



European Association of Veterinary Laboratory Diagnosticians

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Foreword

Dear Colleague,
 We start this issue with the announcement of the next EALVD congress. An interview of Eefke Weesendorp is presented with a balance of the first year as EALVD president. In this number, find an update on African swine fever in Europe and on hepadnavirus of cats. In September 2019, the EALVD met ECVM and ESGVM associations with the aim of starting collaboration. The second appointment with the stories about young researchers and their career across Europe is with an Italian microbiologist.

October 19-21 2020: next EALVD congress is coming!



THE CONGRESS SCIENTIFIC INFORMATION EXHIBITION & SPONSORS REGISTRATION AND ACCOMMODATION

EALVD
 6TH CONGRESS OF THE EUROPEAN
 ASSOCIATION OF VETERINARY
 LABORATORY DIAGNOSTICIANS
SEVILLA

OCTOBER 19,20,21 2020

Request for information >



European Association of Veterinary Laboratory Diagnosticians

COMING SOON: EALVD 2020 6TH CONGRESS OF THE EUROPEAN ASSOCIATION OF VETERINARY LABORATORY DIAGNOSTICIANS

BIENVENIDOS A SEVILLA

AVEDILA (Spanish Association of Veterinaries Specialised in Laboratory Diagnoses) was founded in 1992 with the purpose of promoting work sessions, conferences and technical support to professionals interested in the topic, as well as cooperating with the different national and international institutions in the field of veterinary laboratory diagnoses. **Together with the EAVLD**, we want to organize an interesting Scientific Programme, which we hope will address the most interesting aspects within the challenges faced by our increasingly global world in the field of animal health.



We will make a special emphasis on emerging and re-emerging diseases, many of them with a zoonotic character, that not only entail a clear health risk, but also bring about a social alarm that must be offset with clear information and precise actions in times of crisis. It is our obligation to fight in order to reduce the gap between the developed world and the less favoured countries, and especially, for something that should be a right of all the inhabitants in the world: the right to a good health status.

We cannot but mentioning here the unique possibility an event of this kind offers. Not only will **the scientific programme be attractive for visitors from abroad**. They will also have the chance of knowing a city like Seville, which in recent years has been able to join together its position of a major city with a wide cultural offer and an **environmental-friendly evolution**, which are turning it into an European reference. And together with Seville, the rest of Spain, with millions of sites for all tastes: beauty created both by man and by nature, all this seasoned with the Spanish personality, which makes nobody feel a foreigner in our land. **We want to invite you all to participate at the Conference with your scientific contributions and your physical presence.** We would also like to invite collaborating firms to contribute to the success of the Symposium.

Be sure that AVEDILA will devote its commitment and illusion to make your stay as pleasant and useful as possible, both in scientific and in personal terms.

Prof. Dr. José Luis Blanco
President
AVEDILA

Department of Animal Health – Complutense University of Madrid

EAVLD
**6TH CONGRESS OF THE EUROPEAN
ASSOCIATION OF VETERINARY
LABORATORY DIAGNOSTICIANS**
SEVILLA





European Association of Veterinary Laboratory Diagnosticians

COMING SOON: EALVD 2020 6TH CONGRESS OF THE EUROPEAN ASSOCIATION OF VETERINARY LABORATORY DIAGNOSTICIANS

WHERE: SEVILLA (SPAIN)

WHEN : 19-21 OCTOBER 2020

FOR MORE INFORMATION: www.ealvd2020.org

- The submission of abstracts for posters and oral presentations is open. **Dead line: May 15 2020**

Scientific topics:

Antimicrobial resistance/ susceptibility testing

Biosecurity in animal health

Emerging and re-emerging diseases

Eradication and screening programmes

Exotic diseases in developed countries

Food and water safety

Fungal and parasitic diseases in animals

Laboratory sample management/ laboratory information Management Systems (LIMS)

New Diagnostic -Testing technologies

Proficiency testing- participants and organiser perspective

Quality systems- revised ISO 17025 (2017) standard

Role of wildlife in epizooties

Vector borne diseases

Whole genome Sequencing

Miscellanea

- All submitters will receive an **acceptance/rejection notification** via e-mail by **July 25 2020**
- All presenting authors are obliged to **register by August 9 2020**





European Association of Veterinary Laboratory Diagnosticians

“Our mission is to improve veterinary and public health by providing a platform for communication between European labs.”

Interview with Eefke Weesendorp, President in charge of EALVD



Dear Eefke, you were recently charged as president of EALVD association. What are your first impressions about the first year? Your feeling about that?

I am vice-president of the EAVLD since 2016. The two years as vice-president were very convenient to get to know the other members, the statutes and the way the board works. Since last year I am president, and it is an exciting job to help to organize an interesting and high quality EAVLD conference in 2020. We plan to include discussion session in the conference programme on specific topics like BVD and IBR control, which would be an interesting opportunity to go deeper into these subjects and share experiences with scientist from other laboratories. Also other topics, like the LIMS* systems are important for me to discuss during the conference. My lab is currently in the process of planning a new LIMS systems with new features. It is a challenge to run such a project and implement a system that is of added value to our lab. This all makes that I am really looking forward to the meeting in October 2020.

Let me talk about EALVD in numbers: have you any data about the number of participants of the association and to the congresses, involvement of young people etc. in last year?

We had about 300 participants in the EAVLD conference in 2018, and we expect the same number of participants for the coming meeting. The participants of the conference 2020 will be automatically member of the EAVLD for the next two years. Quite a proportion of young scientists and PhD students attended the last meeting. For the coming EAVLD conference, we will also give several bursaries to PhD students to attend, so I hope we can encourage even more young people to come. They will bring new ideas and perspectives and they are the future scientists in our labs...

*LIMS : Laboratory sample management/ laboratory information Management Systems



European Association of Veterinary Laboratory Diagnosticians

Interview with Eefke Weesendorp, President in charge of EALVD



What will EALVD represent for European laboratory veterinarians in the future?

Our mission is to improve veterinary and public health by providing a platform for communication between European labs. Not only between reference institutes, but also between private laboratories. Besides that, we work on training during conferences and promoting the highest standards in European veterinary laboratories. This will help laboratories for instance on information how to improve their tests, or which tests will be important for the future. For me personally, I have often questions on test characteristics, our quality system, LIMS or ISO accreditations, which I love to discuss with colleagues from other labs. We all face similar problems and it is important for me to have the opportunity to learn from others in solving these issues.

Have you been able to balance this charge with your job? I mean, did you manage well?

This year has been extremely busy. Beside of being head of the diagnostic department, two groups joined my departments, one group which performs batch control activities for pharmaceutical companies, and one group that prepares and sells specialized media for laboratories. In the batch control group we implemented GMP, and within the diagnostic department the new ISO17025:2017 standard. This was often challenging to combine with the EAVLD activities, but I have excellent other board members and colleagues who help to organize and arrange our activities.

Would you recommend something to new member boards?

It is a great experience to be part of the EAVLD board, a time to make new contacts with people from other laboratories and work together on ideas to make the conferences better and the EAVLD communication platform stronger. This does not apply only to board members, also ideas from other EAVLD members are always welcome!

Thank you Eefke !



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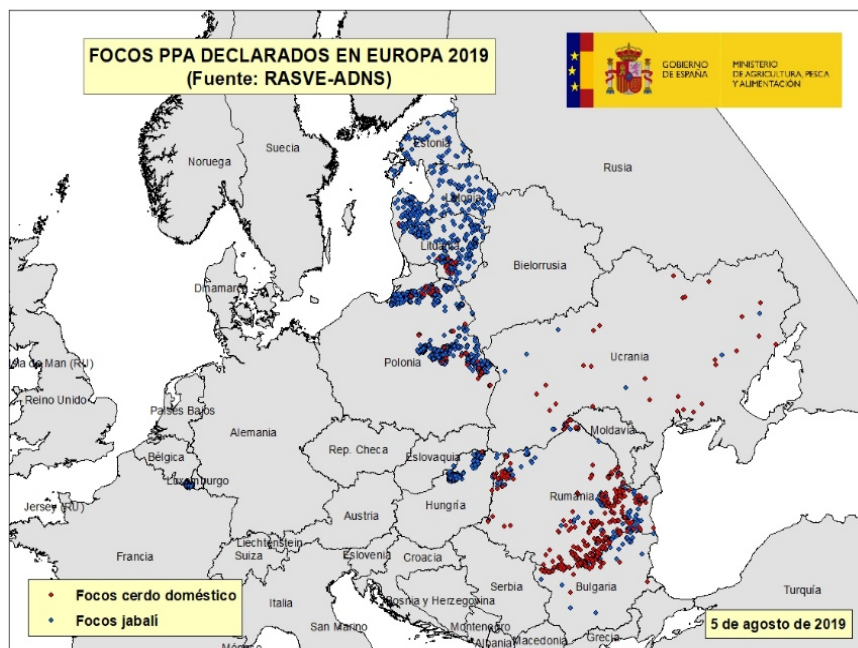
CURRENT SITUATION OF AFRICAN SWINE FEVER IN EUROPE

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National Reference Laboratory (NRL) for African swine fever in Spain

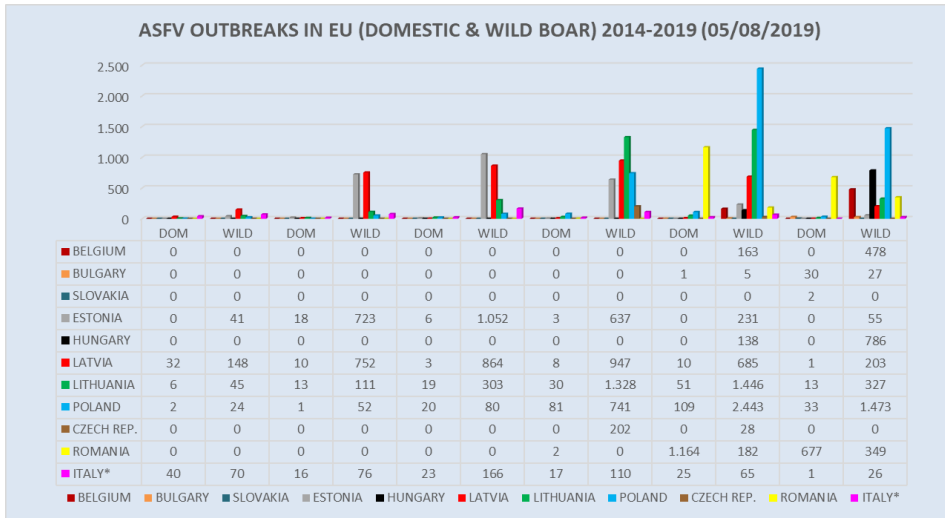
African swine fever (ASF) has become a major disease of concern for Europe, Asia and Africa due to its economic impact on pig production sector (high mortality, morbidity, official control measures, etc.) as well as its great sanitary and socioeconomic consequences on international trade of swine animals and products. The causative agent of the disease is the ASF virus (ASFV), the only member of the *Asfarviridae* family with a very complex structure. Humans are not susceptible to the disease. In the last decades, ASF was mainly endemic in Sub-Saharan Africa, with foci in Sardinia, Italy (ASFV Genotype I since 1978). After a single introduction of ASFV Genotype II in Georgia from East Africa in 2007, the disease spread rapidly throughout the Caucasus and then into Russia. Currently ASFV is present in South Eastern Asia countries (including China), Eastern Europe (including European Union -EU- countries) and Belgium. Source: EU Animal Disease Notification System (ADNS). Although most of the outbreaks in domestic pig in EU countries have occurred in small farms and were contained relatively quickly, there is a great concern for further spread within the EU to non-affected Member States (MSs) because the disease is still present and spreading among wild boar populations of affected countries, where containment is more difficult, and there is no vaccine available to control it. Moreover, there are still significant knowledge gaps in the prevention and control of this disease, especially in relation to population wild boar dynamics and ASFV survival and transmission. The specific EU legislation to fight ASF, the high quality assurance standards of the Official Veterinary Services in the EU countries and the existence of an EU Reference Laboratory (EURL) for ASF (CISA-INIA, Valdeolmos-Madrid SPAIN) which coordinates the laboratory network in the MSs to maintain the EU diagnostic capability, are the main tools to prevent the spread of the infection in the EU. Furthermore, the EU has developed a harmonised strategy to tackle the disease in affected countries and to prevent the occurrence of the disease in free territories.





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CURRENT SITUATION OF AFRICAN SWINE FEVER IN EUROPE



*Limited to Sardinia, ASFV Genotype I

Source: RASVE-ADNS

However, the availability of an effective and safe ASF vaccine would allow improved ASF disease control and eradication programmes as well as reduced economic losses. Work leading to the rational development of a protective ASF vaccine, therefore, is a priority. EU Commission has invested in research programs, such as VACDIVA aimed at selecting ASF candidates to develop a useful vaccine. To date inactivated preparations of ASFV have not conferred protection even in the presence of adjuvants. On the other hand, live attenuated vaccines (LAV) and subunit vaccines approaches have shown effectiveness. From the currently available data on vaccine development, live attenuated vaccines (LAV) have demonstrated to be able to confer solid protection (up to 100% surviving) against ASFV experimental challenge. Nevertheless, some gaps, such as the safety or the maintenance of a cell line for vaccine production, might constrain the development of an effective and safe LAV vaccine against ASF in the mid-term. Conversely to LAVs, subunit vaccines present the advantage of their innocuous nature; however, they would require a long-term effort in terms of research aimed at identifying immunological relevant antigens and immune protective mechanism, in order to get a solid protection

References:

- WORKING DOCUMENT Blueprint and Roadmap on the possible development of a vaccine for African Swine Fever prepared by the African Swine Fever EU reference laboratory on Commission request. SANTE-2017-10272
- Research gap analysis on African swine fever. European Food Safety Authority (EFSA). doi: 10.2903/j.efsa.2019.5811
- WORKING DOCUMENT Strategic approach to the management of African Swine Fever for the EU. SANTE/7113/2015 - Rev 10



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A HUMAN HEPATITIS B-LIKE VIRUS IS PRESENT IN CATS: AN UPDATE

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Hepadnaviruses have been identified in several animal species including primates, bats, rodents, birds and fish (Wang et al., 2017). In 2018 a novel member of the family *Hepadnaviridae*, similar to HBV, was identified in a seven-year-old, male-neutered domestic shorthair cat, presented for vomiting and weight loss. At physical examination a large mid-abdominal mass was found, that based on the cytological findings, was diagnosed as a large cell lymphoma. Post-mortem investigations allowed diagnosing a multicentric large B cell lymphoma and a concomitant infection with feline immunodeficiency virus (FIV). Tissues of the cat were included in a transcriptomic study aimed to analyze the gene expression profile of cats with neoplasia and, serendipitously, sequences of the hepadnavirus were generated. Subsequently, by PCR with specific primers, the virus, called Domestic Cat Hepadnavirus (DCH), was identified in other cats and a possible association with FIV was noted (Aghazadeh et al., 2018). The pathogenic potential of domestic cat hepadnavirus (DCH) is unknown yet, although hepadnaviruses are generally considered hepatotropic viruses (Seeger & Mason, 2013; Karayiannis, 2017). A 2019 study, carried out in collaboration with several feline medicine specialists from different parts of the world (USA, UK, Australia and New Zealand), focused on DCH research in animals with chronic hepatitis and hepatocarcinoma (HCC). Liver biopsies from healthy cats and DCH-positive cats were tested both by PCR and by in situ hybridization (ISH). Interestingly, in cases of chronic hepatitis, in DCH-positive cats, histological alterations were identified in the hepatic tissues, similar to those observed in human hepatitis caused by HBV (fragmentary necrosis and apoptotic bodies). In two subjects with HCC, the proliferation index in ISH-positive regions was higher than in ISH-negative regions.

Furthermore, based on the intracellular distribution of the DCH virus in hepatitis and HCC cases, the nucleic acid of the virus was present both in the nucleus and in the cytoplasm of hepatocytes. All these elements suggested an association between the presence of the DCH virus and both chronic hepatitis and HCC in cats (Pesavento et al., 2019).

In another study, the researchers investigated the prevalence of DCH virus in feline population (Lanave et al., 2019) screening a total of 390 sera collected from veterinary clinic laboratories. One-hundred seventy-four sera (collection A) had been submitted to laboratory for diagnosis of infectious diseases (FIV, feline leukemia virus (FeLV), feline coronavirus (FCoV), toxoplasmosis, hemoplasmosis, bacterial and fungal infections). Two-hundred sixty-six sera (collection B) submitted to the laboratory for pre-surgical evaluation (n=85) or for suspected metabolic (n=127) or neoplastic (n=4) disease were used for comparison to generate a baseline/control for the study (Lanave et al., 2019). DCH DNA was detected by quantitative PCR in 10.8% (42/390) sera with a significantly higher prevalence (17.8%, 31/174) in collection A than in collection B (5.1%, 11/216), used as control. When analysing the results by age-based cohorts, an increased prevalence of DCH (20.5%, 8/39) was observed in the 4-7 month-old group. The complete genomic sequence of the novel feline hepadnavirus (DCH), strain ITA/2018/165-83, was reconstructed and it showed a high degree of nucleotide sequence identity (97.0%) to the Australian reference strain AUS/2016/Sydney. Almost half of the sera positive for DCH (14/31, 45.2%) of collection A were collected from cats with retroviral infection (FIV and/or FeLV). These findings echo what has been documented for HBV, which is more frequently observed in immunocompromised individuals



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A human hepatitis B-like virus is present in cats: an update

Reactivation of HBV is common in patients with immunosuppression. Even more interestingly, hepatopathy has been described in FeLV-infected cats, with icterus and various inflammatory and degenerative liver diseases. Feline retroviruses have been demonstrated to impair severely the immune system in infected cats and diseases associated with immune-suppression account for a large portion of the morbidity and mortality observed in FeLV-infected cats.

Transmission of HBV in humans occurs through blood and other body fluids and contagion can also occur during sexual contact and by maternal/fetal route. Transmission of FIV/FeLV in cats occurs with similar modalities, as the viruses tend to persist in blood and body fluids. Similar modalities of transmission might also be hypothesized for DCH, since we found viremia in 10.8% of the cats, a pattern that is not consistent with acute, self-limiting infections. Importantly, the presence of DCH in the sera may pose unexpected risks in transfusion medicine. DCH, along with feline retroviruses, *Bartonella* spp. and feline hemoplasma, should be considered in the screening of donor subjects. Out of 42 DCH-infected cats, information on hematologic and serum biochemical parameters was retrieved for 20 animals. In 10 of these, increased levels of markers indicative of structural or functional liver damage (i.e. AST, ALT, ALP, GGT and total bilirubin) were present. HBV load is considered relevant in infected human patients and varies markedly across the phases of HBV infection.



The lower threshold for risk of active hepatitis and liver damage is 10^4 viral genome equivalents of HBV per mL, equivalent to about 2000 IU (international unit)/mL. Usually, high HBV DNA load in blood is found in acute infection, or in active chronic stages of disease, but the virus can reactivate after long periods of apparent remission, chiefly in immunosuppressed patients. The mean and median values of DCH viremia in feline sera were 1.3×10^6 and 2.1×10^4 DNA copies per mL (range $3.3 \times 10^0 - 2.5 \times 10^7$ DNA copies per mL). In 7 out of 10 animals with suspected hepatic disease, DCH load was $> 10^4$ genome copies per mL. Although this parallelism between HBV and DCH is intriguing, whether a correlation also exists between DCH replication and liver damage should be assessed in structured, larger observational studies. For instance, we also found the virus in cats with unaltered hepatic markers. The actual patho-biology of DCH in cats should be determined in order to understand better the patterns of DCH infection. To summarize, there is now evidence that a novel hepadnavirus is a common component of the feline virome. Several novel viruses have been discovered in cats in recent years. Optimizing the diagnostic algorithms and gathering epidemiological data will help assessing the possible pathogenic role of these viruses in cats and eventually conceive strategies to protect their health.

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UNITED WE STAND: WHEN EALVD MEETS OTHER ASSOCIATIONS



ESGVM

ESCMID STUDY GROUP
FOR VETERINARY
MICROBIOLOGY

European Society of Clinical Microbiology and Infectious Diseases



During the First congress of the European College of Veterinary Microbiology (ECVM) , held in Athens, at the end of September 2019, **a meeting of three associations: ECVM, EALVD and The ESCMID Study Group for Veterinary Microbiology was organized** and a memorandum of understanding was discussed. In fact, all three organizations have similar aims and missions, summarized as follows:

- To promote One Health by facilitating joint research, training and collaboration between human and veterinary microbiologists within areas of common interests;
- To provide a forum for veterinary microbiologists in Europe to work together towards preventing animal infectious diseases and protecting public health;
- To promote evidence-based antimicrobial therapy, antimicrobial stewardship and best infection control practices in veterinary medicine;
- To contribute to the training of Veterinary Specialists in Veterinary Microbiology across all European countries at the highest possible level so as to ensure that effective veterinary medical services will be provided to the public;
- To improve veterinary and public health by promoting the highest standards in European veterinary diagnostics laboratories;



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During the meeting in Athens, the participants agreed that it is necessary to join forces and work together towards achieving the common objectives. The following pillars of collaboration have been proposed:

•Mutual use of dissemination resources

- 1.Encourage registration of members from one organization to the other two;
- 2.Shared internet access to training material and other resources (this would be facilitated via membership)
- 3.Shared advertising of Scientific events, symposia, workshops, etc.
- 4.Shared advertising of available PhD studentships, residency positions and jobs;

•Organizing joint activities

- 1.Joint scientific meetings (e.g. Conferences, symposiums, workshops)
- 2.provide mutual meeting attendance discounts
- 3.Mutual sponsoring for attendance grants
- 4.Mutual invitations of speakers at joint events
- 5.Shared membership of the Scientific Committees of the next ECVM conference.

•Involving EALVD and ESGVM members in externships of ECVM residents

Several Activities have been planned for 2019-2020

- 1.ECVM and EALVD to become ESGVM (ESCMID) members and support the election of a veterinary microbiologist to the ECCMID Programme Committee to make the veterinary and One Health stream more visible;
- 2.Encourage ECVM and EALVD members to participate in the ECCMID, **Paris, 18-21 April 2020**; New ESGVM members will be able to attend the ESGVM AGM held in Paris.
- 3.Joint ESGVM Education Course-ECVM Conference, to be held **in Bari, Italy, 7-9th September 2020**.
- 4.Everyone invited to attend **the 6th EALVD Congress, 19-21 Oct 2020, Seville, Spain**.

• Designated partnership leads:

For ECVM: Dorina Timofte (UK). For ESGVM: Els Broens (NL) . For EALVD: Marialaura Corrente (IT)

FOR MORE INFORMATION : VISIT THE WEBSITES!

ECVM : <http://ecvmicro.org/>

ESGVM: <https://www.escmid.org/esgvm>

*Together we stand:
When EALVD meets other associations*



ESGVM ESCMID STUDY GROUP
FOR VETERINARY
MICROBIOLOGY
European Society of Clinical Microbiology and Infectious Diseases





European Association of Veterinary Laboratory Diagnosticians

Young researchers' tales across Europe: second appointment

To CRISPR or not to CRISPR? From Italy to UK, a One health profile

The story of Erika Grandolfo

Erika Grandolfo is an Italian Microbiologist currently working in the UK as a researcher. In 2012 her master's degree in Pharmaceutical Biotechnology at the University of Parma, provided her with veterinary field experience through a traineeship. In addition, she had the opportunity to work under the supervision of Prof. Gaetano Donofrio, contributing to the development of a recombinant vaccine against the caprine herpes virus CpHV-1. From this work she produced a thesis entitled "Recombinant BoHV-4 expressing CpHV-1 gd is highly immunogenic in goats".

In 2013, Erika was ranked seventh out of 200 candidates, and went on to win an 18-months fishing industry scholarship. The industry gave her the opportunity to work in quality assurance and acquire several skills in aquaculture and fish pathology. After achieving highly in all her exams, she became ISO certified in ISO9001, ISO19011, and ISO22000.

In 2014, she won a three-year grant for a Ph.D. in "Animal Health and Zoonosis" at the Department of Veterinary Medicine of the University of Bari, Aldo Moro.. During this time, she acquired expertise in the diagnosis of infectious bacterial diseases and antibiotic resistance in livestock and small animals. Under the supervision of Prof Marialaura Corrente, she underwent extensive biomedical research in collaboration with national and international institutes. Furthermore, she reported her results through authoring articles and presentations at prestigious scientific conferences and seminars.



Ph: Gaia Carella



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The story of Erika Grandolfo: UK experience

In 2017, she spent a period of her Ph.D. collaborating with the Department of Veterinary Medicine, University of Cambridge. Working alongside her supervisor Prof. Mark Holmes, they focused on bioinformatics analysis and whole genome sequencing.

Erika's final thesis for her Ph.D. was submitted in 2018 and was entitled "Genomic analysis of antibiotic resistance genes and virulence factors associated with *Staphylococcus aureus* and *Staphylococcus pseudintermedius* infections in different hosts".

During the same period, Erika started her employment as a Microbiological Researcher at Folium Science in Bristol, a biotech company that operates in bioscience for agriculture. Folium has developed a promising new technology based on CRISPR DNA editing called Guided Biotics[®], which specifically removes unwanted bacteria from the animal gut and can reduce zoonosis and food safety risks that can be associated with livestock production. As a microbiological researcher and animal scientist, Erika is currently focused on testing this new technology in vitro and in vivo. In particular, the research she is carrying out is based on the development of different assays to confirm the efficacy of the Guided Biotics[®] in the reduction of pathogenic bacteria such as *Salmonella spp.* and *Escherichia coli*. The data generated will support the commercialization of the first Folium product from 2020 in territories across the world including India, the Philippines, Brazil, and the United States



"Bristol? A smart city where young people can work, but also have fun" Erika says



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MERRY CHRISTMAS AND HAPPY GREEN NEW YEAR!



Newsletter by Marialaura Corrente