



**Fostera<sup>®</sup>Gold**  
PCV MH

**Threats adapt.  
So should your protection.**

Get the broadest antigenic and  
longest-lasting PCV2 coverage  
available with Fostera<sup>®</sup> Gold PCV MH.

**zoetis**

## MISSING RESPIRATORY PROTECTION

Porcine circovirus Type 2 (PCV2) may be one of the most expensive disease challenges you face on your operation. Combine PCV2 with a co-infection, such as *Mycoplasma hyopneumoniae* (*M. hyo*), and you could lose up to \$20 per pig.<sup>1</sup> That's an unwanted surprise that affects pig health and productivity as well as farm profitability. Vaccination is the best protection; however, your current vaccine may not provide broad coverage against the rapidly evolving PCV2 virus and long coverage to get more healthy pigs to market.

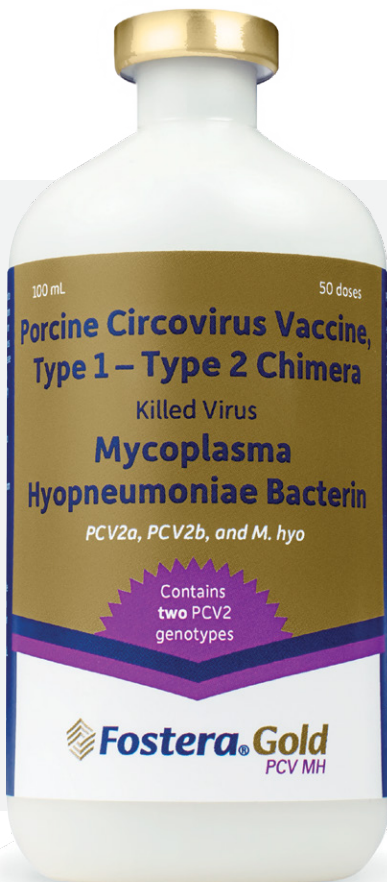
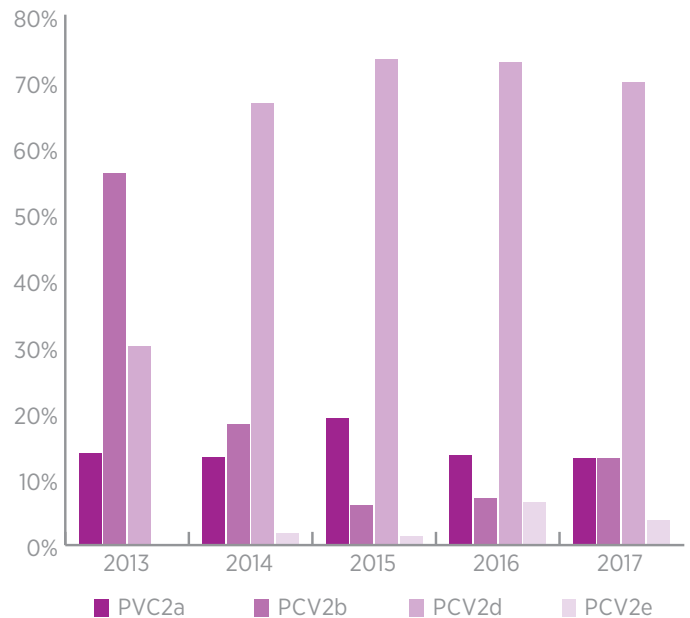
## PCV2 INSIGHTS

- ✓ PCV2 has the highest mutation rate reported for a single-stranded DNA virus.<sup>2</sup>
- ✓ The genetic gap between commercial PCV2 vaccines and field viruses is increasing.<sup>3,4</sup>
- ✓ PCV2 is the primary cause of several respiratory challenges known as porcine circovirus associated disease, which is one of the most economically important diseases in the swine industry.

## EVOLVING PCV2 CAN COMPLICATE RESPIRATORY PROTECTION

There are four known PCV2 genotypes present in U.S. swine herds: PCV2a, PCV2b, PCV2d and occasionally PCV2e, with prevalence shifting in the past several years to PCV2b<sup>5</sup> and now PCV2d.<sup>6</sup> PCV2d was originally referred to as mutant PCV2b,<sup>7</sup> and sequence analysis confirms that it is more similar to PCV2b than to PCV2a. Until now, all commercial PCV2 vaccines contained a single PCV2 genotype, meaning you could miss coverage against more prevalent or evolving strains in circulation.<sup>8-11</sup>

Summary of PCV2 genotype sequences at the Iowa State Veterinary Diagnostic Laboratory from 2013 to 2017



## GET THE BROADEST ANTIGENIC AND LONGEST-LASTING PCV2 COVERAGE AVAILABLE WITH FOSTERA® GOLD PCV MH

Fosterera® Gold PCV MH delivers the broadest antigenic and longest-lasting protection against PCV2 as well as trusted, long-lasting *M. hyo* protection. That's because it contains two PCV2 genotypes — PCV2a and PCV2b — to provide broader antigenic coverage.<sup>12-17</sup> Fosterera Gold PCV MH has the longest duration of immunity (DOI) available against PCV2 of 23 weeks,<sup>18-19</sup> as well as a DOI of at least 23 weeks against *M. hyo*.<sup>20</sup> Fosterera Gold PCV MH has been shown to be effective for the vaccination of healthy pigs 3 days of age or older against PCV2 (PCV2 viremia, shedding of virus in feces, lymphoid colonization and lymphoid depletion) and respiratory disease due to *M. hyo*. This means broader PCV2 coverage as well as the same effective *M. hyo* protection as other Zoetis PCV and *M. hyo* vaccines.

## PROTECTION FOR THE FUTURE

“Genetic drift and shift in PCV2 will continue. By adding PCV2b to Foster Gold PCV MH, we’re creating a bigger umbrella of protection against more PCV2 strains and genotypes. We’ve studied the sequences of various PCV2 viruses in circulation. The data showed that the PCV2 viruses in Foster Gold PCV MH more closely represented circulating field strains, including the dominant virus in the field, PCV2d.”

*Meggan Bandrick, DVM, PhD, Manager, Global Biologics Research, Zoetis*

	Fostera® Gold PCV MH	Circumvent® PCV M G2	Ingelvac CircoFLEX®/ Ingelvac MycoFLEX®
<b>Antigens included</b>	<ul style="list-style-type: none"> <li>• PCV2a genotype</li> <li>• PCV2b genotype</li> <li>• <i>M. hyo</i></li> </ul>	<ul style="list-style-type: none"> <li>• PCV2a genotype</li> <li>• <i>M. hyo</i></li> </ul>	<ul style="list-style-type: none"> <li>• PCV2a genotype</li> <li>• <i>M. hyo</i></li> </ul>
<b>PCV2 duration of immunity (DOI)</b>	<ul style="list-style-type: none"> <li>• At least 23 weeks<sup>18-19</sup></li> </ul>	<ul style="list-style-type: none"> <li>• At least 20 weeks</li> </ul>	<ul style="list-style-type: none"> <li>• At least four months (approximately 16 weeks)</li> </ul>
<b><i>M. hyo</i> DOI</b>	<ul style="list-style-type: none"> <li>• At least 23 weeks<sup>20</sup></li> </ul>	<ul style="list-style-type: none"> <li>• None demonstrated</li> </ul>	<ul style="list-style-type: none"> <li>• At least 26 weeks</li> </ul>
<b>Adjuvant formulation</b>	<ul style="list-style-type: none"> <li>• MetaStim® adjuvant</li> </ul>	<ul style="list-style-type: none"> <li>• Microsol Diluvac Forte adjuvant</li> </ul>	<ul style="list-style-type: none"> <li>• ImpranFLEX water-based adjuvant</li> </ul>
<b>Vaccine structure</b>	<ul style="list-style-type: none"> <li>• Whole virus</li> </ul>	<ul style="list-style-type: none"> <li>• Baculovirus</li> </ul>	<ul style="list-style-type: none"> <li>• Baculovirus</li> </ul>

## ACHIEVE OPTIMUM PIG HEALTH

Fostera Gold PCV MH is developed with the unique and smooth MetaStim® adjuvant that stimulates both cell-mediated and antibody-based immunity. This means:

- ✓ A broad immune response to the virus, including antibodies and cell-mediated immunity, which mimics the response to a natural infection
- ✓ A safe and smooth vaccine, resulting in minimal post-vaccination reactions<sup>21</sup>
- ✓ Your pigs get wide-ranging protection from a safe, effective vaccine that represents continuous improvement on the Foster Gold vaccine family.

## BENEFITS OF USING A COMPLETE VIRUS

“Fostera Gold PCV MH contains two killed, chimeric PCV1-PCV2 viruses that were grown on a porcine cell line. Both are whole PCV2 viruses, so the vaccine looks like a complete PCV2 virus to the pig’s immune system. In contrast, competitor products contain a PCV2 protein from one PCV2 genotype that was derived from a baculovirus — an insect virus grown in an insect line. With a whole virus grown in a porcine cell line, Foster Gold PCV MH is free of unnecessary insect cell or baculovirus material that could stimulate an unnecessary immune response in pigs.”

*Vitelio Utrera, DVM, PhD, Swine Respiratory Disease Specialist, Pork Technical Services, Zoetis*

## STIMULATING MULTIPLE IMMUNE RESPONSES

“Antibody and cell-mediated immunity are both important to disease protection. The antibody response is important, but antibodies can’t fight the virus once it infiltrates a cell and starts replicating. For that, you need a cell-mediated response, which fights the virus inside the cell. The MetaStim adjuvant helps stimulate both of these immune responses.”

*Lucina Galina Pantoja, DVM, PhD,  
Director, Pork Technical Services, Zoetis*

## GET COMPREHENSIVE PROTECTION

Eliminate surprises with Fosterera® Gold PCV MH and get:



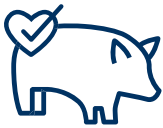
### More pounds of pork to market.

Fosterera Gold PCV MH has demonstrated excellent performance in commercial conditions. In a study, vaccinated pigs performed better than saline controls, delivering up to 1.61 pounds per day in average daily gain and up to 257 pounds in close-out weights.<sup>22</sup>



### Long protection for pig health and your profitability.

Fosterera Gold PCV MH is the longest-lasting PCV2 vaccine with a DOI of at least 23 weeks<sup>18-19</sup> as well as long-lasting protection against *M. hyo* with a DOI of at least 23 weeks.<sup>20</sup> This length of coverage can help reduce the risk of late breaks near finishing.



**Broadest antigenic protection against quickly evolving PCV2.<sup>2</sup>** With two PCV2 genotypes, Fosterera Gold PCV MH has the broadest antigenic PCV2 coverage of any PCV2 vaccine on the market.



### Productivity through the finishing stage.<sup>22</sup>

PCV2 virus change and depressed immunity are unwanted surprises in pork production, especially at the finishing stage, risking pig health and productivity as well as farm profitability.



### Demonstrated efficacy and safety against common PCV2 strains.

Fosterera Gold PCV MH has demonstrated protection and safety against PCV2a, PCV2b, PCV2d and *M. hyo*.<sup>12-22</sup>



### Comprehensive support from Zoetis.

Fosterera Gold PCV MH is backed by Zoetis and the broadest product and service portfolio available to support pig health and productivity as well as farm profitability. We work with you to understand your health and productivity goals and tailor a solution to help achieve them.

Choose Fosterera Gold PCV MH to protect your pigs, your operation and your profits. Talk to your veterinarian or local Zoetis representative or visit [zoetisUS.com/FostereraGold](http://zoetisUS.com/FostereraGold) for more information.

<sup>1</sup> Gillespie J, Opriessnig T, Meng XJ, Pelzer K, Buechner-Maxwell V. Porcine circovirus type 2 and porcine circovirus-associated disease. *J Vet Intern Med.* 2009;23(6):1151-1163.

<sup>2</sup> Firth C, Charleston MA, Duffy S, Shapiro B, Holmes EC. Insights into the evolutionary history of an emerging livestock pathogen: porcine circovirus 2. *J Virol.* 2009;83(24):12813-12821.

<sup>3</sup> Olvera A, Cortey M, Segalés J. Molecular evolution of porcine circovirus type 2 genomes: phylogeny and clonality. *Virology.* 2007;357(2):175-185.

<sup>4</sup> Gerber PF, Johnson J, Shen H, et al. Association of concurrent porcine circovirus (PCV) 2a and 2b infection with PCV associated disease in vaccinated pigs. *Res Vet Sci.* 2013;95(2):775-781.

<sup>5</sup> Beach NM, Meng XJ. Efficacy and future prospects of commercially available and experimental vaccines against porcine circovirus type 2 (PCV2). *Virus Res.* 2012;164(1-2):33-42.

<sup>6</sup> Xiao CT, Harmon KM, Halbur PG, Opriessnig T. PCV2d-2 is the predominant type of PCV2 DNA in pig samples collected in the U.S. during 2014-2016. *Vet Micro.* 2016;197:72-77.

<sup>7</sup> Opriessnig T, Gerber PF, Xiao CT, Mogler M, Halbur PG. A commercial vaccine based on PCV2a and an experimental vaccine based on a variant mPCV2b are both effective in protecting pigs against challenge with a 2013 US variant mPCV2b strain. *Vaccine.* 2014;32(2):230-237.

<sup>8</sup> Gagnon CA, Tremblay D, Tijssen P, Venne M-H, Houde A, Elahi SM. The emergence of porcine circovirus 2b genotype (PCV-2b) in swine in Canada. *Can Vet J.* 2007;48(8):811-819.

<sup>9</sup> Lefebvre DJ, Costers S, Van Doorselaere J, Misinzo G, Delputte PL, Nauwynch HJ. Antigenic differences among porcine circovirus type 2 strains, as demonstrated by the use of monoclonal antibodies. *J Gen Virol.* 2008;89(Pt 1):177-187.

<sup>10</sup> Saha D, Lefebvre DJ, Ooms K, et al. Single amino acid mutations in the capsid switch the neutralization phenotype of porcine circovirus 2. *J Virol.* 2012;93(Pt 7):1548-1555.

<sup>11</sup> Cheung AK, Lager KM, Kohutuk OI, et al. Detection of two porcine circovirus type 2 genotypic groups in United States swine herds. *Arch Virol.* 2007;152(5):1035-1044.

<sup>12</sup> Data on file, Study Report No. B822R-US-14-325, Zoetis Inc.

<sup>13</sup> Data on file, Study Report No. B822R-US-16-582, Zoetis Inc.

<sup>14</sup> Data on file, Study Report No. B822R-US-15-544, Zoetis Inc.

<sup>15</sup> Data on file, Study Report No. B825R-US-16-667, Zoetis Inc.

<sup>16</sup> Data on file, Study Report No. B822R-US-15-557, Zoetis Inc.

<sup>17</sup> Data on file, Study Report No. B822R-US-16-622, Zoetis Inc.

<sup>18</sup> Data on file, Study Report No. B824R-US-15-451, Zoetis Inc.

<sup>19</sup> Data on file, Study Report No. B824R-US-13-118, Zoetis Inc.

<sup>20</sup> Data on file, Study Report No. B824R-US-15-505, Zoetis Inc.

<sup>21</sup> Data on file, Study Report No. B921R-US-16-609, Zoetis Inc.

<sup>22</sup> Data on file, Study Report No. 16PRGBIO-01-01, Zoetis Inc.