



Efficacy and duration of infection study for RespiSure® and Draxxin® against a *Mycoplasma hyopneumoniae* challenge in swine

Tom Painter¹, Michael Kuhn², Todd Wolff³, Maria Pieters³, Michael Senn²
¹Cargill Pork, Wichita, Kansas, USA, ²Pfizer Inc., Madison, New Jersey, USA,
³University of Minnesota, St. Paul, Minnesota, USA

Introduction

Experimental infections with *Mycoplasma hyopneumoniae* (M. hyo) can persist in the lung for longer than 200 days post challenge with complete natural clearance confirmed by 254 days following challenge. The objective of this study was to evaluate the duration of infection of M. hyo in swine that received either a M. hyo bacterin prior to M. hyo infection or a combination of M. hyo bacterin prior to M. hyo infection and tulathromycin following infection.

Materials and Methods

This study was conducted at commercial swine facilities. All animals enrolled in the study were from a single source, with an established status of being M. hyo free. All pigs were enrolled in the study at weaning, approximately 19 days of age. There were 7 treatment groups (T1 –T7). Two hundred fifty-five (255) animals were designated as negative control animals (T1). Pigs in T2 – T7 were vaccinated for M. hyo with RespiSure® at 3 and 6 weeks of age and eighty (80) animals were enrolled per group (T2-T7). Animals were clinically healthy and were 60 days of age (+/- 5 days) at the time of challenge. All animals were administered an intratracheal challenge of 10 mL of a 1:100 dilution of the challenge material, M. hyo-positive lung homogenate obtained from Iowa State University, Ames, IA (M. hyo strain 232-1x106 CCU/mL) on study day 35, which was 14 days after last vaccination. Pigs in T3, T5 and T7 were all administered two doses of Draxxin® (tulathromycin) injectable solution (2.5 mg/kg) at various intervals post-challenge (Table 1). Subsets of pigs from all treatment groups had lungs removed at slaughter, and a bronchial swab collected from each animal.

M. hyo PCR. Any lungs with lesions suspicious of M. hyo had tissues collected and transported to the MVDL for histology and further PCR.

Results

The M. hyo PCR results from bronchial swabs are summarized below

Treatment Group(s)	Day 133 Post-Challenge		Day 161 Post-Challenge		Day 189 Post-Challenge	
	n	% Pos	n	% Pos	n	% Pos
1	63	100	65	43.1	93	23.7
2,4,6	65	78.5	65	55.4	63	34.9
3,5,7	69	73.9	63	49.2	64	15.6

Discussion

It has been demonstrated that M. hyo infected pigs can be carriers of the pathogen while convalescent carriers can remain infectious for up to 200 days. Total clearance of M. hyo occurs by 254 days post-inoculation¹. Under the conditions of this study, the use of M. hyo vaccination alone or in combination with treatment with tulathromycin did not result in an elimination of the M. hyo carrier status at 133, 161 and 189 days post-inoculation.

References

1. Pieters, et. al., Vet Micro, 134 (2009) 261-266

Table 1.

Treatment Group	Tulathromycin (Days post-challenge)	Bronchial Swab (Days post-challenge)
1	N/A	133, 161, 189
2	N/A	133
3	90 & 100	133
4	N/A	161
5	122 & 132	161
6	N/A	189
7	150 & 160	189