

# G2P<sup>by</sup> organoids WORKSHOP

JOUY-EN-JOSAS, FRANCE

DAY 1, Monday, February 3rd

DRAFT PROGRAM v.2 (hybrid sessions in red)

## The EuroFAANG RI project and aims of the workshop

8:45 - 9:15: Welcome

9:15 - 9:45: **The EuroFAANG Research Infrastructure project** - Klaus Wimmers (FBN, Germany) & Emily Clark (Univ. Edinburgh, UK)

9:45 - 10:10: ***In vitro* G2P "3Rs" research in domesticated species** - Elisabetta Giuffra (INRAE, France)

10:10 - 10:30: **Program outline** and round table introduction of lecturers and trainers

10:30 - 10:50: *Coffee break*

10:50 - 12:30: Pitches of individual participant (3min each; **option recorded videos**) -

Moderator: Giorgia Egidy-Maskos (INRAE, France)

12:30 - 13:30: *Lunch*

## **Biobanking and *in vitro* genome editing (theory, research examples and practice)**

13:30 - 13:50: **Biobanking *in vitro* models** - Michele Tixier-Boichard (INRAE, France)

13:50 - 14:10: **Genome editing in fish cell lines: investigating genes involved in the antiviral response** - Bertrand Collet (INRAE, France)

14:10 - 17:00: Practical session

- Session 1: Processing animal tissues (INRAE)

OR

- Session 4: Culture, transfection and imaging of fish cell lines (INRAE)

17:00 - 17:30: *Coffee/ Hanging posters*

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DAY 2, Tuesday, February 4th

## Genome editing (theory, research examples and practice)

9:00 - 9:30: Extending whole genome screening to non-model organisms - Victor Boyartchuk (NMBU, Norway)

9:30 - 12:00: Practical session

- Session 2: Design of CRISPR/Cas9 experiment (INRAE & Univ. Edinburgh)

12:00 - 12:30: High throughput phenotypic screens in livestock species - Finn Grey (Univ. Edinburgh, UK)

12:30 - 13:30: *Lunch*

## Metadata and standards for G2P research (theory, research examples and practice)

13:30 - 14:00: *Title to be provided* (EMBL-EBI, UK)

14:00 - 16:30: Practical session

- Session 5: Metadata standards (EMBL-EBI)

16:30-17:00: Organoids: A Tool for Studying Gastrointestinal Tract Diseases in Porcine Models. - Kris Flisikowski/Tatiana Flisikowska (TUM, Germany)

17:00 - 17:30: *Coffee/exchanges at posters room*

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DAY 3, Wednesday, February 5th

## **G2P in organoids (theory, research examples and practice)**

9:00 - 12:00: Practical session

- Session 3: Culture, transfection and imaging of pig organoids & Session 3b (Light sheet imaging) (INRAE)

OR

- Session 1 repeated/ OR Session 4 repeated

12:00 - 12:30: From Pluripotent Stem cells to organoids in domestic animals, an overview - Bertrand Pain (INRAE, France)

12:30 - 13:30: *Lunch*

## **Analysis of single cell data (theory, research examples and practice)**

13:30 - 14:00: Which cell types do I have in my sample? Using single cell sequencing to assess and compare cell composition in tissue and organoids - Ole Madsen (WUR, Netherlands)

14:00 - 17:00: Practical session

- Session 6: Single-cell data analysis: organoids vs. tissues) (WU)

17:00 - 17:30: *Coffee/exchanges at posters room*

19:00 - 21:00: Social dinner

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DAY 4, Thursday, February 6th

## ***In vitro* vs. *in vivo* G2P research and the links to industry**

9:00 - 9:30: Genome-edited mammals as part of the H2020 RUMIGEN project and as a tool for studying G2P in farm animals - Eric Pailhoux (INRAE, France)

9:30 - 10:00: Advanced intestinal *in vitro* platform for the functional characterization of feeds in aquaculture - Fulvio Gandolfi (Univ. Milan, Italy)

10:00 - 10:30: *In vitro* models for comparative embryology - Ramiro Alberio (Univ. Nottingham, UK).

10:30 - 10:50: *Coffee break*

10:50 - 11:20: Incorporating functional annotation genomics data in animal breeding applications - Derek Bickhart (Hendrix Genetics, Netherlands)

11:20 - 11:50: Facilitating the uptake of *in vitro* methods in research and testing - Maurice Whelan (European Commission Joint Research Centre – JRC, Italy)

11:50 - 12:30: Round Table 1: Routes to more widespread applications of *in vitro* G2P - Chair: Emily Clark (Univ. Edinburgh, UK)

12:30 - 13:30: *Lunch*

## **G2P in organoids - 2 (theory, research examples and practice)**

13:30 - 16:30: Practical session

- Session 3 Culture, transfection and imaging of pig organoids & Session 3b (Light sheet imaging) (INRAE) - repeated OR

- 13:30 - 14:30: Training Paths (A, D) internal meetings

16:30 - 17:00: Comparative genomics and cell physiology insights into resilience at the organismal level - Carla Bonetti Madelaire (S. Diego Zoo, USA)

17:00 - 17:30 *Coffee/exchanges at posters room*

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DAY 5, Friday, February 7th

## Wrapping up: outcomes of the workshop and future perspectives

9:00 - 10:00: Practical session

- Sessions 3 & 4: visualize results in lab

10:00 - 10:30: Training Paths (B, C) internal meetings

10:30 - 10:50: *Coffee break*

10:50 - 11:30: Discussion within and between Training Paths

11:30 - 12:30: Round table 2: *In vitro vs. in vivo* G2P research – what perspectives? (EuroFAANG panellists and trainees)

12:30 - 13:30: *Lunch*

13:30 - 14:00: Conclusions and Closing