BBD-031

## PK/PD AND CLINICAL RELATIONSHIPS OF VALNEMULIN (ECONOR®) ADMINISTERED TO PIGS FOR THE TREATMENT OF SWINE DYSENTERY CAUSED BY *BRACHYSPIRA HYODYSENTERIAE*

U. Klein.

*Elanco Animal Health Inc., Basel, Switzerland.*

### Introduction

Econor® is a pleuromutilin antibiotic registered for treatment of enteric and respiratory diseases associated with *Brachyspira spp*, *Lawsonia intracellularis* and *Mycoplasma hyopneumoniae*. The objective of the work was to compare the pharmacokinetics (PK) of the valnemulin (Econor®-Elanco AH) colon contents concentration (CCC), to relate this to MICs against *Brachyspira hyodysenteriae* (*B.hyo*) and to evaluate the clinical efficacy of the drug when administered in an artificial infection study.

### Materials&Methods

*Pharmacokinetics*: The valnemulin CCC concentration was determined based on a pharmacokinetic study following the administration of valnemulin via feed at 75 ppm and 200 ppm.

*Pharmacodynamics*: The MICs were derived from several studies (pharmacodynamics - PD) using the broth microdilution test.

*Challenge study*: An artificial infection study was carried out and, when clinical signs of disease were evident, groups of pigs were treated for 10 days with Econor from 50-150 ppm. Un-medicated food was provided for further 14 days. Clinical disease was assessed daily, clinical scores were assigned and rectal swabs taken twice weekly. Post-mortem examination was carried out 24 days after challenge.

### Results

*Pharmacokinetics*: The valnemulin CCC was recorded at 1.68 µg/g (75ppm) and at 5.2µg/g (200ppm).

*Pharmacodynamics*: The MIC90 of valnemulin against *B.hyo* was 0.063µg/ml.

*Challenge study*: In the artificial infection study, the clinical signs of disease rapidly resolved at all treatment levels and clinical disease was not seen by day 5 in the treated pigs. Shedding of *B.hyo* was prevented in all treatment groups after withdrawal of medicated feed. No swine dysentery lesions were found at dosages of 75 to 150ppm post mortem.

### Discussion & Conclusion

Using the CCC and MICs of valnemulin give a good correlation for the prediction of the efficacy for the treatment of swine dysentery, when administered in the feed at 75ppm and higher dosages. This anticipated efficacy was confirmed in an artificial challenge study.