observed. Treatments of INT-407 cells with 50 µM ZnO and 50 µM $ZnCl_2$ enhanced cell viability, respectively to 127% and to 115% of the control. The human INT-407 cells demonstrated higher sensitivity to zinc treatments than the porcine model. IPI-2I viability was not significantly affected by zinc treatments. This disparity was most likely due to different host cell lines. In conclusion, intestinal porcine epithelial cells and human embryonic intestinal cells could be used as an efficacious *in vitro* model to investigate zinc additives.

C-074

Intestinal proinflammatory citokines could be modulated by dietary nucleotides in post weaning piglets

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Dietary nucleotides are reported to improve swine immune response and intestinal health status, decreasing diarrhoea events and increasing performance. Such effects are particularly appreciable in a stressful period as weaning, when gut pathogen contamination more likely occurs. The aim of the study was to evaluate the effects of dietary nucleotides supplementation on ileal proinflammatory interleukin gene expression of post weaning piglets. Thirty-six weanling piglets (28d of age, 7.85±0.32 kg) were divided in two experimental groups (C and N) for a 28 d study. The N group received the basal diet supplemented with 0.8 g/head/day nucleotides (UMP 88.1%, GMP 5.51%, AMP 3.82%, CMP 1.94% and IMP 0.68%). No supplementation was given to C group. On 14 d all piglets were orally challenged with 1×10^9 CFU/g *E. Coli* 0149:F4(K88). Growth performance and fecal score were evaluated weekly, immunological serum parameters, Fe and Vitamin B12 serum content were analysed on days 0, 13, 18 and 26 d. At slaughtering IL1a, IL1b, IL6, IL10, and TNF, TRL2 and TRL4 gene expression of ileal Peyer's patches were evaluated by RT-PCR. No differences were found on growth performance, while fecal score was ameliorated in N piglets ($P<0.05$). Lower haptoglobin serum content (0.56 mg/mL *vs* 0.48 mg/mL; $P<0.01$), higher vitamin B12 (239 ng/dL *vs* 225 ng/dL; $P<0.05$), and IgG (5.00 mg/dL *vs* 4.83 mg/dL; $P<0.05$) level were found in N group. Nucleotide-fed pigs showed decreased IL6, IL10, TNF, TRL2 and TRL4 gene expression at slaughtering ($P<0.01$). Dietary nucleotides supplementation in post weaning piglets can positively affects gut health status, ameliorate inflammatory response and nutrients absorption in microbial stress conditions.

C-075

A new feed block for gut health and welfare of the weaning pig

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Pig weaning combines social, nutritional and environmental stresses, that hesitate in transient reduction of feed intake and development of intestinal villi, animal growth and higher susceptibility to diffusive diseases. Providing feed with texture that stimulates porcine explorative interest could lighten weaning drawbacks and provide a tool to respect the law for animal welfare.
Various series of small feed block (around 0.8 kg weight) were produced in a small scale and 8 formula were preliminary tested for block intake in a pig farm joined in the MIPAAF-OIGA project PIGBLOCK. Base ingredients were wheat by-products, dried milk whey, calcium carbonate, oil and molasses, in different combinations. The 3 best formulations were then tested in the same farm for block and total feed intake and live weight gain in the 3 days after weaning. Normal weaning feed was always provided *ad libitum*. Following the farm practice, the experimental unit for ANOVA was the box formed by 4 litter after moving away the sows. Each formulation was tested 4 times and compared with the other ones and a control, obtained by wooden pieces of similar dimension. Growth was in general not affected, while block intake was relevant. The same 3 formulations and the control were tested in experimental farm on a total 72 weaned pigs (24 d of age), penned in box of 3. Welfare was quantified through surveys with cameras (7 parameters, statistically analyzed by SAS GLIMMIX). The trial ended after 4 days with the slaughtering of pigs and the collection of small intestine samples from all of them, for the morphology of intestinal mucosa (subject mean values for villus height, crypt depth, mucosal thickness). Block intake in general resulted additive on the intake of normal feed. Growth was not affected. One formulation (n.8) increased the mucosal surface area by 7.9% ($P<0.05$). The same formulation increased ($P<0.01$) the time spent by pigs sleeping. The results obtained indicate that proper formulation of the feed block can give it the characteristic to reduce the impact of weaning on intestinal villi growth and improve the welfare, and are encouraging the development of the product.