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Laboratory of Fish Physiology and Genomics

The goal of the Laboratory of Fish Physiology and Genomics is to study the physiology of fishes in order to broaden our knowledge and understanding of the phenotypes of interest which would facilitate the development of sustainable aquaculture systems.

Our research is primarily focused on the physiology of growth and reproduction of fishes in order to understand:

- the molecular and cellular mechanisms of muscle tissus development
- the determinants of fish product quality
- the functional and molecular evolution of sex determination and gametogenesis
- the determinants of fecundity and gamete quality
- the role of endocrine and paracrine factors in spermatogenesis
- the nuclear reprogramming of gametes and embryos through biotechnology
- the mechanisms of intergenerational transmission
- fish behaviour in captive breeding

Researchers of our laboratory aspire by utilizing advanced biotechnological and zootechnical methodologies to broaden our knowledge and understanding of:

- fertility, sex determination, puberty, production of functional gametes
- growth and quality of fish products
- cryopreservation methods and regeneration of genetic resources

Applications of our research will contribute to the improvement of the robustness of animal breeding and/or aquaculture systems under economical constraints, as well as societal and environmental changes, in order to facilitate the development of more sustainable aquaculture systems.

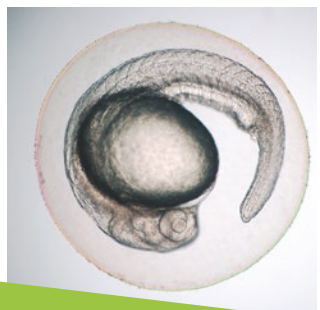
LPGP

Directors

Julien Bobe, director
Jean-Charles Gabillard, deputy director
Catherine Labbé, deputy director
Violette Thermes, deputy director

Some figures

- 12 scientists
- 9 ingineers
- 19 technicians and administrative staff
- 10 PhD and post-doctoral fellows
- 3 research teams
- 3 technical platforms (histology, imagery and bioinformatics)
- 1 fish experimental facility



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Skills

- Physiology
- Genomics
- Cellular biology
- Biology of evolution
- Biology of development
- Flesh quality
- Biology of behavior
- Biology of cryopreservation

Keywords

- Fish
- Aquaculture
- Reproduction
- Muscular growth
- Flesh quality
- Behavior
- Biotechnology

Research Themes

The research that is being carried out by our 3 research teams includes:

- Growth and quality of fish meat, of which the scientific objective is to understand the mechanisms of the development and growth of muscle tissue in order to improve the production and quality of fish products.
- Sexual maturation, cryopreservation and regeneration, of which the scientific objectives are to understand the programming of adult germinal stem cells, the risks of damage at the cellular and epigenetic levels associated with biotechnology of reproduction as well as the role and evolution of endocrine and/or paracrine factors regulating spematogenesis. These studies will help us understand more deeply the mechanisms that regulate fertility and the functionings of the sperm and embryo.
- Sex, oogenesis and behaviour, of which the scientific objectives are to understand the molecular and functional evolution of sex determination and oogenesis, as well as the impact of maternal factors on the adaptive behaviour of the descendents. This research will deepen our knowledge on the underlying factors that govern sex ratio, egg quality and fecundity during captive breeding in the wider context of diversification and domestication of new species.

Equipment and resources

- Experimental animal facilities (expertise in breeding of more than 10 fish species)
- Histology imaging and bioinformatics platforms

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Unit Website