

# NEWS

DECEMBER 2021



**STAR-IDAZ**  
International Research  
Consortium on Animal Health



## Message from IRC Chair

The STAR IDAZ International Research Consortium on Animal Health continues its work to coordinate animal health research despite the continued restrictions on meetings due to the COVID-19 pandemic. It was good to see the publication of the review of recent progress on the research into animal influenza viruses. This was a huge task to work through several thousand published papers and timely, as research into zoonotic viruses has made great progress following the pandemic. As well as reviewing the published literature the report lists current research and knowledge gaps. A workshop had been planned for this year, to be held at the National Animal Disease Center, Ames, Iowa, to review knowledge gaps in animal influenza, but unfortunately this has been postponed until the first half of 2022, due to current travel restrictions.

Other notable activities have been the series of workshops on alternatives to antibiotics, as part of the drive to reduce antimicrobial resistance emerging from animal agriculture. Also, the work on vaccine platforms will be enhanced by the review that has been commissioned by the IRC, and which is currently underway.

Progress has also been made on finding replacements for members of the Scientific Committee, and we look forward to them being announced soon, following ratification by the Executive Committee.

The restrictions on travel have meant that virtual meetings of the Regional Networks can be held more frequently, and this has been done with enthusiastic participation. The recent AMERN included a series of presentations from research donors outlining their work in the region.

Finally, I would like to extend a warm welcome to Valeria Mariano, from the OIE, as the new member of the SIRCAH team, replacing Stefano Messori who has moved on to work for the European Commission.

Best wishes,

## Hong Yin

Director General, Lanzhou Veterinary Research Institute  
Chair IRC

### Executive Committee

Since the Covid restrictions on meeting in person, the IRC Executive Committee have met more frequently with 3 meetings a year. At the meeting of 13 July, the member's supplied details of their research programmes on animal influenza, alternatives to antibiotics, animal mycoplasmal diseases, mastitis, and vector borne diseases. The details included current research and planned research activities. The meeting also considered replacements on the Scientific Committee for the members that had left – a process was established to look at suitable candidates in subject areas of most needed, and to give a better geographical and gender balance. The meeting also heard an update on the analysis of helminth research including the research gaps identified, the roadmaps developed, and projects mapped to the roadmaps. The economic argument for research in this area based on Europe was put as: the total cost of the 59 research projects collected was €8.3 million a year against

an estimated burden in Europe of livestock helminths in the 18 countries involved was €1.8 billion (i.e., 0.2-0.5%).

At the Executive Committee meeting on the 24 October information on research programmes (current and planned) on foot and mouth disease, porcine reproductive and respiratory disease virus (PRRSV), brucellosis, helminths, and African swine fever was shared. The meeting also considered the review of vaccine platform technology that is in progress, and the publication of the review on animal influenza viruses. The meeting also agreed the recommendations for the new members of the scientific committee, and also asked the Secretariat to look into how the expertise of the candidates who were not selected could be used to further the work of the IRC.

The committee agreed to consider a face-to-face meeting for the meeting next March.

[www.star-idaz.net](http://www.star-idaz.net)



## Alternatives to Antibiotics

A series of workshops were organised in October and November 2021 by the IRC in collaboration with IDRC (Canada), to progress the work on alternatives to antibiotics started at the STAR-IDAZ workshop held in Bangkok in December 2019. The workshops aimed to develop a logical framework and roadmaps to find alternatives to antibiotics in animal agriculture.

The five workshops dealt with:

1. Alternatives to antibiotics acting directly on the pathogen, including establishing their mode of action (with a focus on phage technologies)
2. Agents and compounds for their ability to enhance the hosts resistance to disease, including establishing their mode of action, with a focus on immunomodulators
3. The role of the microbiome in the maintenance of health, and how it can be manipulated
4. Antibiotics as growth promoters: how antibiotics work as growth promoters
5. Taking new alternatives to antibiotics to market

The international experts invited to the workshops were presented with draft roadmaps, and considered the gaps in the knowledge, research priorities, and lead summaries that will be used in refining the roadmaps for alternatives to antibiotics.

The next steps include further refinement of the research roadmaps, confirmation of the prioritised research gaps, consideration of the challenges in taking products to market and identification of areas for early wins and the challenges of taking products to market.



## DISCONTTOOLS Symposium

The DISCONTTOOLS Symposium went ahead with a face-to-face meeting in Brussels (22 October 2021) that brought together 126 experts and stakeholders from across Europe. For most participants, it was the first physical meeting since the first covid-travel restrictions in March 2020 and a welcome moment to re-establish connections.

The symposium discussed important knowledge gaps in animal disease control and assessed the research needs to fill these gaps with a view to contributing to sustainable development goals and securing a healthy planet for the future. The event took place within the framework of the DISCONTTOOLS project, which celebrated the completion of the second update cycle of more than 50 infectious diseases, an effort taking 5 years in total. Experts from academia, governments and industry came together to review the identified research gaps and designate disease-specific as well as cross-cutting research gaps that should be filled in the coming decade.

Claire Bury, Deputy-Director General of DG SANTE opened the meeting and welcomed reflections on 3 key aspects of animal health: (i) addressing challenges according a One Health approach; (ii) the interrelationships between animal health and animal welfare and (iii) the contribution of animal health to sustainable food systems. Stéphan Zientara, director of the Joint Research Unit in Virology at ANSES, pointed out the important role of DISCONTTOOLS in advancing control measures against both well-known (e. g. tuberculosis) and emerging diseases (e. g. Bluetongue, West Nile, African horse sickness). DISCONTTOOLS will be an important resource to underpin the envisaged animal health priorities during the French presidency to the EU. Johannes Charlier, DISCONTTOOLS project manager, proposed a number of diseases for consideration as being those most likely to help deliver on the UN's sustainable development goals. Furthermore, despite significant progress in the past decade, a pressing need persists for the development of stable and durable diagnostics, fundamental research to find breakthrough solutions for diseases where vaccines currently still don't exist and insights into resistance mechanisms of bacterial as well as parasitic pathogens to address the antimicrobial resistance challenge. Disease experts then went on to highlight the current progress and challenges regarding control of African Swine Fever, Animal Influenza, Endoparasites and Bovine Tuberculosis (Box 1).

More details on the symposium can be seen [here](#).



## African Swine Fever

The Global African Swine Fever Research Alliance (GARA) aims to establish and sustain global research partnerships that will generate scientific knowledge and tools to contribute to the successful prevention, control, and where feasible eradication of African swine fever (ASF). As the GARA meeting originally planned for Kampala, Uganda in April 2020 has now been postponed until 2022, they have organised a series of webinars to maintain momentum and information sharing. On 30 September, the second webinar in the series titled 'Troubleshooting Techniques for Full Genome Sequencing of African Swine Fever' was held. The final session titled 'The Eustace Montgomery seminar: honouring the first hundred years of ASF research' will be held on 8 December.

GARA's website is available [here](#), where the presentations and information about the next webinar will be posted.

Recent News: Two non-haemadsorbing genotype I African swine fever virus (HeN/ZZ-P1/21 & SD/DY-I/21) isolates have been discovered in pig farms in Henan & Shandong provinces, China – posing a potential problem for control and prevention of ASF. The emergence of genotype I virus is in addition to the Georgia-07-like genotype II ASFV with high virulence that has been prevalent in China since 2018. – Sun E, (et al.) Genotype I African swine fever viruses emerged in domestic pigs in China and caused chronic infection. *Emerging Microbes & Infections* 2021 Oct 28:1-30. [doi:10.1080/22221751.2021.1999779](https://doi.org/10.1080/22221751.2021.1999779)



## Vector borne diseases

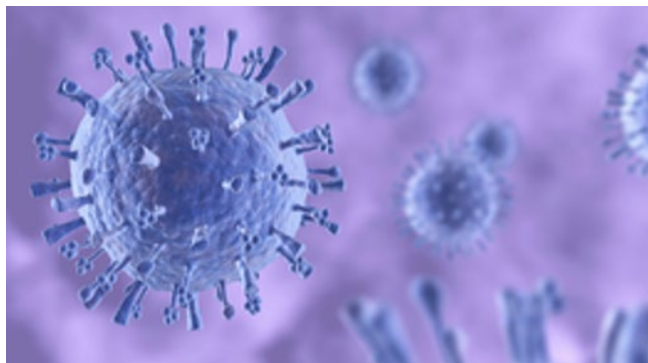
Work has been progressing on creating a generic roadmap for vector transmission and control (VTC), the emphasis being on the control of the vector, rather than the disease. With the roadmap 'lead summaries', which include the research question, the challenge (knowledge gaps that need to be addressed, and solution routes) have been drawn up and circulated to international experts to several experts who presented at the VBD Conference held November 2020 for their comments followed by the wider VBD Working Group. Identifying the research gaps and prioritise these will be done by the Working Group at a face-to-face workshop will be held in 2022. After the workshop we will be looking to publish the roadmaps.

## State of the art report 2021

The sixth state of the art report will be soon published on the website with a new look – [see here](#).

As always, its aim is to collate useful information to support the decisions of policy makers and research funders, to accelerate coordinated development of control methods at the international level. Thus, it keeps providing an overview of the latest discoveries on priority animal health diseases and on the existing opportunities for speeding up research and to boost collaboration in the sector.

Nevertheless, as its content is increasing from year to year, a new layout was designed to improve its readability and consultability. Moreover, trends in published research have been added to show main statistics over advances on each priority for topics such as diagnostic, epidemiology, vaccination/vaccine development and therapeutics. A graphical analysis of the estimated distribution of published articles among the four STAR-IDAZ Regional Networks (Americas, Africa and Middle East, Asia and Australasia, and Europe) was also introduced. The section on research advances was then supplemented with information on current research initiatives on the priority diseases and issues, collected from experts and research funders during the latest STAR-IDAZ IRC Executive Committee, Scientific Committee, and Regional Networks meetings and roadmap workshops.



## Influenza virus – Review and proposed workshop

The STAR-IDAZ IRC commissioned and published an independent report, (available on the STAR-IDAZ website – here) to comprehensively review the research on animal influenza viruses, that has been published in the last five years, including studies on virology, pathogenicity, epidemiology, prevention and control. As well as reviewing recently published literature, major leading research groups working in this field were contacted so that information on their current research priorities and activities, could be included.

The findings show good progress in understanding influenza, but major gaps in our knowledge and preparedness for a pandemic remain. It highlights the importance of surveillance of animal populations, including wild birds, as well as developing appropriate diagnostic techniques, and molecular studies to track the evolution of variants of the virus. The report also looks towards the future of animal influenza research, including how to leverage the rapid advances made in understanding the science of SARS-CoV-2 to advance our knowledge of influenza and its control.

The findings of the report will be used in a detailed gap analyses workshop to be organised by STAR-IDAZ IRC with the USDA, that will incorporate a review of current research and control measures, alongside knowledge of control strategies, in use or under development, and their efficacy. The Workshop had been scheduled for this November at the National Animal Disease Center, in Ames, Iowa, but has been postponed to next year due to current travel restrictions.

## Scientific Committee

After two members stepped away from the Committee earlier in the year, the Scientific Committee has had two vacancies to fill. In total, seven strong experts were nominated by the Executive and Scientific Committees. An assessment panel was established to review their areas of expertise in order to select suitable candidates in subject areas of most need and to give a better geographical and gender balance. It is anticipated the successful candidates will be informed and invited to join the Scientific Committee later this year.

## Meetings

Like the Executive Committee, the Scientific Committee has agreed to meet more regularly whilst there are continued restrictions on meeting in person. At the meeting on 14 June, the Committee were updated on IRC activities and progress of Alternatives to Antibiotics (ATA), Vaccinology and vaccine platforms, Vector Biology, ASF, and influenza working groups. There was also discussion about the need for coordination in Emerging Issues following the workshop on 1 June and how to take forward work on animal mycoplasmal diseases, mastitis, and PRDC. The meeting also considered the vacancies in the Committee.

At the Scientific Committee on 20 September, the activities on influenza, ATA, VBD, and helminths infections. The Committee were given an overview of the structure of the vaccine platform review and its progress and informed of the DISCONTTOOLS Symposium in October 2021. There was discussion about routinely moving the times of the Scientific Committee meetings while they continue to be held virtually to accommodate members in all time zones. The Committee will consider meeting in person at their next meeting in January 2022, if travel restrictions allow.



## Vaccinology

Following the Vaccinology Working Group workshop it was agreed that SIRCAH should commission a review of current vaccine platform technologies. The review would critically evaluate the current literature on Vaccine Platform Technologies with direct relevance to the goals of the STAR-IDAZ IRC in animal health. It would outline the different vaccine platform technologies currently in use and discuss these in relation to the different challenges for animal vaccinology. It would highlight the importance of One Health, what we have learned from recent zoonoses and the complex interface of disease prevention and control in humans, livestock, companion animals and wildlife. The review is being written by Dr Gary Entrican, who is a member of the IRC Scientific Committee, and co-authored by Dr Mike Francis, a leading vaccinology researcher. The review will help develop the forward vision for STAR-IDAZ IRC and how knowledge of vaccines and zoonotic threats can be integrated into global health policies.

# Regional Networks

## AMERN

The African and Middle East Regional Network (AMERN) met virtually on the 7 September, with 36 attendees with representatives from Algeria, Iran, Israel, Kenya, Nigeria, Senegal, South Africa, Uganda, AU-IBAR, Zoetis, ILRI, and OIE Regional offices. At this meeting there were invited presentations from funders who fund research in the region, which included presentations from representatives of ERFAN (Enhancing Research for Africa Network), GALVmed (Global Alliance for Livestock Veterinary Medicines), IDRC (International Development Research Centre, Canada), and concluding remarks from AU-IBAR (African Union Interafrican Bureau for Animal Resources). There are further funders presentations planned for the next meeting, these will focus on OHRECA (One Health Centre in Africa) and BUILD (Building Uganda's Investment in Livestock Development) projects from ILRI (International Livestock Research Institute) and World Bank-supported initiatives in the region. At the meeting in September, the Network agreed they would like to meet more regularly than every 6 months, so will meet again in January 2022.

## A&ARN (Asia & Australasia)

The Asia and Australasia Regional Network met by webinar on 22 June, with representatives from China, Japan, Australia, Russia and the OIE Regional office. At this meeting, participants gave brief country reports on their research priorities and initiatives with a focus on One Health priorities in the region, particularly zoonoses, AMR, vector-borne diseases, and human-livestock-wildlife interface. This Regional Network will next meet on 15 December 2021.

## ARN (Americas)

The next Americas Regional Network meeting will be held alongside the virtual PANVet (Panamerican congress of Veterinary Sciences) Conference, which is running from 24 to 26 November 2021.

# SIRCAH News

**Valeria Mariano**, research coordinator based at OIE, recently joined the Secretariat of STAR-IDAZ IRC, SIRCAH.

Valeria graduated as Doctor in Veterinary Medicine (DVM) at the University of Perugia, she holds also a Master degree in Veterinary Public Health (VPH) - University of Pretoria, and a Specialisation in Animal Health, Husbandry and Production – University of Pisa.

In the last 16 years, devoted mainly to the veterinary public health sector, she gained experience on R&I at international level. She worked as research manager and as veterinarian for disease diagnostic and at the Istituto Zooprofilattico Sperimentale delle Regioni Lazio e Toscana (IZSLT) and as research policy officer at the European Commission.

She has been involved in several activities of the CWG Animal Health and Welfare of SCAR, EMIDA Era-net and STAR-IDAZ global-net for coordination and implementation of international research activities and taken active part in strategic research and innovation identification, planning methodologies and prioritisation activities.

# Helminths

The STAR-IDAZ Helminth WG previously developed 6 road maps for the development of diagnostics, therapeutics and candidate vaccines as well as control strategies against nematode and liver fluke infections in ruminants. Recently, information on active research projects in the period 2018-2020 was collected via a survey among researchers contributing to the LiHRA and COMBAR networks. Thirty-five researchers from Europe, the America's and Asia provided information on 59 research projects totalling a budget of € 33 million. The majority of the projects dealt with the development of nematode control strategies (€ 14 million, followed by development of diagnostics (€ 6.4 million) and liver fluke control strategies (€ 6.1 million).

The projects objectives were overlaid with the leads in the STAR-IDAZ topics, suggesting that following areas receive currently no or very limited funding on a global basis:

- Vaccine research on challenge models, identity of virulence factors, expression system of liver fluke vaccines as well as research on vectored, DNA and RNA vaccines.
- Therapeutic research on animal models, pharmacokinetic and pharmacodynamic integration, formulation and delivery routes, repurposing and risk assessment methodologies.
- Control strategies including consideration of wildlife, host genetics, latent/carrier stage of parasites, co-infections, contact networks and quantified transmission pathways and biosecurity.

The STAR-IDAZ Helminth WG proposes to develop an international research call addressing some of the prioritised gaps identified by the WG.



## ICRAD

The second transnational call of the International Coordination of Research on Infectious Animal Diseases (ICRAD), One Health Approach to Zoonoses Research and Innovation, went live on the 1 October 2021. There are 22 funding bodies involved in the call representing different countries across Europe, Russia and Argentina.

The objective of this funding call is to increase preparedness and improve the ability to respond to (re)-emerging zoonotic disease threats and contribute to improved animal and public health. This will be done through studies focusing on (re)-emergence of pathogens with zoonotic potential, understanding animal host-pathogen interactions and the immune response, and by developing detection and prevention platforms. The main focus of proposals should be on improving livestock health.

The deadline for pre-proposals is the 15th of December 2021.



## Addressing the dual emerging threats of African Swine Fever and Lumpy Skin Disease in Europe

DEFEND is an international partnership of 30 academic, industrial and governmental organisations working together to tackle the emergence of African swine fever and lumpy skin disease in European livestock. DEFEND is funded by the European Union's Horizon 2020 research and innovation programme, and led by Dr Pip Beard from the Pirbright Institute, UK.

DEFEND is a 5.5 year (2018-2023), €5.6 million programme of research which aims to generate new knowledge about ASFV and LSDV and to develop novel diagnostic tools and vaccines for these two viruses. The first three years of the project focused on planning and executing, and scientific outputs are now beginning to be realised.

- DEFEND has published information on how climate, land cover, and human activity influence the occurrence of African swine fever (ASF) in wild boar ([doi.org/10.3390/ani11092692](https://doi.org/10.3390/ani11092692)), and the most effective way to detect ASFV in a population of wild boar ([doi: 10.3390/vetsci7010005](https://doi.org/10.3390/vetsci7010005)). These outputs can be used to guide the implementation of ASF control measures in wild boar, particularly the design of surveillance programmes to detect ASFV incursion into new areas.
- A key aim of DEFEND is the development of a safe and effective vaccine against ASFV. In order to deliver this, the protective immune response to ASFV was characterised in detail by studying pigs that were able to resist challenge with virulent ASFV. This knowledge was then used to design and construct a novel subunit vaccine against ASFV which will be tested in pigs early in 2022.
- DEFEND is examining the role that civil war, conflict, and human migration play in the emergence of animal diseases, particularly LSDV and ASFV. Data on this topic has been sourced from scientific literature, media and press coverage, and "grey literature" (informal documents), and used to identify potential drivers for animal disease emergence. Fieldwork involving local partners has now started to investigate these drivers.

DEFEND continues to work with a range of end-users and stakeholders to ensure maximum impact from our research findings. We are fortunate to have the strong support of an expert multi-actor advisory panel which includes representation from STAR-IDAZ. This panel works together with the consortium to make sure the new knowledge and tools from DEFEND reach those most able to benefit from them, to control the growing ASF and LSD epidemics in Europe and beyond.

# IRC Members

The complete list of members is:

1. Danish National Veterinary Institute (DTU Vet), Denmark
2. National Institute of Agricultural Research (INRA), France
3. French Agency for Food, Environmental and Occupational Health & Safety (ANSES), France
4. Ministry of Health, Italy
5. Ministry of Agriculture, Nature and Food Quality, The Netherlands
6. National Institute for Agriculture and Food Research and Technology (INIA), Spain
7. Department for the Environment, Food and Rural Affairs (Defra), UK
8. Biotechnology and Biological Science Research Council (BBSRC), UK
9. Regional Consortium; Universiteit Gent (Ghent University), Université de Liège, the Federal Public Service Health, Food Chain Safety and Environment (Unit Contractual Research) and CODA-CERVA (Veterinary and Agrochemical Research Centre)
10. Kimron Veterinary Institute, Israel
11. International Livestock Research Institute (ILRI), Kenya
12. Tanzania Veterinary Laboratory Agency (TVLA), Tanzania
13. National Institute of Animal Health, National Agriculture and Food Research Organisation (NIAH), Japan
14. Agriculture Research Services, United States Department of Agriculture (USDA ARS), USA
15. National Institute of Agriculture Technology (INTA), Argentina
16. Ministry of Science, Technology and Productive Innovation (MINCYT), Argentina
17. Canadian Food Inspection Agency (CFIA), Canada
18. Zoetis
19. OIE-World Organisation for Animal Health
20. Bill and Melinda Gates Foundation (BMGF)
21. HealthforAnimals (Global Animal Medicines Association)
22. Diagnostics for Animals (Manufacturers of Animal Health Diagnostics)
23. European Commission
24. Regional Consortium; Nigerian Animal Health Research Network led by National Veterinary Research Institute Vom
25. National Advisory Council on Animal Health (CONASA) and the National Autonomous University of Mexico (UNAM), Faculty of Veterinary Medicine and Zootechnics (FVMZ)
26. Australian Animal Health Laboratory, CSIRO, Australia
27. Lanzhou Veterinary Research Institute (LVRI), China.
28. National Veterinary Institute of Sweden (SVA), Sweden

## SIRCAH

SIRCAH, funded by the European Commission through H2020, is run by a partnership including Defra (UK Department for Environment, Food and Rural Affairs), World Organisation for Animal Health (OIE), CAB International, BBSRC (Biotechnology and Biological Sciences Research Council), and AnimalhealthEurope (association representing animal medicines industry in Europe). It provides organisational and communication support to the IRC, facilitates research gap analysis including the provision of literature reviews for working groups, maps funding activities against identified research needs, and helps mobilise resources to address them. The Secretariat also plays an important role in advocacy for the consortium and bringing in new members.

## Further Information

For further information about the IRC please visit [www.star-idaz.net](http://www.star-idaz.net). Research funding organisations and programme owners interested in joining the IRC or researchers interested in joining the working groups should contact the STAR-IDAZ IRC Project Office: Alex Morrow: [Alex.Morrow@Defra.gsi.gov.uk](mailto:Alex.Morrow@Defra.gsi.gov.uk)

Alex Morrow (Defra): [Alex.morrow@Defra.gsi.gov.uk](mailto:Alex.morrow@Defra.gsi.gov.uk) | Johannes Charlier (AnimalhealthEurope): [j.charlier@animalhealtheurope.eu](mailto:j.charlier@animalhealtheurope.eu)

Sadhana Sharma (BBSRC): [Sadhana.Sharma@bbsrc.ac.uk](mailto:Sadhana.Sharma@bbsrc.ac.uk) | Robert Taylor (CABI): [r.taylor@cabi.org](mailto:r.taylor@cabi.org)

Madeline Newman (DEFRA): [madeline.newman@Defra.gov.uk](mailto:madeline.newman@Defra.gov.uk) | Valeria Mariano (OIE): [v.mariano@oie.int](mailto:v.mariano@oie.int)



The Secretariat for the STAR-IDAZ IRC (SIRCAH) is funded from the European Union's Horizon 2020 research and innovation programme under grant agreement No 727494

