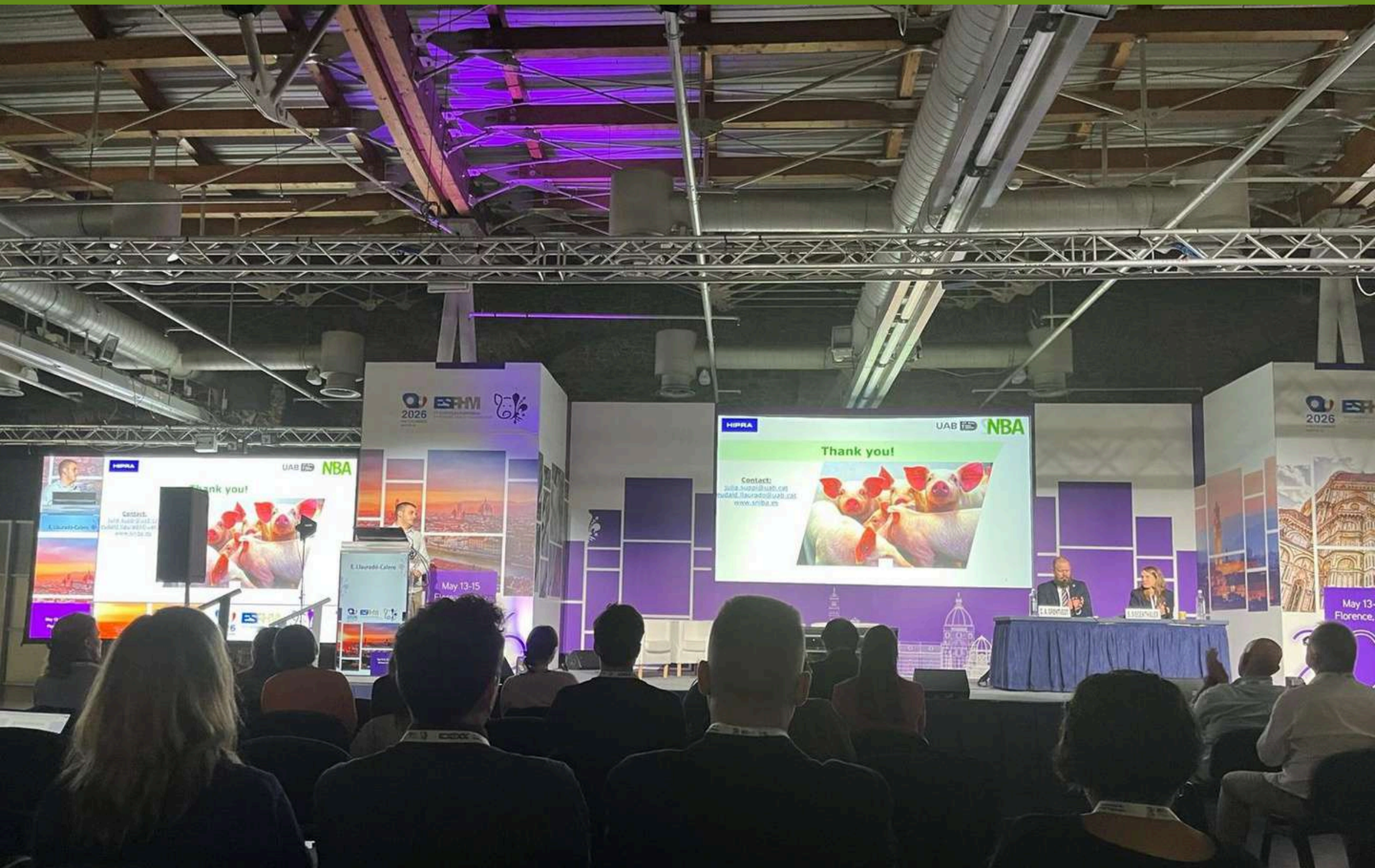






Influence of sow vaccination on suckling piglet gut microbiota and performance

J. Suppi¹, E. Llauradó-Calero¹, C. Pedernera², J. Hernandez-Garcia², M. Simón-Grifé², J. Miguel-Escuder², O. Boix², M. Canal², X. Gibert², D. Solà-Oriol¹

¹ Animal Nutrition and Welfare Service (SNIBA), Universitat Autònoma de Barcelona, 08193 Bellaterra, Spain.

² HIPRA, Girona, Spain.



INFLUENCE OF SOW VACCINATION ON SUCKLING PIGLET GUT MICROBIOTA AND PERFORMANCE

J. Suppi ^{1*}, E. Llauradó-Calero ¹, C. Pedernera ², J. Hernandez-Garcia ², M. Simón-Grifé ², J. Miguel-Escuder ², O. Boix ², M. Canal ², X. Gibert ², D. Solà-Oriol ¹

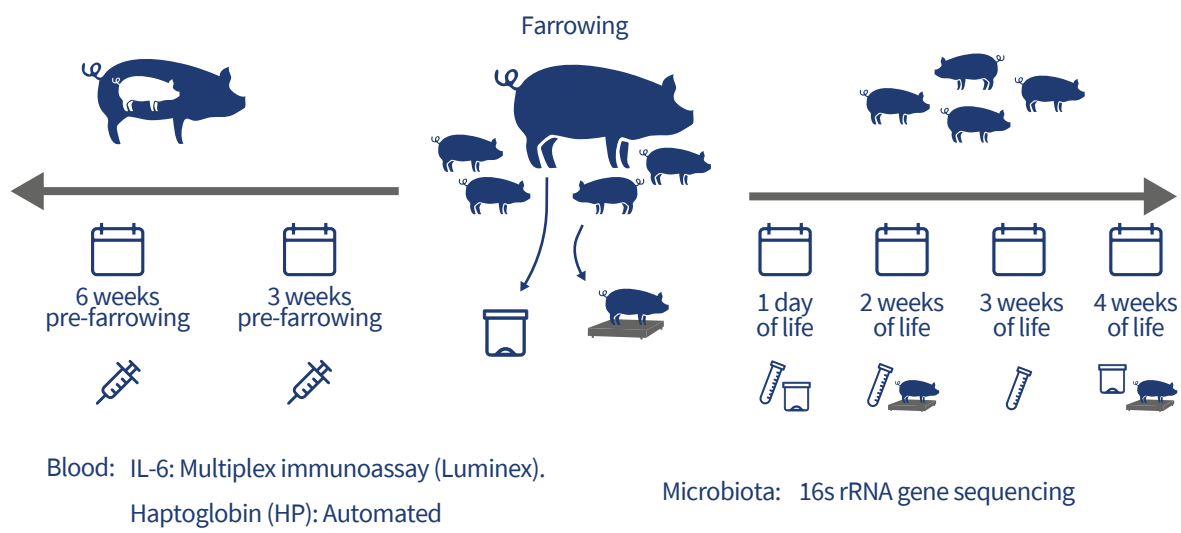
¹ Animal Nutrition and Welfare Service, Department of Animal and Food Sciences, Universitat Autònoma de Barcelona, 08193 Bellaterra, Spain ² HIPRA, Girona, Spain
*Corresponding author: julia.suppi@uab.cat

INTRODUCTION

Neonatal diarrhoea (ND) remains one of the leading causes of early-life mortality in piglets, with the intestinal microbiota playing a central modulatory role¹. Given that the sow strongly shapes her offspring’s microbiota this study aimed to evaluate whether maternal vaccination against *Clostridium perfringens*, *Clostridioides difficile*, and *Escherichia coli* could promote a more resilient gut microbiota in piglets by reducing the incidence of ND.

MATERIAL & METHODS

Twenty pregnant sows from a farm with a history of ND were included. Ten received SUISENG® Coli/C mixed with SUISENG® Diff/A at 6 and 3 weeks before farrowing, while the remaining ten served as unvaccinated controls. Both groups were vaccinated against Rotavirus A in accordance with the farm’s standard vaccination program. Clinical signs, performance parameters, biomarkers and microbiota of piglets from vaccinated and control sows were assessed.



RESULTS

Maternal vaccination significantly reduced the incidence and severity of neonatal diarrhoea, leading to improved body weight and lower mortality on piglets from vaccinated sows (Table 1). Piglets from vaccinated sows showed lower blood concentrations of Interleukin-6 and haptoglobin (Figure 1) during the first week together with the reduction of ND. Piglets from vaccinated sows exhibited higher abundances of short-chain fatty acid (SCFA)-producing taxa at day 1 and day 28 of life (Figure 2).

Table 1. Piglet growth and mortality during the first month of life. d = days of life BW = Body weight

Performance	Vaccinated	Control	P-value
BW d0 (Kg)	1.2 ± 0.3	1.2 ± 0.2	0.691
BW d15 (Kg)	2.0 ± 0.8	1.7 ± 0.8	0.036
BW d28 (Kg)	4.7 ± 1.5	4.3 ± 1.5	0.258
ADG d0-15 (g)	66.8 ± 47.2	39.8 ± 54.7	0.003
ADG d0-28 (g)	131.8 ± 50.1	119.0 ± 51.5	0.122
% Mortality			
d 7	7.86	20.8	0.005
d 15	15.5	36.7	<0.001
d 28	21.6	42.5	0.001

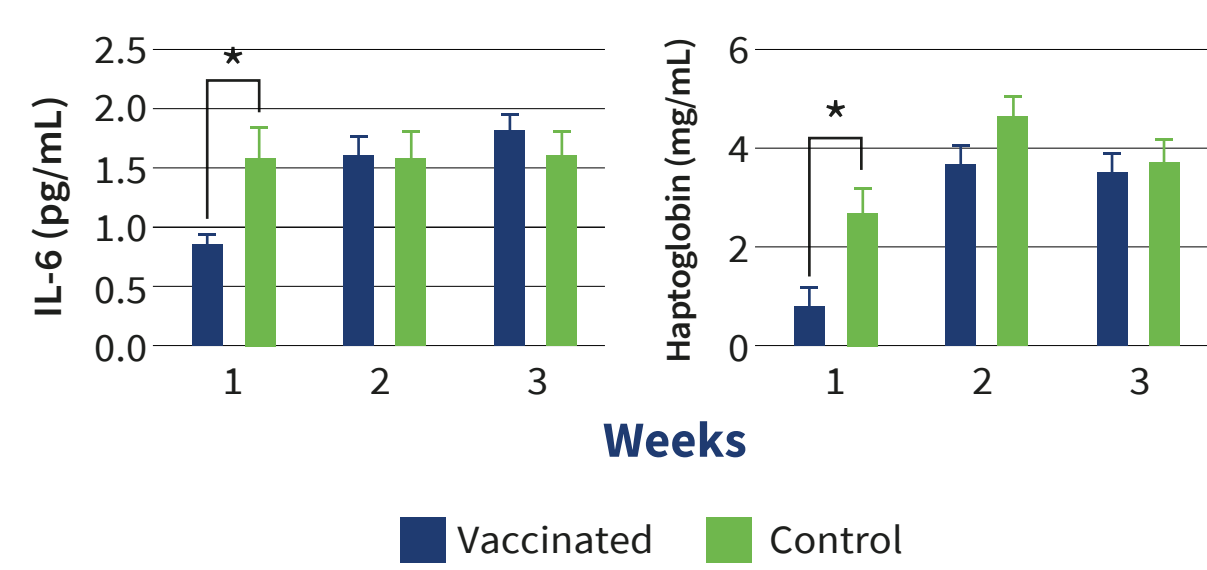


Figure 1. Piglet serum IL-6 and HP concentrations according to the sows’ treatment *Significant differences P < 0.05

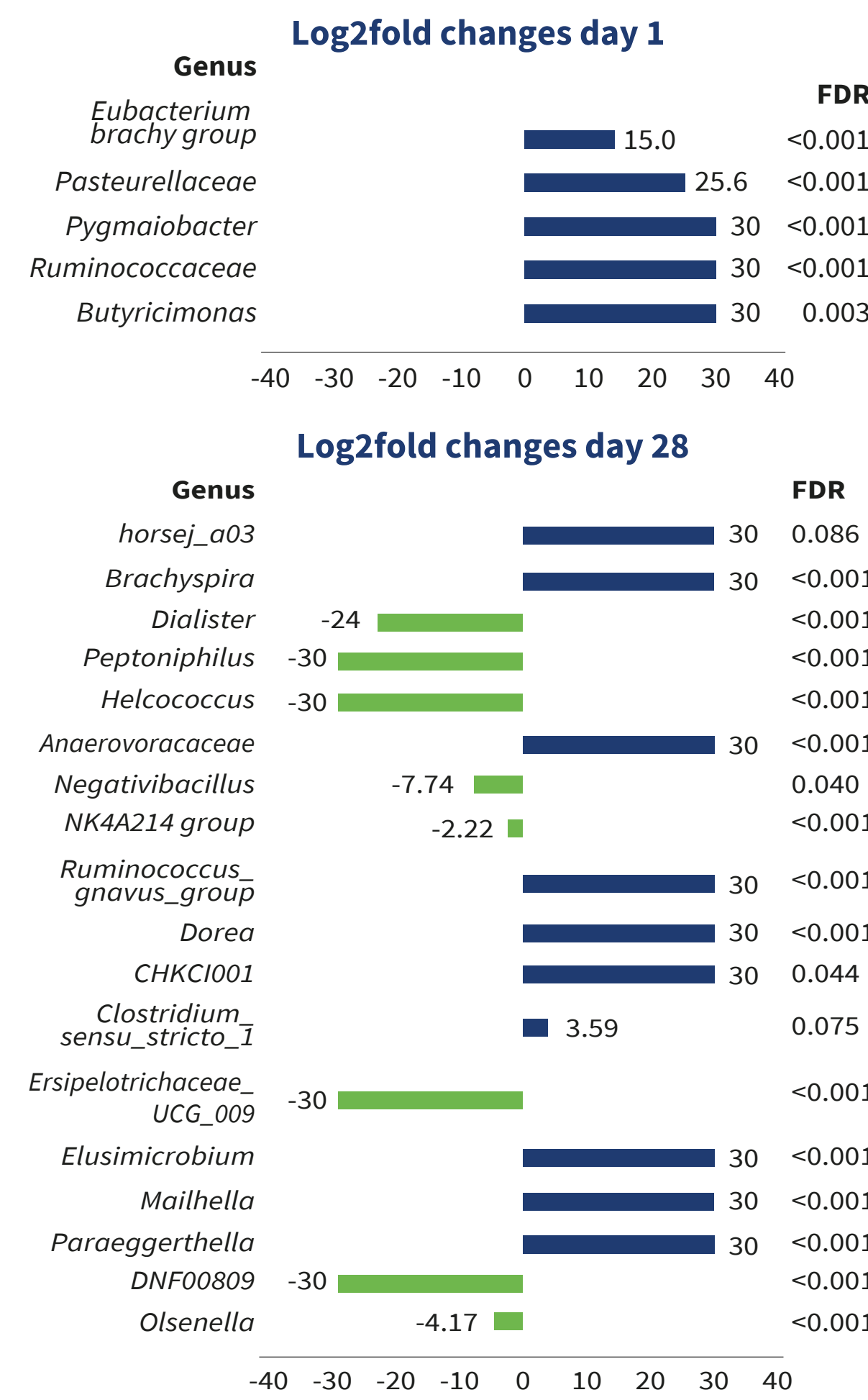


Figure 2. Differential relative abundances of microbial taxa in piglets, regarding the sows’ treatment expressed as log2fold changes.

CONCLUSIONS

Maternal vaccination promotes a microbiota enriched in beneficial SCFA producers, a reduction in ND, and an improved growth performance in piglets.

REFERENCES

Arsenault et al. BMC Microbiology (2024) 24:182