

WOAH Reference Laboratory Reports Activities 2025

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LABORATORY INFORMATION

*Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:	Avian influenza
*Address of laboratory:	ICAR-National Institute of High Security Animal Diseases, Anand Nagar, Hathaikheda Raod, Bhopal - 462022 (M.P.) India
*Tel:	+917552750647
*E-mail address:	Chakradhar.Tosh@icar.org.in
Website:	https://nihsad.nic.in/
*Name (including Title) of Head of Laboratory (Responsible Official):	Dr. Aniket Sanyal, Director
*Name (including Title and Position) of WOAH Reference Expert:	Dr. Chakradhar Tosh, Principal Scientist
*Which of the following defines your laboratory? Check all that apply:	Research Organization

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	
		Nationally	Internationally
Indirect diagnostic tests			
HI	Yes	8246	0
ELISA	Yes	3454	0
Direct diagnostic tests			
RT-PCR	Yes	5865	0
Real time RT-PCR	Yes	46952	0
Virus isolation	Yes	12778	0
Nucleotide sequencing and molecular pathotyping	Yes	35	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?

No

5. Did your laboratory supply vaccines to WOA Members?

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 Standards for the designated pathogen or disease?

No

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

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

TOR4: DIAGNOSTIC TESTING FACILITIES

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

No

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

No

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

No

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

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:

Information collected on avian influenza viruses detected, including their origin, subtype and nucleotide sequences of high pathogenicity and low pathogenic avian influenza viruses in India

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 analyzed molecular sequence data of high pathogenicity avian influenza virus, including the genetic clade status, were provided to the Department of Animal Husbandry, Dairying

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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- Kumar N, Sood R, Gupta CL, Singh A, Bhatia S, Kumar M, Nagarajan S, Tosh C, Murugkar HV, Sanyal A (2025) Molecular basis for reduced neuraminidase inhibitors susceptibility in highly pathogenic avian influenza A (H5N1) viruses: Perspective on refining antiviral strategies and enhancing pandemic preparedness, *The Microbe*, 6: 100283, doi.org/10.1016/j.microb.2025.100283.
- Verma AK, Kumar M, Murugkar HV, Nagarajan S, Tosh C, Namdeo P, Singh R, Mishra S, Dhanapal S, Pathak A, Singh V P and Sanyal A (2025) Evaluation of In-Contact Transmission Potential of H5N1 Avian Influenza Virus in House Crows (*Corvus splendens*), *Avian Diseases*. 69(3): 237-242.

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- Dixit B, Murugkar HV, Nagarajan S, Kumar M, Anjay A, Dixit M, Shrivastav A, Jha AK, Mishra AK, Singh RV, Tosh C (2025) Comparative evaluation of different transport media for H5N1 highly pathogenic avian influenza virus. *Sci Rep.* Nov 10;15(1):39205.
- Chanda MM, Shivachandra SB, Mishra A, Punnoose P, Panikkassery S, Potti SD, Mohan V, Prajapati A, Yogisharadhya R, Hemadri D, Gulati BR, Tosh C (2025) Unique duck rearing practice in irrigated rice paddy fields driving recurrent H5N1 avian influenza outbreaks in two districts of Kerala, India. *Epidemiol Infect.* 153:e17. doi: 10.1017/S0950268824001882.

b) International conferences:

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- Tosh C (2025) Laboratory activity and research updates of ICAR-National Institute of High Security Animal Diseases, India, Presented In: WOA Regional Workshop on Avian Disease Prevention and Control in Asia and the Pacific 2025, Sapporo, Japan, 26 – 28 August, 2025.
- Tosh C (2025) Epidemiology and current status of avian influenza in South Asia, Presented In: South Asia Avian Disease Network Meeting: Preparedness for avian influenza and other avian diseases in South Asia, 20 August 2025 (Virtual).

c) National conferences:

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- S. Nagarajan, M. Kumar, C. Tosh and Aniket Sanyal (2025) Current status, control and containment of avian influenza in India. Expert lecture delivered in training entitled "Transboundary diseases of animals" organized from 21-25 July, 2025 by Department of Veterinary Microbiology, College of Veterinary Science and A.H., Mhow, NDVSU (M.P.).
- S. Nagarajan, Manoj Kumar, C. Tosh and A. Sanyal (2025) Current status of HPAI and its global control strategies. Lead paper presented in 40th Annual Conference and National Symposium of Indian poultry Science Association (IPSACON 2025), 9th -11th December 2025, Hyderabad, Telangana, India.
- Tosh C, Nagarajan S, Manoj Kumar, Murugkar HV, Sanyal A (2025) Current status of highly pathogenic avian influenza in India and the global scenario – an overview, DAHD, MoFAH&D, Government of India, New Delhi, 4th April 2025.
- Tosh C (2025) Roles of Veterinarian in Preventing Zoonotic Transmission of Avian Influenza, Presentation In: World Veterinary Day (WVD)-2025 "Animal Health Takes a Team", DAHD, MoFAH&D, Govt. of India, New Delhi, 26th April 2025.
- Tosh C (2025) Avian influenza: current status and control strategies, Presented in: seminar-cum-interactive meeting, organized by Veterinary College, Bengaluru, Karnataka Veterinary, Animal & Fisheries Sciences University, Bidar in collaboration with Karnataka Poultry Farmers and Breeders Association, Bengaluru, Karnataka, India, 14th November 2025.
- Tosh C, Nagarajan S, Manoj Kumar, Murugkar HV, Sanyal A (2025) Laboratory surveillance for avian influenza: Current initiatives and way forward. Influenza Chintan Shivir- Strengthening Interministerial and Intersectoral convergence, Organized by NCDC, Ministry of Health & Family Welfare, Government of India in Collaboration with WHO India, New Delhi, 22-23 December 2025.

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

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TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOA 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)	
ISO/IEC 17025: 2017	PDF	Certificate TC-14285.pdf.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Real time RT-PCR	National Accreditation Board for Testing and Calibration Laboratories

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

Yes

The laboratory is a certified BSL3 biocontainment laboratory and has a robust biorisk management system to handle the pathogens.

TOR9: SCIENTIFIC MEETINGS

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

Yes

National/ International	Title of event	Co-organiser	Date	location	No. Participants
International	South Asia Avian Disease Network Meeting: Preparedness for avian influenza and other avian diseases in South Asia	WOAH RRAP, Tokyo, Japan	2025-08-19	Virtual	16

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

Yes

Title of event	Date	location	Role (speaker, presenting poster, short communications)	Title of the work presented
WOAH Regional Workshop on Avian Disease Prevention and Control in Asia and the Pacific 2025	2025-08-25	Sapporo, Japan	Speaker	Laboratory activity and research updates of ICAR-National Institute of High Security Animal Diseases, India

TOR10: NETWORK WITH WOAHP REFERENCE LABORATORIES

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

No

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

Yes

NETWORK/DISEASE	ROLE OF YOUR LABORATORY (PARTICIPANT, ORGANISER, ETC)	NO. PARTICIPANTS	PARTICIPATING WOAHP REF. LABS
Regional network for poultry diseases in Asia and the Pacific	Participant	26	9

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?

Yes

Purpose of the proficiency test:	Role of your Reference Laboratory (organiser/ participant)	No. participating Laboratories	Participating WOAHP Ref. Labs/ organising WOAHP Ref Lab
OFFLU PT program – Influenza A virus PCR	Participant	8	Organised by CSIRO-ACDP, Australia
Asia-Pacific Terrestrial PT program: Avian Diseases PCR	Participant	33	Organised by CSIRO-ACDP, Australia
Proficiency Testing 2025 Avian influenza and Newcastle Disease	Participant	95	Organized by IZSVe, Padova, Italy

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?

No

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?

No

No

TOR12: EXPERT CONSULTANTS

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

No

29. Additional comments regarding your report:

No