WOAH Collaborative Centre Reports Activities 2022

Activities in 2022

This report has been submitted : 10 mars 2023 13:21

Centre Information

Title of WOAH Collaborating Centre	WOAH Collaborating Centre for Validation, Quality Assessment and Quality Control of diagnostic assays and vaccine testing for vesicular diseases in Europe
Address of WOAH Collaborating Centre	Groeselenberg 99, 1180 Uccle, Belgium
Tel.:	+3223790627
E-mail address:	nick.deregge@sciensano.be
Website:	www.sciensano.be
Name Director of Institute (Responsible Official):	Prof. Christian Léonard
Name (including Title and Position) of Head of the Collaborating Centre (WOAH Contact Point):	Prof. dr. ir. Nick De Regge, Head of Service
Name of the writer:	Nick De Regge

TOR1 AND 2: SERVICES PROVIDED

1. Activities as a centre of research, expertise, standardisation and dissemination of techniques within the remit of the mandate given by WOAH

Training, capacity building	
Title of activity	Scope
	This collaboration project aims to build the capacity of the FMD Unit at the NVI-Burundi for the improvement of the diagnosis of

Collaboration between the OIE CC Sciensano Belgium and the National Veterinary Institute, Burundi.	and control of foot-and-mouth disease virus (FMDV) in Burundi and in order to prepare this laboratory for a possible OIE Twinning programme. Contact with WOAH was made, and a twinning will be considered when funds become available.
Training, capacity building	
Title of activity	Scope
Validation, Quality Assessment and Quality Control of FMDV and capripox viruses Diagnostic Assays.	Training and capacity building of scientists of several African countries for the laboratory diagnosis of FMD and capripox viruses and their differential diagnosis.
Training, capacity building	
Title of activity	Scope
Development, validation, Quality Assessment and Quality Control of real-time RT-PCR for Seneca Valley Virus.	Sharing results on validation of a qRT PCR for seneca valley virus at annual meeting of EURL FMD, thereby increasing the capacity of countries for diagnosis of this disease
Diagnosis, biotechnology and laboratory	
Title of activity	Scope
Development and validation of DIVA PCR to differentiate wild type lumpy skin disease virus strains (including the recombinants) from neethling vaccines. Validation data submitted to WOAH for potential inclusion of the test in the Manual	improving diagnostic capacity of countries
Diagnosis, biotechnology and laboratory	
Title of activity	Scope
Collaboration with WRL FMD for harmonisation of virus neutralization test for FMD	Harmonizing test results among laboratories.
Vaccines	
Title of activity	Scope
Publication: Duration of protective immunity induced by lumpy skin disease virus vaccines	Promote the use of good quality controlled LSDV vaccines.
Vaccines	
Title of activity	Scope

In vitro LSDV vaccine safety testing	Promote and ascertain the use of independently quality controlled vaccines

Epidemiology, surveillance, risk assessment,	
Title of activity	Scope
Collaboration with Nigeria for FMD and LSDV testing in suspected samples	providing insight in local epidemiological situation in order to support disease control

Diagnosis, biotechnology and laboratory	
Title of activity	Scope
submission of validation results of an IPMA to detect capripox virus specific antibodies to WOAH for potential inclusion of the test in the Manual	improving diagnostic capacity of countries

Disease control	
Title of activity	Scope
Participation of EUVET mission upon the outbreak of sheeppox virus in Spain	Improve control policy/measures of countries

Disease control	
Title of activity	Scope
agreement to participate to an FMD audit in Botswana	Improve control policy/measures of countries

TOR3: HARMONISATION OF STANDARDS

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the main fucus area for which you were designated

Proposal title	Scope/Content	Applicable area
Quality control and determination of performance characteristics of DIVA real time PCRs for the	Evaluation and validation of the different analytical and diagnostic parameters of a DIVA real time PCR, for the detection and differentiation of capripox	

detection and differentiation of capripox field viruses from recombinant strains and vaccine strains.	field viruses from recombinant strains and vaccine strains, using samples from lumpy skin disease infection trials, vaccine trials and from field outbreaks. The fit for purpose of these DIVA PCRs is checked.	Laboratory expertise
Evaluation and validation of an Immunoperoxidase monolayer assay (IPMA) for the detection of antibodies against recombinant LSD viruses.	Quality control and validation of an immunoperoxidase monolayer assay (IPMA) to detect antibodies against recombinant lumpy skin disease field virus strains in comparison to VNTs and ELISAs.	Laboratory expertise

4. Did your Collaborating Centre maintain a network with other WOAH Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate scientific and technical studies?

Yes

Name of OIE CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
The OIE FMD Reference Laboratory The Pirbright Laboratory UK	UK	Europe	- OIE/FAO FMD Reference Laboratory Network - Vaccine matching - International proficiency tests - Post vaccination monitoring - Virus and sequence exchange - Obtaining viral reference strains
The OIE FMD Reference Laboratory Anses, Maisons Alfort, Paris, France	France	Europe	- OIE/FAO FMD Reference Laboratory Network - Vaccine matching - International proficiency tests - Post vaccination monitoring - Virus and sequence exchange - Obtaining viral reference strains
The OIE CC Institute of Diagnostic Virology Friedrich Loeffler Institut (FLI) Germany	Germany	Europe	- OIE/FAO FMD Reference Laboratory Network - Vaccine matching - International proficiency tests - Post vaccination monitoring - Virus and sequence exchange - Obtaining cell cultures

The OIE FMD Reference Laboratory OVI Onderstepoort South-Africa	South Africa	Africa	- OIE/FAO FMD Reference Laboratory Network - Vaccine matching - International proficiency tests - Post vaccination monitoring - Virus and sequence exchange
The OIE FMD Reference Laboratory Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna Brescia Italy	Italy	Europe	- OIE/FAO FMD Reference Laboratory Network - Vaccine matching - International proficiency tests - Post vaccination monitoring - Virus and sequence exchange - Obtaining viral reference strains
The OIE FMD Reference Laboratory SENASA Buenos Aires Argentina	Argentina	Americas	- OIE/FAO FMD Reference Laboratory Network - Vaccine matching - International proficiency tests - Post vaccination monitoring
The OIE FMD Reference Laboratory BVI Gaborone Botswana	Botswana	Africa	- OIE/FAO FMD Reference Laboratory Network - Vaccine matching - International proficiency tests - Post vaccination monitoring - Virus and sequence exchange - Obtaining viral reference strains
The OIE FMD Reference Laboratory PANAFTOSA Brasil	Brasil	Americas	- OIE/FAO FMD Reference Laboratory Network - Vaccine matching - International proficiency tests - Post vaccination monitoring - sequence exchange
The OIE FMD Reference Laboratory LVRI Lanzou China	China	Asia and Pasific	- OIE/FAO FMD Reference Laboratory Network - Vaccine matching - International proficiency tests - Post vaccination monitoring - sequence exchange
The OIE FMD Reference Laboratory PIADC Plum Island US	US	Americas	- International proficiency tests - Post vaccination monitoring - Virus and sequence exchange - Obtaining viral reference

			strains
The OIE FMD Reference Laboratory ARRIAH of the Russian Federation	Russia	Asia and Pasific	- OIE/FAO FMD Reference Laboratory Network - Vaccine matching - International proficiency tests - Post vaccination monitoring - Sequence exchange
The OIE FMD Reference Laboratory National Institute of Animal Health Department of Livestock Development Pakchong THAILAND	Thailand	Asia and Pasific	- OIE/FAO FMD Reference Laboratory Network - Vaccine matching - International proficiency tests - Post vaccination monitoring - Sequence exchange

TOR4 AND 5: NETWORKING AND COLLABORATION

5. Did your Collaborating Centre maintain a network with other WOAH Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

Yes

Name of OIE CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
The OIE Bluetongue Reference Laboratory Pirbright Laboratory UK	UK	Europe	- Diagnostic assay and vaccine quality control for bluetongue viruses - International proficiency testing
The OIE Poxvirus Reference Laboratory Pirbright Laboratory UK	UK	Europe	- Diagnostic assay and vaccine quality control for capripox viruses - International proficiency testing
The OIE Lumpy skin disease Reference Laboratory OVI Onderstepoort South-Africa	South Africa	Africa	- Diagnostic assay and vaccine quality control for lumpy skin disease viruses - International proficiency testing
The Kimron Veterinary Institute, Bet Dagan, Israel	Israël	MiddleEast	- Diagnostic assay and vaccine quality control for bluetongue viruses, FMDV, capripox viruses - International proficiency

			testing

TOR6: EXPERT CONSULTANTS

6. Did your Collaborating Centre place expert consultants at the disposal of WOAH?

Yes

NAME OF EXPERT	KIND OF CONSULTANCY	SUBJECT
David Lefebvre	representative WOAH CC	EuFMD 100th Executive Committee meeting
David Lefebvre	representative WOAH CC	WOAH/FAO FMD Reference Laboratory Network meeting
David Lefebvre	representative WOAH CC	FAO meeting on FMD vaccine QC testing
David Lefebvre	representative WOAH CC	WRLFMD/EuFMD workshop: Harmonisation and calibration of VNT methods used for post-vaccination monitoring in different FMD Reference Laboratories
Nick De Regge	representative WOAH CC	EuFMD executive committee meeting
Nick De Regge, David Lefebvre	representative WOAH CC	EuFMD open session Marseille
David Lefebvre	representative WOAH CC	Special Session of the EuFMD

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

7. Did your Collaborating Centre provide advice/services to requests from Members in your main focus area?

Yes

- *Provision of FMDV reference material to Austria to help to build their diagnostic capacity.*
- *Agreed to provide help with the validation of lateral flow devices for FMD detection*

8. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by WOAH, to personnel from WOAH Members?

Yes

a) Technical visit : 0

b) Seminars : 7

c) Hands-on training courses: 2

d) Internships (>1 month) : 0

TYPE OF TECHNICAL TRAINING PROVIDED (A, B, C OR D)	CONTENT	COUNTRY OF ORIGIN OF THE EXPERT(S) PROVIDED WITH TRAINING	NO. PARTICIPANTS FROM THE CORRESPONDING COUNTRY
b	An introduction to the molecular epidemiology of foot-and-mouth disease	Ethiopia, Kenya	5
c	Training on Laboratory diagnosis of FMD	Ethiopia, Kenya	5
b	Use of VNT for diagnostic testing of LSDV in the OIE manual and in the EU Reference Laboratory	Turkey	30
b	An Immunoperoxidase Monolayer Assay (IPMA) for the detection of lumpy skin disease antibodies and comparison with VNT	Turkey	30
b	LSDV diagnostics and vaccination	South east Asia	40
c	Regional Training Course on Nuclear and Nuclear Related Techniques for Early Diagnosis and Detection of Lumpy Skin Disease, Sheep and Goat Pox and Peste des Petits Ruminants	>20 countries	30
b	Cours sur la Dermatose Nodulaire Contagieuse pour l'Afrique Australe	Africa	15
b	EuFMD-Training: FMD Laboratory Investigation Training Course (FLITC4)		100

b	EUFMD webinar : Sheeppox virus diagnostics and control		500

TOR8: SCIENTIFIC MEETINGS

9. Did your Collaborating Centre organise or participate in the organisation of scientific meetings related to your main focus area on behalf of WOAH?

Yes

NATIONAL/INTERNATIONAL	TITLE OF EVENT	CO-ORGANISER	DATE (MM/YY)	LOCATION	NO. PARTICIPANTS
International	GFTAD SGE LSDV	FAO, EU	2022-02-10	online	50
International	LSDV update meeting for South-East Asia – Origin and control of recombinant LSDV strains dominating the outbreak in Asia	WOAH	2022-12-16	online	80
International	LSDV diagnostics and vaccination (Nick De Regge) – OIE LSDV regional meeting Asia	WOAH	2022-07-16	online	80

TOR9: DATA AND INFORMATION DISSEMINATION

10. Publication and dissemination of any information within the remit of the mandate given by WOAH that may be useful to Members of WOAH

a) Articles published in peer-reviewed journals:

10

EFSA AHAW Panel (EFSA Panel on Animal Health and Welfare), Nielsen SS, Alvarez J, Bicout DJ, Calistri P, Canali E, Drewe JA, Garin-Bastuji B, Gonzales Rojas JL, Schmidt CG, Herskin M, Michel V, Miranda Chueca MA, Padalino B, Pasquali P, Stahl K, Calvo AV, Viltrop A, Winckler C, De Clercq K, Sjunnesson Y, Gervelmeyer A and Roberts HC, 2022. Scientific Opinion on the assessment of the control measures of the Category A diseases of the Animal Health Law: prohibitions in restricted zones and risk-mitigating treatments for products of animal origin and other materials. EFSA Journal 2022;20(8):7443, 128 pp. https://doi.org/10.2903/j.efsa.2022.7443

Fanos Tadesse Woldemariyam, Annebel De Vleeschauwer,Nato Hundessa, Ayelech Muluneh, Daniel Gizaw, Susanne Tinel, Kris De Clercq, David Lefebvre and Jan Paeshuyse. Risk Factor Assessment, Sero-Prevalence, and Genotyping of the Virus That Causes Foot-and-Mouth Disease on Commercial Farms in Ethiopia from October 2018 to February 2020. Agriculture 2022, 12(1), 49; https://doi.org/10.3390/agriculture12010049

Mathijs E, Haegeman A, De Clercq K, Van Borm S, Vandenbussche F. A robust, cost-effective and widely applicable whole-genome sequencing protocol for capripoxviruses. J Virol Methods. 2022 Mar;301:114464. doi: 10.1016/j.jviromet.2022.114464. Epub 2022 Jan 13. PMID: 35032481; PMCID: PMC8872832.

Redant V, Favoreel HW, Dallmeier K, Van Campe W, De Regge N .Japanese Encephalitis Virus Persistence in Porcine Tonsils Is Associated

With a Weak Induction of the Innate Immune Response, an Absence of IFNg mRNA Expression, and a Decreased Frequency of CD4+CD8+ Double-Positive T Cells. Frontiers in Cellular and Infection Microbiology 2022. 12:834888. doi:10.3389/fcimb.2022.834888

Van den Eynde C, Sohier C, Matthijs S, De Regge N. Japanese Encephalitis Virus Interaction with Mosquitoes: A Review of Vector Competence,
Vector Capacity and Mosquito Immunity. Pathogens. 2022. 11(3):317. doi: 10.3390/pathogens11030317.

Estevez Garcia AI, Lefebvre DJ, Nyabongo L, Haegeman A, Nkundwanayo C, De Vleeschauwer A, Ntakirutimana D, De Leeuw I, Nsanganiyumwami D, Niyokwizera P, van den Berg T, Niyokwishimira A, Clercq K. Outbreaks of Foot-and-Mouth Disease in Burundi, East Africa, in 2016, Caused by Different Serotypes. Viruses. 2022 May 17;14(5):1077. doi: 10.3390/v14051077

Canini L, Blaise-Boisseau S, Nardo AD, Shaw AE, Romey A, Relmy A, Bernelin-Cottet C, Salomez AL, Haegeman A, Ularamu H, Madani H, Ouoba BL, Zerbo HL, Souare ML, Boke CY, Eldaghayes I, Dayhum A, Ebou MH, Abouchoaib N, Sghaier S, Lefebvre D, DeClercq K, Milouet V, Brocchi E, Pezzoni G, Nfon C, King D, Durand B, Knowles N, Kassimi LB, Benfrid S. Identification of diffusion routes of O/EA-3 topotype of foot-and-mouth disease virus in Africa and Western Asia between 1974 and 2019 - a phylogeographic analysis. Transbound Emerg Dis. 2022 Apr 18. doi: 10.1111/tbed.14562. Epub ahead of print. PMID: 35435315.

Martinelle L, Haegeman A, Lignereux L, Chaber AL, Dal Pozzo F, De Leeuw I, De Clercq K, Saegerman C. Orbivirus Screening from Imported Captive Oryx in the United Arab Emirates Stresses the Importance of Pre-Import and Transit Measures. Pathogens. 2022 Jun 17;11(6):697. doi: 10.3390/pathogens11060697. PMID: 35745551; PMCID: PMC9229846.

Vandenbussche F, Mathijs E, Philips W, Saduakassova M, De Leeuw I, Sultanov A, Haegeman A, De Clercq K. Recombinant LSDV Strains in Asia: Vaccine Spillover or Natural Emergence? Viruses. 2022 Jun 29;14(7):1429. doi: 10.3390/v14071429. PMID: 35891412; PMCID: PMC9318037.

Sarry M, Romey A, Lefebvre D, Benfrid S, Dufour B, Durand B, Zanella G, De Regge N, Zientara S, Bakkali Kassimi L, Blaise-Boisseau S. [Foot and mouth disease virus: transmission, pathogenesis, diagnosis and surveillance]. Virologie (Montrouge). 2022 Sep 1;26(5):355-373. doi: 10.1684/vir.2022.0972

b) International conferences:
17
Evaluation of the efficacy of live attenuated
heterologous vaccines for the control of lumpy
skin disease in cattle (Poster) (Wannes Philips) 18/05/22 – 20/05/22 Barcelona (Epizone)

Duration of immunity induced after vaccination of cattle with a live attenuated or inactivated lumpy skin disease virus vaccine (Poster) (Ilse De Leeuw) 18/05/22 – 20/05/22 Barcelona (Epizone)

The Importance of Quality, safety, efficacy testing FOR Lumpy skin disease vaccines (Presentation) (Andy Haegeman) 18/05/22 – 20/05/22 Barcelona (Epizone)

Ilse: Duration of immunity induced after vaccination of cattle with a live attenuated or inactivated lumpy skin disease virus vaccine 22/09/2022 ESVV Gent

Evidence of Lumpy skin disease virus transmission from subclinically infected cattle by Stomoxys calcitrans (Presentation & Poster) (Charlotte Sohier) 23/09/2022 ESVV Gent

Comparison of SPPV pathogenesis depending on the inoculation route and strain (Wannes Philips) 28/09/2022 Montpellier (Annual meeting Capripox)

Current situation of LSDV in the world and EURL work program (Nick De Regge) 28/09/2022 Montpellier (Annual meeting Capripox)

Ilse: Duration of immunity induced after vaccination of cattle with a live attenuated or inactivated lumpy skin disease virus vaccine

28/09/2022 Montpellier (Annual meeting Capripox)

Andy: A new DIVA real-time PCR, allowing the correct identification of LSDV recombinant strains 28/09/2022 Montpellier (Annual meeting Capripox)

EURL FMD activities on Senecavirus A (David Lefebvre) 28/9/2022 Annual workshop of the EURL for FMD

Update of the LSDV situation in Asia (Nick De Regge) 12/10/2022 Ohrid (Defend meeting)

Key aspects of the current sheeppox, goatpox and lumpy skin disease virus epidemiology (Nick De Regge) 28/10/22 Marseille (EUFMD open session

Origin and importance of recombinant LSDV strains predominating the LSDV epidemic in South-East Asia (Nick De Regge) 17/11/2022 Dubai (LSDV workshop)

Andy: LSDV transmission by Stomoxys stable flies:
lessons learned from in vivo animal experiments 17/11/2022 Dubai (LSDV workshop)

Scénarios d'échantillonnage et de tests pour la fièvre aphteuse (David Lefebvre) 16/11/22 EuFMD FLITC4 online

Instructions pratiques pour le cours (1/2) 16/11/22 EuFMD FLITC4 online

Sheeppox virus: general introduction, diagnostics and control (Nick De Regge) 22/11/22 EUFMD sheeppox webinar online

c) National conferences:
3
Evidence of Lumpy skin disease virus transmission from subclinically infected cattle by Stomoxys calcitrans (Presentation) (Charlotte Sohier)
06/05/22 KULeuven (Arbovirus day)

Evaluation of the efficacy of live attenuated
heterologous vaccines for the control of lumpy
skin disease in cattle (Presentation) (Wannes Philips) 06/05/22
KULeuven (Arbovirus day)

Comparison of SPPV pathogenesis depending on the inoculation route and strain (Wannes Philips) 22/12/2022 Brussels (Belvir)

d) Other (Provide website address or link to appropriate information):
0

11. What have you done in the past year to advance your area of focus, e.g. updated technology?

12. Additional comments regarding your report: