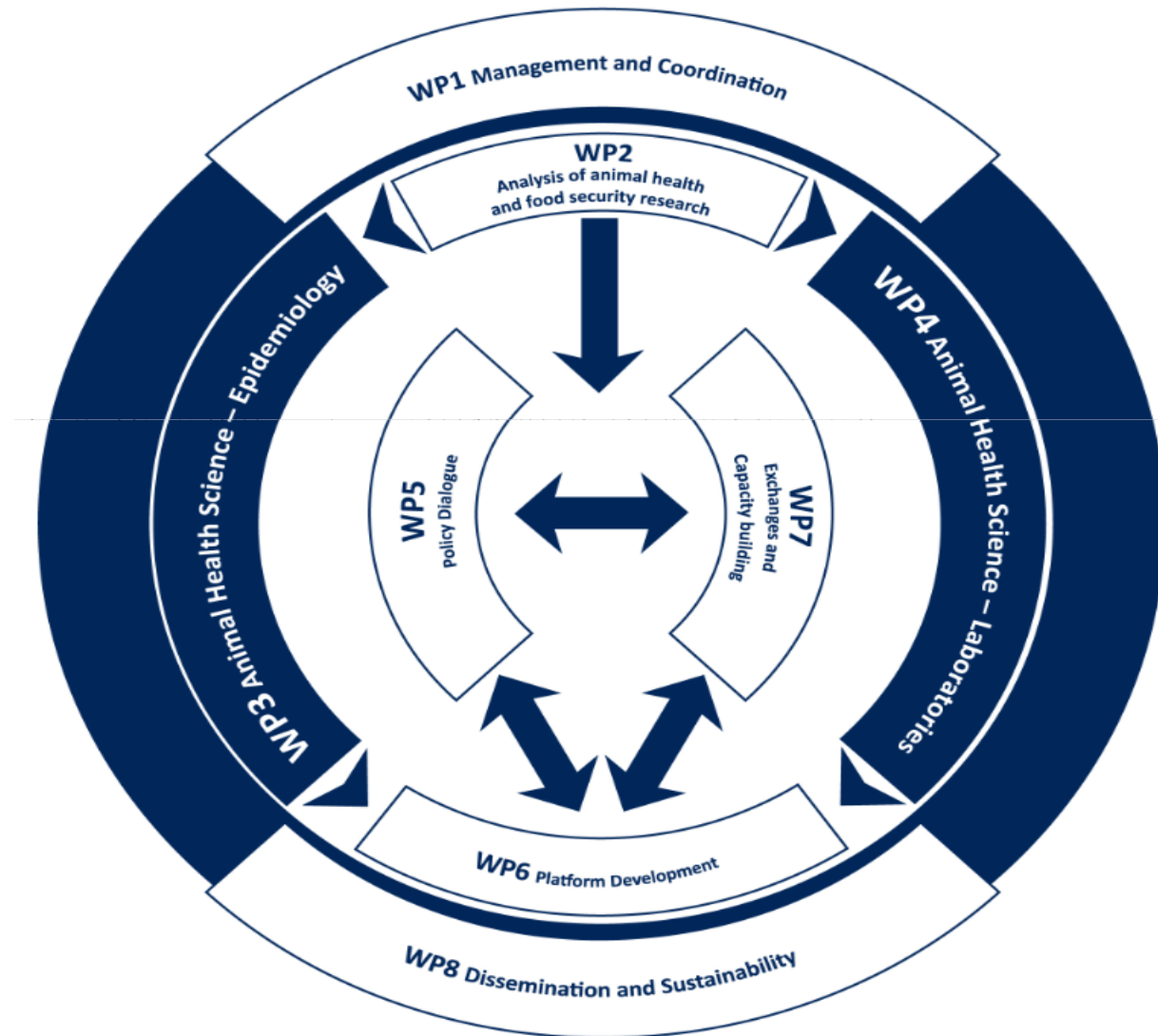
WP4 - Animal Health Science (Laboratories) 实验室研究

WP5 - Supporting policy dialogue 支持政策对话

WP6 - Platform development 平台发展建设

WP7 - Exchanges and capacity building 交流与能力建设

WP8 - Dissemination and sustainability 宣传和可持续性

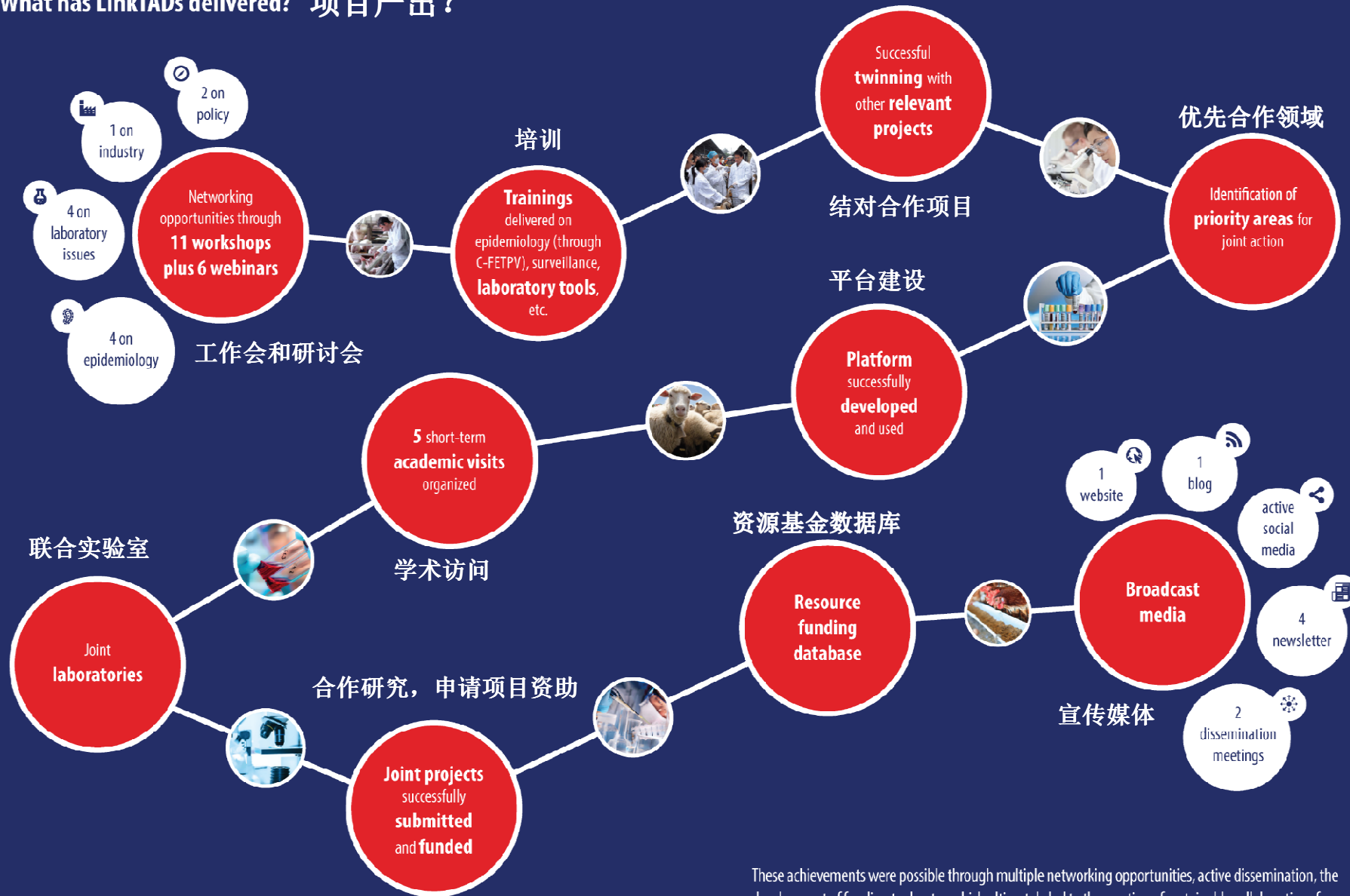




Approach used 方法

- Create **networking opportunities** for researchers (workshops, webinars, exchanges) in priority topics 针对热门主题，为研究人员提供建立交流合作网络的机会（工作会，网络研讨会，交换）
- **Sustainable collaboration** mechanisms (joint laboratories, partnerships, project applications...) 可持续合作机制（联合实验室，伙伴关系，项目应用...）
- **Dissemination** (social media, website, dissemination events) 宣传（社交媒体，网站，宣传活动）
- Development of **tools** (to find funds and partners) 工具方法（寻找科研资金信息和合作伙伴）
- **Always stressing the need to coordinate epi and lab** 促进流行病学和实验室的合作

What has LinkTADs delivered? 项目产出?



These achievements were possible through multiple networking opportunities, active dissemination, the development of funding tools, etc., which ultimately led to the creation of sustainable collaborations for researchers in the EU and China.



Workshops 工作会

- **2014**

AFRICAN SWINE FEVER (**ASF**) **POLICY** EVENT (WP5) 17 November 2014 非洲猪瘟政策会议

WORKSHOP ON **VACCINE AND DIAGNOSTIC TECHNOLOGY** DEVELOPMENT (WP4) 17 October 2014 疫苗与检测技术研发研讨会

WORKSHOP ON EPIDEMIOLOGY AND ECOLOGY OF **AVIAN INFLUENZA** (WP3) 14 - 15 April 2014 禽流感流行病学和生态学研讨会

WORKSHOP ON **ESTABLISHING A NETWORK** FOR THE CONTROL OF ANIMAL DISEASES AND ZOOSES (WP4) 14 - 16 April 2014 关键病种防控体系研讨会

- **2015**

WORKSHOP ON **VETERINARY LABORATORY SYSTEMS AND POLICY** (WP5) 14 October 2015 兽医实验室体系和政策研讨会

LABORATORY WORKSHOP ON **NEW DIAGNOSTIC TECHNOLOGIES & COORDINATION OF RESEARCH** (WP4) 12 - 13 October 2015 实验室新诊断技术和合作研究研讨会

INDUSTRY EVENT (WP4) 16 September 2015 产业会议

WORKSHOP ON **NOVEL VACCINES** AGAINST PRIORITY TADs (WP4) 16 - 17 July 2015 关键跨界动物一并的新疫苗研发研讨会

WORKSHOP ON STATUS ANALYSIS AND IDENTIFICATION OF **POTENTIAL COLLABORATIONS** ON PRIORITY ANIMAL DISEASES BETWEEN EU AND CHINA (WP3) 9 - 10 April 2015 中欧优先合作病种合作现状以及潜在合作机会分析工作会





Webinars and Training activities 网络研讨会和培训活动

Webinars 网络研讨会

- **Disease Outbreak Investigation** (9/10/2014) 疫病暴发调查
- **Antimicrobial Resistance** (05/02/2015) 抗生素耐药性
- **Rabies** prevention and control tools in Asia (02/07/2015) 亚洲狂犬病防控
- **Rabies** Prevention and Control in China (21/09/2015) 中国狂犬病防控
- **Animal Health Research Agendas** (13/10/2015) 动物健康研究计划
- **Influenza A (H7N9) Epidemiology and Surveillance in China** (20/03/2016) 中国H7N9甲型流感的流行病学和监测
- **EMPRES Global Animal Disease Information System** - introduction and application (2/09/2016) EMPRES 全球动物疾病信息系统的介绍

Trainings 培训

- **Field epidemiology** training (WP3) 1 April 2015 - 1 July 2015 现场流行病学培训
- Workshop on **Risk-based surveillance** (WP3) 13 - 14 July 2015 基于风险的监测培训
- Online **FMD** emergency preparation course (WP7) 21 September 2016-21 October 2016 网络培训-口蹄疫应急准备
- **InterRisk Training** (WP7) InterRisk 培训

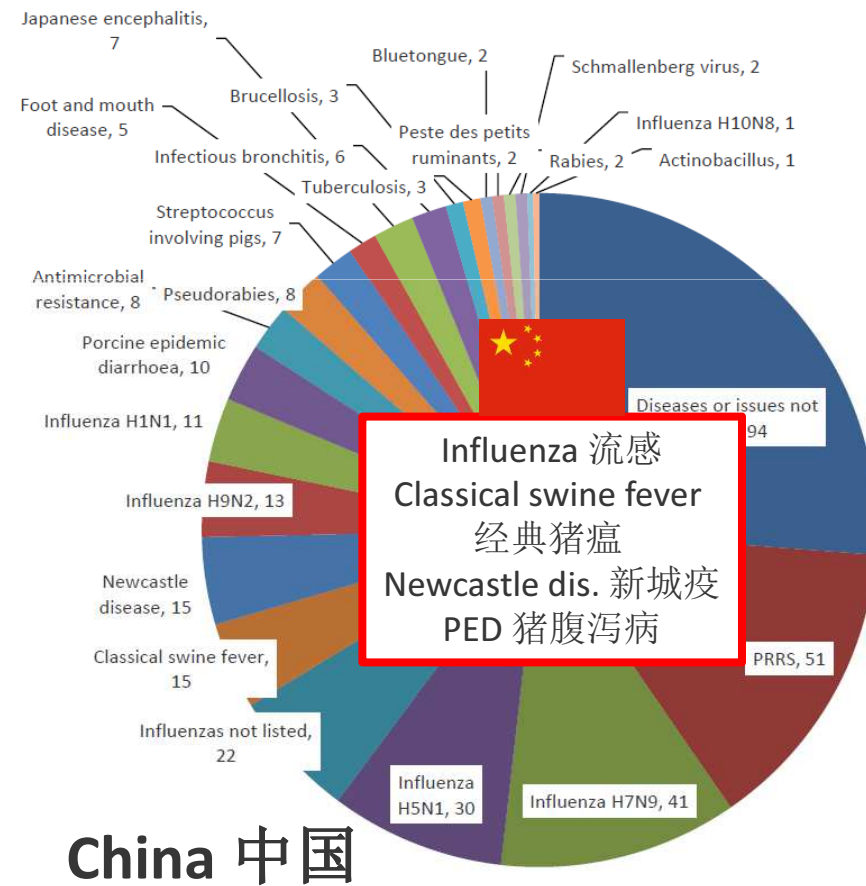
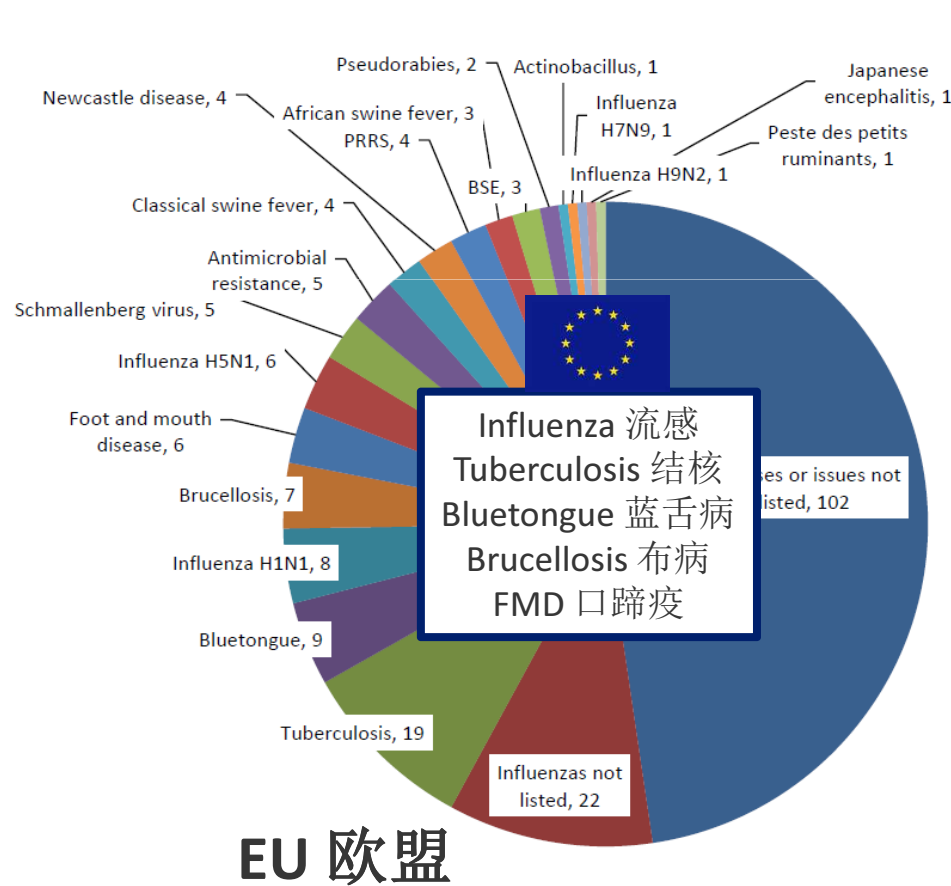


Successful twinning with other projects



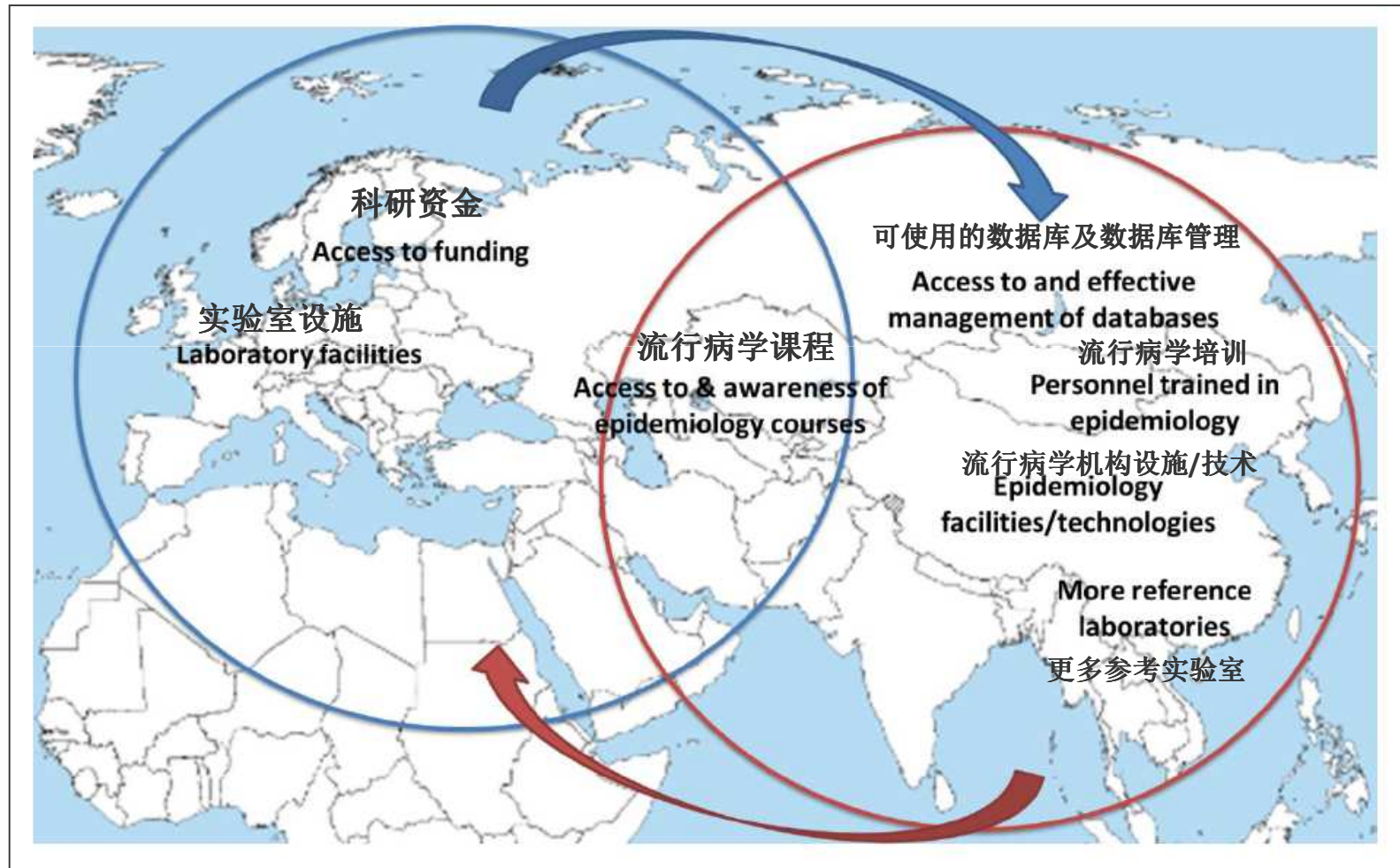
Identifying animal health priorities 确定优先合作病种

- Literature review of published scientific papers 根据发表的文献对重点病种进行调研分析





Identifying synergies and gaps 确定合作协同目标与差异





www.linktads.com 网站

- Includes a **database of over 100 funding programmes** for international researchers focusing on EU-China research collaboration. 包括超过100个项目信息的数据库
- Provides useful **information on EU-China research** on animal disease prevention and control. 提供相关中欧合作研究信息
- Contains a collection of **EU-China policy and strategy documents** in animal health research collaboration. Gives access to a **Focal Point Network** of epidemiology and laboratory research experts in the EU and China 包含中欧相关政策文献，可连接到中欧流行病学和实验室研究专家联系人网络
- Provides access to **workshop reports, recorded webinars and training materials**. 工作会报告，网络研讨会和培训资料
- Shares achievements and major issues through interesting blogs and on-line discussions. 通过博客和网络讨论分享成果和探讨主要面临的问题



Academic visits, Exchange programs

Short-term visits (6):

- CAHEC to RVC (D7.2)
- RVC to CAHEC (D7.3)
- CIRAD to SHVRI (D7.4)
- FAO to CAHEC and CADDC (D7.5)
- CIRAD to SHVRI
- SVA to SHVRI

Exchange programs:

- HVRI-SVA: Share and exchange technologies in development of novel diagnosis
- SHVRI-SVA: Collaboration on emerging swine diseases
- CIRAD-CAHEC-RVC: Collaboration in epidemiology by twining LinkTADs and RiskSur projects



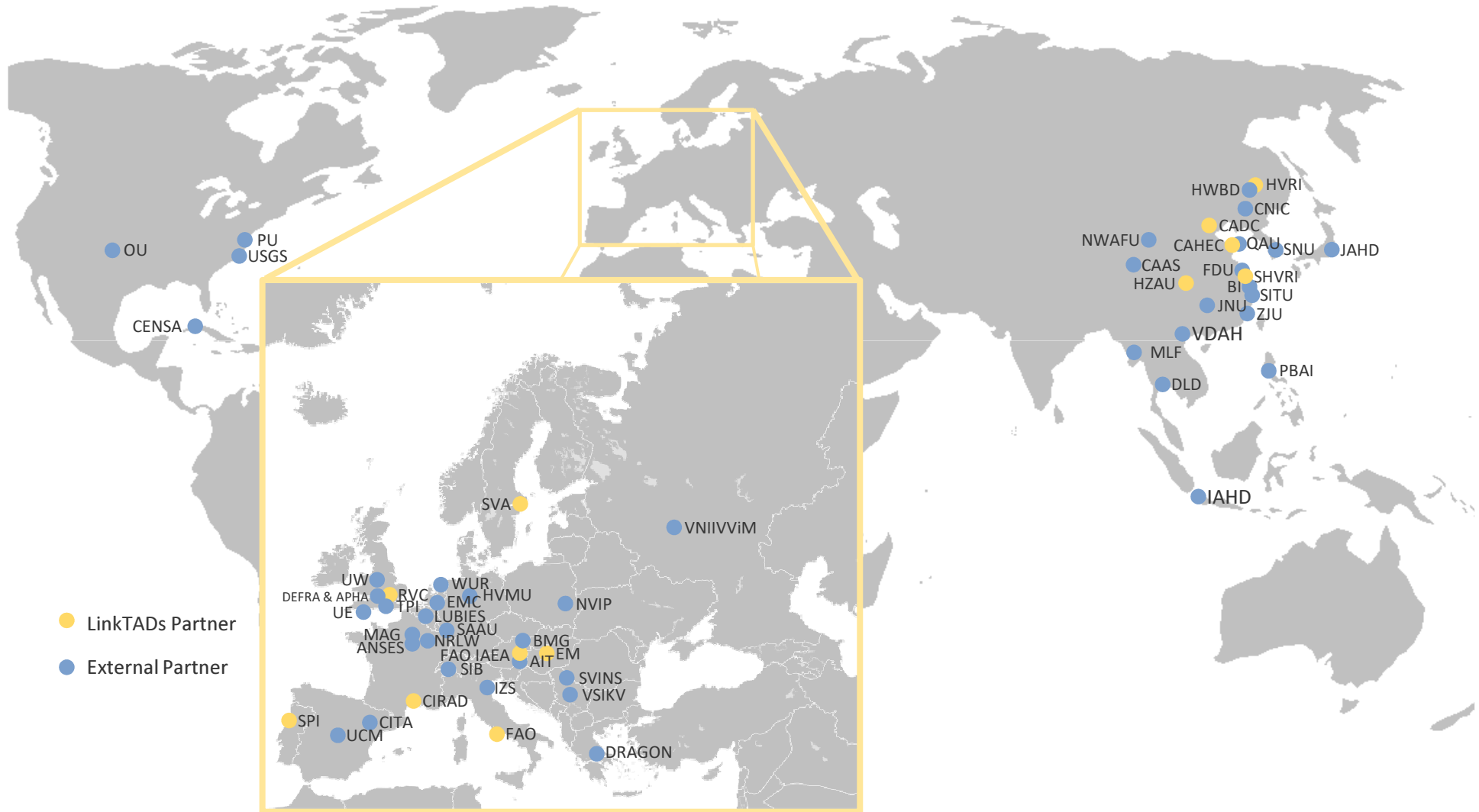


Dissemination 宣传

- 5 dissemination meetings plus one industry meeting 5次宣传活动以及一次产业宣传会
- 4 newsletter 4期通讯
- Peer-reviewed articles 发表文章
- www.LinkTADs.com 网站
- [Web blog](#) (17 published), [facebook](#) (111 likes), [LinkedIn](#) page (>1300 connections) and LinkedIn group (201 members), [Twitter](#) (424 followers, >1667 tweets), weibo (>94 posts, 40 followers) 网络博客，脸书，领英主页和小组，推特，微博
- Focal Point Network 联系人网络

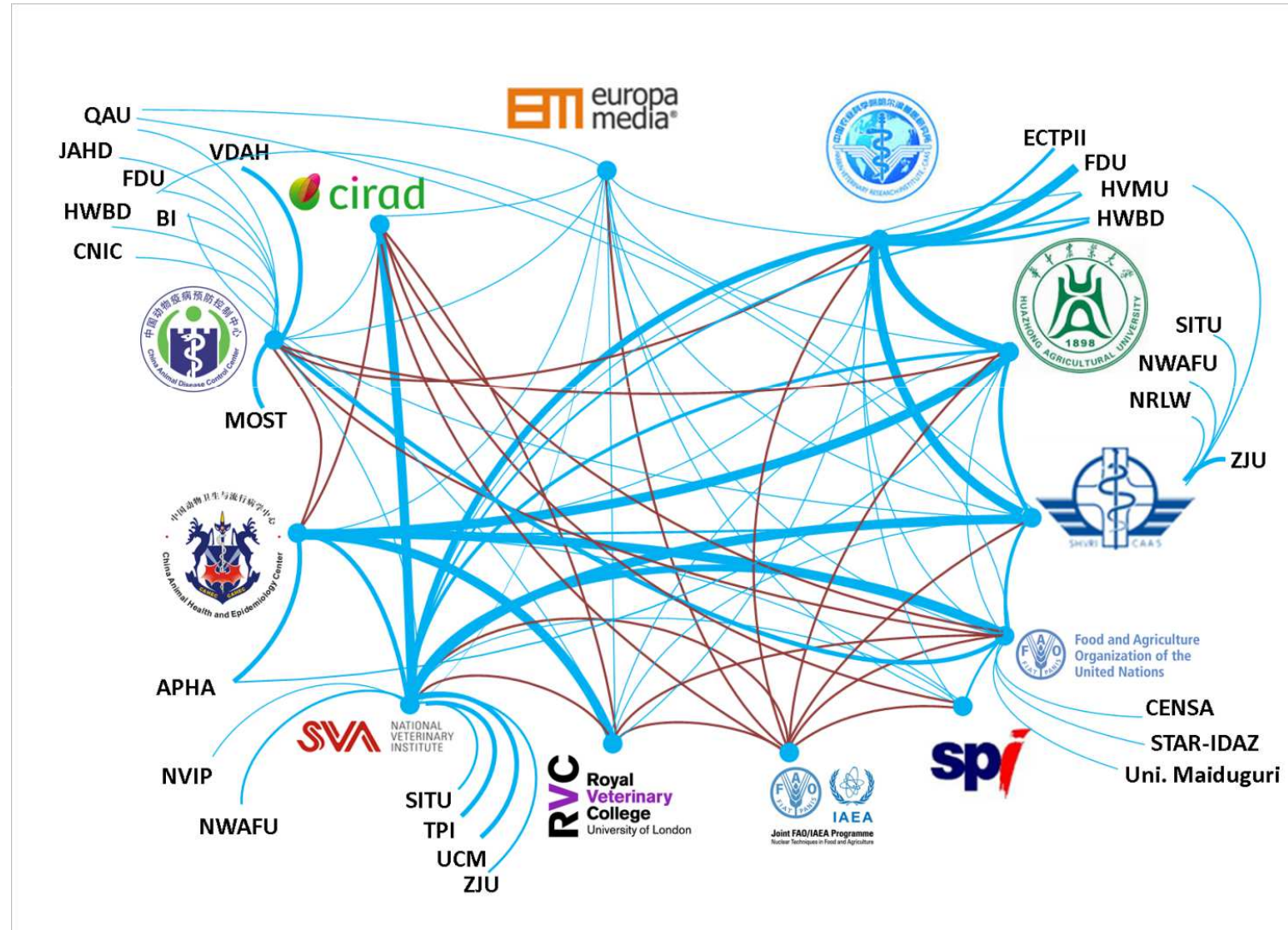


Networking (1) 交流网络





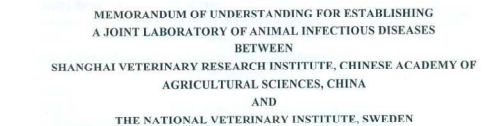
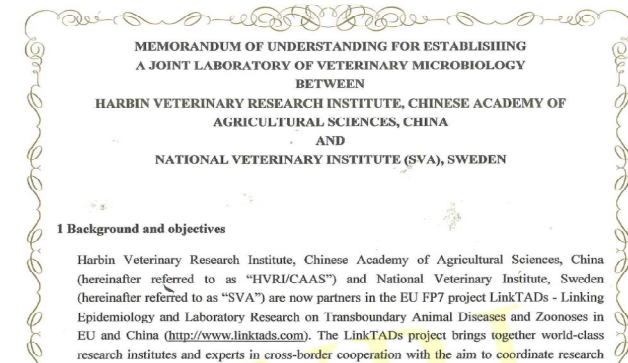
Networking (2) 交流网络





Joint laboratories

- **Established:** Joint Laboratory of **Veterinary Microbiology** between **HVRI** and **SVA**.
- **Established:** Joint Laboratory of **Animal Infectious Diseases** between **SHVRI** and **SVA**.
- **Signed:** Agreement on collaborative research on **JEV** between **SHVRI** and **CIRAD**.
- **Agreed:** Joint Laboratory of **Vector-borne Zoonoses** between **SHVRI** and **CIRAD**.



1 Background and objectives

Shanghai Veterinary Research Institute (SHVRI), Chinese Academy of Agricultural Sciences, China (CAAS) (hereinafter referred to as "SHVRI") and National Veterinary Institute, Sweden (hereinafter referred to as "SVA") are now partners in the EU FP7 project LinkTADs - Linking Epidemiology and Laboratory Research on Transboundary Animal Diseases and Zoonoses in EU and China (<http://www.linktads.com>). The LinkTADs project brings together world-class research institutes and experts in cross-border cooperation with the aim to coordinate research between the EU and China, thus improving scientific excellence in animal health (epidemiology and laboratory). A major objective of LinkTADs concerns collaboration between laboratories in EU and China and will focus on development of diagnostic technologies for early and rapid detection of animal pathogens.

This Memorandum of Understanding (MOU) is entered into by and between the two partners (referred to as "the Parties"). The MOU is the framework agreement for establishing a Joint Laboratory of Animal Infectious Diseases (hereinafter referred to as "the Joint Laboratory"), and serves as guidance for the management and operation of the Joint Laboratory. This MOU is not a legally binding agreement.

2 Scope of collaboration

The aim of the Joint Laboratory is to enhance the control, improve the diagnostic capabilities and increase the knowledge of animal infectious diseases through the following joint activities:



Applications for joint research projects

- A joint proposal (SHVRI, CIRAD and SVA) on Eco-epidemiology and Risk Analysis of Genotype Shift of Japanese Encephalitis Virus in Pigs and Mosquitoes **funded**
- Joint grant application (HZAU and INRA) **submitted** for the detection of bovine *mycoplasma*
- Joint application (SHVRI, HVRI, CADC, CAHEC, HZAU and SVA) **submitted** for development of novel technique for surveillance and control of transboundary animal diseases
- Joint application (14 partners) **being prepared** on Antimicrobial Resistance (AMR) in farm animals in China and the EU

- 5 more on the pipeline

Multidrug resistance genes in staphylococci from animals that confer resistance to critically and highly important antimicrobial agents in human medicine

Sarah Wendlandt¹, Jianzhong Shen², Kristina Kadlec¹, Yang Wang², Beibei Li³, Wan-Jiang Zhang⁴, Andrea T. Feßler¹, Congming Wu², and Stefan Schwarz¹

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Transboundary and Emerging Diseases

SHORT COMMUNICATION

Pre-Clinical Evaluation of a Real-Time PCR Assay Using a Portable Instrument as a Possible Field Diagnostic Tool: Experiences from the Testing of Clinical Samples and Classical Swine Fever Viruses

L. Liu^{1,2,3}, Y. Luo^{3,4}, F. Accensi^{5,6}, L. Ganges⁵, F. Rodriguez^{5,6}, H. Shan⁷, K. Sta S. Belák^{1,2,8}

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Arch. Virol.
DOI 10.1007/s00705-016-3069-3



ORIGINAL ARTICLE

Development of an updated PCR assay for detection of African swine fever virus

Yuzi Luo^{1,6}, Stella A. Atim⁴, Lina Shao^{1,6}, Chrisostom Ayebazibwe⁴, Yuan Sun^{1,6}, Yan Liu^{1,6}, Shengwei Ji^{1,6}, Xing-Yu Meng^{1,6}, Su Li^{1,6}, Yongfeng Li^{1,6}, Charles Masembe⁵, Karl Ståhl^{1,6}, Frederik Widén^{2,6}, Lihong Liu^{2,6}, Hua-Ji Qiu^{1,6}

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Abstract Due to the current unavailability of vaccines or treatments for African swine fever (ASF), which is caused by African swine fever virus (ASFV), rapid and reliable detection of the virus is essential for timely implementation of emergency control measures and differentiation of ASF from other swine diseases with similar clinical presentations. Here, an improved PCR assay was developed and evaluated for sensitive and universal detection of ASFV. Primers specific for ASFV were designed based on the highly conserved region of the vp72 gene sequences of all ASFV strains available in GenBank, and the PCR assay was established and compared with two OIE-validated

PCR tests. The analytic detection limit of the PCR assay was 60 DNA copies per reaction. No amplification signal was observed for several other porcine viruses. The novel PCR assay was more sensitive than two OIE-validated PCR assays when testing 14 strains of ASFV representing four genotypes (I, V, VIII and IX) from diverse geographical areas. A total of 62 clinical swine blood samples collected from Uganda were examined by the novel PCR, giving a high agreement (59/62) with a superior sensitive universal probe library-based real-time PCR. Eight out of 62 samples tested positive, and three samples with higher Ct values (39.15, 38.39 and 37.41) in the real-time PCR were negative for ASFV in the novel PCR. In contrast, one (with a Ct value of 29.75 by the real-time PCR) and two (with Ct values of 29.75 and 33.12) ASFV-positive samples were not identified by the two OIE-validated PCR assays, respectively. Taken together, these data show that the novel PCR assay is specific, sensitive, and applicable for molecular diagnosis and surveillance of ASF.

Y. Luo, S. A. Atim and L. Shao contributed equally to this work.

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Enhanced expression of the E^{TNS} 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

Yuzi Luo^{a,d,1}, Lin Li^{a,d,1}, Sophia Austermann-Busch^b, Mei Dong^a, Jingjing Xu^{a,d}, Lina Shao^{a,d}, Jianlin Lei^{a,d}, Na Li^a, Wen-Rui He^{a,d}, Bibo Zhao^{a,d}, Su Li^{a,d}, Yongfeng Li^{a,d}, Lihong Liu^{c,d}, Paul Becher^b, Yuan Sun^{a,d,*}, Hua-Ji Qiu^{a,d,*}

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Thank you for your attention! 谢谢!

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