

## INNOVATIVE CELLULAR MODELS FOR ANIMAL SCIENCE

Support the 3Rs (*Replacement, Reduction and Refinement*) through the use of organoids

### PROGRAM

#### Monday, September 11

13:30 – 17:30

- *Elisabetta Giuffra (INRAE, France)*: Presentation of EuroFAANG objectives.
- *Alice Jouneau (INRAE, France)*: Presentation of the week, groups and tasks.

#### 1<sup>st</sup> session: Overviews

- *Bertrand Pain (SBRI, INRAE, France)*: Embryonic and Adult stem cells: introduction to organoids.
- *Peter Harrison (EBI, UK)*: Improving cellular model metadata descriptions for quality control, reproducibility and accelerating science.
- *Esther Ellen (WUR, Netherlands)*: Organoids in animal breeding and nutrition research: opportunities and challenges.

#### Tuesday, September 12

9:30 – 11:00

#### 2<sup>nd</sup> session: Tools and methodologies

- *Giorgia Egidy-Maskos (GABI, INRAE, France)*: Transgenesis in organoids.
- *Severine Le Gac (UTwente, Netherlands)*: Organ-on-a-chip platforms for biological and medical applications.
- *Matthieu Simion (BREED, INRAE, France)*: Organoid imaging using light sheet microscopy.

11:00 – 11:30 : Coffee break

11:30 – 12:30

#### 3<sup>rd</sup> session: Gut organoids and their applications

- *Maxime Mahé (Inserm, France)*: Modelling intestinal development and physiology using human stem cell-derived organoid.
- *Fulvio Gandolfi (University of Milan, Italy)*: 3D organotypic intestinal cultures of fish intestine for evaluating sustainable feeds.

12:30 – 14:00 : Lunch buffet on site

14:00-14:30 : 3<sup>rd</sup> session: Gut organoids and their applications (continued)

- *Martin Beaumont (GENPHYSE, INRAE, France)*: Intestinal organoids: innovative *in vitro* tools to study host-microbiota interactions in farm animals.

14:30 – 17:00

**4<sup>th</sup> session: Organoids to study host-pathogen interactions in gut and lung**

- *Kate Sutton (University of Edinburgh, UK):* Apical-out chicken enteroids with lamina propria leukocytes as a model to study host-pathogen interactions.
- *Fabienne Archer (IVPC, INRAE, France):* Lung organoids and air-liquid interface cultures to better understand host-pathogen interactions in mammals.
- *Maud Contrant (Anses, France):* Contribution of organoids to the study of host-pathogen interactions.

**Wednesday, September 13**

9:30 – 12:30

**5<sup>th</sup> session: Reproduction and Development**

- *Ramiro Alberio (Nottingham university, UK):* Modelling gastrulation *in vitro* using pluripotent cells.
- *Marcia Ferraz (LMU, Germany):* Use of decellularized extracellular matrix hydrogels to create complex *in vitro* reproductive models.

10:30 – 11:00 : Coffee break

- *Bart Gadella (Utrecht University, Netherlands):* An oviduct-on-a-chip culture system for animal embryo production *ex vivo*.
- *Karine Reynaud (PRC, INRAE, France):* Oviduct spheroids and organoids: new *in vitro* models to better understand fertility.
- *Tiziana Brevini (University of Milan, Italy):* Generation of decellularized scaffolds to study the role of ovarian extracellular matrix.

12:30 – 14:00 : Lunch buffet on site

14:00 – 15:00

**6<sup>th</sup> session: Issues raised by *in vitro* cellular models for biobanking**

*Michelle Tixier-Boichard and Temitope Oluwafisayo Ige (GABI, INRAE, France):* Presentation followed by general discussion after the results of the first EuroFAANG survey.

15:00 – 17:00 **Virtual demonstration**

Virtual demonstration of intestinal organoid generation and characterization – Stem Cell Technologies.



## Thursday, September 14

9:30 – 10:30

### 7<sup>th</sup> session: Ethics

- *Franck Meijboom (Utrecht University, Netherlands):* Answering and raising ethical questions at the same time: on the ethics, 3R principles and using organoids.
- *Athanassia Sotiropoulos (FC3R, France):* What is FC3R?

10:30 – 11:00 : Coffee break

11:00 – 12:30 : Round table: *Properties associated with the use of organoids to study physiology and phenotype of a whole animal.*

12:30 – 14:00 : Lunch buffet on site

### Thursday afternoon

Work in small groups to prepare next day's presentation.

## Friday, September 15

9:00 – 16:00

### Morning

Presentation of the work of each group.

### Afternoon

Survey filling and wrapping up.