**Effect of MUC4 and FUT1 genotypes on piglets naturally infected with Enterotoxigenic Escherichia coli F4 and F18.**

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### INTRODUCTION

Enterotoxigenic Escherichia coli (ETEC) is one of the most important causes of post-weaning diarrhea (PWD) in pigs. The SNPs located on the Mucine 4 (MUC4) and Fucosyltransferase 1 (FUT1) genes have been associated with the susceptibility to ETEC F4 and ETEC F18, respectively. The interplay between the genotypes and ETEC infection and the use of amoxicillin during a natural outbreak of PWD has never been investigated.

### AIMS:

- Validate the effects of the genotype of MUC4 and FUT1 on ETEC infection
- Evaluate amoxicillin administration by different routes, in piglets naturally infected with multi-resistant ETEC F4 and F18

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### RESULTS & DISCUSSION

Data showed an association between:

- MUC4 genotypes and ETEC F4 at T0 (p=0.003);
- FUT1 genotypes and ETEC F18 at T1 (p=0.01)

Pigs administered with amoxicillin were at higher risk for diarrhoea when compared to non-treated piglets, at T1 (p=0.009) and T2 (p=0.02).

Amoxicillin could not exert an anti-bacterial effect on the ETEC strains, since both the ETEC F4 and ETEC F18 were resistant to this antibiotic.

**MUC4 and FUT1 were confirmed as genetic markers for the susceptibility to ETEC infections in pigs.**

Amoxicillin treatment may produce adverse outcomes on pig health in course of multi-resistant ETEC infection.

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### MATERIALS & METHODS

Seventy-one piglets were divided into three groups:
- T0 = (23 piglets) parenteral administration of amoxicillin
- T1 = (24 piglets) oral administration of amoxicillin
- T2 = (24 piglets) control administered with placebo

- Sampling:
  - Feces (ETEC PCR)
  - Faecal scores

- Individual body weight
- Statistical analysis: Fisher test

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*P* = (23 piglets) parenteral administration of amoxicillin

*O* = (24 piglets) oral administration of amoxicillin

*C* = (24 piglets) control administered with placebo

- Sampling:
  - Feces (ETEC PCR)
  - Faecal scores

- Individual body weight
- Statistical analysis: Fisher test

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