WOAH Reference Laboratory Reports Activities 2023

Activities in 2023

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Laboratory Information

Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:	Foot and mouth disease
Address of laboratory:	1015 Arlington Street, Winnipeg, MB, Canada, R3E 3M4
Tel.:	+1-204 789.20.23
E-mail address:	Charles.nfon@inspection.gc.ca
Website:	
Name (including Title) of Head of Laboratory (Responsible Official):	Dr Charles Nfon, Laboratory Network Director
Name (including Title and Position) of WOAH Reference Expert:	Dr Charles Nfon, Laboratory Network Director and Reference Lab Expert for foot and mouth disease
Which of the following defines your laboratory? Check all that apply:	Governmental

TOR1: DIAGNOSTIC METHODS

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

Diagnostic Test	Indicated in WOAH Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
FMD-VNT		14	0
FMD-serotype cELISA		6	0
FMD-NS 3ABC cELISA		86	0
Direct diagnostic tests		Nationally	Internationally
FMD Real-time RT-PCR		227	0
FMD-VNT		4	0

TOR2: REFERENCE MATERIAL

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

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOAH Members?

Yes

TYPE OF REAGENT AVAILABLE	RELATED DIAGNOSTIC TEST	PRODUCED/ PROVIDE	AMOUNT SUPPLIED NATIONALLY (ML, MG)	AMOUNT SUPPLIED INTERNATIONALLY (ML, MG)	NO. OF RECIPIENT WOAH MEMBER COUNTRIES	COUNTRY OF RECIPIENTS
Recombinant FMDV 3ABC antigen	FMD NS 3ABC cELISA	Produced/ provided	70 pre-coated plates	2mL	2	CANADA, GHANA,
HRP-conjugated anti-FMD 3B monoclonal	FMD NS 3ABC cELISA	Produced/ provided	0.13mL	0.4mL	2	CANADA, GHANA,

antibody						
Positive control bovine sera for 3ABC ELISA	FMD NS 3ABC cELISA	Produced/ provided	118.9	1.8mL	2	CANADA, GHANA,
HRP conjugated commercially produced polyclonal goat anti-mouse IgG	FMD NS 3ABC cELISA	Provided	1.3mL	0.26mL	2	CANADA, GHANA,
Commercially produced TMB substrate and stop solution	FMD NS 3ABC cELISA	Provided	0	300mL	1	GHANA,
ELISA panels	FMD NS 3ABC cELISA	Produced/ provided	11 panels	0	1	CANADA,
PCR panels	FMDV RRT-PCR	Produced/ provided	52 panels	0	1	CANADA,
FMDV PCR primers and probes	FMDV RRT-PCR	Provided	33mL	0	1	CANADA,
FMD PCR PCR controls	FMDV RRT-PCR	Provided	6.2mL	0	1	CANADA,

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOAH Members?

No

TOR3: NEW PROCEDURES

6. Did your laboratory develop new diagnostic methods for the designated pathogen or disease?

Yes

7. Did your laboratory validate diagnostic methods according to WOAH Standards for the designated pathogen or disease?

Yes

NAME OF THE NEW TEST OR DIAGNOSTIC METHOD DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
FMD serotype-specific ELISA for antibody detection	Development of foot and mouth disease serotype-specific blocking ELISAs using monoclonal antibodies; GFRA 2023

8. Did your laboratory develop new vaccines for the designated pathogen or disease?

No

9. Did your laboratory validate vaccines according to WOAH Standards for the designated pathogen or disease?

No

TOR4: DIAGNOSTIC TESTING FACILITIES

10. Did your laboratory carry out diagnostic testing for other WOAH Members?

No

11. Did your laboratory provide expert advice in technical consultancies on the request of an WOAH Member?

No

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOAH Members other than the own?

No

13. In exercising your activities, have you identified any regulatory research needs* relevant for WOAH?

No

TOR6: EPIZOOLOGICAL DATA

14. Did your Laboratory collect epidemiological data relevant to international disease control?

No

15. Did your laboratory disseminate epidemiological data that had been processed and analysed?

No

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

a) Articles published in peer-reviewed journals:

1
Application of the Nagoya Protocol to veterinary pathogens: concerns for the control of foot-and-mouth disease.
Horsington J, Abbeloos E, Kassimi LB, Boonsuya Seeyo K, Capozzo AV, Chepkwony E, Eblé P, Galdo-Novo S, Gizaw D, Gouverneur L, Grazioli S, Heath L, Hudelet P, Hyera JMK, Ilott M, King A, Lefebvre DJ, Mackay D, Metwally S, Mwiine FN, Nfon CK, Park MK, Pituco EM, Rosso F, Simon F, Ularamu HG, Vermeij P, Vosloo W, King DP.
Front Vet Sci. 2023 Nov 22;10:1271434. doi: 10.3389/fvets.2023.1271434. eCollection 2023.
PMID: 38076547 F

b) International conferences:

2
18th Annual Meeting of the WOAH/FAO FMD Reference Laboratories Network 2023.
Global foot and mouth disease research alliance (GFRA) scientific meeting 2023.

c) National conferences:

0

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

0

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOAH Members?

No

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO17025	pdf	ISO 17025 certificate_ASB_CTF_15579-CFIA-Certificate_v1_2021-04-27.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Vesicular Diseases: Virus Isolation by Inoculation of Tissue Culture	Standards Council of Canada (SCC)
Vesicular Disease Viral Antigen Detection by the Double Antibody Sandwich Enzyme-Linked Immunosorbent Assay (ELISA) Test	SCC
Solid Phase Competitive ELISA for Detection of Antibodies to Foot and Mouth Disease Virus Structural Proteins	SCC
Virus Neutralization Test (VNT) for the Detection of Antibodies to Foot-and- Mouth Disease Virus	SCC
3ABC Competitive ELISA for Detection of Antibodies to Foot and Mouth Disease Virus Non-structural proteins	SCC
Real Time Reverse Transcription Polymerase Chain Reaction (PCR) for the Detection of Foot -and-Mouth Disease Virus (FMDV)	SCC
FMDV VP1 and full genome sequencing	SCC

20. Does your laboratory maintain a "biorisk management system" for the pathogen and the disease concerned?

Yes

· The Government of Canada's Canadian Biosafety Standard (CBS) requires that a biosecurity plan be in place for facilities that handle infectious agents. This plan details the aspects the facility has in place for the prevention of theft, misuse or intentional release of pathogens. The National Centre for Foreign Animal Disease (NCFAD) Biosecurity Plan addresses the requirements that are outlined in Section 4.1.8 of the CBS 3rd Edition, and security requirements detailed in Public Health Agency Canada (PHAC)'s Physical Security Standard for the NCFAD at the Canadian Science Centre for Human and Animal Health (CSCHAH) · The NCFAD Biosecurity Plan deals with all biological pathogens, including Risk Group 2, but its focus is on those in Risk Groups 3 and 4, which pose the greatest biosecurity risk. This plan includes details on the risk assessment of biological agents, physical protection of the facility, personnel suitability/reliability, information management, pathogen accountability and inventory, and incident and emergency response measures. · Work areas covered include diagnostic and research laboratory spaces in Containment Level 3 (CL3), a large animal CL3-Ag zone including post mortem suite, and higher containment laboratories, namely restricted zoonotic CL3 and CL4 labs. CL4 space includes a CL4 large animal zone. · The NCFAD Biosecurity Plan will be reviewed biennially by the Director and/or Laboratory Executive Director (LED). Ad hoc review will take place in response to incident review outcomes and related document updates such as the Biosecurity Risk Assessment or Threat Risk Assessment.

TOR9: SCIENTIFIC MEETINGS

21. Did your laboratory organise scientific meetings related to the pathogen in question on behalf of WOAH?

Yes

NATIONAL/ INTERNATIONAL	TITLE OF EVENT	CO-ORGANISER	DATE (MM/YY)	LOCATION	NO. PARTICIPANTS
International	18th Annual Meeting of the WOAH/FAO FMD Reference Laboratories Network	FMDWRL	2023-10-10	Winnipeg, MB, Canada	50

22. Did your laboratory participate in scientific meetings related to the pathogen in question on behalf of WOAH?

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
Global foot and mouth disease research alliance (GFRA) scientific meeting	2023-11-08	Kampala, Uganda	presenting poster	Development of foot and mouth disease serotype-specific blocking ELISAs using monoclonal antibodies
CFIA Animal Health Webinar	2023-07-19	Virtual	speaker	Development of a Machine Learning Tool for FMD Vaccine Matching

TOR10: NETWORK WITH WOAH REFERENCE LABORATORIES

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

Yes

24. Do you network (collaborate or share information) with other WOAH Reference Laboratories designated for the same pathogen?

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAH REF. LABS
WOAH/FAO FMD Reference Laboratories Network	Member	12	WOAH FMD Ref Labs

25. Did you organise or participate in inter-laboratory proficiency tests with WOAH Reference Laboratories designated for the same pathogen?

Yes

PURPOSE OF THE PROFICIENCY TESTS: 1	ROLE OF YOUR REFERENCE LABORATORY (ORGANISER/ PARTICIPANT)	NO. PARTICIPANTS	PARTICIPATING WOAH REF. LABS/ ORGANISING WOAH REF. LAB.
Confirm test procedures are functioning within parameters (isolation, real-time	Participant	NA	WRLFMD

RT-PCR, DAS ELISA, NS 3ABC cELISA, serotyping cELISA, VNT, sequencing)			
Confirm test procedures are functioning within parameters (real-time RT-PCR, DAS ELISA, NS 3ABC cELISA, serotyping cELISA, VNT, sequencing)	Participant	NA	PANAFTOSA

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

No

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOAH Reference Laboratories for the same pathogen?

No

TOR12: EXPERT CONSULTANTS

28. Did your laboratory place expert consultants at the disposal of WOAH?

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
Document review and revision	Virtual	Review of chapters of the WOAH Terrestrial manual and code
Document revision	virtual	Review of the FMD chapter of the WOAH Terrestrial manual and code
Recommendation	Virtual	Addition of new FMD vaccine platform to WOAH manual

29. Additional comments regarding your report:

Yes

We are in the process of re-establishing collaborations with FMD endemic countries so that we can continue supporting capacity building and characterization of circulating FMDV serotypes. Furthermore, Canada is in the process of establishing a FMD Vaccine Bank and we are providing expert advice in the process. Once the bank is established, the NCFAD will be performing more FMD vaccine evaluation, including PD50 and other in vivo potency tests.