

# Development of an *in vivo* dysbiosis model in broilers using microbiota depletion and coccidial challenge

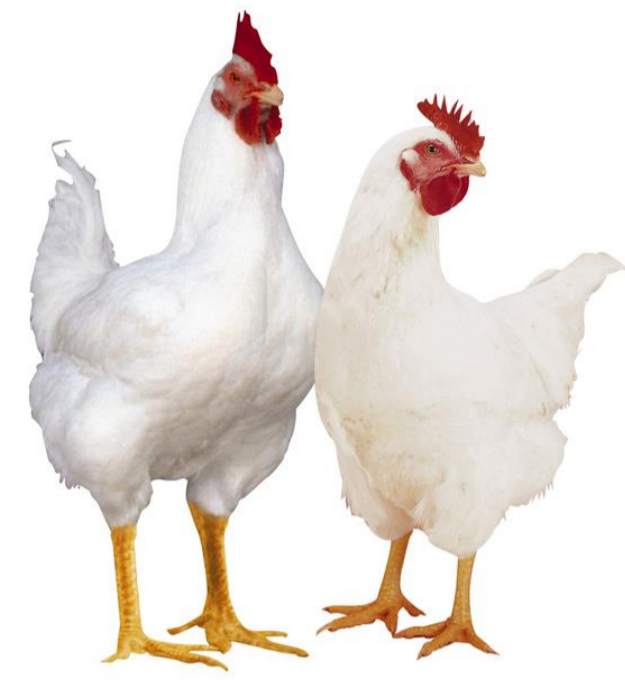
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## Introduction



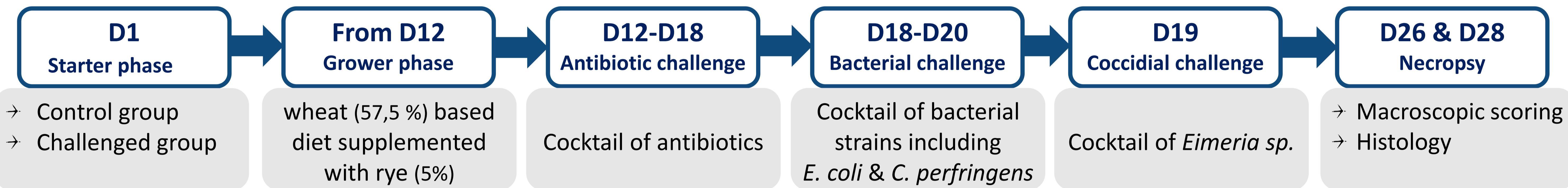
Intestinal problems often occur between 3<sup>th</sup> and 4<sup>th</sup> week of age

These are likely the result of an imbalance of intestinal microbiota and is referred to as dysbiosis

Dysbiosis is often characterized by intestinal inflammation and changes in gut wall morphology

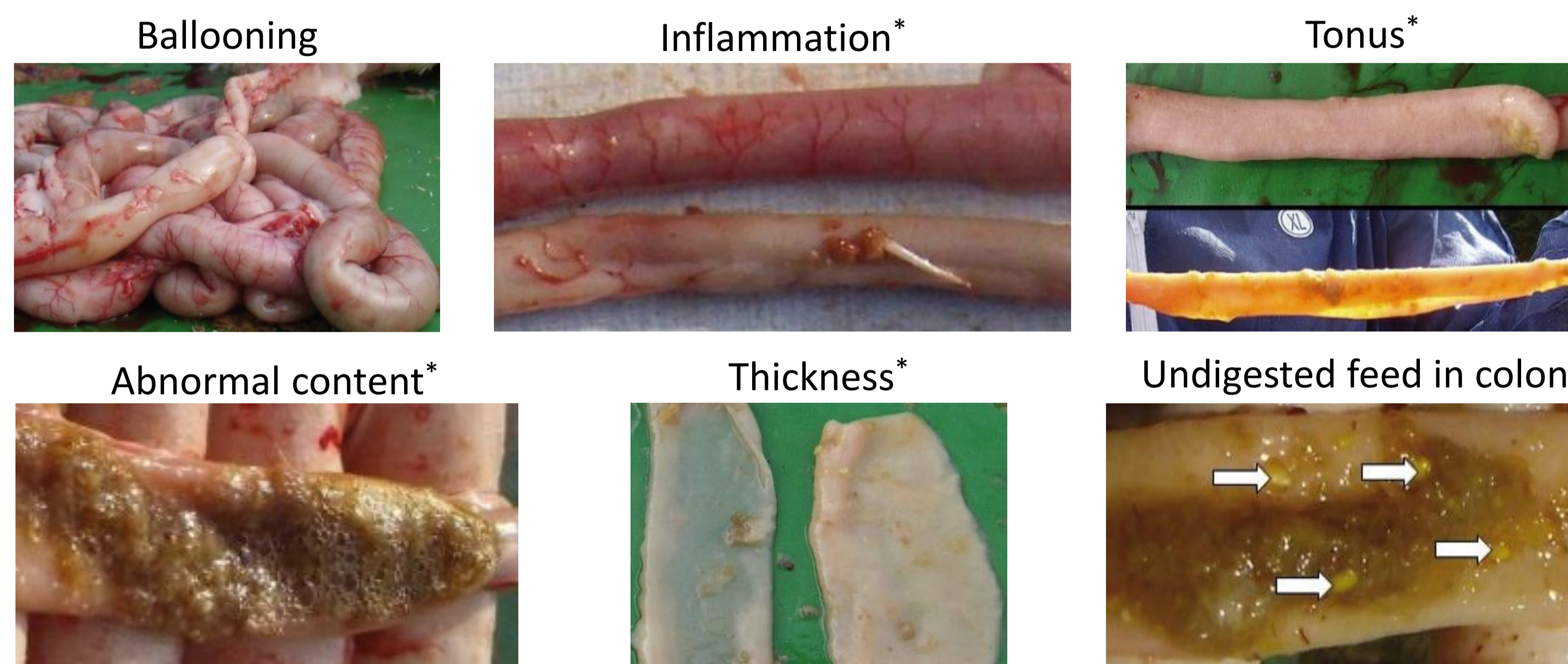
Dietary stressors and enteric infections caused by *Eimeria sp.* and/or bacterial pathogens likely play a role

## Materials and methods



### Macroscopic scoring of dysbiosis

Total of 10 parameters scored 0 (absent) or 1 (present)

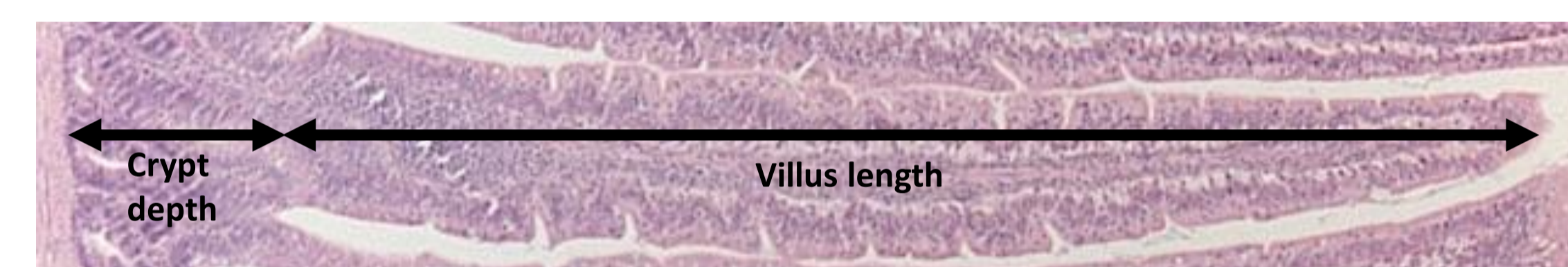


\* cranial & caudal of Meckel's diverticulum

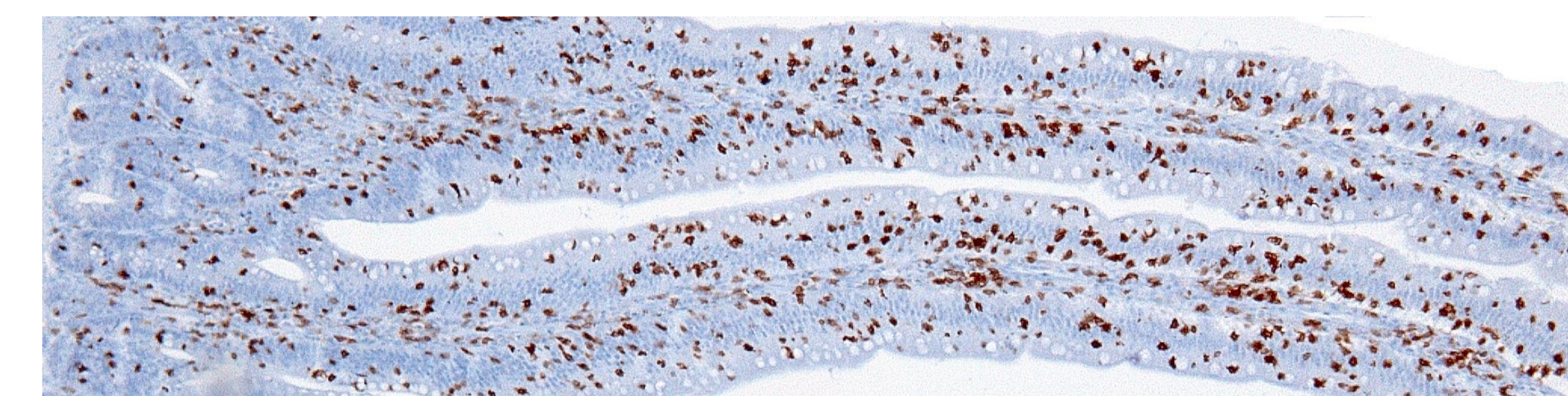
Emma Teirlynck *et al.*, 2012

### Histology

→ Sampling of duodenal loop  
→ Evaluation of villus-to-crypt ratio



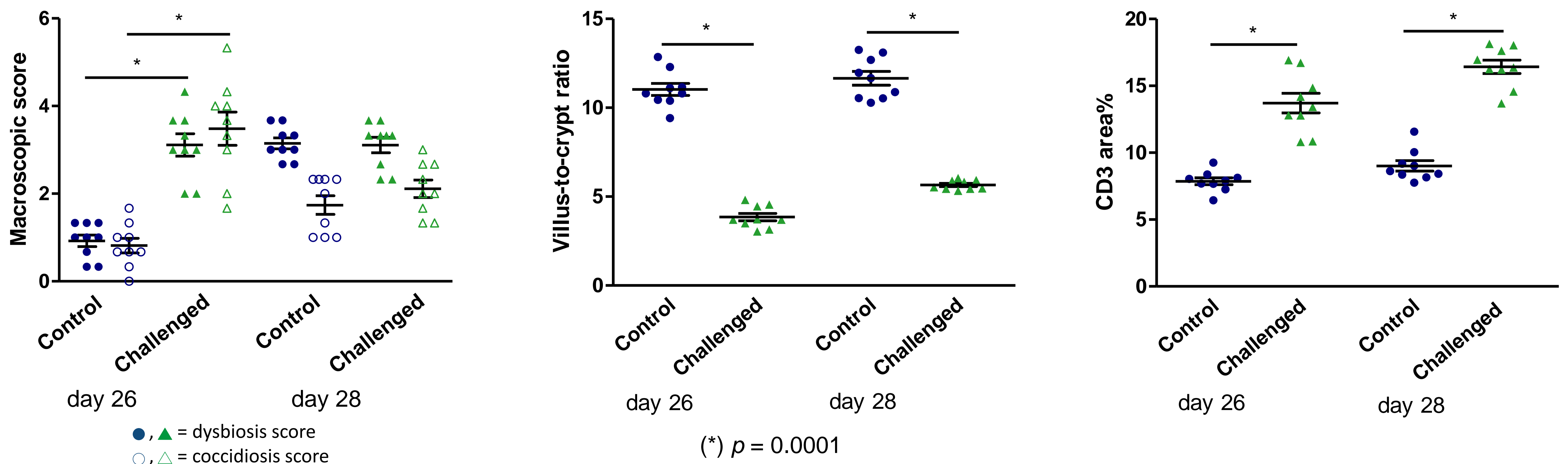
→ Evaluation of area% of inflammatory CD3<sup>+</sup> T-cells



### Macroscopic scoring of coccidiosis (Tellez *et al.*, 2014)

*E. acervulina* & *E. maxima* & *E. tenella*: scored 0 (absent) to 4 (severe) → total score = sum

## Results



## Conclusion

- Dysbiosis is currently diagnosed by a macroscopic lesion scoring system and is characterized by shortening of villi, lengthening of crypts and high infiltration of inflammatory cells in the gut wall
- The developed *in vivo* dysbiosis model is a valuable tool to test control methods to improve gut health