

Aquilón experimental approach and value

proposition is driven by two key innovations that combine with breakthrough potential

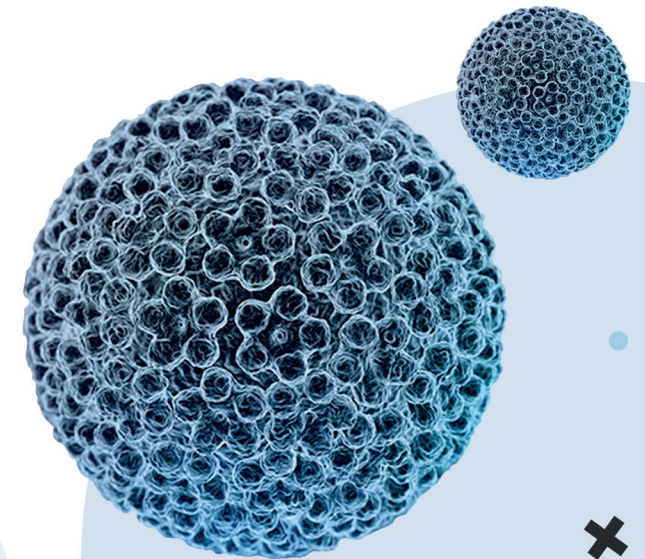
1 - The use of short peptide antigenic determinants never described before, discovered by Aquilón's scientist using a reactivity-driven systematic screening of the main envelope protein of the BVD virus

2 - The use of VLP (Virus Like Particles) technology developed by VLPBio, a company located in Valladolid. VLPs are empty viral structures or capsids (without DNA) and hence they have no risk of virus replication. However, they mimic real viruses in that they can induce an immune response, humoral since they overexpose relevant epitopes from the original virus, and cellular due to their particulate nature that make them prone to induce this kind of response after dendritic cell and macrophages internalization and antigen presentation.



Aquilón develops a new BVD vaccine based on Virus Like Particles

Development of new vaccines to prevent cattle diseases and therefore avoid the use of antibiotics or to improve suboptimal available vaccines is now a European and industry priority



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Aquilón's BVD new vaccine,

based on proprietary Virus-Like Particle technology, will be a recombinant, non-live vaccine, with tagging attributes (DIVA, Differentiation of Vaccinated from Infected Animals);

Bovine Viral Diarrhoea (BVD) is the most common viral disease, and the one with most economical and environmental impact in European bovine cattle breeding.

Aquilón experimental in vivo approaches

Calves trial; Safety and reactivity of the vaccine prototype in the target specie

A first approach of the immune response of the new VLP-BVD vaccine in calves was performed. An exploratory pre-clinical trial was designed and performed in order to check the immune response of the animals against the most reactive prototype in the in vitro experiments, as well as confirm the safety of the prototype vaccine,

The results of the present experiment indicate that the VLPs used as the active substance carrier (based on the Gumboro virus sub-capsid) were immunogenic as shown by the induction of specific antibodies, confirming the DIVA attribute of the vaccine prototype ("positive" tagging). Besides, results on total antibody for BVD and in house developed serological tests revealed very promising results in terms of enhancement of an immune response against the virus.

Rabbits trial; Immune response evaluation and active substance selection in a rabbit model

A second experiment was performed at the Universidad de León animal facilities. Rabbits were used as model species to evaluate potential differences of the immune response against different antigenic prototypes. In this case, experimental serology results provided information of the most suitable prototype to be included in the new vaccine. Furthermore, immune response against BVD virus and capsid were confirmed and let us to progress with the development of this amazing project.



Further studies

will be needed for the demonstration of a safe, efficacious and cost-effective vaccine to be released at the market.

Aquilón intends to follow with this project by ex vivo cytotoxicity and immune response studies, adjuvant selection, toxigenicity and dose-response assays and finally challenge trials at the target species to provide information about safety and protection of the cattle against the BVD virus thanks to this innovative and visionary vaccine concept.



Non-live

to avoid the potential safety issues related to attenuated vaccines.



Broad-spectrum

vaccine able to generate humoral and cellular response to all variants of the BVD.



Tagged

to facilitate the differentiation between infected and vaccinated animals (DIVA) and the development of new diagnostic tests.



Save and efficacious

protecting animals against the disease and the fetal transmission of the virus.



Cost-effective

simple scaling up and manufacturing process.

