

WOAH Reference Laboratory Reports Activities 2024

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LABORATORY INFORMATION

*Name of disease (or topic) for which you are a designated WOA Reference Laboratory:	Scrapie
*Address of laboratory:	Via Bologna 148
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*E-mail address:	cristina.casalone@izsplt.it
Website:	www.izsplt.it
*Name (including Title) of Head of Laboratory (Responsible Official):	Dr Cristina Casalone
*Name (including Title and Position) of WOA Reference Expert:	Dr Cristina Casalone
*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 WOA Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
None	No	0	0
Direct diagnostic tests		Nationally	Internationally
HERDCHEK BSE/SCRAPIE ANTIGEN - KIT EIA IDEXX	Yes	3376	0
Immunohistochemistry for pathological prion protein	Yes	71	0

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Histology	Yes	71	0
PrP genotyping	No	1879	0
Scrapie confirmatory immunoblot	Yes	108	0

TOR2: REFERENCE MATERIAL

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

No

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

Yes

Type of reagent available	Related diagnostic test	Produced/ provide	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	No. of recipient WOA Member Countries	Country of recipients
Sections on paraffin slide	IHC and histology	provided	0	20 slides	1	LATVIA,
Frozen nervous tissue classical Scrapie	Rapid test	provided	0	84gr	2	FRANCE, POLAND,
Frozen homogenate nervous tissue negative Scrapie	Rapid test	produced	650ml	0	11	ITALY,
Frozen homogenate nervous tissue classical Scrapie	Rapid test	produced	750ml	0	11	ITALY,

4. Did your laboratory produce vaccines?

Not applicable

5. Did your laboratory supply vaccines to WOA Members?

Not applicable

TOR3: NEW PROCEDURES

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

Yes

Name of the new test or diagnostic method developed	Description and References (Publication, website, etc.)
RT-QuIC	Description: Development of standardised protocol for amplification in vitro of classical Scrapie agent. Publication: "Early and Pre-Clinical Detection of Prion Seeding Activity in Cerebrospinal Fluid of Goats using Real-Time Quaking-Induced Conversion Assay". Alessandra Favole, Maria Mazza, Elena Vallino Costassa, Antonio D'Angelo, Guerino Lombardi, Paola Marconi,

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Paola Crociara, Elena Berrone, Marina Gallo, Claudia Palmitessa, Christina D Orrù, Byron Caughey, Pier Luigi Acutis, Maria Caramelli, Cristina Casalone, Cristiano Corona. Sci Rep. 2019 Apr 16;9(1):6173. doi: 10.1038/s41598-019-42449-7.

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

No

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

No

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

No

TOR4: DIAGNOSTIC TESTING FACILITIES

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

No

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

Yes

Name of the WOAHP Member Country receiving a technical consultancy	Purpose	How the advice was provided
SLOVAKIA	Technical support on the immunohistochemistry diagnosis of scrapie cases	Continuous exchange of technical information via e-mail and sending of new slides
ROMANIA	Technical support on the immunohistochemistry diagnosis of scrapie cases	Continuous exchange of technical information via e-mail and sending of new slides
LITHUANIA	Technical support on the immunohistochemistry diagnosis of scrapie cases	Continuous exchange of technical information via e-mail and sending of new slides
LATVIA	Technical support on the immunohistochemistry diagnosis of scrapie cases	Continuous exchange of technical information via e-mail and sending of new slides
CYPRUS	Technical support on the immunohistochemistry diagnosis of scrapie cases	Continuous exchange of technical information via e-mail and sending of new slides
AUSTRIA	Technical support on the immunohistochemistry diagnosis of scrapie cases	Continuous exchange of technical information via e-mail and sending of new slides
CZECH REPUBLIC	Technical support on the immunohistochemistry diagnosis of scrapie cases	Continuous exchange of technical information via e-mail and sending of new slides
UNITED KINGDOM	Technical support on the immunohistochemistry diagnosis of scrapie cases	Continuous exchange of technical information via e-mail and sending of new slides

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

Yes

Title of the study	Duration	Purpose of the study	Partners (Institutions)	WOAH Member Countries involved other than your country
Enhancing Research for Africa Network- ended in April 2024	36 months	The main task of the ERFAN network aims at enhancing research collaborations and to push forward the activities of veterinary Institutions	2 Italians Institutions : IZSPLV and ISS	LESOTHO LIBYA MOROCCO MOZAMBIQUE NAMIBIA SENEGAL SOUTH AFRICA SUDAN TANZANIA TUNISIA ZAMBIA ZIMBABWE

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?

Yes

If the answer is yes, please provide details of the data collected:

We focus particularly on classical scrapie. For every scrapie outbreak, an epidemiological form is completed and uploaded by the veterinary officer of the local health unit. This form includes data on the flock/herd's location, size, management, introductions/movements, and—for sheep flocks—the flock status based on participation in the National Breeding Plan.

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

Yes

If the answer is yes, please provide details of the data collected:

Each year, a national report on TSE surveillance in small ruminants is provided to the Health Ministry. Additionally, an annual report on the results of the Scrapie National Breeding Plan is produced. As with BSE and CWD, TSE surveillance data for small ruminants are also submitted to EFSA. Summary data are available through the annual EU Summary Report on TSEs (e.g., <https://www.efsa.europa.eu/en/efsajournal/pub/9097>) and the EFSA dashboard (<https://www.efsa.europa.eu/en/microstrategy/tse>).

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:

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- Ernst S, Nonno R, Langeveld J, Andreoletti O, Acin C, Papasavva-Stylianou P, Sklaviadis T, Acutis PL, van Keulen L, Spiropoulos J, Keller M, Groschup MH, Fast C. Characterisation of European Field Goat Prion Isolates in Ovine PrP Overexpressing Transgenic Mice (Tgshp IX) Reveals Distinct Prion Strains. *Pathogens*. 2024 Jul 27;13(8):629. doi: 10.3390/pathogens13080629. PMID: 39204230; PMCID: PMC11357236.
- European Food Safety Authority (EFSA); Di Piazza G, Ru G, Simmons M, Lanfranchi B, Ortiz-Peláez A. Evaluation of the application of Slovenia to be recognised as having a negligible risk of classical scrapie. *EFSA J*. 2024 Oct 21;22(10):e9042. doi: 10.2903/j.efsa.2024.9042. PMID: 39434782; PMCID: PMC11491759.
- EFSA Panel on Biological Hazards (BIOHAZ), Koutsoumanis, K., Allende, A., Bolton, D., Bover-Cid, S., Chemaly, M., ... & Ordonez, A. A. (2024). Evaluation of alternative methods of tunnel composting (submitted by the European Composting Network) II. *EFSA Journal*, 22(4), e8745.

b) International conferences:

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- ERFAN meeting – 22-24 april 2024, Namibia
- IX International Conference Emerging Zoonoses 9-12 june 2024, Palermo
- 21st Annual Meeting TSE EURL EURL 13-15 may 2024, Roma
- Prion 2024, 23-27 October 2024, Nanchang, China

c) National conferences:

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- Congress of Istituti Zooprofilattici Sperimentali on animal spongiform encephalopathies , 24-25 november 2024 Rome
- 8th Italian Society for Virology Congress, 7-9 july 2024 Bologna

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

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Book chapter

Casalone C., Iulini B., Vallino E. Revision book chapter "Agenti infettivi non convenzionali: i prioni" Libro Poli new edition 2023-2024

Thesis

- Occurrence and geographical distribution of scrapie in the Italian sheep population in the context of the effectiveness of the breeding national scrapie plan. Master in Epidemiology, Università degli Studi di Torino, XIV Edition 2023-2024.

Abstracts for international conferences:

- "Real-Time Quaking-Induced Conversion: Detection of Pathological Prion Protein in Milk Samples from Scrapie Naturally Infected Sheep" - Workshop of the EURLs for Transmissible Spongiform Encephalopathies and Animal Proteins - Roma 13-15 may 2024.
- "Biosecurity in national reference laboratories for transmissible spongiform encephalopathies: a survey highlights room for improvement, 21st Annual Meeting of the European Reference Laboratory and National Reference Laboratories for transmissible spongiform encephalopathies and Joint Workshop of the European Reference Laboratories for Transmissible Spongiform Encephalopathies and Animal Proteins". Roma, Italia, 13-15 may 2024.
- "Classical Scrapie in sheep: possible diagnosis intra-vitam through the detection of pathological prion marker in milk samples by RT-QuIC Assay" Annual ECSRH conference Torino 4-5 july 2024.

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- "Detection of Pathological Prion Protein in Milk Samples from Scrapie Naturally Infected Sheep by Real-Time Quaking-Induced Conversion assay" - Prion 2024 Conference in Nanchang 23-27 october 2024.

Abstracts for national conferences

- Biosafety in European National Reference Laboratories for Spongiform Encephalopathies: a survey shows room for improvement "XLVIII Congresso dell'Associazione Italiana di Epidemiologia 2024, Riccione, 16-19 april 2024.
- "Temporal trend and geographical distribution of classical scrapie prevalence in the Italian sheep population and effectiveness of the national genetic selection plan. XLVIII Congresso dell'Associazione Italiana di Epidemiologia 2024, Riccione, 16-19 april 2024.
- "Possible ante-mortem diagnosis by pathological marker detection in milk of classical scrapie sheep by Real-Time Quaking-Inducing Conversion Assay (RT - QUIC)– XXV Congresso Nazionale SIPAOC, Sassari 17-20 september 2024

International teaching

21st Meeting EURL TSE Roma, 13 -15 may 2024

- "Rapid Tests EQA (RB & RS): results of the 2023 round and forthcoming 2024 round"
- "Confirmatory immunoblotting (WB & WS): results of the 2023 round and forthcoming 2024 round"
- "Rapid and confirmatory tests: issues & news"
- "PrP Immunohistochemistry Technical EQA"
- "Histopathology interpretation EQA"
- "Biosafety in prion labs: development of best practices Biosafety"
- "Can the use of Real-Time Quaking-Induced Conversion Assay improve the surveillance of animal TSEs?"
- "EURL TSE Activities"
- "TSE diagnosis: from past challenges to future perspectives"
- "Epidemiological situation EU- worldwide

Pathological Aspects of Livestock Animals in Slaughterhouse, Torino 16- 18 october 2024 :

- WOAHP Reference Laboratory for BSE and Scrapie
 - Practical session: Histo-neuropathology

Training courses and conferences organized by staff

- XXIII Convegno degli Istituti Zooprofilattici Sperimentali sulle Encefalopatie Spongiformi Trasmissibili Roma 25-26 november 2024
- Training Course "Pathological Aspects of Livestock Animals in Slaughterhouse". Torino 16-18 October 2024, in collaboration with Stor-Remesa and addressed to veterinary inspectors and pathologists from the countries of the Remesa area.
- ERFAN: TSE Training and Working Group meeting in Windhoek, Namibia, 22 - 24 April 2024.

Training courses attended by staff

"Transmissible spongiform encephalopathies: Update on regulatory, epidemiological and diagnostic aspects' Matera, 11 june 2024

Scientific committees and working groups in which staff participated

- Participation in the WOAHP ad hoc Group meeting on scrapie. Paris 23 - 25 April 2024
- Participation as scrapie expert in the working group "Questions from WOAHP Specialist Commissions"
- TSE working group for the production of the TSE EU Summary Report.

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOAHP 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	Certificato di accreditamento revisionato il 23.01.25 - 705252.pdf (1).crdownload.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
HERDCHEK BSE/SCRAPIE ANTIGEN KIT TEST EIA IDEXX	ACCREDIA-ILAC MRA
Scrapie confirmatory immunoblot	ACCREDIA-ILAC MRA
Immunohistochemistry for pathological prion protein	ACCREDIA-ILAC MRA
Histology	ACCREDIA-ILAC MRA
PrP Genotyping	ACCREDIA-ILAC MRA

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

Yes

Biosafety guidelines have been produced for personnel working within laboratories that handle prions

TOR9: SCIENTIFIC MEETINGS

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

No

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

Yes

Title of event	Date	location	Role (speaker, presenting poster, short communications)	Title of the work presented
Training Course "Pathological Aspects of Livestock Animals in Slaughterhouse"	2024-10-15	Turin	Speakers	xx
· Training Course "Pathological Aspects of Livestock Animals in Slaughterhouse"	2024-10-16	Turin	Speakers	xx
· Training Course "Pathological Aspects of Livestock Animals in Slaughterhouse"	2024-10-17	Turin	Speakers	xx

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ERFAN: TSE Training and Working Group meeting	2024-04-21	Namibia	Speakers	xx
ERFAN: TSE Training and Working Group meeting	2024-04-22	Namibia	Speakers	xx
ERFAN: TSE Training and Working Group meeting	2024-04-23	Namibia	Speakers	xx
21st Annual Meeting TSE EURL	2024-05-12	Rome	Speakers	Feedback on the Proficiency Testing EQA round
21st Annual Meeting TSE EURL	2024-05-13	Rome	Speakers	Feedback on the Proficiency Testing EQA round
21st Annual Meeting TSE EURL	2024-05-14	Rome	Speakers	Feedback on the Proficiency Testing EQA round
Prion 2024	2024-10-22	China	Poster	Detection of Pathological Prion Protein in Milk Samples from Scrapie Naturally Infected Sheep by Real-Time Quaking-Induced Conversion assay"

TOR10: NETWORK WITH WOAHA REFERENCE LABORATORIES

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

No

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

No

25. Did you organise or participate in inter-laboratory proficiency tests with WOAHA Reference Laboratories designated for the same pathogen during the past 2 years?

Yes

Purpose of the proficiency test:	Role of your Reference Laboratory (organiser/participant)	No. participating Laboratories	Participating WOAHA Ref. Labs/organising WOAHA Ref Lab
Scrapie Confirmatory Immunoblot	Participant	23	NRLs
TSE Histopathology and immunohistochemistry interpretation EQA	Participant	42	NRLs
PrP immunohistochemistry technical EQA	Participant	19	NRLs
Scrapie screening rapid test Participant	Participant	29	NRLs

26. Did your laboratory collaborate with other WOAHA 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 WOA Reference Laboratories for the same pathogen during the past 2 years?

Yes

Purpose for inter-laboratory test comparisons ¹	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the test	WOAH Member Countries
Harmonising existing test methods (IDEXX HerdCheck BSE-scrapie Antigen Kit EIA for Italian network laboratory	Organizer	11	Rapid test	ITALY,

TOR12: EXPERT CONSULTANTS

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

Yes

Kind of consultancy	Location	Subject (facultative)
Participation in the meeting to review Chapter 14.8 Scrapie of the Terrestrial Code	Paris	Chapter 14.8 Scrapie of the Terrestrial Code
Participation as scrapie expert in the working group " Questions from WOA Specialist Commissions"	by email	Questions from WOA Specialist Commissions"

29. Additional comments regarding your report:

Our WOA Centre for BSE and scrapie collaborates with EURL TSE as part of the same Institution and also all staff, including myself, works for both centres. From 2019 we have been providing diagnostic advice to European Nrls. From some years we have been working closely with countries in North Africa and South Africa