



## **DRAFT PROGRAM\_v3**

### **Scientific Committee**

Michele Boichard (INRAE, France), Tiziana Brevini (Univ. Milan, Italy), Emily Clark (EMBL-EBI, UK), Richard Crooijmans (WU, Netherlands), Fulvio Gandolfi (Univ. Milan, Italy), Elisabetta Giuffra (INRAE, France), Marta Godia (WU Netherlands), Matthew Kent (NMBU Norway), Eduard Murani (FBN Germany), Alexey Sokolov (EMBL-EBI, UK), Ole Madsen (WU, Netherlands), Ramiro Alberio (Univ. Nottingham, UK), Christian Tiambo (CTLGH Kenya), Finn Grey (Univ. Edinburgh, UK), Bertrand Pain (INRAE France), Joseph Robertson, (NMBU Norway), Sigbjørn Lien (NMBU Norway), Kate Sutton, (Univ. Edinburgh, UK), Bart Gadella (Utrecht Univ. Netherlands).

### **Local Organizing Committee**

Celia Carbonne, Giorgia Egidy-Maskos and Delphine Muller (INRAE, Div. Animal Genetics, GABI Unit), Bertrand Collet (INRAE, Div. Animal Health, VIM Unit), Claire Cherbuy (INRAE, Div. MICA, Micalis Unit), and Matthieu SIMION (INRAE, Div. MICA, Micalis Unit).

### **Communication and logistics group**

Geena Cartick, Ana Granados, Maureen Mc Donald and Remark Temali (EFFAB, Belgium), Wendy Brand-Williams and Temitope Oluwafisayo Ige (INRAE, Div. Animal Genetics, GABI Unit)

**With thanks to: the local staff of the GABI Unit for providing local assistance**

## ***In red: hybrid sessions***

### **Day 1, Monday, February 3**

- 8:45 - 9:15: Welcome

#### **G2P research for domesticated animals within the European research landscape**

- 9:15 - 9:30: (*provisional title*) Two years into EuroFAANG – Results, Services and Impact – Tina Hartwig (FBN, Germany)
- 9:30 - 9:45: What's next? Merging EuroFAANG and PhenoLive to GenoPHENix - Etienne Labussière (INRAE)
- 9:45 - 10:15: **Coffee break**
- 10:15 – 10:40: *In vitro* G2P "3Rs" research in domesticated species - Elisabetta Giuffra (INRAE, France)
- 10:40 - 12:30 : Program outline, round table introduction of lecturers and trainers, and pitches of individual participant (2min 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 (move to building 320) - **OR**
  - Session 4: Culture, transfection and imaging of fish cell lines
- 17:00 - 17:45: **Snack / Hanging posters**

### **Day 2, Tuesday, February 4**

#### **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 (Univ. Edinburgh)
- 10:10 - 10:30: **Coffee break**
- 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: Developing metadata and standards for G2P research – examples from the FAANG Consortium (Emily L. Clark, 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 and Tatiana Flisikowska (TUM, Germany)
- 17:00 - 17:45: Snack / exchanges at posters room

### **Day 3, Wednesday, February 5**

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

- 9:00 - 12:00: Practical session
  - Session 3a Culture, transfection and imaging of pig organoids (moving to Building 320) - **OR**
  - Session 1 repeated (moving to Building 320) - **OR**
  - Session 4 repeated
- 10:10 - 10:30: **Coffee break** (both at Building 440 and at Building 320)
- 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)** - **OR**
  - Session 3b (Light sheet imaging)
- 17:00: Departure (by train) for **Social Dinner in Paris**
- 22:00: return by bus from Paris to hotels

### **Day 4, Thursday, February 6**

#### **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 3a repeated (moving to Building 320) – **OR**
- Session 3b repeated.
- 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 - 17:45 Snack / exchanges at posters room

### **Day 5, Friday, February 7**

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

- 9:00 - 10:00: Practical session
  - Sessions 3a and 4: visualize results in lab
- 10:00 - 10:20 **Coffee break**
- 10:20 - 11:30: Discussion within and between Training Paths.
- 11:30 - 12:30: **Round table 2: *In vitro* vs. *in vivo* G2P research - which perspectives?** Chair: **Huaijun Zhou (UC-Davis, USA)**
- 12:30 - 13:30: **Lunch**
- 13:30 - 14:00: Conclusions and Closing