



STAR-IDAZ IRC ASF Research Roadmaps on Vaccine Development

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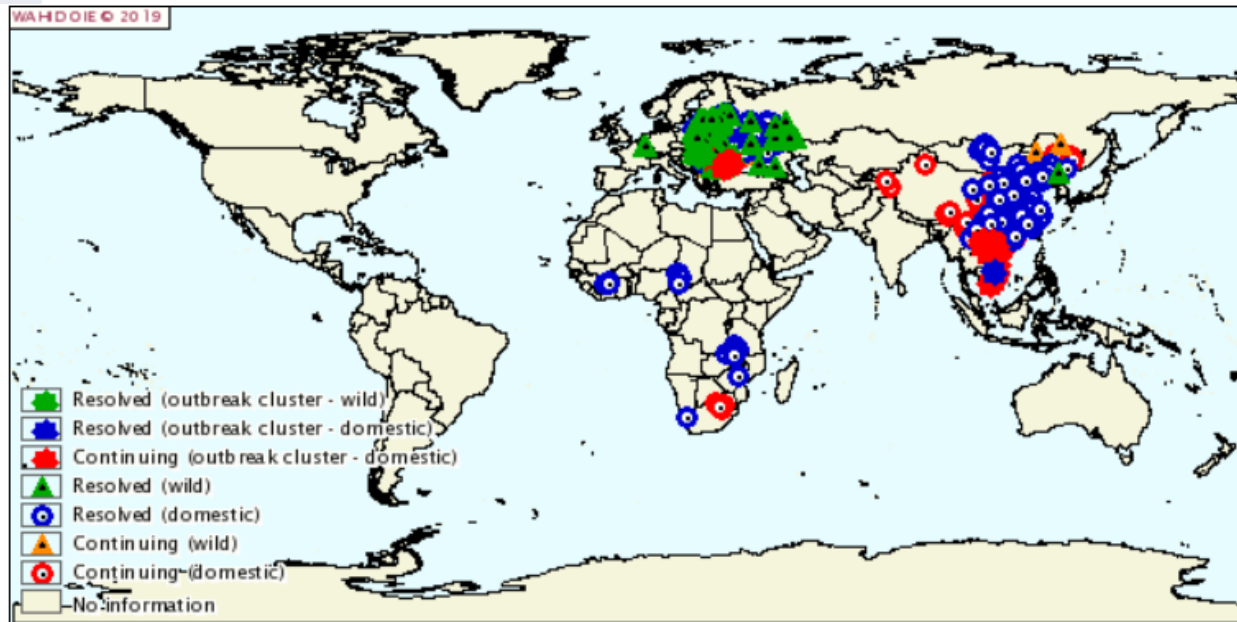
World Organisation for Animal Health (OIE)

Secretariat for the STAR-IDAZ International Research
Consortium on Animal Health

OIE General Session side event

29th May, 2019

ASF outbreaks: May 2018-2019



Need for appropriate control tools



- Available control tools are often inadequate.
- Research is fundamental to develop adequate disease prevention and control means.
- Low level of funding



More could be achieved, even with the current level of investment, through the **coordination** of research efforts and the **sharing** of results

STAR-IDAZ IRC



Priority diseases/infections/issues

African swine fever

Animal
genomics/genetics
for animal health

Bovine tuberculosis
(bTB)

Brucellosis

Coronaviruses

Diagnostics (tools
and technologies)

Emerging issues

Epidemiology

Foot and mouth
disease

Foresight

Helminths (including
anthelmintic
resistance)

Influenza

Integrated pathogen
control for the
reduction of
resistance

Mastitis

One health (including
food-borne
pathogens)

Porcine reproductive
& respiratory
syndrome

Porcine Respiratory
Disease Complex

Pox viruses

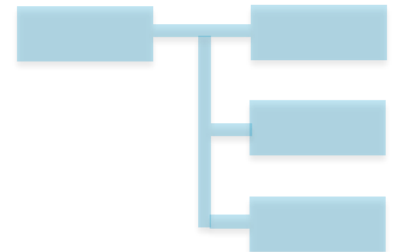
Vaccinology (tools
and technologies)

Vector borne
diseases

Research Roadmaps



- Way of visualising a complex problem showing the gaps and helping to decide what projects need to be developed to create workable solutions
- Provide a structure and focus on where research is most needed, identifying bottlenecks and critical gaps
- Interactive, 'living' tool publicly available online at www.star-idaz.net
- Provide a valuable resource for the research community including funders





Candidate vaccine development Roadmap



What is a lead summary?



Lead Summary

Title: _____

1. RESEARCH QUESTION (NEED)

WHAT ARE WE TRYING TO
ACHIEVE AND WHY?

What is the problem you are trying to solve? What is the hypothesis you are seeking to explore and validate?

2. CHALLENGE(S)

WHY HASN'T THIS RESEARCH QUESTION BEEN
RESOLVED PREVIOUSLY?

What makes it tricky from a science and technology perspective? What about other perspectives?

3. SOLUTION ROUTES

WHAT APPROACH WILL YOU TAKE TO ADDRESS THE RESEARCH
QUESTION?

What will you actually do in your project?

4. DEPENDANCIES (STEPS)

WHAT LEADS IS THIS DEPENDANT ON?

What else needs to be done before we can solve this need?

5. PROJECTS

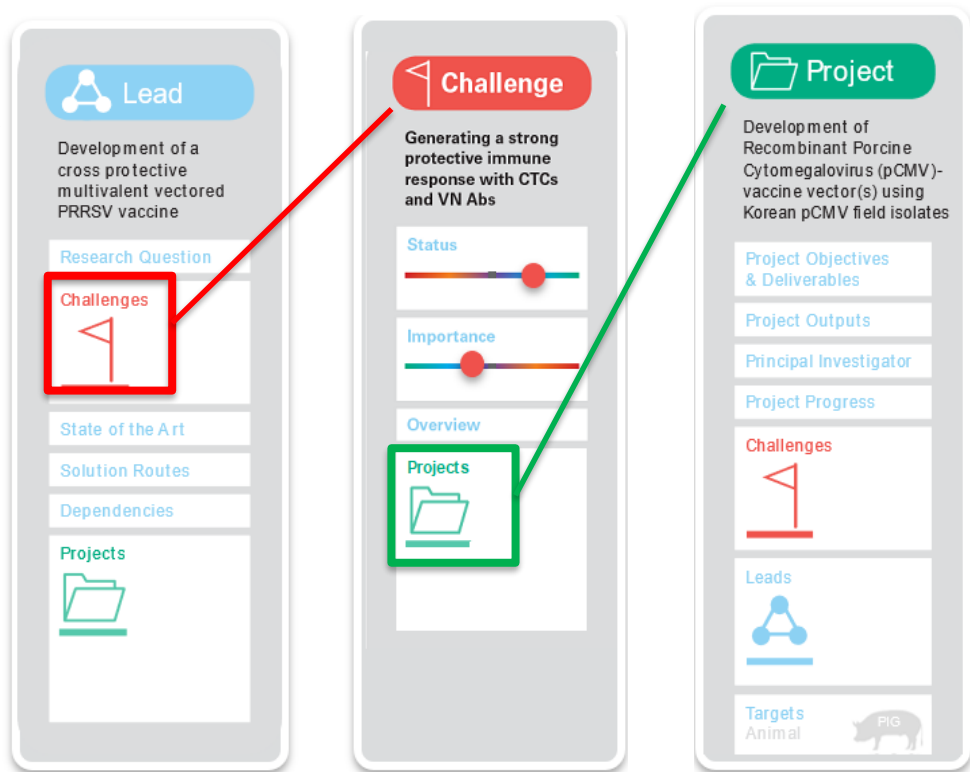
WHAT ACTIVITIES ARE PLANNED OR UNDERWAY?

Who is working on solving this problem?

Leads, challenges and existing projects



Vectored vaccines



Global African Swine Fever Research Alliance



Global African Swine Fever
Research Alliance

- Running for several years
- 33 partners from all regions in the world:

US, Russia, China, UK, Spain, Germany, France,

Portugal, Italy, Sweden, Kenya, Armenia, Uganda,
Netherlands, Australia, FAO, Tanzania, Ukraine, etc..
After the STAR-IDAZ meeting in Nigeria (Sept 2017), NVRI joined the GARA

- Biennial meetings

ASF vaccine development: what is in the roadmap?



ASF Vaccin

Lead Summary 3

Lead Summary 12

Title: Identity of protective antigens of ASF virus

Research Question

What are we trying to achieve and why? What is the problem we are trying to solve?

The identity of the virus components (epitopes) that the host needs to respond to **prevent** and/or **clear** infection.

Challenge(s)

What are the scientific and technological challenges (knowledge gaps needing to be addressed)?

The dominant immunogens may not be the most protective, thus a range of possible antigens will need to be considered.

Investigate gene functions.

Investigate the need of chaperon for proper folding of proteins.

Investigate if different antigens provoke a response in wild boars and pigs.

Dependencies

What else needs to be done before we can solve this need?

Identify protective mechanisms operating in immune hosts – the role of neutralising Abs and CTCs.

The genome sequence of various virus isolates.

Identify determinant of virulence.

State of the Art

Existing knowledge including successes and failures

Neutralising antibodies directed against virion proteins p30, p54, and p72 have been described but they are not sufficient for antibody-mediated protection.

Partial protection was achieved using a combination of two recombinant proteins, p54 and p30, as well as with recombinant CD2-like protein but failed to give protection against highly virulent isolates.

<https://roadmap.star-idaz.net/#/h8dN6>

research question?

Identify possible protective antigens in the virus genome, their expression and trial in challenge experiments.

Identify the antigens that the host is generating Abs to and their role in protection (preventing and clearing infection).

Identify the antigens that are responsible for protective cellular responses.

What next?



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Thank you for your attention

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