



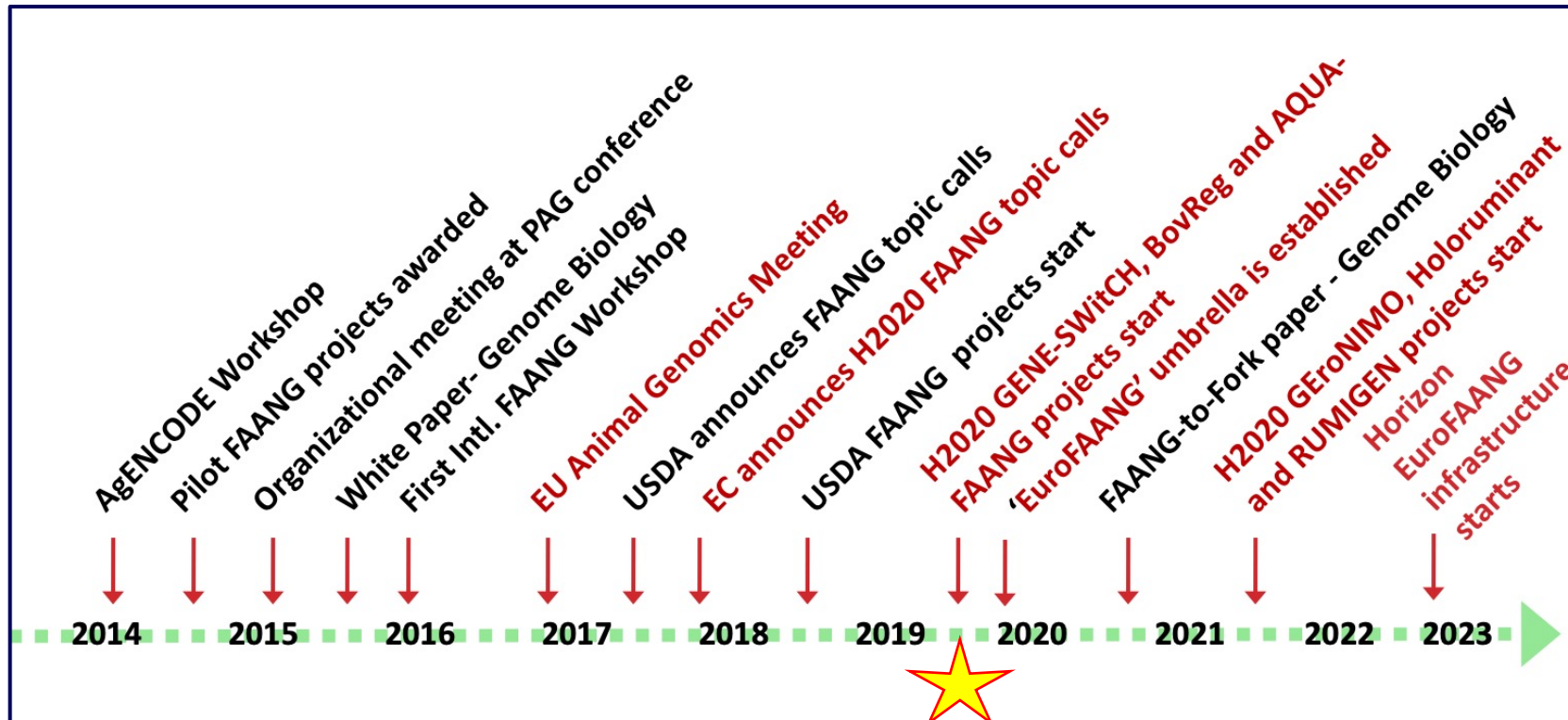
www.eurofaang.eu

The EuroFAANG RI Project - An infrastructure for farmed animal genotype to phenotype research in Europe and beyond

Emily Clark, University of Edinburgh, on behalf of the EuroFAANG Research Infrastructure Project Consortium

Plant and Animal Genomes Conference, Global FAANG Workshop, 16th January 2024

A little bit of history about “EuroFAANG” initiatives



- COST action FAANG-Europe

- EuroFAANG cluster from H2020 funded projects

The EuroFAANG H2020 cluster of individually funded projects

Research aims

- ✓ Increase efficiency through precision breeding
- ✓ Increase disease resistance
- ✓ Minimise environmental impact

Joint strategies

- ✓ Communication & Dissemination
- ✓ Training
- ✓ Research Methodology



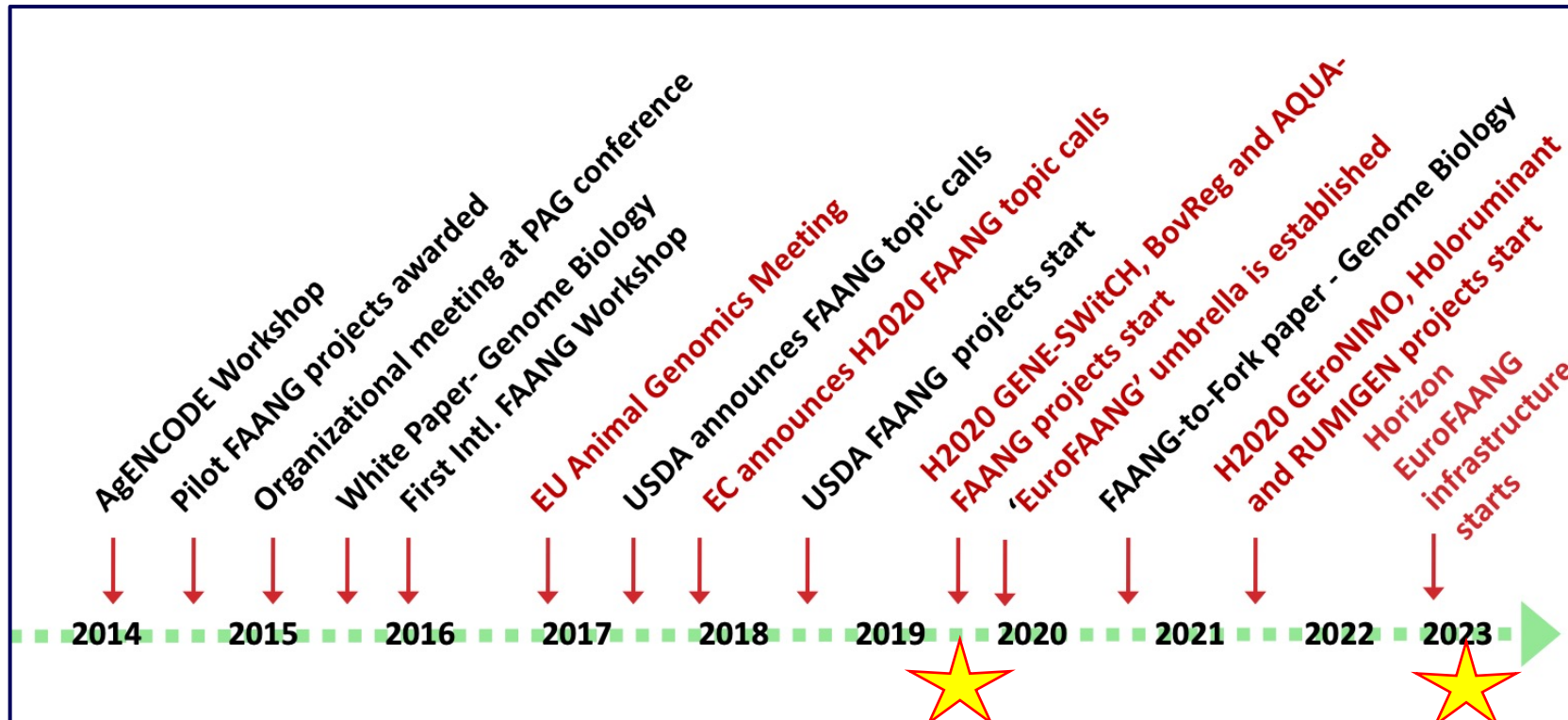
Recently joined



More recently funded



A little bit of history about “EuroFAANG” initiatives



- COST action FAANG-Europe

- EuroFAANG cluster from H2020 funded projects

- the new EuroFAANG RI project

EuroFAANG – A European infrastructure for farmed animal genotype to phenotype research

Horizon Europe infrastructure concept development project

Funded via Horizon Europe INFRA-DEV funding stream - **Developing, consolidating and optimising the European research infrastructures landscape, maintaining global leadership**

Run time: 2023 – 2025

Total funding: €2.86 million

Coordinator: FBN, Germany

Co-Coordinator: UEDIN, United Kingdom

Aim: Establish the concept for an infrastructure to facilitate research and innovation for genotype to phenotype research in farmed animals to achieve sustainable, efficient and socially accepted farmed animal production in Europe



The EuroFAANG Research Infrastructure project:

- ▶ **Does not provide infrastructure access or services, it is a concept development project.**
- ▶ Aims to bring together infrastructures and resources in farmed animal research to provide an attractive package to be eligible as a ESFRI project for consideration on the roadmap with a sustainable perspective.
- ▶ Has started a large number of activities - surveys, workshops, stakeholder meetings, lobbying, global networking, outreach to existing RIs (including EU framework and ESFRI RIs),
- ▶ Needs **comprehensive collaboration within the entire farmed animal research community** and animal breeding sector to moving forward from concept development to project preparation.
- ▶ Will provide **multiple opportunities to associate with activities** and be part of a future EuroFAANG ESFRI proposal.



The ESFRI environment 'Health and Food'

16 infrastructures : 12 established 'landmarks'
4 'projects'

Only 5 in the sub-domains

'biological resources and production systems'

- ✓ EMBRC for marine biological resources
- ✓ MetroFOOD for metrology in food & nutrition
- ✓ IBISBA for synthetic biology
- ✓ AnaEE for managed and unmanaged ecosystems
- ✓ EMPHASIS for plant phenotyping

NONE on DOMESTIC ANIMALS !

But 3 in the field of biological resources :

- One on animal models : INFRAFRONTIER
- One on human biobanks : BBMRI
- One on microbial resources : MIRRI

Strategy Report on Research Infrastructures RoadMap 2021 – Landscape of 'Health and Food'

- The remit of the ESFRI 'Health and Food' research infrastructures:

"generate readiness to meet the current challenges and demands in the Agri-Food sector in Europe."

- Outcome of the 2021 Roadmap landscape review:

"Concerted effort to continue bringing together national facilities at the pan-European level in the field of animal genetic resources, phenotyping and breeding, animal health is needed to contribute to address the challenge to produce safe, healthy and sustainable food."



The need to bring together national facilities at the pan-European level in the field of animal genetic resources, phenotyping, breeding, and animal health was identified as a gap.

The EuroFAANG Research Infrastructure project has four main objectives:

1. Creation of a common data structure and data access - through supporting the FAANG Data portal and establishing an Elixir community for 'Domestic animal genomes and phenomes'.
2. Development, of a European framework for curation and biobanking of *in vitro* cellular models.
3. Sharing and expanding capabilities in new breeding, phenotyping, and genomic technologies.
4. Connecting with existing projects and infrastructures to consolidate G2P research in farmed animals across Europe and globally.



Phenotyping



Data



AgBioData

Toward enhanced genomics, genetics, and breeding research outcomes through standardization of practices and protocols across agricultural databases



Kick-Off Meeting of the EuroFAANG Research Infrastructure Project

27-28th February 2023

Berlin, hosted by FBN



INRAE Summer School for Innovative Cellular Models for Animal Science

11-15th September 2023

Jouy-en-Josas, hosted by INRAE

36 participants, from institutes from across Europe



Funded by
the European Union

Virtual Meeting, October 5th 2023, EFFAB and UEDIN

- 63 participants in total, 43 joined on the 5th
- 4 groups of approximately 10 participants
- 3 discussion points barriers, opportunities and priorities

Positive response by participants

Very productive discussion



Workshop to define Research and Innovation needs in Animal Genetics and Reproduction

- Horizon EU 2025–27 and next EU Research Framework by Nikos Zampoukas, DG RTD, European Commission (15m)
- FABRE TP Research Agenda 2025–2030 (15m)
- The EuroFAANG project: Research infrastructure presentation: how research and breeding companies can benefit (15m)
- World café (2h)
- Conclusions (15m)

ANNUAL GENERAL MEETING



SHAPING THE FUTURE:
Sustainable Animal Breeding
in European Farming

30–31 MAY 2023

University Foundation

Rue Egmont 11
Brussels

Stakeholder Workshop at FABRE-TP AGM

- EFFAB, INRAE and UEDIN

World Café – two discussion groups of ~15 participants

- 1. Biobanking
- 2. Genome Editing



EuroFAANG Planned Activities for 2024



EuroFAANG Global Networking Event during the FAANG workshop at the The Plant and Animal Genomes Conference, San Diego, California, 16th January

BovReg Final Conference, Brussels, 14th - 15th February

EuroFAANG RI 1st Annual Meeting 16th February

Quarterly meetings of the think-tanks on genome editing and *in vitro* systems

White paper planned on *in vitro* systems for G2P research

Focus group meetings to establish an Elixir community for 'Domestic Animal Genomes and Phenomes'

Establishing links with phenotyping infrastructures for ESFRI proposal development

EuroFAANG Workshop at the EAAP Meeting in Lyon, France (WP8)

31st August 2023

Key panel discussion with industry stakeholders on how the animal breeding sector can use the EuroFAANG RI Project and knowledge developed so far by the EuroFAANG projects



**Funded by
the European Union**



For the EuroFAANG RI concept to be successful it must:



- Demonstrate the added value of the EuroFAANG RI compared to existing and future research infrastructures.
- Take advantage of on-going funded research projects in the field of animal genomics and phenomics to prepare its user policy and address the expectations of the scientific community, in animal genetics, physiology and health.
- Add value and provide reciprocal benefits at different levels and globally e.g. sharing tools, protocols, and data; developing complementary services: organising joint training; fostering cross domain research connections.



Summary of the EuroFAANG RI Project

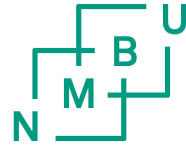
- The EuroFAANG RI project is contributing to addressing the need to bring together national facilities at the pan-European level for animal genetic resources, phenotyping and breeding, and animal health.
- ✓ Filling the gap identified in the infrastructure landscape by the 2021 ESFRI Roadmap.
- The EuroFAANG RI project builds on the six H2020 projects and connects with existing infrastructures for data management and animal agriculture in the European research infrastructure landscape.
- ✓ Leading to a better alignment of the research infrastructure landscape for farmed animal science and frontier G2P research in Europe and globally.



EuroFAANG partners



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Thank you for your attention!

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BovReg Final Conference in Brussels, 14-15th February 2024, <https://bovreg.eu/>

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