# PRESTIGE<sup>®</sup>



OUR UNCONDITIONAL COMMITMENT TO

## Vaccine Performance



# Storied History of Vaccine Innovation

Merck Animal Health has always been a vaccine company and we have an extensive history of leading equine vaccine advancements.

> Flu Avert<sup>®</sup> I.N., first intranasal equine influenza vaccine launched

1999

• Intervet launches Prodigy® (EHV-1) vaccine

2004

- Equine Respiratory
   Biosurveillance
   Program begins
- EquiRab® introduced, the first monovalent rabies vaccine designed just for the horse

2008

The science behind our protection builds off a rich history of innovation but doesn't stop there. Our researchers are behind the scenes looking for tomorrow's solutions. We're listening to what horse owners are concerned with and anticipating tools veterinarians will need. I'm proud of our portfolio today, and even more excited about how it will look in the future.

Wendy E. Vaala, VMD, Dipl. ACVIM
Merck Animal Health

• New WNV
combination killed
flavivirus chimera
vaccines added the first inactivated
vaccines proven
using the gold
standard intrathecal
challenge model

2012

- PRESTIGE vaccine line updated to include Florida '13 clade 1 and Richmond '07 clade 2 influenza strains, meeting OIE and AAEP guidelines for influenza protection
- Encevac® vaccine line renamed to PRESTIGE

2018

 Equine Respiratory Biosurveillance Program surpasses 11,000 samples

2022

#### 1990s

- PRESTIGE® and Encevac® vaccine lines introduced by Bayer
- Havlogen® proprietary adjuvant introduced

   the first Carbopol polymer cross-linking adjuvant used in an equine vaccine
- The Antigen Purification System™ is added, further enhancing the safety and purity of the PRESTIGE vaccine line

2001

• Intervet purchases Bayer Biologicals business 2007

• Intervet becomes Intervet/Schering-Plough Animal Health 2011

 Intervet/Schering-Plough Animal Health becomes Merck Animal Health 2013

 Florida '13 influenza strain identified during large influenza outbreak at HITS Ocala show 2021

• Genetic sequencing studies in 2019 and 2021 assess how commercially-available vaccines stack up against circulating influenza virus



Pioneers of Vaccine Safety

The introduction of Havlogen 30 years ago revolutionized the modern-day vaccine adjuvant. As a result, PRESTIGE vaccines quickly became known for their safety — a reputation that holds true today.

#### PRESTIGE® VACCINES

# The Spectrum of Essential Disease Protection

PRESTIGE® Vaccines provide essential disease protection for the most common and deadly infectious diseases of the horse.

- Merck Animal Health is a leader in respiratory disease with the only vaccines backed by the Equine Respiratory Biosurveillance Program
- The most current influenza strains, including Florida '13 clade 1 and Richmond '07 clade 2, meeting World Organisation for Animal Health (OIE) and AAEP guidelines for influenza protection
- Superior safety profile. Proven 98% reaction free in field safety trials<sup>1</sup>
- West Nile virus vaccines proven using the gold standard intrathecal challenge model
- Multiple antigen combinations for maximum flexibility

#### Powerful Vaccine Combos

Vaccine	Tetanus	WNV	EEE/WEE	Influenza	EHV 1&4
PRESTIGE° 5 + WNV					
PRESTIGE® 5					
PRESTIGE® 4					
PRESTIGE® 3 + WNV	•				
PRESTIGE® 3					
PRESTIGE® 2					

#### Single Antigen Vaccines











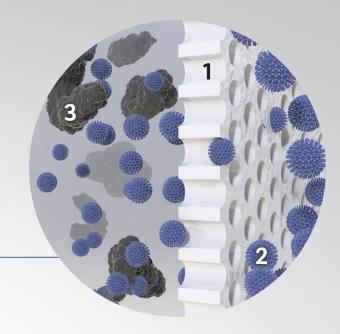


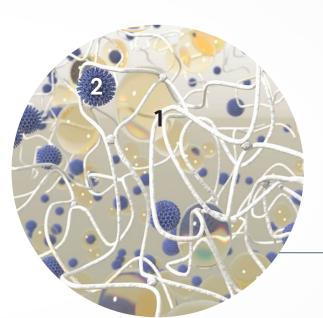
<sup>1</sup>Data on file. Merck Animal Health. <sup>2</sup>Holmes MA, Townsend HGG, Sussey S, Breathnach C, Barnett C, Holland RE, Lunn DP: Immune responses to commercial equine vaccines. AAEP Proceedings, Vol. 49, 2003.

#### Antigen Purification System™

A vaccine can never be too safe. Our technology, known as the Antigen Purification System (APS), has been utilized for more than 20 years to help remove extraneous protein and cellular debris. Using this method of filtration purification allows concentration of antigen while minimizing the presence of extraneous protein and cellular debris that can contribute to vaccine associated adverse events. By purifying the vaccines with the APS, we reduce the debris that can cause undesirable injection site reactions in the horse.

The microfilter (1) technology in the Merck APS helps purify the vaccine antigen (2) by filtering out unwanted extraneous proteins (3) that may be involved with injection site reactions.





#### Exclusive Havlogen® Adjuvant

Our killed vaccines are highly efficacious, in part, because of our exclusive Havlogen adjuvant. Havlogen is an emulsive, lipid-based, carbopol polymer cross-linking adjuvant. Havlogen stimulates the immune system to produce high, long-lasting levels of protection through the slow release and gradual absorption of antigen. Due to the composition of Havlogen, the vaccine maintains suspension without separation and settling in the vial, resulting in consistency and potency in every dose.

Havlogen is a proprietary adjuvant that is comprised of a lipid-based, carbopol polymer cross-linking suspension (1) that, when combined with the antigen (2), enhances antigen presentation through the slow release and gradual absorption of the antigen.



#### PRESTIGE® EquiRab®

The only monovalent rabies vaccine developed specifically for the horse. One smooth, low-volume 1 mL dose elicits a long-lasting 14-month duration of immunity.



#### PRESTIGE® Prodigy®

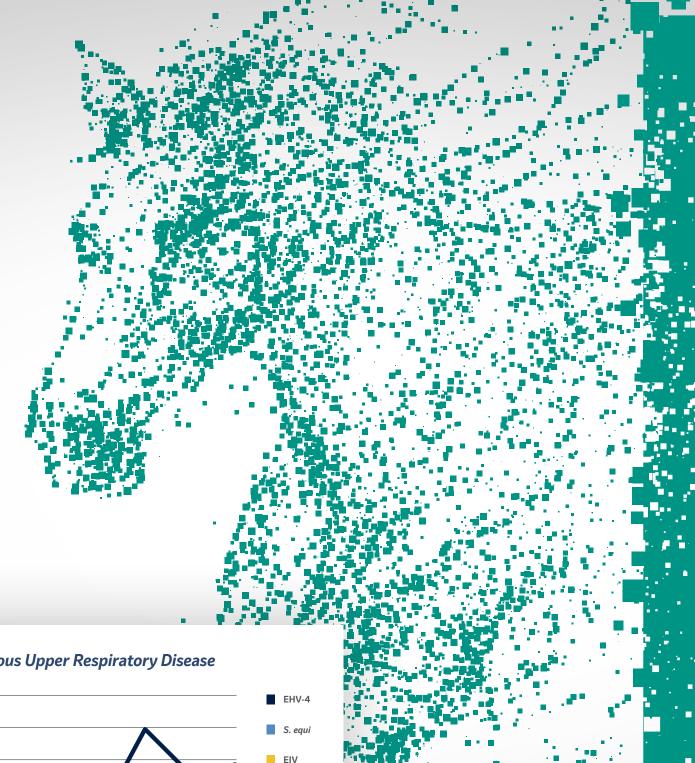
For superior protection from EHV-1 respiratory infection and abortion, PRESTIGE Prodigy produces a comprehensive antibody and cell-mediated immune response and is proven to reduce nasal discharge and virus shedding.<sup>1,2</sup>

#### SCIENCE THAT MATTERS

## Equine Respiratory Biosurveillance Program

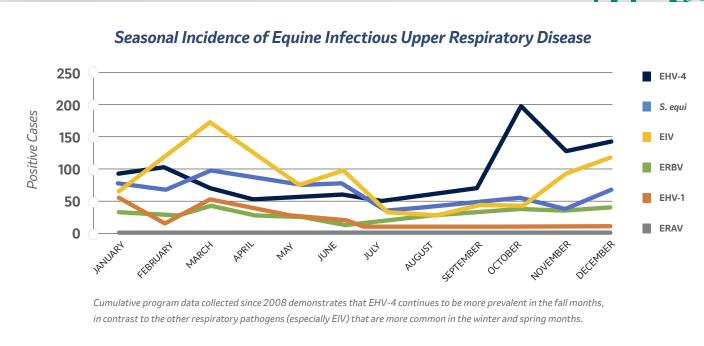
The only program of its kind, providing critical ongoing (since 2008) information about infectious respiratory disease threats to help guide optimal management and preventative measures for the horse.

This is the Science of Healthier Animals working for you—identifying threats and delivering advanced vaccine solutions to improve the lives of horses.



## Critical Data Creates Powerful Solutions

- Longitudinal study with unparalleled breadth and depth monitoring:
- Equine influenza virus (EIV)
- Equine herpesvirus types 1 & 4 (EHV-1/4)
- Streptococcus equi subspecies equi (strangles)
- Equine rhinitis A/B viruses (ERAV/ERBV)
- Houses one of the largest collections of equine influenza isolates in the U.S.
- Birthplace of Florida '13 vaccine strain
- Documents important influenza antigenic drift
- Multiple published research papers and numerous national and international abstract presentations
- In partnership with University of California, Davis, Equine Infectious Disease Research Laboratory



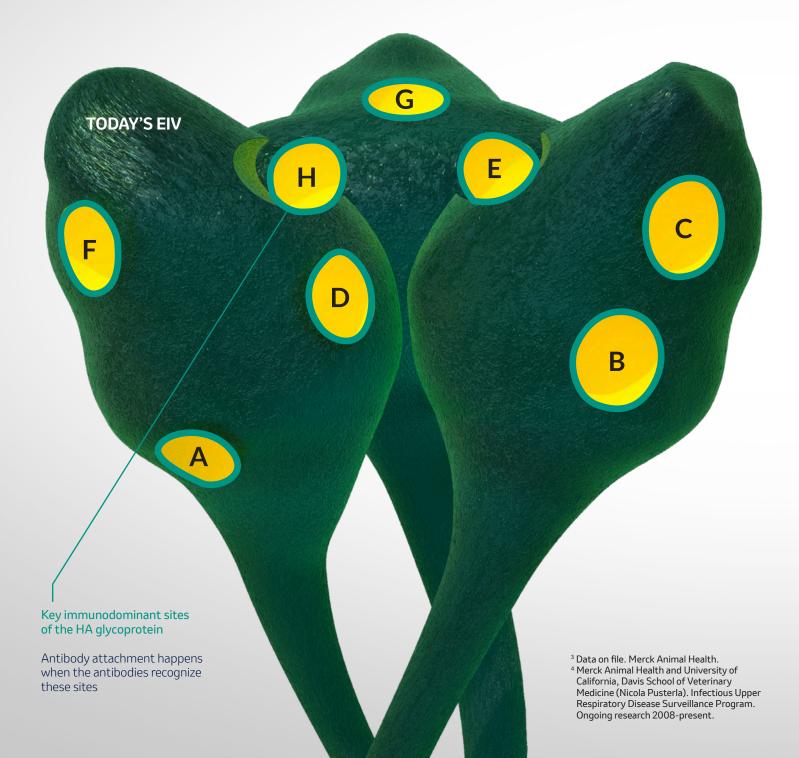
#### INFLUENZA PROTECTION

### There's a Fine Line in Influenza Protection

The importance of sequencing to stay ahead of influenza threats.

Influenza viruses are constantly undergoing genetic changes.
Understanding these genetic changes – known as antigenic drift – through ongoing surveillance and sequencing of isolates is critical to evaluating and improving the efficacy of equine vaccines.

Only Merck Animal Health continues to sequence influenza isolates to evaluate whether commercially available vaccine strains – including our own Florida '13 – provide adequate protection against today's circulating field strains of influenza.



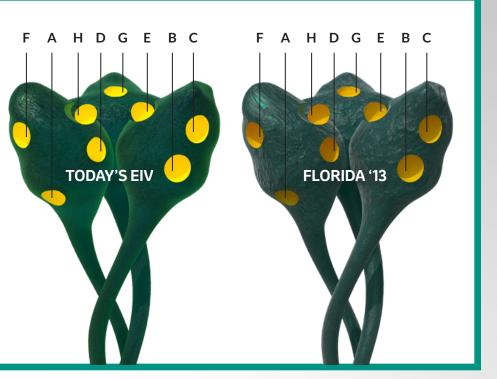
#### Florida '13

HA Glycoprotein

# FL '13 antibodies have a strong attachment to today's EIV

Ongoing sequencing of recent outbreaks from 2013 to present demonstrates Florida '13 continues to be highly relevant to equine influenza circulating today in our U.S. horse population.<sup>3,4</sup>

Identical key site alignment with today's EIV

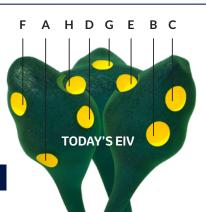


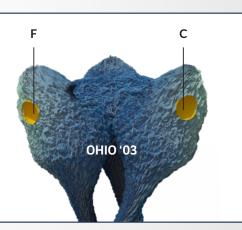
#### Ohio '03

HA Glycoprotein

OH '03 antibodies may have minimal attachment to today's EIV

Minimal key site similarity to today's EIV



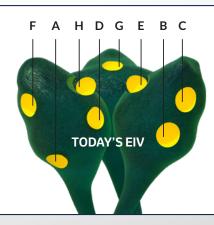


#### Kentucky '97

HA Glycoprotein

KY '97 antibodies could have weak attachment to today's EIV

No key site similarity to today's EIV





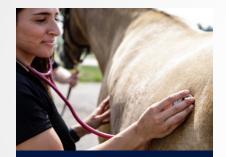
Choice of influenza vaccine strain matters.

Only in PRESTIGE® Vaccines

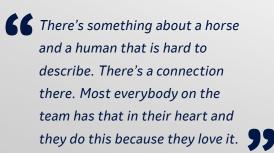
— Florida '13 Clade 1 — Richmond '07 Clade 2

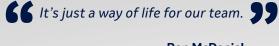
## A Storied History of Unconditional Commitment to the Horse

Dedicated to offering even more than a portfolio of exceptional products, Merck Animal Health is driven by a passion for the horse and those who serve them.



Continued devotion to improving mental and physical wellness for veterinarians, the recently released Merck Animal Health Veterinary Wellbeing Study III expanded to include veterinary technicians.





Ron McDaniel Director of U.S. Equine Sales



Annual Merck Animal Health Foundation for the Horse Scholarship





\$1 Million+

Vaccines

donated through

the Unwanted Horse Veterinary Relief Campaign, a 14-year (ongoing) non-profit

partnership with AAEP.

UHVRC

















**66** Our team has a lot of passion for the industry and compassion for the animals and the people involved, whether it's disaster relief for the California wildfires. or the hurricanes along the gulf coast.

**Bryant Craig, DVM** 



Merck Equine Research Fellowship through the University of Kentucky, Gluck Equine Research Center



Merck Animal Health is a proud partner to:













Merck Animal Health Bio-Thermo microchips coupled with the recent EquiTrace partnership underscores our Unconditional commitment to delivering innovative new ways to monitor and proactively manage horse health.





Discover how Merck Animal Health is unconditionally committed to you. Contact a Merck Animal Health sales representative at 1-800-521-5767 or visit merck-animal-health-usa.com/species/equine.

Equine Professional Services:

1-866-349-3497



