

OIE Reference Laboratory Reports Activities

Activities in 2021

This report has been submitted : 2022-01-19 14:44:30

Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Trichinellosis
Address of laboratory:	Canadian Food Inspection Agency (CFIA) 116 Veterinary Road Saskatoon Saskatchewan S7N 2R3 CANADA
Tel.:	+1 306 385-7818
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E-mail address:	brad.scandrett@inspection.gc.ca
Website:	
Name (including Title) of Head of Laboratory (Responsible Official):	David McKinnon, Director, CFIA Saskatoon Laboratory
Name (including Title and Position) of OIE Reference Expert:	Brad Scandrett, Head, Centre for Food-borne and Animal Parasitology, CFIA Saskatoon Laboratory
Which of the following defines your laboratory? Check all that apply:	Governmental

ToR 1: 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

Diagnostic Test	Indicated in OIE Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests		Nationally	Internationally
Western Blot	Yes	90	0
Direct diagnostic tests		Nationally	Internationally
Artificial Digestion	Yes	644	0
Multiplex PCR	Yes	2	0

**ToR 2: 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?

No

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

Yes

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
Trichinella spiralis proficiency samples	Artificial Digestion	Produced	332	20	3	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East

4. Did your laboratory produce vaccines?

No

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

No

ToR 3: 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

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

No

Name of the new test or diagnostic method or vaccine developed	Description and References (Publication, website, etc.)
Confirmatory Western blot (WB) for non-negative ES ELISA results	Validation of the WB assay was completed on March 31, 2021. The assay demonstrated 98.7% diagnostic specificity in testing 302 pigs from the Canadian Trichinella-free commercial population (negative by ES ELISA). High diagnostic and analytical sensitivity was also achieved for known-positive samples.
Trichinella genotyping using multiplex PCR, ancillary PCR/RFLP and confirmatory sequencing	Optimization and validation of ICT-recommended mPCR for Trichinella muscle stage larvae with ancillary PCR/RFLP and sequencing for the definitive identification of all recognized Trichinella taxa, including the recently-described T. chanchalensis

ToR 4: 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?

No

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

Yes

Name of the OIE Member Country receiving a technical consultancy	Purpose	How the advice was provided
CANADA	Ongoing training and/or proficiency assessment of industry analysts to perform the artificial digestion assay for <i>Trichinella</i> and to facilitate effective oversight of industry labs performing this testing on horse meat or pork to meet requirements for export and domestic food safety (i.e. ready-to-eat products)	Remote (e-mail/virtual meetings)
CANADA	Ongoing provision of scientific advice and proficiency assessment of analysts performing the artificial digestion assay for <i>Trichinella</i> in walrus meat, a food safety concern in the Arctic	Remote (e-mail/virtual meetings)
FRANCE	Ongoing assessment of <i>Trichinella</i> artificial digestion assay proficiency sample testing results	Remote (e-mail)
NEW ZEALAND	Ongoing assessment of <i>Trichinella</i> artificial digestion assay proficiency sample testing results	Remote (e-mail)

ToR 5: 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?

No

ToR 6: 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

If the answer is yes, please provide details of the data collected:
Data on prevalence of <i>Trichinella spiralis</i> in the national swine herd were collected via digestion testing of approximately 19,000 samples annually at our laboratory under the CFIA National Microbiological Monitoring Program

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

Yes

If the answer is yes, please provide details of the data collected:
Data from the CFIA <i>T. spiralis</i> monitoring program for breeder and market hogs and captive wild boar at slaughter are published in the National Microbiological Monitoring Program and Food Safety Oversight Program annual reports

**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: 2

Harms N.J., Larivee M., Scandrett B., Russell D. 2021. High prevalence and intensity of *Trichinella* infection in Yukon black (*Ursus americanus*) and grizzly (*Ursus arctos*) bears. *Journal of Wildlife Diseases*, 57(2):429-433

Pilfold N.W., Richardson E.S., Ellis J., Jenkins E., Scandrett W.B., Hernandez-Ortiz A., Buhler K., McGeachy D., Al-Adhami B., Konecsni K., Lobanov V.A., Owen M.A., Rideout B., Lunn N.J. 2021. Long-term increases in pathogen seroprevalence in polar bears (*Ursus maritimus*) influenced by climate change. *Global Change Biology*, 27(19): 4481-4497

*A manuscript entitled 'Performance of indirect enzyme-linked immunosorbent assay using *Trichinella spiralis*-derived serpin as antigen for the detection of *Trichinella* spp. infection in swine'(Corresponding Author: Dr. Vladislav Lobanov; Co-Authors: Kelly A. Konecsni, Randy W. Purves, W. Brad Scandrett) was submitted on December 20, 2021 for publication in the journal *Veterinary Parasitology*.

b) International conferences: 1

W. Brad Scandrett*, Batol Al-Adhami, Kelly Konecsni, Laura Lalonde, Vladislav Lobanov, Patrick Fries. OIE Collaborating Centre Activities at the Canadian Food Inspection Agency's Centre for Food-borne and Animal Parasitology. European Multicolloquium of Parasitology (EMOP XIII), virtual oral symposium presentation (invited), Belgrade, Serbia (2021)

c) National conferences: 0

d) Other:

(Provide website address or link to appropriate information) 1

'Case Report Photo Quiz (Trichinellosis):38-year-old man with fever and abdominal symptoms'. Martin Cheung, BSc(1); Daisy Yu, BSc, MLT(1), Tracy Chan, BSc(1), Navdeep Chahil, BSc, RT(1), Christine Tchao, BMLSc(1), Michael Slatnik, MD, MPH(2), Shobhit Maruti, MD, MPH(3), Nina Sidhu, BSN(3), Brad Scandrett, DVM, MSc(4), Natalie Prystajeky, PhD(1,5), Muhammad G. Morshed, PhD(1,5), Catherine A. Hogan MD, MSc(1,5)

1British Columbia Centre for Disease Control Public Health Laboratory, Vancouver, British Columbia, Canada.

2Boundary District Hospital, Grand Forks, British Columbia, Canada.

3Interior Health Authority, Vernon, British Columbia, Canada.

4Canadian Food Inspection Agency, Saskatoon, Saskatchewan, Canada.

5Department of Pathology and Laboratory Medicine, Vancouver, British Columbia, Canada.

ToR 7: 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

- a) Technical visits: 0
- b) Seminars: 4
- c) Hands-on training courses: 0
- 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
b (webinars pertaining to Trichinella biology and detection)	Canada (industry and Nunavik candidate analysts)	4
d (ongoing Trichinella training delivered via participation on PhD candidate's advisory committee)	Canada (University of Saskatchewan)	1

ToR 8: 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?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)
ISO/IEC 17025:2017	QM-O-0011.07 (2).pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
The double separatory funnel digestion procedure for the detection of Trichinella larvae in pork	ILAC Signatory SCC (Standards Council of Canada)
The double separatory funnel digestion procedure for the detection of Trichinella larvae in horse meat	ILAC Signatory SCC (Standards Council of Canada)

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

Yes

(See Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Chapter 1.1.4)

ToR 9: To organise and participate in scientific meetings on behalf of the OIE

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

No

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

No

ToR 10: 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

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?

No

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?

No

ToR 11: 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

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
Ongoing validation/verification of respective magnetic stirrer artificial digestion assays for Trichinella and analyst competence at participating laboratories	9	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East

ToR 12: To place expert consultants at the disposal of the OIE

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

Yes

Kind of consultancy	Location	Subject (facultative)
Invited expert review (to be conducted jointly with OIE Reference Laboratory in Rome) of OIE Terrestrial Manual Chapter 3.1.21 'Trichinellosis'	Virtual	Review of OIE Standards

25. Additional comments regarding your report: