STAR IDAZ International Research Consortium on Animal Health

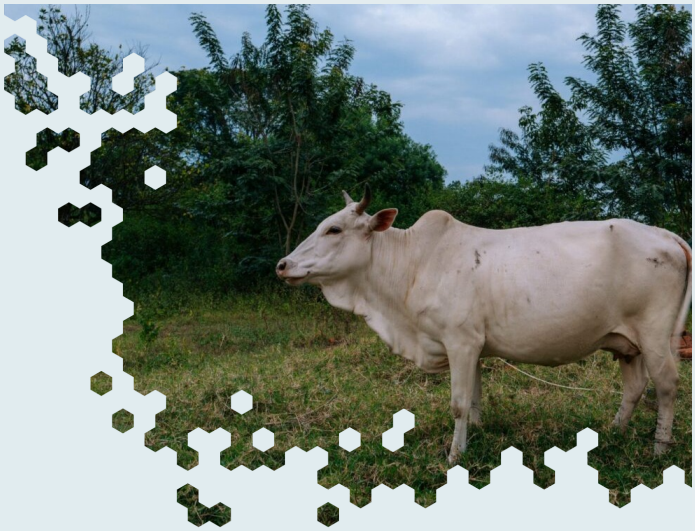
Annual state-of-the-art report on animal health research on IRC priorities

DELIVERABLE 4.11
November 2025

Funded by the European Union

Support for the International Research Consortium on Animal Health (SIRCAH2) is funded by the European Union Horizon Europe research and innovation programme under grant agreement No 101082377 and by UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee [grant numbers 10055666 and 10058793]

State-of-the-Art Report



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Introduction

The STAR IDAZ International Research Consortium (IRC) on Animal Health brings together research funders, programme owners, and industry partners worldwide to coordinate and align investments in animal health research. Its mission is to accelerate the development of control tools – vaccines, diagnostics, therapeutics, and other innovations – for priority animal diseases, thereby contributing to global strategies on food security, animal welfare, and public health.

The annual *State-of-the-Art (SoA) Report* provides an updated overview of research progress across the Consortium's priority diseases and cross-cutting themes, highlighting recent advances, ongoing projects, identified research gaps, and opportunities for collaboration.

The 2025 edition maintains the structure of previous years but streamlines content by drawing directly from the new STAR IDAZ website. This approach ensures more timely updates, enhances consistency, and supports the vision of offering tailored information for the STAR IDAZ community according to preferences expressed when logging into the website.

The report contains dedicated chapters on each priority disease or theme. In the online version, users can directly access the sections of interest through interactive links.

In addition, the report includes sections on the broader research and innovation landscape, such as international initiatives, infrastructures, and databases supporting Research & Development (R&D) beyond STAR IDAZ. Together, these updates provide stakeholders with a consolidated view of global progress, remaining challenges, and future opportunities in animal health research.

Executive Summary

The 2025 *State-of-the-Art Report* reflects the continued expansion and strengthening of the STAR IDAZ IRC, which now includes 36 partners worldwide. Over the past year, the Consortium has advanced its mission of fostering collaboration, reducing duplication, and accelerating the delivery of innovative tools for the control, prevention, and eradication of priority animal diseases.

Key highlights include:

- **Updates on STAR IDAZ network activities**: The Consortium continued to consolidate partnerships with research funders, international organisations, industry stakeholders, and scientific networks. This ensured a continuous flow of information across thematic Working Groups (WGs), regional networks, and STAR IDAZ partners. The IRC also reinforced its alignment with global animal health and One Health strategies through active engagement with international organisations.
- **State-of-the-Art in IRC priority diseases and cross-cutting issues**: Over the years, STAR IDAZ partners have agreed on a set of priority diseases and cross-cutting issues for collaboration (see figure below). Each chapter in this report is informed by the work of the relevant Working Group and engaged networks, and includes:
- A short description of the STAR IDAZ approach for the priority;

- Updates from Working Groups, with links, whenever available, to news on recent activities and outputs;
- Featured funding calls currently open and relevant to the theme;
- Updates to research roadmaps and gap analyses, including details on the priority-setting process;
- Links to reports on identified research gaps;
- Information on ongoing projects, as reported by partners, with future improvements expected through the use of AI-enabled search tools and direct input on the website by researchers (see link: tell us about your project);
- A selection of recent advances, with links to relevant published articles selected by SIRCAH with the support of STAR IDAZ Scientific Committee Members and/or experts of the sectors.
- International collaboration and infrastructures: Beyond disease-specific priorities, the report reviews international initiatives and infrastructures that accelerate animal health R&D, including global databases, surveillance platforms, and shared facilities that are essential for coordinated progress.

Overall outlook

The 2025 *SoA Report* shows that while significant strides have been made in many priority areas, there is a lot that still needs to be done to address the research gaps in the development of next-generation vaccines, rapid diagnostics, and sustainable disease control strategies. By facilitating continue dialogue for aligning global research agendas and mobilising resources for needed research activities, STAR IDAZ continues to play a central role in shaping the international animal health R&D landscape and accelerate the delivery of solutions that safeguard animal and public health, food security, and livelihoods worldwide.

Updates on Executive Committee, Scientific Committee, Regional Network and SIRCAH activities can be see in the Summer Newsletter:

STAR IDAZ Summer Newsletter

Recent Advances

The following selection of recent scientific advances for the State-of-the-Art Report 2025 has been curated by SIRCAH, in collaboration with members of the STAR IDAZ Scientific Committee and sectoral experts. This compilation highlights peer-reviewed research published over the past year that represents significant progress across the STAR IDAZ priority areas. Each entry includes a concise summary and a direct link to the original publication, providing evidence of innovation and emerging directions in animal health research relevant to global disease prevention, diagnosis, and control.

Recent Advances

International Initiatives Accelerating Research and Development Beyond STAR IDAZ IRC

Research and development (R&D) are fundamental for developing effective disease prevention and control tools, utilising existing knowledge, and mitigating disease impacts. Several initiatives have been launched at both regional and global levels to accelerate research and deliver timely solutions for emerging issues.

This chapter aims to provide a list of key network initiatives, funding opportunities and regulatory easing measures. These initiatives are designed to accelerate the delivery of R&D relevant to the animal health sector.

See all International Initiatives

Infrastructures and Databases to Facilitate R&D

Conducting scientific research requires significant research infrastructure, including facilities, resources and related services. The establishment of common databases, allowing for the sharing of knowledge and facilitating networking, is important to facilitate and accelerate R&D.

This chapter provides a list of significant infrastructures and databases relevant to the animal health sector.

See all Infrastructures and Databases

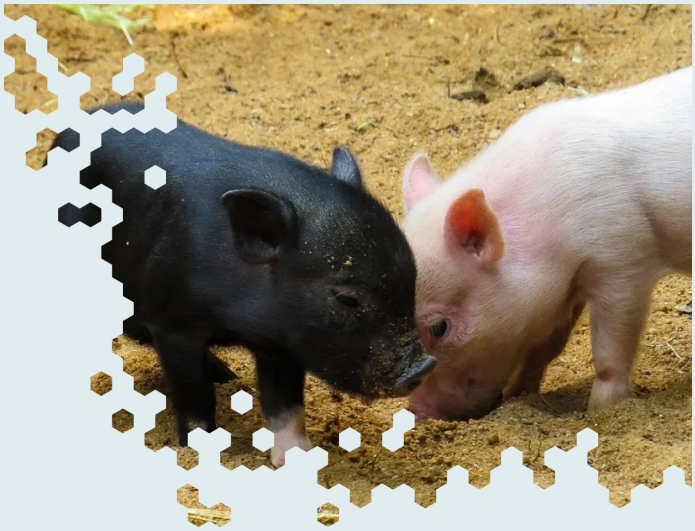
Projects

This link to the projects database will include new projects added after the state-of-the-art report published on 31/10/25

See all Projects

African Swine Fever

ASF is a highly contagious viral disease of pigs.



APPROACH | WORKING GROUP | FUNDING | ROADMAP | REPORTS | PROJECTS | PUBLICATIONS

STAR IDAZ Approach

African Swine Fever (ASF) is a highly destructive viral disease that has a profound impact on the global swine industry. STAR IDAZ International Research Consortium (IRC) collaborates closely with the Global African Swine Fever Research Alliance (GARA) to develop strategic roadmaps for diagnostics, vaccines, and control strategies. These roadmaps are based on thorough gap analyses and expert workshops, with the aim of expediting research and development in critical areas. STAR IDAZ IRC and GARA work in unison to ensure that the most up-to-date scientific insights and innovations are incorporated into these roadmaps, which are regularly updated to address emerging challenges and research funding requirements.

Information

- DISCONTOOLS - ASF
- WOAH - ASF
- Sciensano - ASF

Working group

Global African Swine Fever Research Alliance (GARA)

The Global African Swine Fever Research Alliance (GARA) operates as STAR IDAZ IRC's working group for African Swine Fever (ASF). This partnership unites leading experts and institutions globally, dedicated to advancing research on ASF. Through GARA's leadership, the group coordinates international efforts, focusing on the development of advanced diagnostic tools, effective vaccines, and robust control strategies. GARA is pivotal in organising key workshops, driving global research initiatives, and facilitating knowledge exchange, ensuring a coordinated and effective response to the ASF challenge.

VISIT WEBSITE →

Featured

FUNDING CALL

The Pandemic Fund now of cially opens phase 1 for country and multi-country proposals

November 2025 (exact date to be determined)

Reports

Reports and outcomes from meetings and workshops

IRC, Report, Research Review

2022 African Swine Fever Virus Research Review

Published 8th August, 2022

DOWNLOAD

Gap Analysis, Report

African Swine Fever

Published 22nd November, 2018

DOWNLOAD

ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

Research roadmaps for the development of candidate vaccines, control strategies, and diagnostic tests for African Swine Fever were developed and published in 2019. Key challenges and significant research gaps noted include achieving cross-protection against various strains of the ASF virus, improving the specificity and sensitivity of diagnostic tests, and understanding the mechanisms of immune response and virus persistence. Workshops and scienti c meetings organized by GARA have played a crucial role in highlighting these gaps, leading to focused research efforts aimed at addressing them. The insights gained from these activities are continuously integrated into the STAR IDAZ roadmaps to guide future research and innovation.

Roadmap For The Development Of A Candidate Vaccine For ASF
Published 16th December, 2024

Roadmap For The Development Of Control Strategies For ASF
Published 29th November, 2024

Roadmap For The Development Of Diagnostic Tests For ASF
Published 27th November, 2024

Projects

Displaying 4 of 17 projects

VIEW ALL PROJECTS

African Swine Fever virus inactivation by feed additives in vitro

Planned Completion date **01/01/2022**

Source Countries:

Netherlands

The incursion risk of African swine fever for the Netherlands by human-mediated routes

Planned Completion date **01/01/2022**

Source Countries:

Netherlands

The impact of temperature on transmission of African swine fever in contaminated livestock vehicles

Planned Completion date **01/01/2023**

Source Countries:

Netherlands

A Multi-Laboratory Comparison of Methods for Detection and Quanti cation of African Swine Fever Virus

Planned Completion date **07/03/2022**

Source Countries:

Netherlands

Recent publications

Reports and outcomes from meetings and workshops

African Swine Fever: A One Health Perspective and Global Challenges

Source: A Ceruti, RM Kobialka, A Abd El Wahed, U Truyen - Animals, 2025 - mdpi.com

DOWNLOAD

A comprehensive analysis of the current strategy for developing live attenuated vaccines against African swine fever: A systematic review and meta-analysis

Source: E Ntakiyisumba, M Tanveer, G Won - Vaccine, 2025 - Elsevier

The p15 protein is a promising immunogen for developing protective immunity against African swine fever virus

Source: Q Yu, W Fu, Z Zhang, D Liang, L Wang, Y Zhu... - Protein & ..., 2025 - academic.oup.com

DOWNLOAD

Progress Toward Antigenic Epitopes of African Swine Fever Virus and Their Identification

Source: X Ke, Z Cao, Z Weng, Y Xie, F Wu, X Liu... - Transboundary and ..., 2025 - Wiley Online Library

DOWNLOAD

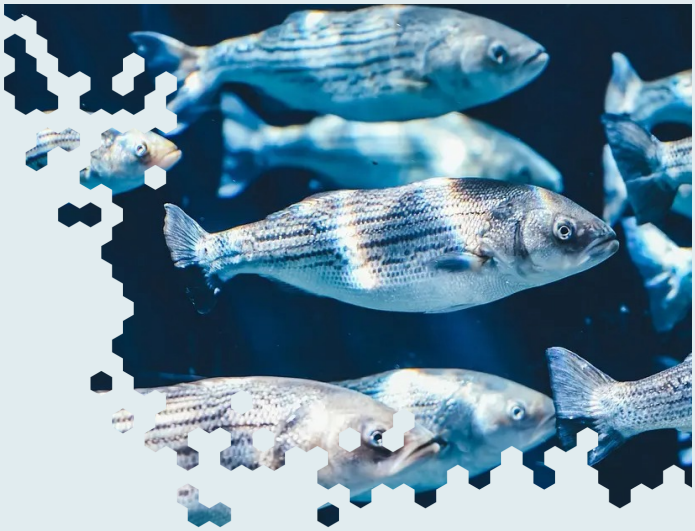
Deletion of B125R increases protection induced by a genotype II African swine fever vaccine candidate

Source: A Rathakrishnan, AL Reis, K Moffat, L Goatley... - npj Vaccines, 2025 - nature.com

DOWNLOAD

Aquatic Diseases

Aquatic diseases affect the health and sustainability of fish and other aquatic species, posing significant risks to global aquaculture and natural ecosystems.



STAR IDAZ Approach

Aquatic diseases pose significant threats to the health and sustainability of fish and other aquatic species, with wide-reaching impacts on global aquaculture and natural ecosystems. These diseases can spread rapidly through water systems, affecting wild populations and farmed species alike, leading to economic losses and ecological imbalances. STAR IDAZ IRC recognizes the critical importance of monitoring and researching aquatic diseases to protect aquatic biodiversity and ensure food security. Under the framework of the WOAH Aquatic Animal Health Strategy, STAR IDAZ IRC joined forces with the World Organisation for Animal Health (WOAH) to identify the highest priority research areas for advancing aquatic health research.

Information

WOAH Aquatic Animal Health Code

WOAH provides comprehensive information on various aquatic animal diseases, including prevention and control measures. The factsheets cover diseases affecting fish, mollusks, and crustaceans.

FAO Aquatic Factsheets:

The Food and Agriculture Organization (FAO) offers detailed factsheets on several aquatic diseases that impact aquaculture, including their symptoms, transmission, and management practices.

USGS: Aquatic Animal Health Program - U.S. Geological Survey (USGS):

The USGS provides factsheets on various aquatic animal diseases, particularly those affecting fish in the United States. The resource includes information on disease symptoms, diagnostics, and impacts on fisheries.

Australian Government: Aquatic Disease Field Guide app

The field guide aims to help people recognise diseases of significance to aquaculture and fisheries in Australia. This edition incorporates new and updated information gathered from an extensive review of the fourth edition. It now covers 53 aquatic animal diseases of significance to Australia that affect species of finfish, crustaceans, molluscs and amphibians.

Working group

Aquatic Diseases Working Group

In early 2025, STAR IDAZ and WOAH united the global aquaculture scientific community to identify the highest research priorities for improving the management of aquatic animal diseases worldwide. Through a global online

consultation, over 440 experts from 187 countries were invited to participate. The initiative received an impressive response rate (43%, n=184), with contributors sharing insights via a survey focused on key aquaculture sectors: finfish, molluscs, crustaceans, and amphibians. To build on these findings, a dedicated workshop was held at the WOAH Headquarters, bringing together more than 40 international experts. The discussions focused on advancing aquaculture research with an emphasis on finfish, the most productive aquaculture sector globally in terms of both volume and value.

VISIT WEBSITE →

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Ben North,
PHARMAQ, Zoetis United Kingdom

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Norway

Dr Bruno Goddeeris, Belgium

Dr Ruth Zadoks, Australia

Dr Valeria Mariano, Italy

Featured

FUNDING CALL

The Pandemic Fund now officially opens phase 1 for country and multi-country proposals

November 2025 (exact date to be determined)

Reports

Reports and outcomes from meetings and workshops

Workshops

Advancing Aquaculture Health Research: Workshop Report 20-21 February, 2025

Published 16th April, 2025

DOWNLOAD

Survey Report

Aquaculture Health Research Survey: March 2025

Published 16th April, 2025

DOWNLOAD

Executive Summary

Highest Priority Research Areas for Finfish Health: Policy Brief April 2025

Published 16th April, 2025

DOWNLOAD

ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

At STAR IDAZ, we recognize the increasing importance of tackling aquatic animal diseases to support the growth of sustainable aquaculture. Although a formal roadmap has not yet been established, thanks to global consultation and through collaborative expert discussions, the highest-priority research

gaps for finfish have been identified. Details of research priorities for finfish are outlined in the reports and include emerging diseases, antimicrobial resistance (AMR), diagnostics, vaccines, and biosecurity. These priorities aim to guide future research towards a healthier, more sustainable, and innovative aquaculture industry.

Projects

Displaying 4 of 14 projects

VIEW ALL PROJECTS

Dynamics of sustainability in integrated agriculture : aquaculture systems in the Mekong Delta

Planned Completion date **21/10/2024**

Source Countries:

Netherlands

Field -testing and demonstration of digital and space based technologies with agro-ecological and organic practices in systemic innovation

Planned Completion date **30/09/2024**

Source Countries:

Europe

Consumer driven Production: Integrating Innovative Approaches for Competitive and Sustainable Performance across the Mediterranean Aquaculture Value Chain

Planned Completion date **31/10/2022**

Source Countries:

Europe

Improving GreeN Innovation for the blue revoluTION: new tools and opportunities for a more sustainable animal farming

Planned Completion date **31/10/2026**

Source Countries:

Europe

Recent publications

Reports and outcomes from meetings and workshops

Strategies for managing major diseases in Asian seabass aquaculture

Source: G Yue, C Guo - Animal Diseases, 2025 - Springer

DOWNLOAD

Disease Management in Aquaculture

Source: ISM Yasin, A Mohamad, M Azzam-Sayuti... - ... of Fish Diseases, 2025 - Springer

Overview of aquaculture Artificial Intelligence (AAI) applications: Enhance sustainability and productivity, reduce labor costs, and increase the quality of aquatic ...

Source: S Ragab, SH Hoseinifar, H Van Doan... - Annals of Animal ..., 2025 - search.proquest.com

Deep Learning for Sustainable Aquaculture: Opportunities and Challenges

Source: AQ Wu, KL Li, ZY Song, X Lou, P Hu, W Yang... - Sustainability, 2025 - mdpi.com

DOWNLOAD

Sustainable aquaculture and sea ranching with the use of vaccines: a review

Source: A Alfatat, K Amoah, J Cai, Y Huang, M Fachri... - Frontiers in Marine ..., 2025 - frontiersin.org

DOWNLOAD

Bovine Tuberculosis (bTB)

Bovine Tuberculosis (bTB) is a contagious disease in cattle caused by the bacterium Mycobacterium bovis, leading to signi cant economic losses and posing a risk to public health.

STAR IDAZ Approach

Bovine Tuberculosis (bTB) is a persistent and economically significant disease impacting cattle globally. To tackle this challenge, the STAR IDAZ IRC has developed three comprehensive roadmaps focusing on diagnostics, vaccines, and control strategies. These roadmaps were crafted with input from bTB experts worldwide, who collaborated to pinpoint critical research gaps and innovation needs. Designed for global relevance, the roadmaps are strategically aligned to drive progress in the ght against bTB.

Information

WOAH Bovine Tuberculosis

DISCONTOOLS - Bovine Tuberculosis

TBhub

The home of UK TB information

Working group

GrabTB is no longer active

The Global Research Alliance for Bovine Tuberculosis (GRAbTB), which is no longer active, was started under the STAR IDAZ IRC project, to facilitate research cooperation and technical exchange on bovine tuberculosis (bTB). GRAbTB had 15 partners from Asia, Australasia, the Americas and Europe. The Strategic Goal of GRAbTB was to: identify research opportunities and facilitate collaborations within the Alliance; conduct strategic and multi-disciplinary research to better understand bovine TB; develop new and improved tools to control bovine TB; serve as a communication and technology sharing gateway for the global bovine TB research community and stakeholders; and promote collaboration with the human TB research community.

VISIT WEBSITE →

Key People

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Nathalie Winter,
Animal Health Division France

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FUNDING CALL

The Pandemic Fund now officially opens phase 1 for country and multi-country proposals

November 2025 (exact date to be determined)

Reports

Reports and outcomes from meetings and workshops

Workshops

The Future of Bovine Tuberculosis Research: Insights from the STAR-IDAZ IRC Workshop

Published 21st March, 2023

DOWNLOAD

Executive Summary

Executive summary of priority research needs: Bovine tuberculosis

Published 16th September, 2024

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ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

Three STAR- IDAZ roadmaps highlight urgent needs for: (1) accurate diagnostics, particularly DIVA tests; (2) effective vaccines capable of differentiating between infection and vaccination; and (3) integrated control measures across herd, regional, and national levels. These priorities were re ned through a Birmingham, UK workshop in February 2023, and summarized in the Executive Summary of Research Gaps.

Roadmap For The Development Of Candidate Vaccine For BTB

Published 27th November, 2024

Roadmap For Development Of Disease Control Strategies For BTB

Published 26th November, 2024

Roadmap For The Development Of Diagnostic Test For BTB

Published 25th November, 2024

Projects

Displaying 4 of 15 projects

VIEW ALL PROJECTS

Development of lateral flow assays to detect host proteins in cattle for improved diagnosis of bovine tuberculosis.

Planned Completion date **15/08/2023**

Source Countries:

Netherlands

100 years of Mycobacterium bovis bacille calmette guerin

Planned Completion date **01/01/2022**

Source Countries:

Netherlands

Revisiting the relative effectiveness of slaughterhouses in Ireland to detect tuberculosis lesions in cattle (2014-2018).

Planned Completion date **07/10/2022**

Source Countries:

Netherlands

First detection of bovine tuberculosis by Ziehl-Neelsen staining and polymerase chain reaction at dairy farms in the Lekok Sub-District, Pasuruan Regency, and Surabaya region, Indonesia.

Planned Completion date **01/03/2024**

Source Countries:

Netherlands

Recent publications

Reports and outcomes from meetings and workshops

Bovine tuberculosis in cattle slaughtered at Addis Ababa abattoir in Ethiopia and workforce awareness of zoonotic risk

Source: FM Ahmed, M Girma, G Worku, T Tadesse, G Medhin... - PLoS ..., 2025 - journals.plos.org

DOWNLOAD

Evaluating the effectiveness of badger vaccination combined with cattle test-and-removal in managing Bovine Tuberculosis: Insights from a two-host and multi ...

Source: Y Chang, S Widgren, MCM de Jong, JA Tratalos... - Preventive Veterinary ..., 2025 - Elsevier

DOWNLOAD

Prevalence of bovine tuberculosis in cattle slaughtered in abattoirs in Taraba State, Nigeria

Source: TF OBIALIGWE, JO AIYEDUN, OO OLUDAIRO... - 2025 - researchgate.net

DOWNLOAD

Can biosecurity on farms reduce bovine tuberculosis risks in cattle in England? A review of observational and literature-based evidence

Source: C Voller, LD Perrin, JC Gibbens, CA Donnelly... - Veterinary ..., 2025 - Wiley Online Library

DOWNLOAD

Can badger vaccination contribute to bovine TB control? A narrative review of the evidence.

Source: A Robertson, M Chambers, GC Smith... - Preventive Veterinary ..., 2025 - Elsevier

DOWNLOAD

Brucellosis

Brucellosis is a highly contagious bacterial disease affecting cattle, swine, goats, and sheep.

STAR IDAZ Approach

Brucellosis is a signi cant zoonotic disease that affects livestock and humans globally. The STAR IDAZ IRC is dedicated to addressing this challenge through a structured roadmap for vaccine development. This roadmap guides the research and development of effective and safe vaccines to prevent Brucellosis. By coordinating international efforts, STAR IDAZ aims to advance the creation of vaccines that can be widely implemented to control and eventually eradicate the disease, improving both animal and public health.

Information

- WOAH - Brucellosis
- DISCONTOOLS - Brucellosis
- Sciensano - Brucellosis

Working group

The Brucellosis Working Group of STAR IDAZ IRC is being reactivated in preparation for the upcoming dedicated workshop to be held in San José, Costa Rica, on 3 November 2025. It brings together leading experts, including members of the International Society for Brucellosis, to review and update the Brucellosis Vaccine Development Roadmap, identify key research gaps, and strengthen international collaboration in the fight against brucellosis.

N/A

VISIT WEBSITE →

Key People

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Clara Marín Alcalá,
Centro de Investigación y Tecnologia Agroalimentaria de Aragón Spain

Ruth Zadoks,
Sydney School of Veterinary Science Australia

Featured

FUNDING CALL

The Pandemic Fund now officially opens phase 1 for country and multi-country proposals

November 2025 (exact date to be determined)

Reports

Reports and outcomes from meetings and workshops

ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

The brucellosis vaccine research roadmap, rst published in 2018, identi ed the main scientific challenges in developing improved vaccines for *B. abortus*, *B. melitensis*, and *B. suis*. This initial gap analysis explored a wide range of vaccine approaches from rationally attenuated live vaccines and killed or inactivated options, to DNA, subunit, and vectored platforms, as well as the need to identify protective antigens, virulence factors, and immune correlates of protection. It also highlighted the importance of understanding host-pathogen interactions, improving delivery systems and adjuvants, and ensuring safety in pregnant animals and mixed-species contexts.

The upcoming workshop in San José, Costa Rica, on 3 November 2025, alongside the Brucellosis International Conference, will be the first major opportunity since 2018 to revisit these priorities. This interactive session will bring leading experts together to conduct a fresh high-level gap analysis, update the research roadmap, and agree on strategic directions for future collaborative work on brucellosis.

Roadmap For Development Of A Candidate Vaccine For Brucella

Published 24th February, 2025

Projects

Displaying 4 of 11 projects

VIEW ALL PROJECTS

Development of a plant expressed, protein-based subunit vaccine against Brucellosis

Planned Completion date **30/11/2029**

Principal Investigator(s)

Daria Rutkowska

Source Countries:

South Africa

An overview of current approaches and challenges to the control of endemic infectious cattle diseases in Albania

Planned Completion date **14/07/2021**

Source Countries:

Netherlands

Would you bet on the vet? Influences on dairy farmers' vaccination choices, with a spotlight on the Veterinarian impact.

Planned Completion date **01/01/2024**

Source Countries:

Netherlands

Estimates of disease burden caused by foodborne pathogens in contaminated dairy products in Rwanda.

Planned Completion date **06/04/2023**

Source Countries:

Netherlands

Recent publications

Reports and outcomes from meetings and workshops

A detailed review of bovine brucellosis

Source: S Rehman, S Ullah, K Kholik... - Open Veterinary ..., 2025 - pmc.ncbi.nlm.nih.gov

DOWNLOAD

Molecular epidemiology, immunobiology, genomics and proteomics insights into bovine brucellosis

Source: YK Prabhakar, S Skariah, G Shanmugam... - Veterinary Microbiology, 2025 - Elsevier

Improving Bovine Brucellosis Diagnostics: Rapid, Accurate Detection via Blood Serum Infrared Spectroscopy and Machine Learning

Source: T Franca, M Lacerda, C Calvani, K Arruda... - ACS ..., 2025 - ACS Publications

DOWNLOAD

Unveiling the epidemiology and community perspectives on bovine brucellosis in North Shewa, Central Highlands of Ethiopia

Source: A Engdawork, A Bulbula, A Melak, H Negussie - Scienti c Reports, 2025 - nature.com

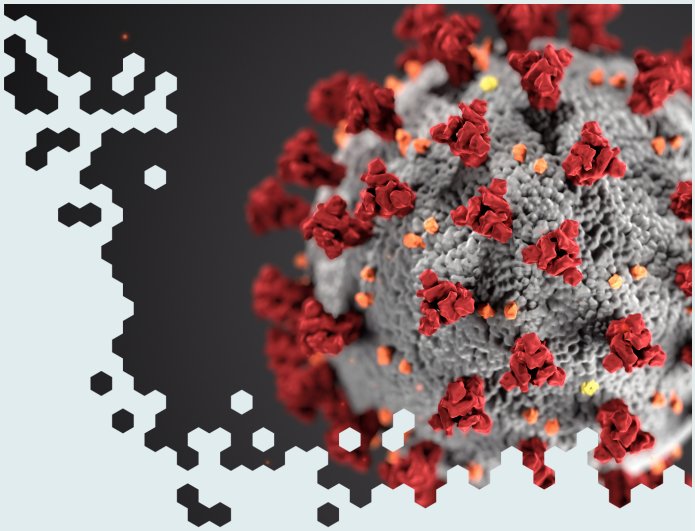
DOWNLOAD

Prevalence and risk factors for bovine brucellosis in the state of Pará, Amazon region of Brazil

Source: JS Ferreira Neto, JP Oliveira, APVB Pinho... - Tropical Animal Health ..., 2025 - Springer

Coronaviruses

A cause of important diseases in livestock, poultry, companion animals, and humans.



STAR IDAZ Approach

Coronaviruses cause a number of important diseases in livestock, poultry, companion animals and humans, including infectious bronchitis (poultry), transmissible gastroenteritis virus (pigs), calf diarrhoea, enteritis (turkeys) and porcine epidemic diarrhoea (PED). The emergence of zoonotic coronaviruses causing MERS, SARS and COVID-19 has increased interest in this group of viruses and their ability to jump species.

On June 2020, STAR IDAZ IRC with the Collaborative Working Group on Animal Health and Welfare Research (CWG-AHW) organised the online webinar, 'Pandemic: a one health view of emerging infectious diseases'. STAR IDAZ IRC conducted gap analyses and developed research roadmaps focusing on diagnostic development, vaccine development and disease control strategies.

Information

- DISCONTOOLS: Coronavirus in pigs and poultry
- WOAH: Middle East respiratory syndrome (MERS)
- WOAH: Avian infectious bronchitis
- WOAH: SARS-CoV-2
- WOAH: Porcine epidemic diarrhoea
- CABI Compendium datasheet: Avian infectious bronchitis

Working group

UK-ICN

During the COVID-19 pandemic, STAR IDAZ partners (BBSRC and DEFRA) promptly opened a call for a Coronavirus International Network (ICN) to support global coordination for the delivery of collaborative, long-term One Health research investigations. The UK-ICN network partnered with STAR IDAZ IRC for the organisation of different international activities to identify research gaps to develop research roadmaps for coronavirus research.

VISIT WEBSITE →

Key People

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Margaret Hosie,
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Linfa Wang,
Duke NUS Medical School Singapore

Elma Tchillian,
The Pirbright Institute United Kingdom

The Pirbright Institute United Kingdom

Sharon Brookes,
Animal and Plant Health Agency United Kingdom

Richard Delahay,
University of Exeter United Kingdom

Alessio Lorusso,
IZSAM Italy

Ceva Santé Animal Hungary

Alan Radford,
University of Liverpool United Kingdom

Wim van Der Poel,
Wageningen University & Research Netherlands

Karl Stahl,
Swedish Veterinary Agency Sweden

Featured

FUNDING CALL

The Pandemic Fund now officially opens phase 1 for country and multi-country proposals

November 2025 (exact date to be determined)

Reports

Reports and outcomes from meetings and workshops

Gap Analysis, Report, Workshops

Report of the workshops on Coronavirus gap analysis, 26 May Belfast

Published 26th July, 2023

DOWNLOAD

Workshops

Report of the STAR IDAZ workshops on coronavirus research roadmaps development

Published 3rd March, 2025

DOWNLOAD

Deliverables, Executive Summary

Executive summary of research gaps: Coronaviruses

Published 3rd March, 2025

DOWNLOAD

ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

A first gap analysis workshop was held in Belfast in 2023. The workshop discussed results from an online survey circulated among approximately 60 experts in 21 countries. Results were used to draft research roadmaps that were further discussed in three international workshops held in October 2024. Reports and research roadmaps are currently publicly available on STAR IDAZ website.

Research Roadmap For Coronavirus Vaccine Development
Published 7th March, 2025

Roadmap For The Development Of Diagnostic Tests For Coronaviruses
Published 5th March, 2025

Roadmap For The Development Of Disease Control Strategies For Coronaviruses
Published 4th March, 2025

Projects

Displaying 4 of 13 projects

Potassium molybdate blocks APN-dependent coronavirus entry by degrading receptor via PIK3C3-mediated autophagy

Planned Completion date **31/01/2025**

Source Countries:

Netherlands

Veterinary Biocontained facility Network for excellence in animal infectiology research and experimentation

Planned Completion date **28/02/2023**

Source Countries:

Europe

A methodology to universally attenuate avian coronavirus strains

Planned Completion date **01/01/2027**

Source Countries:

United Kingdom

PARTNERSHIP: RAPID DETECTION OF INCURSIONS OF SARS-COV-2 AND NOVEL CORONAVIRUSES ON TEXAS MEAT AND DAIRY FARMS

Planned Completion date **31/08/2028**

Source Countries:

United Kingdom

Recent publications

Reports and outcomes from meetings and workshops

Pasteurisation temperatures effectively inactivate influenza A viruses in milk

Source: J Schafers, CJ Warren, J Yang, J Zhang... - Nature ..., 2025 - nature.com

DOWNLOAD

Evolution, spread and impact of highly pathogenic H5 avian influenza A viruses

Source: B Bellido-Martín, WF Rijnink, M Iervolino... - Nature Reviews ..., 2025 - nature.com

Simultaneous elimination of antibiotic resistance gene and viruses in liquid manure by plasma/peracetic acid combination system

Source: W Zhang, Y Lu, X Wang, Z Wang, Q Wei, Z Yin... - Separation and ..., 2025 - Elsevier

Detection of antibodies against influenza A viruses in cattle

Source: Y Lang, L Shi, S Roy, D Gupta, C Dai... - Journal of ..., 2025 - journals.asm.org

DOWNLOAD

Utilizing Vet-Informatics for Developing Reverse Genetics-Based Vaccine Platforms Against RNA Viruses Affecting Poultry and Livestock

Source: A Hassan, I Gul, NA Chikan, S Nazki, KM Fazili... - ... in Veterinary Science ..., 2025 - Springer

Foot and Mouth Disease

Foot-and-mouth disease (FMD) is a highly contagious and serious disease that spreads rapidly, causing significant socio-economic impacts by severely affecting livestock productivity.

STAR IDAZ Approach

Foot and mouth disease (FMD) is a highly contagious viral disease that primarily affects cloven-hooved livestock and wildlife. Although adult animals generally recover, the morbidity rate is very high in naive populations, and significant pain and distress occur in some species.

STAR IDAZ IRC is a partner in the Global Foot-and-Mouth Research Alliance (GFRA) which aims to establish and sustain global research partnerships to generate scientific knowledge and discover the tools for prevention, control, and eradication of FMD.

Information

The World Organisation for Animal Health

FMD on DISCONTOOLS

DISCONTOOLS identifies the gaps in knowledge to speed up the development of new Disease Control TOOLS

CFSPH Technical Factsheet: Foot and mouth disease

Working group

GFRA (Global Foot-and-Mouth disease Research Alliance)

A coordinated global alliance of scientists producing evidence and innovation that enables the progressive control and eradication of FMD. To establish and sustain global research partnerships to generate scientific knowledge and discover the tools to successfully prevent, control and eradicate FMD.

VISIT WEBSITE →

Key People

Alejandra Capozzo,
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Nick Knowles,
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Katherine Scott,
Agricultural Research Council South Africa

Frank Mwliine,
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Friedrich-Loeffler-Institut Germany

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University of Minnesota United States

Jeremy Salt,
GALVmed United Kingdom

Toby Tuthill,
Pirbright Institute United Kingdom

Mariano Pérez-Filgueira,
National Institute for Agricultural Technology Argentina

Gisselle Medina,
United States Department of Agriculture United States

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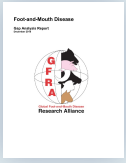
Reports

Reports and outcomes from meetings and workshops



Gap Analysis, IRC, Report

Foot-and-Mouth Disease

Published 4th May, 2022

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ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

Three FMD Roadmaps have been created for development of diagnostic tests, control strategies and candidate vaccines. The roadmaps have been reviewed by the at the STAR IDAZ IRC workshop held at the 2019 GFRA Scientific Meeting, Bangkok, Thailand, October 29-31, 2019. Participants at the workshop (others were also participating) are listed as the Working Group on this page.

Roadmap For The Research To Underpin The Development Of Control Strategies For FMD
Published 5th November, 2024

Roadmap For The Development Of Candidate Vaccines For FMD
Published 30th October, 2024

Roadmap For The Development Of Diagnostic Tests For FMD
Published 8th October, 2024

Projects

Displaying 4 of 15 projects

Risk and economic consequences of contagious animal disease introduction

Planned Completion date **18/10/2024**

Source Countries:

Netherlands

Foot-and-mouth disease virus antigenic landscape and reduced immunogenicity elucidated in atomic detail.

Planned Completion date **10/10/2024**

Source Countries:

Netherlands

Supplementary S6.2 Economic calculation

Planned Completion date **03/05/2023**

Source Countries:

Netherlands

Bioeconomic modelling of foot and mouth disease and its control in Ethiopia

Planned Completion date **22/10/2024**

Source Countries:

Netherlands

Recent publications

Reports and outcomes from meetings and workshops

An analytical study on Foot and Mouth Disease under climatic conditions of Tonk district

Source: G Singh, J Parkash, SPS Somvanshi... - ... Journal of Veterinary ..., 2025 - researchgate.net

DOWNLOAD

The pathogenesis of foot-and-mouth disease virus: current understandings and knowledge gaps

Source: C Stenfeldt, M Eschbaumer, J Humphreys... - Veterinary ..., 2025 - Springer

DOWNLOAD

Seroprevalence of foot and mouth disease in cattle in East Africa between 2014 and 2024: a systematic review and meta-analysis

Source: GG Dagnaw, H Dejene - BMC Veterinary Research, 2025 - Springer

DOWNLOAD

Foot-and-mouth disease: genomic and proteomic structure, antigenic sites, serotype relationships, immune evasion, recent vaccine development strategies, and future ...

Source: A Elrashedy, M Nayel, A Salama, A Zaghawa... - Veterinary ..., 2025 - Springer

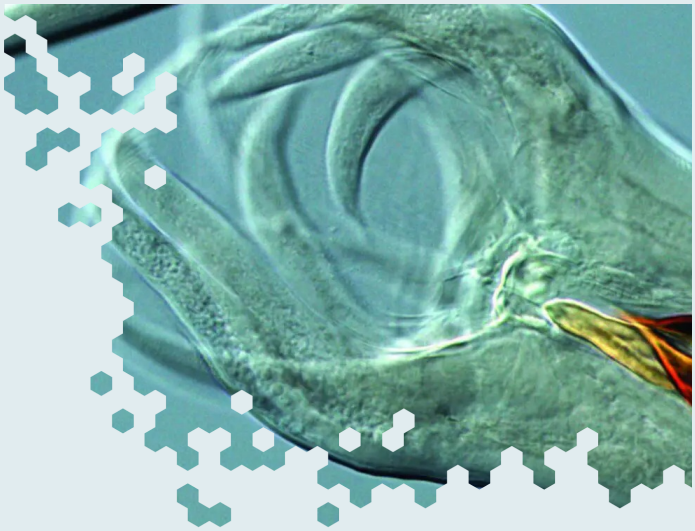
DOWNLOAD

Elucidating the structural dynamics induced by active site mutations in 3C protease of foot-and-mouth disease virus

Source: S Sahoo, HK Lee, D Shin - PloS one, 2025 - journals.plos.org

DOWNLOAD

Helminths (including anthelmintic resistance)



Helminths are parasitic worms causing disease in animals. Anthelmintic resistance occurs when these worms become resistant to treatment.

STAR IDAZ Approach

Infections with helminthic parasites are a major threat to animal health, welfare, and production and include several zoonoses. If uncontrolled, they have worldwide a serious negative impact on the income of farmers, the viability of livestock industries, and the sustainable development of rural areas. The control of these infections is complicated due to climate change and the expansion of anthelmintic resistance (AR).

STAR IDAZ works together with the Livestock Helminth Research Alliance (LiHRA) to coordinate the activities of the Helminth Working Group.

Information

- DISCONTOOLS - Nematodes
- DISCONTOOLS - Liver Fluke
- COMBAR Best Practice
- Helminth Infection Control in Farmed Ruminants

PDF from COMBAR (combatting anthelmintic resistance in ruminants)

Working group

LiRHA

STAR IDAZ Helminth WG activities are coordinated by the Livestock Helminth Research Alliance (LiHRA). LiHRA is an international network of researchers, founded in 2014, that brings together, expands and optimizes skills and expertise in different disciplines within livestock helminth research. LiHRA grew out of EU-funded research projects addressing challenges in the control of gastrointestinal nematodes and liver fluke in ruminants and related projects investigating alternative control approaches for livestock parasites.

LiHRA members meet annually to review current challenges, recent results, research gaps and future opportunities for collaborative research. Discussions within LiHRA give rise to opinion papers and have underpinned the initiation of various research and networking projects including the COST Actions COMBAR (2017-2022), ENVIRANT (2024-2029) and the Thematic Network SPARC (2024-2027).

VISIT WEBSITE →

Key People

Johannes Charlier (COMBAR Chair),
COMBAR and LiRHA Argentina

Diana Williams,
University of Liverpool United Kingdom

Peter Geldhof,
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Luis Alvarez ,
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Grace Mulcahy,
University College Dublin Ireland

Felipe Torres Acosta ,
Universidad Autonoma de Yucatán Mexico

Hervé Hoste,
INRAE France

Jan Van Wijk,
University of Pretoria South Africa

John Gillleard ,
University of Calgary Canada

Laura Rinaldi ,
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Carlos Lanusse,
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Ray Kaplan ,
St. George's University Grenada

Philip Skuce,
Moredun Research Institute United Kingdom

Theo De Waal,
University College Dublin Ireland

Smaro Sotiraki ,
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Eric R. Morgan,
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Andy Greer,
University of Lincoln New Zealand

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Research roadmaps and gap analyses

Gap analysis summary

Six research roadmaps have been developed: a roadmap for diagnostics, a roadmap for therapeutic approaches, two roadmaps for vaccine development (nematodes and liver fluke) and two roadmaps for control strategy (nematodes and liver fluke). The roadmaps were developed through multiple meetings of the WG during 2018 and 2019, adopted by STAR IDAZ in 2019 and published on the website on January 2020. Discussion for an update of the roadmap have started in 2024.

Roadmap For Development Of Therapeutics For Helminths
Published 9th December, 2024

Roadmap For Development Of Diagnostic Tests For Helminths
Published 5th December, 2024

Roadmap For The Development Of Control Strategies For Liver Fluke
Published 3rd December, 2024

Roadmap For The Development Of Candidate Vaccines For Liver Fluke
Published 3rd December, 2024

Projects

Displaying 4 of 2 projects

VIEW ALL PROJECTS

Single-nucleotide polymorphisms in the beta-tubulin gene and its relationship with treatment response to albendazole in human soil-transmitted helminths in Southern Mozambique

Planned Completion date **14/09/2022**

Source Countries:

Netherlands

An integrated set of novel approaches to counter the emergence and proliferation of invasive and virulent soil-borne nematodes - Project part: Fostering nematode suppression in soils by cover crops and addition of biological antagonists in Organic Farming (NEM-EMERGE)

Planned Completion date **31/12/2027**

Source Countries:

Denmark

Recent publications

Reports and outcomes from meetings and workshops

Anthelmintic Resistance in Livestock Farming: Challenges and Perceptions of Farmers and Veterinarians

Source: N Kapo, A Softić, T Goletić, Š Goletić, A Cvetkovikj... - Pathogens, 2025 - mdpi.com

DOWNLOAD

The Impact of Increasing Anthelmintic Resistance on Ruminant Performance and Greenhouse Gas Emissions

Source: M MacLeod, M Fisher, G Atton, PJ Skuce... - Animal Science ..., 2025 - cabidigitallibrary.org

Eco-evolutionary dynamics of anthelmintic resistance in soil-transmitted helminths

Source: S Patel, K Lyberger, C Vegvari, H Gulbudak - Theoretical Population ..., 2025 - Elsevier

DOWNLOAD

Current Ef cacy of Multiepitope Vaccines Against Helminths: A Systematic Review

Source: I Trujillo-Rodríguez, J López-Abán... - ..., 2025 - pmc.ncbi.nlm.nih.gov

DOWNLOAD

Genetics of helminth infections: Immune system response, insights into host-parasite interaction, and drug resistance

Source: MA Aldamigh - Journal of Advanced Veterinary and Animal ..., 2025 - pmc.ncbi.nlm.nih.gov

DOWNLOAD

Influenza

Influenza is a highly contagious viral disease that affects multiple animal species, posing significant risks to both animal and human health.

STAR IDAZ Approach

Influenza outbreaks have a major impact at global level, causing significant economic losses in the poultry sector. Moreover, the pervasive nature of influenza viruses across an expanding array of mammals, coupled with sporadic zoonotic transmissions, raises concerns about their potential to precipitate into a human influenza pandemic.

Influenza is an important focus of research within the STAR IDAZ IRC, driven by the urgency to expedite enhanced control measures for animal influenza outbreaks. The STAR IDAZ IRC has extensively worked to identify research gaps to highlight areas where research effort needs to be focused to accelerate the delivery of improved control methods for animal influenza outbreaks for the benefit of both human and animal health. See our research roadmaps below.

Information

STAR IDAZ summer newsletter 2024

In response to the increasing outbreaks of High Pathogenicity Avian Influenza (HPAI) in mammals, STAR IDAZ partners have conducted extensive research and surveillance to enhance prevention and management of the outbreaks. For more information, see pg. 10-12

WOAH epidemiological updates

Epidemiological updates from the World Organisation for Animal Health (WOAH) on avian influenza

Annual state-of-the-art report on animal health research on IRC priorities

A partial list of partner projects on influenza can be found in the STAR IDAZ annual state-of-the-art report

Working group

Influenza Working Group

STAR IDAZ engaged more than 60 international experts, including members of the OFFLU network, in a series of a workshops to identify research gaps and develop research roadmaps for influenza.

VISIT WEBSITE →

Key People

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Friedrich-Loeffler-Institut Germany

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Thijs Keiken,
Erasmus University Medical Center Netherlands

Marta Barral,
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Private Veterinarian Netherlands

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Julie Gauthier,
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Animal and Plant Quarantine Agency Republic of Korea

Alan Young,
Medgene United States

Mustapha Oumouna,
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Folorunso Fasina ,
Food and Agriculture Organization of the United Nations Kenya

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Rabeh El-Shesheny,
Human Link Egypt

Dilmara Reischak,
Ministry of Agriculture and Livestock Brazil

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Animal and Plant Quarantine Agency Republic of Korea

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Ceva Santé Animale Hungary

Dario Zammerini,
IDEXX Italy

Gwenaëlle Dauphin,
Ceva Santé Animale France

Paul Digard,
The Roslin Institute United Kingdom

David Swayne,
Southeast Poultry Research Laboratory United States

Carol Cardona,
University of Minnesota United States

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Lia Rotherham,
ARC - Onderstepoort Veterinary Institute South Africa

Rafiqul Islam,
Bangladesh Agriculture University Bangladesh

Gary Garcia,
University of Mexico Mexico

Erik Karlsson,
Institut Pasteur du Cambodge Cambodia

Louise Dufour-Zavala,
Georgia Poultry Laboratory Network Georgia

Kristen Van Reeth,
Ghent University Belgium

Ian Brown,
The Pirbright Institute United Kingdom

Mathias Voss,
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Daniel Perez,
University of Georgia United States

Celia Abolnik,
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Marie Culhane,
University of Minnesota United States

David Suarez,
Southeast Poultry Research Laboratory United States

Carl Heeder,
Mountaire Farms United States

Teguh Yodiantara Prajitno,
Animal Health and Livestock Equipment Indonesia

Khaled Hussein,
Almarai Company ® Saudi Arabia

Manabu Nemoto,
Equine Research Institute Japan

Samatha Letsholo,
Ministry of Agriculture Botswana

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The Pandemic Fund now officially opens phase 1 for country and multi-country proposals

November 2025 (exact date to be determined)

Reports

Reports and outcomes from meetings and workshops

Executive Summary, Gap Analysis

Executive summary of priority research needs: Influenza

Published 5th May, 2023

DOWNLOAD

Workshops

Report of the STAR-IDAZ Workshops on Influenza Research Roadmap Development

Published 5th April, 2023

DOWNLOAD

IRC, Report, Research Review

2021 Animal Influenza Research Review

Published 3rd August, 2021

DOWNLOAD

ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

To support long-term research planning, STAR IDAZ IRC commissioned an Animal Influenza Research Review in 2021, in collaboration with USDA-ARS. This review synthesised global research progress since previous gap analyses by USDA, OFFLU, the EC, and WHO. Its findings informed a gap analysis workshop co-organized with USDA-ARS and held in June 2022 at the National Animal Disease Center in Ames, Iowa. Expert insights, current research, and countermeasure efficacy were used to identify critical knowledge gaps. These gaps formed the basis for the 2023 research roadmaps.

Three online workshops held on 30-31 January and 1 February 2023 focused on finalising research roadmaps for control strategies, diagnostics, and vaccine development. These roadmaps aim to guide research efforts toward areas of greatest need, improving preparedness and response to future outbreaks. The executive summary of priority research needs reflects the consortium's commitment to strategic influenza research.

Roadmap For The Development Of Disease Control Strategies For In uenza
Published 22nd November, 2024

Roadmap For The Development Of Candidate Vaccines For Influenza
Published 21st November, 2024

Roadmap For The Development Of Diagnostic Test For In uenza
Published 6th November, 2024

Projects

Displaying 4 of 11 projects

VIEW ALL PROJECTS

Impact of host age on viral and bacterial communities in a waterbird population.

Planned Completion date **01/11/2022**

Source Countries:

 Netherlands

Association of biosecurity and hygiene practices with avian influenza A/H5 and A/H9 virus infections in turkey farms.

Planned Completion date **14/03/2024**

Source Countries:

 Netherlands

Protect wildlife from livestock diseases.

Planned Completion date **07/10/2022**

Source Countries:

 Netherlands

Dynamics and evolution of swine influenza viruses in permanently infected pig herds in Europe (PIGIE)

Planned Completion date **31/03/2024**

Source Countries:

Denmark

Recent publications

Reports and outcomes from meetings and workshops

Detection of antibodies against influenza A viruses in cattle

Source: Y Lang, L Shi, S Roy, D Gupta, C Dai... - Journal of ..., 2025 - journals.asm.org

DOWNLOAD

Dairy cows inoculated with highly pathogenic avian influenza virus H5N1

Source: AL Baker, B Arruda, MV Palmer, P Boggiatto... - Nature, 2025 - nature.com

DOWNLOAD

Comprehensive Insights into Highly Pathogenic Avian Influenza H5N1 in Dairy Cattle: Transmission Dynamics, Milk-Borne Risks, Public Health Implications ...

Source: H Owusu, YM Sanad - Pathogens, 2025 - mdpi.com

DOWNLOAD

Viral Mastitis Associated with Influenza A in Dairy Cattle

Source: PJ Gorden, DR Magstadt, AL Baker... - Veterinary Clinics ..., 2025 - vetfood.theclinics.com

The emergence of highly pathogenic avian influenza H5N1 in dairy cattle: implications for public health, animal health, and pandemic preparedness

Source: M Kamel, S Aleya, WT Almagharbeh, L Aleya... - European Journal of ..., 2025 - Springer

DOWNLOAD

Mastitis

Bovine mastitis is an inflammation of the udder tissue in the mammary gland, typically caused by physical trauma or infections, and is the most common disease leading to economic losses.

STAR IDAZ Approach

Mastitis, inflammation of the mammary gland is primarily caused by bacterial intramammary infection. For control we often rely on the use of antimicrobials. Mastitis is not a single disease, but rather a syndrome with many potential causative agents. Common causative agents include staphylococcal, Mycoplasma, streptococcal and coliform bacterial species. These agents may cause both subclinical and clinical infections, with major consequences for animal health, economic viability of dairy farms, animal welfare. Treatment with antimicrobials that are also used in human medicine is an important One Health aspect of mastitis control in livestock.

STAR IDAZ IRC works along activities of the National Mastitis Council to set up and coordinate activities of the Mastitis Working Group.

Information

- DISCONTOOLS - Contagious agalactia
- DISCONTOOLS - Environmental Mastitis
- NMC factsheets
- DISCONTOOLS - Staphylococcus Aureus

Working group

The National Mastitis Council

The National Mastitis Council is a not-for-profit professional organization devoted to reducing mastitis and enhancing milk quality. The NMC promotes research and provides information to the dairy industry on udder health, milking management, milk quality, and milk safety. Founded in 1961, NMC now has about 1,100 members in more than 40 countries throughout the world. The NMC is headquartered in Minnesota.

VISIT WEBSITE →

Key People

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University of São Paulo Brazil

Orla Keane,
Teagasc Ireland

Sarne De Vliegher,
Ghent University Belgium

Vinicius da Silva Duarte,
Norwegian University of Life Sciences Norway

Ruth Zadoks,
University of Sydney Australia

Luís Melo,
University of Minho Portugal

Sofie Piepers,
Mexcellence Belgium

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Reports

Reports and outcomes from meetings and workshops

Workshops

Short Summary of the Workshop on Bovine Mastitis Gap Analysis

Published 6th November, 2024

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ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

A first workshop was held as a short course during the National Mastitis Regional Meeting in Ghent in August 2024. It brought together experts to identify priorities and knowledge gaps, and its outcomes laid the groundwork for developing mastitis research roadmaps.

Projects

Displaying 4 of 20 projects

VIEW ALL PROJECTS

Meta-analysis of six dairy cattle breeds reveals biologically relevant candidate genes for mastitis resistance.

Planned Completion date **15/07/2024**

Source Countries:

 Netherlands

Developments in automated systems for monitoring livestock health: mastitis

Planned Completion date **28/06/2022**

Source Countries:

 Netherlands

A 12 kb multi allelic copy number variation encompassing a gc gene enhancer is associated with mastitis resistance in dairy cattle

Planned Completion date **08/01/2021**

Source Countries:

 Netherlands

Molecular typing and antimicrobial resistance profiling of 33 mastitis related Staphylococcus aureus isolates from cows in the Comarca Lagunera region of Mexico

Planned Completion date **25/03/2021**

Source Countries:

 Netherlands

Recent publications

Reports and outcomes from meetings and workshops

Viral Mastitis Associated with Influenza A in Dairy Cattle

Source: PJ Gorden, DR Magstadt, AL Baker... - Veterinary Clinics ..., 2025 - vetfood.theclinics.com

Green Nanoparticle Synthesis in the Application of Non-Bacterial Mastitis in Cattle

Source: M Motrenko, A Lange, A Kalińska, M Gołębiewski... - Molecules, 2025 - mdpi.com

DOWNLOAD

Prevalence and chemotherapy of Staphylococcus aureus mastitis in dairy cattle

Source: AU Shah, J Ali Khan, M Avais, SH Zaman, Z Munir... - PloS one, 2025 - journals.plos.org

DOWNLOAD

Nanoparticles as an alternative treatment for bovine mastitis-A review.

Source: B Elena Castro-Valenzuela... - Animal ..., 2025 - search.ebscohost.com

Single-cell RNA sequencing characterization of Holstein cattle blood and milk immune cells during a chronic Staphylococcus aureus mastitis infection

Source: JE Wiarda, KMS Davila, JM Trachsel, CL Loving... - Scientific Reports, 2025 - nature.com

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Mycoplasmas including CBPP/CCPP

Mycoplasma species are responsible for several clinically important diseases of large and small ruminants, swine, and poultry. CBPP and CCPP, caused by mycoplasmas, remain poorly controlled.

STAR IDAZ Approach

Mycoplasma species are responsible for several clinically important diseases of large and small ruminants, swine, and poultry. The continuing spread of contagious bovine pleuropneumonia (CBPP), which is caused by Mycoplasma mycoides subsp mycoides, represents a real and immediate threat to livestock in sub-Saharan Africa, and there is the risk of the disease spreading to other countries. In addition, contagious caprine pleuropneumonia (CCPP), which affects small ruminants, remains poorly controlled in many areas of the world.

Following on from the publication of the 2023 Veterinary Mycoplasmas Research Report, STAR IDAZ IRC held some workshops on CBPP in association with USDA-ARS and ILRI. These mark the start of activity on mycoplasmas, CBPP and CCPP.

Information

- WOAH: Contagious bovine pleuropneumonia
- WOAH: Contagious caprine pleuropneumonia
- CABI Compendium: contagious bovine pleuropneumonia
- CABI Compendium: contagious caprine pleuropneumonia
- DISCONTOOLS Report: Contagious bovine pleuropneumonia
- CFSPH Technical Factsheet: Contagious bovine pleuropneumonia
- CFSPH Technical Factsheet: Contagious caprine pleuropneumonia

Working group

Mycoplasmas Working Group

A STAR IDAZ IRC Working Group is being created.

VISIT WEBSITE →

Key People

Vish Nene,
STAR IDAZ IRC Scienti c
Committee Kenya

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November 2025 (exact date to be determined)

Reports

Reports and outcomes from meetings and workshops

IRC, Report, Research Review

2023 Veterinary Mycoplasmas Research Report

Published 10th July, 2023

DOWNLOAD

Gap Analysis, IRC, Report, Workshops

Report of the Gap Analysis Meeting for CBPP

Published 27th September, 2023

DOWNLOAD

ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

A CBPP Gap Analysis Workshop was held in 2023. The report of the Gap Analysis Meeting is available.

Projects

Displaying 4 of 3 projects VIEW ALL PROJECTS

Collaborative project: Stressless examination for pathogens associated with bovine respiratory disease complex Stressless fUtuRE - subproject B (SURE)

Planned Completion date **31/05/2024**

Source Countries:

Denmark

Collaborative project: Stressless examination for pathogens associated with bovine respiratory disease complex Stressless fUtuRE - subproject A (SURE)

Planned Completion date **31/05/2024**

Source Countries:

Denmark

DIAGNOSTIC LABORATORIES AND ANIMAL HEALTH CONTROL OF UNIVERSITY HERDS

Planned Completion date **03/02/2022**

Source Countries:

United Kingdom

Recent publications

Reports and outcomes from meetings and workshops

First detection and molecular characterization of Mycoplasma species in camels, cattle, buffalo, and their associated ticks from southern Egypt

Source: AM Soliman, HYAH Mahmoud, MM Amer... - Infection, Genetics and ..., 2025 - Elsevier

DOWNLOAD

A longitudinal study of the dynamics of Mycoplasma bovis antibody status in primiparous cows and bulk tank milk in Swedish dairy herds

Source: E Hurri, K Alvåsen, S Widgren, A Ohlson, A Aspán... - Journal of Dairy ..., 2025 - Elsevier

DOWNLOAD

Insights into some tick-borne pathogens in cows

Source: ASA Saad, AA Hegab, MM Osman - Journal of Advanced ..., 2025 - advetresearch.com

DOWNLOAD

Prevalence and Whole Genome Sequence Analysis of Mycoplasma bovis Isolates From Bulk Tank Milk of Dairy Farms in Tennessee, USA

Source: AE Gelgie, BD Gelalcha, D Christensen... - Journal of Veterinary ..., 2025 - Wiley Online Library

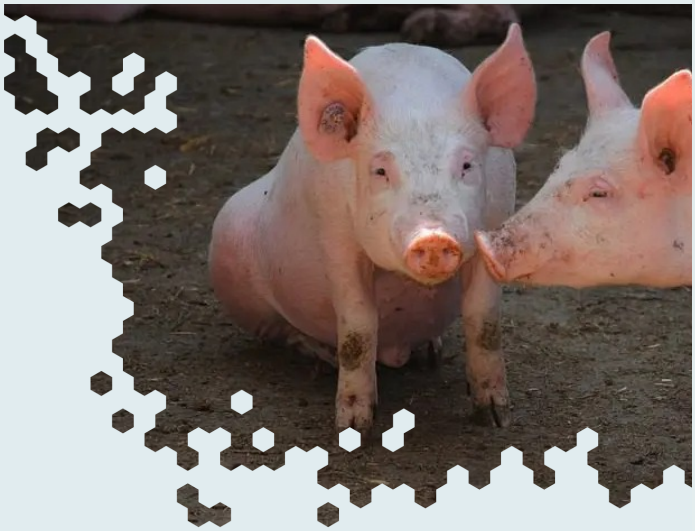
DOWNLOAD

Mycoplasma bovis in Swedish dairy herds

Source: E Hurri - Acta Universitatis Agriculturae Sueciae, 2025 - pub.epsilon.slu.se

DOWNLOAD

Porcine Reproductive & Respiratory Syndrome



Porcine reproductive and respiratory syndrome (PRRS) is a signi cant viral disease responsible for devastating economic losses to the swine industry.

STAR IDAZ Approach

Porcine reproductive and respiratory syndrome (PRRS) is a viral disease characterized by two clinical presentations: reproductive impairment or failure in breeding animals, and respiratory disease in pigs of any age. PRRS is caused by a virus classified as a member of the genus genus Arterivirus. The disease is a significant problem and the virus is present in most pig producing countries in the world.
A vaccine exists and is effective. Commercial vaccines, both modified live and killed, have been used and they have been effective in controlling outbreaks and preventing economic losses. STAR IDAZ keeps ahead of the latest advancements in the PRRS eld in readiness for future working group activity.

Information

OIE Disease Information Summary: Porcine reproductive and respiratory syndrome

DISCONTOOLS Report: PRRS

Working group

PRRS Working Group

In 2013 an expert group was formed on PRRS and conducted a research gap analysis. At this time STAR IDAZ collaborated with NAPRRS. No formal Working Group (WG) has since been established.

VISIT WEBSITE →

Key People

TBD,
TBD Global

Featured

FUNDING CALL

The Pandemic Fund now of cially opens phase 1 for country and multi-country proposals

November 2025 (exact date to be determined)

Research roadmaps and gap analyses

Gap analysis summary

There is currently no active PRRS working group, however, thanks to previous gap analysis activities, a research roadmaps is available for the development of a candidate vaccine for PRRS.

Roadmap For Development Of A Candidate Vaccine For PRRSV

Published 21st February, 2025

Projects

Displaying 4 of 17 projects

VIEW ALL PROJECTS

Immune responses induced by inactivated Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) vaccine in neonate pigs using different adjuvants

Planned Completion date **01/02/2021**

Source Countries:

Netherlands

Corrigendum: Animal-based factors prior to infection predict histological disease outcome in porcine reproductive and respiratory syndrome virus- and Actinobacillus pleuropneumoniae-infected pigs

Planned Completion date **13/02/2024**

Source Countries:

Netherlands

Additional le 1 of Analysis of ORF5 sequences of Porcine Reproductive and Respiratory Syndrome virus (PRRSV) circulating within swine farms in Costa Rica

Planned Completion date **01/01/2021**

Source Countries:

Netherlands

Seroprevalence of porcine reproductive and respiratory syndrome virus on swine farms in a tropical country of the middle Americas the case of Costa Rica

Planned Completion date **18/08/2021**

Source Countries:

Netherlands

Recent publications

Reports and outcomes from meetings and workshops

Porcine Reproductive and Respiratory Syndrome Virus: Challenges and Advances in Vaccine Development

Source: Z He, F Li, M Liu, J Liao, C Guo - Vaccines, 2025 - pmc.ncbi.nlm.nih.gov

DOWNLOAD

Emergence, prevalence and evolution of porcine reproductive and respiratory syndrome virus 1 in China from 1994 to 2024

Source: Y Qiu, M Qiu, S Li, S Li, J Zhu, K Tian, N Chen - Virology, 2025 - Elsevier

Engineering a live-attenuated porcine reproductive and respiratory syndrome virus vaccine to prevent RNA recombination by rewiring transcriptional regulatory ...

Source: L Li, J Chen, Z Cao, Z Guo, J Liu, Y Zhou, G Tong... - MBio, 2025 - journals.asm.org

DOWNLOAD

Research Progress on the GP3 Protein of Porcine Reproductive and Respiratory Syndrome Virus

Source: C Lv, Z Yang, X Lan, F Liang, W Kong, R Wang... - Animals, 2025 - mdpi.com

DOWNLOAD

Porcine Reproductive and Respiratory Syndrome Virus Prevalence and Pathogenicity of One NADC34-like Virus Isolate Circulating in China

Source: Y Mei, J Chen, Y Chen, C Hu, X Chen, A Guo - Microorganisms, 2025 - mdpi.com

DOWNLOAD

Porcine Respiratory Disease Complex

A multifactorial syndrome affecting the respiratory system of pigs.

STAR IDAZ Approach

Porcine respiratory disease complex (PRDC) is a multifactorial syndrome affecting the respiratory system of pigs in the swine industry. Environmental factors and management practices can trigger PRDC pathogens to cause severe health problems. The causative agents of PRDC include primary pathogens such as porcine reproductive and respiratory syndrome virus (PRRSV), porcine circovirus type 2 (PCV2), swine influenza A virus (IAV), Aujeszky's disease virus (ADV), as well as Mycoplasma hyopneumoniae and Actinobacillus pleuropneumoniae.

Information

- DISCONTOOLS Report: PCV II
- DISCONTOOLS Report: Swine Mycoplasmas
- AHPC datasheet: Mycoplasma hyopneumoniae infections
- AHPC datasheet: porcine circovirus infections

Working group

No Active Working Group.

STAR IDAZ focuses on porcine respiratory disease complex (PRDC) by staying ahead of the latest research in the field to ensure that consideration is given to the impact of this global disease on the pig industry in readiness for future activities. However, there is currently no active working group.

VISIT WEBSITE →

Key People

TBD,
TBD Global

FUNDING CALL

The Pandemic Fund now officially opens phase 1 for country and multi-country proposals

November 2025 (exact date to be determined)

Research roadmaps and gap analyses

Gap analysis summary

There is currently no active PRDC working group and, as such, no research roadmaps have been produced by STAR IDAZ.

Projects

Displaying 4 of 9 projects

VIEW ALL PROJECTS

The economic impact of endemic respiratory disease in pigs and related interventions - a systematic review.

Planned Completion date **17/10/2023**

Source Countries:

Netherlands

Potassium molybdate blocks APN-dependent coronavirus entry by degrading receptor via PIK3C3-mediated autophagy

Planned Completion date **31/01/2025**

Source Countries:

Netherlands

Dynamics and evolution of swine influenza viruses in permanently infected pig herds in Europe (PIGIE)

Planned Completion date **31/03/2024**

Source Countries:

Denmark

ASSESSING THE MICROBIOME AS A TOOL FOR THE MITIGATION OF VIRAL DISEASE IN NURSERY PIGS

Planned Completion date **31/05/2025**

Source Countries:

United Kingdom

Recent publications

Reports and outcomes from meetings and workshops

Porcine respiratory coronavirus as a model for acute respiratory disease: mechanisms of different infection outcomes

Source: E Sedaghat-Rostami, BV Carr, L Yang... - The Journal of ..., 2025 - academic.oup.com

DOWNLOAD

Discovery of viruses and bacteria associated with swine respiratory disease on farms at a nationwide scale in China using metatranscriptomic and metagenomic ...

Source: X Huang, X Yao, W Song, M Zhao, Z Zhu, H Liu... - ..., 2025 - journals.asm.org

DOWNLOAD

Detection of bovine respiratory disease complex-related pathogens in nasopharynx-associated lymphoid tissue

Source: AA Hegazy, M Nakai, N Fuke... - Journal of ..., 2025 - journals.sagepub.com

DOWNLOAD

Prevalence of pathogens from suspected samples associated with porcine respiratory and digestive diseases in South Korea from 2021 to 2023

Source: H Wang, JK Song, S Shin, H Kim - Frontiers in Veterinary Science, 2025 - frontiersin.org

DOWNLOAD

Porcine Reproductive and Respiratory Syndrome Virus: Challenges and Advances in Vaccine Development

Source: Z He, F Li, M Liu, J Liao, C Guo - Vaccines, 2025 - pmc.ncbi.nlm.nih.gov

DOWNLOAD

Poxviruses

A group of contagious viruses that primarily cause skin lesions, pustules, and other symptoms, affecting a wide range of species, including livestock and wildlife.

STAR IDAZ Approach

Pox viruses are a group of viruses that cause contagious diseases in animals, leading to skin lesions, pustules, and other symptoms that can significantly impact animal health and productivity. These viruses affect a wide range of species, including livestock and wildlife, making them a concern for animal health worldwide. STAR IDAZ recognizes the importance of staying informed about the latest research and developments in pox virus management. Although pox viruses are a priority for monitoring due to their potential impact, there is currently no active working group of experts set up specifically for this disease within the STAR IDAZ framework.

Information

- WOAH - Sheep and Goat Pox
- WOAH - Lumpy Skin Disease
- DISCONTOOLS - Sheep and Goat Pox
- CFSPH IASTATE - Contagious Ecthyma
- DISCONTOOLS - Lumpy Skin Disease
- DISCONTOOLS - Orthopox
- DISCONTOOLS - Parapox

Working group

No Active Working Group.

There is currently no active Poxvirus working group.

VISIT WEBSITE →

Key People

TBD,
TBD Global

Antimicrobial Resistance and Alternatives to Antimicrobials

Antimicrobial resistance (AMR) happens when microorganisms like bacteria become strong against drugs that usually kill them, making it hard to treat infections in animals. Researchers are exploring safer, natural alternatives...

STAR IDAZ Approach

STAR IDAZ IRC partners recognise antimicrobial resistance (AMR) as a priority area for collaborative action. Given the broad and complex nature of AMR and to avoid duplication with other existing initiatives on the subject, it was decided to focus efforts on the development of Alternatives to Antimicrobials (ATA). Alternatives to antimicrobials are crucial in combating AMR for the benefit of both animal health and One Health and Research and Development is critical to advance these alternatives.

To enhance global collaboration in the identification of research gaps, overlaps and potential for cross-sectoral collaboration, STAR IDAZ IRC organised several activities and partnered with the Global AMR R&D Hub [https://globalamrhub.org/], optimising information sharing that can support the more efficient use of international resources.

Information

- WOAH AMR Webpage
- Global AMR R&D Hub
- Global Leaders Group on Antimicrobial Resistance

GLG recommendations to address the antibiotic pipeline and access crisis in human health

Working group

STAR-IDAZ Working Group

Since 2019, several workshops involving international experts were held to identify research gaps and develop research roadmaps on Alternatives to Antimicrobials to fight antimicrobial resistance. The first workshop in December 2019 in Bangkok focused on the identification of key areas for research. In October and November 2021, STAR IDAZ IRC and IDRC organised five ATA workshops to develop research roadmaps on the identified areas and discuss marketability. Results were shared with STAR IDAZ partners and beyond to focus research where most needed and speed up the development of ATA.

VISIT WEBSITE →

Key People

Adrian Smith,
University of Oxford United Kingdom

Alberto Danielli,
University of Bologna Italy

Anastasia Vlasova,
Ohio State University United States

Armando Heriazon,
International Development Research Centre Canada

Brian Oakley ,
Western University of Health Sciences United States

Bruce Seal,
Oregon State University United States

Carmen Torres Manrique,
University of La Rioja Spain

Carola Venturini,
University of Sydney Australia

Chengbo Yang,
University of Manitoba Canada

Crystal Loving,
United States Department of Agriculture United States

Cyril Gay ,
United States Department of Agriculture United States

Denis Kolbasov,
TBD Russia

Dirk Werling,
Royal Veterinary College United Kingdom

Doug Korver,
University of Alberta Canada

Elisabeth Erlacher-Vindel,
Office International des Epizooties Argentina

Eric Cox,
University of Ghent Belgium

Fayna Diaz Sen-Segundo,
United States Department of Agriculture United States

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HKU School of Public Health Hong Kong

Henk Haagsman,
University of Utrecht Netherlands

Jaap Wagenaar,
University of Utrecht Netherlands

Jeffery Watts,
Zoetis United States

John Prescott,
University of Guelph Canada

Joshua Amimo,
University of Nairobi Kenya

Kim Cook,
United States Department of Agriculture United States

Laila Ben Said,
Laval University Canada

Luca Guardabassi,
University of Copenhagen Denmark

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TBD Argentina

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The Pandemic Fund now of cially opens phase 1 for country and multi-country proposals

November 2025 (exact date to be determined)

Reports

Reports and outcomes from meetings and workshops

Report, Workshops

Report of the workshop on the Americas' Regional perspectives on Alternatives to Antimicrobials (ATA)

Published 6th December, 2023

DOWNLOAD

Executive Summary, Gap Analysis

Executive summary of priority research needs: Alternatives to antibiotics

Published 23rd June, 2023

DOWNLOAD

IRC, Report, Workshops

Research Roadmap Development for Alternatives to Antibiotics

Published 4th October, 2022

DOWNLOAD

Workshops

Research needs for developing innovative alternatives to antibiotics, STAR-IDAZ IRC Workshop

Published 2nd June, 2020

DOWNLOAD

ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

Research roadmaps on Alternative to Antimicrobials have been developed and published highlighting research gaps on the role of the microbiome and how it can be influenced, the development of immunomodulators and phage technologies. An executive summary is available for consultation. These roadmaps are linked with other ATA roadmaps for vaccine development and disease controls, including biosecurity and vaccination strategies.

Roadmap For Microbiota Optimisation
Published 19th December, 2024

Roadmap For Immunomodulators
Published 19th December, 2024

Roadmap For Phage Technologies
Published 19th December, 2024

Projects

Displaying 4 of 26 projects

VIEW ALL PROJECTS

Molecular typing and antimicrobial resistance pro ling of 33 mastitis related Staphylococcus aureus isolates from cows in the Comarca Lagunera region of Mexico

Planned Completion date **25/03/2021**

Source Countries:


Netherlands

Outer membrane vesicles protect Gram negative bacteria against host defence peptides

Planned Completion date **25/08/2021**

Source Countries:


Netherlands

Pepbiotics novel cathelicidin inspired antimicrobials to ght pulmonary bacterial infections

Planned Completion date **01/09/2021**

Source Countries:


Netherlands

Non-Digestible Oligosaccharides

Planned Completion date **26/11/2022**

Source Countries:


Netherlands

Recent publications

Reports and outcomes from meetings and workshops

Antimicrobial resistance: Current challenges and future directions

Source: B Puri, R Vaishya, A Vaish - Medical Journal Armed Forces India, 2025 - Elsevier

Essential oils used in the poultry industry: would it be an effective green alternative against Salmonella spp. dissemination and antimicrobial resistance?

Source: HL de Souza Rodrigues, IMM Kolososki, VP Benevides... - The Microbe, 2025 - Elsevier

DOWNLOAD

Alternative antimicrobial approaches to ghting multidrug resistant infections

Source: V Edwards-Jones - Fighting multidrug resistance with herbal extracts ..., 2025 - Elsevier

Essential oils used in the poultry industry: would it be an effective green alternative against Salmonella spp. dissemination and antimicrobial resistance?

Source: HLS Rodrigues, IMM Kolososki, VP Benevides... - 2025 - repositorio.unesp.br

DOWNLOAD

Antimicrobial use and antimicrobial resistance in food-producing animals: Cross-sectional study on knowledge, attitudes, and practices among veterinarians ...

Source: D Theodoridou Oxinou, D Lamnisos, C Filippou... - Antibiotics, 2025 - mdpi.com

DOWNLOAD

Animal Genomics/ Genetics for Animal Health

Explores the inheritance of traits in animals, aiming to enhance health, productivity, and biodiversity through genetic research and applications.

STAR IDAZ Approach

Animal genetics is a STAR IDAZ IRC priority because genomic tools—from SNP arrays to functional genomics and gene editing—can accelerate disease resistance, improve productivity, and reduce antimicrobial use. Our focus is to scan global trends and translate advances in livestock genetics into animal-health impact (e.g., resilient breeds, better genomic prediction, and ethical use of editing). At present there is no active working group dedicated to this topic; activity centres on horizon-scanning and connecting funders and researchers until one is convened.

Information

Science Media Centre of Canada: Improving Animal Health with Genomics

Animal genome database

This resource provides factsheets on the genome sizes of a wide range of animal species. It's a valuable tool for researchers and educators looking for specific genetic data on various animals.

FAO - Animal Diversity Genome System

The FAO offers extensive resources on animal genetic resources, including detailed datasheets on various livestock species. These datasheets include information on genetic diversity, conservation status, and genetic improvement strategies.

National Center for Biotechnology Information (NCBI) Animal Genome Project

The NCBI provides access to genomic data for various animal species. While not a traditional factsheet, it offers extensive data that can be used to create detailed genetic profiles for research and study.

Working group

No Active Working Group

No active working group is currently in place for Animal Genomics/Genetics. We continue to monitor the field and coordinate where it intersects other STAR IDAZ IRC themes.

VISIT WEBSITE →

Key People

No STAR IDAZ Experts within Genomics/Genetics, N/A Global

No STAR IDAZ Experts within Genomics/Genetics 1, N/A Global

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FUNDING CALL

The Pandemic Fund now officially opens phase 1 for country and multi-country proposals

November 2025 (exact date to be determined)

Research roadmaps and gap analyses

Gap analysis summary

A formal roadmap for Animal Genetics has not yet been established. Interim priorities–drawn from current literature and community consultations–include: scalable phenotyping linked to health traits, genomic prediction for disease resilience, conservation of genetic diversity, functional annotation to move from association to mechanism, and responsible pathways for gene editing. These will be re ned once a working group is formed.

Projects

Displaying 4 of 34 projects

VIEW ALL PROJECTS

550. Extensive functional genomics information from early developmental time points for pig and chicken

Planned Completion date **31/12/2022**

Source Countries:

Netherlands

A compendium of genetic regulatory effects across pig tissues.

Planned Completion date **25/11/2022**

Source Countries:

Netherlands

Large-scale analysis of sheep rumen metagenome profiles captured by reduced representation sequencing reveals individual profiles are influenced by the environment and genetics of the host.

Planned Completion date **24/10/2022**

Source Countries:

Netherlands

Innovative ways of regional sustainable use of animal genetic resources in domestic chickens - Öko-BeratungsGesellschaft mbH (RegioHuhn)

Planned Completion date **29/02/2028**

Source Countries:

Denmark

Recent publications

Reports and outcomes from meetings and workshops

Annotation and assessment of functional variants in livestock through epigenomic data

Source: R Ma, R Kuang, J Zhang, J Sun, Y Xu, X Zhou... - ... Genetics and Genomics, 2025 - Elsevier

DOWNLOAD

The African Animal Breeding Network as a pathway towards genetic improvement of livestock

Source: A Djikeng, VE Olori, I Houaga, SE Aggrey, O Mwai... - Nature Genetics, 2025 - nature.com

Application of Genomics in Livestock Production: A Mini-Review

Source: EA Rotimi - World News of Natural Sciences, 2025 - researchgate.net

DOWNLOAD

Genetic advancements and future directions in ruminant livestock breeding: from reference genomes to multiomics innovations

Source: S Xu, Z Akhatayeva, J Liu, X Feng, Y Yu... - Science China Life ..., 2025 - Springer

DOWNLOAD

... on Genetics Applied to Livestock Production (WCGALP): Technical and species orientated innovations in animal breeding, and contribution of genetics to ...

Source: RF Veerkamp, Y de Haas - 2025 - books.google.com

Diagnostics (tools and technologies)

Diagnostics are crucial for the early detection and management of animal diseases, guiding effective interventions to protect animal health.

STAR IDAZ Approach

Diagnostics play a vital role in the early detection, monitoring, and management of animal diseases, enabling timely and effective interventions to safeguard animal health. In the context of STAR IDAZ, diagnostics are recognised as a priority area due to their critical importance in disease control and prevention.

Information

WOAH - Diagnostics

WOAH provides a comprehensive manual on diagnostic tests for various animal diseases, including protocols, methodologies, and applications in disease control. The manual includes detailed factsheets on different diagnostic tools and their use in veterinary medicine.

Working group

No Working Group

STAR IDAZ does not currently have an active Diagnostics Working Group. However, activities are ongoing to develop a Terms of Reference for the working group in line with a previous survey launched in 2023 to map 'Detection and Diagnostic Technology Developments'.

Moreover, diagnostics are a central focus in its research planning: one of the four generic research roadmaps is dedicated to diagnostic test development, and diagnostics are integrated into several disease-specific roadmaps, including those for African swine fever, foot-and-mouth disease, helminths, and brucellosis. The experts involved in these disease-specific diagnostics contribute on an ad hoc basis to the diagnostics activities within STAR IDAZ IRC.

VISIT WEBSITE →

Key People

No Active Working Group, N/A Global

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FUNDING CALL

The Pandemic Fund now of cially opens phase 1 for country and multi-country proposals

November 2025 (exact date to be determined)

Reports

Reports and outcomes from meetings and workshops

Gaps and Opportunities in Animal Health Diagnostics: A STAR IDAZ Survey Report

Published 19th September, 2025

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ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

Diagnostics are a critical priority for STAR IDAZ IRC, as they play an essential role in the early detection, monitoring, and control of various animal diseases. Accurate diagnostics are integrated into the strategies for several of our priority diseases, ensuring that we can respond swiftly and effectively on diagnostics, and there are no immediate plans to develop a specific roadmap for this area. Our approach emphasizes the use of diagnostic tools within the broader context of disease management, aligning with our overarching goals to improve animal health worldwide.

Roadmap For Diagnostic Test Development

Published 31st October, 2025

Projects

Displaying 4 of 21 projects

VIEW ALL PROJECTS

A Multi-Laboratory Comparison of Methods for Detection and Quanti cation of African Swine Fever Virus

Planned Completion date **07/03/2022**

Source Countries:

Netherlands

Improved control of priority animal diseases: Novel vaccines and companion diagnostic tests for African horse sickness, peste des petits ruminants and foot-and-mouth disease

Planned Completion date **31/12/2025**

Source Countries:

Europe

Swine diseases eld diagnostics toolbox

Planned Completion date **31/10/2021**

Source Countries:

Europe

Promoting One Health in Europe through joint actions on foodborne zoonoses, antimicrobial resistance and emerging microbiological hazards.

Planned Completion date **30/09/2023**

Source Countries:

Europe

Recent publications

Reports and outcomes from meetings and workshops

Biosensor Technology: Advances and Applications in Livestock Infectious Disease Diagnosis

Source: Y Zhao, L Zhang, A Wang, D Zhou - Veterinary Sciences, 2025 - mdpi.com

DOWNLOAD

Economic and Environmental Bene ts of Digital Agricultural Technological Solutions in Livestock Farming: A Review

Source: G Papadopoulos, MZ Papantonatou, H Uyar... - ... Agricultural Technology, 2025 - Elsevier

DOWNLOAD

Swine zoonotic viruses: transmission and novel diagnostic technology

Source: L Zhang, Z Jiang, Y Qin, Y Bi, S Su - One Health Advances, 2025 - Springer

DOWNLOAD

Immunoinformatics: A Veritable Toolbox for Livestock Omics and Veterinomics

Source: RM Yennamalli, SK Onteru - OMICS: A Journal of Integrative Biology, 2025 - liebertpub.com

Applications of Nano-bioinformatics in Livestock Research

Source: S Pant, RK Pathak, DB Singh, JM Kim - Bioinformatics in Veterinary ..., 2025 - Springer

DOWNLOAD

Emerging Issues

Emerging issues threaten animal agriculture.

STAR IDAZ Approach

The risk of emergence of pathogens has increased as a consequence of global changes in the way food is produced, moved and consumed. Rapid detection and response to emerging diseases are critical to animal agriculture because these diseases threaten the livelihood of producers. Rapid and effective response can also prevent or limit negative impacts on animal health, the economy, food security, and public health.

STAR IDAZ IRC focuses on facilitating international collaboration and coordinated responses to emerging diseases and issues, to reduce duplication, speed up response and support the faster development of control tools.

Information

'PANDEMIC A One Health View on Emerging Infectious Diseases webinar' report

PREZODE (PREventing ZOonotic Diseases Emergence)

Working group

Emerging Issues

For Emerging Issues, STAR IDAZ aims to act as an ad-hoc 'real time' early warning group to foster international collaboration and promote a coordinated response amongst the IRC Partners. STAR IDAZ provides opportunities to share information and knowledge, and share lessons learned from previous outbreaks to explore future preparedness strategies.

STAR IDAZ collaborates with other organisations and projects working in this area and disseminates resources to IRC Partners to support research coordination. Further activities are envisaged in the future.

VISIT WEBSITE →

Key People

Wim van der Poel,
Wageningen University
Netherlands

Featured

FUNDING CALL

The Pandemic Fund now officially opens phase 1 for country and multi-country proposals

November 2025 (exact date to be determined)

Reports

Reports and outcomes from meetings and workshops

Webinar Report

Pandemic! A One Health view of emerging infectious diseases

Published 4th August, 2020

DOWNLOAD

ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

Due to the scope of this Priority Topic research roadmaps will not be developed. However, research is required to support more effective surveillance, monitoring, and preparedness and to develop control tools and methods.

Projects

Displaying 4 of 13 projects

VIEW ALL PROJECTS

Planning for emerging infectious disease pandemics

Planned Completion date **26/07/2021**

Source Countries:

Netherlands

SPRUCESAVER

Planned Completion date **31/10/2027**

Source Countries:

Denmark

INTERNATIONAL COORDINATION OF RESEARCH ON INFECTIOUS ANIMAL DISEASES

Planned Completion date **30/09/2025**

Source Countries:

Europe

Disseminating Innovative Solutions for Antibiotic Resistance Management

Planned Completion date **30/06/2022**

Source Countries:

Europe

Recent publications

Reports and outcomes from meetings and workshops

Farmer perceptions of the vulnerabilities of traditional livestock farming systems under global change

Source: Z Morales-Reyes, JM Barbosa, JA Sánchez-Zapata... - Ambio, 2025 - Springer

DOWNLOAD

Characteristics and influencing factors of livestock residue nitrogen, phosphorus, and organic matter discharge and spatial distribution of pollution potential ...

Source: H Liu, J Hou, M Deng, Z Sun - Resources, Environment and Sustainability, 2025 - Elsevier

DOWNLOAD

Climate change impacts on livestock and resulting effects on animal health: current challenges in food safety, consumer protection, and animal welfare

Source: DA Sicuso, A Previti, M Pugliese... - Journal of Consumer ..., 2025 - Springer

DOWNLOAD

Ethnobotanical study of medicinal plants used to treat human and livestock ailments in Addi Arkay district, northwest Ethiopia

Source: W Misganaw, G Masresha, A Alemu... - Journal of Ethnobiology ..., 2025 - Springer

DOWNLOAD

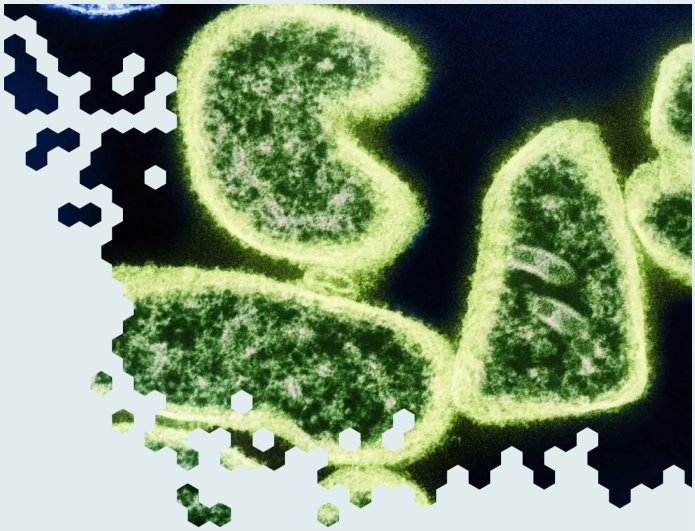
Effect of climate change on transmission of livestock diseases. Agrobiological Records 19: 1-11

Source: MZ Sarwar, ZA Nomi, M Awais, RM Shahbakht, M Jamil... - 2025 - agrobiologicalrecords.com

DOWNLOAD

Epidemiology

Epidemiology is the study of the distribution, patterns, and causes of health and disease conditions within a defined animal population



STAR IDAZ Approach

Veterinary epidemiology plays a crucial role in understanding, preventing, and controlling diseases that affect animal populations. With the resurgence and rapid (global) spread of diseases such a ASF, LSD or Bluetongue the discipline has gained global importance. Epidemiologists study patterns of disease occurrence, transmission, and risk factors to develop effective control strategies. The field also supports livestock production by minimizing economic losses caused by infectious diseases. Current trends in veterinary epidemiology emphasize the One Health approach, integrating animal, human, and environmental health. Advances in molecular epidemiology, GIS-based disease mapping, and predictive modelling are transforming disease surveillance and outbreak response. Big data analytics and artificial intelligence are increasingly used to detect emerging threats early. Moreover, climate change, wildlife interactions, and antimicrobial resistance have become key focus areas. Overall, veterinary epidemiology is a vital discipline in preventing epidemics, improving animal welfare, and protecting global health. The discipline has a major role in the development of the STAR IDAZ research roadmaps on control strategies.

Working group

No active working group

There is currently no specific working group for Epidemiology, however epidemiologists are contributing to the development of the generic and disease specific research roadmaps for diagnostics and control strategies. These are now available for ASF, Helminths and anthelmintic resistance, bTB, Coronaviruses, FMD and Influenza.

VISIT WEBSITE →

Key People

No STAR IDAZ experts within epidemiology ,
N/A Global

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FUNDING CALL

The Pandemic Fund now of cially opens phase 1 for country and multi-country proposals

November 2025 (exact date to be determined)

Reports

Reports and outcomes from meetings and workshops

ALL REPORTS →

Gap analysis summary

A formal roadmap for Epidemiology has not yet been established.
Related roadmaps can be found:

Roadmap for the development of control strategies for liver fluke

STAR-IDAZ

Roadmap for the development of disease control strategies for coronaviruses

STAR-IDAZ

Roadmap for the development of disease control strategies for influenza

STAR-IDAZ

Roadmap for development of disease control strategies for bTB

STAR-IDAZ

Roadmap for the research to underpin the development of control strategies for FMD

STAR-IDAZ

Roadmap for the development of control strategies for ASF

STAR-IDAZ

Projects

Displaying 4 of 15 projects

VIEW ALL PROJECTS

Advancing knowledge of non-aureus Staphylococci epidemiology in dairy cattle: species and strain typing matters

Planned Completion date **01/01/2024**

Source Countries:


United States

Etiopathogenesis and epidemiology of emerging pathogens in the poultry sector: persistence and adaptation of emerging clones of Salmonella Infantis and new biocontrol strategies

Planned Completion date **01/01/2025**

Source Countries:


Chile

Role of small rodents in local-scale epidemiology of emerging zoonoses: Echinococcus multilocularis and Hantavirus (RodiZoon)

Planned Completion date **01/01/2025**

Source Countries:


Chile

The epidemiology of Brucella melitensis in dairy herds in Israel and development of a risk-based surveillance & control program

Planned Completion date **01/01/2024**

Source Countries:

India

Foresight

Foresight involves preparing for long-term challenges by identifying trends, envisioning possible futures, and shaping strategies to guide decision-making.

STAR IDAZ Approach

Foresight describes a readiness to deal with long-term issues. It aims to identify long term trends and thus guide decision-making, by identifying possible - and desirable - futures, and de ning strategies. Results are generally fed into public decision-making, but they also help participants themselves to develop or adjust their strategy.

STAR IDAZ looks at how global trends might impact on animal health. Priority topic foresight activities will be carried out, when requested by our partners.

Information

WOAH Embracing Uncertainty - Using Strategic Foresight Methods to Support Decision-Making:

SCAR Foresight Group - Meta Analysis

CWG AHW Strategic Research Agenda

A foresight study was carried out as part of the ANIHWA project in order to produce an EU Strategic Research Agenda on Animal Health and Welfare

WOAH Seventh Strategic Plan for Period 2021-2025

AU-IBAR Animal Health Strategy for Africa (2019-2035)

European Partnership on Animal Health and Welfare (EUP AH&W) Strategic Research and Innovation Agenda for the (2023)

Working group

No Current Active Working Group

STAR IDAZ carried out an Inventory of Foresight Methodologies and Studies in 2012 to understand the foresight and horizon scanning activities carried out by STAR IDAZ partners and countries.

In 2014, STAR IDAZ conducted foresight studies to identify the scienti c and technological needs, including research capacity and support structures to prevent, control or mitigate animal health and zoonotic challenges for 2030 and beyond. Regional foresight workshops were carried out in the Americas, Asia and Australasia and in Europe. The likely impact of these drivers on various disease categories was considered, a preferred future scenario agreed and back-casting conducted at a workshop held in Moscow, Russia in June 2014.

VISIT WEBSITE →

Key People

Marina Bagni,
Ministry of Health Italy

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The Pandemic Fund now of cially opens phase 1 for country and multi-country proposals

November 2025 (exact date to be determined)

Reports

Reports and outcomes from meetings and workshops

Strategic Research Agendas

FORE-Med Report - Building a Strategic Research Agenda for Animal Health for the Mediterranean

Published 16th June, 2015

DOWNLOAD

Report

Inventory of Foresight Methodologies and Studies

Published 1st October, 2012

DOWNLOAD

ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

STAR IDAZ utilised foresight activities to identify its current priorities and support long-term priority setting, including the development of Strategic Research Agendas (SRAs).

Projects

Displaying 4 of 13 projects

VIEW ALL PROJECTS

The opening of rural areas to renew rural generations, jobs and farms

Planned Completion date **30/04/2023**

Source Countries:

Europe

Mountain Valorization through Interconnectedness and Green Growth

Planned Completion date **31/08/2024**

Source Countries:

Europe

European Proteomics Infrastructure Consortium providing Access

Planned Completion date **30/06/2023**

Source Countries:

Europe

Sustainable Hub to Engage into Rural Policies with Actors

Planned Completion date **30/09/2023**

Source Countries:

Europe

Recent publications

Reports and outcomes from meetings and workshops

Bridging the gap: Integrating crop pests and pathogens into agricultural foresight models for food security assessments

Source: A Petsakos, C Montes, J Falck-Zepeda, DNL Pequeno... - Food Security, 2025 - Springer

DOWNLOAD

A user-centred future for agricultural digital innovation: demonstrating the value of design thinking in an animal health context

Source: K McGrath, Á Regan, T Russell - The Journal of Agricultural ..., 2025 - Taylor & Francis

DOWNLOAD

How will technology change people's home care in the next 20 years? A strategic foresight study

Source: M Pistolesi, G Frangioni, F Fraboni, E Fabbri, F Masci - Ergonomics, 2025 - Taylor & Francis

DOWNLOAD

Foresight for the transformation of agrifood systems through agroecology. Guidance document for decision makers and practitioners

Source: M De Lattre-Gasquet, FZ Rostom, T Hazoumé - 2025 - agritrop.cirad.fr

DOWNLOAD

IMPLEMENTATION OF THE FORESIGHT METHOD ELEMENTS TO ENSURE THE IMPLEMENTATION OF STRATEGIC OBJECTIVES FOR THE ...

Source: **M** Zos-Kior - GLOBAL ACADEMICS, 2030 - i-journal.org

DOWNLOAD

One Health (including food-borne pathogens)

One Health is an integrated approach that recognizes the interconnectedness of human, animal, and environmental health to effectively prevent and manage global health challenges.

STAR IDAZ Approach

There are different definitions of one health, but they all emphasise the connections between humans, animals, and environment and the benefits of an interdisciplinary approach to solving problems in health. The following definition based on the one adopted by WHO, FAO, & OIE - Tripartite Alliance.

One Health is a collaborative, multisectoral, and transdisciplinary approach - working at local, regional, national, and global levels - to achieve optimal health and well-being outcomes recognizing the interconnections between humans, animals (domestic and wild), plants, ecosystems, and their shared environment.

STAR-IDAZ IRC has worked with the Global Research Collaboration for Infectious Disease Preparedness (GloPID-R; https://www.glopid-r.org) to produce a report that aims to make recommendations for research funding organisations to better align their funding strategies to integrate the One Health approach more widely.

Information

One Health Commission - One Health Tools and Toolkits

These documents aid in health systems management, disease surveillance, research, learning, and much more. To help streamline awareness of and access to them, the One Health Commission has gathered tools and toolkits from across the web and presented them.

Working group

One Health Working Group

The STAR IDAZ IRC's One Health Working Group has worked alongside GloPID-R (Global Research Collaboration for Infectious Disease Preparedness) to reproduce a report that aims to make recommendations for research funding organisations to better align their funding strategies to integrate the One Health approach more widely.

The report titled 'Mapping One Health: An Exploration of the Global Funding Landscape for One Health Research', compiles expert opinions and recommendations from a workshop and survey.

VISIT WEBSITE →

Key People

Aurelie Castinel,
SAFOSO Switzerland

Baldissera Giovani,
Euphresco France

Bassirou Bonfoh,
Swiss Centre of Scientific Research Côte d'Ivoire

Benjamin Roche,
Research Institute for Development (IRD) France

Chadia Wannous,
World Organisation for Animal Health (WOAH) Global

Diana Rojas Alvarez,
WHO Emergencies Programme Switzerland

Dirk Pfeiffer,
City University of Hong Kong China

Fabian Leendertz,
Helmholtz Institute for One Health Germany

Gabriela Di Giulio,
University of São Paulo Brazil

Jakob Zinsstag,
, Swiss Tropical and Public Health Institute Switzerland

Joanne Webster,
Royal Veterinary College and Imperial College of London United Kingdom

Jonna Mazet,
University of California United States

Kris Murray,
London School of Hygiene and Tropical Medicine United Kingdom

Linfa Wang,
Duke NUS Medical School Singapore

Malik Peris ,
University of Hong Kong China

Marc Johnson,
University of Missouri United States

Mariella Marzano,
Forest Research United Kingdom

Misheck Mulumba,
ARC Onderstepoort Veterinary Research South Africa

Muriel Vayssier-Taussat ,
INRAE France

Nigel French,
Massey University New Zealand

Paul Pronyk,
SingHealth Duke-NUS Global Health Institute Singapore

Paula Prist,
Ecohealth Alliance United States

Paulo Vela,
Cayetano Heredia Peruvian University Peru

Robyn Alders,
Australian National University, Australia Australia

Salazy Bin Abubakar ,
University of Malaysia Malaysia

Sascha Knauf,
Friedrich-Loeffler-Institute (FLI) Germany

Tony Barnett,
London School of Hygiene and Tropical Medicine United Kingdom

Wanda Markotter,
University of Pretoria South Africa

Zelalem Tadesse,
Food and Agriculture Organisation (FAO) Italy

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November 2025 (exact date to be determined)

Reports

Reports and outcomes from meetings and workshops

Mapping One Health: An Exploration of the Global Funding Landscape for One Health Research

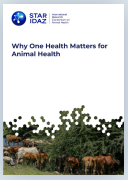
Published 28th August, 2024

DOWNLOAD

Investing in research with a One Health approach

Published 9th May, 2025

DOWNLOAD



Why One Health Matters for Animal Health

Published 12th May, 2025

DOWNLOAD

Report, Workshops

One Health funding workshop report

Published 4th June, 2025

DOWNLOAD

ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

The working group has produced a report titled 'Mapping One Health: An Exploration of the Global Funding Landscape for One Health Research'. This report, which compiles expert opinions and recommendations from a workshop and survey conducted by the group members. Three further reports we produced in

Projects

Displaying 4 of 23 projects

VIEW ALL PROJECTS

Development of a plant expressed, protein-based subunit vaccine against Brucellosis

Planned Completion date **30/11/2029**

Principal Investigator(s)

Daria Rutkowska

Source Countries:

South Africa

Describing and mapping of the main existing structures and systematic initiatives and academic activities for surveillance in the EU for zoonoses (transboundary, emerging and re-emerging) in domestic animals and wildlife

Planned Completion date **21/12/2022**

Source Countries:

Netherlands

Economic evaluation of whole genome sequencing for pathogen identification and surveillance results of case studies in europe and the Americas 2016 to 2019

Planned Completion date **04/03/2021**

Source Countries:

Netherlands

Building an International One Health Strain Level Database to Characterise the Epidemiology of AMR Threats: ESBL–AmpC Producing E. Coli as An Example–Challenges and Perspectives.

Planned Completion date **10/03/2023**

Source Countries:

Netherlands

Recent publications

Reports and outcomes from meetings and workshops

The nature and extent of foodborne disease

Source: CC Adley, MP Ryan - Antimicrobial food packaging, 2025 - Elsevier

Understanding One Health and Zoonosis: A Systematic Review with a Bibliometric Analysis of Turkish Research and Global Perspectives (1974-2023)

Source: SD DIOP, I Abdullah, AD KIZGIN... - KAFKAS ÜNİVERSİTESİ ..., 2025 - vetdergikafkas.org

DOWNLOAD

Multiplexed food-borne pathogen detection using an argonaute-mediated digital sensor based on a magnetic-bead-assisted imaging transcoding system

Source: Z Wang, X Cheng, A Ma, F Jiang, Y Chen - Nature Food, 2025 - nature.com

Prevalence and antimicrobial resistance of Campylobacter jejuni and Campylobacter coli over time in Thailand under a One Health approach: A systematic ...

Source: DH Phu, T Wongtawan, TT Nam, DB Truong... - One Health, 2025 - Elsevier

DOWNLOAD

Insights and future directions: Applying the One Health approach in international agricultural research for development to address food systems challenges

Source: H Nguyen-Viet, S Lâm, S Alonso, F Unger, A Moodley... - One Health, 2025 - Elsevier

DOWNLOAD

Vaccinology (tools and technologies)

Vaccinology is a eld of microbiology and immunology covering vaccine development as well as the use of vaccines and their effects on animal health and public health

STAR IDAZ Approach

The STAR IDAZ roadmap for development of candidate vaccines outlines the key steps in developing candidate vaccines. The roadmap considers several common criteria that needs to be considered for all types of vaccine - safety, delivery route, delivery platform, and ef cacy in a challenge model. The generic vaccine roadmap is then used to develop disease-specific roadmaps for the development of candidate vaccines, these can be found under the relevant priority topics.

Information

- The International Veterinary Vaccinology Network (IVVN)
- The Immunological Toolbox
- • WOAH Manual of Diagnostics Tests and Vaccines for Terrestrial Animals
- • Applications of platform technologies in veterinary vaccinology and the bene ts for one health (Entrican, G. & Francis, M. 2022)

Working group

International Veterinary Vaccinology Network (IVVN)

STAR IDAZ IRC links closely with the International Veterinary Vaccinology Network (IVVN) - a multidisciplinary vaccinology research and development community that aims to help collaboration between international researchers and stakeholders.

VISIT WEBSITE →

Key People

Vish Nene,
International Livestock Research Institute (ILRI) Kenya

Gary Entrican,
The Roslin Institute, The University of Edinburgh United Kingdom

Mike Francis,
BioVacc Consulting Ltd United Kingdom

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November 2025 (exact date to be determined)

Reports

Reports and outcomes from meetings and workshops

IRC, Report

Global Veterinary Vaccinology Research and Innovation Landscape Survey Report

Published 20th June, 2022

DOWNLOAD

ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

The STAR IDAZ roadmap for development of candidate vaccines outlines the key steps in developing candidate vaccines, based on a number of common criteria that need to be considered for all vaccine types.

The generic vaccine roadmap has been used to develop disease-specific vaccine roadmaps, these can be found under the relevant priority topics.

'*Applications of platform technologies in veterinary vaccinology and the benefits for One Health*' (Entrican & Francis, 2022) was produced following commission by STAR IDAZ IRC, covering the key technological underpin vaccine design, defines vaccine platform technologies and sets the veterinary vaccinology and One Health context.

Roadmap For Vaccine Development

Published 9th May, 2025

Projects

Displaying 4 of 15 projects

VIEW ALL PROJECTS

Development of a plant expressed, protein-based subunit vaccine against Brucellosis

Planned Completion date **30/11/2029**

Principal Investigator(s)

Daria Rutkowska

Source Countries:

South Africa

Intestinal organoids as tools for the investigation of foodborne viruses

Planned Completion date **31/12/2025**

Source Countries:

Denmark

PARAGONE: vaccines for animal parasites

Planned Completion date **31/03/2019**

Source Countries:

Europe

Next-generation vaccines and diagnostics to prevent livestock reproductive diseases of worldwide impact

Planned Completion date **31/08/2027**

Source Countries:

Europe

Recent publications

Reports and outcomes from meetings and workshops

Immunoinformatics: A Veritable Toolbox for Livestock Omics and Veterinomics

Source: RM Yennamalli, SK Onteru - OMICS: A Journal of Integrative Biology, 2025 - liebertpub.com

Opportunities and challenges for the adoption of novel platform technologies to develop veterinary bacterial vaccines

Source: G Entrican, H Bredell, J Charlier, AF Cunningham... - Vaccine, 2025 - Elsevier

DOWNLOAD

Reverse vaccinology: A strategy also used for identifying potential vaccine antigens in poultry

Source: N Gloanec, M Guyard-Nicodème, M Chemaly, D Dory - Vaccine, 2025 - Elsevier

DOWNLOAD

Vetinformatics in Vaccine Design for the Control of Animal Diseases

Source: I Gul, A Hassan, NA Chikan, E Haq, NA Ganai... - ... in Veterinary Science ..., 2025 - Springer

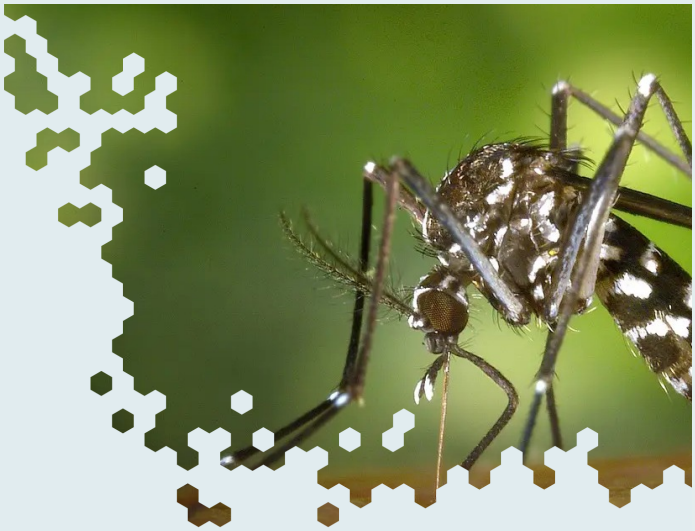
mRNA vaccine design using the proteome of Theileria annulata through immunoinformatics approaches

Source: R Fattahi, B Sadeghi Kalani - mSphere, 2025 - journals.asm.org

DOWNLOAD

Vector Transmission and Control

Vector-borne diseases pose a significant risk to animal and human health.



STAR IDAZ Approach

Vector-borne diseases pose a significant risk to animal and human health worldwide. These diseases can be transmitted by various vectors such as mosquitoes, ticks, fleas, and flies, and can cause a range of illnesses, from mild to severe, including zoonotic diseases that can cross the animal-human interface. In recent years, there has been an increase in the incidence of vector-borne diseases, highlighting the need for effective control strategies.

Control strategies for vector-borne diseases can either target the pathogen or target transmission by the vector. Currently, STAR IDAZ IRC activity is focused on the need for vector transmission control.

Information

- EFSA: Systematic literature review on the vector status of potential vector species of 36 vector-borne pathogens
- DISCONTOOLS Report on African Trypanosomiasis
- DISCONTOOLS Report on Bluetongue
- DISCONTOOLS Report on Crimean-Congo Haemorrhagic Fever
- DISCONTOOLS Report on Epizootic Haemorrhagic Disease
- DISCONTOOLS Report on Leishmaniasis
- • DISCONTOOLS Report on Rift Valley Fever
- DISCONTOOLS Report on West Nile Virus

Working group

VTC Working Group

Since 2018, international experts have convened to define the need for a research roadmap on vector transmission control and develop the research roadmap. The latest activity involved an expert workshop to further develop the roadmap and lead summaries held in Weimar, Germany in March 2023 followed by a final review by the Scientific Committee leads in Nairobi, Kenya in June 2023.

VISIT WEBSITE →

Key People

Bruno Goddeeris,
Catholic University of Leuven;
University of Ghent Belgium

Anna-Bella Failloux,
Institut Pasteur France

José de la Fuente,
Catalonia Institute for Energy Research (IREC) Spain

Jan Perner,
Biology Centre of Academy of Sciences Czechia

Isabel de Miranda Santos,
University of São Paulo Brazil

David Odongo,
University of Nairobi Kenya

Stephen Higgs,
Kansas State University United States

Hein Sprong,
National Institute for Public Health and the Environment Netherlands

Cynthia Baldwin,
University of Massachusetts Amherst United States

Grant Hughes,
Liverpool School of Tropical Medicine United Kingdom

Guilherme Klafke,
Rio Grande do Sul State Department of Agriculture, Brazil

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The Pandemic Fund now officially opens phase 1 for country and multi-country proposals

November 2025 (exact date to be determined)

Reports

Reports and outcomes from meetings and workshops

Gap Analysis, Workshops

Heartwater: Potential Worldwide Threats for Livestock

Published 27th November, 2019

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Executive Summary

Executive Summary of Priority Research Needs for Vector Transmission Control

Published 14th February, 2025

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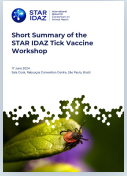

Report, Workshops

Short Summary of the STAR IDAZ Tick Vaccine Workshop

Published 23rd April, 2025

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ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

The generic roadmap for Vector Transmission Control considers the control of transmission through three routes;
1. Control of the host

2. Control through the vector

3. Looking at the vector ecology or biotope.

The generic roadmap can be used in conjunction with STAR IDAZ IRC roadmaps for specific vector-transmitted diseases.

Roadmap For Vector Transmission Control (VTC)
Published 16th December, 2024

Projects

Displaying 4 of 20 projects

VIEW ALL PROJECTS

Hotspots and super-spreaders:Modelling fine-scale malaria parasite transmission using mosquito flight behaviour

Planned Completion date **06/07/2022**

Source Countries:

Netherlands

Species identity, life history, and geographic distance influence gut bacterial communities in lab-reared and European field-collected Culicoides biting midges

Planned Completion date **01/01/2021**

Source Countries:

Netherlands

Species identity life history and geographic distance influence gut bacterial communities in lab reared and European field collected culicoides biting midges

Planned Completion date **26/08/2021**

Source Countries:

Netherlands

A randomized controlled trial of Tickoff® (Metarhizium anisopliae ICIPE 7) for control of tick infestations and transmission of tick-borne infections in extensively grazed zebu cattle in coastal Kenya

Planned Completion date **01/01/2024**

Source Countries:

Netherlands

Recent publications

Reports and outcomes from meetings and workshops

Suspended solids dominated tailing effect in UV disinfection of livestock wastewater: Mechanistic deciphering and modelling prediction for epidemic control

Source: W Bai, J Xu, ZH Hu, R Tang, X Zhan - Water Research, 2025 - Elsevier

Livestock and avermectins in sub-Saharan Africa: a restricted systematic review of the impacts on productivity and documentation of resistance

Source: C Rist, R Zheng, L Maghak - Parasitology - cambridge.org

DOWNLOAD

Molecular Detection of Hemoparasites in Hematophagous Insects Collected from Livestock Farms in Northeastern Thailand

Source: P Jhaiaun, A Rudeekiatthamrong, W Chimnoi... - Insects, 2025 - mdpi.com

DOWNLOAD

Linking vector favourable environmental conditions with serological evidence of widespread bluetongue virus exposure in livestock in Ecuador

Source: A Acosta, M Barrera, D Jarrín, A Maldonado, J Salas... - Scientific Reports, 2025 - nature.com

DOWNLOAD

Spatial and temporal analysis of Rift Valley fever outbreaks in livestock in Uganda: a retrospective study from 2013 to 2022

Source: E Arinaitwe, DK Atuhaire, E Hasahya... - BMC Veterinary ..., 2025 - Springer

DOWNLOAD

FUNDING CALL

The Pandemic Fund now of cially opens phase 1 for country and multi-country proposals

November 2025 (exact date to be determined)

Reports

Reports and outcomes from meetings and workshops

Strategic Research Agendas

European Animal Health Strategic Research Agenda: 2017 update

Published 2nd August, 2024

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ALL REPORTS →

Research roadmaps and gap analyses

Gap analysis summary

TBD

Projects

Displaying 4 of 3 projects

VIEW ALL PROJECTS

Addressing the dual emerging threats of African Swine Fever and Lumpy Skin Disease in Europe (DEFEND)

Planned Completion date **30/11/2023**

Source Countries:

Europe

European Virus Archive GLOBAL

Planned Completion date **30/09/2024**

Source Countries:

Europe

STRUCTURE-FUNCTION STUDIES ON VIRAL-HOST INTERACTIONS KEY TO ANIMAL IMMUNITY

Planned Completion date **30/09/2022**

Source Countries:

United Kingdom

Recent publications

Reports and outcomes from meetings and workshops

Poxvirus pathology and pathogenesis in agriculturally important species

Source: AL MacNeill, JF Micheloud, R Parvin... - Veterinary ..., 2025 - journals.sagepub.com

DOWNLOAD

Molecular Detection of Sheep Poxvirus from Nasal Secretions of Sheep and the Disease Management from Suspected Outbreak in Salenke, Nigeria: A case study

Source: M Hussaini, SO Okaiyeto, HJ Makun, CA Kudi... - Alexandria Journal of ..., 2025 - alexjvs.com

First Molecular Characterization of Sheep Pox Viruses in Northern Ghana, 2023

Source: T Odoom, RK Abbiw, DLM Blavo, SAM Johnson... - Viruses, 2025 - mdpi.com

DOWNLOAD

The silent spread: uncovering the diversity and evolution of poxviruses in ticks across Western China's host landscapes

Source: Y Wang, Z Lu, J Hu, X Yuan, W Chen, S Lu, Y Pan... - Virology Journal, 2025 - Springer

DOWNLOAD

Poxvirus structural biology for application to vaccine design

Source: H Yu, W Resch, B Moss - Trends in Immunology, 2025 - cell.com

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Infrastructures and Databases to Facilitate R&D

Conducting scientific research requires significant research infrastructure, including facilities, resources and related services. The establishment of common databases, allowing for the sharing of knowledge and facilitating networking, is important to facilitate and accelerate R&D. This chapter provides a list of significant infrastructures and databases relevant to the animal health sector.

ACDP - Australian Centre for Disease Preparedness

A high-containment animal research centre in Australia, part of the CSIRO, working globally to support animal and human health organizations and enhance biosecurity.

https://www.csiro.au/en/about/facilities-collections/acdp/acdps-global-role

ANIMUSE - ANImal antiMicrobial USE Enabling Data-Based Decision Making

WOAH's global database that tracks antibiotic use in animals, helping stakeholders report, access and analyse data to promote responsible antimicrobial use.

https://amu.woah.org/amu-system-portal/home

ARS Microbial Genomic Sequence Database (USDA)

Houses annotated genomic sequences of pathogens relevant to animal health, supporting the development of diagnostics and vaccines.

https://www.ars.usda.gov/research/programs-projects/microbial-genomics/

CAB Abstracts – CABI (Centre for Agriculture and Bioscience International)

A major bibliographic database covering international scientific literature on agriculture, veterinary sciences, animal production and health, including grey literature. It facilitates access to global research and trends in animal health.
https://www.cabidigitallibrary.org

DA4A Database – List of Animal Health Diagnostics

D4A proposes an open-access database of approximately 3000 animal health diagnostics. It is possible to look for a kit via different methods: keyword, producer, disease, target species or by an overview of a mapping of diagnostics by diseases.

DISCONTOOLS - Disease Control Tools

An open-access database identifying research gaps in animal health, helping funders and researchers prioritize and plan future studies on over 50 infectious diseases.

http://www.DISCONTOOLS.eu/

EMPRES - Emergency Preventions System for Animal Health

An FAO web application supporting Veterinary Services by organising and accessing global disease data, aiming to control and eliminate serious livestock diseases.

https://empres-i.apps.fao.org/

ERINHA - European Research Infrastructure on Highly Pathogenic Agents

A pan-European infrastructure providing access to high containment facilities to accelerate research on high-risk pathogens and enhance outbreak preparedness.

https://erinha.eu/

EVAg - European Virus Archive global

A non-profit organisation offering a global collection of virus samples and reagents, facilitating scientific research, education and disease control.

https://www.european-virus-archive.com/

GLASS - GLobal Antimicrobial resistance and use Surveillance System

A WHO global database for surveillance of antibiotic use and antimicrobial resistance in human health, including environmental and food chain data.

https://www.who.int/initiatives/glass

GLEWS - FAO Global Information and Early Warning System on Food and Agriculture

Monitors global food security, issuing reports and warnings to help countries and development partners plan and respond to potential food crises.

http://www.fao.org/giews/en/

Global AMR R&D Hub - Global Antimicrobial Resistance Research and Development Hub

A collaboration hub for coordinating global antimicrobial research efforts, providing a dashboard with real-time data on AMR R&D initiatives and funding flows.

https://dashboard.globalamrhub.org/

ISIDORe - Integrated Services for Infectious Disease Outbreak Research

Offers an integrated portfolio of research services and resources to study epidemic-prone pathogens, enhancing Europe's capacity for controlling infectious diseases.

https://isidore-project.eu/

The Immunological Toolbox

A platform for veterinary researchers to find reagents and collaborate, aiming to facilitate veterinary vaccine development by providing a comprehensive resource database.

https://www.ed.ac.uk/roslin/facilities-resources/immunological-toolbox

US NADC - National Animal Disease Center

One of the largest animal health research centres in the world, conducting research on animal diseases and serving as a reference laboratory for diagnostics and vaccines.

https://www.ars.usda.gov/midwest-area/ames/nadc/

WAHIS - World Animal Health Information System

WOAH's global animal health database, reporting outbreaks of listed and emerging diseases, with interactive tools for data visualisation and extraction.

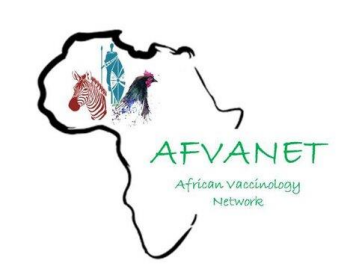
https://wahis.woah.org/#/home

International Initiatives Accelerating Research and Development Beyond STAR IDAZ IRC

Research and development (R&D) are fundamental for developing effective disease prevention and control tools, utilising existing knowledge, and mitigating disease impacts. Several initiatives have been launched at both regional and global levels to accelerate research and deliver timely solutions for emerging issues.

This chapter aims to provide a list of key network initiatives, funding opportunities and regulatory easing measures. These initiatives are designed to accelerate the delivery of R&D relevant to the animal health sector.

AfVANET - African Vaccinology Network



AfVANET promotes collaboration among African scientists to advance vaccine research and development on the continent.

http://afvanet.org/

AgResults Brucellosis and FMD vaccine prizes

AgResults offers pay-for-results prize competitions to encourage innovative solutions for brucellosis control and foot-and-mouth disease through vaccination.

https://brucellosisvaccine.org/

https://www.galvmed.org/foot-and-mouth-project/

ANTI-VeC: Application of Novel Transgenic technology & inherited symbionts to Vector Control

Focused on innovative vector control technologies, ANTI-VeC network leverages transgenic methods to tackle vector-borne diseases.

http://www.anti-vec.net

AREF - African Research Excellence Fund

AREF supports African researchers in addressing health challenges through capacity building and funding opportunities.

https://www.africaresearchexcellencefund.org.uk/

CaribVET - Caribbean Animal Health Network

CaribVET enhances animal health in the Caribbean through collaborative surveillance, diagnostics and research activities.

Caribbean animal health network (caribvet.net)

CEPI - Coalition for Epidemic Preparedness Innovations

The Coalition for Epidemic Preparedness Innovations, is a global partnership working to accelerate the development of vaccines and other biologic countermeasures against epidemic and pandemic threats.

http://cepi.net/

CWG AHW - Collaborative Working Group on European Animal Health and Welfare Research

CWG AHW coordinates animal health and welfare research efforts across Europe, fostering collaboration and innovation. It acts as the STAR IDAZ European Union Regional Network.

http://www.scar-cwg-ahw.org/

ECOHEALTH ALLIANCE

A global organisation focused on the intersection of wildlife, ecosystems and human health. It conducts research and implements strategies to prevent pandemics and promote environmental health. https://www.ecohealthalliance.org/programs

EDCTP – European & Developing Countries Clinical Trials Partnership

While focused on human health, EDCTP supports research on zoonotic and poverty-related diseases, especially in sub-Saharan Africa. Its One Health-relevant research complements efforts in AMR, TB, and vector-borne diseases.

https://www.edctp.org

ERFAN - Enhancing Research for Africa Network

ERFAN strengthens veterinary and animal health research capacities in Africa through collaborative projects and training.

https://www.izs.it/IZS/Cooperazione_1/IZSAM_in_Africa/ERFAN_-_Enhancing_Research_For_Africa_Network

ERRAZE@WUR - Early Recognition and Rapid Action in Zoonotic Emergencies

The WUR initiative aims to improve early detection and response to zoonotic disease outbreaks through research and innovation. https://www.wur.nl/en/Research-Results/Research-programmes/Cross-WUR-programmes/ERRAZE-at-WUR.htm

EUPAHW - European Partnership on Animal Health and Welfare

EUPAHW fosters collaboration among European stakeholders to enhance animal health and welfare through research and policy.

European Partnership on Animal Health and Welfare - Home (eupahw.eu)

FIND: Foundation for Innovative New Diagnostics

FIND works to accelerate the development and delivery of accurate and affordable diagnostic tests for diseases of poverty.

https://www.finddx.org/

GALVmed - Global Alliance for Livestock Veterinary Medicines

GALVmed focuses on developing and delivering vaccines and medicines for livestock diseases in LMICs.

https://www.galvmed.org/

GARA - Global African Swine Fever Research Alliance

GARA coordinates international research efforts to control and prevent African swine fever through scientific collaboration. https://www.ars.usda.gov/GARA/

GBADs- Global Burden of Animal Diseases

GBADS aims to quantify the global impact of animal diseases on economies, food security and public health to guide policy.

https://animalhealthmetrics.org/

Global Vector Hub

A comprehensive platform for vector control and research collaboration

The Global Vector Hub provides resources, data, and networking opportunities for vector control professionals worldwide.

https://globalvectorhub.tghn.org/

GFRA - Global Foot-and-mouth Research Alliance

GFRA promotes international research collaboration to control and eradicate foot-and-mouth disease globally.

https://www.ars.usda.gov/gfra/

GloPID-R - Global Research Collaboration for Infectious Disease Preparedness

GloPID-R coordinates research funding and activities to respond rapidly to infectious disease outbreaks worldwide.

https://www.glopid-r.org/

GOARN - Global Outbreak Alert and Response Network

GOARN unites institutions and networks to respond to disease outbreaks and public health emergencies globally. https://goarn.who.int/

GRAbTB - Global Research Alliance for Bovine Tuberculosis

GRAbTB fosters international collaboration to advance research and control measures for bovine tuberculosis.

https://www.STAR IDAZ.net/global-research-alliance-for-bovine-tuberculosis-grabtb/

HERA Invest

HERA Invest supports the development and deployment of medical countermeasures for health emergencies in the EU.

https://health.ec.europa.eu/hera-invest_en

IHI - Innovative Health Initiative

IHI drives innovation in healthcare by funding collaborative projects that address major health challenges in Europe.

https://www.ihi.europa.eu/

InnoVet-AMR - Innovative Veterinary Solutions for Antimicrobial Resistance

InnoVet-AMR supports the development of novel veterinary solutions to combat antimicrobial resistance globally.

https://www.idrc.ca/en/initiative/innovet-amr-innovative-veterinary-solutions-antimicrobial-resistance

IOM - The International Organization for Mycoplasmology

IOM advances research on mycoplasmas, fostering scientific exchange and collaboration among researchers worldwide.

http://iom-online.org/

IVVN - International Veterinary Vaccinology Network

IVVN supports the development of vaccines for livestock and zoonotic diseases through international collaboration and funding.

http://intvetvaccnet.co.uk/

LVIF - Livestock Vaccine Innovation Fund

LVIF invests in the development and commercialisation of vaccines to improve livestock health and productivity.

https://www.idrc.ca/en/initiative/livestock-vaccine-innovation-fund

OFFLU - WOAH/FAO Network of Expertise on Animal Influenza

OFFLU enhances global coordination and expertise on animal influenza, contributing to pandemic preparedness and response.

https://www.offlu.org/

One Health AMR partnership

The co-funded European Partnership on One Health antimicrobial resistance should be implemented from 2025 through a joint programme of activities ranging from coordinating transnational research efforts to other activities such as coordination and networking activities, capacity building programmes, brokerage and mobility programmes, work on research infrastructures and resources, including training and dissemination activities.

https://www.horizon-europe.gouv.fr/european-partnership-one-health-anti-microbial-resistance-33829

One Health EJP- European Joint Programme Co-fund on One Health

One Health EJP integrates efforts across human, animal and environmental health to tackle zoonotic diseases in Europe. The programme officially ended in 2023. Archive and outputs still accessible. https://onehealthejp.eu/

PANDORA - Pan-African Network for Rapid Research, Response and Preparedness for Infectious Diseases

PANDORA
Pan-African Network For Rapid Research, Response and Preparedness for Infectious Diseases Epidemics

PANDORA focuses on enhancing Africa's capacity for rapid response and research during infectious disease outbreaks.

https://www.pandora-id.net/

PREZODE - Preventing Zoonotic Disease Emergence

PREZODE

PREZODE aims to reduce the risk of zoonotic disease emergence through interdisciplinary research and international cooperation.

https://prezode.org/

UK-ICN: International Coronavirus Research and Innovation Network

UK-ICN

UK-ICN fosters global collaboration on coronavirus research, aiming to accelerate the development of diagnostics, treatments and vaccines.

https://uk-icn.co.uk

VectorBite Research Coordination Network

A network for advancing vector biology research

VectorBite coordinates research efforts on vector biology, focusing on vector-host interactions and disease transmission dynamics.

https://vectorbite.org/about-rcn/

VectorNet: European network for sharing data on the geographic distribution of arthropod vectors, transmitting human and animal disease agents

European network for sharing data on the geographic distribution of arthropod vectors

VectorNet facilitates data exchange on arthropod vectors, enhancing the understanding and control of vector-borne diseases in Europe.

https://ecdc.europa.eu/en/about-us/partnerships-and-networks/disease-and-laboratory-networks/vector-net

VetLAB: International Atomic Energy Agency's veterinary laboratory network

VetLAB enhances veterinary diagnostics and disease control through a global network of laboratories and technology transfer.

https://www.iaea.org/services/networks/vetlab

WHO R&D Blueprint

The WHO R&D Blueprint aims to fast-track the availability of effective tests, vaccines and medicines during epidemics.

http://www.who.int/blueprint/en/

WOAH Reference Laboratories Network

This network supports global animal health through standardised diagnostics, proficiency testing and disease surveillance.

https://www.woah.org/en/what-we-offer/expertise-network/

ZODIAC - Zoonotic Disease Integrated Action

ZODIAC focuses on early detection and control of zoonotic diseases, leveraging nuclear and nuclear-derived techniques.

https://www.iaea.org/services/zodiac