

NUMBER 7

## DOSE-TITRATION TRIALS DEMONSTRATE ECONOR<sup>®</sup>'S EFFECTIVENESS IN PREVENTING ENZOOTIC PNEUMONIA

**INTRODUCTION** Enzootic pneumonia due to *Mycoplasma hyopneumoniae* often leads to major economic losses for pork producers around the globe.

*In vitro* studies have shown that Econor<sup>®</sup> (valnemulin), a new-generation pleuromutilin antimicrobial, is highly active against *M. hyopneumoniae*. To further assess the effectiveness of Econor for preventing enzootic pneumonia, British researchers designed controlled *in vivo* dose-titration studies.<sup>1</sup>

Healthy pigs ages 6 to 7 weeks were challenged with *M. hyopneumoniae*. Econor treatment was initiated on the day of challenge and continued for about 3 weeks. Researchers then examined the pigs for evidence of *M. hyopneumoniae* infection.

### Trial 1

In Trial 1, there were five groups of pigs. All were challenged with *M. hyopneumoniae*, which was administered intranasally on 3 consecutive days.

The first group served as a control and received no medication. The other four groups received Econor, administered via a stomach tube (gavage) once daily.

The dosages of Econor given to the four treatment groups were, respectively, 2.5, 5, 7.5 or 10 mg/kg bodyweight per day.

### Results

> Pigs receiving 10 mg/kg bodyweight per day of Econor had a lung lesion score of only 1.7, compared to 13.2 in the controls. In other words, Econor reduced the lung lesion score by 87% (Table1).

> The lung lesion score was only 3.8 in pigs receiving 7.5 mg/kg bodyweight per day of Econor, a reduction of 71% compared to controls.

> Pigs that received Econor at the rates of 5 or 2.5 mg/kg bodyweight per day had lung lesion scores of 11.1 and 7.7, respectively — still improved compared to controls.

> *M. hyopneumoniae* was reisolated from only one pig in the group that received 10 mg/kg bodyweight of Econor daily, compared to four in the Econor group that received 2.5 mg/kg bodyweight daily.

### Trial 2

The design of Trial 2 was similar to Trial 1 except that Econor was given in feed at rates of 100, 200, 300 or 400 ppm. These are rates equivalent to 5, 10, 15 and 20 mg/kg bw/day, respectively.

## KEY POINTS

> The effectiveness of Econor for preventing the development of enzootic pneumonia due to *M. hyopneumoniae* was tested in two controlled, *in vivo* dose-titration studies.

> Econor administered at appropriate levels via stomach tube or in feed significantly reduced the development of lung lesions due to *M. hyopneumoniae*.

> Econor administered at appropriate levels also significantly reduced or eliminated reisolation of *M. hyopneumoniae* from the lungs.

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**Table 1**  
Dose Titration Study — Where the Pigs Were Gaviged Daily

Dose Rate (mg/kg bw)	Lung Lesion Score	Reduction (%)
0.0	13.2	—
7.5	3.8	71
10.0	1.7	87

**Table 2**  
Dose Titration Study — Where the Pigs Were Fed Different Levels of Econor

Inclusion Rate (ppm)	Lung Lesion Score	Reduction (%)
0	22.1	—
200	12.0	46
400	6.3	71

### Results

- > Pigs medicated with Econor at the rate of 400 ppm had a lung lesion score of only 6.3, compared to 22.1 in controls — a reduction in lung lesions of 71% (Table 2).
- > Econor administered in feed at the rate of 200 ppm had a lung lesion score of only 12 — a reduction of 46% compared to controls.
- > *M. hyopneumoniae* could not be reisolated from any pigs that received 400 ppm or 300 ppm of Econor.

> *M. hyopneumoniae* was reisolated from all controls, from three pigs in the 200 ppm group and from four pigs in the 100 ppm group.

**Researchers' observations:** "[Econor] proved effective for the prevention of experimentally-induced enzootic pneumonia... and should prove useful for field use."

### Summary

Two dose-titration trials indicate that Econor can be highly effective in preventing pneumonia due to *M. hyopneumoniae*.

Econor administered in appropriate doses via stomach tube or in feed can significantly reduce lung lesions due to *M. hyopneumoniae* and prevent reisolation of the pathogen from the lungs.

For more information on this study, please contact your local Novartis Animal Health representative or Dr. Ulrich Klein at [ulrich.klein@ah.novartis.com](mailto:ulrich.klein@ah.novartis.com)

### Reference

<sup>1</sup> Morgan JH, et al. Prevention of experimentally-induced enzootic pneumonia in pigs using the novel compound SDZ PMD 296 (Econor — Sandoz Ltd). *The 14th International Pig Veterinary Society Congress*. 1996.

