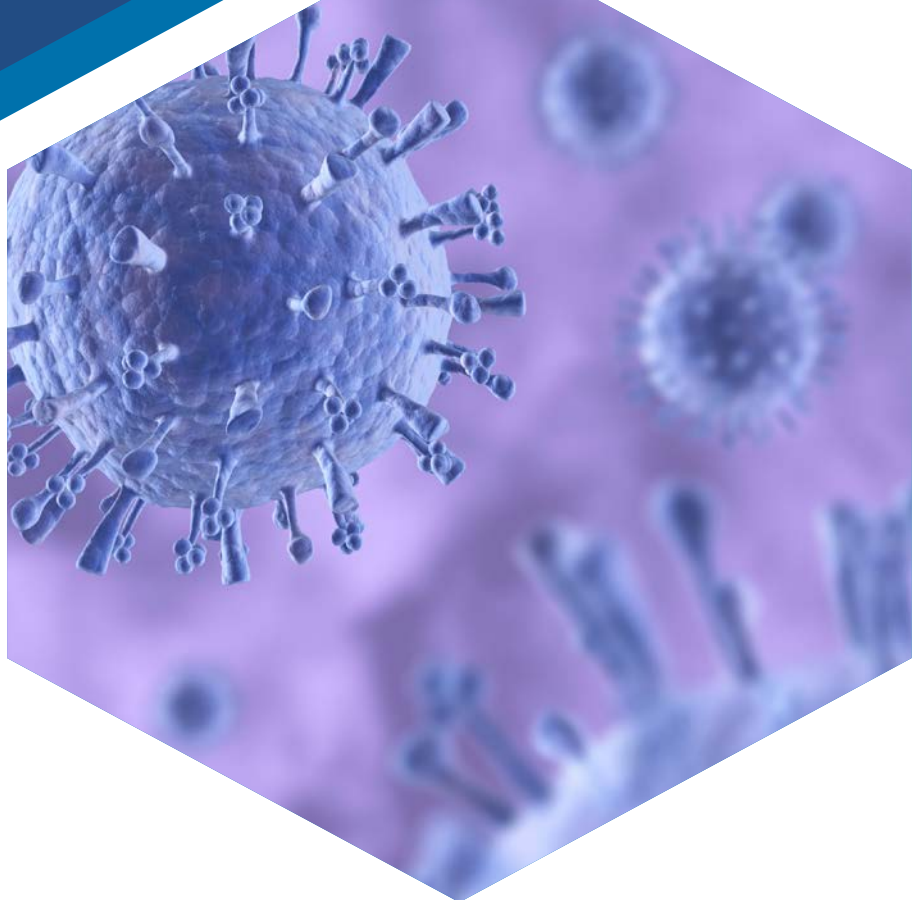




STAR-IDAZ
International Research
Consortium on Animal Health

Report of the STAR-IDAZ workshops on influenza research roadmaps development

On-line workshops 30, 31
January and 1 February 2023



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

This document was produced by SIRCAH, the Scientific Secretariat of the STAR-IDAZ International Research Consortium on Animal Health (STAR-IDAZ IRC) in collaboration with OIE, CABI and DISCONTTOOLS.

SIRCAH has been supported by a European H2020 contract, “Secretariat for the International Research Consortium on Animal Health” since 2016, which schedules the annual publication of a report on the state-of-the-art on animal health research on STAR-IDAZ IRC priorities. The report aims to inform stakeholders at large about developments in the field of the STAR-IDAZ IRC priority diseases and support decisions by policy makers and research funders.

More information on STAR-IDAZ IRC can be found at www.star-idaz.net

Disclaimer:

The report is a presentation of the current initiatives and recent scientific literature, organised to identify and highlight trends and advances in research on animal health, with a focus on priority animal diseases at a global level. The report does not target initiatives aimed at implementing animal disease control strategies (e.g., roadmaps for the control or eradication of infectious diseases) or at improving animal health control infrastructures.

Since the information relating to advances in animal health research is based on published articles, a time lapse between scientific breakthroughs and their publication is inevitable and so the report may not fully capture information on ongoing, or recently concluded, studies.

The findings and conclusions in this report are those of the contributors, who are responsible for the contents, and do not necessarily represent the views of the European Commission. Therefore, no statement in this report should be construed as an official position of the European Commission or of any of STAR-IDAZ IRC and SIRCAH members.

Introduction

STAR-IDAZ International Research Consortium (IRC) is a global initiative to address the coordination of research programmes at international level in the area of animal health and in particular infectious animal diseases including zoonoses (STAR-IDAZ – Global Strategic Alliances for the Coordination of Research on the Major Infectious Diseases of Animals and Zoonoses).

Research on influenza is a high priority research topic for the STAR-IDAZ IRC, where we wish to speed up the delivery of improved control methods for animal influenza outbreaks. Influenza outbreaks are currently having a major impact at global level, causing major economic losses in the poultry sector of affected countries. Moreover, influenza viruses, are being reported in a growing number of mammals and, being sporadically zoonotic, could have the potential to escalate causing a human influenza pandemic.

In 2021, STAR-IDAZ IRC, in collaboration with ARS-USDA, commissioned an **influenza research review** report to provide a general overview of research that has been conducted across the major fields of animal influenza in the previous six years. By incorporating research updates and input from leading scientists in the field, the influenza research review report represents a picture of animal influenza research around the world, enriched by the first-hand knowledge of those working at its cutting edge.

The findings of the report fed into a gap analysis workshop held on the 14-15th of June 2022 at the National Animal Disease Centre in Ames, Iowa. Expert opinions and review of current research and control measures, alongside knowledge of on-the-ground countermeasures (both in use and under development) and their efficacy were collected.

Based on previous gap analysis, the key objectives of the three workshops, held online the 30th and 31st of January and the 1st of February 2023, were to develop research roadmaps for control strategies, diagnostics and vaccine development for influenza. The research roadmaps highlight the steps that need to be taken to address research efforts where it is most needed to improve efficiency in response to future outbreaks.

Report of the workshops

More than forty international experts participated to the 3 workshops on influenza held on-line on the 30th and 31st of January and the 1st of February 2023 (agendas provided in Annex 1).

A set of generic STAR-IDAZ research roadmaps were utilized to draft an influenza research roadmap for 1) epidemiology and development of disease control strategies, 2) diagnostic tests development, and 3) candidate vaccines development. The roadmaps, with the defined end-product/solution located on the right, provide a way of visualizing complex problems and breaking them down in manageable components by mapping the significant steps that have to be taken and problems that have to be solved in order to deliver the tools or strategies required.

Draft research roadmaps, based on the results of the previous gap analysis workshop, were circulated 10 days before the meetings and the experts were asked to review the draft highlighting the most important and urgent research needs.

The steps in the roadmaps, referred to as 'leads', were fulfilled with a body of scientific knowledge outlined by a research question ('What are we trying to achieve?', 'What is the problem we are trying to solve?') and broken down into more specific areas:

- challenges ('What are the scientific and technological challenges/Knowledge gaps needing to be addressed');
- possible Solution Routes ('What approaches could/should be taken to address the Research Question?');
- dependencies ('What else needs to be done before we solve this need');
- state of the Art ('Existing knowledge including success and failures').

During the workshops the moderators presented the roadmaps and additional inputs were provided by participants. At the end of each session a prioritisation of the research needs was conducted utilising a brainstorming interactive tool. After the workshop the roadmaps were left available for further refinements and to map details of current state of the art research projects.

Among the several research needs raised, that will be reported in the research roadmaps, the need for research to develop DIVA vaccines associated with adequate diagnostic tests and surveillance systems was highlighted. Design of vaccination strategies that fit species, age, production type as well as varied stages of an outbreak was considered of high importance. The focus on vaccination strategies shouldn't undermine the importance of new tools and approaches for improved cost-effective biosecurity paired with smallholder education programs.

In addition, the need to develop multivalent vaccines and safe and immunogenic adjuvants was stressed. The cost-benefit of mucosal vaccination and the maternal antibody role should be better investigated. Moreover, the role of environmental, ecological, animal and human variables in virus transmission patterns should be better explored. The importance of multi-stakeholders' co-creation solutions and control strategies focusing on socio-economic acceptability and feasibility of the solutions, as well as public-private partnership to scale-up the tools developed was recognized as being of paramount importance.

The complete list of research needs identified will be reported in the research roadmaps that, after validation by the STAR-IDAZ Scientific Committee, will be published on the STAR-IDAZ website.

Forward look

In alignment with the STAR-IDAZ strategy, the main objective of the roadmaps is to support international research coordination and cooperation on influenza. The STAR-IDAZ IRC partners, as research funders and programme owners, will endeavour to align their research programmes in order to address the research gaps identified in the roadmaps.

Acknowledgement

STAR-IDAZ wish to thank each of the following influenza experts, who participated in the roadmap development workshops:

Name, Surname	Affiliation	Country
Alan Young	Medgene Labs	USA
Ann Cullinane	Irish equine centre	Ireland
Ash Banyard	APHA	UK
Carl Heeder	Mountaire Farms	USA
Carol Cardona	University of Minnesota	USA
Celia Abolnik	University of Pretoria	South Africa
Chairul A. Nidom	University of Airlangga	Indonesia
Daniel Perez	University of Georgia	USA
Dario Zammerini	D4A	International
David Suarez	SEPRL-ARS	USA

David Swayne	SEPRL-ARS	USA
Dilmara Reischak	Ministério da Agricultura, Pecuária e Abastecimento	Brasil
Erik Karlsson	Institute Pasteur Cambodia	Cambodia
Fasina, Folorunso	FAO	Africa
Gary Garcia	University Mexico	Mexico
Gwenaëlle DAUPHIN	COST action influenza/CEVA SANTE ANIMALE	France
Ian Brown	APHA	UK
Julie Gauthier	APHIS, Poultry Health	USA
Khaled Hussein	Almarai Company	Saudi Arabia
Kristen Van Reeth	Ghent University	Belgium
Kwang-Nyeong Lee	korea University	Korea
Lia Rotherham	Agricultural Research Council-Onderstepoort Veterinary Institute	South Africa
Louise Dufour-Zavala	Georgia Poultry Laboratory Network	USA
Manabu Nemoto	Equine Research Institute, Japan Racing Association	Japan
Marie Culhane	University of Minnesota	USA
Marta Barral	Basque Institute for Agricultural Research & Development (NEIKER)	Spain
Martin Beer	Friedrich-Loeffler-Institut	Germany
Mathias Voss	Lohmann breeders	Germany
Munir Iqbal	The Pirbright Institute	UK
Mustapha Oumouna	University of Medea	Algeria
Paul Digard	Roslin Institute	UK
Peter Wijnan	Private veterinarian	Netherlands
Rabeh El-Shesheny	National Research Centre	Egypt
Rafiqul Islam	Bangladesh Agricultural University	Bangladesh
Samatha Letsholo	Botswana National Veterinary Laboratory	Botswana
Stephan Zientara	ANSES	France
Taki Saito	National Institute of Animal Health	Japan
Thijs Keiken	Department of Viroscience at Erasmus University Medical Centre, Rotterdam, Netherlands	Netherlands
Timm Harder	FLI	Germany
Youn-Jeong Lee	Animal and Plant Quarantine Agency	Korea
Zoltan Penzes	Ceva Santé Animal	Hungary

We would like also to thank and acknowledge the contributors to the animal [influenza research review](#) report and to the gap analysis workshop held in Ames Iowa in June 2022.

Annex 1:

Agendas of the workshops

STAR-IDAZ workshop on influenza research roadmap – control strategies

Monday 30 January 2023

13:00 – 15:00 CET

AGENDA

Timeline (CET)	Item	Speakers/Moderators
13.00- 13.20	Welcome & Introduction on STAR-IDAZ IRC and instructions	Valeria Mariano
13.20-13.35	Focused discussion on research roadmap: part 1	Carol Cardona & David Swayne
13.35-13.40	Short break & Identification of priority research needs part 1	
13.40- 13.55	Focused discussion on research roadmap: part2	Carol Cardona & David Swayne
13.55- 14.00	Short break & Identification of priority research needs part 2	
14.00-14.15	Focused discussion on research roadmap: part3	Carol Cardona & David Swayne
14.15-14.20	Short break & Identification of priority research needs part 3	
14.20-14.35	Focused discussion on research roadmap: part4	Carol Cardona & David Swayne
14.35-14.40	Short break & Identification of priority research needs part 4	
14.40-14.50	Wrap up and ongoing research projects	Valeria Mariano
14.50-15.00	Conclusion and next steps	Valeria Mariano



STAR-IDAZ workshop on influenza research roadmap – diagnostic tests development

Tuesday 31 January 2023

13:00 – 15:00 CET

AGENDA

Timeline (CET)	Item	Speakers/ Moderators
13.00- 13.05	<i>Welcome from the Chair</i>	Stephan Zientara
13.05-13.20	<i>Introduction on STAR-IDAZ IRC and instructions</i>	Valeria Mariano
13.20-13.35	<i>Focused discussion on research roadmap: part 1</i>	Timm Harder & Carol Cardona
13.35-13.40	<i>Short break & Identification of priority research needs part 1</i>	
13.40- 13.55	<i>Focused discussion on research roadmap: part2</i>	Timm Harder & Carol Cardona
13.55- 14.00	<i>Short break & Identification of priority research needs part 2</i>	
14.00-14.15	<i>Focused discussion on research roadmap: part3</i>	Marie Culhane & Carol Cardona
14.15-14.20	<i>Short break & Identification of priority research needs part 3</i>	
14.20-14.35	<i>Focused discussion on research roadmap: part4</i>	Marie Culhane & Carol Cardona
14.35-14.40	<i>Short break & Identification of priority research needs part 4</i>	
14.40-14.50	<i>Wrap up and ongoing research projects</i>	Valeria Mariano
14.50-15.00	<i>Conclusion and next steps</i>	Stephan Zientara



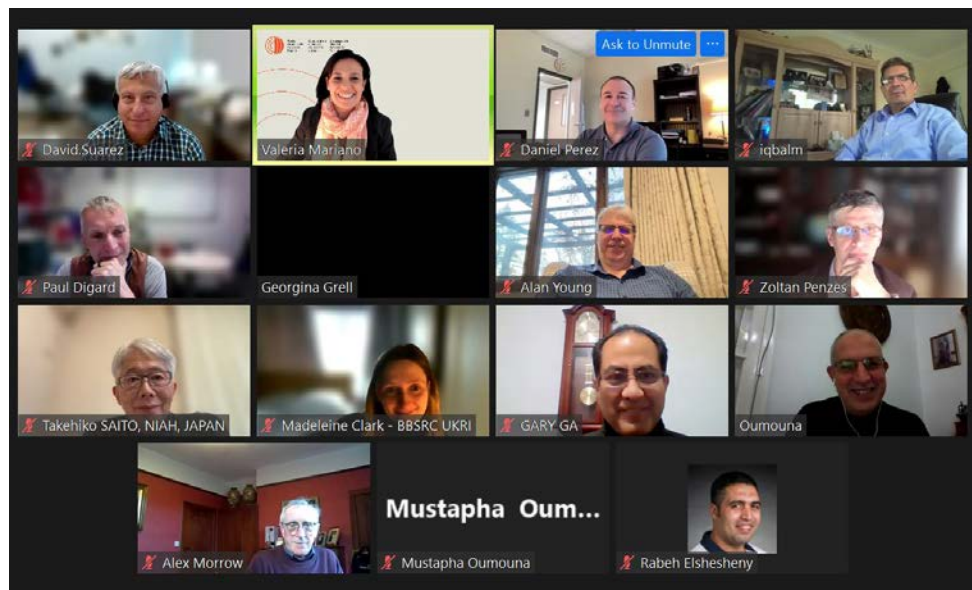
STAR-IDAZ workshop on influenza research roadmap – vaccines development

Wednesday 1 February 2023

13:00 – 15:00 CET

AGENDA

Timeline (CET)	Item	Speakers/Moderators
13.00-13.20	Welcome & introduction on STAR-IDAZ IRC and instructions	Valeria Mariano
13.20-13.35	Focused discussion on research roadmap: part 1	David Suarez & Daniel Perez
13.35-13.40	Short break & Identification of priority research needs part 1	
13.40- 13.55	Focused discussion on research roadmap: part2	Munir Iqbal & Daniel Perez
13.55- 14.00	Short break & Identification of priority research needs part 2	
14.00-14.15	Focused discussion on research roadmap: part3	Daniel Perez & Munir Iqbal
14.15-14.20	Short break & Identification of priority research needs part 3	
14.20-14.35	Focused discussion on research roadmap: part4	David Suarez & Munir Iqbal
14.35-14.40	Short break & Identification of priority research needs part 4	
14.40-14.50	Wrap up and ongoing research projects	Valeria Mariano
14.50-15.00	Conclusion and next steps	Valeria Mariano





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