



# discoveries

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- **Fostera® Gold PCV MH, a new inactivated vaccine from Zoetis, is the only PCV2 vaccine in the US with two genotypes — PCV2a and PCV2b — and it was shown in a study to be effective against 2d, the most prevalent US genotype.**
- **Studies have demonstrated the vaccine's duration of immunity against PCV2a, PCV2b and *M. hyo* is at least 23 weeks.**
- **Fostera Gold PCV MH will protect pigs through the finishing stage of production.**

## Fostera® Gold PCV MH protects pigs against PCV2a, PCV2b and *M. hyo* for at least 23 weeks

**F**ostera® Gold PCV MH, a new inactivated vaccine from Zoetis, is the only USDA-licensed vaccine that protects pigs against porcine circovirus (PCV) type 2a, PCV2b and *Mycoplasma hyopneumoniae* (*M. hyo*) for at least 23 weeks, ensuring pigs are protected through the finishing stage of production.

The leading genotypes of PCV2 circulating among US herds are 2d, followed by 2b then 2a.<sup>1</sup> The new vaccine is the only commercial PCV2 vaccine in the US with both the 2a and 2b genotypes, and its efficacy against 2d was demonstrated in a large field trial.<sup>2</sup> Other commercially available PCV2 vaccines contain only one genotype.

### 2b efficacy study

The 23-week duration of immunity that Fostera Gold PCV MH provides for the 2b genotype was demonstrated in a study.<sup>3</sup>

Researchers randomly assigned pigs to receive the new vaccine at 3 weeks of age. Another group served as controls and received only the vaccine's *M. hyo* and adjuvant fractions.

After 23 weeks, the researchers challenged pigs with virulent PCV2b. Anyone involved with evaluating the results was "blinded" and did not know which pigs had or had not received the new vaccine, according to Megan Smutzer, a scientist with Zoetis involved with the study.

Compared to controls, pigs that received Fostera Gold PCV MH were significantly protected based on viremia ( $p = 0.0056$ , Figure 1), fecal shedding ( $p < 0.0001$ ) and PCV2 antigen in lymphoid tissues ( $p = 0.0098$ ), which was determined with immunohistochemistry, Smutzer reported.

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Fostera® Gold PCV MH protects pigs against PCV2a, PCV2b and *M. hyo* for at least 23 weeks



“Fostera Gold PCV MH protects against 2a and 2b longer than any other commercially available PCV2 vaccine in the US.”

MEGAN SMUTZER,  
ZOETIS

She noted that the efficacy of the vaccine’s 2a component and 23-week duration of immunity has been demonstrated in controlled studies.<sup>4,5</sup>

“Fostera Gold PCV MH protects against 2a and 2b longer than any other commercially available PCV2 vaccine in the US,”<sup>6,7</sup> Smutzer said.

“PCV2b and 2d are genetically similar and the immune response pigs develop after vaccination also recognizes 2d. Based on our research and other challenge studies,<sup>8</sup> we expect the new vaccine’s duration of immunity against 2d to be comparable to the 23 weeks demonstrated for 2a and 2b,” she said.

#### Broadest genotype coverage

Together, the two PCV2 genotypes in Fostera Gold PCV MH should provide better coverage not only against the most prevalent circulating PCV2 genotypes but against evolving PCV2 genotypes, she said.

Smutzer cited results from an analysis made possible with EpiCC, an innovative computer model used to predict immune response and plot the coverage of different PCV2 vaccines against 161 PCV2 field strains.<sup>9</sup> EpiCC predicted that a vaccine with both PCV2a and PCV2b would offer broader coverage against evolving field strains.

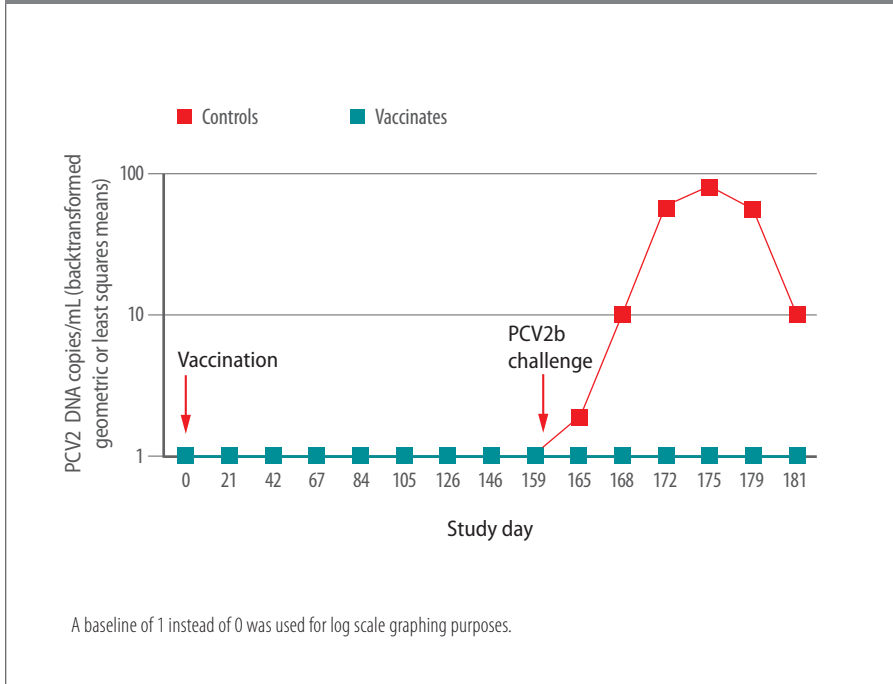
#### *M. hyo* efficacy study

The duration of immunity for the *M. hyo* component of Fostera Gold PCV MH was already demonstrated in a study with the new vaccine’s predecessor Fostera® PCV MH, she said. “The new vaccine has the same *M. hyo* fraction because it has a reputation in the industry for dependability and efficacy,” the scientist said.

For the *M. hyo* study, Zoetis researchers randomly assigned 36 pigs to receive Fostera PCV MH and 36 to receive only the PCV2 and adjuvant fractions without *M. hyo*.<sup>10</sup> A third group of eight pigs served as sentinels; they were not vaccinated and were used to make sure none of the pigs in the study were exposed to *M. hyo* before the challenge was administered.

Twenty-three weeks after vaccination, the researchers administered pathogenic *M. hyo* into the lungs via the trachea for 2 consecutive days. As in the 2b efficacy study, personnel evaluating the results were blinded.

Figure 1. PCV2 viremia in pigs that received Foster Gold PCV MH versus controls



Pigs that received the PCV2 and *M. hyo* fractions of the vaccine had a significantly lower ( $p = 0.0316$ ) mean percentage of lung with lesions...

<sup>1</sup> Personal communication between Darin Madson, PhD, and Rick Swalla, DVM, Zoetis.

<sup>2</sup> Data on file, Study Report No. 16PRGBIO-01-01, Zoetis LLC.

<sup>3</sup> Data on file, Study Report No. B824R-US-15-451, Zoetis LLC.

<sup>4</sup> Data on file, Study Report No. B825R-US-16-667, Zoetis LLC.

<sup>5</sup> Data on file, Study Report No. B822R-US-14-325, Zoetis LLC.

<sup>6</sup> Circumvent® PCV-M G2, Merck Animal Health. Accessed February 21, 2018.

<sup>7</sup> Ingelvac CircoFLEX®, Boehringer Ingelheim. Accessed February 21, 2018.

<sup>8</sup> Opriessnig T, et al. A PCV2 vaccine based on genotype 2b is more effective than a 2a-based vaccine to protect against PCV2b or combined PCV2a/2b viremia in pigs with concurrent PCV2, PRRSV and PPV infection. *Vaccine*. 2013;31:487-494.

<sup>9</sup> Data on file, Study Report Zoetis W01, EpiCC PCV2 Analysis, Zoetis LLC.

<sup>10</sup> Data on file, Study Report No. B824R-US-15-505, Zoetis LLC.

Pigs that received the PCV2 and *M. hyo* fractions of the vaccine had a significantly lower ( $p = 0.0316$ ) mean percentage of lung with lesions compared to the group that received only the PCV fraction of the vaccine, Smutzer said.

There were no adverse reactions due to the vaccine nor was there any evidence of *M. hyo* among the sentinel pigs, she added.

“Foster Gold PCV MH has demonstrated efficacy. That, coupled with a duration of immunity that will protect pigs from PCV2 and *M. hyo* through the finishing stage, should go a long way toward combatting two costly diseases of swine,” Smutzer said.

For more information, contact Megan Smutzer ([megan.smutzer@zoetis.com](mailto:megan.smutzer@zoetis.com)) or your Zoetis representative.



NEW IDEAS FROM PIG RESEARCH

## discoveries

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