

**Director :** Dr Gilles SALVAT

**Deputy-director :** Dr Nicolas ETERRADOSSI

The Laboratory for Poultry, Swine and Fish Research, located in Brittany, includes Ploufragan which is part of the Zoopôle (Animal Science and Food Technology Science Park) near Saint-Brieuc, and Plouzané near Brest. It is affiliated to Anses, a National Agency with 5 supervisory ministries : food/agriculture, health , consumers affairs, environment and labor.



The two experimental sites of Ploufragan, created in 1958 and 1973, are dedicated to Poultry and Swine, respectively. They were integrated into CNEVA (Centre National d'Etudes Vétérinaires et Alimentaires) in 1988, became part of AFSSA (French Agency for Food Safety) in 1998 before joining the Anses (French Agency for Food Environmental and Occupational Health Safety) on July 1, 2010. Plouzané laboratory started in 1974 and joined the laboratory of Ploufragan in 2006. The total staff reaches 210 people.



### RESEARCH ACTIVITIES AND SCIENTIFIC SUPPORT

The laboratory carries out research and provides scientific and technical support as well as expert advice in the fields of : animal health, animal welfare, food safety.

Poultry, rabbit, swine and fish are the target animal species. These researches allow a systemic, integrated approach of the problems encountered in the related productions, by combining microbiology, parasitology, epidemiology, virology and biotechnologies such as molecular biology, vaccinology, together with zootechnics and system analyses.

The studies deal with the main aspects of veterinary research including veterinary public health. The development of new, more appropriate methods for pathogen detection and host pathogen interactions are focused on in research projects. The pathogens are submitted to detailed characterization using the most modern equipment and advanced technologies. Our interest is also directed at immunity and vaccination. *In vitro* and *in vivo* experiments take place in dedicated, specifically-designed containment facilities of high bio-security standard (Biosafety level 3).

Moreover, SPF (specific pathogen free) animals are raised in appropriate buildings in order to maintain their high sanitary status. Major infectious diseases of poultry, swine and fish are investigated.

In addition to animal health, animal welfare and food safety are the other topics of interest. Different issues related to food safety are addressed in several research projects and investigations are carried out at different stages of the poultry and pork production chains, including meat plants. The laboratory has chosen to work in close connection with the field, one of the links being made by epidemiologists who ensure the continuum from farm to fork. In this respect, the pre-harvest stage is a matter of major concern for our teams. The main research activities in the field of food safety are closely related to microbial ecology of host pathogens. Animal health surveillance is also another task of the laboratory through networks for epidemiological and antimicrobial resistance surveillance.

Ploufragan is the National Reference Laboratory for Newcastle disease, avian influenza, avian botulism, avian mycoplasma, antimicrobial resistance, campylobacter and salmonella. It is also the National Reference Laboratory for classical swine fever and African swine fever, swine influenza and Aujeszky's disease. Additionally, it is the reference laboratory of the World organization for animal health (OIE) for Aujeszky's disease, as well as Gumboro disease and avian metapneumoviruses.

Concerning fish, it is the national reference laboratory for the viral haemorrhagic septicaemia (VHS), infectious haematopoietic necrosis (IHN) and infectious salmon anaemia (ISA).



➤ **8 RESEARCH UNITS :**

**Mycoplasmaology-Bacteriology (MB)**

The studies relate to avian and porcine bacterial infections, especially mycoplasmosis, respiratory bacteriosis in pig (including APP and S. suis) and antimicrobial resistance.

Head of Unit : Dr Isabelle KEMPF ([isabelle.kempf@anses.fr](mailto:isabelle.kempf@anses.fr))

**Avian and Rabbit Virology-Immunology-Parasitology (VIPAC)**

The studies deal with avian and rabbit virus and parasitic diseases : Newcastle disease, avian influenza (NRL\*), Gumboro disease, avian metapneumovirus, coccidiosis.

Head of Unit : Dr Véronique JESTIN ([veronique.jestin@anses.fr](mailto:veronique.jestin@anses.fr))

**Pig Virology and Immunology (VIP)**

The studies are focused on important viral porcine diseases such as classical Swine fever, African Swine fever, Aujeszky's diseases and major or emerging other diseases : Influenza, PRRS (NRL\*).

Head of Unit : Dr Marie-Frédérique LE POTIER ([marie-frederique.lepotier@anses.fr](mailto:marie-frederique.lepotier@anses.fr))

**Avian and Rabbit Welfare and Epidemiology (EBEAC)**

This unit manages epidemiological surveillance networks, collecting and analysing information about avian rearing conditions and diseases. Operational epidemiology in the field of avian influenza was recently developed. Studies are also conducted on the relationships between rearing systems and animal welfare in poultry and rabbit productions.

Head of Unit : Dr Virginie MICHEL ([virginie.michel@anses.fr](mailto:virginie.michel@anses.fr))

**Epidemiology and Welfare of Pigs (EBEP)**

This unit performs descriptive and analytic epidemiological studies in the areas of animal health and safety of pig products. This area includes pharmaco-epidemiology. Studies are also conducted on the methodologies of statistical analyses and modelling in the field of epidemiology.

Head of Unit : Dr Nicolas ROSE ([nicolas.rose@anses.fr](mailto:nicolas.rose@anses.fr))

**Viral Genetics and Bio-security (GVB)**

The research topics relate both to the genome of emerging viruses and to the viral and plasmidic vaccinal vectors. The models under study include porcine type II circovirus, pseudo-rabies' herpesvirus, avian adenovirus...

Head of Unit : M. Yannick BLANCHARD ([yannick.blanchard@anses.fr](mailto:yannick.blanchard@anses.fr))

**Hygiene and Quality of Avian and Pork Products (HQPAP)**

Different kinds of issues connected to the microbiological safety of eggs, poultry and pig meat are dealt with, emphasising on Salmonella, Listeria, Campylobacter and Yersinia. The microbial ecology approach is of great concern.

Head of Unit : Dr Martine DENIS ([martine.denis@anses.fr](mailto:martine.denis@anses.fr))

**Viral Diseases of Fish (PVP)**

This unit carries out research on viral diseases and immunology of farmed fish both in fresh water (salmonids) and sea water (sea bass, sea bream and turbot) by studying the viral infection transmission and the resulting immune response in the hosts.

Head of Unit : Dr Thierry MORIN ([thierry.morin@anses.fr](mailto:thierry.morin@anses.fr))

➤ **QUALITY MANAGEMENT SYSTEM SERVICE :** Michel MORIN

([michel.morin@anses.fr](mailto:michel.morin@anses.fr))

Contributes to maintain laboratories at a high level of quality assurance as accredited by the COFRAC (French National Organisation for Quality Assurance).

➤ **TRAINING AND COMMUNICATION :** Dr Elisabeth REPÉRANT

([elisabeth.reperant@anses.fr](mailto:elisabeth.reperant@anses.fr))

Contributes to the training of the local staff and to communication involving Anses.



There are 5000 m<sup>2</sup> of laboratories, out of which 3000 m<sup>2</sup> are confined laboratories.

➤ **3 EXPERIMENTAL DEPARTMENTS :**

**Breeding Department :**

- layers: a conventional building (3000 m<sup>2</sup>), with an 11000 laying hen capacity with one perchery/aviary section and another cage section 2012 complying finished cages
- broiler chickens: 11 houses (5000 m<sup>2</sup>)
- poultry breeding (hatchery, 42000 eggs),
- breeding rabbits (1000 m<sup>2</sup>),
- a feed mill for the manufacture of feed for poultry, pigs and rabbits raised for experimental purpose.

**Experimental confined facilities for Poultry :**

- The facilities are of level 3 bio-security (BL3)
- breeding and experimental section consisting of an animal house for parasitology, isolators and A2 and A3 containment rooms (2080 m<sup>2</sup>) for vaccination and infection challenges.
  - containment facilities producing Specific Pathogen Free (SPF) breeding hens, turkeys and ducks.

**Experimental confined facilities for Pigs (BL3) :**

- containment experimental rooms for challenges,
- containment pig house accommodating isolators and a small herd of 25 SPF breeding sows producing pigs for experimental purpose.

**Experimental Fish Department :**

- The experimental facilities include different sized tanks and thermo-regulated water allowing to work in thermal field conditions.
- rainbow trout spawners : 200 genitors (virus-free animals)
  - experimental rooms : 300 m<sup>2</sup>

These departments constitute an important component of the laboratory for the production of SPF animals, but are also used to perform experimental infections for research purposes, in a confined and safe environment (air filtration).



**COLLABORATION AND PARTNERSHIPS**

The research carried out is part of a cooperative network on a national and international level. In France, a number of links exist with other Anses laboratories, veterinary and agricultural colleges, the National School for Public Health, INRA, Pasteur Institute, etc. At the international level, there are numerous collaborative research projects : EU research programmes, COST programmes, and other connections with many countries throughout the world.

Some Anses scientists are also experts for international organisations : European Commission, EFSA, FSA, European Pharmacopoeia, EMEA, OIE, FAO, OMS,WHO and members of International Scientific Societies : ISAH, EAAP, ESVV, WVPA, WPSA..

The laboratory is located in France's leading area for poultry, pig and fish productions, facilitating the direct contact of scientists with the technical reality of agriculture and food chains (including feed mills, farms, fish-farms, abattoirs and food processing plants). This practical knowledge helps the laboratory to define its experimental approach and to identify the most relevant research needs, using appropriate facilities and the most advanced technologies.

The Ploufragan laboratory is part of a scientific park dedicated to animal production and animal-derived food called "Zoopôle" (<http://www.zoopole.com>) and the Plouzané laboratory is part of the scientific park "Technopôle Brest-Iroise" (<http://www.tech-brest-iroise.fr/>)

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