World Organisation for Animal Health

Jaap Wagenaar - - NETHERLANDS

WOAH Reference Laboratory Reports Activities 2024

This report has been submitted: 28 février 2025 02:45

LABORATORY INFORMATION

***Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:**	Campylobacteriosis (Campylobacter jejuni and C. coli)
***Address of laboratory:**	PO Box 80.165, 3508 TD Utrecht, the Netherlands
***Tel:**	+31302534376
***E-mail address:**	j.wagenaar@uu.nl
Website:	https://www.uu.nl/en/organisation/faculty-of-veterinary-medicine/veterinary-research/one-health/infection- immunity/clinical-infectiology/campylobacter-fetus
***Name (including Title) of Head of Laboratory (Responsible Official):**	Prof. dr. Jaap A. Wagenaar
***Name (including Title and Position) of WOAH Reference Expert:**	Prof. dr. Jaap A. Wagenaar (Chair of Division Infectious Diseases and Immunology)
***Which of the following defines your laboratory? Check all that apply:**	Academic institution

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
Direct diagnostic tests		Nationally	Internationally

Culture	Yes	7	0
Whole Genome Sequencing	Yes	250	50
Maldi-tof	Yes	5	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?

No

4. Did your laboratory produce vaccines?

Not applicable

5. Did your laboratory supply vaccines to WOAH 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.)
We developed a PCR to discriminate between Campylobacter fetus subspecies	https://doi.org/10.1016/j.mimet.2024.107049
We developed a webinterface to analyse genome data for C. fetus subspecies identification and AMR genes	https://klif.uu.nl/cfvcatch

7. Did your laboratory validate diagnostic methods according to WOAH 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 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?

Yes

Name of WOAH Member Country seeking assistance	Date	Which diagnostic test used	No. samples received for provision of diagnostic support	No. samples received for provision of confirmatory diagnoses
UNITED STATES OF	2024-01-31	Whole Genome	0	50

AMERICA		Sequencing		

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

Yes

Name of the WOAH Member Country receiving a technical consultancy	Purpose	How the advice was provided
DENMARK	Whole genome sequencing and analysis of Campylobacter fetus genomes for diagnostics	Contact per e-mail
ITALY	Isolation, culturing and identification of C. fetus for diagnostics	Contact per e-mail
ARGENTINA	Isolation, culturing and identification of Campylobacter fetus	Technical advice and support per e- mail
UNITED KINGDOM	Plasmid detection of Campylobacter. Evolution of Campylobacter plasmids. Studies of S- layer of Campylobacter fetus.	Monthly exchange of Campy expert NL – UK and UK – NL. Contact per email, exchanging expertise and WGS data

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOAH 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
Campylobacter in the poultry meat production chain	ongoing	Descriptive epidemiology of Campylobacter in the poultry production chain in Sri Lanka; including susceptibility testing	Vet School Peradeniya	SRI LANKA
Bioinformatics approach and molecular analysis to identify Campylobacter fetus subspecies markers	ongoing	Study the host specificity and virulence of C. fetus subspecies	Universitas Gadjah Mada, Yogyakarta (UGM)	INDONESIA
BB LITVET-UU Collaborative Work For Implementing A New Diagnostic Strategy To Study Campylobacter Fetus In Cattle In Indonesia	ongoing	Investigation of a new diagnostic strategy for Campylobacter fetus isolation	INDONESIAN RESEARCH CENTRE FOR VETERINARY SCIENCE (IRCVS), Bogor and BRIN	INDONESIA
One Health Genomic and Metagenomic Approaches	ongoing	Study the role of plasmids in the evolution of	Quadram Institute in	UNITED KINGDOM

to Campylobacter and Food Safety		Campylobacter spp. and emergence of AMR	Norwich	
One Health Genomic and Metagenomic Approaches to Campylobacter and Food Safety	ongoing	Study the role of plasmids in the evolution of Campylobacter spp. and emergence of AMR	Massey University	NEW ZEALAND
Improvement of C. infans culturing and isolation methods	ongoing	Study the optimal growth conditions of C. infans	Quadram Institute in Norwich	UNITED KINGDOM
Investigation of the Surface layer of Campylobacter fetus isolates	ongoing	Study the composition and genomic infrastructure of the Surface-layer of Campylobacter fetus	The London School of Hygiene & Tropical Medicine	UNITED KINGDOM
Antimicrobial Resistance of Campylobacter fetus	ongoing	Study the antimicrobial resistances of Campylobacter fetus to determine ECOFFs	The European Committee on Antimicrobial Susceptibility Testing	SWEDEN
Harmonization of methods to detect Campylobacter	ongoing	Providing input for the Guideline on susceptibility testing of food borne pathogens	Chulalongkorn University	THAILAND

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:

3

van der Graaf-van Bloois, L., Zomer, A. L., Duim, B., & Wagenaar, J. A. (2024). Campylobacter fetus subspecies specific PCR assays inferred from comparative genomic analysis for accurate subspecies identification. Journal of Microbiological Methods. https://doi.org/10.1016/j.mimet.2024.107049

Pena-Fernández, N., Ocejo, M., van der Graaf-van Bloois, L., Lavín, J. L., Kortabarria, N., Collantes-Fernández, E., Hurtado, A., & Aduriz, G. (2024). Comparative pangenomic analysis of Campylobacter fetus isolated from Spanish bulls and other mammalian species. Scientific Reports, 14(1), Article 4347. https://doi.org/10.1038/s41598-024-54750-1

Pena-Fernández, N., van der Graaf-van Bloois, L., Duim, B., Zomer, A., Wagenaar, J. A., Ocejo, M., Lavín, J. L., Collantes-Fernández, E., Hurtado, A., & Aduriz, G. (2024). Campylobacter fetus Plasmid Diversity: Comparative Analysis of Fully Sequenced Plasmids and Proposed Classification Scheme. Genome Biology and Evolution, 16(10), Article evae203. https://doi.org/10.1093/gbe/evae203

b) International conferences:

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International Symposium on Plasmid Biology 2024, Hammamatsu, Japan

Participation in the European Reference Laboratory for Campylobacter meeting, Uppsala, Sweden, 2024

FAO & WHO. 2024 (CODEX). Measures for the control of Campylobacter spp. in chicken meat – Meeting report Microbiological Risk Assessment Series, No. 46. Rome. https://doi.org/10.4060/cc9607en. (meeting took place in 2023; report published in 2024). Ref lab was chair

Feb 5 – Feb 9 2024: Delhi Better Training Safer Food training (Ref. lab as trainer)

Geneva May 6th , 2024 WHO Allianz (ref lab as partner)

Bangkok May 8th 2024 – May 10th 2024. Integrated surveillance workshop (ref lab as trainer)

Participation in the ESGEM-AMR working group coordinated by the ESCMID Study Group for Epidemiological markers (ESGEM), Ref Lab leading the Campylobacter subgroup.

c) National conferences:

1
Scientific Spring Meeting of the Dutch Society for Microbiology, 9-10 April 2024, Papendal, the Netherlands

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

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

Yes

a) Technical visit : 2

b) Seminars : 2

c) Hands-on training courses: 0

d) Internships (>1 month) 0

Type of technical training provided (a, b, c or	Country of origin of the expert(s) provided	No. participants from the corresponding

d)	with training	country
A	INDONESIA	20
B	INDONESIA	25
A	INDONESIA	20
B	THAILAND	50

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO 9001:2015	management system	ISO-9001-197379-2016-AQ-NLD-RvA-1-en-US-20210820-20210820101019.pdf
ISO/IEC 17025:2017	certificate	L389 Verklaring EN.pdf
ISO/IEC 17025:2017	overview assays	L389-annex.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
ISO/IEC 17025:2017 MIC assays for Campylobacter	The Dutch accreditation Council RvA
ISO/IEC 17025:2017 Isolation and detection of Campylobacter; cutoff, Preston, Bolton, mCCDA , Maldi-Tof	The Dutch accreditation Council RvA

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

Yes

All our laboratories have a biosafety level 2 status (BSL-2), and work procedures are all written in Standard Operating Procedures following BSL-2 requirements. The faculty of Veterinary Medicine of Utrecht University and Wageningen Bioveterinary Research have a biosafety department. The biosafety officers support, assist and control biosafety issues of our the labs including the BSL-2 status, licenses, protocols and audits.

TOR9: SCIENTIFIC MEETINGS

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

No

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

No

TOR10: NETWORK WITH WOAH REFERENCE LABORATORIES

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

Not applicable (only WOAH Reference Laboratory designated for the disease

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

Not applicable (only WOAH Reference Laboratory designated for the disease

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

Not applicable (Only WOAH Reference Laboratory designated for the disease)

N/A

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?

Not applicable (only WOAH Reference Laboratory designated for the disease

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 during the past 2 years?

No

N/A

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

Yes

Like reported in previous years, we are much more moving towards sequencing bacterial strains in the country of origin instead of shipment of strains what need a lot of paperwork and is expensive. We provided a tool on our website that can be used to identify the Campylobacter strain that has been sequenced (see report above). Laboratories can contact us for expert advice and technical support instead of sending their strains. In practice this seem to work well.

The work we do for WOAH is primarily for Bovine Genital Campylobacteriosis (BCG- Campylobacter fetus). Previously we were also covering Campylobacter jejuni/coli (food safety), but this is not any longer included in the scope of WOAH. In this report we reported still some of our C. jejuni/coli work, there where it is closely related to C. fetus work (isolation methods). The topic for our Laboratory accoring to WOAH is till 'Campylobacteriosis', what can be considered to be changed into Bovine Genital Campylobacteriosis. Besides the work for our reference tasks for Campylobacter, we are very active in collaboration with WOAH in the field of AMR (co-chair of the Quadripartite technical group on Integrated Surveillance) and with WOAH scientific staff in this field.