European Commission

AGRIRESEARCH FACTSHEET

ANIMALS AND HEALTH

Why do research and innovation on animals and health matter?

Animal[1] production is under constant pressure due to new and re-emerging pathogens resulting from globalisation, trade development and climate change. Transmissible animal diseases can have devastating impacts on agricultural sustainability as they entail production losses (up to 20% according to OIE), generate trade disruptions and affect the whole economy, as experienced with epidemic diseases like foot-and-mouth disease, avian influenza, African swine fever or endemic diseases (e.g. bovine tuberculosis). These pathogens can have a serious impact on human health and food safety: zoonoses (i.e. diseases that can be transmitted between animals and humans); antimicrobial resistance (estimated to be responsible for 25,000 deaths per year in the EU alone) and makes One Health an important approach. Diseases are detrimental to animal welfare and their control is key to improving overall production efficiency. Honeybee health is critical not only for apiculture but also for ecosystem services (pollination). European agriculture needs sufficient means to fight diseases and develop practices that would prevent their occurrence in the first place. It requires integrated approaches and the development of a range of tools for prevention, monitoring, control along with risk management strategies. This includes ensuring prudent use of anti-microbials and seeking alternatives to anti-microbials.

Animals and health under Horizon 2020 Societal challenge 2

21
Projects or expected grants

179 M€
EU contribution 2014-2020

246
Participations in selected projects

Key themes

Host-pathogen interaction; Vaccinology; One Health; anti-microbial resistance; International cooperation

[1] This fact sheet covers livestock and other terrestrial animals, but does not cover aquatic animals

Animals and health under EIP-AGRI activities

Focus group: Reducing antibiotic use in pig farming	bit.ly/2Gdk9AM
Operational group: Protocols to reduce antibiotics use in dairy cows	bit.ly/2pMIEJJ
Operational group: Decreasing swine dysentery using plant extracts in feed	bit.ly/2Gm9vUe

SC2 collaborative projects - Animals and health

PARAGONE www.paragoneh2020.eu/ Total cost: 9 M€ EU contribution: 9 M€ Coordinator: Moredun Research Institute Apr. 2015 to Mar. 2019	PARAGONE aims to take a number of promising prototype vaccines against parasitic infections of ruminants and poultry (Helminth and ectoparasitic) towards commercialisation. Vaccines offer an alternative to the indiscriminate use of antiparasitics which has led to drug resistance across the globe. PARAGONE will engage with pharmaceutical industry, farmers, veterinarians and regulators to design how vaccines can best be deployed in the field.
SAPHIR www.h2020-saphir.eu Total cost: 10,5 M€ EU contribution: 9 M€ Coordinator: INRA Mar. 2015 to Feb. 2019	SAPHIR aims to develop innovative, safe, affordable and effective vaccine strategies against endemic pathogens responsible for high economic losses in livestock. SAPHIR selected relevant pathogens of pigs, chickens and cattle for which specific vaccines will be developed in addition to generic vaccine approaches applicable to other pathogens. Two vaccines will reach demonstration in the short term.
SIRCAH www.star-idaz.net Total cost: 3,5 M€ EU contribution: 3 M€ Coordinator: DEFRA Oct 2016 to Sep. 2021	SIRCAH provides organisational, communication and technical support to the STAR-IDAZ International Research Consortium (IRC) on Animal Health, which aims to deliver measurable advancements in the control of animal diseases through the alignment of both public and privately funded animal health research programmes around the world. It will deliver candidate vaccines, diagnostics, therapeutics, other animal health products and key scientific information and tools to support risk analysis and disease control.
SWINOSTICS www.cyric.eu/project/swinostics/ Total cost: 3,5 M€ EU contribution: 3 M€ Coordinator: Cyprus R&I centre (CYRIC) Jan. 2017 to Apr. 2021	SWINOSTICS aims to develop a novel field diagnostic device, based on advanced, proven, bio-sensing technologies to tackle viruses causing epidemics in swine farms and leading to important economic damages. The diagnostic device will allow threat assessment at the farm level, with the analytical quality of commercial laboratories. The device will be developed for a panel of six important swine diseases. The device will be portable and will provide results in 10 minutes for 5 samples simultaneously, making it highly suitable for field use.
DELTA-FLU delta-flu.fli.de Total cost: 5,5 M€ EU contribution: 5,5 M€ Coordinator: Friedrich Loeffler Institut Jun. 2017 to May 2022	DELTA-FLU aims to elucidate the key viral, host-related, and environmental factors that determine the dynamics of avian influenza (AI) in poultry and other host species, with the goal of improving prevention and control strategies. It will analyse the potential for some highly pathogenic avian influenza viruses to be maintained in wild bird populations, spread over long-distances and infect poultry holdings.
PALE-Blu www.palebludata.com Total cost: 6 M€ EU contribution: 6 M€ Coordinator: University of Nottingham Jun. 2017 to Nov. 2020	PALE-Blu aims to further understand pathogen, livestock, environment interactions involving bluetongue virus (BTV) in order to improve prevention and control strategies. It will conduct full-genome sequence analyses to build blue-tongue distribution maps. It will also analyse pathways and mechanisms for the disease to spread into and within Europe, the genetic connectivity of vector populations, infection dynamics and the effectiveness of potential solutions such as vaccines, antiviral agents and diagnostic systems.

PIGS bit.ly/2GauahX Total cost: 5 M€ EU contribution: 5 M€ Coordinator: Wageningen University Jun. 2017 to Nov. 2021	PIGS aims to improve understanding of host-pathogen-environment interactions of Streptococcus suis infections, an endemic porcine disease causing economic losses to the pig industry, and often addressed through preventive antibiotic treatments. It will sequence the genome of S. suis isolates and perform genome-wide-association studies; work on new diagnostic methods, on epidemiology, on novel conserved vaccine antigens and on prevention strategies.
One Health EJP bit.ly/2pHdQuG Total cost: 90 M€ EU contribution: 45 M€ Coordinator: ANSES Jan. 2018 to Dec. 2022	One Health European Joint Programme is a co-fund action, where one reference laboratory from the public health or medicine domain and one reference laboratory from the food or veterinary domain are associated within a network of European laboratories and research centres, distributed in 19 participating Member States, with the aim to reach significant advances in the fields of foodborne zoonoses, antimicrobial resistance and emerging threats, within a global One Health approach. One Health EJP aims to build a sustainable framework for an integrated research community.
VIVALDI Total cost: 3,2 M€ EU contribution: 2,9 M€ Coordinator:Technical university of Denmark Jan. 2018 to Dec. 2020	VIVALDI aims to validate new equipment (the VETPOD platform) for rapid on-site detection of zoonotic pathogens in industrial food and animal production chains. The VETPOD platform will be validated for three important zoonotic pathogens: Avian Influenza Virus (AIV) or Highly Pathogenic Avian Influenza Virus (HPAIV), Salmonella spp. and Campylobacter spp.

Some SC2 Thematic Networks on animal production address also animal health such as EURODAIRY (https://eurodairy.eu) or EU PiG (www.eupig.eu).

Interesting activities under other Horizon 2020 sections

Many other parts of Horizon 2020 include R&I activities of interest to animals and health. A small list of examples include:

- **Societal Challenge on health:**
  - COMPARE - COllaborative Management Platform for detection and Analyses of (Re-)emerging and food-borne outbreaks in Europe (www.compare-europe.eu/about);
  - **Innovative Medicines Initiative** (Public-Private Partnership in the medical sector): ZAPI: Zoonoses Anticipation and Preparedness Initiative (www.zapi-imi.eu/about-zapi).

- **Research infrastructures**:
  - VETBIONET - Veterinary Biocontained facility Network for excellence in animal infectiology research and experimentation; www.vetbionet.eu/

COST actions on 'animals and health', such as **ASF-STOP**:

- Understanding and combating African Swine Fever in Europe (www.asf-stop.com/);
- **NEOH**: Network for Evaluation of One Health (neoh.onehealthglobal.net/);
- **Euro-FBP**: A European Network for Foodborne Parasites (www.euro-fbp.org/);
- **PiGutNet**: European network on the factors affecting the gastro-intestinal microbial balance and the impact on the health status of pigs (www.pigutnet.eu/);
- **COREMI**: Improving current understanding and research for sustainable control of the poultry red mite Dermanyssus gallinae (www.coremi.eu/home.html)

In the pipeline – 6 projects to start under 2017 and 2018 SC2 calls (39.6 M€)

Research and approaches for emerging diseases and pests	(1 projects, 5,6 M€)
Bee health and sustainable pollination	(1 project, 9 M€)
Alternative production system to address anti-microbial drug usage, animal welfare and the impact on health	(1 project, 5 M€)
Making European beekeeping healthy and sustainable	(1 project, 8 M€)
Anti-microbials and animal production	(2 projects, 12 M€)

Funding opportunities - Open SC2 calls for 2019 (21 M€) - 2020

SFS-11-2018-2019 (continued): Anti-microbials and animal production	(1 project, 6 M€)
SFS-12-2019: A vaccine against African swine fever	(1 project, 10 M€)
SFS-31-2019: ERANETs in agri-food - C. International veterinary vaccinology	(1 project, 5 M€)
SFS-02-2020 - Healthy livestock gut ecosystem for sustainable production	
SFS-10-2020 - Epidemiology of contagious animal diseases	

Towards one health and improved international action

Towards One Health: According to the FAO, One Health is a 'collaborative, international, cross-sectoral, multidisciplinary mechanism to address threats and reduce risks of detrimental infectious diseases at the animal-human-ecosystem interface'. The European Joint Programme (EJP) Co-fund on One Health (zoonosis –emerging threats) is a large Public-Public Partnership (EU contribution to a maximum 50% of the total eligible costs of the action or up to 45 million euros) designed to coordinate research programme managers with the main emphasis on foodborne microbial infections and intoxications, as well as emerging threats such as antimicrobial resistance. The joint programming initiatives on anti-microbial resistance (https://www.jpiamr.eu) and on healthy diet for a healthy life (http://www.healthydietforhealthylife.eu) also contribute to coordination among research funders.

Animal health going international: in spring 2007, a coordination action for a global network of animal health research funding organisations known as "STAR-IDAZ" was launched under the 7th framework programme for research and development. Building on it, an international cooperation alliance following a model successfully used in medical research was instigated. STAR-IDAZ International Research Consortium (IRC) was launched in January 2016 in Brussels. IRCs are not per se EU funding instruments. STAR-IDAZ IRC's overall objective is to coordinate research at the international level to contribute to new and improved animal health strategies for at least 30 priority diseases, infections or issues. STAR-IDAZ IRC secretariat is funded from Horizon 2020 for 5 years. The European Commission is a STAR-IDAZ IRC member, next to 24 other research funders from most continents. The cumulative intended commitment is over 2 billion dollars. Coordination of research is intended to take place primarily through coordinated research projects funded according to each funding member's procedures and budgets. Several Horizon 2020 research topics were earmarked as contributing to STAR-IDAZ IRC objectives.

www.star-idaz.net

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