

OIE Reference Laboratory Reports Activities

Activities in 2020

This report has been submitted : 2021-01-14 15:59:59

Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Marek s disease
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Website:	https://www.pirbright.ac.uk/diagnostics-surveillance/mareks-disease-virus-reference-laboratory
Name (including Title) of Head of Laboratory (Responsible Official):	Nair Venugopal
Name (including Title and Position) of OIE Reference Expert:	Nair Venugopal
Which of the following defines your laboratory? Check all that apply:	Academic

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			
Direct diagnostic tests			
Quantitative PCR test for Marek's disease diagnosis	No	333	245
Virus isolation in cell culture	Yes	16	0
Vaccine virus identification and titration	Yes	3	5

**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?

No

4. Did your laboratory produce vaccines?

Yes

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
SPAIN	May_Dec	223	223
IRELAND	May_Dec	22	22
INDIA	May_Dec	5	5

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

Yes

Name of the OIE Member Country receiving a technical consultancy	Purpose	How the advice was provided
IRAQ	Advice on differentiation of vaccine and virulent viruses	Provided a protocol for differentiation between virulent MDV strains and CVI988 vaccine strain. Provided our publication on this method, showing primer design and validation
SAUDI ARABIA	Advice on MD vaccine virus monitoring by real-time PCR on feather samples	Appropriate protocol was prepared and provided

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
Stability and efficacy of recombinant HVT vaccines	8 weeks	stability and efficacy study	Research Collaborator	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?

No

If the answer is no, please provide a brief explanation of the situation:
could not do any studies due to covid-19 restrictions

12. Did your laboratory disseminate epizootiological data that had been processed and analysed?

No

If the answer is no, please provide a brief explanation of the situation:
could not do any studies due to covid-19 restrictions

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: 7

1. Zhi jian Zhu, Man Teng, Hui zhen Li, Lu ping Zheng, Jing ling Liu, Shu jun Chai, Yongxiu Yao, Venugopal Nair, Gaiping Zhang and Jun Luo (2020) Marek's disease virus (Gallid alphaherpesvirus 2, GaHV-2)-encoded miR-M2-5p simultaneously promotes cell proliferation and suppresses apoptosis through RBM24 and MYOD1-mediated signaling pathways. *Frontiers in Microbiology* (in press).

2. Li K, Liu Y, Xu Z, Zhang Y, Yao Y, Nair V, Liu C, Zhang Y, Gao Y, Qi X, Cui H, Gao L, Wang X (2020) Prevention of avian retrovirus infection in chickens using CRISPR/Cas9 delivered by Marek's disease virus Molecular Therapy: Nucleic Acid doi: <https://doi.org/10.1016/j.omtn.2020.06.009>.

3. Jun Luo, Man Teng, Na Tang, Ahmedali Mandviwala, Vishwanatha R.A.P. Reddy, Sue Baigent, Yongxiu Yao and

- Venugopal Nair (2020). Efficient mutagenesis of virus-encoded microRNAs by CRISPR/Cas9-based gene editing system. *Viruses* 2020, 12, 466; doi:10.3390/v12040466
4. Vishwanatha Reddy, Na Tang, Yashar Sadigh, Yongxiu Yao, and Venugopal Nair (2020) Bcl-2 homolog Nr-13 (vNr-13) encoded by herpesvirus of turkeys inhibits apoptosis during early virus replication. *Journal of Virology* doi:10.1128/JVI.02049-19.
5. Na Tang, Yaoyao Zhang, Yashar Sadigh, Katy Moffat, Zhiqiang Shen, Venugopal Nair and Yongxiu Yao (2020) Generation of a triple insert live avian herpesvirus vectored vaccine using CRISPR/Cas9-based gene editing. *Vaccines* 8 (1) 97 DOI: 10.3390/vaccines8010097.
6. Yashar Sadigh, Abdessamad Tahiri-Alaoui, Stephen Spatz, Venugopal Nair, and Paolo Ribeca (2020). Pervasive differential splicing in Marek's Disease Virus can discriminate CVI-988 vaccine strain from RB-1B virulent strain in CEF. *Viruses* <http://dx.doi.org/10.3390/v12030329>.
7. A. Yilmaz, N. Turan, E. Bayraktar, H.E. Tali, O. Aydin, S. Umar, B. Cakan, JR. Sadeyen, S. Baigent, M. Iqbal, V. Nair and H. Yilmaz (2020) Molecular characterization & phylogenetic analysis of MDV in Turkish Layer Chickens. *British Poultry Science*. <https://doi.org/10.1080/00071668.2020.1758301>.

b) International conferences: 2

1. V Nair was invited to give a talk on 'Novel vaccine technique to target multiple poultry diseases using CRISPR/Cas9 system' at the 20th World Vaccine Congress Washington on 28th September 2020
2. V Nair gave a talk on 'Innovations in control strategies for protecting avian health' at the International Symposium Important Animal Diseases and Zoonosis held at Yangzhou University, China on 15-8-20

c) National conferences: 0

d) Other:

(Provide website address or link to appropriate information) 3

1. British and Chinese scientists join forces to fight avian diseases
<https://newseu.cgtn.com/news/2020-01-28/British-and-Chinese-scientists-join-forces-to-fight-avian-diseases-NBCaLdnfCo/index.html>
2. Microbiology Society- An interview with Prof. Venugopal Nair
<https://microbiologysociety.org/membership/meet-our-members/focus-area-viruses/an-interview-with-professor-venugopal-nair.html>
3. Magazine article 3. <https://www.bfrepa.co.uk/wp-content/uploads/2020/07/Ranger-March-2020.pdf>

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

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
Student placement internship	Italy	1

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)
UKAS Accreditation 17025	MDVRL 17025 accreditation UKAS document.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Quantitative PCR diagnosis of Marek's disease virus	UKAS 17025

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?

Not applicable (Only OIE Reference Lab. designated for disease)

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?

Not applicable (Only OIE Reference Lab. designated for disease)

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?

Not applicable (Only OIE Reference Lab. designated for disease)

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?

No

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

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:

Following the 17025 accreditation the Reference Laboratory has significantly increased its activities and is receiving increased submissions for diagnosis, advise and training. While most of the samples were national previously, increasing number of activities are international. While most of the increased activities are carried out with the funds from the host institute or from the clients, we are keen to carry out further research and development into areas such as sequencing to look at the molecular epidemiology in different geographic regions of the world. We are making a request to OIE for funding some of the Research and Development activities.