

# OIE Reference Laboratory Reports Activities

## *Activities in 2015*

**This report has been submitted : 2016-01-15 14:23:46**

<b>Name of disease (or topic) for which you are a designated OIE Reference Laboratory:</b>	Bluetongue
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<b>Name (including Title) of Head of Laboratory (Responsible Official):</b>	Giovanni Savini Acting Director General Istituto Zooprofilattico Sperimentale dell' Abruzzo e del Molise " G. Caporale", Teramo, Italy
<b>Name (including Title and Position) of OIE Reference Expert:</b>	Giovanni Savini DVM, PhD Head of the Virology Department Istituto Zooprofilattico Sperimentale dell' Abruzzo e del Molise " G. Caporale", Teramo, Italy
<b>Which of the following defines your laboratory? Check all that apply:</b>	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
c-ELISA	Yes	10.203	251
VNT	Yes	91.827	44.349
Direct diagnostic tests		Nationally	Internationally
Genotype specific Real-time RT-PCR	Yes	2.345	344
Serotype specific PCR real time	No	22.523	294
KC + VERO cell culture	Yes	613	49
UE + VERO cell culture	Yes	36	
VERO cell culture - Virus titration	No	49	
Microscopic examination Culicoides imicola identification	No	5.407	60
Microscopic examination Culicoides spp.	No	6.841	60
PCR Culicoides obsoletus/scoticus/montanus identification	No	63	
PCR Culicoides dewulfi identification	No	3	

**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
BTV2/It field 2001	Real Time RT-PCR	provide	0	1 ml	1	<input checked="" type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East
Control positive serum for c-ELISA	c-ELISA	Produced	6.968 ml			<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East
Control negative serum for c-ELISA	c-ELISA	Produced	19.793 ml			<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East
c-ELISA antigen for 299.025 tests	c-ELISA	Produced	209 ml			<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East
VP7 monoclonal antibody	c-ELISA	Produced	39,3 ml			<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input 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?

Yes

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

No

Name of the new test or diagnostic method or vaccine developed	Description and References (Publication, website, etc.)
Molecular typing of Bluetongue Viruses using nCounter Analysis System platform	Oral presentation "Molecular typing of Bluetongue Viruses using nCounter Analysis System platform" at IX EPIZONE Annual Meeting. Montpellier, France, September 2015; oral presentation "Genotipizzazione del virus della Bluetongue tramite una piattaforma di RNA Microarray basata su tecnologia Nanostring" at 2. XI Congresso Nazionale SI.Di.L.V. Teramo, June 2015

**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
CROATIA	January-December	0	273
ALBANIA	February	27	0
MONTENEGRO	July	92	0
BRAZIL	May-December	1.793	0
KAZAKHSTAN	June	14	0

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
ALGERIA	To assist the Institut National de la Médecine Vétérinaire (INMV) for the surveillance and diagnosis of BT	in loco
CROATIA	Support to interpret diagnostic results	Remote assistance
TUNISIA	Support to interpret diagnostic results, to confirm preliminary findings and to draw a national surveillance plan	Remote assistance
BULGARIA	Support to interpret diagnostic results	Remote assistance
MOROCCO	Support to draw a surveillance plan in Southern areas of the Country	In loco
NAMIBIA	To assist Central Veterinary Laboratory of Windhoek for the surveillance and diagnosis of BT	In loco
AUSTRIA	Training course: "Early Detection of Animal Diseases in Post Flooding Environment, with Emphasis on Water Borne and Vector Borne Diseases"	In loco

***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)
Emerging viral vector borne diseases (VMERGE)	3 years	Strengthening surveillance systems in the North Africa countries	CIRAD, Paris(F); CReSA, Bellaterra (S); The Pirbright Institute, Pirbright (UK); NERC, Swindon Wiltshire (UK); ANSES, Maisons-Alfort (F); FLI, Greifswald-Insel Riems (G); Euro-AEGIS, Zoersel (B); DLO-CVI Wageningen (NL); FAO, Rome (I); Pathoquest, Paris(F); IAV, Rabat (MO); ISRA, Dakar (SN); FVM-AU, Alexandria (ET); IRVT, Tunis (TN); CNERV, Nouakchott (RIM).
Transnational network for early detection of emerging animal diseases in the Mediterranean Basin	3 years	Development and validation of a network for the collection and the analysis of data generated from surveillance systems; analysis of environmental variables related to vector/disease association.	Biopharma; Institut de la Recherche Vétérinaire; National Center for Zoonoses and Food Safety.
UETWALG214 - Mise à niveau des laboratoires de l'Institut national de la médecine vétérinaire aux standards européens et internationaux (DZ/13/ENP/HE/17) (TW ALGERIA INMV SENIOR) 1 giugno	3 years	Strengthening diagnostic capabilities of National Laboratories on Bluetongue and other diseases	INMV, Algeri (A) IZSUM, Perugia (I); IZSLER, Brescia (I) e IZSVE, Padova (I)
AFAATE0914 - VectorNet: a European network for sharing data on the geographic distribution of arthropod vectors, transmitting human and animal disease agents	4 years	Creating a European network for sharing data on the geographic distribution of arthropod vectors, transmitting BT	AVIA Gis ECDC EFSA
Can we predict emergence and spread of Culicoides-borne arboviruses in Europe according to genetic drivers of vector competence and virome diversity? (Acronym: CuliOme). ANIHW call2	3 years	Study to compare vector competence of different BTV strains/serotypes	Pirbright Institute (UK), European Bioinformatics Institute (UK) e Centre de coopération internationale en recherche agronomique pour le développement (CIRAD, Francia)
Origin and evolution of recent vector-borne virus incursions in the Mediterranean Basin	3 years	Updating the BT epidemiological situation in Northern African countries and develop a new diagnostic tool capable of identifying and distinguishing BTV serotypes in one step	Institut de la Recherche Vétérinaire Biopharma Croatian Veterinary Institute

Study on the clinical and epidemiological aspects of vector borne diseases and the risk factors for their emergence.	3 years	Detection and characterization of Orbiviruses circulating in the Etosha National Park (ENP, Namibia); investigation of the transmission cycles in the area between insect and vertebrate populations; assessment of the wild vertebrate role in the epidemiology of Orbiviruses in ENP.	Central Veterinary Laboratory, Namibia Ministry of Environment and Tourism, Namibia
OIE twinning contract on the establishment of OIE collaborating centre on camel diseases in Abu Dhabi-UAE	5 years	The network should build up processes and tools to facilitate the diagnosis and control of the most important diseases of camelids, share information and standardize and validate diagnostic tests in line with OIE standards and guidelines.	IZSLER, Brescia (I), IZSSi (I), Italian Ministry of Health, Abu Dhabi Food Control Authority Head Quarters (ADFQA) (UAE), OIE

**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

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

Yes

**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: 8

- Goffredo M., Catalani M., Federici V., Portanti O., Marini V., Mancini G., Quaglia M., Santilli A., Teodori L., Savini G. 2015 Vector species of Culicoides midges implicated in the 2012-2014 Bluetongue epidemics in Italy. Veterinaria Italiana 2015, 51(2), 131-138. doi: 10.12834/VetIt.771.3854.1 Accepted: 06.06.2015 | Available on line: 30.06.2015
- Savini G. Bluetongue: a disease that does not speak 'one tongue' only. Vet Ital. 2015 Dec 31;51(4):247-8.
- Maclachlan NJ, Zientara S, Savini G, Daniels PW. Epizootic haemorrhagic disease. Rev Sci Tech. 2015 Aug;34(2):341-51. Review.
- Maclachlan NJ, Mayo CE, Daniels PW, Savini G, Zientara S, Gibbs EP. Bluetongue. Rev Sci Tech. 2015 Aug;34(2):329-40.
- Janowicz A, Caporale M, Shaw A, Gulletta S, Di Gialleonardo L, Ratinier M, Palmarini M. 2015 Multiple genome segments determine virulence of bluetongue virus serotype 8. J Virol. 2015 May 15;89(10):5238-49. doi: 10.1128/JVI.00395-15. Epub 2015 Mar 11.
- Bosnić S., Beck R., Listeš E., Lojkić I., Savini G., Roić B. 2015 Bluetongue virus in Oryx antelope (Oryx leucoryx) during the quarantine period in 2010 in Croatia. Veterinaria Italiana 2015, 51(2), 139-143. doi: 10.12834/VetIt.385.1795.2 Accepted: 09.04.2015 | Available on line: 30.06.2015
- Stewart M., Hardy A., Barry G., Pinto R.M., Caporale M., Melzi E., Hughes J., Taggart A., Janowicz A., Varela M., Ratinier M., Palmarini M. 2015 Characterisation of a second open reading frame in genome segment 10 of bluetongue virus. DOI: 10.1099/jgv.0.000267
- Jacquet S., C Garros C., E Lombaert E., C Walton C., J Restrepo J., X Allene X., T Baldet T., C Cetre-Sossah C., A Chaskopoulou A., J-C Delecalle J-C., M. Goffredo M., G Venter G., M Zimba M., T Balenghien T., H Guis H., C



Chevillon C., J Bouyer J., K Huber K.. 2015 Colonization of the Mediterranean Basin by the vector biting midge species *Culicoides imicola*: an old story. *Molecular Ecology* 10/2015; DOI:10.1111/mec.13422.

b) International conferences: 9

1. 83rd OIE General Session. Paris, France, May 2015.
2. Conference "Emerging infections in the Mediterranean basin and Eastern Europe". Erice (TP), Italy, May 2015.
3. IX EPIZONE Annual Meeting. Montpellier, France, September 2015
4. BT annual meeting. Sunningdale, UK, United Kingdom, November 2015.
5. IECID Impact of Environmental changes on Infectious Diseases. Melia Sitges, Spain, March 2015
6. 11th meeting of the Joint Permanent Committee of the Mediterranean Animal Health Network (REMESA). Algeri, Algeria, November 2015
7. Training course: "Early Detection of Animal Diseases in Post Flooding Environment, with Emphasis on Water Borne and Vector Borne Diseases" Vienna 15-26 June 2015.
8. Bluetongue Forum . Budapest, Hungary, May 2015
9. XVII Congresso Latino-americano de Buiatria e XI Congresso Brasileiro de Buiatria. San Paolo, Brazil, July 2015

c) National conferences: 7

1. I risultati della ricerca corrente condotta dall'Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale". Anno 2014. Teramo, June 2015
2. XI Congresso Nazionale SI.Di.L.V. Teramo, June 2015
3. Giornata di studio sulla Bluetongue. Teramo, October 2015
4. Convegno SIVAR. Roma, November 2015.
5. Giornata studio SIPAOC. Perugia, November 2015.
6. 13° National Congress of the Italian Society of Virology. Orvieto, September 2015.
7. Convegno "Bluetongue: tra realtà e prospettive un bilancio sull'attuale situazione in Italia e nel mondo". Portici, February 2015.

d) Other:

(Provide website address or link to appropriate information) 1

A public web site ([www.izs.it](http://www.izs.it)) disseminating information and data on Bluetongue is continuously updated in order to have:

- the latest on the Italian and European Regulations issued by the Italian Ministry of Health;
- the current (2015) and past (2008-2014) epidemiological situations in Italy;
- weekly updated maps on entomological and serological surveillance activities (bluetongue national information system);
- the current epidemiological situations in the Mediterranean Basin;
- rules and regulations

an scientific documents on-line.

**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: 5

b) Seminars: 0

c) Hands-on training courses: 0

d) Internships (&gt;1 month): 2

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	Lebanon	1
a	Croatia	1
a	Montenegro	2
a	Algeria	10
a	Bulgaria	1
d	Brazil	2
d	Lybia	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 certified according to an International Standard?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)
UNI CEI EN ISO/IEC 17025:2005	Certificate_of_accreditation_ISO_17025_IZSAM.pdf

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

Yes

Test for which your laboratory is accredited	Accreditation body
VNT	ACCREDIA
c-ELISA	ACCREDIA
Real Time RT PCR	ACCREDIA
BTV isolation	ACCREDIA

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 2014, Chapter 1.1.3a*)

**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?

Yes

National/ International	Title of event	Co-organiser	Date (mm/yy)	Location	No. Participants
National	I risultati della ricerca corrente condotta dall'Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale". Anno 2014	Italian Ministry of Health	06/15	Teramo (Italy)	Experts
National	XI Congresso Nazionale SI.Di.L.V.	Italian Society of Veterinary Laboratory Diagnosticians; University of Teramo, Veterinary Medicine faculty	09/15	Montesilvano (PE) (Italy)	Experts
National	BT National Meeting	Italian Ministry of Health	10/15	Teramo (Italy)	II.ZZ.SS

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

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
convegno SIVAR	11/15	Rome (Italy)	Speaker	La Blue Tongue in Italia: presente e strategie future
giornata studio SIPAOC	11/15	Perugia(Italy)	Speaker	Stato dell'arte e prospettive nella gestione della Bluetongue
Convegno "Bluetongue: tra realtà e prospettive un bilancio sull'attuale situazione in Italia e nel mondo"	02/15	Portici(Italy)	Speaker	I vettori della Bluetongue: aspetti entomologici dei recenti focolai in Italia
9th Annual EPIZONE meeting	09/15	Montpellier (France)	Speaker	Molecular typing of Bluetongue Viruses using nCounter Analysis System platform
XVI Congresso S.I.Di.L.V	09/15	Montesilvano (Italy)	Speaker	Genotipizzazione del virus della Bluetongue tramite una piattaforma di RNA Microarray basata su tecnologia Nanostring
9th Annual EPIZONE meeting	09/15	Montpellier(France)	Poster	Culicoides dewulfi and its possible role as Bluetongue vector in Italy in 2014
9th Annual EPIZONE meeting	09/15	Montpellier(France)	Poster	Multiple Culicoides species of the Pulicaris complex implicated in Bluetongue virus transmission in Italy, 2012-2014
9th Annual EPIZONE meeting	09/15	Montpellier(France)	Poster	Bluetongue virus serotype 2 does not cross the placenta of late term pregnant cows
IECID Impact of Environmental changes on Infectious Diseases	03/15	Melia Sitges (Spain)	Poster	Climate change and the spread of vector-borne diseases: combining spatial modelling of population range expansion with approximate Bayesian computation of genetic data to compare invasion scenarios for the bluetongue virus vector Culicoides imicola

“Complementing Conventional Approaches with Nuclear Techniques towards Flood Risk Mitigation and Post-Flood Rehabilitation Efforts in Asia” (Code: RAS/5/069).	06/15	Vienna (Austria)	Speaker	Vector Borne Diseases with particular emphasis on Bluetongue and West Nile
Bluetongue forum	05/15	Budapest (Hungary)	Speaker	Vaccination for Bluetongue: the Italian Experience
XVII Congresso Latino-americano de Buiatria e XI Congresso Brasileiro de Buiatria	07/15	San Paolo (Brazil)	Speaker	Bluetongue today: an old virus in a new environment

**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: <sup>1</sup>	Role of your Reference Laboratory (organiser/ participant)	No. participants	Participating OIE Ref. Labs/ organising OIE Ref. Lab.
Detection of BTV and serotyping in blood sample (Real Time RT-PCR)	Participant	43	42/1
Detection of BTV antibody in serum sample (c-ELISA)	Participant	43	42/1

<sup>1</sup> 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
OIE Bluetongue reference laboratories network (OIE-BTNet)	Sharing reagents, updating, revising and validating the protocols of old procedures and adding new diagnostic procedures	All the OIE BT reference laboratories

**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 <sup>1</sup>	No. participating laboratories	Region(s) of participating OIE Member Countries
Detection of BTV and serotyping in blood sample (Real Time RT-PCR)	14	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Detection of BTV antibody in serum sample (c-ELISA)	32	<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?

Yes

Kind of consultancy	Location	Subject (facultative)
review of OIE Manual	Updating and revising the protocols of old procedures and adding new diagnostic procedures	Revision of the OIE Manual chapter on Bluetongue
Ad hoc group	Sicily	BT outbreaks
Ad hoc group	Sardinia	BT outbreaks
Ad hoc group	Italian Ministry of Health (Rome)	BT outbreaks

25. Additional comments regarding your report: