The benefits of Actisaf® on some digestive immunological parameters of piglets experimentally challenged with Escherichia coli

CONTEXT
It has been shown that dietary supplementation with antimicrobial peptides like colistin can be effective in reducing the levels of CRP in blood of piglets challenged with E. coli. However, the long-term effects of such supplementation on gut homeostasis and immune responses are not yet fully understood.

MATERIAL AND METHOD
20 Landrace pigs from a local farm were divided into two groups, with 10 pigs in each group. One group was fed a control diet, while the other was fed a diet supplemented with Actisaf®, a probiotic containing Saccharomyces cerevisiae Sc47. The pigs were challenged with E. coli K88 strain on day 14 and euthanized and sampled 2 days later. Blood samples were collected to analyze C-reactive protein (CRP), bile to analyze secretory immunoglobulin A (sIgA), and ileum and mesenteric lymph node (MLN) to analyze Toll-like receptors (TLRs).

RESULTS AND DISCUSSION
Pigs fed the Actisaf® supplemented diet showed a decrease in CRP levels (Figure 1; p < 0.05). However, the CRP levels of piglets previously fed the colistin and Actisaf® diets were similar. The experimental challenge also upregulated the TLR-2 and TLR-4 gene expressions in the MLN. The upregulation of TLR-4 gene expression is indicative of recognition of gram negative pathogens, while TLR-2 plays a role in the innate immune response.

CONCLUSION
The results suggest that, while Actisaf® reduces the levels of CRP in blood of piglets challenged with E. coli, it does not significantly alter the expression of TLR-4 in the ileum or MLN.

REFERENCES
- Lessard et al., 2009.
- Mendez et al., 2010.
- Badia R.1,2, R. Lizardo1, P. Martinez2, I. Badiola3 and J. Brufau1

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