PSII-14 - Supplementation of *Bacillus amyloliquefaciens* on Systemic Immunity of Weaned Pigs Experimentally Infected with a Pathogenic *E. coli*

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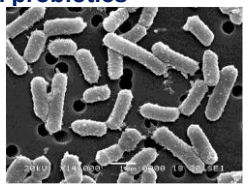
INTRODUCTION

Post-weaning diarrhea

- Commonly induced by pathogenic *E. coli*
- Often leads to weight loss and possibly death
  - Economical losses
- Antibiotics were used to alleviate diarrhea
  - Increased public concerns of utilizing antibiotics
  - Increased resistance to antibiotics in pathogens

Bacillus amyloliquefaciens

- Gram-positive bacteria
- Potential probiotics



Annals of clinical microbiology and antimicrobials, *14*(1), 1-11.

- Supplementation of *B. amyloliquefaciens* tended to increase growth performance of weaned pigs experimentally infected with pathogenic *E. coli* (Jinno et al., 2021)
  - Systemic immunity was not yet investigated

REFERENCES

- Jinno, C., Wong. B.T., Kluenemann, M, Li, X., and Y. Liu. Supplementation of *Bacillus amyloliquefaciens* on growth performance and diarrhea score of weaned Pigs experimentally infected with a pathogenic *E. coli*. Midwest ASAS. 2021.

OBJECTIVE

To investigate the effects of supplementing *B. amyloliquefaciens* on systemic immunity of weaned pigs experimentally infected with F18 *E. coli*

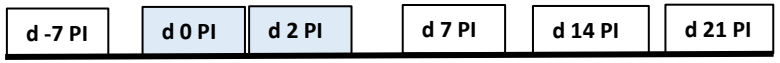
MATERIALS & METHODS

- 50 weaned pigs (7.41 ± 1.35 kg)
- 5 treatments (10 pigs per treatment)

Sham (-)	CON -	Control diet
	BAM -	0.10% inclusion rate with 10^9 cfu/kg
E. coli challenge (+)	CON +	Control diet
	BAM +	0.10% inclusion rate with 10^9 cfu/kg,
	CAR +	0.90% inclusion rate with 50 mg/kg as Carbadox

- **Timeline**

F18 *E. coli* inoculation
10^{10} cfu per 3-mL dose in PBS



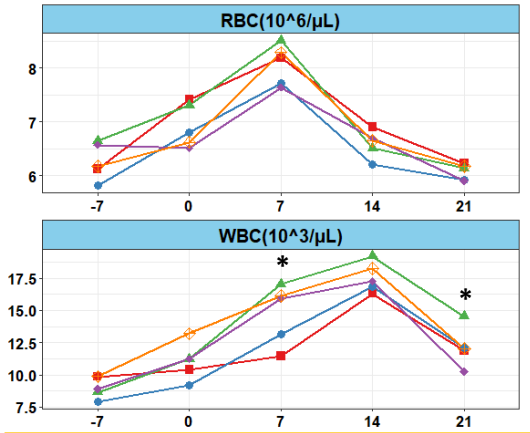
Allotment
- Pigs housed individually
- *Ad libitum* water and feed

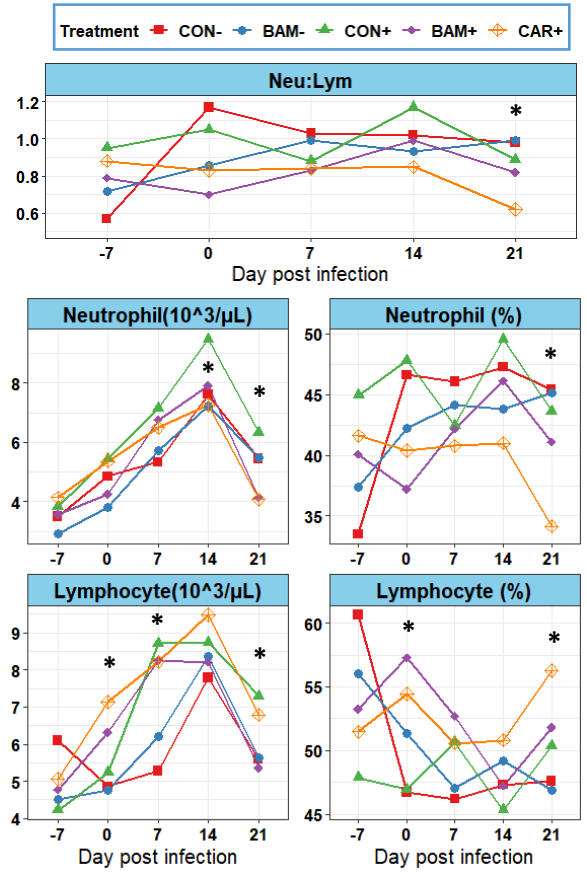
Euthanasia

Totaling 28 days (7 d before challenge and 21 days after challenge)

- Whole blood collection on d -7, 0, 7, 14, and 21 PI
  - Measure total and differential blood cell count by complete blood count analysis (CBC)
- Statistical analysis
  - PROC MIXED of SAS
  - Pig as experimental unit
  - Model includes diet as main effect and block as random effect

RESULTS





CONCLUSIONS

- No differences were observed in red blood cell profile among all treatments
- Pigs supplemented with *B. amyloliquefaciens* have similar systemic immune response to pigs with antibiotics
- Future studies should investigate the gut health of pigs supplemented with *B. amyloliquefaciens*

ACKNOWLEDGEMENT

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