

# OIE Reference Laboratory Reports Activities

## *Activities in 2019*

**This report has been submitted : 2020-01-21 10:06:50**

<b>Name of disease (or topic) for which you are a designated OIE Reference Laboratory:</b>	Infection with ( <i>Bonamia exitiosa</i> , <i>B. ostreae</i> )
<b>Address of laboratory:</b>	Laboratoire de Génétique Aquaculture et Pathologie de Mollusques Marins 17390 La Tremblade FRANCE
<b>Tel.:</b>	+33 5 46.76.26.10
<b>Fax:</b>	+33 5 46.76.26.11
<b>E-mail address:</b>	iarzul@ifremer.fr
<b>Website:</b>	<a href="http://www.eurl-mollusc.eu/">http://www.eurl-mollusc.eu/</a>
<b>Name (including Title) of Head of Laboratory (Responsible Official):</b>	Christian Béchemin
<b>Name (including Title and Position) of OIE Reference Expert:</b>	Isabelle Arzul (Cadre de Recherche)
<b>Which of the following defines your laboratory? Check all that apply:</b>	Other: EPIC

**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
0	Non	0	0
Direct diagnostic tests		Nationally	Internationally
Histologie	Oui	552	80
Cytologie	Oui	51	0
PCR conventionnelle	Oui	17	0
PCR en temps réel Multiplex 1	Non	3023	0
PCR en temps réel Multiplex 2	Non	1292	0
Hybridation in situ	Oui	0	1

**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
Blocs de paraffine	Histologie et hybridation in situ	0	0	7	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
Lames histologiques	Histologie	0	30	114		<input 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
Lames cytologiques	Cytologie	0	2	0	1	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Tissus fixés en éthanol	PCR, PCR en temps réel, séquençage	0	10	6	4	<input checked="" type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Suspensions d'ADN plasmidique	PCR, PCR en temps réel	0	0	14	6	<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 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
RUSSIA	Janvier	10	0
ITALY	Janvier	22	0
NORWAY	Mars	6	0
SPAIN	Mars	23	0
FRANCE	Mars	1	0
THE NETHERLANDS	Juin	11	0
UNITED KINGDOM	Novembre	4	0
NORWAY	Decembre	3	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
NORWAY	Aider à l'utilisation de la PCR pour la détection des parasites à déclaration obligatoire chez l'huître plate <i>Ostrea edulis</i>	Par messagerie électronique: description des essais de PCR disponibles
PORTUGAL	Aider à l'utilisation de la PCR pour la détection de OsHV-1 chez <i>Crassostrea gigas</i>	Par messagerie électronique: description des essais de PCR disponibles
MOROCCO	Identifier les approches diagnostiques les plus adaptées pour la détection des parasites des genres <i>Marteilia</i> et <i>perkinsus</i>	Par messagerie électronique: description des outils diagnostiques recommandés
NORWAY	Classer les individus infectés par <i>Marteilia refringens</i> en fonction de leur niveau d'infection	Par messagerie électronique: décrire l'échelle de niveau d'infection habituellement utilisée
UNITED KINGDOM	Identifier les outils de détection et quantification de <i>Bonamia ostreae</i>	Par messagerie électronique: décrire les outils diagnostiques adaptés
THE NETHERLANDS	Identifier les possibles organismes pathogènes impliqués dans des épisodes de mortalité de moules	Par échange téléphonique: échanger sur les possibles causes de mortalités de moules et les outils diagnostiques pouvant être envisagés

***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
Développement de modèles de gestion basés sur le risque pour les maladies endémiques et exotiques en Nouvelle Zélande	6 mois	Organisation d'un workshop avec des experts sur les parasites du genre <i>Bonamia</i>	Cawthron Institute (NZ)	NEW ZEALAND

**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

If the answer is yes, please provide details of the data collected:
Dans le cadre des activités du Laboratoire de Référence de l'Union Européenne pour les maladies des mollusques, notre laboratoire collecte annuellement les données épidémiologiques concernant les maladies des mollusques à l'échelle européenne

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

Yes

If the answer is yes, please provide details of the data collected:
Dans le cadre des activités du Laboratoire de Référence de l'Union Européenne pour les maladies des mollusques, notre laboratoire synthétise et diffuse les principales informations concernant les maladies des mollusques marins en Europe

**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: 9

Divilov Konstantin, Schoolfield Blaine, Morga Benjamin. (2019) First evaluation of resistance to both a California OSHV-1 variant and a French OSHV-1 microvariant in Pacific oysters. *Bmc Genetics* 20(1): 96

Picot Sandy, Morga Benjamin, Faury Nicole, Chollet Bruno, Dégremont Lionel, Travers Marie-Agnes, Renault Tristan, Arzul Isabelle (2019) A study of autophagy in hemocytes of the Pacific oyster, *Crassostrea gigas*. *Autophagy* 15(10): 1801-1809

Gervais Ophelie, Chollet Bruno, Dubreuil Christine, Durante Serena, Feng Chunyan, Hénard Cyril, Lecadet Cyrielle, Serpin Delphine, Renault Tristan, Arzul Isabelle (2019) Involvement of apoptosis in the dialogue between the parasite *Bonamia ostreae* and the flat oyster *Ostrea edulis*. *Fish & Shellfish Immunology* 93 : 958-964

Feis Marieke E., Goedknecht M. Anouk, Arzul Isabelle, Chenuil Anne, Den Boon Onno, Gottschalck Leo, Kondo Yusuke, Ohtsuka Susumu, Shama Lisa N. S., Thielges David W., Wegner K. Mathias, Luttikhuis Pieternella C.(2019) Global invasion genetics of two parasitic copepods infecting marine bivalves *Scientific Reports* 9(12730) : 16 p

Lupo Coralie, Travers Marie-Agnes, Tourbiez Delphine, Barthélémy Clement, Beaunée Gaël, Ezanno Pauline (2019) Modeling the Transmission of *Vibrio aestuarianus* in Pacific Oysters Using Experimental Infection Data. *Frontiers In Veterinary Science* 6 (142): 15 p

Barbieri Elena S., Medina Cintia D., Vázquez Nuria, Fiorito Carla, Martelli Antonela, Wigdorovitz Andrés, Schwindt Evangelina, Morga Benjamin, Renault Tristan, Parreño Viviana, Barón Pedro J (2019) First detection of Ostreid herpesvirus 1 in wild *Crassostrea gigas* in Argentina. *Journal Of Invertebrate Pathology* 166(107222)

Rodgers Chris, Arzul Isabelle, Carrasco Noèlia, Furones Nozal Dolores (2019) A literature review as an aid to identify strategies for mitigating ostreid herpesvirus 1 in *Crassostrea gigas* hatchery and nursery systems *Reviews In Aquaculture* 11(3): 565-585

Martenot Claire, Faury Nicole, Morga Benjamin, Degremont Lionel, Lamy Jean-Baptiste, Houssin Maryline, Renault Tristan. (2019) Exploring First Interactions Between Ostreid Herpesvirus 1 (OsHV-1) and Its Host, *Crassostrea gigas*: Effects of Specific Antiviral Antibodies and Dextran Sulfate. *Frontiers In Microbiology* 10(1128): 13 p

Bai Chang-Ming, Morga Benjamin, Rosani Umberto, Shi Jie, Li Chen, Xin Lu-Sheng, Wang Chong-Ming (2019) Long-range PCR and high-throughput sequencing of Ostreid herpesvirus 1 indicate high genetic diversity and complex evolution process. *Virology* 526 : 81-90

b) International conferences: 11

Arzul Isabelle (2019) What's new in VIVALDI (Preventing and Mitigating Bivalve farmed diseases) ? 2019 Annual meeting & workshop of NRLs for mollusc diseases and COCKLES project. 19-21 mars 2019, Arcachon, France

Arzul Isabelle (2019) Ostreid Herpes Virus -1 : Emergence, impacts and current research. WKEMOP 2019 - Workshop on Emerging Mollusc Pathogens. 6 & 7 June 2019, Copenhagen

Arzul Isabelle (2019) Situation of European mollusc production regarding diseases- Workshop on Emerging Mollusc Pathogens. 6 & 7 June 2019, Copenhagen

Arzul Isabelle, Canier Lydie, Chollet Bruno, Noyer Mathilde, Serpin Delphine, Garcia Céline (2019) Mortality of giant clam species in the Mediterranean Sea. Annual meeting & workshop of NRLs for mollusc diseases and COCKLES project. 19-21 mars 2019, Arcachon, France

Arzul Isabelle, Chollet Bruno, Noyer Mathilde, Serpin Delphine, Lecadet Cyrielle, Garcia Céline (2019) Survey of pathological conditions in two french cockle beds. Annual meeting & workshop of NRLs for mollusc diseases and COCKLES project. 19-21 mars 2019, Arcachon, France

Canier Lydie, Chollet Bruno, Arzul Isabelle (2019) 2018-ILC-01 for the detection of some mollusc pathogens in histology. Annual meeting & workshop of NRLs for mollusc diseases and COCKLES project. 19-21 mars 2019, Arcachon, France

Chollet Bruno, Morga Benjamin, Degremont Lionel, Noyer Mathilde, Dubreuil Christine, Serpin Delphine, Arzul Isabelle, Garcia Celine (2019). Tissue lesions induced by OsHV-1  $\mu$ Var and their evolution over time. 2019 Annual meeting & workshop of NRLs for mollusc diseases and COCKLES project. 19-21 mars 2019, Arcachon, France.

Garcia Celine, Tourbiez Delphine, Dubreuil Christine, Serpin Delphine, Mesnil Aurelie, Goncalves De Sa Amélie, Chollet Bruno, Noyer Mathilde, Godfrin Yoann, Degremont Lionel, Travers Marie-Agnes (2019). Characterization of *Vibrio aestuarianus* detected in cockles. 2019 Annual meeting & workshop of NRLs for mollusc diseases and COCKLES project. 19-21 mars 2019, Arcachon, France.

Moussa Pouly Mirna, Travers Marie-Agnes, Cauvin Elodie, Thuillier Benoît, Le Piouffe Anthony, Lucas Olivier, Treilles Michaël, Garcia Celine (2019). A MALDI-TOF MS database for fast identification of *Vibrio* spp. potentially pathogenic in marine molluscs . EAFF2019 - 19th International Conference on Diseases of Fish and Shellfish. 9th-12th September 2019, Porto, Portugal .

Arzul Isabelle, Bass David, Lamy Jean-Baptiste, Paillard Christine, Furnoes Dolors (2019) Key outcomes from VIVALDI on preventing and mitigating bivalve diseases. Final conference of the European project VIVALDI (Preventing and Mitigating Bivalve farmed diseases) VIVALDI Final conference 26-28 November 2019-Brest

Merou Nicolas (2019). Investigation of *Bonamia ostreae* and *Marteilia refringens* cycle outside their bivalve host *Ostrea edulis*. NORA 2019 Meeting - 2nd NORA Conference. May 21st - 23rd 2019, Edingburgh, Scotland.

c) National conferences: 4

Garcia Celine, Travers Marie-Agnes (2019). Perspectives de diagnostic en bactériologie. Journées des laboratoires agréés et reconnus, 14 mars 2019.

Garcia Celine, Noyer Mathilde, Serpin Delphine, Chollet Bruno (2019). Comparaisons Interlaboratoires 2018. Journées des laboratoires agréés et reconnus, 14 mars 2019.

Arzul Isabelle, Canier Lydie, Combette Agnes, Serpin Delphine, Chollet Bruno, Noyer Mathilde, Garcia Celine (2019). Les mortalités de grandes nacres en Mer Méditerranée. Conseil de filière coquillages, 26 & 27 mars 2019, Nantes, France.

Moussa Pouly Mirna, Travers Marie-Agnes, Cauvin Elodie, Benoit Fabienne, Thuillier Benoit, Le Piouffle Anthony, Lucas Olivier, Treilles Mickaël, Garcia Celine (2019). Première Version de la base de données Vibrio mollusques pour l'outil MALDI-TOF. Journées des laboratoires diagnostiques agréés et reconnus pour les maladies des mollusques, 14 mars 2019.

d) Other:

(Provide website address or link to appropriate information) 2

OIE Reference Laboratory for marteiliosis and bonamiosis

EU Reference Laboratory for diseases of molluscs

<http://www.eurl-mollusc.eu/>

VIVALDI Project

<http://www.vivaldi-project.eu>

<https://www.facebook.com/vivaldiproject/>

@VivaldiEUProj

**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: 1

b) Seminars: 1

c) Hands-on training courses: 3

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	Chine	2
b	19 pays européens	55
c	19 pays européens	55
c	France	1
c	Portugal	2
c	Irlande	1
c	Royaume Uni	1
c	France	4
c	France	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)
ISO 9001 (Certification)	37849 Ifremer certificat 2019 décembre.pdf
NF EN ISO/CEI 17025 (accréditation)	Cofrac - Notification décision évaluation 2019.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Histologie-Cytologie	Cofrac

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

No

(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?

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
Tester la compétence des laboratoires pour la détection en histologie de certaines maladies des mollusques marins dont les infections à <i>Bonamia</i> sp.)	4	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East
Tester la compétence des laboratoires pour la détection en PCR des parasites <i>Bonamia ostreae</i> et <i>B. exitiosa</i> dans les huîtres plates <i>Ostrea edulis</i>	21	<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)
Participation à un groupe de travail	à distance	Espèces sensibles aux maladies des mollusques à déclaration obligatoire auprès de l'OIE

25. Additional comments regarding your report: