

# EVALUATION OF THE STABILITY AND REPLICATION OF MAREK'S DISEASE VACCINES WHEN APPLIED TOGETHER WITH A NEXT-GENERATION IBD IMMUNE COMPLEX VACCINE

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## INTRODUCTION

It is common practice in the poultry industry to apply a Marek's disease (MD) and Infectious Bursal Disease (IBD) vaccine in combination at hatchery level to improve management, the cost of vaccination and animal welfare. One of the concerns is if there is any interference between the vaccines when they are mixed. The aim of this study was to assess whether the administration of a next generation IBD immune complex vaccine (GUMBOHATCH®) interferes with MD vaccine viability and replication in birds when they are combined.

## MATERIALS AND METHODS

One day-old broilers were recruited into the study, distributed into three groups of twelve chicks each. Group T1 was vaccinated only against IBD (GUMBOHATCH®); T2 was vaccinated against MD serotype 1 (MD1, attenuated Rispens strain), MD serotype 3 (MD3, attenuated HVT strain) and IBD; and group T3 was vaccinated only against MD1 and MD3. The fibroblast viability of the MD vaccines was tested by Trypan blue cell counting within ten minutes before and after vaccination. Replication of the MD virus was evaluated in all the animals by PCR at day 28 using feather pulp. Besides this, the IBD vaccine performances were also evaluated during the study by bursa-to-body weight ratio (BBratio), IBD vaccine virus replication (PCR) and antibody response (Idexx®, Biochek® and CIVTEST®) at day 35. The comparison between groups was performed by ANOVA One-Way and Kruskal Wallis tests. ELISA titres were Log2 transformed for this purpose.

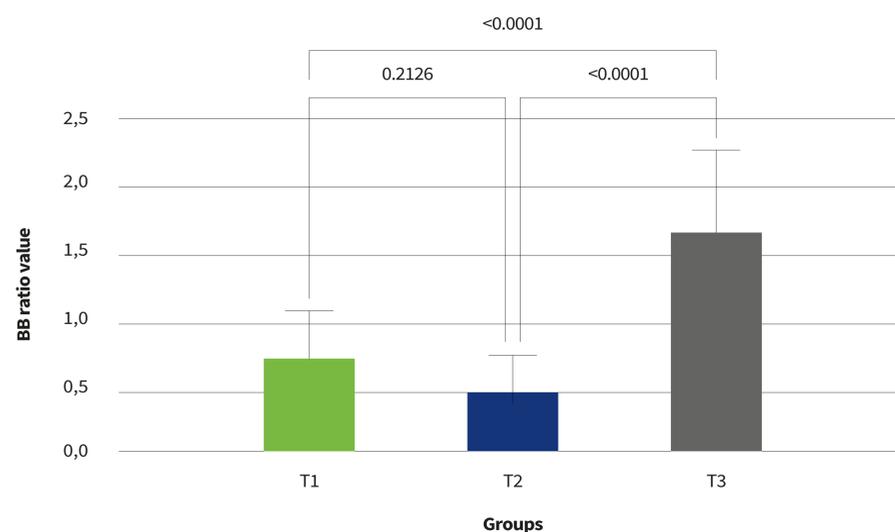
## RESULTS

The fibroblast viability of the MD vaccines was over 85.71 % and it was not statistically different between T2 and T3 (p value >0.05). MD PCR results showed that 100 % of the animals were positive for MD1 and 80 % were positive for MD3, regardless of the group (Table 1).

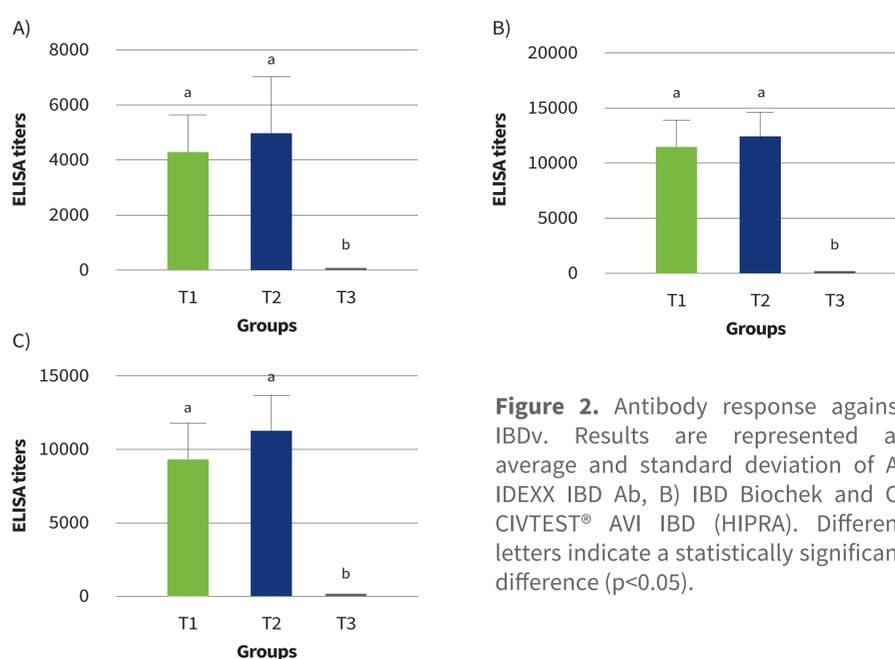
Parameter	Group			
	T2		T3	
Fibroblast viability (%)	87.39		89.22	
MD serotype PCR	MD1	MD3	MD1	MD3
Mean Ct	31,35	26,83	29,57	26,42
Positive (%)	80	100	80	100

**Table 1.** Vaccine fibroblast count and MD PCR of feather pulp. Ct: cycle threshold of the PCR.

As expected, the IBD vaccine replicated in the Bursa of fabricius as these were found positive by PCR. Moreover, it produced a reduction of the BB ratio (between 0.60 and 0.84) (Fig. 1) and an antibody response against IBD (Fig. 2). There were no statistical differences between T1 and T2 (p value > 0.05).



**Fig. 1.** Bursa to Body weight ratio. Results are represented as average and standard deviation. P values are indicated above histograms. Differences between groups are statistically significant when p<0.05.



**Figure 2.** Antibody response against IBDv. Results are represented as average and standard deviation of A) IDEXX IBD Ab, B) IBD Biochek and C) CIVTEST® AVI IBD (HIPRA). Different letters indicate a statistically significant difference (p<0.05).

These results showed that the combination of MD vaccines with GUMBOHATCH® did not affect the MD vaccine fibroblast viability, nor the replication of MD. In the same way, the MD vaccine did not compromise the performance of GUMBOHATCH® vaccination, specifically replication and seroconversion.

## CONCLUSION

The combination of GUMBOHATCH® with MD vaccines is therefore a good option to optimize the management of the administration process and improve animal welfare.

## REFERENCES

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