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## Gut microbiota analyses for sustainable European local porcine breeds: a TREASURE pilot study

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**Development of long-term, pre-finishing immunocastration protocols for male Iberian pigs: 2. carcass**

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Male immunocastration (IC) should be adapted to the long life cycle of Iberian (IB) pigs. We previously developed long-term, 3-dose, pre-finishing IC protocols for male Iberian pigs whose efficacy seemed to be influenced by nutritional and stress level. Study 1 aimed to improve the efficacy of protocols by a short-term increase in feeding intake. IC males (ICM; n=47) were fed commercial concentrate in an extensive system, immunized against GnRH at 11, 12 and 14 months (m) of age and slaughtered at 16 m. The treated subgroup (23 ICM) was submitted to a 15-day *ad libitum* feeding period starting at the 3<sup>rd</sup> vaccination, and the remaining ICM were the Control subgroup. The treated ICM group reached 100% efficacy as all its animals had <150-g testes (which was the threshold for blood testosterone presence in our earlier studies). In contrast, 4/24 Control ICM had >150-g testes. Study 2 aimed to adjust the protocol to suit the chronology of the acorn-feeding free-range period (*montanera*; MT). We tested whether improving body condition homogeneity at the start of MT would homogenize testicular atrophy. Control IB pigs (C; n=18) were immunized at 10.5, 12 and 13.5 m. Treated pigs (T; n=17 IB males) were immunized at 10.5, 11.5 and 13 m, with a 15-day *ad libitum* (AL) feeding period starting at the 3<sup>rd</sup> dose. *Montanera* started at 13.5 m, and slaughter took place at 16 m. The AdLib group (IB × Duroc; n=15) were fed AL with concentrate during growth and finishing phases in an extensive system, immunized at 8, 9 and 10 m, and slaughtered at 13 m. The Adlib and T treatments showed a 100% efficacy. Backfat androstenone and skatole levels were basal. Ham yield and backfat thickness were similar for the 3 groups. Unlike in Study 1 and our previous studies, intramuscular fat content, backfat thickness and meat texture did not seem different from those usually reported for surgically castrates. We conclude that nutritional level can be used to improve the IC efficacy. Longer finishing after the last vaccination may increase fat deposition. Funded by European Union's H2020 RIA program (grant agreement no. 634476).

**Gut microbiota analyses for sustainable European local porcine breeds: a TREASURE pilot study**

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The study of gut microbiota and its effects on hosts has emerged as an essential component of host homeostasis and global efficiency. Besides host's influence on gut microbiota, major quantitative and qualitative changes may occur in the composition of the intestinal microbiota due to the influence of diet and other environmental factors. In accordance with the TREASURE project global aim of enhancing sustainability of production systems for local pig breeds, the objective of our task was to conduct a pilot characterisation of intestinal microbiota in order to test its usefulness to characterize several local European pig populations and their production systems. This approach has been applied to populations belonging to the following European traditional breeds: Gascon (France), Iberian (Spain), Krskopolje (Slovenia), Mangalitsa (Serbia), Moravka (Serbia) and Turopolje (Croatia). For each breed, faecal samples have been collected along different experiments performed in the TREASURE project targeting the comprehension of a particular traditional production system (e.g. open-air farming), management practice, or the comparison of breeds. In all experiments, the metagenomics technique employed is the re-sequencing of the bacterial 16S in an Illumina MiSeq system. Overall, the results have shown that the gut microbiota analysis is a promising approach for the characterisation of these local breeds, by allowing a deeper understanding of their production systems and potentially allowing the development of new certification approaches. Preliminary results will be summarized in this communication. Funded by European Union's H2020 RIA program (Grant agreement no. 634476).