

OIE Reference Laboratory Reports Activities

Activities in 2021

This report has been submitted : 2022-01-14 08:46:28

Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Brucellosis (Brucella abortus, B. melitensis, B. suis)
Address of laboratory:	Naumburger Str. 96a 07743 Jena GERMANY
Tel.:	+49-3641 804 2100
Fax:	+49-3641 80 42 28
E-mail address:	heinrich.neubauer@fli.de
Website:	www.fli.de
Name (including Title) of Head of Laboratory (Responsible Official):	Dr. Falk Melzer
Name (including Title and Position) of OIE Reference Expert:	Prof. Heinrich Neubauer
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
iELISA	Yes	336	162
CFT	Yes	88	0
RBT	Yes	82	45
Direct diagnostic tests		Nationally	Internationally
qPCR	Yes	32	263
MALDI	No	13	0
Isolation/bacteriological phenotyping	Yes	17	161

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
pos/neg serum	CFT, RBT, ELISA	Produced and provided	12	4	1	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East
antigen	RBT	Provided		10	1	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East
DNA	PCR	Produced and provided		2	1	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input 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?

No

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

No

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?

Yes

Name of OIE Member Country seeking assistance	Date (month)	No. samples received for provision of diagnostic support	No. samples received for provision of confirmatory diagnoses
PAKISTAN	June	0	45
PAKISTAN	November	0	40
KYRGYZSTAN	December	0	105

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

No

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?

Yes

Title of the study	Duration	Purpose of the study	Partners (Institutions)	OIE Member Countries involved other than your country
A comprehensive proteogenomic analysis of Brucella to understand the epidemiology, biology, virulence mechanisms, and host-pathogen interaction.	2021-2024	The main objectives of the project are to assess the role of the environment and wildlife in the transmission and spread of brucellosis, and to elucidate several previously not understood mechanisms by applying different proteo-genomics approaches.	University of Crete; Faculty of veterinary medicine at the University of Harran; NRL for brucellosis at Pendik Veterinary Control Institute	TURKEY
Identification of emerging Brucella species: new threats for human and animals (IDEMBRU)	2020-2022	Compare emerging Brucella to classical species, thus supporting a better elucidation of differences and specificities of these new Brucella species and, importantly, facilitating an assessment of zoonotic potential and associated threats for public health.	ANSES; NDRVMI - BFSA; INIAV; INSA; IZSAM; APHA; BfR; WBVR	THE NETHERLANDS

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:
Tracking the distribution of Brucella abortus in Egypt based on core genome SNP analysis and in silico MLVA-16 Seroprevalence and associated risk factors of bovine Brucellosis in district Gujranwala, Punjab, Pakistan.

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:
Tracking the distribution of Brucella abortus in Egypt based on core genome SNP analysis and in silico MLVA-16 Seroprevalence and associated risk factors of bovine Brucellosis in district Gujranwala, Punjab, Pakistan.

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: 9

Ali S, Saeed U, Rizwan M, Hassan L, Syed MA, Melzer F, El-Adawy H, Neubauer H (2021) Serosurvey and risk factors associated with Brucella infection in high risk occupations from district Lahore and Kasur of Punjab, Pakistan. Pathog 10, 620. doi: 10.3390/pathogens10050620.

Dadar M, Wareth G, Neubauer H (2021) Brucellosis in Iranian buffalo: Prevalence and diagnostic methods. German J Vet Res 2, 13-16. (Mini Review)

Holzer K, El-Diasty M, Wareth G, Abdel-Hamid NH, Hamdy MER, Moustafa SA, Linde J, Bartusch F, Sayour AE, Elbauomy EM, Elhadidy M, Melzer F, Beyer W (2021) Tracking the distribution of Brucella abortus in Egypt based on core genome SNP analysis and in silico MLVA-16. Microorg 9, 1942.

<https://doi.org/10.3390/microorganisms9091942>

Jamil T, Khan AU, Saqib M, Hussain MH, Melzer F, Rehman A, Shabbir MZ, Khan MA, Ali S, Shahzad A, Khan I, Iqbal M, Ullah Q, Ahmad W, Mansoor MK, Neubauer H, Schwarz S (2021) Animal and Human Brucellosis in Pakistan. Front Public Health 9, 660508. doi: 10.3389/fpubh.2021.660508. eCollection 2021. Review

Khan AU, Melzer F, Sayour AE, Shell WS, Linde J, Abdel-Gli M, El-Soally SAGE, Elschner MC, Sayour HEM, Shawkat Ramadan E, Mohamed SA, Hendam A, Ismail RI, Farahat LF, Roesler U, Neubauer H, El-Adawy H (2021) Whole-genome sequencing for tracing genetic diversity of Brucella abortus and Brucella melitensis isolated from livestock in Egypt. Pathog 10(6), 759. doi: 10.3390/pathogens10060759

Khan MR, Rehman A, Khalid S, Ahmad MUD, Avais M, Sarwar M, Awan FN, Melzer F, Neubauer H, Jamil T (2021) Seroprevalence and associated risk factors of bovine Brucellosis in district Gujranwala, Punjab, Pakistan. Animals 11, 1744. doi: 10.3390/ani11061744

Lounes N, Melzer F, Sayour AE, Maamar HT, Rahal K, Benamrouche N, Lazri M, Bouyoucef A, Hendam A, Neubauer H, El-Adawy H (2021) Identification, geographic distribution and risk factors of Brucella abortus and Brucella melitensis infection in cattle in Algeria. Vet Microbiol 254, 109004. <https://doi.org/10.1016/j.vetmic.2021.109004>

Wareth G, El-Diasty M, Abdel-Hamid NH, Holzer K, Hamdy MER, Moustafa S, Shahein MA, Melzer F, Beyer W, Pletz MW, Neubauer H (2021) Molecular characterization and antimicrobial susceptibility testing of clinical and non-clinical Brucella melitensis and Brucella abortus isolates from Egypt. One Health 13, 100255.

<https://doi.org/10.1016/j.onehlt.2021.100255>

Yousaf R, Khan I, Shehzad W, Hussain R, Ali S, Neubauer H, Wareth G (2021) Seroprevalence and molecular detection of Brucellosis in hospitalized patients with clinical manifestations of Brucellosis in Lahore Hospitals, Pakistan. Infect Dis Rep 13, 166-172. <https://doi.org/10.3390/idr13010018>

b) International conferences: 1

Ponsart Claire, Ferreira Ana Cristina, Daskalov Hristo, Garofolo Guillianio, Melzer Falk, Freddi Luca, Girault Guillaume, Vicente Acacia Ferreira, Ashford Roland, Whatmore Adrian, Al Dahouk Sascha, Prasse Daniela, Kidyshov Kalysbek, Cavaco Gonçalves Sandra, De Massis Fabrizio, Sacchini Fabio, Milanov Mihail, Pelerito Ana, van den Esker Marielle, Kampfraath Dre, Djokic Vitomir, „NATURAL HABITATS FOR DETECTION OF EMERGING BRUCELLA SPECIES: A NEW STRATEGY TO IDENTIFY PUTATIVE THREATS (IDEMBRU)“. The 3rd One Health European Joint Programme Annual Scientific Meeting (OHEJP ASM2021) 09/06/2021 - 11/06/2021

c) National conferences: 1

F. Melzer, A. U. Khan, M. C. Elschner, H. Neubauer, H. El-Adawy: "Identifizierung, Genotypisierung und Untersuchungen zur Antibiotikaresistenz von Brucella spp. an Isolaten aus Ägypten". Tagung der Fachgruppe Bakteriologie Mykologie 14/06-16/06/2021

d) Other:

(Provide website address or link to appropriate information) 0

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: 1
 c) Hands-on training courses: 0
 d) Internships (>1 month): 0

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	Ukraine	3

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)
DIN EN ISO/IEC 17025:2005	Akkreditierungsurkunde_FLI-Riems-Jena_2019.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
microbiology; serology; molecular diagnosis	DAkKS

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?

Yes

Purpose of the proficiency tests: ¹	Role of your Reference Laboratory (organiser/ participant)	No. participants	Participating OIE Ref. Labs/ organising OIE Ref. Lab.
Sequencing of Brucella spp.	participant	5	IZS Italy, ANSES France, FLI Germany/APHA UK

¹ validation of a diagnostic protocol: specify the test; quality control of vaccines: specify the vaccine type, etc.

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
ILPT Brucellosis milk serum iELISA 2021	28	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
SHARP, WP7 Bacterial EQAEs Detection of Highly Pathogenic Bacteria	unknown	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Laborvergleichsstudie (LVS) zum kulturellen Nachweis und Identifizierung von Bacillus (B.) anthracis, Brucella spp. und Burkholderia (B.) mallei 2021	15	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input 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?

No

25. Additional comments regarding your report: