Dr KingLogout - English - Français - Español

OIE Reference Laboratory Reports
Activities
Activities in 2013

This report has been submitted

Laboratory information

*** Name of disease (or topic) for which you are a designated OIE Reference Laboratory:**	Foot and mouth disease
*** Address of laboratory:**	Vesicular Disease Reference Laboratory The Pirbright Institute Ash Road, Pirbright Woking, Surrey, GU24 0NF UNITED KINGDOM
*** Tel.:**	+44-1483 231131
*** Fax:**	+44-1483 237448
*** e-mail address:**	donald.king@pirbright.ac.uk
website:	http://www.pirbright.ac.uk
*** Name (including Title) of Head of Laboratory (Responsible Official):**	Professor John Fazakerley Director of the Pirbright Institute
*** Name (including Title and Position) of OIE Reference Expert:**	Dr Donald King Head of the Vesicular Disease Reference Laboratory
*** Which of the following defines your laboratory? Check all that apply:**	☐ Governmental ☐ Research agency ☑ Academic institution ☐ Other

ToR: To use, promote and disseminate diagnostic methods validated according to OIE Standards

1. Did your laboratory perform diagnostic tests for the specified disease/topic for purposes such as disease diagnosis, screening of animals for export, surveillance, etc.? (Not for quality control, proficiency testing or staff training)

◉ Yes ○ No

Diagnostic Test	Indicated in OIE Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		**Nationally**	**Internationally**
VNT	Yes	0	2106
ELISA - structural protein antibody	Yes	0	1116
ELISA - non-structural protein antibody	Yes	0	13
Vaccine matching	Yes	0	692
Direct diagnostic tests		**Nationally**	**Internationally**
Virus Isolation (cell cultures)	Yes	0	635
Ag-ELISA	Yes	0	585
RT-PCR	Yes	0	1444
VP1 sequencing	Yes	0	273
Complete genome sequencing	No	0	12

ToR: To develop reference material in accordance with OIE requirements, and implement and promote the application of OIE Standards.
To store and distribute to national laboratories biological reference products and any other reagents used in the diagnosis and control of the designated pathogens or disease.

2. Did your laboratory produce or supply imported standard reference reagents officially recognised by the OIE?

(•) Yes ( ) No

NOTE: Currently, there are 22 laboratories that produce Standard Reference Reagents officially recognised by the OIE for 19 diseases/pathogens. Please click the following link to the list of OIE-approved International Standard Sera: http://www.oie.int/en/our-scientific-expertise/veterinary-products/reference-reagents/. If the reagent is not listed on this page, it is NOT considered OIE-approved. The next two questions allow you to indicate non-OIE-approved diagnostic reagents.

☑ OIE-approved SRR producing laboratory – Select your lab from list:

☐ Supply imported OIE-approved SRR – Select where you import from list:

Disease Test Available from

☐ ☑

Foot and mouth disease	Enzyme-linked immunosorbent assay (antigen and antibody detection); Virus neutralisation	Dr Donald King Institute for Animal Health, Pirbright Laboratory, Ash Road, Pirbright, Woking, Surrey GU24 0NF, United Kingdom

Tel: (44-1483) 23.24.41
Fax: (44-1483) 23.24.48
donald.king@pirbright.ac.uk

Type of reagent available	Related diagnostic test	Produced/ Supply imported	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	Name of recipient OIE Member Countries
FMDV antibody detection kit	ELISA	Produced	◉ <10mL ○ 10-100mL ○ 100-500mL ○ <500mL	◉ <10mL ○ 10-100mL ○ 100-500mL ○ <500mL	
FMDV antigen detection kit	ELISA	Produced	◉ <10mL ○ 10-100mL ○ 100-500mL ○ <500mL	◉ <10mL ○ 10-100mL ○ 100-500mL ○ <500mL	
FMDV antiserum	ELISA, VNT	Produced	◉ <10mL ○ 10-100mL ○ 100-500mL ○ <500mL	○ <10mL ◉ 10-100mL ○ 100-500mL ○ <500mL	
FMDV antigens	ELISA	Produced	◉ <10mL ○ 10-100mL ○ 100-500mL ○ <500mL	◉ <10mL ○ 10-100mL ○ 100-500mL ○ <500mL	

3. Did your laboratory supply standard reference reagents (non OIE-approved) and/or other diagnostic reagents to OIE Member Countries?

◉ Yes ○ No

Type of reagent available	Related diagnostic test	Produced/ provide	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	No. of recipient OIE Member Countries	Region of recipients
Virus isolates	Direct detection	Produced		9 ml	2	☐ Africa ☐

	assays and vaccine production				Americas ☐ Asia and Pacific ☑ Europe ☑ Middle East ☐ Africa
RT-PCR RNA control	Real-time RT-PCR	Produced	< 1 ml	2	☑ Americas ☐ Asia and Pacific ☑ Europe ☐ Middle East

4. Did your laboratory produce vaccines?

○ Yes ◉ No

5. Did your laboratory supply vaccines to OIE Member Countries?

○ Yes ◉ No

Vaccine name	Amount supplied nationally (ml, mg) (including for own use)	Amount supplied to other countries (ml, mg)	Name of recipient OIE Member Countries

ToR: To develop, standardise and validate, according to OIE Standards, new procedures for diagnosis and control of the designated pathogens or diseases

6. Did your laboratory develop new diagnostic methods validated according to OIE Standards for the designated pathogen or disease?

○ Yes ◉ No

7. Did your laboratory develop new vaccines according to OIE Standards for the designated pathogen or disease?

○ Yes ◉ No

Name of the new test or diagnostic method or vaccine developed	Description and References (Publication, website, etc.)

ToR: To provide diagnostic testing facilities, and, where appropriate, scientific and technical advice on disease control measures to OIE Member Countries

8. Did your laboratory carry out diagnostic testing for other OIE Member Countries?

(•) Yes ( ) No

Name of OIE Member Country seeking assistance	Date (month)	No. samples received for provision of diagnostic support	No. samples received for provision of confirmatory diagnoses
BHUTAN	January and June		9
IRAN	January		27
MAURITANIA	January		27
UNITED ARAB EMIRATES	February		2
TANZANIA	February		32
CAMBODIA	May		2
EGYPT	May		25
ETHIOPIA	May		9
LAOS	May		5
THAILAND	May		13
VIETNAM	May, September and December		68
TURKEY	June		40
KENYA	July		15
MONGOLIA	August and October		13
ISRAEL	November		3
LIBYA	November		22
PAKISTAN	November		40
SAUDI ARABIA	December		8
CHINESE TAIPEI	November		1

9. Did your laboratory provide expert advice in technical consultancies on the request of an OIE Member Country?

(•) Yes ( ) No

Name of the OIE Member Country receiving a technical consultancy	Purpose	How the advice was provided
KAZAKHSTAN	Evaluation of vaccines for use in the field	Undertook vaccine potency trial and associated laboratory analyses of serum samples: data was interpreted and a report was provided

ToR: To carry out and/or coordinate scientific and technical studies in collaboration with other laboratories, centres or organisations

10. Did your laboratory participate in international scientific studies in collaboration with OIE Member Countries other than the own?

(•) Yes ( ) No

Title of the study	Duration	Purpose of the study	Partners (Institutions)	OIE Member Countries involved other than your country
Development of serotype-specific molecular assays tailored for FMD virus strains that are circulating in East and Southern Africa	1 year	Development of of new real-time RT-PCR assays for the East African Region	Tanzanian Veterinary Laboratories Agency; Sokoine University of Agriculture, Tanzania; Makerere University, Uganda and the Danish Technical University	DENMARK TANZANIA UGANDA
Towards the strategic control of endemic foot-and-mouth disease in Africa: new techniques for a neglected problem	4 years	Develop tools to better understand the endemic cycle of FMDV infection in sub-Saharan Africa	University of Glasgow, UK; Tanzanian Veterinary Laboratories Agency; Tanzania Wildlife Research Institute	TANZANIA
Rapid Field Diagnostics and Screening in Veterinary Medicine (Rapidia-Field)	3 years	Development of new diagnostic tools for livestock diseases	FLI, Germany; INTA, Spain; ANSES, France, UCM, Spain, CODA-CERVA, Belgium; SVA, Sweden and commercial partners	BELGIUM FRANCE GERMANY SPAIN SWEDEN
EU-DISCONVAC	4 years	Research to facilitate FMD control via "vaccinate-to-live" policies	CODA-CERVA, Belgium; IZSLER, Italy; Lelystad, The Netherlands; FLI, Germany; University of Glasgow, UK; LVRI, China; Copenhagen, Denmark and commercial partners	

ToR: To collect, process, analyse, publish and disseminate epizootiological data relevant to the designated pathogens or diseases

11. Did your Laboratory collect epizootiological data relevant to international disease control?

(•) Yes ( ) No

12. Did your laboratory disseminate epizootiological data that had been processed and analysed?

(•) Yes ( ) No

13. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by category)

a) Articles published in peer-reviewed journals: 9

Juleff N., Valdazo-González B., Wadsworth J., Wright C. F., Charleston B., Paton D. J., King D. P. and Knowles N. J. (2013) Accumulation of nucleotide substitutions occurring during experimental transmission of foot-and-mouth disease virus. Journal of General Virology 94: 108-119.

Borley D. W., Mahapatra M., Paton D. J., Esnouf R. M., Stuart D. I., Fry E. E. (2013) Evaluation and use of in-silico structure-based epitope prediction with foot-and-mouth disease virus. PLoS One. 7;8(5):e61122.

Carr B. V., Lefevre E. A., Windsor M.A., Inghese C., Gubbins S., Prentice H., Juleff N. D. and Charleston B (2013) Interferon-γ induced by in vitro re-stimulation of CD4+ T-cells correlates with in vivo FMD vaccine induced protection of cattle against disease and persistent infection. J Gen Virol. 94:97-107.

Xu L., Hurtle W., Rowland J. M., Casteran K. A., Bucko S. M., Grau F. R., Valdazo-González B., Knowles N. J., King D. P., Beckham T. R. and McIntosh M. T. (2013) Development of a universal RT-PCR for amplifying and sequencing the leader a capsid coding region of foot-and-mouth disease virus. Journal of Virological Methods 189: 70-76.

Morelli M. J., Wright C. F., Knowles N. J., Juleff N., Paton D. J. King D. P. and Haydon D. T. (2013) Evolution of foot-and-mouth disease virus samples sequence diversity during serial transmission in bovine hosts. Veterinary Research 44: 12.

Yamazaki W., Mioulet V., Murray L., Madi M., Haga T., Misawa N., Horii Y. and King D. P. (2013) Development and evaluation of multiplex RT-LAMP assays for rapid and sensitive detection of foot-and-mouth disease virus. Journal of Virological Methods 192: 18-24.

Valdazo-González B., Timina A., Scherbakov A., Abdul-Hamid N. F., Knowles N. J. and King D. P. (2013) Multiple introductions of serotype O foot-and-mouth disease viruses into East Asia in 2010-2011. Veterinary Research 44: 76.

Wright C. F., Knowles N. J., Di Nardo A., Paton D. J., Haydon D. T. and King D. P. (2013) Reconstruction the origin and transmission dynamics of the 1967-68 foot-and-mouth disease epidemic in the United Kingdom. Infection, Genetics and Evolution 20: 230-238.

Hall M. D., Knowles N. J., Wadsworth J., Rambaut A. and Woolhouse M. E. (2013) Reconstructing geographical movements and host species transitions of foot-and-mouth disease virus serotype SAT 2. MBio. 22;4(5):e00591-13.

b) International conferences: 4

Invited Talk: King. D. P. Global foot-and-mouth disease research Alliance, Arusha, Tanzania, October 2013.

Organised meeting of National FMD Reference Laboratories in the EU in May 2013, Woking, UK.

Madi M., Montague N., Mioulet V., Lomonossoff G. P. and King D. P. Development of a non-infectious encapsidated positive control RNA for molecular diagnosis of foot-and-mouth disease.16th International Symposium of the World Association of Veterinary Laboratory Diagnosticians, Berlin, Germany, June 2013.

Waters R., Nelson N., Gloster J., Yamazaki W., Murray L., Paton D. J., Fowler V., Cauisi C. and King D. P. Evaluation of a simple assay format for the detection of foot-and-mouth disease virus using reverse transcription loop mediated isothermal amplification. 7th Annual Meeting of the EPIZONE project, Brussels, October 2013.

c) National conferences: 0
d) Other:
(Provide website address or link to appropriate information) 1

Copies of laboratory reports and phylogenetic trees can be found on the following website:
www.wrlfmd.org

ToR: To provide scientific and technical training for personnel from OIE Member Countries
To recommend the prescribed and alternative tests or vaccines as OIE Standards

14. Did your laboratory provide scientific and technical training to laboratory personnel from other OIE Member Countries?

(•) Yes ( ) No

a) Technical visits: 10
b) Seminars:
c) Hands-on training courses: 10
d) Internships (>1 month): 1

Type of technical training provided (a, b, c or d)	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
c	Brazil	1
c	Uganda	1
c	Zambia	1
c	Zimbabwe	1
c	Tanzania	1
c	Jordan	1
c	New Zealand	1
d	Tanzania	1
c	USA	3
a	Uganda	10

ToR: To maintain a system of quality assurance, biosafety and biosecurity relevant for the pathogen and the disease concerned

15. Does your laboratory have a Quality Management System certified according to an International Standard?

(•) Yes ( ) No

Quality management system adopted

ISO/IEC 17025

Explain Quality Management System in adoption process or currently in place

16. Is your laboratory accredited by an international accreditation body?

(•) Yes ( ) No

Test for which your laboratory is accredited	Accreditation body
WRL 002 Processing field samples for diagnosis and growth of vesicular diseases	United Kingdom Accreditation Service (UKAS)
WRL 006 FMDV and SVDV antigen detection by ELISA	United Kingdom Accreditation Service (UKAS)
WRL 033 Svanova 1F10 lateral flow device for FMDV antigen detection	United Kingdom Accreditation Service (UKAS)
WRL 026 One step TaqMan® RT-PCR for diagnosis of FMDV and related vesicular diseases	United Kingdom Accreditation Service (UKAS)
SAU 004 Detection of antibodies against vesicular and related viruses by the virus neutralisation test (VNT)	United Kingdom Accreditation Service (UKAS)
SAU 005 Liquid Phase Blocking ELISA (LPBE) for detection of antibodies against Foot-and-Mouth disease virus (FMDV)	United Kingdom Accreditation Service (UKAS)
SAU 010 Detection of Antibodies against the Non Structural Protein of Foot-and-Mouth disease virus (FMDV) using Ceditest® FMDV-NS (PrioCHECK® FMDV –NS) kits	United Kingdom Accreditation Service (UKAS)
SAU 011 Detection of Antibodies against the Structural Protein of Foot-and-Mouth disease virus (FMDV) by solid-phase competition ELISA (SPCE)	United Kingdom Accreditation Service (UKAS)
SAU 012 Detection of Antibodies against Foot and Mouth disease virus (FMDV) using PrioCHECK® FMDV type O kits	United Kingdom Accreditation Service (UKAS)

17. Does your laboratory maintain a “biorisk management system” for the pathogen and the disease concerned?

(•) Yes ( ) No

(See *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals* 2012, Chapter 1.1.3 or *Manual of Diagnostic Tests for Aquatic Animals* 2012, Chapter 1.1.1)

ToR: To organise and participate in scientific meetings on behalf of the OIE

18. Did your laboratory organise scientific meetings on behalf of the OIE?

(•) Yes ( ) No

National/ International	Title of event	Co-organiser	Date (mm/yy)	Location	No. Participants
International	8th OIE/FAO FMD Laboratory Network Meeting		11/2013	Bangkok, Thailand	30

19. Did your laboratory participate in scientific meetings on behalf of the OIE?

(•) Yes ( ) No

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
World Association of Veterinary Laboratory Diagnosticians: OIE Session	06/2013	Berlin, Germany	Speaker	Progress towards the deployment of simple and rapid diagnostic tests away from centralised laboratories
SEACFMD Laboratory Network Meeting	11/2013	Bangkok, Thailand	Speaker	FMD: Global Update
19th Meeting of the OIE Sub-Commission for Foot and Mouth Disease Control in South-East Asia and China	03/2013	Singapore	Speaker	Global patterns of FMD: 2013

ToR: To establish and maintain a network with other OIE Reference Laboratories designated for the same pathogen or disease and organise regular inter-laboratory proficiency testing to ensure comparability of results

20. Did your laboratory exchange information with other OIE Reference Laboratories designated for the same pathogen or disease?

(•) Yes ( ) No ( ) Not applicable (Only OIE Reference Lab. designated for disease)

21. Was your laboratory involved in maintaining a network with OIE Reference Laboratories designated for the same pathogen or disease by organising or participating in proficiency tests?

(•) Yes ( ) No ( ) Not applicable (Only OIE Reference Lab. designated for disease)

Purpose of the proficiency tests: [1]	Role of your Reference Laboratory (organiser/ participant)	No. participants	Participating OIE Ref. Labs/ organising OIE Ref. Lab.
Panel 1 - Live virus panel: Assesment of vesicular virus diagnostic diagnostic methods	Organiser	6	Participated: IZSLER (Italy); OVI (South Africa); BVI (Botswana); FGI-ARRIAH (Russia); USDA-APHIS (USA); Pirbright Institute (UK).
Panel 2: non-infectious material for virus genome/antigen detection by RT-PCR and/or Ag-ELISA	Organiser	7	Participated: IZSLER (Italy); Pakchong (Thailand); OVI (South Africa); BVI (Botswana); FGI-ARRIAH (Russia); USDA-APHIS (USA); Pirbright Institute (UK).
Panel 3: non-infectious material for FMD serology	Organiser	7	Participated: IZSLER (Italy); Pakchong (Thailand); OVI (South Africa); BVI (Botswana); FGI-ARRIAH (Russia); USDA-APHIS (USA); Pirbright Institute (UK).

[1] validation of a diagnostic protocol: specify the test; quality control of vaccines: specify the vaccine type, etc.

22. Did your laboratory collaborate with other OIE Reference Laboratories for the same disease on scientific research projects for the diagnosis or control of the pathogen of interest?

(•) Yes ( ) No ( ) Not applicable (Only OIE Reference Lab. designated for disease)

Title of the project or contract	Scope	Name(s) of relevant OIE Reference Laboratories
Development of next-generation ELISA tests for FMDV diagnosis	Validation and evaluation of new monoclonal-antibody based assays for antigen detection and serological diagnosis of FMD	Istituto Zooprofilattico Sperimentale della Lombardia e dell'Emilia Romagna (IZSLER)
Molecular epidemiology of FMDV outbreaks in East Asia	Sharing of full genome sequence data for field strains and associated analyses	Centre for Animal Health (FGI-ARRIAH)
BBSRC China-Partnering award	Exchange of tools and viral sequences	Lanzhou Veterinary Research Institute
BBSRC/CIDLID project: Improving the quality of FMD vaccines by understanding the correlation of vaccine-induced protection with humoral and cellular immune	To develop improved tools for vaccination in Africa	Onderstepoort Veterinary Institute

responses

BBSRC Brazil-partnering award	Exchange tools and technologies	PANAFTOSA (Brazil)

ToR: To organise inter-laboratory proficiency testing with laboratories other than OIE Reference Laboratories for the same pathogens and diseases to ensure equivalence of results

23. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than OIE Reference Laboratories for the same disease?

(•) Yes ( ) No

Note: See Interlaboratory test comparisons in: Laboratory Proficiency Testing at: http://www.oie.int/en/our-scientific-expertise/reference-laboratories/proficiency-testing see point 1.3

Purpose for inter-laboratory test comparisons[1]	No. participating laboratories	Region(s) of participating OIE Member Countries
Panel 1 - Live virus panel: Assesment of vesicular virus diagnostic diagnostic methods	18	☑ Africa ☑ Americas ☐ Asia and Pacific ☑ Europe ☑ Middle East
Panel 2: non-infectious material from cattle or pigs for virus genome/antigen detection by RT-PCR and/or Ag-ELISA	51	☑ Africa ☑ Americas ☑ Asia and Pacific ☑ Europe ☑ Middle East
Panel 3: non-infectious material for FMD serology	55	☑ Africa ☑ Americas ☑ Asia and Pacific ☑ Europe ☑ Middle East

ToR: To place expert consultants at the disposal of the OIE

24. Did your laboratory place expert consultants at the disposal of the OIE?

(•) Yes ( ) No

Kind of consultancy	Location	Subject (facultative)
OIE Scientific Commission for Animal Diseases	Paris	Provided overview of recent outbreaks and new epidemiological threats
Participate in OIE FMD ad-hoc Group	Paris (three separate meetings)	Evaluating dossiers from OIE member states when applying for official FMD-free status. Revising the FMD Chapter of the OIE code.
Participate in Post-vaccination Monitoring working Group	Rome	Prepare OIE/FAO guide on PVM

25. Additional comments regarding your report:
For question 2: details of the contries that we have provided reagents are:

FMDV antibody kits
Belarus, Bulgaria, Egypt, Indonesia, Japan, Korea (Republic of), Latvia, Malaysia, Mongolia, New Zealand, Qatar, Saudi Arabia, Singapore, Turkey, UK, Vietnam, Zambia, Zimbabwe

FMDV antigen kits
Bulgaria, Cambodia, Cyprus, Egypt, Hungary, Korea (Republic of), Latvia, Malaysia, Mongolia, Morocco, Poland, Qatar, Saudi Arabia, UAE, UK, USA

FMDV-specific antisera
Australia, Botswana, Chinese Taipei, Croatia, Denmark, Germany, Kenya, Korea (Republic of), Italy, The Netherlands, Romania, Switzerland, Tunisia, Turkey, UAE, UK, USA, Vietnam, Zimbabwe

FMDV-specific antigens
Croatia, Kazakhstan, Malaysia, New Zealand, Tunisia, UK, Vietnam