The **Reference** in **Prevention** for **Animal Health**

IMMUNE RESPONSE OF DAIRY COWS FOLLOWING VACCINATION WITH UBAC® IN A CLINICAL TRIAL

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INTRODUCTION

A new vaccine against *Streptococcus uberis* intramammary infections in cows, UBAC® (HIPRA), has been developed (Collado *et al.*, 2018). The aim of this study was to evaluate the serological immune response against the vaccine antigen (Biofilm Adhesion Component, BAC) during a clinical trial (Puig *et al.*, 2018).

METHODS

A clinical field trial was performed in order to assess the efficacy of UBAC® in the reduction of *S.uberis* clinical mastitis (CM) up to the half-lactation period as described in Figure 1.
In this context, blood samples from UBAC® (n=25) and placebo (n=21) groups were collected before each dose of the vaccine and 1, 3 and 6 months after the 3rd dose.

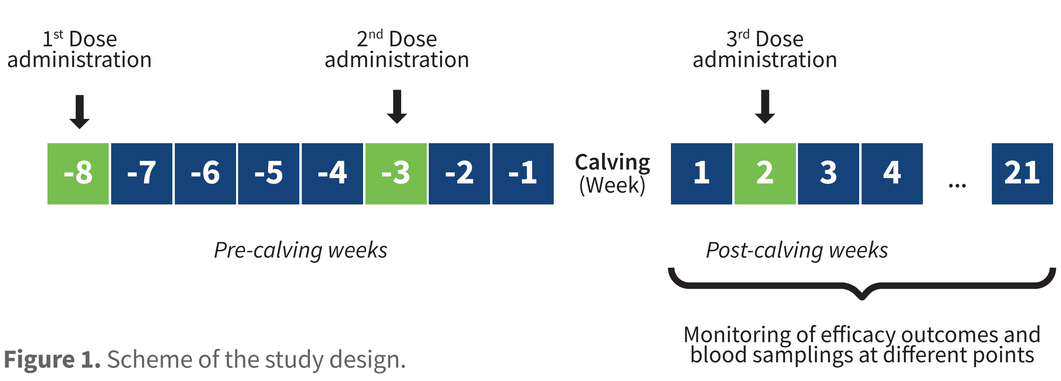
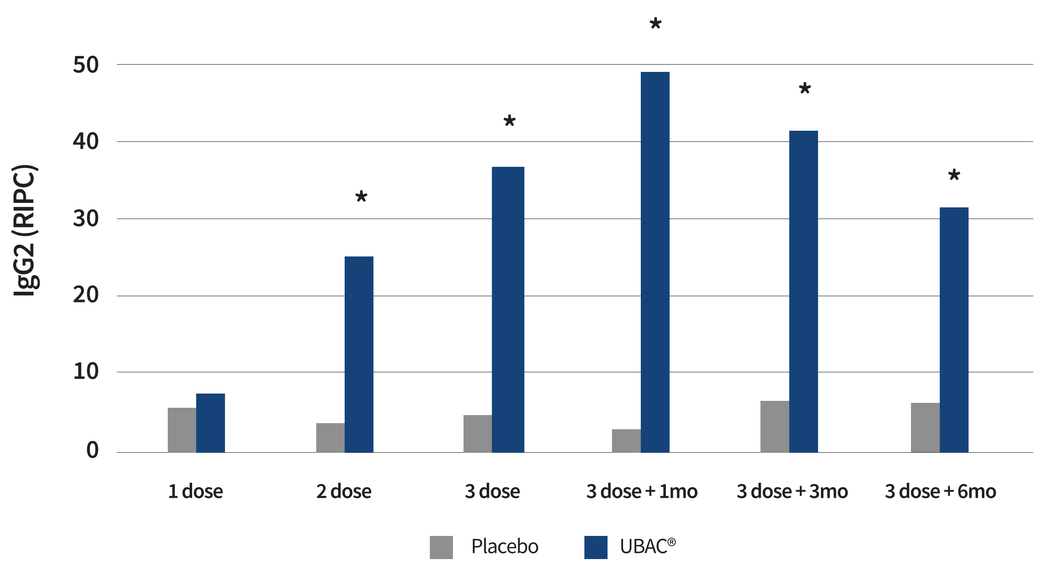


Figure 1. Scheme of the study design.

Immunoglobulin G2 (IgG2) response against the BAC antigen in serum samples was assessed by the ELISA method described in Collado *et al.*, (2018). Serological data were compared using the Mann-Whitney test (SPSSv.22). Significance was declared at $p \leq 0.05$.

RESULTS

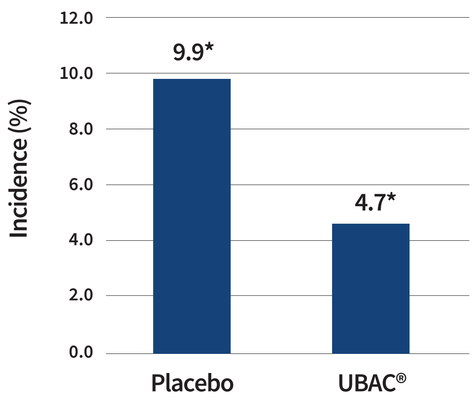
Antibody levels against the BAC antigen increased from the 1st dose of UBAC®, reaching a maximum 1 month after the 3rd dose. They then slowly decreased up to the end of the monitoring period, remaining much higher than in the placebo group at all time points (Figure 2). After the 1st dose, the UBAC® group showed significantly higher antibody levels than the placebo group ($p<0.001$) throughout the monitoring period.



**Statistically significant differences (Mann-Whitney test, p<0.001).*

Figure 2. Immunoglobulin G2 response in serum samples against the BAC antigen in each group measured by ELISA.

Additionally, the incidence of animals with *S.uberis* CM during this period was significantly lower ($p<0.017$) in the UBAC® group than in the placebo group (Figure 3).



**Statistically significant differences (Chi-square test, p=0.017).*

Figure 3. Incidence of animals with S.uberis clinical mastitis recorded during the study.

CONCLUSIONS

Results obtained in this study suggest that antibodies against the BAC antigen could have a role in the reduction of the incidence of clinical mastitis caused by *S. uberis*. Therefore, a booster dose of the vaccine 6 months after the prime vaccination is recommended in order to maintain high antibody levels against the BAC antigen in vaccinated animals.

REFERENCES

Collado R, Montbrau C, Sitjà M and Prenafeta A. Study of the efficacy of a *Streptococcus uberis* mastitis vaccine against an experimental intramammary infection with a heterologous strain in dairy cows, J Dairy Sci. (2018), doi: 10.3168/jds.2018-14840. Epub 2018 Sep 13.

Puig A, Perozo E, *et al.*, Efficacy and safety under field conditionsof the new vaccine UBAC® against *Streptococcus uberis* intramammary infections in dairy cows, Poster presented in the 2018 International Bovine Mastitis Conference, Milano, Italy.

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