

# WOAH Reference Laboratory Reports Activities 2022

## Activities in 2022

This report has been submitted : 1 mars 2023 15:28

### Laboratory Information

<b>Name of disease (or topic) for which you are a designated WOA Reference Laboratory:</b>	Brucellosis (infection with Brucella abortus, B. melitensis and B. suis)
<b>Address of laboratory:</b>	Naumburger Str. 96a 07743 Jena GERMANY
<b>Tel.:</b>	+49-3641 804 2100
<b>E-mail address:</b>	heinrich.neubauer@fli.de
<b>Website:</b>	www.fli.de
<b>Name (including Title) of Head of Laboratory (Responsible Official):</b>	Dr. Falk Melzer
<b>Name (including Title and Position) of WOA Reference Expert:</b>	Prof. Heinrich Neubauer
<b>Which of the following defines your laboratory? Check all that apply:</b>	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
iELISA	Yes	359	0
CFT	Yes	83	0
RBT	Yes	98	0

Direct diagnostic tests		Nationally	Internationally
qPCR	Yes	30	32
MALDI	No	16	6
Isolation/bacterial phenotyping	Yes	17	6

## TOR2: REFERENCE MATERIAL

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

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOA?H 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?H MEMBER COUNTRIES	COUNTRY OF RECIPIENTS
antigen	RBT	Provided	0	70	1	Asia and Pacific
Pos/neg serum	CFT, RBT, ELISA	Produced and provided	3	0	0	Asia and Pacific

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to WOA?H Members?

No

## TOR3: NEW PROCEDURES

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

No

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

Yes

NAME OF THE NEW TEST OR DIAGNOSTIC METHOD DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
EVALUATION FOR INTER-LABORATORY REPRODUCIBILITY AIM TO VALIDATE BRUCELLOSIS COMPETITIVE ELISA	Aim of the inter-laboratory ring test is to evaluate the inter-laboratory reproducibility of ELISA kit "Brucella abortus Antibody Test Kit c-ELISA" (IZSAM, Italy) for bovine and water buffalo (Bubalus bubalis) species in order to validate the c-ELISA kit used at national level for serological diagnosis of brucellosis. Organizers: Manuela Tittarelli m.tittarelli@izs.it, Flavio Sacchini f.sacchini@izs.it, Fabrizia Perletta f.perletta@izs.it

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

No

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

No

## TOR4: DIAGNOSTIC TESTING FACILITIES

10. Did your laboratory carry out diagnostic testing for other WOA Member?

Yes

NAME OF WOA 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
ISRAEL		PCR, bacteriology, sequencing	6	0
TURKEY		PCR	24	0

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

Yes

NAME OF THE WOA MEMBER COUNTRY RECEIVING A TECHNICAL CONSULTANCY	PURPOSE	HOW THE ADVICE WAS PROVIDED
UKRAINE	Proficiency test RBT, CFT, ELISA	Provision of PT serum samples
COLOMBIA	Proficiency test RBT, CFT, ELISA	Provision of PT serum samples

## 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)	WOA MEMBER COUNTRIES INVOLVED OTHER THAN YOUR COUNTRY
EPIDEMIOLOGY OF BRUCELLOSIS IN HUMANS AND ANIMALS and MOLECULAR INVESTIGATION OF HUMAN BRUCELLOSIS IN KYRGYZSTAN	2021-2022	1.Estimation of the prevalence of brucellosis in humans and animals between 2010 and 2020. 2.Modeling and visualization of data by creating informative and instructive maps, heat maps and diagrams. 3.Measuring disease prevalence: comparing the seroprevalences of seropositivity in cattle, small ruminants, and humans using databases for the past decade. 4. Isolation and molecular identification of the patients' human derived isolates circulating in Kyrgyzstan. 5.	Republican Center for Quarantine and Highly Dangerous Infections of Ministry of Health and Social Development	KYRGYZSTAN

	Investigation of the genetic diversity of Kyrgyz <i>Brucella</i> isolates and their phylogenetic placement in relation to global diversity of this genus.	
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## 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:

Published: Kydyshov K, Usenbaev N, Sharshenbekov A, Aitkuluev N, Abdyraev M, Chegirov S, Kazybaeva J, Brangsch H, Melzer F, Neubauer H, Pletz MW. Brucellosis in Humans and Animals in Kyrgyzstan. *Microorganisms*. 2022 Jun 25;10(7):1293. doi: 10.3390/microorganisms10071293

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:

Published: Kydyshov K, Usenbaev N, Berdiev S, Dzhaparova A, Abidova A, Kebekbaeva N, Abdyraev M, Wareth G, Brangsch H, Melzer F, Neubauer H, Pletz MW. First record of the human infection of *Brucella melitensis* in Kyrgyzstan: evidence from whole-genome sequencing-based analysis. *Infect Dis Poverty*. 2022 Dec 1;11(1):120. doi: 10.1186/s40249-022-01044-1

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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- Holzer K, Wareth G, El-Diasty M, Abdel-Hamid NH, Hamdy MER, Moustafa SA, Linde J, Bartusch F, Abdel-Gil MY, Sayour AE, Elbauomy EM, Elhadidy M, Melzer F, Beyer W. Tracking the distribution, genetic diversity and lineage of *Brucella melitensis* recovered from humans and animals in Egypt based on core-genome SNP analysis and in silico MLVA-16. *Transbound Emerg Dis*. 2022 Nov;69(6):3952-3963. doi: 10.1111/tbed.14768
- Kydyshov K, Usenbaev N, Berdiev S, Dzhaparova A, Abidova A, Kebekbaeva N, Abdyraev M, Wareth G, Brangsch H, Melzer F, Neubauer H, Pletz MW. First record of the human infection of *Brucella melitensis* in Kyrgyzstan: evidence from whole-genome sequencing-based analysis. *Infect Dis Poverty*. 2022 Dec 1;11(1):120. doi: 10.1186/s40249-022-01044-1
- Elmonir W, Abdel-Hamid NH, Hamdy MER, Beleta EIM, El-Diasty M, Melzer F, Wareth G, Neubauer H. Isolation and molecular confirmation of *Brucella suis* biovar 2 from slaughtered pigs: an unanticipated biovar from domestic pigs in Egypt. *BMC Vet Res*. 2022 Jun 13;18(1):224. doi: 10.1186/s12917-022-03332-2
- Elsohaby I, Kostoulas P, Elsayed AM, Ahmed HA, El-Diasty MM, Wareth G, Ghanem FM, Arango-Sabogal JC. Bayesian Evaluation of Three Serological Tests for Diagnosis of *Brucella* infections in Dromedary Camels Using Latent Class Models. *Prev Vet Med*. 2022 Nov;208:105771. doi: 10.1016/j.prevetmed.2022.105771
- Fereig RM, Wareth G, Abdelbaky HH, Mazeed AM, El-Diasty M, Abdelkhalek A, Mahmoud HYAH, Ali AO, El-Tayeb A, Alsayeqh AF,

Frey CF. Seroprevalence of Specific Antibodies to *Toxoplasma gondii*, *Neospora caninum*, and *Brucella* spp. in Sheep and Goats in Egypt. *Animals* (Basel). 2022 Nov 28;12(23):3327. doi: 10.3390/ani12233327

- Abdel-Glil MY, Thomas P, Brandt C, Melzer F, Subbaiyan A, Chaudhuri P, Harmsen D, Jolley KA, Janowicz A, Garofolo G, Neubauer H, Pletz MW. Core Genome Multilocus Sequence Typing Scheme for Improved Characterization and Epidemiological Surveillance of Pathogenic *Brucella*. *J Clin Microbiol*. 2022 Aug 17;60(8):e0031122. doi: 10.1128/jcm.00311-22
- Tscherne A, Mantel E, Boskani T, Budniak S, Elschner M, Fasanella A, Feruglio SL, Galante D, Giske CG, Grunow R, Henczko J, Hinz C, Iwaniak W, Jacob D, Kedrak-Jablonska A, Jensen VK, Johansen TB, Kahlmeter G, Manzulli V, Matuschek E, Melzer F, Nuncio MS, Papaparaskevas J, Pelerito A, Solheim M, Thomann S, Tsakris A, Wahab T, Weiner M, Zoeller L, Zange S; EMERGE AST Working Group. Adaptation of *Brucella melitensis* Antimicrobial Susceptibility Testing to the ISO 20776 Standard and Validation of the Method. *Microorganisms*. 2022 Jul 20;10(7):1470. doi: 10.3390/microorganisms10071470
- Wareth G, Dadar M, Ali H, Hamdy MER, Al-Talhy AM, Elkharsawi AR, Tawab AAAE, Neubauer H. The perspective of antibiotic therapeutic challenges of brucellosis in the Middle East and North African countries: Current situation and therapeutic management. *Transbound Emerg Dis*. 2022 Sep;69(5):e1253-e1268. doi: 10.1111/tbed.14502

b) International conferences:

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- Prevalence and risk factors of brucellosis in lactating cow and its public health importance in military dairy farms of Bangladesh. In: *Proceedings of the Brucellosis 2022 International Conference, including the 74th Annual Brucellosis Research Conference, Giulianova, Teramo, Italy, September 16th to 19th 2022*. Edizioni IZSTe-press. p. 97. (= Brucellosis International Research Conference). Online: [https://brucellosis2022.izs.it/wp-content/uploads/2022/09/Conference\\_Proceedings\\_Brucellosis2022.pdf](https://brucellosis2022.izs.it/wp-content/uploads/2022/09/Conference_Proceedings_Brucellosis2022.pdf)
- Brucellosis in terrestrial and marine wildlife species from the European perspective. In: *Proceedings of the Brucellosis 2022 International Conference, including the 74th Annual Brucellosis Research Conference, Giulianova, Teramo, Italy, September 16th to 19th 2022*. Edizioni IZSTe-press. p. 127. (= Brucellosis International Research Conference). Online: [https://brucellosis2022.izs.it/wp-content/uploads/2022/09/Conference\\_Proceedings\\_Brucellosis2022.pdf](https://brucellosis2022.izs.it/wp-content/uploads/2022/09/Conference_Proceedings_Brucellosis2022.pdf)

c) National conferences:

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- Brucellosis in European wild-boars. Junior Scientist Symposium, Grifswald, Germany–2022 | 11/2022

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 WOAHA Members?

Yes

a) Technical visit :

b) Seminars :

c) Hands-on training courses: 2

d) Internships (>1 month)

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	Egypt	5

c	Turkey	1
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## 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	Akkreditierungsurkunde_2022.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Microbiological, serological and molecular diagnosis and NGS characterisation	DAKKS

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

Yes

following the German law of Biostoff-Verordnung, e.g. Access control to all labs by administrative regulations, Existence of a Biorisk Committee, regularly audits by external responsible authorities

## 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?

No

## TOR10: NETWORK WITH WOA REFERENCE LABORATORIES

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

Yes

24. Are you a member of a network of WOA Reference Laboratories designated for the same pathogen?

Yes

PURPOSE OF THE PROFICIENCY TESTS: 1	ROLE OF YOUR REFERENCE LABORATORY (ORGANISER/ PARTICIPANT)	NO. PARTICIPANTS	PARTICIPATING WOA REF. LABS/ ORGANISING WOA REF. LAB.
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25. Did you organise or participate in inter-laboratory proficiency tests with WOA Reference Laboratories designated for the same pathogen?

Yes

PURPOSE OF THE PROFICIENCY	ROLE OF YOUR REFERENCE	NO. PARTICIPANTS	PARTICIPATING WOA REF. LABS/ ORGANISING WOA REF.
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TESTS: 1	LABORATORY (ORGANISER/ PARTICIPANT)		LAB.
RBT, CFT, ELISA	participant	4	IZSAM, Italy

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

Yes

TITLE OF THE PROJECT OR CONTRACT	SCOPE	NAME(S) OF RELEVANT WOA REFERENCE LABORATORIES
IDEMBRU	Identification of emerging Brucella species: new threats for human and animals	ANSES, APHA, IZSAM, FLI

## 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?

Yes

Purpose for inter-laboratory test comparisons <sup>1</sup>	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Region(s) of participating WOA Member Countries
Serology Brucellosis	organiser	40	America Europe

## TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report: