

OIE Reference Laboratory Reports Activities

Activities in 2013

This report has been submitted : 2014-02-24 16:23:01

Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Rabies
Address of laboratory:	Institute of Molecular Virology and Cell Biology Friedrich-Loeffler-Institut Federal Research Institute for Animal Health Südufer 10 17493 Greifswald - Insel Riems GERMANY
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Name (including Title) of Head of Laboratory (Responsible Official):	Prof. Dr Thomas C. Mettenleiter
Name (including Title and Position) of OIE Reference Expert:	Dr Thomas Müller
Which of the following defines your laboratory? Check all that apply:	Governmental

ToR: 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			
RFFIT	yes	272	40
FAVN	yes	26	
Direct diagnostic tests			
FAT	yes	603	15
RTCIT	yes	22	2
RT-PCR	yes/no	90	28
sequencing	no	50	50

**ToR: 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
biotynilated anti-N MAb	dRIT	yes	0	5ml	3	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" 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: 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: 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
UNITED ARAB EMIRATES	April	0	14

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

No

ToR: 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)
inter-laboratory comparison among the network of OIE-RL for rabies of the direct rapid immunohistochemical test (dRIT)	6 months	suitability of biotinylated MAb for dRIT	OIE-RL, AHVLA, Weybridge, UK OIE-RL, ANSES Nancy, France OIE-RL Ottawa-Nepean, Canada OIE-RL Onderstepoort, RSA
interlaboratory comparison test	2 months	calibration of an OIE rabies seum of dog origin	OIE-RL, AHVLA, Weybridge, UK OIE-RL, CDC Atlanta, USA OIE-RL, ANSES Nancy, France OIE-RL Ottawa-Nepean, Canada OIE-RL Onderstepoort, RSA

ToR: 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

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

No

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: 13

Freuling C, Klöss D, Schröder R, Kliemt A, Müller T. 2012. European rabies situation and surveillance: The Rabies Bulletin Europe as pivotal tool for epidemiology and for general information on rabies. Rev sci tech. Off. Int. Epiz, 31 (3), 799-807

Fischer M, Hoffmann B, Wernike K, Freuling CM, Müller T, Aylan O, Brochier B, Cliquet F, Echevarría JE, Hostnik P, Huovilainen A, Isaksson M, Kooi EA, Lenihan P, Turcitu M, Rasmussen TB, Revilla-Fernández S, Smreczak M, Wilson C, Beer M. 2013. Lyssaviruses via reverse transcription PCR – results of a ring trial among European laboratories. PLoSOne 8 (3) e58372

Scott TP, Fischer M, Hoffmann B, Markotter W, Müller T, Nel LH. Complete Genome and Molecular Epidemiological

- Data Infer the Maintenance of Rabies among Kudu (*Tragelaphus strepsiceros*) in Namibia. *PLoS One*. 2013;8(3):e58739. doi: 10.1371/journal.pone.0058739. Epub 2013 Mar 20.
- Banyard AC, Horton DL, Freuling C, Müller T, Fooks AR. Control and prevention of canine rabies: The need for building laboratory-based surveillance capacity. *Antiviral Research*. Antiviral Res. 2013 Jun;98(3):357-64. doi: 10.1016/j.antiviral.2013.04.004. Epub 2013 Apr 17.
- Robardet E, Andrieu S, Rasmussen TB, Dobrostana M, Horton DL, Hostnik P, Jaceviciene I, Juhasz T, Müller T, Mutinelli F, Servat A, Smreczak M, Vanek E, Vázquez-Morón S, Cliquet F. 2013. Comparative assay of fluorescent antibody test results among twelve European National Reference Laboratories using various anti-rabies conjugates. *J Virol Methods*. 2013 Jul;191(1):88-94. doi: 10.1016/j.jviromet.2013.03.027. Epub 2013 Apr 8.
- Freuling CM, Hampson K, Selhorst T, Schröder R, Meslin FX, Mettenleiter TC, Müller T. The elimination of fox rabies from Europe: determinants of success and lessons for the future. *Philos Trans R Soc Lond B Biol Sci*. 2013 Jun 24;368(1623):20120142. doi: 10.1098/rstb.2012.0142. Print 2013.
- Gilbert A, Fooks AR, Hayman DTS, Horton DL, Müller T, Plowright R, Peel AJ, Bowen R, Wood JLN, Mills J, Cunningham AA, Rupprecht CE. 2013. Deciphering serology to further understand the ecology of infectious diseases in wildlife. *Ecohealth*. 2013 Aug 6. [Epub ahead of print]
- Vos A, Nolden T, Habla C, Finke S, Freuling CM, Teifke J, Müller T. Raccoons (*Procyon lotor*) in Germany as potential reservoir species for Lyssaviruses. *Eur J Wildl Res* (2013) 59:637-643
- Freuling CM, Abendroth D, Beer B, Fischer M, Hanke D, Hoffmann B, Höper D, Just F, Mettenleiter TC, Schatz J, Müller T. Molecular diagnostics for the detection of Bokeloh bat lyssavirus in a bat from Bavaria, Germany. *Virus Res*. 2013 Aug 7. doi:pii: S0168-1702(13)00263-3. 10.1016/j.virusres.2013.07.021. [Epub ahead of print]
- Schatz J, Ohlendorf B, Busse P, Pelz G, Dolch D, Teubner J, Encarnaçao J A, Mühle RU, Fischer M, Hoffmann B, Kwasnitschka L, Balkema-Buschmann A, Mettenleiter TC, Müller T, Freuling CM. Twenty years of active bat rabies surveillance in Germany: a detailed analysis and future perspectives. *Epidemiol Infect*. 2013 Sep 6:1-12. [Epub ahead of print]
- Vos A, Kretzschmar A, Ortmann S, Lojkic I, Habla C, Müller T, Kaiser C, Hundt B, Schuster P. 2013. Oral vaccination of small Indian mongoose against rabies. *Journal of Wildlife Diseases*, 49(4):1033-1036.
- Kgaladi J, Wright N, Coertse J, Markotter W, Marston D, Fooks AR, Freuling C, Müller T, Sabeta CT, Nel LH. Diversity and epidemiology of Mokola virus. *PLoSNTD PLoS Negl Trop Dis* 7(10): e2511. doi:10.1371/journal.pntd.0002511
- Vos A, Ün H, Hampson K, de Balogh K, Aylan O, Freuling C, Müller T, Johnson N. The Economic Impact of Bovine Rabies in Turkey, 2008 - 2011. *Epidemiology and Infection* (in press). doi:10.1017/S0950268813002811
- b) International conferences: 9
 Müller T, Freuling C. Rabies Surveillance - challenges. Meeting of the Partners for Rabies Prevention, Wolfsberg, Switzerland, July
- Müller T, Wysocki P, Freuling C. Hopes and challenges in wildlife rabies control - the fox rabies example from Europe. World Veterinary Congress, Prague, Czech Republic, September 17-20, 2013
- Müller T. Rabies elimination in Europe - a success story. World Rabies Day - New Concepts in Rabies Vaccines & Vaccinology, "Les Pensières" Fondation Mérieux Conference Center, Veyrier du Lac, France, September 29-30, 2013
- Müller T, Freuling C. Fox Rabies Blueprint - an update. Meeting of the Partners for Rabies Prevention, Toronto, Canada, October 27, 2013
- Freuling CM, Abendroth D, Beer B, Fischer M, Hanke D, Hoffmann B, Höper D, Just F, Mettenleiter TC, Schatz J, Müller T. Molecular diagnostics for the detection of Bokeloh bat lyssavirus in a bat from Bavaria, Germany. Rabies in the Americas Conference, Toronto, Canada, October 27-31, 2013
- Freuling C, Höper D, Hanke D, Duchow K, von Messling V, Beer M, Cichutek K, Mettenleiter TC, Müller T. Novel insights into the genetic composition of attenuated oral rabies vaccines. Molecular diagnostics for the detection of Bokeloh bat lyssavirus in a bat from Bavaria, Germany. Rabies in the Americas Conference, Toronto, Canada,

October 27-31, 2013

He X, Rieger K, Müller T, Freuling C, Köllner B. Identification of immunoglobulins and immunoregulatory molecules of three European bat (*Eptesicus*, *Myotis* and *Nyctalus*) to investigate immune mechanisms involved in resistance and immunity against Lyssaviruses. Rabies in the Americas Conference, Toronto, Canada, October 27-31, 2013

He X, Rieger K, Müller T, Freuling C, Köllner B. Cloning of IFN-kappa and omega from European bat, *Eptesicus serotinus* and functional characterization of anti-viral resistance mechanisms in bats investigated in vitro. Rabies in the Americas Conference, Toronto, Canada, October 27-31, 2013

Müller T, Abendroth D, Beer B, Fischer M, Hanke D, Hoffmann B, Höper D, Just F, Mettenleiter TC, Schatz J, Freuling CM. Molecular diagnostics for the detection of Bokeloh bat lyssavirus in a bat from Bavaria, Germany. Meeting of the NRL for Rabies of the EU MS, Athens, Greece, November 13-14, 2013

c) National conferences: 1

Schatz J, Teifke J P, Mettenleiter T, Aue A, Stiefel D, Müller T, Freuling CM. Lyssavirus distribution in naturally infected bats from Germany. National Zoonoses Symposium, Berlin, Germany, September 18-19, 2013

d) Other:

(Provide website address or link to appropriate information) 1

www.who-rabies-bulletin.org

ToR: 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: 1

b) Seminars: 0

c) Hands-on training courses: 1

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
a	Turkey	1
c	Botswana	1

ToR: 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 certified according to an International Standard?

No

Explain Quality Management System in adoption process or currently in place
ISO 17025

16. Is your laboratory accredited by an international accreditation body?

No

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 2012, Chapter 1.1.3* or *Manual of Diagnostic Tests for Aquatic Animals 2012, Chapter 1.1.1*)

ToR: To organise and participate in scientific meetings on behalf of the OIE

18. Did your laboratory organise scientific meetings on behalf of the OIE?

Yes

National/ International	Title of event	Co-organiser	Date (mm/yy)	Location	No. Participants
National	Annual Meeting with the rabies Units of the provincial veterinary laboratories of Turkey	ELTK VCRI Ankara	March 2013	Elazig	12

19. Did your laboratory participate in scientific meetings on behalf of the OIE?

No

ToR: 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.
proficiency test for rabies antibodies titration	participant	>50	EU-RL ANSES Nancy, France
FAT - RTCIT- RT-PCR interlaboratory comparison test	participant	43	EU-RL ANSES Nancy, France

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?

Yes

Title of the project or contract	Scope	Name(s) of relevant OIE Reference Laboratories
inter-laboratory comparison among the network of OIE-RL for rabies of the direct rapid immunohistochemical test (dRIT) for diagnosis of rabies	dRIT	OIE-RL Ottawa-Nepean, Canada OIE-RL, AHVLA Weybridge, UK OIE-RL ANSES Nancy, France OIE-RL Onderstepoort, RSA
Genetic diversity of Mokola Viruses	Genetic characterization Phylogenetic analysis	OIE-RL AHVLA Weybridge, UK OIE-RL Onderstepoort, RSA
Complex epidemiology of a zoonotic pathogen in a culturally diverse Region	Genetic characterization Phylogenetic analysis	OIE-RL AHVLA Weybridge, UK

ToR: 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
proficiency test for rabies antibodies titration	>50	<input checked="" type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
FAT - RTCIT- RT-PCR interlaboratory comparison test	43	<input checked="" type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East

ToR: 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: