EMERG'IN

Research infrastructure for the control of animal and zoonotic emerging infectious diseases through in vivo investigation

EXPERIMENTAL RODENTS AND FISHES INFECTIOLOGY PLATFORM







The **Experimental Rodents and Fishes Infectiology Platform** (IERP) is dedicated to the ***in vivo* study of infectious processes on model organisms** (rodents and zebrafish) **and species of agronomic interest** (trout and carp).

The IERP is an **open infrastructure**, unique in Ile de France located on the INRAEcampus of Jouy-en-Josas (Paris Saclay University).
Provides access to confined facilities for handling **class 2 pathogens and GMOs.**

Services integrates: **animal supply, *in vivo* experimentation** (infectious/ inflammatory challenges), **screening of anti-infectious strategy** (prophylactic and/or therapeutic) and **phenotyping of animals under experimental use by 3R approaches.**

Users benefit from the support for **project timeline, know-how and expertise of highly qualified personnel** (animal testing and biolosecurity) and privileged access to **confined facilities equipped with state-of-the-art technology.**

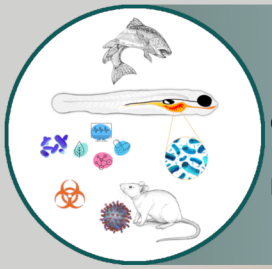
IERP is **labeled** Infrastructure Scientifique Collective (INRAE) and platform IBISA. It is ISO 14001 certified (Environmental Management System) and committed to a quality approach (ISO 9001).

At the interface between academic research and stakeholders (industrialists, producers...), **IERP interacts at territorial, national and international levels. Member of several thematic and partners in European research programmes such as** (InnaSCo, Frontinov, Rmul, RESAMA, JRFP, AFSTAL, ...) **and partners in European research programmes** such as Vetbionet ERG, Aquaexcel 3.0, PAHW et ISIDORe.

IERP

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A privileged environment in Ile de France for animal experimentation in infectiology



Study of host-microbial-environmental interactions

- **Carrying out experimental protocols on animals** with controlled genetic and health status
- **Development of *in vivo* models** for the study of human and animal infectious/inflammatory diseases
- **Study of the host microbiota and the environment**: impact on immune skills and responses to pathogens
- **Screening of therapeutic molecules**

Supply of animals with specific health and genetic status:

- **Transgenic mouse lines** (KO, KI, mutants,....)
- **Isogenic trout**
- **SPF*rodents**
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*SPF: Specific Pathogens Free



Specific features of controlled environments

- **Contained environment (BSL2)**
  - 320m² of facilities, with a capacity of 3000 mices
  - 300 m² of experimental fish farming (embryo to adult manipulation, capacity to 104 aquariums and 14 ponds of water lost or recycled)
- **Sterile environments for production/housing of controlled flora animals**
- **Multi-species quarantine**
- **Phenotyping equipment** distributed within the devices

Functional exploration phenotyping in contained environment:

- **Confocal/ 2-photon imaging in 3D/3D+t**
- **Light sheet imaging of thick transpared sample** (MesoSPIM)
- **Intravital Bioluminescence Imaging** (IVIS Spectrum) **on whole animals** (trout, carp and rodents).
- **Flow sorter and cytometer of complex biological objects** (COPAS): larvae and organoids
- **Immunohistochemistry in toto/ organs or whole organisms clearing** (RIMS, CUBIC, DISCO, ExM, ...)





Research and development

- **Aquaculture engineering** (circuit design, housing prototypes)
- **Germ free and gnotobiotic Zebrafish production**
- **Animal behaviour/welfare** (home made systems)
- **Data processing and analysis** (integration, deep learning, AI)

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