

UMR 1313 - GABI

EFISA

Team leader

Hervé Acloque

Katayoun Moazami-Goudarzi

Global theme

The EFISA team studies the function of genes and genetic variants in relation to health traits.


**université
PARIS-SACLAY**

Attached to the **Université
Paris-Saclay**

Attached to the **SDSV doctoral
school** (Structure and Dynamics of
Living Systems)


SAPS

Sciences Animales PARIS SACLAY

SAPS member

Sciences Animales Paris-Saclay


**France
Futur
Elevage**

Member of Institut Carnot
France Futur Elevage

Animal Genetics and Integrative Biology (GABI)

Functional Studies and Innovative Models for Animal Health

The EFISA team aims to better understand how different genetic, epigenetic and environmental factors can influence the health of farmed mammals and the construction of phenotypes. EFISA studies their consequences on mammary function, the development of neurodegenerative diseases and early embryogenesis. We use translational genomics approaches and develop original in vivo and in vitro models, from the nanoscopic to the individual scale.

Scientific questions

Our scientific project is organized around 3 interdependent themes: 1) the role of the mother-offspring continuum, 2) the identification and characterization of new genes of interest, and 3) the development of innovative approaches to the study of animal adaptation and health.

Research models:

- Model species: mice, rabbits.
- Breeding species: rabbits, cattle, goats, pigs.

Analysis scales:

- From the whole animal, over several generations, to the nanoscopic scale, via the organ and the cell.

1- Mother and child continuum in the construction of phenotypes

Since the construction of an adult phenotype is influenced by pre- and perinatal living conditions, from fertilization to weaning, we are studying the importance of the mother-child continuum from two complementary angles. On the one hand, we are interested in the links between the intra-uterine environment and fetal development, and on the other, we are furthering research into milk as a vector for bioactive molecules, notably via extracellular vesicles

2- Function of key genes for health

Our team is involved in the identification of genetic variants responsible for disorders of mammary function and embryonic development, neurological or reproductive disorders, and in their functional study. We are developing cellular and mouse models to study three issues that are difficult to explore directly in farm animals: 1) the function of key genes controlling mammary homeostasis and the secretion of milk components, 2) the involvement of genes in the development of neurodegenerative diseases, and 3) the function of key genes responsible for abnormalities in fertility and embryonic development. Such studies have applications in both animal and human health, and form part of the OneHealth concept.



Centre

Île-de-France - Jouy en Josas - Anthony



Domaine de Vilvert
78350 Jouy en Josas

Suivre nos actualités

<https://gabi.jouy.hub.inrae.fr/>

<https://www.linkedin.com/company/umr-gabi>

<https://bsky.app/profile/umr-gabi.bsky.social>



UMR 1313 - GABI

Research facilities :

Transgenic mouse models

Porcine, bovine and murine
pluripotent stem cell models

Purification and characterization of
extracellular vesicles

RumimiR ruminant mi-cRNA
database
(<http://rumimir.sigenae.org/>)

3- Innovative approaches to animal health and adaptation

The EFISA team also aims to develop original research to better adapt livestock to the agroecological transition, by studying :

- adapting animals to climate change via the role of the epigenome (non-coding RNA, RNA editing, methylome);
- improving the functional longevity of animals, in particular by studying their epigenetic clock and their ability to achieve long lactations;
- the response of animals to the exposome, by developing research into the genetics of the response to pollution.

To this end, the team is developing innovative cellular tools for in vitro phenotyping, based on the use of pluripotent embryonic stem (ES) cells. These cell-based tools will replace or reduce the need for animal experimentation, and open up a wide range of applications in both fundamental research (understanding biological processes) and applied research (improving the power and precision of genomic assessments).

Expertises

Functional genomics, physiology, epigenetics, embryogenesis, reproduction, transgenesis, neurodegenerative abnormalities.

Partners

- INRAE: UMR PEGASE, VIM, Herbivores, GenPhySE, PhAN, MoSAR, ISP, IHAP and BREED.
- INRAE experimental units: GenESI, IERP, SAAJ, PAO, Le Pin
- Platforms: @BridGe, GeT-PlaGe, PAPPISO, MIMA2
- Toulouse and Alfort Veterinary Schools
- AgroParisTech
- INSERM (SBRI, UMRS1310) and CNRS (ICM UMR7225).
- International collaborations: Algeria, University of Nottingham (UK), University of Tizi Ouzou (Algeria), Roslin Institute (UK), FLI (Germany)
- Idele, Eliance, IFIP-Institut du porc

Publications

<https://eng-gabi.jouy.hub.inrae.fr/the-teams/efisa/publications-by-the-efisa-team>



Centre
Île-de-France - Jouy en Josas - Anthony



Domaine de Vilvert
78350 Jouy en Josas

Suivre nos actualités

<https://gabi.jouy.hub.inrae.fr/>

<https://www.linkedin.com/company/umr-gabi>

<https://bsky.app/profile/umr-gabi.bsky.social>