



WOAH Collaborative Centre Reports Activities 2024

This report has been submitted: 2 janvier 2025 13:07

CENTRE INFORMATION

*Title of WOAHCollaborating Centre	Research and control of emerging and re-emerging swine diseases in Europe
*Address of WOAHCollaborating Centre	Centre de Recerca en Sanitat Animal (CRESA) Edifici CRESA Campus Universitat Autònoma de Barcelona 08193 Bellaterra (Barcelona) SPAIN
*Tel:	+34-934 67 40 40
*E-mail address:	joaquim.segales@irta.cat
Website:	www.irta.cat
*Name Director of Institute (Responsible Official):	Josep Usall, General Director, Institut de Recerca i Tecnologia Agroalimentàries (IRTA)
*Name (including Title and Position) of Head of the Collaborating Centre (WOAH Contact Point):	Joaquim Segalés, Full Professor at the Universitat Autònoma de Barcelona and Researcher at the Institut de Recerca i Tecnologia Agroalimentàries (IRTA) - Centre de Recerca en Sanitat Animal (CRESA)
*Name of the writer:	Joaquim Segalés

TOR 1 AND 2: SERVICES PROVIDED

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

Category	Title of activity	Scope
		Identification of novel

Disease control (true)	New antimicrobials, research	immunomodulatory compounds to enhance animal resilience to infection
Epidemiology, surveillance, risk assessment, (true)	Assessing the PRRS incidence in breeding herds	Assess the incidence of PRRSV outbreaks in breeding herds in the region of Catalonia.
Training, capacity building (true)	Antimicrobial development, research	INNOvative approaches to identification of metabolic TARGETS for antimicrobials (Innotargets) Innovative Training Networks (ITN)
Zoonoses (true)	Animal-derived organoids to study zoonotic diseases, research	Development and use of animal-derived organoids as a novel, physiologically relevant platform for studying zoonotic diseases. These organoid models facilitate the investigation of host-pathogen interactions, viral evolution, and disease transmission dynamics, ultimately contributing to improved risk assessment, therapeutic development, and pandemic preparedness.
Wildlife (true)	SARS-CoV-2 surveillance, research	Monitoring SARS-CoV-2 infection in urban and peri-urban wildlife species from Catalonia (Spain), including wild boar.
Diagnosis, biotechnology and laboratory (true)	Penside diagnostic tools	Development of an on-farm rapid test for prognosis and diagnosis of porcine polyserositis
Vaccines (true)	African swine fever, research	Multiple studies regarding immunology of ASF and testing of different ASFV vaccine prototypes.
Disease control (true)	Development of new antimicrobial tools, research	Development of new antimicrobial and antiparasitic compounds and tools for assessing their efficacy and safety, within the EU Animal Health and Welfare (AH&W) Partnership framework.
Vaccines (true)	Vaccine platform, research	Development of a novel microparticulated

--

		vaccine platform.
Epidemiology, surveillance, risk assessment (true)	Syndromic surveillance	Detect unusual outbreaks of mortality in the growing pig population using real time or near real time data from rendering.
Epidemiology, surveillance, risk assessment (true)	Sow mortality	Explore and identify the main causes of sow mortality in Spanish breeding herds.
Epidemiology, surveillance, risk assessment (true)	Early warning systems to detect PRRS using production data	We are exploring different methodologies to detect PRRS outbreaks in breeding herds using production data. We will explore the possibility of predicting the number of piglets lost in a PRRS outbreak using the first weeks as a predictor.
Epidemiology, surveillance, risk assessment (true)	Development of epidemiological tools	We are developing software tools to help the regional government to quickly respond against outbreaks of diseases by identifying the farms at risk after an outbreak is identified. These tools provide maps, lists and values that can be used to target the surveillance against epidemic diseases (e.g., ASF).
Disease control (true)	Antimicrobial Resistance and Healthcare-Associated Infections, research	Define EU standards and requirements (core elements) for AMS programmes in animal Health, and core competencies for antimicrobial stewardship in animal health for veterinarians and farmers. Identify and describe the key-components for IPC/biosecurity in veterinary medicine according to the diversity in animal species and husbandry systems across EU countries.
Disease control (true)	Antimicrobial reduction, research	Faecal microbiota transplantation (FMT) as alternative strategy to antimicrobials to prevent enteric diseases caused by E. coli and Salmonella in weaned piglets. Bacteriophage technology as a novel targeted disinfection tool and complementary to on-farm cleaning and disinfection
		Development of novel infection models

Epidemiology, surveillance, risk assessment (true)	Animal-derived organoids (mainly from livestock) as models of infection, research	that are more ethically sound (reducing reliance on animal testing) and more predictive of in vivo outcomes. This approach has implications for drug development, gain insights into diseases, and the study of emerging infectious diseases.
Disease control (true)	Nasal microbiota, research	Definition of the cornerstone nasal microbiota for respiratory disease control in pigs
Training, capacity building (true)	Master in Laboratory Animal Science and Animal Welfare	A number of lecturers of this master's degree, organized by the Universitat Autònoma de Barcelona (UAB) are researchers of IRTA-CReSA.
Zoonoses (true)	Wild boar tuberculosis surveillance, service	The Centre is involved in the Wildlife Health Surveillance Plan of Catalonia. The main tasks of the Centre were to follow-up TB focuses and to estimate the apparent prevalence of TB in wild boar. The role of wild boars in bovine and caprine TB outbreaks was also investigated.
Diagnosis, biotechnology and laboratory (true)	Pathology diagnosis, service	The slaughterhouse support network, SESC, is a continuing educational tool for meat inspectors from the Public Health Agency of Catalonia (ASPCAT). The network is managed by IRTA-CReSA in collaboration with UAB's Veterinary Faculty.
Epidemiology, surveillance, risk assessment (true)	Early disease warning, research	Developing data-driven decision support tools that offer robust and early signals of disease emergence and options for diagnostic confirmation (DECIDE project).
Epidemiology, surveillance, risk assessment (true)	Virus interactions under field conditions, research	The frequency of PCV-2 viremia in nursery piglets from a Spanish swine integration system in 2020 and 2022 considering PRRSV infection status was studied.
Training, capacity building (true)	International Master on Infectious Diseases and One Health	A number of lecturers of this master's degree, organized by the Universitat Autònoma de Barcelona (UAB) are researchers of IRTA-CReSA.

--

Training, capacity building (true)	Master on Swine Health and Production	A number of lecturers of this master's degree, organized by the Universitat de Lleida (UdL), are researchers of IRTACReSA.
Training, capacity building (true)	PhD students	The research center has a permanent number of around 30 PhD students dealing with different aspects on animal health. Approximately one third to one half of them are devoted to swine research.
Diagnosis, biotechnology and laboratory (true)	Classical swine fever, research	Development of a new loop-mediated isothermal amplification test for the sensitive, rapid, and economic detection of different genotypes of Classical swine fever virus.
Epidemiology, surveillance, risk assessment (true)	Porcine circoviruses, research	Detection of diverse porcine circoviruses (PCV1 to 4) in piglets.
Zoonoses (true)	Helicobacter pylori, research	Development of a swine model for Helicobacter pylori infection, with the aim of testing newly developed vaccines against this pathogen.
Training, capacity building (true)	Slaughterhouse diagnostic support, service	Meetings (n=5) to redefine the causes of partial and total condemnation at slaughterhouse in pigs and wildlife including wildboar. They were performed together with the Department of Health of the Catalan Government.

TOR 3: HARMONISATION OF STANDARDS

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the main focus area for which you were designated

Proposal title	Scope/Content	Applicable Area
African swine fever vaccine development	Development of procedures to evaluate ASF vaccine prototypes efficacy.	Laboratory Expertise Training and Education
Animal Health and Welfare		

--

Partnership Horizon Europe (101136346 EUPAHW).	Establishing epidemiological cut off values for bacterial pathogens of importance for terrestrial farmed animals.	Laboratory Expertise
Animal Health and Welfare Partnership Horizon Europe (101136346 EUPAHW).	Develop a harmonized whole genome sequencing monitoring system for passive and active surveillance of bacterial pathogens and their antimicrobial resistant profiles from terrestrial food-producing animals.	Laboratory Expertise
Harmonizing Global Regulations for the Use of Animal-Derived Organoids in Disease Research: A Pathway to International Collaboration and Ethical Standards	-Ethical Guidelines and animal welfare - Standardized protocols for organoid generation - Create a global registry ensuring traceability and compliance with international standards -Data sharing/ international collaboration -Training programs, workshop, guidance materials...	Laboratory Expertise Training and Education

3. In exercising your activities, have you identified any regulatory research needs* relevant for WOA?H?

Yes

Research need 1

Please type the Research need: Harmonizing Global Regulations for the Use of Animal-Derived Organoids in Disease Research

Relevance for WOA?H Disease Control, Standard Setting, Animal Welfare,

Relevance for the Code or Manual

Field Epidemiology and Surveillance, Diagnostics, Vaccines, Therapeutics,

Animal Category Terrestrial,

Disease:

Kind of disease (Zoonosis, Transboundary diseases) Zoonosis, Transboundary diseases,

If any, please specify relevance for Codes or Manual, chapter and title

(e.g. Terrestrial Manual Chapter 2.3.5 - Minimum requirements for aseptic production in vaccine manufacture)

Answer:

Notes:

Answer:

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

--

Yes

Name of WOAHC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
WOAH Reference Laboratory on Classical Swine Fever	Spain	Europa	Research collaboration on swine pestiviruses.
Centro Nacional de Sanidad Agropecuaria (CENSA)	Cuba	América	Research collaboration on classical swine fever.
Plum Island Animal Disease Center	USA	América	Research Collaboration on CSFV and ASFV.
Institute of Virology and Immunology (IVI)	Switzerland	Europa	Research collaboration on classical swine fever.
WOAH Reference Laboratory for Swine Influenza Virus, Istituto Zooprofilattico Sperimentale della Lombardia ed Emilia Romagna	Italy	Europa	Research collaboration on swine influenza virus.
Department of Animal Medicine, Production and Health (MAPS), University of Padua	Italy	Europa	Research collaboration on porcine circoviruses.
Swine and Poultry Infectious Diseases Research Center (CRIPA)	Canada	América	Research collaboration on S. suis and G. parasuis.
Department of Virus and Microbiological Special Diagnostics, Statens	Denmark	Europa	Research collaboration on vaccine and adjuvant testing.

--

Serum Institut			
Helmholtz Centre for Infection Research, Department of Vaccinology and Applied Microbiology	Germany	Europa	Research collaboration on vaccine and adjuvant testing.
Technical University of Munich	Germany		Research collaboration with Helicobacter pylori.
University of Minnesota	USA	América	Research collaboration on PRRSV.
Eidgenössische Technische Hochschule (ETH) Zürich	Switzerland	Europa	Research collaboration on social sciences, focus on farmer and veterinarians needs for controlling diseases.
EU reference laboratory for African Swine Fever (ASF) (CISA- INIA)	Spain	Europa	Research collaboration on ASFV.
International Livestock Research Institute (ILRI)	Kenya	África	Research collaboration on ASFV.

TOR 4 AND 5: NETWORKING AND COLLABORATION

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

Yes

Name of WOAHC CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose

--

IrsiCaixa	Spain	Europe	Research collaboration on SARS-CoV-2
Huvepharma	Belgium	Europe	Research collaboration on ASFV.
CEVA	Spain	Europe	Industrial doctorate on PCV2.
SYVA	Spain	Europe	Industrial doctorate on PCV2.
HIPRA	Spain	Europe	Industrial doctorate on PRRSV.
Institut Pasteur, Université Paris Cité	France	Europe	Research collaboration on arboviruses and insect vectors
Pharmamar	Spain	Europe	Research collaboration on SARS-CoV-2.
Barcelona Supercomputing Center	Spain	Europe	Research collaboration on SARS-CoV-2.
Grup Sanejament Porcí Lleida	Spain	Europe	Research collaboration on Actinobacillus pleuropneumoniae.

--

University of Córdoba	Spain	Europe	Research collaboration on SARS-CoV-2.
University of Utrecht	The Netherlands	Europe	Research collaboration on endemic swine diseases.

TOR 6: EXPERT CONSULTANTS

6. Did your Collaborating Centre place expert consultants at the disposal of WOA?H?

No

TOR 7: SCIENTIFIC AND TECHNICAL TRAINING

7. Did your Collaborating Centre provide advice/services to requests from Members in your main focus area?

No

8. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by WOA?H, to personnel from WOA?H Members?

No

TOR 8: SCIENTIFIC MEETINGS

9. Did your Collaborating Centre organise or participate in the organisation of scientific meetings related to your main focus area on behalf of WOA?H?

Yes

National/International	Title of event	Co-organiser	Date	Location	No. Participants
Nationally	Annual SESC Meeting 2024	IRTA	2024-06-27	Bellaterra (Barcelona)	30
Nationally	Redifining abbatoir condemned viscera and common findings at slaughter	IRTA and Departament of Health	2024-11-24	Bellaterra (Barcelona)	40

TOR 9: DATA AND INFORMATION DISSEMINATION

10. Publication and dissemination of any information within the remit of the mandate given by WOA?H that may be useful to Members of WOA?H

a) Articles published in peer-reviewed journals:

1. Fredriksen S, Neila-Ibáñez C, Hennig-Pauka I, Guan X, Dunkelberger J, de Oliveira IF, Ferrando ML, Correa-Fiz F, Aragon V, Boekhorst J, van Baarlen P, Wells JM. *Streptococcus suis* infection on European farms is associated with an altered tonsil microbiome and resistome. *Microb Genom.* 2024 Dec;10(12):001334. doi: 10.1099/mgen.0.001334.
2. Tarrés J, Jové-Juncà T, Hernández-Banqué C, González-Rodríguez O, Ganges L, Gol S, Díaz M, Reixach J, Pena RN, Quintanilla R, Ballester M. Insights into genetic determinants of piglet survival during a PRRSV outbreak. *Vet Res.* 2024 Dec 18;55(1):160. doi: 10.1186/s13567-024-01421-8.
3. Garcia-Morante B, De Abreu C, Underwood G, Lara Puente JH, Pieters M. Characterization of a *Mycoplasma hyopneumoniae* aerosol infection model in pigs. *Vet Microbiol.* 2024 Dec;299:110296. doi: 10.1016/j.vetmic.2024.110296. Epub 2024 Nov 4.
4. Boeters M, Steeneveld W, Garcia-Morante B, Rushton J, van Schaik G. A dynamic framework for calculating the biomass of fattening pigs with an application in estimating the burden of porcine reproductive and respiratory syndrome in the Netherlands. *Prev Vet Med.* 2025 Jan;234:106383. doi: 10.1016/j.prevetmed.2024.106383. Epub 2024 Nov 17.
5. Cobos À, Sibila M, Huerta E, Pérez M, Marcos M, Menjón R, Jiménez M, Gálvez L, Segalés J. A case report of porcine circovirus 3 (PCV3) reproductive disease in Iberian semi-outdoor reared sows. *Porcine Health Manag.* 2024 Nov 21;10(1):52. doi: 10.1186/s40813-024-00407-4.
6. Franzo G, Tucciarone CM, Legnardi M, Drigo M, Segalés J. An updated phylogeography and population dynamics of porcine circovirus 2 genotypes: are they reaching an equilibrium? *Front Microbiol.* 2024 Oct 29;15:1500498. doi: 10.3389/fmicb.2024.1500498. eCollection 2024.
7. Cobos À, Domingo M, Pérez M, Huerta E, Llorens A, Segalés J, Sibila M. Retrospective investigation of porcine circoviruses in cases of porcine dermatitis and nephropathy syndrome. *Vet Res.* 2024 Nov 9;55(1):146. doi: 10.1186/s13567-024-01405-8.
8. Zhou X, Garcia-Morante B, Burrell A, Correia-Gomes C, Dieste-Pérez L, Eenink K, Segalés J, Sibila M, Siegrist M, Tobias T, Vilalta C, Bearth A. How do pig veterinarians view technology-assisted data utilisation for pig health and welfare management? A qualitative study in Spain, the Netherlands, and Ireland. *Porcine Health Manag.* 2024 Oct 10;10(1):40. doi: 10.1186/s40813-024-00389-3.
9. Rosato G, Makoni GM, Cobos À, Sibila M, Segalés J, Marti H, Prähauser B, Seehusen F. Retrospective Analyses of Porcine Circovirus Type 3 (PCV-3) in Switzerland. *Viruses.* 2024 Sep 7;16(9):1431. doi: 10.3390/v16091431.
10. Ventero MP, Marin C, Migura-Garcia L, Tort-Miro C, Giler N, Gomez I, Escribano I, Marco-Fuertes A, Montoro-Dasi L, Lorenzo-Rebenaque L, Vega S, Pérez-Gracia MT, Rodríguez JC. Identification of Antimicrobial-Resistant Zoonotic Bacteria in Swine Production: Implications from the One Health Perspective. *Antibiotics (Basel).* 2024 Sep 13;13(9):883. doi: 10.3390/antibiotics13090883.
11. Llauradó-Calero E, Badiola I, Samarra I, Lizardo R, Torrallardona D, Esteve-Garcia E, Tous N. Impact of adding eicosapentaenoic and docosahexaenoic acid-rich fish oil in sow and piglet diets on blood oxylipins and immune indicators of weaned piglets. *Animal.* 2024 Oct;18(10):101317. doi: 10.1016/j.animal.2024.101317. Epub 2024 Aug 23.
12. Franzen J, Cobos A, Perez M, Sibila M, Kittl S, Segalés J, Grau-Roma L. Lack of detection of Porcine circovirus 3 (PCV-3) in formalin-fixed, paraffin-embedded tissues from porcine abortions in Switzerland. *Schweiz Arch Tierheilkd.* 2024 Sep;166(9):460-464. doi: 10.17236/sat00431.
13. Fernández-Bastit L, Montalvo T, Franco S, Barahona L, López-Bejar M, Carbajal A, Casas-Díaz E, Closa-Sebastià F, Segalés J, Vergara-Alert J. Monitoring SARS-CoV-2 infection in urban and peri-urban wildlife species from Catalonia (Spain). *One Health Outlook.* 2024 Sep 1;6(1):15. doi: 10.1186/s42522-024-00109-5.
14. Coronado L, Muñoz-Aguilera A, Cantero G, Martínez P, Alberch M, Rosell R, Gladue DP, Borca MV, Ganges L. FlagT4G Vaccine Prevents Transplacental Transmission of Highly Virulent Classical Swine Fever Virus after Single Vaccination in Pregnant Sows. *Vaccines (Basel).* 2024 Jul 23;12(8):832. doi: 10.3390/vaccines12080832.
15. Sagrera M, Sibila M, Martínez-Boixaderas N, Llorens AM, Espigares D, Pastor J, Garza-Moreno L, Segalés J. Can immunocrit be used as a monitoring tool for swine vaccination and infection studies? *Porcine Health Manag.* 2024 Aug 23;10(1):30. doi: 10.1186/s40813-024-00380-y.
16. Varsani A, Harrach B, Roumagnac P, Benkő M, Breitbart M, Delwart E, Franzo G, Kazlauskas D, Rosario K, Segalés J, Dunay E, Rukundo J, Goldberg TL, Fehér E, Kaszab E, Bányai K, Krupovic M. 2024 taxonomy update for the family Circoviridae. *Arch Virol.* 2024 Aug 14;169(9):176. doi: 10.1007/s00705-024-06107-2.
17. Marin C, Migura-García L, Rodríguez JC, Ventero MP, Pérez-Gracia MT, Vega S, Tort-Miró C, Marco-Fuertes A, Lorenzo-Rebenaque L, Montoro-Dasi L. Swine farm environmental microbiome: exploring microbial ecology and functionality across farms with high and low sanitary status. *Front Vet Sci.* 2024 Jul 3;11:1401561. doi: 10.3389/fvets.2024.1401561. eCollection 2024.
18. Garcias B, Migura-Garcia L, Giler N, Martín M, Darwich L. Differences in enteric pathogens and intestinal microbiota between diarrheic weaned piglets and healthy penmates. *Vet Microbiol.* 2024 Aug;295:110162. doi: 10.1016/j.vetmic.2024.110162. Epub 2024 Jun 25.

19. Vilaró A, Karstensen KT, Cavaco LM, Angen Ø, Solé E, Seró I, Novell E, Enrique-Tarancón V, Guitart-Matas J, Migura-García L, Fraile L. An investigation of the transmission of *Actinobacillus pleuropneumoniae* within vertically integrated systems using whole genome sequencing. *Vet Microbiol.* 2024 Aug;295:110157. doi: 10.1016/j.vetmic.2024.110157. Epub 2024 Jun 18.
20. Neila-Ibáñez C, Napp S, Casal J. Evaluation of the Economic Impact of *Streptococcus suis*-Associated Disease. *Methods Mol Biol.* 2024;2815:121-129. doi: 10.1007/978-1-0716-3898-9_10.
21. Obregón-Gutiérrez P, Aragón V, Correa-Fiz F. Analysis of the Nasal Microbiota in Healthy and Diseased Pigs. *Methods Mol Biol.* 2024;2815:93-113. doi: 10.1007/978-1-0716-3898-9_8.
22. Marín-Moraleda D, Muñoz-Basagoiti J, Tort-Miró A, Navas MJ, Muñoz M, Vidal E, Cobos À, Martín-Mur B, Meas S, Motuzova V, Chang CY, Gut M, Accensi F, Pina-Pedrero S, Núñez JI, Esteve-Codina A, Gavrilov B, Rodríguez F, Liu L, Argilagué J. Elucidating the Onset of Cross-Protective Immunity after Intranasal Vaccination with the Attenuated African Swine Fever Vaccine Candidate BA71ΔCD2. *Vaccines (Basel).* 2024 May 9;12(5):517. doi: 10.3390/vaccines12050517.
23. Guitart-Matas J, Sánchez-Osuna M, Saez JL, de Frutos C, Giler-Baquerizo N, Tort-Miró C, Pich OQ, Migura-García L. Deciphering resistance mechanisms to tigeicycline and colistin in *Salmonella enterica* isolates from animal production. *Int J Antimicrob Agents.* 2024 Aug;64(2):107208. doi: 10.1016/j.ijantimicag.2024.107208. Epub 2024 May 18.
24. Guitart-Matas J, Ballester M, Fraile L, Darwich L, Giler-Baquerizo N, Tarres J, López-Soria S, Ramayo-Caldas Y, Migura-García L. Gut microbiome and resistome characterization of pigs treated with commonly used post-weaning diarrhea treatments. *Anim Microbiome.* 2024 May 3;6(1):24. doi: 10.1186/s42523-024-00307-6.
25. Garrido V, Arrieta-Gisasaola A, Migura-García L, Laorden L, Grilló MJ. Multidrug resistance in *Salmonella* isolates of swine origin: mobile genetic elements and plasmids associated with cephalosporin resistance with potential transmission to humans. *Appl Environ Microbiol.* 2024 May 21;90(5):e0026424. doi: 10.1128/aem.00264-24. Epub 2024 May 2.
26. Bohórquez JA, Muñoz-Aguilera A, Lanka S, Coronado L, Rosell R, Alberch M, Maddox CW, Ganges L. Development of a new loop-mediated isothermal amplification test for the sensitive, rapid, and economic detection of different genotypes of Classical swine fever virus. *Front Cell Infect Microbiol.* 2024 Apr 15;14:1372166. doi: 10.3389/fcimb.2024.1372166. eCollection 2024.
27. Obregon-Gutiérrez P, Bonillo-Lopez L, Correa-Fiz F, Sibila M, Segalés J, Kochanowski K, Aragon V. Gut-associated microbes are present and active in the pig nasal cavity. *Sci Rep.* 2024 Apr 11;14(1):8470. doi: 10.1038/s41598-024-58681-9.
28. Bosch-Camós L, Martínez-Torró C, López-Laguna H, Lascorz J, Argilagué J, Villaverde A, Rodríguez F, Vázquez E. Nanoparticle-Based Secretory Granules Induce a Specific and Long-Lasting Immune Response through Prolonged Antigen Release. *Nanomaterials (Basel).* 2024 Feb 27;14(5):435. doi: 10.3390/nano14050435.
29. Hinojosa Y, Liniger M, García-Nicolás O, Gerber M, Rajaratnam A, Muñoz-González S, Coronado L, Frías MT, Perera CL, Ganges L, Ruggli N. Evolutionary-Related High- and Low-Virulent Classical Swine Fever Virus Isolates Reveal Viral Determinants of Virulence. *Viruses.* 2024 Jan 19;16(1):147. doi: 10.3390/v16010147.
30. Sagrera M, Garza-Moreno L, Sibila M, Oliver-Ferrando S, Cárceles S, Casanovas C, Prieto P, García-Flores A, Espigares D, Segalés J. Frequency of PCV-2 viremia in nursery piglets from a Spanish swine integration system in 2020 and 2022 considering PRRSV infection status. *Porcine Health Manag.* 2024 Jan 16;10(1):4. doi: 10.1186/s40813-024-00354-0.
31. Álvarez-Rodríguez M, Martínez-Serrano CA, Gardela J, Nieto H, de Mercado E, Rodríguez-Martínez H. MicroRNA expression in specific segments of the pig periovulatory internal genital tract is differentially regulated by semen or by seminal plasma. *Res Vet Sci.* 2024 Mar;168:105134. doi: 10.1016/j.rvsc.2023.105134. Epub 2024 Jan 2.
32. Migura-García L, LeJeune JT, Pearl DL, Cerdà-Cuellar, M. 2024. Microorganisms and resistance to antimicrobials. Ubiquity of | potential environmental and wildlife sources of microorganisms in meat. In: Dikeman, M. (Ed.), *Encyclopedia of Meat Sciences III*, vol. 1. Elsevier, pp. 42–49.
33. Pereira AC, Pérez de Val B, Cunha MV. Phylogenetic analysis of *Mycobacterium caprae* highlights past and present epidemiological links at the Iberian Peninsula scale. *Microbes Infect.* 2024 Aug 22:105405. doi: 10.1016/j.micinf.2024.105405.

b) International conferences:

41

Presentations (posters and oral communications) in congresses: 36

As invited speakers:

V. Aragón. Protagonista y factores secundarios en la enfermedad de Glässer. XXX Congreso internacional Una Salud. AMVECAJ.

Tepatitlán de Morelos (Jalisco), México. 7-9 February, 2024.

J. Segalés (online) "Do PCV-3 and PCV-4 cause disease in pigs? Current findings on pathology and pathogenesis". Digital Breakfast Seminar, organized by the IPVS Belgian branch. 26/4/2024 (Belgium).

J. Segalés: "Porcine respiratory disease complex diagnostic tips". Swine Day Romania, V Edición, organizado por el Colegiul Medicilor Veterinari. 18-19/10/24. Bucharest (Romania).

M. Sibila. Update on PCV2 and PCV3 and their role in reproductive disorders. Danish Pig Veterinary Society. Frederika, Denmark. 7-8 November, 2024

J. Segalés (online): "1, 2, 3, 4... porcine circoviruses in front of our door!!". Vetsuisse Nutztierabend 2024-2025. 10/12/2024. Switzerland.

As invited speakers by companies:

c) National conferences:

12

Presentations (posters and oral communications) in congresses: 11

As invited speakers:

Roundtable discussion: "Tindrem altres Malalties i altres pandèmies?". Jornada d'Estiu de la Professi3 Mèdica "Canvi climàtic i salut planetària", Universitat d'Estiu Ramon Llull 2024. 19/7/24. Puigcerdà (Spain): Presenters: C. Bosqué, A. Trilla, C. Prats, Q. Bassat, J. Segalés.

d) Other (Provide website address or link to appropriate information):

7

<https://sesc.cat/necrosi-de-la-musculatura-axial-lumbar-en-una-canal-de-porc/>

<https://sesc.cat/quin-es-el-teu-diagnostic-126/>

<https://sesc.cat/lesions-vasculars-croniques-en-un-ronyo-de-porc/>

<https://sesc.cat/quin-es-el-teu-diagnostic-121/>

<https://sesc.cat/resum-anual-2023/>

https://www.pig333.com/articles/productive-and-economic-impact-of-pig-lung-lesions-detected-at-slaughter_20019/

https://www.pig333.com/articles/importance-of-pathology-in-swine-diagnostics_20865/

11. What have you done in the past year to advance your area of focus, e.g. updated technology?

A bioimaging platform has been implemented in the BSL3 facilities at IRTA-CReSA. In addition, a new flow cytometer combining sorting and imaging (BD Discovery S8) will be implemented in the BSL3 animal facilities.

12. Additional comments regarding your report:

Again, our professionals are willing to help as expert consultants, but so far this year we have not had any request within our field of expertise.