



# Dozulé Laboratory for Equine Diseases

Through its 26-strong staff, the Dozulé Laboratory for Equine Diseases is helping to improve horse health:

- member of the national epidemiological surveillance network and coordinator of the observatory for equine diseases, the laboratory monitors the occurrence and/or spread of major and emerging diseases and analyses their causes, particularly through epidemiological field surveys and autopsies for diagnostic, expert appraisal or research purposes;
- it studies the infectious agents and parasites affecting horses and develops diagnostic tools and preventive measures for associated diseases;
- as the National Reference Laboratory (NRL) for contagious equine metritis, dourine, equine viral arteritis, herpesviruses and equine infectious anaemia, it provides scientific and technical support for veterinary inspections carried out by French authorities;
- since July 2008, it has shared the status of European Union Reference Laboratory (EURL) for equine diseases with the Maisons-Alfort Laboratory for Animal Health. Five of the eight diseases included in this mandate are covered by the Dozulé laboratory, namely contagious equine metritis, dourine, equine infectious anaemia, equine viral arteritis and equine herpesvirus infections.

## Three research units

- Bacteriology and parasitology (contagious equine metritis, dourine, antimicrobial resistance)
- Epidemiology and pathological anatomy
- Virology (equine viral arteritis, equine infectious anaemia, herpesviruses and equine influenza)



# Reference activities

Under the NRL and EURL mandates for contagious equine metritis, dourine, equine infectious anaemia, herpesviruses and equine viral arteritis, the Dozulé laboratory carries out various reference activities:

## First- and second-line diagnostic analyses

- Contagious equine metritis: bacteriology, immunofluorescence and PCR.
- Equine viral arteritis and equine infectious anaemia: serological tests, viral isolation, RT-PCR.
- Dourine: serological tests.

## Organisation of inter-laboratory proficiency tests (ILPT)

- For accredited French laboratory networks:
  - contagious equine metritis (bacteriology: 59 accredited laboratories; indirect immunofluorescence: 41 accredited laboratories);
  - equine viral arteritis (serum neutralisation: 11 accredited laboratories; viral isolation: 7 accredited laboratories);
  - equine infectious anaemia (Coggins test: 12 accredited laboratories);
  - dourine (complement fixation test: network under construction).
- For EU member state NRLs.

## Organisation of European workshops and forums

## Training

- Of French and European laboratories in diagnostic techniques for the diseases covered by the national and European reference mandates.
- Of horse industry professionals: participation in French horse and riding institute (IFCE) training days and professional symposia.
- Supervision of students from universities, veterinary or engineering schools.

# Main research programmes

## Bacteriology

- Contagious equine metritis (CEM):
  - development, optimisation and/or validation of diagnostic tools;
  - characterisation and molecular typing of isolates of both *Taylorella equigenitalis*—responsible for CEM—and *Taylorella asinigenitalis*;
  - research into the ecology of the *Taylorella* genus.
- Antimicrobial resistance:
  - research into the efficacy of antimicrobial peptides against the main pathogenic bacteria for horses, a possible alternative to antibiotic therapy,
  - participation in antimicrobial resistance monitoring projects on the principal bacteria behind equine diseases.

## Virology

- Research into the role of testosterone in the replication and persistence of the virus causing equine viral arteritis in stallions.
- Evaluation of the antiviral properties of new molecules.
- Development of new-generation molecular diagnostic tools such as DNA sequencing chips.
- Next-generation sequencing (NGS) and molecular characterisation of equine infectious anaemia (EIA) and equine viral arteritis (EVA) strains.
- Sero-epidemiological study of EVA and EIA in the Balkans.

## Parasitology

- Prevalence and pathogenicity of the horse's main digestive parasites (autopsy).
- Improvement of serological and molecular diagnostic methods for dourine.
- Dourine treatment trials with a view to updating international regulations on equine trypanosomoses.

## Epidemiology Epidemiological surveillance

- Exploitation of the autopsy databank: descriptive epidemiology of the main equine diseases based on autopsied cases.
- Epidemiological surveillance of equine diseases in France: evaluation of the efficiency of current systems and proposal for improving them through networking (University thesis).
- Organisation and leadership of the national surveillance network on causes of equine mortality.
- Initiation and exploitation of a quantitative observatory on equine mortality in France.
- Participation in monitoring antimicrobial resistance of pathogenic bacteria from horses.



## Main financial, scientific, industrial or trade partners

- European Union
- Regional Council of Basse-Normandie
- Hippolia joint venture
- Hippolia competitiveness cluster
- Hippolia foundation for scientific cooperation
- Institut Pasteur, Paris
- CNRS
- INRA, the French institute for agricultural research
- IFCE, National vocational training centre for stud farms – La Jumenterie du Pin
- University of Caen Basse-Normandie
- GRECAN, the regional cancer investigation group, Clinical research unit, Centre François Baclesse, Caen
- Frank Duncombe laboratory
- the French national veterinary schools
- Centre for Imaging and Research on Equine Locomotor Disorders, French national veterinary school of Alfort
- AVEF, the French equine veterinary association
- SNGTV, the French national society of veterinary technical groups
- SEPPIC, Vétuquinol
- Gluck Equine Research Center, University of Kentucky, USA
- Irish Equine Centre, Ireland
- University of Kiel, Germany
- Institute for tropical medicine, Antwerp, Belgium
- Network of accredited departmental analysis laboratories
- European network of National Reference Laboratories



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