

Partners

Universities



Research institutes



Industry partners & International organisations:



Stakeholders

GENE-SWitCH follows a multi-actor approach which is based on the development of strategies to create a two-way communication channel. Main stakeholder groups are *pig and poultry breeders and producers, academics and technicians, policy makers, farmers, feed companies, food industry, animal welfare groups and NGOs, consumers, educators and media.*

The project aims to facilitate the co-creation through its **Knowledge Exchange Platform (KEP)** which invites all relevant stakeholders to join to GENE-SWitCH Facebook community. **The Stakeholder Advisory Board (SAB)** is selected among KEP members and will provide direct advice, quality assurance and contribute to shape the research agenda. The advice and consultations of both SAB and KEP will help to maximise the impacts of the outcomes and exploit the most promising transfer of results.

Join our [Knowledge Exchange Platform](#) (Facebook groups: Gene-switch Knowledge Exchange Platform) and don't forget to [subscribe to our newsletter](#) using the QR-code.



Contact:

Website: www.gene-switch.eu

Twitter: <https://twitter.com/GeneSwitch>

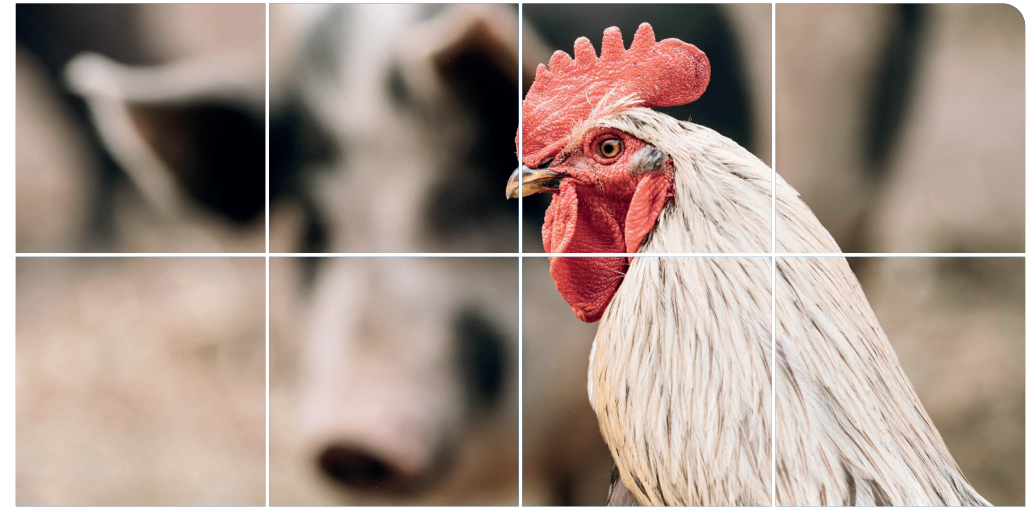
E-mail: geneswitch.eu@gmail.com



The GENE-SWitCH project has received funding from the European Union's Horizon 2020 research and innovation program under Grant Agreement No 817998. This publication reflects the views only of the author, and the European Union cannot be held responsible for any use which may be made of the information contained therein.

GENE-SWitCH

The regulatory GENomE of SWine and CHicken: functional annotation during development



GENE-SWitCH (the regulatory GENomE of SWine and CHicken: functional annotation during development) is a **multi-actor** project aiming to contribute to **sustainable breeding** programs for **monogastric species** by producing new knowledge on the **functional genome** of chicken and pigs. In close cooperation with FAANG (the global Functional Annotation of ANimal Genomes) initiative, GENE-SWitCH will enable the characterisation of genetic and epigenetic determinants of complex traits in the two monogastric species that are the primary source of meat worldwide. The GENE-SWitCH consortium brings together partners representing European excellence, including pioneers of a world-leading animal breeding and biotech industry.

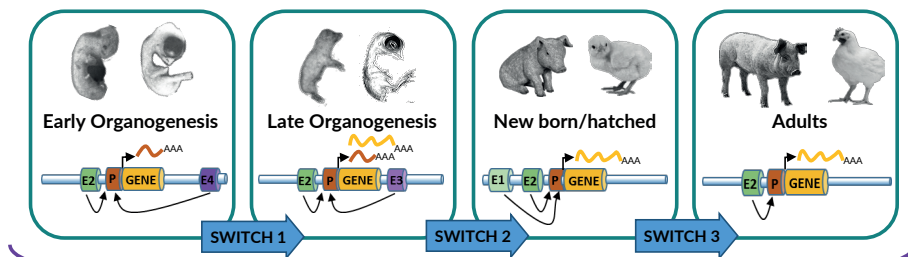
KEY FACTS

Project Coordinator:	Elisabetta Giuffra (INRAE)
Project Manager:	Camille Benard (INRAE Transfert)
Project Deputy Coordinator:	Hervé Acloque (INRAE)
Partners:	11 diverse partners (industry, research institutes and universities) from 7 different countries: France, United Kingdom, Netherlands, Sweden, Belgium, Italy and Spain.
Budget:	€5,999 million
Duration:	1 July 2019 – 30 June 2023

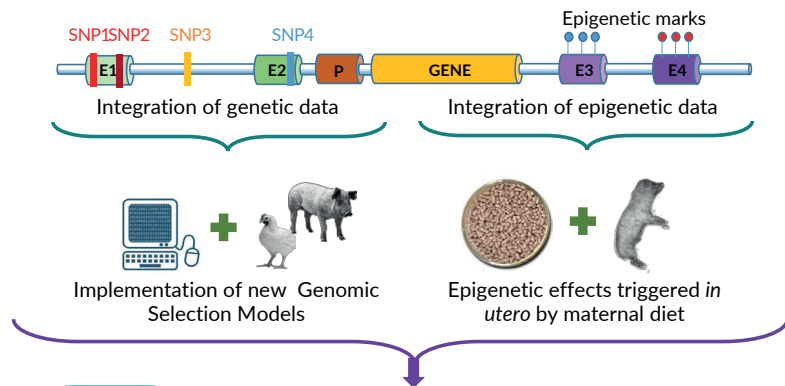
Why?

To date, most of the research has been focused on identifying genome dynamics in tissues of adult animals. However, little is known on how the fetal genome integrates genetic information and environmental constraints. To enrich our knowledge on this dynamic integration, it is essential to characterize functional genomic elements across cells, tissues, timepoints and a range of disturbances. The characterisation of these elements is a necessary step but represents a highly advanced and costly procedure. This underlines the importance of full coordination and cooperation with ongoing projects from the FAANG community, including AQUA-FAANG (www.aqua-faang.eu) and BovReg (www.bovreg.eu) projects. GENE-SWitCH is designed to complement data generated by others for pigs and chicken in order to produce a **freely available, richly described, molecular and phenotypic dataset** of monogastric samples, covering both developmental stages and adult life.

A. Functional annotations across tissues and developmental stages



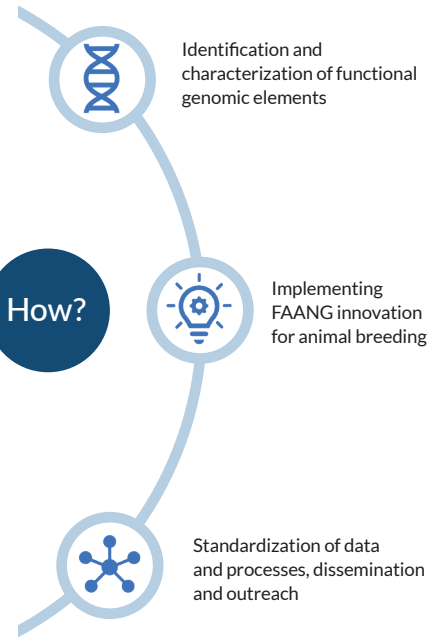
B. Using functional annotations for precision animal breeding



C. Towards more sustainable pig and poultry production systems



How?



Characterization of the functional elements of the genomes of pigs and chicken covering different developmental phases (7 tissues)

Development of innovative genomic predictive models that integrate functional annotations followed by validation in commercial pig and poultry populations

Profiling the epigenetic effects of maternal diet on pig fetal tissues and their possible persistence through the weaning stage

Maximizing the value of results for scientists, breeders and livestock production through:

- Integration of new annotation maps in the FAANG data portal;
- Collaboration with projects BovReg and AQUA-FAANG to coordinate GENE-SWitCH's efforts within the global FAANG action;
- Extensive dissemination, communication and training activities to facilitate uptake of the GENE-SwitCH outcomes.

Impact

GENE-SWitCH will deliver new knowledge and tools for immediate translation in the pig and poultry sectors:

- Generate comprehensive genome annotation maps of high quality
- Contribute to the international FAANG cooperation on genome annotation
- Use these maps to improve genomic selection and breeding practices in monogastric species
- Pave the way to enhance the sustainability of farmed animal production

