Q-VANT BIOSCIENCES™

Next-generation sustainable saponins for pharmaceuticals

Q-VET-S™

Veterinary Vaccine Adjuvants and Formulations

Q-VET-S is an immunomodulatory adjuvant for veterinary use composed of the complete saponin profile from *Quillaja saponaria*. Saponins are highly immunogenic compounds to produce adjuvants for approved human use such as AS01B, AS01E and MATRIX-M®. Q-VET-S is made from renewable plant tissue employing an industrial manufacturing process that guarantees the consistency of its saponin composition batch-to-batch.

Q-VET-S grants a comparable or superior performance to Quil-A®, a safe and effective adjuvant (Quillaja saponin) carrying 3 decades of study and use in commercial veterinary vaccines with proven effectiveness and safety. Q-VET S provides a higher purity and saponin content (90% v/s 70% Quil-A®), incorporating an analogous profile of immuno-active fractions QS-21 and QS-7, among others. Q-VET-S can also be incorporated into ISCOMs with other components to increase adjuvant potency.

Broad immunological efficacy

Q-VET-S consists of a complete saponin profile and has shown it greatly enhances antibody production, Th1 T helper response and CTL production [1, 2] which is a widely recognized and desired protective immune response for current veterinary vaccine development against pathogens of major veterinary interest:

- FMD [3, 4]: Quil-A® induced high production of specific antigenic antibodies against prevalent bacterial serotypes.
- Porcine PRRSV [5]: A very significant reduction of viremia and clinical score. Pigs immunized with AMERCAV and Quil-A® adjuvanted recovered their ability to gain weight.
- Fasciolosis [6]: vaccine based on phages expressing immunodominant epitopes of Fasciola major variants + Quil-A® significantly reduced the parasite load in goats.
- Toxoplasmosis [7]: rhoptry proteins + Quil-A® stimulated humoral, local, and systemic immune responses, which were able to partially protect the brain from cyst formation.
- BoHV-5 [8]: vaccine composed of inactivated BoHV-5 + Quil-A® induced a high production of antibodies of different IgG subclasses, and a robust DTH response was observed in mice; splenocytes levels of Th1-type cytokines increased, namely IFN- and IL-2.

Trial conducted at Kansas State University.

Q-VET-S vs Quil-A® immunization comparison against classical swine fever virus.

3 groups of 5 pigs each were immunized with E2 glycoprotein plus 200 µg of Q-VET-S, 200 µg of Quil-A® and 400 µg of Q-VET-S respectively. At day 35, the antigen-specific IgG antibody levels of the group vaccinated with Q-VET-S were statistically equal to those of the group vaccinated with Quil-A® and doubling the dose of Q-VET-S resulted in 60% more antibody production than the group vaccinated with Quil-A®. Q-VET-S stands as a valid sustainable alternative for conventional Quillaja saponin adjuvants existing in the market.

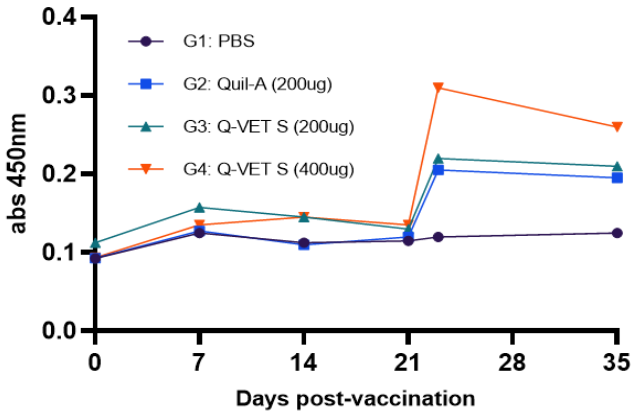

Figure 1. Levels of anti-glycoprotein E2 antibody measured by indirect ELISA (Kansas State University).

Q-VANT manufacturing standard.

Q-VET-S is manufactured employing rigorous standards for high purity and is designed to be used in animal immunization applications due to its potent adjuvant activity. Q-VET-S purity level is equivalent or greater than other commercial adjuvants integrated in multiple animal vaccines.

Q-VANT utilizes the lyophilization technology rendering the utmost solubility, and molecule stability by avoiding shear stress and preventing thermal hydrolysis of saponin particles.

Q-VET-S will be cGMP certified in early 2025.

Scalable and sustainable supply.

Q-VET-S adjuvant is obtained from fully sustainable sources of Quillaja and manufactured under scalable extraction and purification processes. Q-VANT utilizes Quillaja biomass sources including its own plantations, green houses, and plant cell technology. Q-VET-S highly purified saponin adjuvant is commercially and readily available.

Recommended vaccine adjuvant for

- VIRUSES: Equine influenza, Feline leukemia virus, Schmallenberg virus, Bovine respiratory syncytial virus, Bovine Rotavirus, Bovine coronavirus, Parainfluenza-3 virus.
- BACTERIA: *Mannhelmia haemolytica, Coxiella burnetiid.*
- PARASITES: *T. solium, E. granulosus.*

See also QS-21 INFINITY™ Saponin-based Vaccine Adjuvants and Delivery System.

References

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8. Silveira, F., et al., Quillaja brasiliensis saponins are less toxic than Quil A and have similar properties when used as an adjuvant for a viral antigen preparation. Vaccine, 2011. 29(49): p. 9177-82.