Workshop CLAND / GABI / MOSAR

Monday July 20, 2020 – videoconference

Introduction of SAPS and GABI : Claire Rogel-Gaillard
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SAPS : A HIGH-LEVEL SCIENTIFIC ALLIANCE IN THE ANIMAL SCIENCES

8 research units
2 experimental units

- BREED, Biology of Reproduction, Environment, Epigenetics and Development (INRAE-ENVA-UVSQ UMR 1198)
- GABI, Animal Genetics and Integrative Biology (INRAE-AgroParisTech, UMR 1313)
- MoSAR, Systemic Modeling Applied to Ruminants (INRAE-AgroParisTech, UMR 791)
- VIM, Molecular Virology and Immunology (INRAE-UVSQ, UMR 892)
- TEFOR PARIS-SACLAY, (CNRS UMS2010/INRAE UMS1451): zebra fish, genome editing, imaging
- IERP, Experimental Infectiology of Rodents and Fish (INRAE, UE 907): rats, mice, trout, zebra fish
- SAAJ, Sciences de l'Animal et de l'Aliment de Jouy (INRAE, UE 1298): rabbits, small ruminants

- Bacterial Zoonoses, Laboratory for Animal Health (ANSES)
- BIPAR, Parasite and Fungal Molecular Biology and Immunology (ANSES-ENVA-INRAE, UMR 956)
- Virology (ANSES-INRAE-ENVA, UMR 1161)

A multidisciplinary dynamics

- Genetics and biostatistics
- Development and physiology
- Animal health and infectiology
- Links with social sciences

http://saps.paris

SAPS : INNOVATIVE RESEARCH IN AGRICULTURE AND IN HEALTH

Agriculture

Promoting sustainable and competitive farm systems that preserve the environment and agree with the diverse citizens' expectations

– To characterize and preserve biodiversity
– To study animal adaptation to environmental changes
– To promote an integrated and ecosystemic management of animal health
– To refine prediction of individual performances and adaptive responses (toward precision farming)
– To take into account the moving perception of animal and breeding systems by the societies

Health and biomedicine

Studying animals (including wild animals) as reservoirs of pathogens for human

Valorizing knowledge on livestock for research in humans

– Sources of information to be exploited with model animals
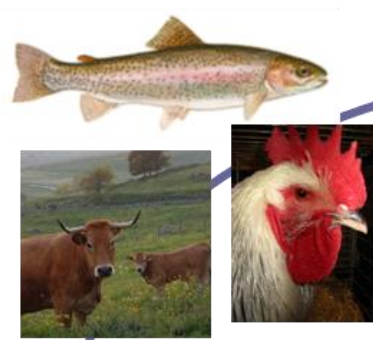– Farm animals: relevant models to understand human physiopathologies

Linking the biology of livestock and animal models

SAPS : A WIDE RANGE OF ANIMALS AND ANIMAL SERVICES

Workshop today :
focus on ruminants

Livestock animals

Model animals

Wild animals

Companion animals

FLAGSHIP PROJECTS

Building phenotypes
Role of the pre- and perinatal environment

Selection in farms for tomorrow
Genetics, epigenetics, microbiomes

Animal and public health
Immunity, vaccines diagnosis

- Diversity and sustainability of livestock systems

- Health and biomedicine : linking the biology of farm and model animals

- Sciences and society interactions

**Predicting and modeling phenotypes and adaptive responses**
High dimension, multi-level data

The GABI unit

Main research objectives:

- To gain new insights into the genome of animals and their microbiomes;

- To analyze the functions that are linked to inseparable breeding characters: adaptation, health and welfare, reproduction, production;

- To develop tools and methods for promoting efficient and sustainable livestock farming including environmental impact;

- To manage animal biodiversity as potential for adaptation for future generations.
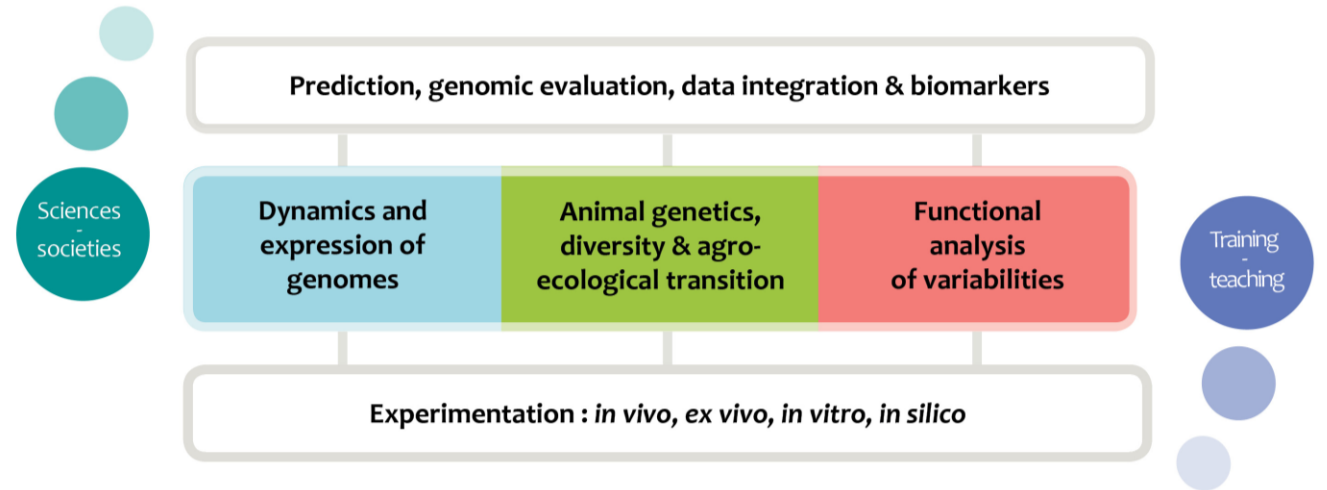
The scientific interests of GABI aim at understanding and exploiting animal genetic variability to analyze the construction of phenotypes, the interactions with microbial ecosystems and more broadly with the environment, within the context of the agroecological transition.

https://www6.jouy.inrae.fr/gabi   @UMR_GABI

Among GABI scientific issues to share with CLAND

- To assess and quantify the environmental footprint of livestock and identify levers to reduce it:

  - Greenhouse gas emission: project on the genetic variability of methane emission by cattle -> talk by Didier Boichard

- To adapt animals to climate changing:

  - Land use and feed/food resources

  - Health and resistance to pathogens (*One Health / Eco Health*)

  - Global warming: project on the genetics of resistance to heat stress in cattle -> talk by Aurélie Vinet