GF-TADs
GLOBAL FRAMEWORK FOR THE PROGRESSIVE CONTROL OF TRANSBOUNDARY ANIMAL DISEASES

Food and Agriculture Organization of the United Nations

WORLD ORGANISATION FOR ANIMAL HEALTH

ASF Vaccination strategy:

In different production system and epidemiological scenarios

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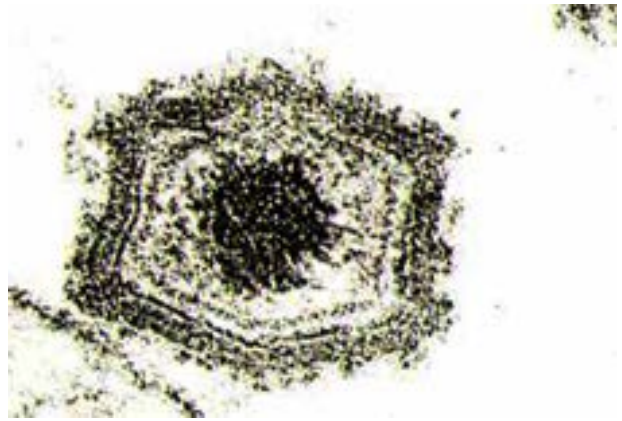
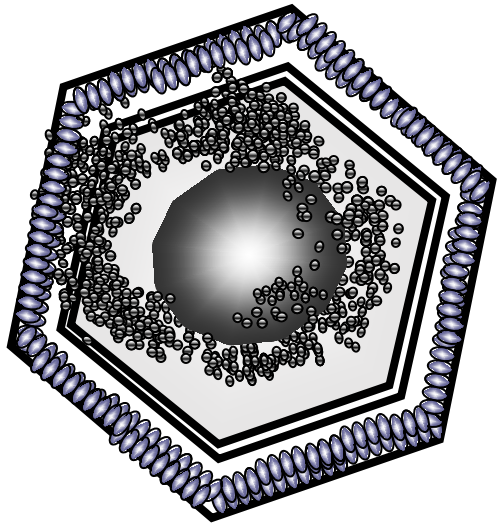
VISAVET CENTER. UNIVERSITY COMPLUTENSE OF MADRID

Difficulties of ASF virus:

- Complex virus, big size, large genome: 170-194 kb
- Complex molecular structure
- High virulence High Mortality
- Genetic variability: Less Cross protection
- NO production of neutralizing antibodies
- Increase of information about virulence-related genes





Possible ASF candidates:

Many trials have been done in the last decades looking for an **effective and safe** vaccine against ASFV:

1. INACTIVATED VACCINES → Ab response. No protection

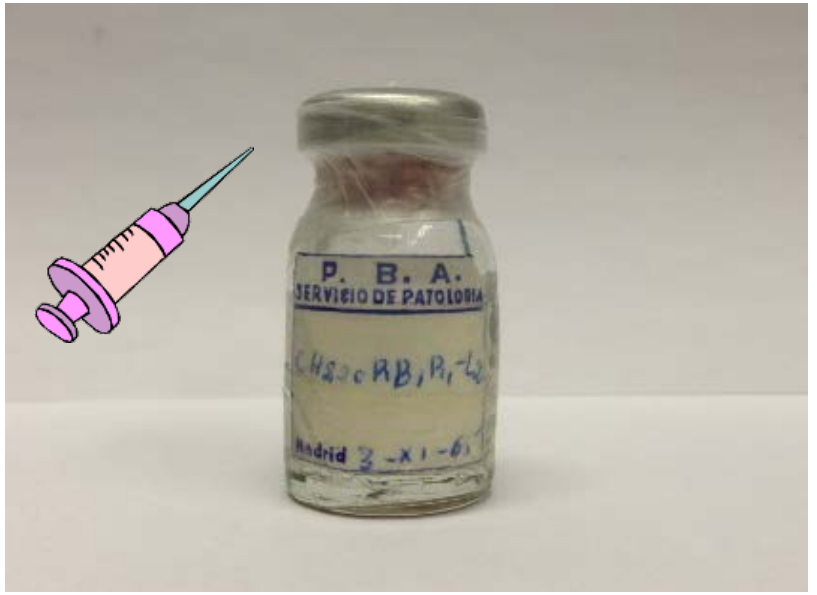
2. ATTENUATED VACCINES → Ab + cytotoxic specific

→PROTECTION against related and some NOT related ASFv. Some induced side effects. ARE GOOD CANDIDATES: NATURAL ATTENUATED or DELETED

3. SUBUNITS, DNA VACCINE: LOW PROTECTIONS

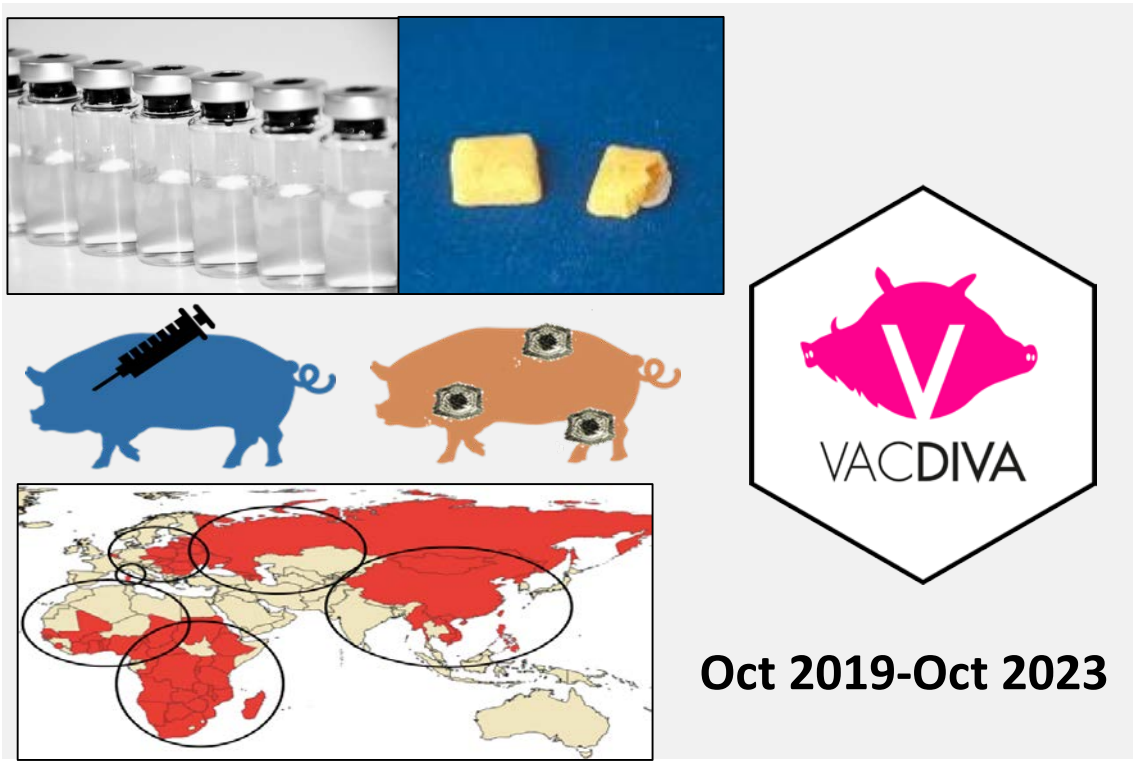
4, DELETED ATTENUATED VACCINES: GOOD CANDIDATES

Attenuated ASF Vaccine 60s Portugal and Spain



Description of protection with homologous ASF isolates

Objectives of VACDIVA project:



- To provide **effective and safe DIVA vaccine**(s) **for wild boar and domestic pigs** ready for registration.
- **To develop DIVA test** to allow an accurate monitoring of the effectiveness of the vaccine.
- To design **ASF control and eradication strategies** in different epidemiological scenarios worldwide and **test the pilot vaccine** in real environments (including buspigs and warthogs).

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10.000.000 €

Coordination

16 partners from the EU

4 PARTNERS FROM NON EU COUNTRIES

Candidates prototypes:

- Two natural attenuated isolates and/or with genes delected
- One attenuated by celular passages: Moscow

TRIALS EVALUATED ALREADY IN:

WILD BOARS (VISAVET-UCM, Spain)
and
DOMESTICS PIGS (CISA, Spain and Perugia, Italy)

First publication on wild boar vaccine prototype:

First Oral Vaccination of Eurasian Wild Boar Against African Swine Fever Virus Genotype II

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WILD BOAR TRIAL at UCM

Lv17/WB/Rie1 LAV vaccine prototype

Effectiviness: 92.86%

Vaccine research done or on going with two prototypes:

- Genetic stability in vitro and in vivo: on going
- Overdoses immunization in WB: done
- Duration of Immunity (DP and WB): on going
- Immunization in domestic pig with a largest number of animals: on going
- DIVA adaptation on going
- Immunization with bait: done
- Bait conservation on different scenarios: on going
- Cross protection with different ASF isolates: on going
- Genes delection of two candidates: on going

UCM BSL3 FACILITIES

IMMUNIZATION WITH BAITS

Domestic pigs immunization: on going

- **AT CISA-INIA:**
- INTRAMUSCULAR
- INTRADERMIC
- ORAL
- **AT PERUGIA:**
- INTRAMUSCULAR.
- ORAL

DOMESTIC PIGS TRIAL:

Lv17/WB/Rie1 LAV & NHV vaccine prototypes

CISA- INIA, SPAIN

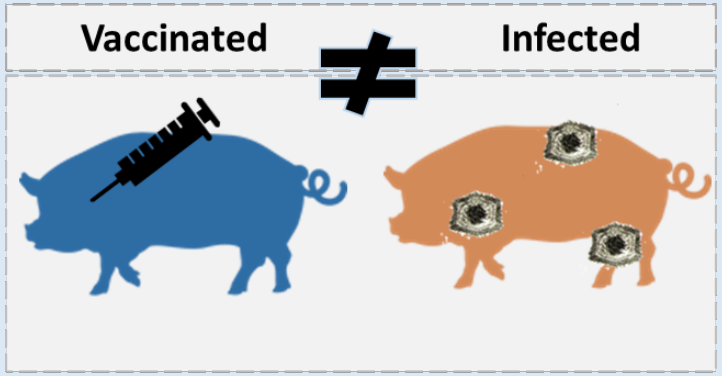
NHV: PERUGIA, ITALY

- To develop companion **DIVA tests**, associated with the prototype vaccines, that will allow the **differentiation of vaccinated from infected animals**. All assays will be adapted to be used with wild boar and domestic pig samples.

- **Specific objectives:**

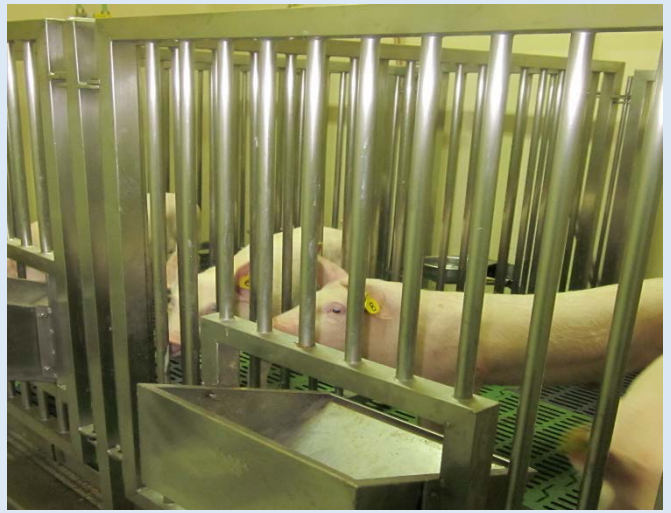
  - Development of a **molecular DIVA** assay and **DIVA immunoassays.**
  - Development simultaneous **detection of antigen and antibody.**
  - Assessment of **non-invasive and alternative samples**.
  - Standardization: **Proficiency Test** (PT) organization.

AFS vaccine DIVA test



Efficacy and safety studies of marker vaccines

To **select the most promising** marker vaccine/s built under throughout ***"in vivo"*** **experimental efficacy and safety studies** in **domestic pigs (DP) and W. boar** as animal model for vaccination.



Specific objectives:

- "In vitro" evaluation of the compatibility of the marker vaccines with adjuvants.
- "In vivo" studies of infectivity, immunogenicity and cross-protective efficacy.
- Selection of vaccine formulation and posology.
- "In vivo" safety studies with selected marker vaccine(s).
- Evaluation of the "in vivo" genetic stability of marker vaccine(s).
- Evaluation of cross protection

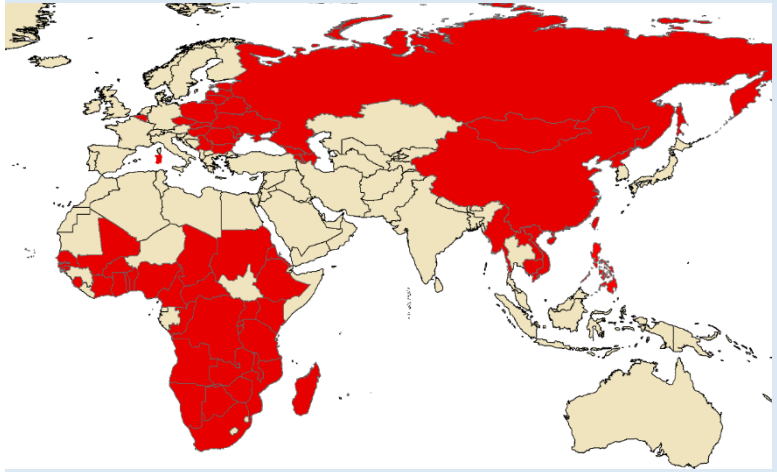
Vaccine production

To develop a **manufacturing process for the prototype vaccine/s** with the immunological products previously tested safe and effective enough following the requirements of the **European Medicine Agency** and **authorizing agencies of countries outside EU**.

Vaccine trials in different scenarios

To identify the **differents vaccination scenarios** from ASF prevention or control, frame the **target vaccination populations** in each scenario and model different **vaccine and control strategies** to obtain a roadmap with the most cost-efficient methods towards ASF control with vaccination.

The vaccine/s **validated under animals trials will be tested in a selected territory** in terms of delivery, efficacy, safety and response.



OUR GOAL:

A WORLD FREE OF ASF

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Thank you. Gracias