OIE Collaborating Centres Reports Activities

Activities in 2018

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Title of collaborating centre:	Parasites zoonotiques transmis par les aliments Europe
Address of Collaborating Centre:	14, rue Pierre et Marie Curie, 94701 Maisons-Alfort cedex FRANCE
Tel.:	+33 (0)1 49.77.13.50
Fax:	+33 (0)1 49.77.26.26
E-mail address:	isabelle.vallee@ANSES.fr
Website:	www.anses.fr
Name of Director of Institute (Responsible Official):	Dr Roger GENET
Name (including Title and Position) of Head of the Collaborating Centre (formally OIE Contact Point):	Dr Isabelle VALLÉE, Senior research scientist, OIE Expert
Name of writer:	Isabelle VALLÉE

ToR: To provide services to the OIE, in particular within the region, in the designated specialty, in support of the implementation of OIE policies and, where required, seek for collaboration with OIE Reference Laboratories

ToR: To identify and maintain existing expertise, in particular within its region

1. Activities as a centre of research, expertise, standardisation and dissemination of techniques within the remit of the mandate given by the OIE

Disease control	
Title of activity	**Scope**
Confirmation of diagnostic	Activity of confirmation regarding official control of meat for trichinella larvae, during routine inspection with artificial digestion
Scientific advices	Scientists are involved at the request of the Ministry of Agriculture for regulatory aspects, at the request of Anses for the drafting of opinions, or for other requests such as Cofrac for quality assurance and laboratory accreditation
Epidemiology, surveillance, risk assessment, modelling	
Title of activity	**Scope**
Surveillance of parasites circulation within livestock, domestic animals and wildlife	Official test by artificial digetion of meat allows the monitoring of the parastie circulation within pigs, horses and wildboars. Moreover, a passive surveillance also occurs in wildlife with foxes, wolves.
Analysis of Protozoan foodborne parasites circultation in livestock, domestic animals and wildlife	Toxoplasma gondii was analysed in meat products by serology followed by isolation, DNA extraction and MC-qPCR. Cryptosporidium spp was analysed in ruminants by coproscopy, isolation, DNA extraction and sequençage. French and Algerian livestock ruminants were monitored.
Training, capacity building	
Title of activity	**Scope**
Training courses for Trichinella detection in meat	Two training sessions were organized (March, June) for analysts certification regarding official detection of Trichinella larvae in meat. Training courses consist in theorical and practical parts for analysts to have an overview on the parasite biology, the disease, the epidemiology, the international and national regulations and the practice of the official digestion test.

Organization of ring trials for Foodborne parasite detection of certified labs	Yearly organisation of ring trials for evaluating routine laboratories' performance. Successful results allow laboratories to get their agreement from the Ministry of Agriculure and accreditation delivered by competent authority (Cofrac).
Provision of reference samples	Proficiency samples for Trichinella test habilitation of analysts are provided upon request to the laboratories. This allow the analysts to practice the tests and evaluate their individual performance for their habilitation.
Hosting of foreigner researchers involved in foodborne parasites.	Researchers and PhD students from european countries (Romania, Germany, Armenia) and African countries (Algeria, Cote d'Ivoire) were hosted and trained for Trichinella, Toxoplasma or Cryptosporidium detection, control and molecular identification.
Zoonoses	
Title of activity	**Scope**
Research programs for improvement of foodborne parasites detection or innovative treatments	- development of serological tests for trichinella detection in pigs; - development of new therapeutic approaches to control Cryptosporidium or Giardia infections in animals;
Wildlife	
Title of activity	**Scope**
Communication with hunters	Meetings with hunters to inform about the risk of foodborne zoonotic parasites (mainly Trichinella)and promote detection of Trichinella in wildboars meat.
Epidemiological investigations	Investigations on Trichinella infection in wild boars in South of France
Diagnosis, biotechnology and laboratory	
Title of activity	**Scope**
Diagnosis of Foodborne zoonotic parasites	Identification and confirmation of parasites in different matrices (meat, feces) by direct methods, serological or molecular typing (Trichinella, Anisakis, Alaria alata, Toxoplasma, Cryptosporidium spp, Giardia, Taenia (cysticercus)).
Reference and expertise activities on foodborne zoonotic parasites	-Development of new tools to control parasites; - Standardisation and normalisation of protocols.
Vaccines	
Title of activity	**Scope**
Development of vaccines to protect target animal species	Research programs are underway to develop vaccines against Trichinella in pigs and Toxoplasma gondii in cats.
Food safety	
Title of activity	**Scope**

Evaluation of Toxoplasma gondii survival in delicatessen	A research program is focused on evaluation of Toxoplasma gondii survival in processed pork products. The data will be used for Risk assessment expertises.

ToR : To propose or develop methods and procedures that facilitate harmonisation of international standards and guidelines applicable to the designated specialty

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the surveillance and control of animal diseases, food safety or animal welfare

Proposal title	Scope/Content	Applicable area
Development of serological tests for Trichinella detection in pigs	Trichinella spp. infection detection in pig sera for monitoring holdings applying controlled housing conditions according to EU regulation.	☒Surveillance and control of animal diseases ☐Food safety ☐Animal welfare

ToR: To establish and maintain a network with other OIE Collaborating Centres designated for the same specialty, and should the need arise, with Collaborating Centres in other disciplines

ToR: To carry out and/or coordinate scientific and technical studies in collaboration with other centres, laboratories or organisations

3. Did your Collaborating Centre maintain a network with other OIE Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate scientific and technical studies?

Yes

Name of OIE CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
OIE Collaborating Centre for Food Borne Zoonotic Parasites	Saskatoon, Canada	☐Africa ☒Americas ☐Asia and Pacific ☐Europe ☐Middle East	- Scientific collaborations and publications; - Exchange of proficiency samples (Trichinella); - Members of the executive committee of the International Commission on Trichinellosis

OIE Collaborating Centre for Food Borne Parasites	Changchun, China	☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐Middle East	- Scientific collaborations and publications; - Training of Chinese PhD student; - Exchange of proficiency samples (Trichinella); - Members of the executive committee of the International Commission on Trichinellosis
OIE reference Laboratory for Trichinellosis	Roma, Italy	☐Africa ☐Americas ☐Asia and Pacific ☒Europe ☐Middle East	- Scientific collaborations and publications; - Participating to Ring trials; - Scientific expertise on trichinella diagnosis;

4. Did your Collaborating Centre maintain a network with other OIE Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

Yes

Name of OIE CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
WHO Collaborating Centre for Host-Schistosoma Interactions	Perpignan, France	☐Africa ☐Americas ☐Asia and Pacific ☒Europe ☐Middle East	Scientific research program on the emergence of schistosoma hybrides in Corsica

ToR: To place expert consultants at the disposal of the OIE.

5. Did your Collaborating Centre place expert consultants at the disposal of the OIE?

No

ToR: To provide, within the designated specialty, scientific and technical training to personnel from OIE Member Countries

6. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by the OIE, to personnel from OIE Member Countries?

Yes
a) Technical visits: 3
b) Seminars: 2
c) Hands-on training courses: 2
d) Internships (>1 month): 2

Type of technical training provided (a, b, c or d)	Content	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
a, b	Detection of Trichinella or Toxoplasma in meat for food safety or for epidemiology survey	Armenia, Romania	1
a	Detection of Alaria alata in meat and identification	Germany	1
b	Foodborne parasites in wild boars	Algeria	1
c	Trichinella detection in meat and species molecular typing	Romania	1
d	In vitro screening of natural molecules for development of innovative treatments against cryptosporidium	Cote d'Ivoire	1
d	Development of new tools to control Trichinella infection in pigs	China	1

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

7. Did your Collaborating Centre organise or participate in the organisation of scientific meetings on behalf of the OIE?

No

ToR: To collect, process, analyse, publish and disseminate data and information relevant to the designated specialty

8. Publication and dissemination of any information within the remit of the mandate given by the OIE that may be useful to Member Countries of the OIE

a) Articles published in peer-reviewed journals: 9

Allain, Thibault, Soraya Chaouch, Myriam Thomas, Marie-Agnès Travers, Isabelle Vallée, Philippe Langella, Philippe Grellier, Bruno Polack, Isabelle Florent, and Luis G. Bermudez-Humaran. “Bile Salt Hydrolase Activities: A Novel Target to Screen Anti-Giardia Lactobacilli?” Frontiers in Microbiology 9 (2018). https://doi.org/10.3389/fmicb.2018.00089.

Allain, Thibault, Soraya Chaouch, Myriam Thomas, Isabelle Vallée, André G. Buret, Philippe Langella, Philippe Grellier, Bruno Polack, Luis G. Bermúdez-Humarán, and Isabelle Florent. “Bile-Salt-Hydrolases from the Probiotic Strain Lactobacillus Johnsonii La1 Mediate Anti-Giardial Activity in Vitro and in Vivo.” Frontiers in Microbiology 8 (2018): Article 2707. https://doi.org/10.3389/fmicb.2017.02707.

Baroudi, Djamel, Ahcene Hakem, Haileeyesus Adamu, Said Amer, Djamel Khelef, Karim Adjou, Hichem Dahmani, et al. “Zoonotic Cryptosporidium Species and Subtypes in Lambs and Goat Kids in Algeria.” Parasites & Vectors 11, no. 1 (2018): 582. https://doi.org/10.1186/s13071-018-3172-2.

Chavatte, Jean-Marc, Grégory Karadjian, and Irène Landau. “Half a Century after Its Discovery, New Insights on Anthemosoma Garnhami (Sporozoa, Piroplasmida): Morphology, Molecular Characterisation and Phylogenetic Position.” Parasitology Research 117, no. 12 (2018): 3917–25. https://doi.org/10.1007/s00436-018-6101-6.

La Rosa, Giuseppe, Isabelle Vallée, Gianluca Marucci, François Casabianca, Ennio Bandino, Fabio Galati, Pascal Boireau, and Edoardo Pozio. “Multilocus Genotype Analysis Outlines Distinct Histories for Trichinella Britovi in the Neighboring Mediterranean Islands of Corsica and Sardinia.” Parasites & Vectors 11 (2018): 353. https://doi.org/10.1186/s13071-018-2939-9.

Mammeri, Mohamed, Aurélie Chevillot, Myriam Thomas, Bruno Polack, Christine Julien, Jean-Philippe Marden, Eric Auclair, Isabelle Vallée, and Karim Tarik Adjou. “Efficacy of Chitosan, a Natural Polysaccharide, against Cryptosporidium Parvum in Vitro and in Vivo in Neonatal Mice.” Experimental Parasitology 194 (2018): 1–8. https://doi.org/10.1016/j.exppara.2018.09.003.

Mammeri, Mohamed, Hélène Huet, Christine Julien, Isabelle Vallée, Nathalie Cordonnier, and Karim Tarik Adjou. “Cryptosporidium Immunolabeling in Paraffin-Embedded Ileum of CD-1 Neonatal Mice.” Global Journal of Veterinary Medicine and Research 6, no. 2 (2018): 244–49.

Scandrett, Brad, Kelly Konecsni, Laura Lalonde, Pascal Boireau, and Isabelle Vallée. “Detection of Natural Trichinella Murrelli and Trichinella Spiralis Infections in Horses by Routine Post-Slaughter Food Safety Testing.” Food and Waterborne Parasitology 11 (2018): 1–5. https://doi.org/10.1016/j.fawpar.2018.06.001.

Yang Y, Tong M, Bai X, Liu X, Cai X, Luo X, Zhang P, Cai W, Vallée I, Zhou Y, Liu M. Comprehensive proteomic analysis of lysine acetylation in the foodborne pathogen Trichinella spiralis. Front Microbiol (2018) : 8:2674. doi: 10.3389/fmicb.2017.02674.

b) International conferences: 8

Adjou K, Chermette R, Polack B, Mammeri M, Vallée I, Boireau P. Les parasites transmis par la viande : conséquences en santé publique vétérinaire. Présenté aux 13èmes Journées Internationales des Sciences Vétérinaires (JISV), Sécurité alimentaire : Enjeux et Stratégies. 1st & 2nd December 2018 - Alger, Algeria.

Boireau P, Vallée I , Wang Xuelin , Karadjian K, Liu Mingyuan. Host pathogen interaction: antigenic shift in Trichinella invasion 14th International COngress of Parasitology (ICOPA), 19-24 August 2018 - Daegu, South Korea.

Boireau P, Wang Xuelin, Vallée I, Liu Mingyuan. An international network of OIE collaborating centre dedicated to foodborne zoonotic parasites at world level. China International Food Safety & Quality (CIFSQ) Conference, 7-8 November 2018, Shanghai City, RP China.

Mammeri, M., Chevillot, A., Thomas, M., Polack, B., Vallée, I., Adjou, K.T., La Cryptosporidiose, une maladie zoonotique à transmission hydrique et alimentaire, hypo-connue et sous-diagnostiquée en Algérie : Apport des techniques de biologie moléculaire dans la gestion de la sécurité sanitaire des aliments ! 13èmes Journées Internationales des Sciences Vétérinaires (JISV), Sécurité alimentaire : Enjeux et Stratégie. 1st & 2nd December 2018 - Alger, Algeria.

Sahraoui L, Mammeri M, Chevillot A, Thomas M, Polack B, Julien C, Vallée I, Follet J, Ain-Baaziz H, Adjou T. Diagnosis and molecular characterization of cryptosporidium and giardia in lambs in Algeria. Presenté au “the

European College of Small Ruminant Health Management". 12th May 2018 - Thessaloniki, Greece.

Sahraoui L, Myriam T, Mohamed M, Chevillot A, Polack B, Julien C, Vallée I, Follet J, Ain Baaziz H, Adjou K. "Diagnosis and Molecular Characterization of Cryptosporidium and Giardia in Sheep in Algeria." 30th World Buiatrics Congress, 28 August-1st September 2018 - Sapporo, Japan.

Sahraoui L, Thomas M, Mammeri M, Chevillot A, Polack B, Julien C, Vallée I, Follet J, Ain Baaziz H, Adjou K. Occurence and Molecular Characterization of Cryptosporidium and Giardia in Calves in Algeria." 30th World Buiatrics Congress, 28 August-1st September 2018 - Sapporo, Japan.

Vallée I, Boireau P, Karadjian G, Polack B. "Zoonotic Foodborne Parasites in Wild Boar Meat: How Trichinella Inspection Allows Identification of Other Helminths." 7th Symposium of Belgium Wildlife Disease Society - 19th October, 2018 - Bruxelles, Belgium.

c) National conferences: 2
Karadjian, Bahn, Johne, Bassiloud, Py, Mayer-Scholl and Vallée. MALDI-TOF pour l'identification d'espèces de Trichinella. Congrès Annuel de la Société Française de Parasitologie, 16-19 Mai 2018 - Nice, France.

Boireau P. Les nucleases de type II de Trichinella : leur role dans l'echappement a la reponse immunitaire. Congrès Annuel de la Société Française de Parasitologie, 16-19 Mai 2018 - Nice, France.

d) Other
(Provide website address or link to appropriate information): 2
I Vallee participated in the Euro-FBP workshop : Bouwknegt, Martijn, Brecht Devleesschauwer, Heather Graham, Lucy J. Robertson, Joke WB van der Giessen, and Banu T. the Euro-FBP workshop Participants "Prioritisation of Food-Borne Parasites in Europe, 2016." Eurosurveillance 23, no. 9

Adjou, Karim. "Cryptosporidium Hominis Excrété Par Des Veaux Asymptomatiques En France." La Semaine Vétérinaire, no. 1781 (October 19, 2018): 33.