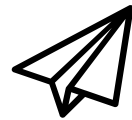


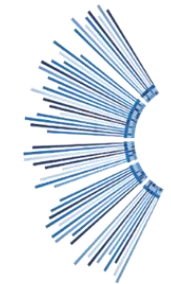
From FAANG to Fork

How more knowledge of the genetic code
of farmed animals will benefit animal
breeding?

Dr Emily Clark



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EuroFAANG

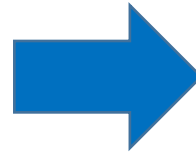
Leveraging functional genomic information to
make animal production more robust and
sustainable in Europe and beyond



EFFAB
European Forum of
Farm Animal Breeders

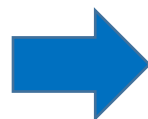
What is Animal Breeding and why it's important?

A breeding program
=
balanced and responsible
combination of
several traits



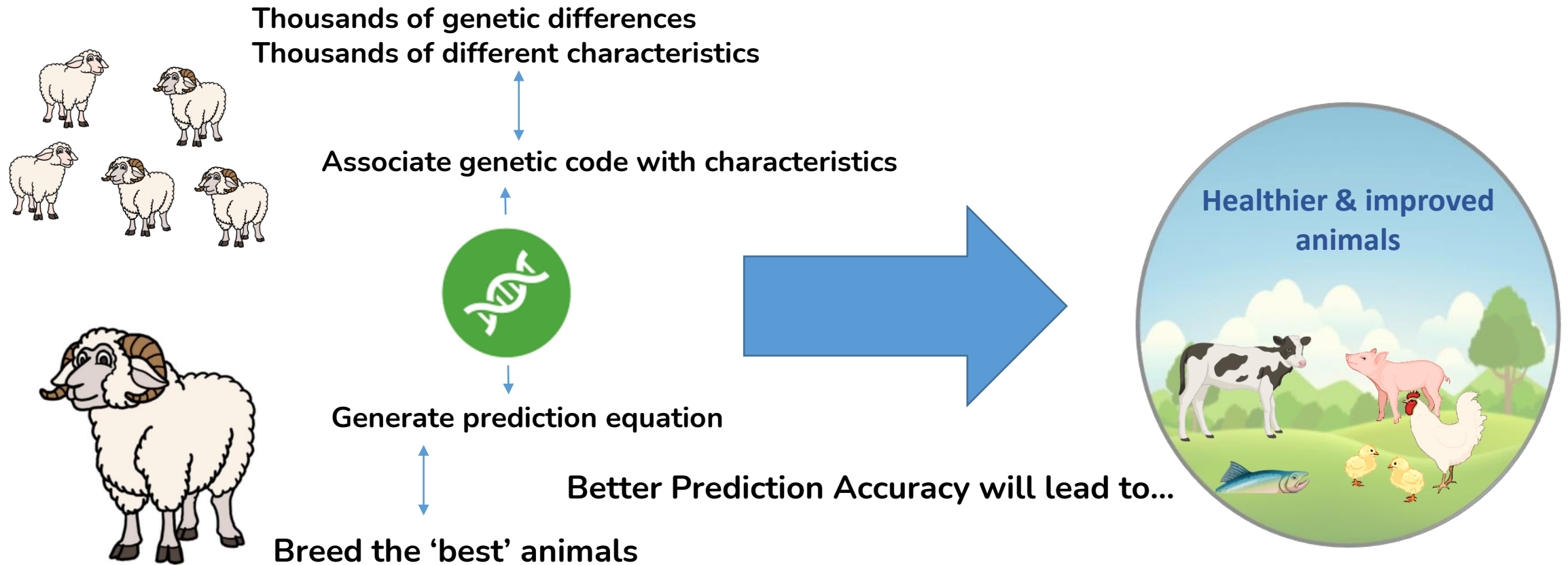
**Inform
Genomic
Selection**

This is complex to achieve



Understanding more about the genetic code
of farmed animals can benefit animal
breeding

FAANG to Fork - Key Focus



Chief among the improvements required is the ability to more accurately use an animal's genetic code (**genotype**) to predict its characteristics (**phenotype**)

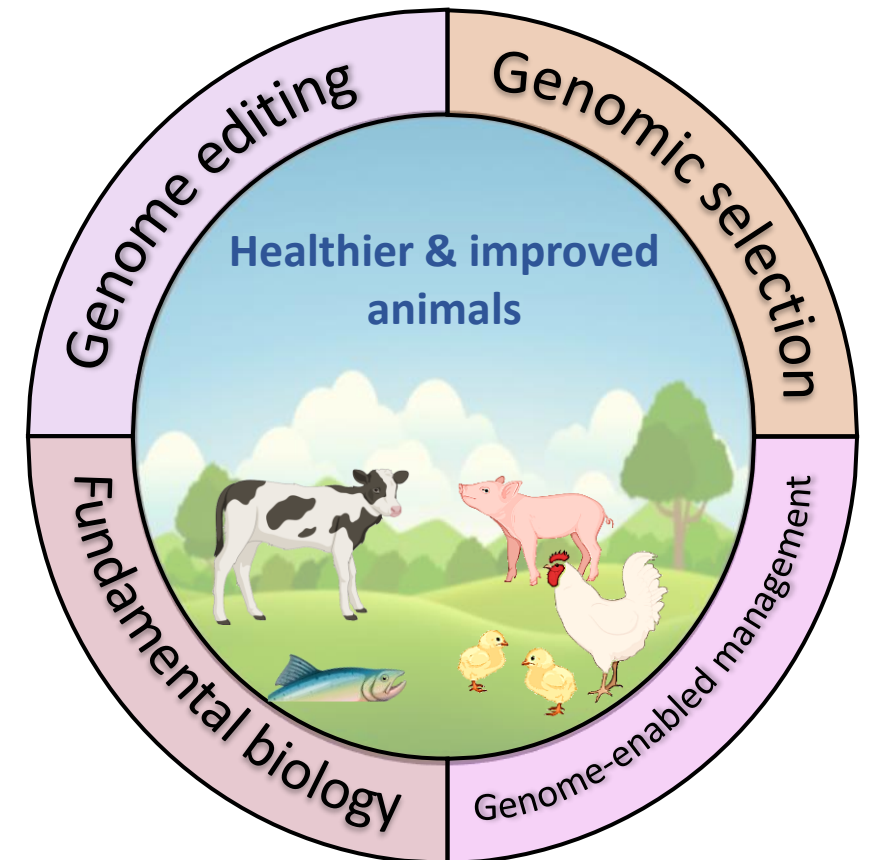
Project Description

The FAANG to Fork strategy lays out a framework for research linking genotype to phenotype in farmed animals for the coming decade

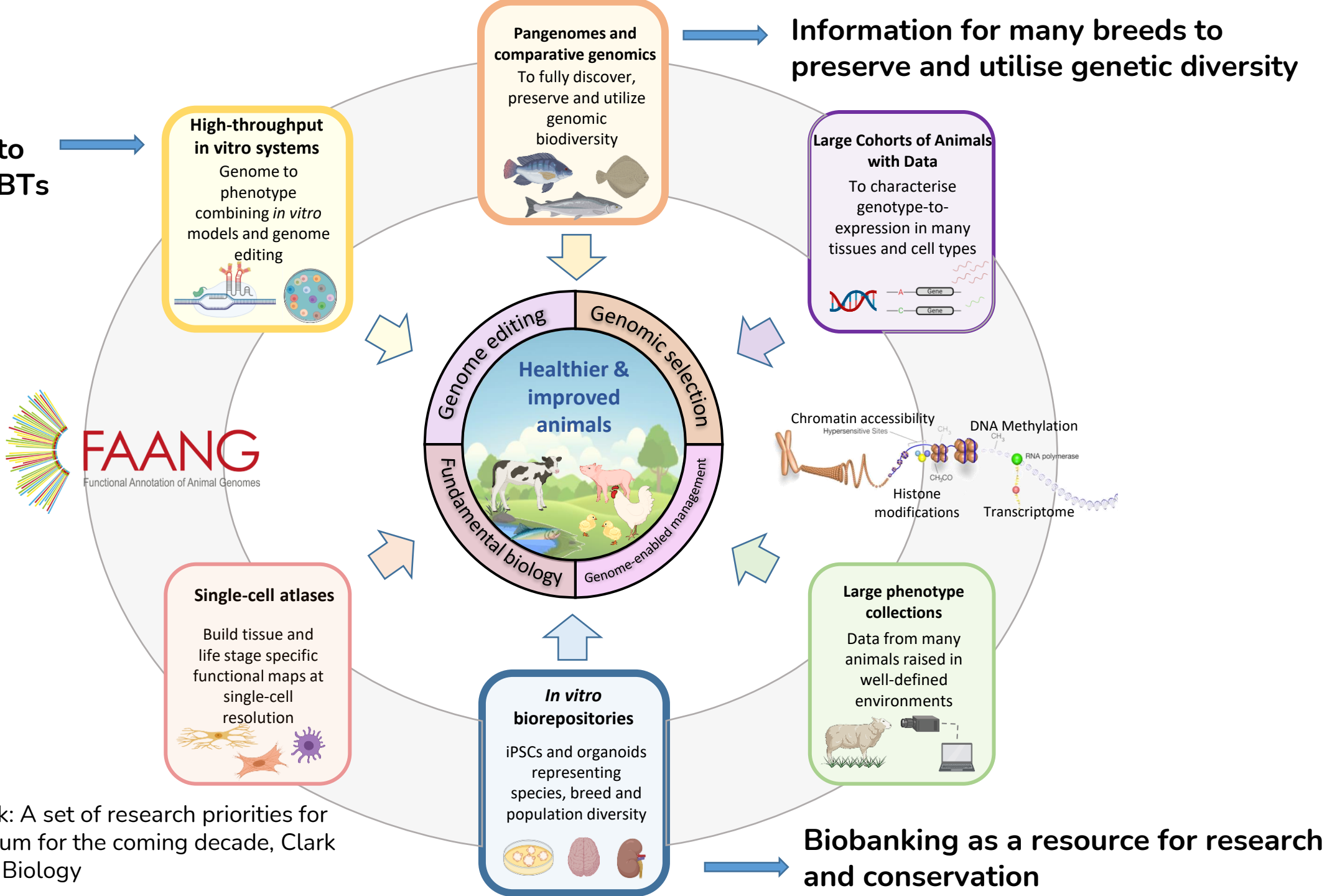
Generate more knowledge of the genetic code
- to make more informed breeding decisions

Build maps of gene expression and gene regulation for each species

Provide information about fundamental biology
- linking cell, tissue and whole animal scale knowledge



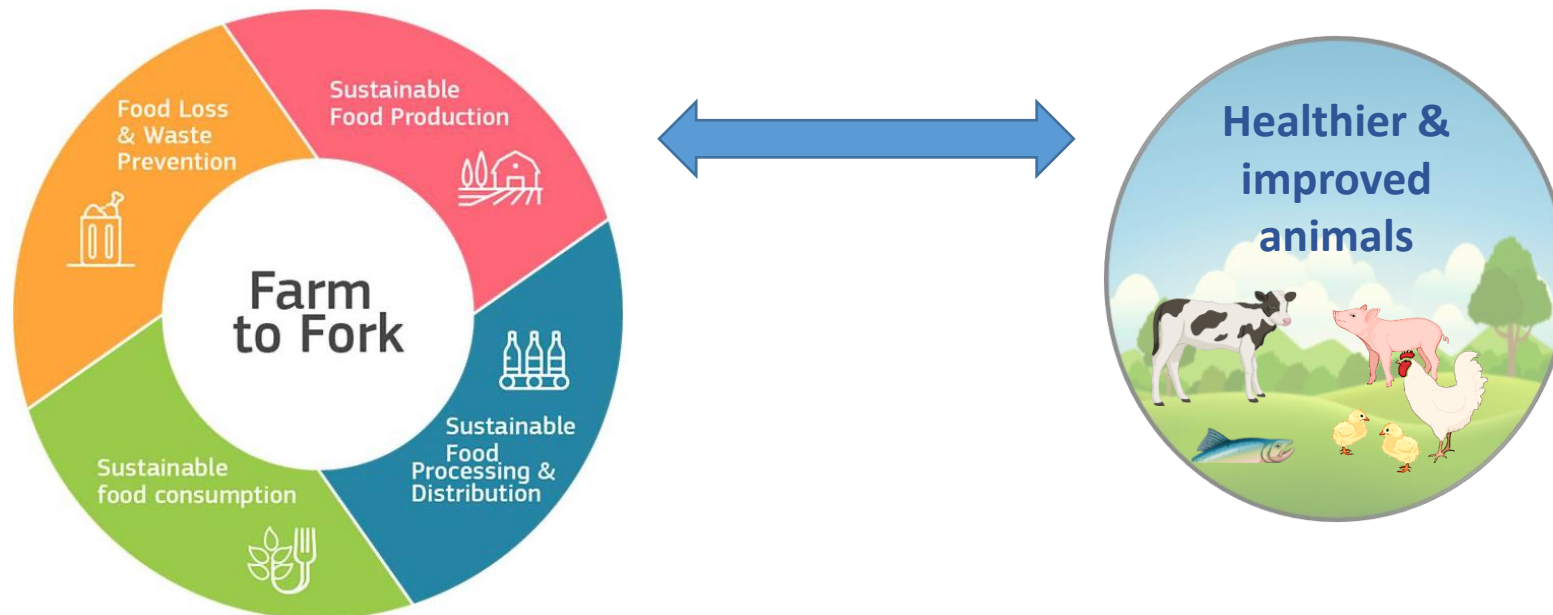
Tools and resources to develop NBTs and NGTs



From FAANG to Fork: A set of research priorities for the FAANG consortium for the coming decade, Clark et al. 2020 Genome Biology

Outcomes and Benefits for Animal Breeding

- **Enhanced** genomic prediction **accuracy**
- Farmers and breeders can make **better decisions** in managing herds and individual animals
- **Conservation of biodiversity** at regional and global scales
- **Improved farmed animals** for health, welfare and production efficiency traits



Accelerating genotype to phenotype research for farmed animals in Europe



EuroFAANG is a coordinated effort to create a suite of free resources that link genotype to phenotype to improve animal production and welfare.

The EuroFAANG community is supported by three key projects:

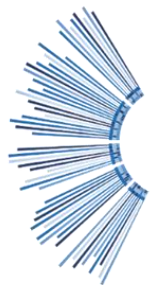
- AQUA-FAANG
- BovReg
- GENE-SWitCH

Laying the scientific foundations for a new era of farmed animal production based on:

- Biological efficiency
- Precision breeding
- Disease resistance
- Reduced environmental impact
- Feeding a growing population



These projects have received funding from the European Union's Horizon 2020 Research and Innovation Programme under the Grant agreements no 817923, 8156668 and 817998.



EuroFAANG

Leveraging functional genomic information to make animal production more robust and sustainable in Europe and beyond

Research aims

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

Joint strategies

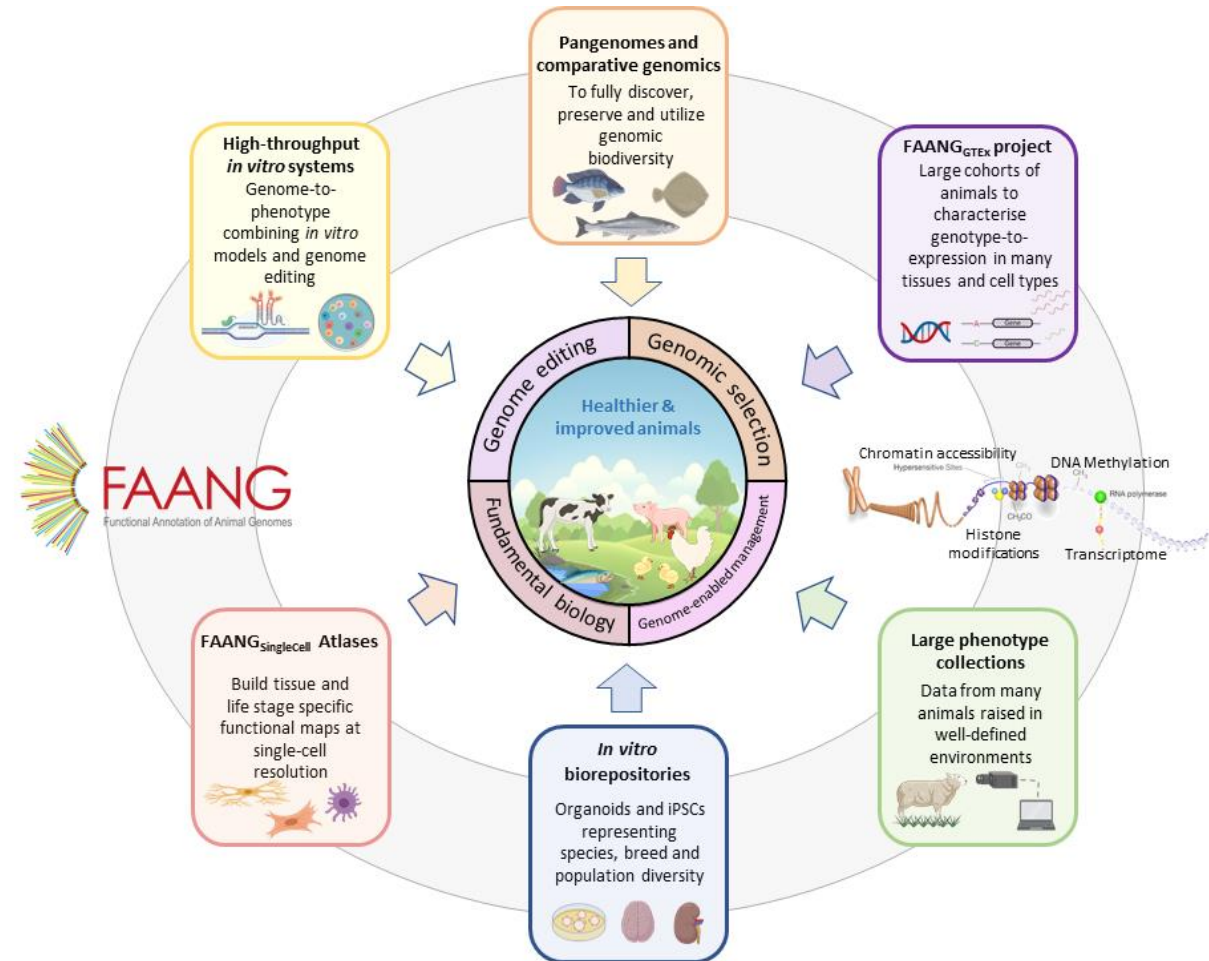
- ✓ Communication & Dissemination
- ✓ Training
- ✓ Research Methodology



Potential to include new
H2020 Projects GErO NIMO
and RUMIGEN in EuroFAANG


EuroFAANG - A European infrastructure for genotype to phenotype research in farmed animals

- **Aim:** to build on the foundation provided by the H2020 projects and establish a formalised meta-infrastructure for genotype to phenotype research in farmed animals in Europe (EuroFAANG).
- **Purpose:** to streamline how we best use our capabilities in genotype to phenotype research in farmed animals across Europe.



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From FAANG to fork: application of highly annotated genomes to improve farmed animal production

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