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NADIR Meeting at PTP

Lodi, Italy - February 15th-16th 2010

On the days 15th and 16th of February 2010 a NADIR Meeting was held at PTP in Lodi, Italy.

The main aim of the event was to decide with precision the genotyping and functional characterization of animal lines of chicken, pig, sheep, mice and fishes that are available through NADIR. It was also an opportunity to start challenge experiments with pathogens decided during the Lelystad meeting, through the "functional characterization" and "cell lines" discussions.

The topics discussed at the meeting are presented below:

- The work that has been done on genotyping/phenotyping animal lines (including pigs, chicken, fish and mice) by each partner attending the meeting was discussed. Special reference to inbred and MHC selected animal lines as tools for emerging di-

seases and species barriers.

- A list containing information on biological material available for NADIR partners, including cell lines, was established; each partner provided information on the number of human and animal cell lines maintained in their centers.

- The creation of working groups was discussed: one "Influenza" work group (reference person P. Mariani, PTP) and one "Salmonella" work group (reference person P. Kaiser from The Roslin Institute and University of Edinburgh). The former will integrate information obtained in vivo using chicken lines and in vitro using cell lines. The latter will validate

QTL data inbred and commercial lines. The Salmonella work group will also benefit from previous studies within the EADGENE EU NoE of which some NADIR partners.

- The necessity to maintain the dd/cc mini-pigs compared to pigs with high sanitary status, which are routinely used for various experiments.



Upcoming Events

International congress and conferences

ANIMAL GENOMICS FOR ANIMAL HEALTH- AGAH 2010-INTERNATIONAL SYMPOSIUM

May 31st - June 2nd 2010
 Maison de la Chimie - PARIS (FRANCE)
colloque.inra.fr/agah2010

INTERNATIONAL SOCIETY FOR ANIMAL GENETICS-ISAG 2010

July 26th-30th 2010
 Edinburgh Conf. Centre - EDINBURGH (UK)
www.isag.org.uk

PRION 2010

September 8th-11th 2010
 Salzburg Congress Centre
 SALZBURG (AUSTRIA)
www.prion2010.org

NADIR MEETING ON RIFT VALLEY FEVER, AFRICA SWINE FEVER AND AFRICAN HORSESICKNESS

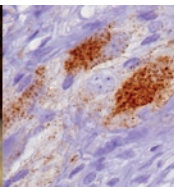
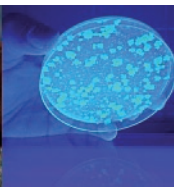
June 23rd 2010
 T4 Terminal, Barajas Airport - MADRID (SPAIN)
blanco@inia.es

NADIR INFLUENZA GROUP (CHICKEN AND PIG) MEETING

August 26th-27th 2010
 PARIS (FRANCE)
paola.mariani@tecnoparco.org
 TO BE CONFIRMED

EUROPEAN ASSOCIATION OF VETERINARY LABORATORY DIAGNOSTICIANS EAVLD 2010

September 15th-17th 2010
 Central Veterinary Institute, Wageningen - LELYSTAD (NETHERLANDS)
www.eavld2010.org/UK/



AFSSA : French Food Safety Agency

Highlighted Institution

Research Laboratory on Poultry, Swine and Fish.

Director: Gilles SALVAT

Sub-directors:

Pig sector: François MADEC

Poultry sector: Nicolas ETERRADOSSI

The Research Laboratory on Poultry, Swine and Fish (LERAPP) is located in Brittany (in Ploufragan near Saint-Brieuc and Plouzané near Brest). It is a National state laboratory with 3 supervisory ministries : Agriculture, Health and Consumers.

The two experimental sites of Ploufragan were created in 1959 and in 1973, dedicated to Poultry and Swine, respectively. They became part of AFSSA in April 1999. Plouzané laboratory started in 1974 and integrated the LERAPP in 2006. The total staff reaches 210 people including 85 scientists.

RESEARCH ACTIVITIES AND TECHNICAL 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 studied. This research enables 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, zootechnics and system analyses.

Studies undertaken at AFSSA deal with the main aspects of veterinary research including veterinary public health. Detection of pathogens and host pathogen interactions are studied. Detailed characterization of pathogens is carried out using the most modern equipment and advanced technologies. Our interest is focused on immunity and vaccination. In vitro and in vivo experiments can be carried out in dedicated, specifically designed facilities of high biosecurity standard (level 3).

Moreover, SPF (specific pathogen free) animals are raised in specific structures 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.

chains, including meat plants. The laboratory has chosen to work in close connection with work in the field: one of the links being made is 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 epidemiological surveillance networks.

Ploufragan is the national reference laboratory for Newcastle disease, avian influenza, mycoplasma, campylobacter and salmonella in Poultry. It is also the national reference laboratory for classical swine fever and African swine fever, swine influenza and Aujeszky's disease in pigs. Additionally, it is the reference laboratory of the OIE (World organisation for animal health) for swine Influenza, Gumboro, turkey rhinotracheitis and Aujeszky's diseases.

With respect to Fish, AFSSA is the national reference laboratory for the viral haemorrhagic septicaemia (VHS), infectious haematopoietic necrosis (IHN) and infectious salmon anaemia (ISA).



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



AFSSA : French Food Safety Agency

Highlighted Institution

RESEARCH UNITS

- Mycoplasmaology-Bacteriology
- Avian and Rabbit Virology-Immunology-Parasitology
- Pig Virology and Immunology
- Avian and Rabbit Welfare and Epidemiology
- Epidemiology and Welfare of Pigs
- Viral Genetics and Biosafety
- Hygiene and Quality of Avian and Pork Products
- Animal Feed Unit
- Viral Diseases of Fish



perimental feed for poultry, pigs and rabbits (maximum annual production capacity 800 tons).

pigs for experimental purposes and isolators.

- SPF pigs are raised in a small BSL3 piggery (20 sows). Renewal of the genetic background is achieved through hysterectomy. The high-health status of the pigs is a criterion for choosing the pigs in experimental trials.
- A specific facility is devoted to experimental trials. It is divided into 20 containment BSL2 or BSL3 rooms where inoculation can be carried out. Each room can hold two adult pregnant or nursing sows or 8-10 growing-finishing pigs. There are two necropsy rooms at one end of the building and an incinerator.

There are 5000 m² laboratories, of which 3000 m² are containment facilities.

EXPERIMENTAL DEPARTMENTS

Poultry and Rabbit Production Department : Conventional facilities (restricted access, shower before entrance, no air filtration)

- laying hens: one conventional building with an 10000 laying hen capacity, with one perchery/aviary section (5500 hens) and another section with cages complying the EU 2012 standard (4300 hens) ,
- future layers: a perchery type chick unit with a 5500 chick capacity (220 m² used by the hens),
- broiler chickens, turkeys, guinea fowl: 4 houses (3000 m² used by the animals),
- breeding rabbits: 110 breeder females and 1600 fattening rabbits (4 houses, total surface 1200 m²),
- facility for the manufacture of expe-

Experimental containment facilities for Poultry :

The facilities are of bio-security level 2 or 3 (BSL2 or BSL3)

- Containment rooms (BSL2, 15 x 25 m²) and isolators (BSL3, 13x 1m²) for bacterial and viral infections or vaccine challenges and Containment rooms (BSL2, 4 x 25 m²) for parasitological studies
- Protected facilities for producing Specific Pathogen Free (SPF) breeding hens, turkeys and ducks (total 1000 breeders).
- Containment facilities are connected to a heat processing plant for the sterilization of liquid effluents.

Experimental Fish Department :

Experimental facilities for fish (320m²) include different sized tanks and thermo-regulated water allowing work to be carried out in thermal controlled freshwater and seawater to mimic field conditions.

- 3 generations of virus-free rainbow trout producing 5.104 eggs/year supply enough fish for experimental studies in virology.

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

Experimental containment facilities for Pig (BSL3) :

- protected experimental rooms for experimental disease challenges,
- protected pig house accommodating a small group of SPF



The INRA UE1277 - Platform for experimentation on infectious diseases animal - PFIE facility

Highlighted Institution

Created from the fusion of two experimental facilities, one dedicated to Infection & Immunology and the other to Poultry and Pig Pathogens & parasites, PFIE is a coherent livestock experimentation platform centered on infection and bio-containment. We are teamed with IASP, the Animal Infectious Diseases and Veterinary Public Health Research Unit, which in the results of a similar fusion between two institutes, IASP is focused on the study and control of livestock pathogens that have a high economic impact, implications for human health, or a significant negative impact on the environment.

PFIE performs studies for IASP and as well other scientists and users, from both academic and private background. Studies can be carried out on site, with or without the support of our staff and collaborations with IASP.



Together with IASP, we form the Tours Animal Health Research Centre – PSAT, and perpetuate a 50 year history of animal infection research, encompassing numerous keywords such as Apicomplexes, Brucella, Chlamydia, Decontamination, Encephalopathies, Flu, Food-born pathogens, Genetic resistance, Gnotoxenics, Helminth, Immunology (mucosal, ontogenesis..), In-



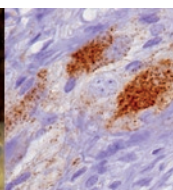
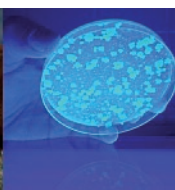
vasion, Jaagsiekte, Listeria, Mareck, Mastitis, Mycobacterium, New-born, Ovine diseases, Pig immunology, Q- Fever, Response from the host, Scintigraphy, Transgenics, Vaccine, X- Ray, and Zoonoses. From this background, we constantly address new emerging diseases, being particularly interested in vectorborne viruses such as Rift Fever and other emerging human threats.



We benefit from being hosts to an INRA Research Center focused on animal research, which reinforces our own capacities by collaboration with 2 large scientific teams coupled with experimental platforms for livestock physiology and breeding and avian research, which have a corresponding strong common infrastructure. In addition we share technical toolboxes for molecular, genetic and cellular investigations, and, most important for us, a strong surgical and medical imaging platform for medium to large animals. Our network of collaborations with Tours hospitals and faculties, and

INRA and external partners further enhances our potential.

PFIE staff is made up by roughly 30 animal carers; a dedicated group involved in new experimental designs and innovation, 3 veterinarians, 2 Ph.Ds, and a strong maintenance team with a total of 55 permanent members. Research undertaken at the PFIE and PSAT are performed with strict respect to animal welfare and care standards. Our facilities are certified for animal handling, raising, and performing in vivo experiments, our personnel are trained, qualified and registered by the appropriate regulatory agencies. We work in close collaboration with the local institutions and veterinary services, in order to keep a high ethical standard. The PFIE is ISO 9001/2000 certified and all studies are performed according to this standard.



The INRA UE1277 - Platform for experimentation on infectious diseases animal - PFIE facility

Highlighted Institution

We manage:

- Conventional stables,
- 2 SPF breeding facilities – for poultry, rabbits and mice, where several lines and strains of genetic interest are kept,
- A fleet of 50 high security contained isolator units including 6 “bioclimatic” prototypes,
- 26 experimental buildings with over 90 cells or suites where animals from mice to cows meet parasites, bacteria, viruses, prions or gene transfer vectors in settings from A1 – or even fields conditions – to A3 containment, in batteries or in up to 300 m2 of pure animal space.



One of our strengths is our experimental farm-oriented structure: this enables us to perform long terms studies in containment, e.g. up to 4 years for prions disease. In addition we are able to include reproductive or lactation endpoints in an A3 containment setting. Our contribution ranges from the availability of animals and simple access to routine protocols to a strong involvement in setting up dedicated infectious and surgical models, or the use of medical imaging.



The fusion generating PFIE is associated with the renewal, upgrading and reshaping of our animal facilities, a program involving around 20 M€ investments. Three elements could be highlighted to demonstrate our capacities:

Germ-free Chicken

We breed and raise animals for infectious studies, either disease controlled, free of specific infectious agents, or completely gnotoxenic. From our SPF egg facility, we routinely derive axenic chicken raised in isolators. The germ-free chick is the most reliable tool for researchers working with an animal with no pathogenic history / background and not having undergone any treatment (antibiotic, antiparasitic, vaccines...). Germ-free animals enables fundamental research to be carried out on topics such as bacterial genetics, physiology and the environment among others. These chickens can be repopulated with specific micro organisms to generate a gnotoxenic flora. Our experience started in 1966 together with the design of adapted isolators which was first published in 1973 – and which are still operative.

cells, biological or pharmaceutical products to be tracked over time in the same individual in a non-invasive manner in small to middle sized animals. Our facility is currently being re-shaped to accept a new upgraded X Ray scan coupled 3D scintigraphic system and will be operational end 2010 – early 2011.

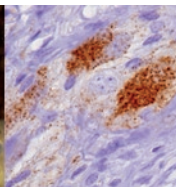
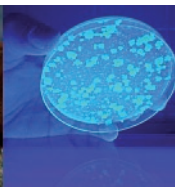


INPREST, A technically innovative building entered into operation in 2009

This new masterpiece of A3 facility, initially set up for research on transmissible spongiform encephalopathies, is now available to research on all pathogens requiring this level of containment, and particularly on emerging diseases. It has 4,120 m² includes over 800 m² for pure housing of animals. Two contained stables can accommodate up to 12 dairy cows each, and 8 smaller suites which can house up to 20 sheep each, or an equivalent number of goats, pigs, or poultry, each room includes a dedicated surgery/ necropsy room, and half have a milking area. This “luxury liner” of our experimental armada was launched at the end of 2008, and the last year has been spent commissioning and testing it. It is now operative and ready to accept pathogens.

Biocontained medical imaging system: 3D SPECT –X CT in A3 facility

This A3 localization of scintigraphic suite next to the animal rooms enables functional imaging to be carried out on naturally or experimentally infected animals. Our facility allows the infection process to be followed and the bio-distribution and homing of labeled pathogenic agents, transplanted



Transnational Access projects Call for Proposals

NADIR invites the Research Community to bid for funding to carry out projects within the 14 facilities participating in the network. Proposals can be for projects involving research on any of the livestock species (cattle, pigs, chickens, sheep, goat and fish) and may use live animals including laboratory species (e.g. mice) or cell lines. NADIR will fund the experimental work within the facilities and also travel and subsistence costs linked to the proposed project. Priority will be given to projects focused on diseases or pathogens requiring L3 containment, but proposals requiring a lower level of containment will also be considered.

Research laboratories or consortia of laboratories (public or private) from any European country or from EU associated countries can apply. To be eligible applicants must satisfy the following conditions:

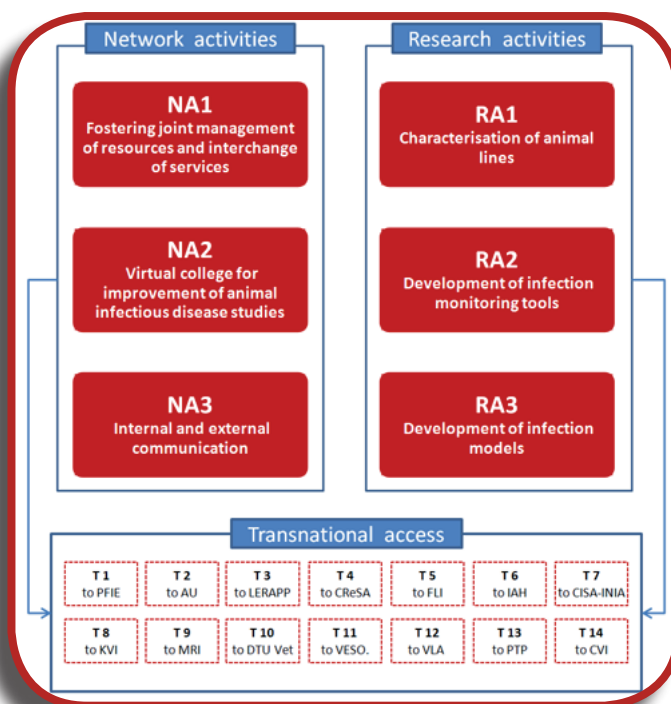
The application leader and the majority of the users (if a consortium) must work in:

- 1 - an institution established in a Member State or Associated State;
- 2 - a country other than the country where the NADIR facility is located.

Proposals will be reviewed by an independent steering group of experts in the fields of disease research and animal

experimentation. The review will take into account the scientific quality, novelty, feasibility and the ethical soundness of the proposal, and in addition the expertise of the applicants, the cost and the duration of the work. There is no closing date for this call and projects submitted will be considered at the next meeting of the Trans-national access steering committee.

More information about call description; facilities, the application procedure and eligibility criteria is available at: http://www.nadir-project.eu/nadir_project/call_for_access



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