challenge, and LPS-induced TNF α remained elevated (P = 0.003) 4 h post-injection. LPS injected pigs had serum IL-10 levels above (P < 0.02) control and DLPS treated pigs. Serum IL-4 levels were elevated (P < 0.05) in LPS-treated pigs compared to both control and DLPS treated pigs. Serum levels of IL-10 and IL-4 were not different between control and DLPS pigs. LPS treatment upregulated (P < 0.03) TNF-α transcript in the spleen, as compared to control and DLPS treated pigs. LPS treatment caused sickness behaviour as measured by decreased (P = 0.031) feed intake and lethargy; however, DLPS did not induce behavioural changes. Together these results support the efficacy of MAP to dephosphorylate both S. enterica and E. coli LPS and reduce the toxic effects of LPS in primary cultured alveolar macrophages and in weaned pigs.

## P117. Development of an in vitro model to study intestinal integrity during an E. coli K88 challenge

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Post-weaning diarrhoea is a striking issue of the pig industry and its onset is primarily associated with Escherichia coli K88 (E. coli). To assess the effectiveness of bioactives in preventing the damages exerted by the pathogen, the aim of this study was to set-up an in vitro model to mimic an E. coli challenge on intestinal cells.
Caco-2 and IPEC-J2 cells were differentiated on 3.0μm-pore Transwell inserts while cultured in DMEM + 10% FBS (basal medium, BM) in 5% CO2 at 37°C. Then, cells were infected with E. coli $5x10^7$ (Caco-2) or $5x10^6$ (IPEC-J2) CFU/mL and treated with BM (CTR-), BM + E. coli (CTR+), or BM + E. coli + colistin 4 ppm (COL+). After 2h and 4h, trans-epithelial electrical resistance (TER), paracellular permeability (PCP) with fluorescein, and bacterial translocation (BT) were measured. For the latter, aliquots of basolateral media were counted on agar plates. Moreover, both cell lines were differentiated on 24-wells and challenged with E. coli $5x10^7$ (Caco-2) or $5x10^6$ (IPEC-J2) CFU/mL with or without colistin 4 ppm (CTR+ and COL+, respectively). After 1h, cells were washed, lysed, and seeded on agar plates to quantify adhered E. coli.
Data were analysed with One-way (BT, PCP, adhesion test) or Two-way (TER) ANOVA, with each treatment having 6 replicates.
For both cellular lines, CTR+ decreased TER (at 4h: -86% of CTR- for Caco-2; -68% of CTR- for IPEC-J2) and increased PCP and BT at 2h and 4h (P < 0.05). Colistin avoided the drop in TER and kept PCP and BT values in line with CTR-. COL+ minimized E. coli counts during adhesion (-100% compared to CTR+, P < 0.05).
In conclusion, an effective in vitro model to mimic an E. coli intestinal challenge was successfully developed. Future studies will employ this model to explore host-pathogen interactions and how bioactive compounds reduce E. coli-mediated damages.

## P118. Use of diets' rheological parameters to predict digesta retention time throughout the gastrointestinal tract of growing pigs

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Digesta transit behaviour along the gastrointestinal tract (GIT) is influenced by its physicochemical characteristics. For feed formulation purposes, measuring these in whole diets may be useful to predict transit behaviour, although the properties may be subject to change upon exposure to gastrointestinal processes. It was examined to what extent physicochemical characteristics (rheological parameters-RP and water-binding capacity-WBC) of diets can explain digesta mean retention time (MRT) in the GIT of growing pigs. A database from 3 experiments, including MRT values for the stomach, small (SI), and large (LI) intestine, of liquid and solid digesta, and RP obtained by oscillatory rheology plus WBC of the 22 diets, was used. First, significant (P < 0.05) independent RP to predict MRT were selected based on variance inflation factors (VIF < 10) and forward-backward-stepwise-MaxR selection methods for each segment and digesta phase. Then, regression models for MRT of solids, liquids, and standardized phase differences (including combined RP + WBC vs only WBC as predictor variables, and diet as a random effect) were compared based on relative likelihood (RL) for each segment. Although the relevant RP in the combined model varied among segments and digesta phases, gastric MRT of solids increased with RP associated with gel strength. WBC alone did not correlate with solids MRT in the stomach (P = 0.327) or proximal SI (P = 0.138); nor with liquids MRT (P = 0.161) in this last segment. However, even if WBC positively correlated with liquids MRT (R = 0.391; P < .001) and negatively with the phase difference (R = -0.660; P < .001) in the stomach, variation in MRT could be better explained by a model including combined RP + WBC (RL = 3e-06). In conclusion, combined rheological parameters improved digesta mean retention time predictions in pigs compared with models that only consider water-binding capacity as a characteristic of the diet.

## P119. Feed choice behaviour of piglets post weaning exposed to phytogenic feed additives

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Weaning is a stressful period for piglets resulting in reduced feed intake (FI). Flavouring additives are often used in post-weaning (PW) diets to improve FI and consecutively growth of the animals. There is, however, a risk of feed rejection due to unfamiliar taste or smell. The present work aimed to study the effects of two phytogenic feed additives (PFA) on feed preference in piglets in two different time periods PW.
A total of 162 piglets (6.9 ± 0.53 kg, 50:50 male : female) were equally distributed to six pens equipped with two feeders. Piglets were offered an unsupplemented basal diet (NC) or the NC supplemented with either PFA1 or PFA2. A crossover design was applied for the 42-day trial with two experimental phases of two weeks each (pens had one feeder with PFA supplementation, one with NC, three pens per PFA) and one week adaptation (all feeders with NC) before each test period. Feeder content was exchanged during the second week of each phase to avoid location preference. Data was analysed using SAS 9.4 with treatment, week of trial and their interaction as fixed effects.
Compared to NC no effects of PFA1 (P = 0.345) could be observed during phase 1 while PFA2 showed a tendency to increase FI (+4.3%, P = 0.063), mainly due to the second half of phase 1 (FI +6.7%, P = 0.020). In phase 2 piglets showed preference for PFA 1 (+8.6%, P = 0.001) and PFA 2 (+8.9%, P = 0.001).