

OIE Reference Laboratory Reports Activities

Activities in 2020

This report has been submitted : 2021-01-14 17:34:56

Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Salmonellosis
Address of laboratory:	New Haw, Addlestone Surrey KT15 3NB Weybridge UNITED KINGDOM
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Name (including Title) of Head of Laboratory (Responsible Official):	Dr Kath Webster, Director of APHA Science Directorate
Name (including Title and Position) of OIE Reference Expert:	Dr Rob Davies, Head of OIE Reference Laboratory
Which of the following defines your laboratory? Check all that apply:	Governmental Research

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
SAT (S. Pullorum/Gallinarum)	Yes	29	0
RSA (S. Pullorum/Gallinarum)	Yes	215	0
SAT (S. Typhimurium)	Yes	41	0
SAT (S. Abortusequi)	Yes	197	25
SAT (S. Dublin)	Yes	45	0
Direct diagnostic tests		Nationally	Internationally
Serotyping	Yes	6,704	15
Phage typing	Yes	642	0
Antimicrobial susceptibility test	Yes	4,541	15
Tests for live Salmonella vaccines	Yes	378	0
Salmonella culture	Yes	7,219	0
Monophasic STm PCR tests	Yes	61	0

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
Salmonella typing sera	Serotyping	27,250ml	21,304ml	~600ml	Commercially sensitive information	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East
S. Pullorum control serum	SAT	0ml	21.75ml	Not available	Commercially sensitive information	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
S. Pullorum antigen	RSA and SAT	9,650ml	5,175ml	6,300ml	Commercially sensitive information	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input checked="" 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?

No

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
DENMARK	Salmonella control in layers	Email
ITALY	Isolation of Salmonella Gallinarum/Pullorum	Email
GEORGIA	Vaccine differentiation by whole genome sequencing	Email
AUSTRALIA	Salmonella contamination of feed and Salmonella vaccines	Email
THE NETHERLANDS	Salmonella abortusequi testing	Email
FRANCE	Salmonella sampling	Email
SAUDI ARABIA	Salmonella isolation methods, Salmonella vaccines and Salmonella control in flocks and feed	Email, telephone
PAKISTAN	Isolation of Salmonella Gallinarum	Email
UNITED STATES OF AMERICA	Regulated Salmonella serotypes	Email
AUSTRIA	Salmonella vaccines	Email

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
BIOPIGEE	3 years	To obtain better knowledge on how to combat Salmonella and HEV in biofilms/surface microlayers by disinfection in pig farms, to help develop common biosecurity protocols	Several European Institutions	AUSTRIA
COMPARE	5 years	Microevolution study of the highly clonal monophasic Salmonella Typhimurium circulating in Europe	Several European Institutions	DENMARK
EJP: DiSCoVeR – Discovering the sources of Salmonella, Campylobacter, VTEC and antimicrobial resistance	2.5 years	Data identification/preparing data inventories of Salmonella isolates	Several European Institutions	PORTUGAL
EJP: DiSCoVeR	2.5 years	Critical assessment/improvement of existing and development of new source attribution models. Source attribution by phylogeny	Several European Institutions	SWEDEN
EJP: ADONIS	2.5 years	Data identification/preparing data inventories of Salmonella Enteritidis isolates from 2008-2019 and on-farm control of S. Enteritidis.	Several European Institutions	FRANCE

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:
Salmonella data for the EFSA/ECDC annual One Health report, 2019.

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:

The 2019 edition of Salmonella in Livestock Production in GB :
<https://www.gov.uk/government/publications/salmonella-in-livestock-production-in-great-britain>

**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: 10

Alba, P., Leekitcharoenphon, P., Carfora, V., Amoroso, R., Cordaro, G., Di Matteo, P., Ianzano, A., Iurescia, M., Diaconu, E.L., Pedersen, S.K. and Guerra, B. (2020). Molecular epidemiology of Salmonella Infantis in Europe: insights into the success of the bacterial host and its parasitic pESI-like megaplasmid. *Microbial Genomics*, 6.

Bawn, M., Alikhan, N-F., Thilliez, G., Kirkwood, M., Wheeler, N.E., Petrovska, L., Dallman, T.J., Adriaenssens, E.M., Hall, N., Kinglsey, R.A. (2020). Evolution of Salmonella Enterica Serotype Typhimurium Driven By Anthropogenic Selection and Niche Adaptation. *Plos Genetics* 16 (6).

De Lucia, A., Cawthraw, S., Davies, R.; Smith R.P., Bianco C., Ostanello, F., Martelli F. (2020). Correlation of Anti-Salmonella Antibodies between Serum and Saliva Samples Collected from Finisher Pigs. *Frontiers in Veterinary Science* 6, 489.

Munck, N., Leekitcharoenphon, P., Litrup, E.; Kaas, R.; Meinen, A.; Guillier, L.; Tang, Y., Malorny, B., Palma, F., Borowiak, M., Gourmelon, M., Simon, S., Banerji, S., Petrovska, L., Dallman, T.J.; Hald, T. (2020). Four European Salmonella Typhimurium Datasets Collected To Develop Wgs-Based Source Attribution Methods. *Scientific Data* 7, Article No. 75.

Newton, K., Gosling, B., Rabie, A. & Davies, R (2020). Field Investigations Of Multidrug Resistant Salmonella Infantis Epidemic Strain Incursions Into Broiler Flocks In England And Wales. *Avian Pathology*, 1-28.

Porter, S., Strain, S.A.J., Bagdonaite, G., Mcdowell, S.W., Bronckaers, T., Sherrey, M., Devine, P., Pascual-Linaza, A.V., Spence, N., Porter, R., Guelbenzu-Gonzalo, M., Davies, R.H., Lahuerta-Marin, A., 2020. Trends in Salmonella Serovars and Antimicrobial Resistance in Pigs And Poultry In Northern Ireland Between 1997 And 2016. *Veterinary Record* 186 (5) 156.

Ricci, V., Zhang, D., Teale, C., Piddock, L.J.V., 2020. The O-Antigen Epitope Governs Susceptibility to Colistin in Salmonella Enterica. *Mbio* 11 (1).

Tassinari E., Bawn M., Thilliez G., Charity O., Acton L., Kirkwood M., Petrovska L., Dallman T., Burgess C.M., Hall N., Duffy G. & Kingsley R.A. (2020) Whole-genome epidemiology links phage-mediated acquisition of a virulence gene to the clonal expansion of a pandemic Salmonella enterica serovar Typhimurium clone. *Microb Genom.* 6(11).

Wales A. & Davies R. (2020) Review of hatchery transmission of bacteria with focus on Salmonella, chick pathogens and antimicrobial resistance. *World's Poultry Science Journal*, 76:3, 517-536.

Zhou Z, Alikhan NF, Mohamed K, Fan Y; Agama Study Group, Achtman M. (2020) The Enterobase user's guide, with case studies on Salmonella transmissions, Yersinia pestis phylogeny, and Escherichia core genomic diversity. *Genome Res.* 30(1):138-152.

b) International conferences: 1

Withenshaw S.M., Lawes J.R., Teale C., Davies, R.H., 2020 Industry Expansion and Salmonella Surveillance Trends for Raw Meat Pet Food in Great Britain Over the Last Ten Years. In: Van Schaik G (Ed); Brennan M (Ed), Society for Veterinary Epidemiology and Preventive Medicine: Proceedings of a Meeting Held In Westport, Ireland, 25th - 27th March 2020, 33-45.

c) National conferences: 0

d) Other:

(Provide website address or link to appropriate information) 3

EFSA Panel on Biological Hazards (BIOHAZ), Koutsoumanis, K., Allende, A., Alvarez-Ordóñez, A., Bolton, D., Bover-Cid, S., Chemaly, M., Davies, R., De Cesare, A., Herman, L. and Lindqvist, R. (2020). Evaluation of public and animal health risks in case of a delayed post-mortem inspection in ungulates. EFSA Journal, 18(12), p.e06307. <https://www.efsa.europa.eu/en/efsajournal/pub/6307>

EFSA Panel on Biological Hazards (BIOHAZ), Koutsoumanis, K., Allende, A., Bolton, DJ, Bover-Cid, S, Chemaly, M, Davies, R, De Cesare, A, Herman, LM, Hilbert, F, Lindqvist, R, Nauta, M, Peixe, L, Ru, G, Simmons, M, Skandamis, P, Suffredini, E, Escámez, PF, Ortiz-Peláez, A, Ashe, S and Alvarez-Ordóñez, A, (2020). Scientific Opinion on the Evaluation of Alternative Methods of Tunnel Composting (submitted by the European Composting Network). EFSA Journal 2020; 18(8):6226, 36 pp. <https://www.efsa.europa.eu/en/efsajournal/pub/6226>

The 2019 edition of Salmonella in Livestock Production in GB :

<https://www.gov.uk/government/publications/salmonella-in-livestock-production-in-great-britain>

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: 2
- 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
d	Italy	1
b	Nigeria	2

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	ISO9001-2015_Certificate.pdf
ISO 9001	Animal and Plant Health Agency LRQ4001392 -Certificate Validity Letter.pdf
ISO 17025	UKAS_certificate.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
Various Salmonella surveillance and diagnostic tests	UKAS (ISO:17025:2017)
Various serological and AMR tests	UKAS (ISO:17025:2015)
Various research methodologies	LRQA (ISO:9001:2015)

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?

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.
EURL-Salmonella Combined Proficiency test PPS-Food 2020 - Detection of Salmonella in hygiene swabs	Participant	38	European Labs
Assess laboratory capability to conduct isolation and identification of Salmonella species to help maintain accreditation. Animal and Plant Health Agency Vetqas PT scheme PT0087 Salmonella in Animal Feed	Organiser & participant	22	UK
Assess laboratory capability to conduct isolation and identification of Salmonella species to help maintain accreditation. Animal and Plant Health Agency Vetqas PT scheme PT0088 Salmonella in Poultry	Organiser & participant	147	UK, Canada, Italy, Germany
Assess laboratory capability to conduct isolation and identification of Salmonella species to help maintain accreditation. Animal and Plant Health Agency Vetqas PT scheme PT0090 Control of Salmonella in Poultry Order (run for UK labs only)	Organiser & participant	20	UK
Assess laboratory capability to conduct isolation and identification of Salmonella species to help maintain accreditation. Animal and Plant Health Agency Vetqas PT scheme PT0084 Salmonella serotyping and culture	Organiser & participant	40	UK, Germany

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
PHE and ECDC/Efsa collaboration	WGS outbreak investigations relating to International trade in SE-contaminated eggs within Europe	Various

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 ¹	No. participating laboratories	Region(s) of participating OIE Member Countries
Assess laboratory capability to conduct isolation and identification of Salmonella species to help maintain accreditation. Animal and Plant Health Agency Vetqas PT scheme PT0087 Salmonella in Animal Feed	22	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Assess laboratory capability to conduct isolation and identification of Salmonella species to help maintain accreditation. Animal and Plant Health Agency Vetqas PT scheme PT0088 Salmonella in Poultry	147	<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
Assess laboratory capability to conduct isolation and identification of Salmonella species to help maintain accreditation. Animal and Plant Health Agency Vetqas PT scheme PT0090 Control of Salmonella in Poultry Order (run for UK labs only)	20	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Assess laboratory capability to conduct isolation and identification of Salmonella species to help maintain accreditation. Animal and Plant Health Agency Vetqas PT scheme PT0084 Salmonella serotyping and culture	40	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East
Salmonella detection, serotyping and WGS cluster analysis EU-RL ringtrials	36	<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 of diagnostic tests and vaccines for terrestrial animals - chapter 3.9.8. on Salmonellosis	Email	Diagnosis and control
Response to ad hoc queries	Email	Diagnosis and control
Involvement in OIE ad hoc expert group evaluating a Salmonella serotyping test	Email	Review and validation

25. Additional comments regarding your report:

This report was compiled by Kate Newton on behalf of Rob Davies.