



Upcoming Initiatives – Forward Looking

A High Level Ministerial Meeting on African Swine Fever

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**2022 African Swine Fever
Virus Research Review**



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This review of the research into African swine fever and its control looks at the progress made since 2015. This report was commissioned by the STAR-IDAZ [International Research Consortium](https://www.star-idaz.net) in collaboration with the Agricultural Research Service, United States Department of Agriculture USDA, ARS), and the Global African Swine Fever Research Alliance (GARA).

<https://www.star-idaz.net/2022/03/2022-african-swine-fever-virus-research-review/>

Vaccine efforts (will be elaborated by S. Blome): some considerations

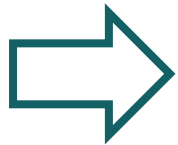
- The search for an ASF vaccine is not comparable to the development of a covid19 vaccine; compare it rather to searching for a vaccine against acquired immunodeficiency syndrome.
- Although the virus is extremely complex, much progress is made to have a vaccine candidate; often of different type (live attenuated or other).
- In November 2021, Russia's deputy prime minister Victoria Abramchenko instructed the Russian Science and Education Ministry to start using the Russian ASF vaccine by 2024.

The development, validation, and deployment of an effective, safe & sustainable ASF vaccine is of paramount importance.

- There are vaccine candidates but their levels of efficiency and safety are largely unknown.
 - Oral or injectable?
 - Lack of a stable cell line that can effectively propagate ASFV without forcing adaptive changes in the viral genome;
 - The identification of protective antigens (PAs) has been described as “perhaps the single greatest ASFV research challenge”
 - Antibodies produced by infected animals do not fully neutralize the virus.
- **Requires a standardised pipeline for vaccine evaluation or side-by-side comparison.**

Success? Failure?

- 2 June 2022:
“Vietnam has developed an African swine fever vaccine for pigs in partnership with the United States, and is aiming to become the first global commercial exporter, an official said”.
- 24 August 2022:
“Vietnam has temporarily suspended the use of its first home-grown African swine fever vaccine after dozens of pigs inoculated with the shots died this month”. (Reuters)



One explanation for the current deaths could simply be that the farms were already infected with ASF virus before vaccination started.
Another explanation could be off-label use – the vaccine has been designed to be used in pigs between 8-10 weeks.

Suggestion: setup a “Pay-for-Results” partnership

Objective	Validate the protective efficacy of the most promising vaccines against the ASFV – Georgia strain in a double blind trial <i>and advance those that achieve established performance criteria (“medium risk, medium success, and high impact”)</i>
Step 1	Setting <u>minimal acceptance criteria</u> for candidate vaccines
Step 2	Launch a call and invest in a double blind validation study (in BSL3 facilities). The validation study should provide information on a number of performance criteria with respect to efficacy, safety & sustainability.
Step 3	Based on cut-off criteria (safe, practical and useful), select a number of vaccines that have a commercialisation purpose
Step 4	Scale up

Possible Partners (non)exhaustive): EC – US (USDA – Agricultural Research Service, Kansas State University for vaccine safety evaluation) – World Organisation for Animal Health (OIE) – European Medicines Agency – Global African Swine Fever Research Alliance – EURL for ASF - EU Research Institutes - ... **plus private sector?**

Medium term: Promote unfinished promising cutting-edge approaches that are high risk, low success, and high impact research.

- Several EU laboratories report they have promising vaccines in the pipeline that are broader in scope than those described above.
- Evaluate whether a promising vaccine (according to the performance criteria described above) can be produced within a short time frame

Longer term: Promote cutting-edge approaches that are high risk, low success, and high impact research.

- Focus on new synthetic biology and computational biology techniques aiming for rational vaccine development of epitope-based vaccines.
- Use CRISPR/Cas technology to establish ASF-resistant pigs (legal constraints).
- Given the risk of integration into the host genome associated with DNA vaccines, the potential of mRNA-based vaccine approach should be exploited.

Thank you for your attention

For any question, suggestion:

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