

WOAH Reference Laboratory Reports Activities 2025

This report has been submitted: 31 décembre 2025 09:28

LABORATORY INFORMATION

*Name of disease (or topic) for which you are a designated WOAHO Reference Laboratory:	Cysticercosis
*Address of laboratory:	
*Tel:	+86-931 832.39.78
*E-mail address:	luoxuenong@caas.cn
Website:	
*Name (including Title) of Head of Laboratory (Responsible Official):	Xuenong Luo
*Name (including Title and Position) of WOAHO Reference Expert:	Professor Xuenong Luo
*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 WOAHO Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests			
ELISA	Yes	21	0
EITB	Yes	5	0
Direct diagnostic tests			
Naked eye and microscope	Yes	12	0

TOR2: REFERENCE MATERIAL

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

No

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

No

4. Did your laboratory produce vaccines?

Yes

5. Did your laboratory supply vaccines to WOAHO Members?

No

TOR3: NEW PROCEDURES

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

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Yes

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

Yes

Name of the new test or diagnostic method developed	Description and References (Publication, website, etc.)
RPA-assistant CRISPR/Cas12	Based on serum let-7-derived metacystode, the test was established to diagnose tapeworm infection.

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

Yes

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

Yes

Name of the new vaccine developed	Description and References (Publication, website, etc.)
TSOL18 Nanovaccines	TSOL18 antigen epitopes and cysticercus antigen epitopes were displayed on surface of ferritin nanoparticles from T.solum, which can be produced in Pichia pastoris.

TOR4: DIAGNOSTIC TESTING FACILITIES

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

No

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

No

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

No

13. In exercising your activities, have you identified any regulatory research needs* relevant for WOAHS?

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:

The pig population data showed a linear growth trend, with a higher population reported in Central and Western Kenya. A systematic search of the literature yielded a total of fourteen research reports, with the reported cases ranging from 1.8% to 49.9% for porcine cysticercosis, 1.6% to 31.1% for human cysticercosis, and 0.18% to 19.9% for T. solium taeniosis, respectively. The retrospective data showed cases of porcine cysticercosis and epilepsy (as a proxy indicator of neurocysticercosis) in all sub-counties of Busia. The WHO risk mapping tool categorized Bunyala, Teso South, Nambale, and Butula sub-counties as high-risk areas. The questionnaire survey highlighted semi-confinement as the predominant pig husbandry practice (61.1%), with 32% of pigs having access to sewage, and there was poor community awareness about TSTC in Busia County.

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:

The burden of reported cases of human cysticercosis was estimated to be 1.6% to 6.6% based on Ag-ELISA, 31.1% using Ab-ELISA, and 2.4% by EITB. Most data on human cysticercosis originates from countries outside Africa, and information on the disease within the continent remains limited. In Zambia, the prevalence estimates range from 5.8% to 13% by Ag-ELISA and 34% to 39% by sero-antibody detection tests [58]. A relatively higher prevalence (16–45.3%) was reported from Tanzania using antigen and antibody ELISA.

The magnitude of T. solium taeniosis cases varies between 17.3% and 19.9% by microscopy and 0.18% to 6.7% using copro-antigen ELISA. Systematic reviews have reported microscopy-based prevalence rates of 0.7% in Uganda [52] and between 0.1% and 14.7% across East and Southern Africa. Additionally, the prevalence range of 2.3% to 5.2% in Tanzania, 6.3% to 12% in Zambia, and 1.4% in Rwanda was recorded based on copro-antigen ELISA. However, it is important to note that neither

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microscopy nor copro-antigen ELISA can distinguish between *Taenia* species.

Based on the included studies, the reported cases of porcine cysticercosis ranged from 1.8% to 14% by lingual examination, 3.8% to 49.9% by Ag-ELISA, and 1.8% upon meat inspection. A recent study in Kenya reported 3.8% prevalence via lingual examination and 0.54% by Ag-ELISA. In Tanzania, the estimates ranged from 6% to 17.4% based on lingual examination, 1.5% to 33.3% by Ag-ELISA, and 0 to 18.2% using routine meat inspection.

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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1. *LncRNA gm40262 promotes liver fibrosis and parasite growth through the gm40262-miR-193b-5p-TLR4/Col1α1 axis*, *mBio*, 2025, *mBio*. 2025, 16(4): e0228724.

2. *Regulation of host regulatory T cell differentiation by emu-let-7-5p in Echinococcus multilocularis infection through targeting NFκB2*, *FASEB J*. 2025, 39(9): e70603.

3. *Exosomal tpi-miR-10a-5p from T. pisiformis cysticerci regulates the expression of inflammatory factors in rabbits by targeting MAP3K7*, *Vet Parasitol*. 2025 Jul 4:338:110537.

4. *Cystic echinococcosis and Taenia spp. infections in Nigeria: A systematic review and meta-analysis of prevalence and geographical distribution*, *Acta Trop*. 2025, 271: 107826.

b) International conferences:

c) National conferences:

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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 WOA Members?

Yes

a) Technical visit : 2

b) Seminars : 3

c) Hands-on training courses: 8

d) Internships (>1 month) 3

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
A	PAKISTAN	2
B	NIGERIA	3
C	UZBEKISTAN	8
D	ETHIOPIA	3

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

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Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO17025	Laboratory Accreditation Certificate	CANAS certificate 2023-2029.jpg

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Microscope	China national accreditation service for conformity assessment
ELISA	China national accreditation service for conformity assessment

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

Yes

According to Manual of Diagnostic Tests and Vaccines for Terrestrial Animals (Chapter 1.1.4) and Laboratory quality management manual, All of operation involving in pathogens were performed strictly to reduce the biorisk.

TOR9: SCIENTIFIC MEETINGS

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

No

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

No

TOR10: NETWORK WITH WOAHP REFERENCE LABORATORIES

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

Not applicable (only WOAHP Reference Laboratory designated for the disease)

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

Not applicable (only WOAHP Reference Laboratory designated for the disease)

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

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

Inter-laboratory proficiency tests with other laboratories were participated in China.

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

Not applicable (only WOAHP 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 WOAHP 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	WOAHP Member Countries
laboratory proficiency validation	organizer or participant	3	Gansu Provincial Animal Disease Prevention and Control Center; Qinghai Provincial Animal Disease Prevention and Control Center; Henan Provincial Animal Disease Prevention and Control Center	CHINA (PEOPLE'S REP. OF),

TOR12: EXPERT CONSULTANTS

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

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Yes

Kind of consultancy	Location	Subject (facultative)
review of WOAHA Standards, responding to specific technical queries from WOAHA	Lanzhou,Gansu,China	Revision and suggestion of WOAHA Standards and diagnostic test procedures for cysticercosis

29. Additional comments regarding your report:

No