# BC MAGAZINE

Q3 2024 Issue

Swine Edition

- PRRS in Focus
- Software update

BioChek

SMART VETERINARY DIAGNOSTICS

WELCOME

# A MESSAGE FROM OUR CEO

Welcome to the very first edition of BC Magazine in 2024, BioChek's seasonal magazine! In this and future issues, we will share various company news on our portfolio of products and services and corporate milestones.

We are halfway through 2024, and I am proud of what we have achieved so far this year.

At BioChek, we deeply understand our customers' vision and values, the connected needs of our customers, and their trust in us. This understanding is the driving force behind our dedicated customer service excellence strategy and product development.

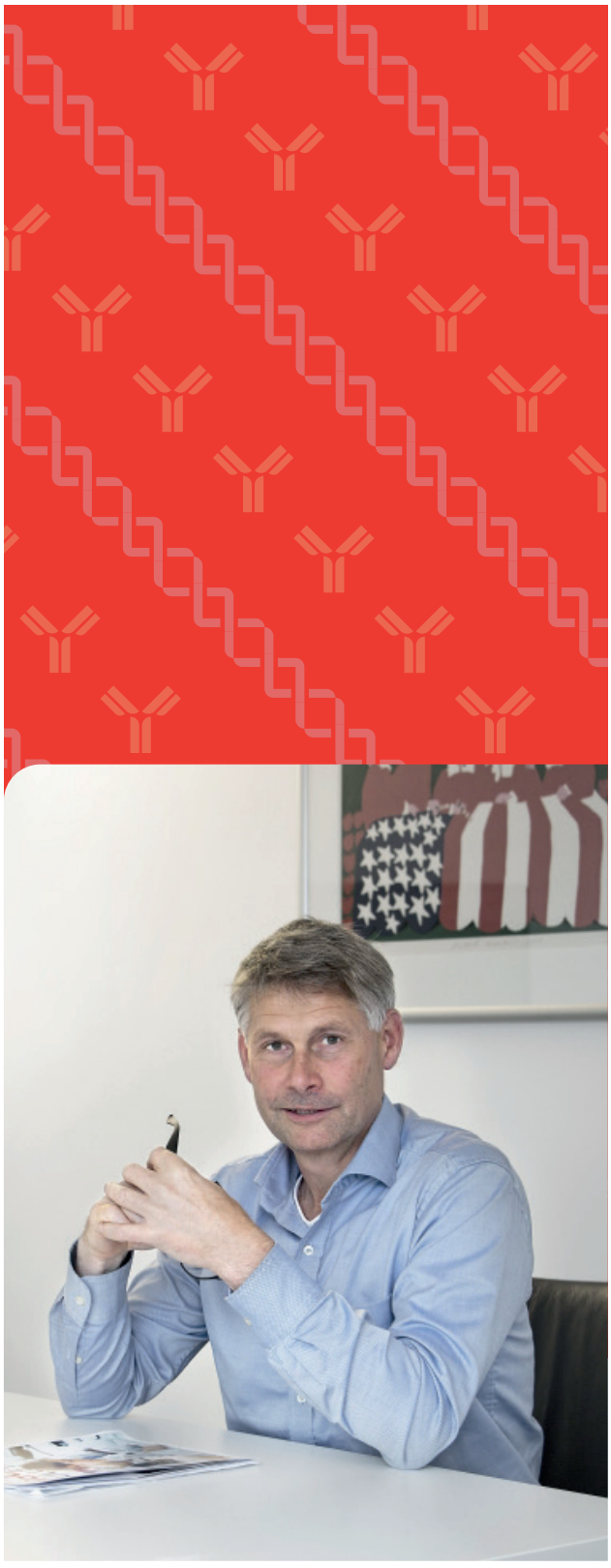
We are committed to adding value to our product portfolio; in this issue we'll inform you about our latest software update with a dashboard reporting system, a new reference control and our extraction solutions.

I am pleased to share that we always continue to assess how our products and services meet our customers' needs, identify where we need to improve and determine how quickly we can make those improvements.

We hope you will enjoy reading this Summer 2024 issue of BC Magazine.

Until next season!

***Barend van Dam***



# SPECIAL SWINE EDITION FEATURED IN THIS ISSUE



PRRS IN FOCUS

# VETPROOF® PORCINE REPRODUCTIVE AND RESPIRATORY SYNDROME VIRUS (PRRSv) qPCR KIT

Porcine Reproductive and Respiratory Syndrome virus (PRRSv) remains one of the most prevalent and economically important pathogens affecting swine populations.

Accurate, sensitive, easy-to-use assays are crucial in the management of PRRS as the genetic diversity and complexity of PRRSv are still causing increasing challenges for the swine industry such as the emergence of the highly pathogenic genotype II strain in Asia, high losses in Mexico and the Rosalia strain in Spain.

BioChek launched the new **vet**proof® PRRSv qPCR Kit earlier this year, in June, to address these issues.

The new **vet**proof® PRRSv qPCR Kit is designed to solve diagnostic problems and offers the following advantages:

- Excellent strain coverage and reliable detection and differentiation between PRRSV Type I (EU), PRRSv Type II (NA), and subtype HP (highly pathogenic NA strains).
- Suitable for all relevant matrices.
- Great sensitivity and a low limit of detection (10 copies per reaction) allow for high-throughput screening in pools of up to 10 serum samples.

Proper monitoring of PRRSv in conventional herds can greatly decrease the production losses associated with the disease.

Under-standing the status of the herd, infection timepoints, optimal vaccination moment and vaccination success allows the veterinarian to implement the best suited PRRS prevention strategy.

# UNDERSTANDING THE VALUE THAT BIOCHEK'S PRRS XR ANTIBODY ELISA ADDS TO YOUR TEST RESULTS COMPARED TO FREQUENTLY USED PRRS ELISA

BioChek PRRS XR (=eXtended dynamic Range) Antibody ELISA clearly differentiates between low, moderate and high titres, giving users a better picture of the PRRS status in all production groups.

When comparing the BioChek PRRS XR Antibody ELISA with another frequently used PRRS ELISA the added value of the extended range becomes clear. The detection of the antibody response is rapid and well defined and as is seen in the field cases described below.

**Suspected field virus contact in a PRRS stable population.**

BioChek PRRS XR Antibody ELISA responds earlier and more defined to a field virus contact, confirmed by PCR (typed as field virus strain), at the end of the nursery phase.

The difference in sow titres and in titres of the infected groups are notable and would allow the veterinarian to formulate an appropriate intervention plan. The other ELISA indicates a much higher antibody level in the sow population, suggestive of an recent infection, compared to BioChek PRRS XR Antibody ELISA although PCR confirms no active infection at this stage. The other ELISA profile also indicates a late infection at the end of finishing while the PCR results shows a clear increase in Cq value. Field infections are detected, and an estimation of the infection moment is possible with BioChek PRRS XR AntibodyELISA.

PCR including typing was performed to check and confirm the conclusion from of the serological profiles.

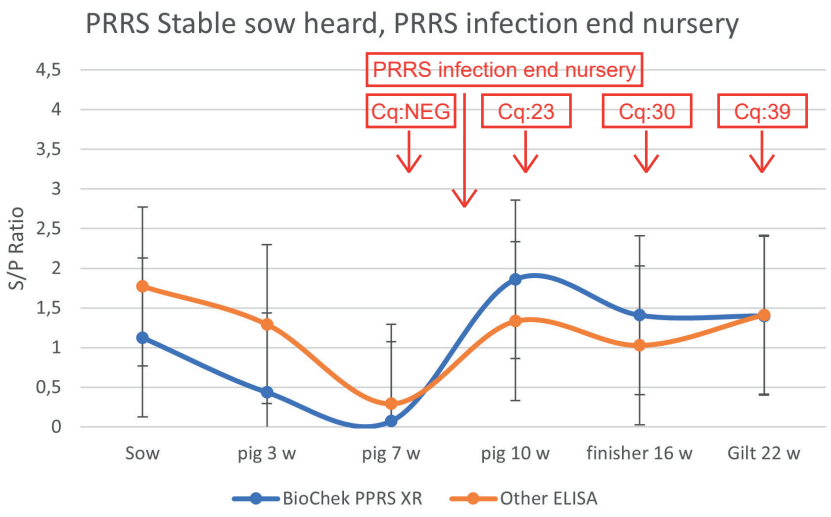



Fig 1. Suspected field virus contact in a PRRS stable population

## Vaccination of piglets at 3 weeks of age with no field virus contact.

BioChek PRRS XR Antibody ELISA detects the antibodies formed against the vaccination rapidly and decreases over time in the absence of field virus contact as expected. The other ELISA detects the vaccination much later which would suggest poor vaccination response and a later field virus contact which is not reflected in the confirmatory PCR result (typed as vaccine strain) and not reflective of the situation on the farm.

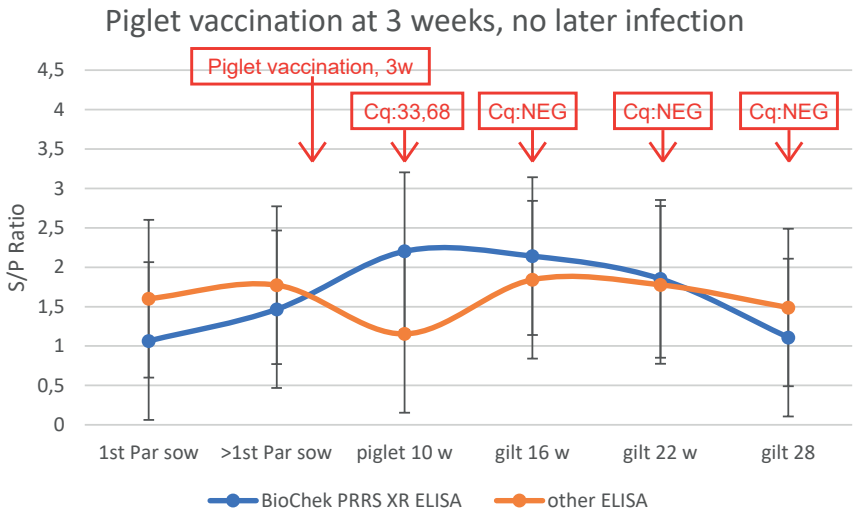



Fig 2. Vaccination of piglets at 3 weeks of age with no field virus contact

## Vaccinated piglets/gilts with suspected field infection.

In the case below BioChek PRRS XR Antibody ELISA detects the increase in antibodies fromed against the vaccination at 3 weeks, and a clear increase (boostering) in titres after the field virus contact. Once the infection clears, as confirmed by the PCR (typed as field virus strain) the titre levels start to decrease as expected. The other ELISA detects the vaccination but shows lower titres and does not detect the antibodies formed against the field virus until much later. The titres increase despite no infection present as confirmed by the PCR at 28 weeks.

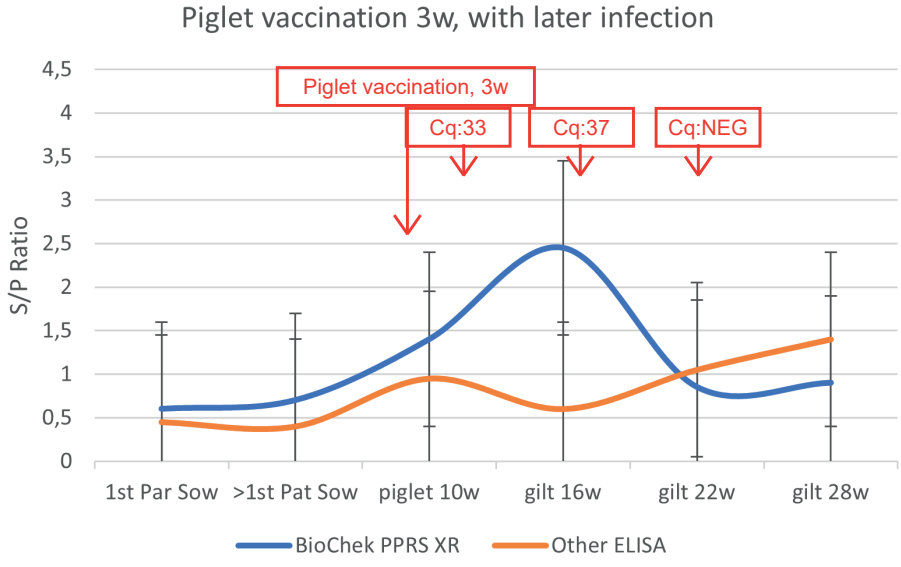



Fig 3. Vaccinated piglets/gilts with suspected field infection

## Investigation of PPRS stable herd without active infection.

BioChek PRRS XR Antibody ELISA detected low levels of antibodies with decreases over time as expected. The other ELISA indicated high sow tires which does not reflect the actual situation of a PRRS stable sow herd.

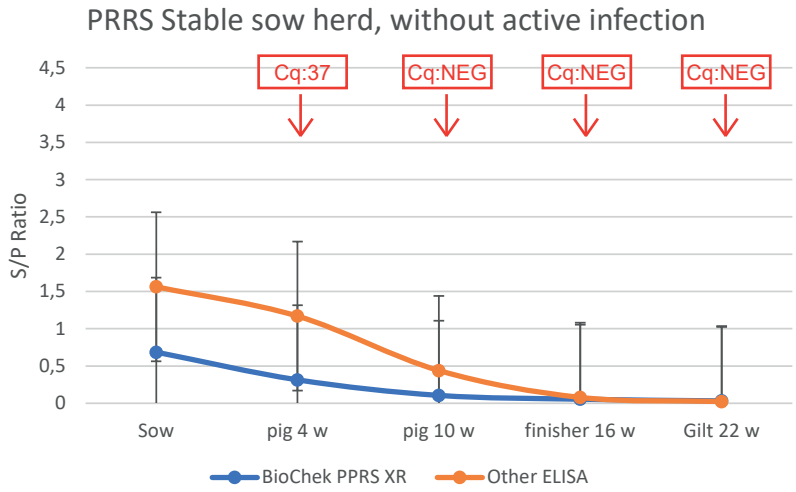



Fig 4. Investigation of PPRS stable herd without active infection

## End point titration of a high positive PRRS sample (Fig5)

BioChek PRRS XR Antibody ELISA shows distinct differentiation between low, medium and High positive samples enabling the user to detect infection, estimate infection moment and allow for proper vaccination success monitoring vs the flatter curve demonstrated by the other ELISA.

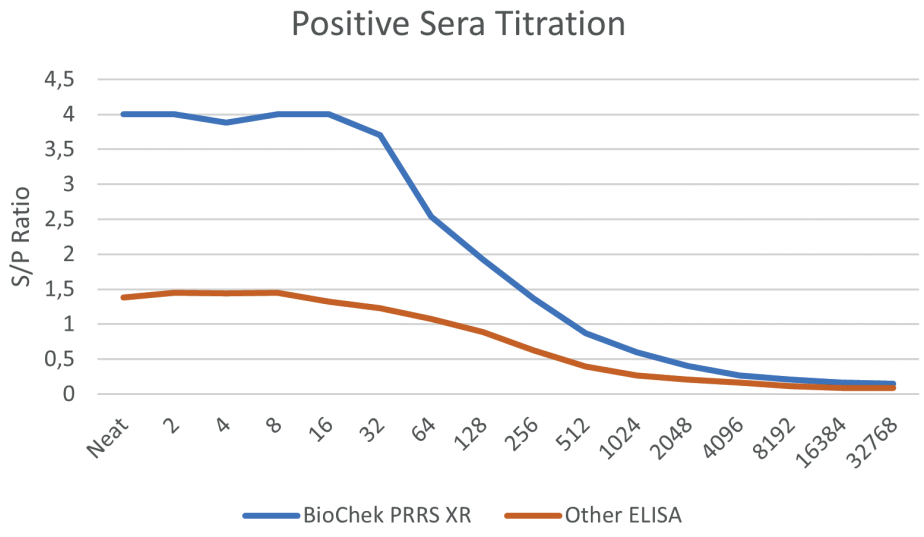



Fig 5. End point titration of a high positive PRRS sample

From the field cases explained above, taking the clinical findings and PCR results into consideration, it is apparent that the BioChek PRRS XR Antibody ELISA has excellent sensitivity and specificity and gives results that reflects the real situation accurately in different scenarios typically encountered on the conventional farm. Compared to other PRRS ELISA the extended range of BioChek PRRS XR Antibody ELISA is of great value to the veterinarian in assessing the moment of infection, timing of vaccination and monitoring of vaccination success which avoids incorrect conclusions regarding the disease status when the pigs are marketed.

The excellent specificity (DSp >99%) also makes BioChek PRRS XR Antibody ELISA a useful tool to monitor the infection status on SPF farms as shown in Fig 6.

| Country | # samples | % |
|---|---|---|
| Russia | 600 | 99,7 |
| Poland | 140 | 99,3 |
| Canada | 46 | 100 |
| Mexico | 208 | 99,9 |
| USA | 498 | 99,6 |
| | Average | 99,7 |

Fig 6. Specificity Results

With the launch of the new **vet**proof® PRRSv qPCR Kit, BioChek now offers all the diagnostic tools to assist you with your PRRS approach: ranging from virus detection, viral extraction solutions, serology, software to simplify your workflow, biosecurity verification tools, and an easy-to-understand dashboard - adding value to test results.

Following the launch of the new **vet**proof® PRRSv qPCR Kit in June, Victor Geurts, Head of Swine Business, presented a poster related to PRRS at the IPVS last June: "Assessment of a Possible Relation Between Hygiene Protocols Measured by Bioluminescence and the Viral Load: An Orientational Study" whereby the possible relation between the amount of ATP- measured and the viral load of PRRSv was investigated, using VetAssure™ Swabs.

Victor further presented to a large, very interested audience on the topic of PRRS at the LVI Congreso Nacional AMVEC (Asociacion Mexicana de Veterinarios Especialistas en Cerdos A.C) in July, sharing outcomes of PRRS and Mycoplasma hyophneumiae ELISA testing.

## SOFTWARE UPDATE

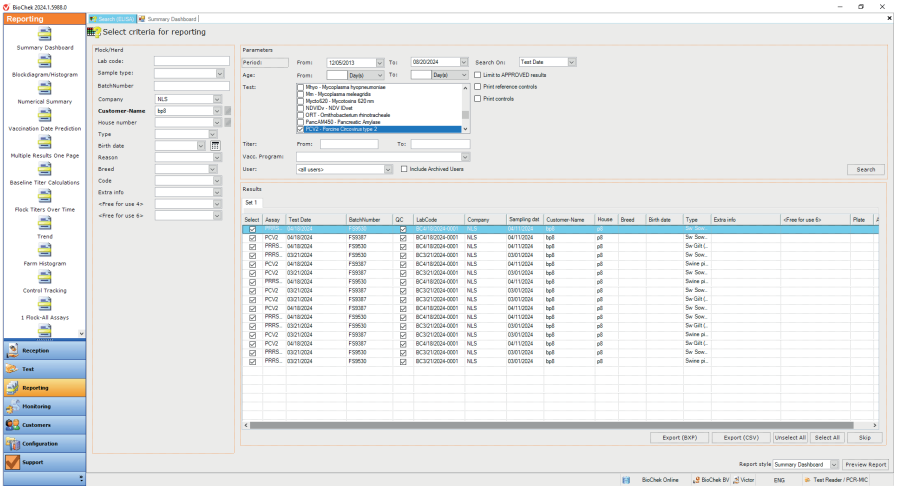
# BIOCHEK II SOFTWARE VERSION 2023.2

BioChek II Software version 2023.2 was launched last month, offering general improvements, compatibility with the Tecan Sunrise ELISA reader, and the Summary Dashboard: a new data analysis tool.
Tecan Sunrise reader is now connected and supported by the BioChek II software, for an even more convenient, faster, and easier data retrieval by Tecan Sunrise reader users.

The Summary Dashboard helps to analyze results of the latest submission and can also connect them with previous results.

**Features of the Summary Dashboard**:

- Compare ELISA data, adding valuable information to your monitoring system
- Serological profile of an infection between the animal groups of a farm
- Serological overview of multiple infections between animal groups to assess primary and secondary causes of a clinical problem
- Vaccine responses
- Monitor and benchmark vaccine take and compliance in and over farms
- Benchmark infection status of all farms or animal groups of your integration or veterinary practice




**REPORTING**
**Criteria & Analytics**
Filter selection, e.g.:

- Company
- Infection(s)
- Flock/Herd
- Period


**REPORTING**
**Dashboard & Charts**
Additional selection, e.g:

- Sampling dates (submissions)
- Animal groups
- Infection(s)
- Type of graph(s)

## MAGBEAD & ROBOPREP

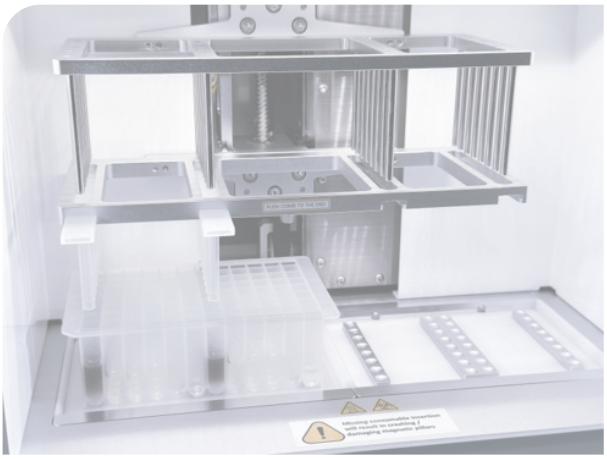
# OPTIMIZE YOUR MOLECULAR WORKFLOW WITH THE ROBOPREP AND VETPROOF MAGBEAD EXTRACTION KIT I

Real-time PCR is quickly gaining popularity in the veterinary industry. It has become one of the most widely used methods in the field of molecular diagnostics, providing excellent sensitivity and specificity, immediate results, and quantification.

PCR Extraction is a critical step in the PCR process. BioChek's automated extraction solution, consisting of the RoboPrep and the vetproof Magbead Extraction Kit I, brings labs up to speed and combined with the vetproof PCR kits and BioChek Software offering a high-quality full workflow solution to any PCR lab.

### BioChek's Automated Extraction Solution

- Optimization
- High yields & purity of nucleic acids
- Higher sample throughput
- Reduces hands-on time
- Minimizes operator's error
- Less risk for cross-contamination

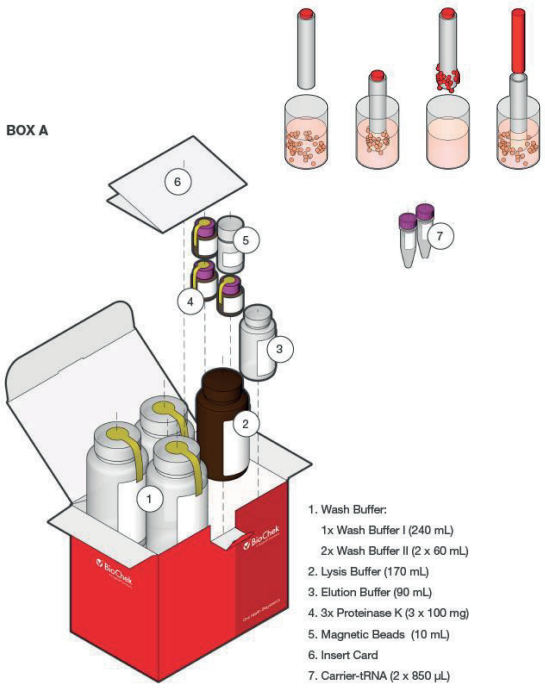


## Findings

- **vet**proof® MagBead Extraction Kit I works seamlessly with Roboprep®32/96 magnetic particle processors
  - Complete extraction workflow solution applicable to any molecular lab.
  - Offering convenience, efficiency, quality, precision & confidence.
- **vet**proof® MagBead Extraction Kit I shows excellent performance in side-by-side comparisons vs competitor kits.
- **vet**proof® MagBead Extraction Kit I is proven suitable for purification of pathogen DNA/RNA from difficult matrices and effectively removes PCR inhibitors.

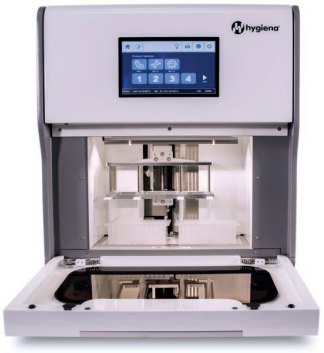
## vetproof® MagBead Extraction Kit I

- Universal sample extraction solution
- Magnetic bead technology
- Automated purification of nucleic acids (DNA/RNA)
- From viruses and easy-to-lyse bacteria
- A broad range of sample matrices
- High yields of highly purified DNA/RNA
- Effective removal of PCR inhibitors

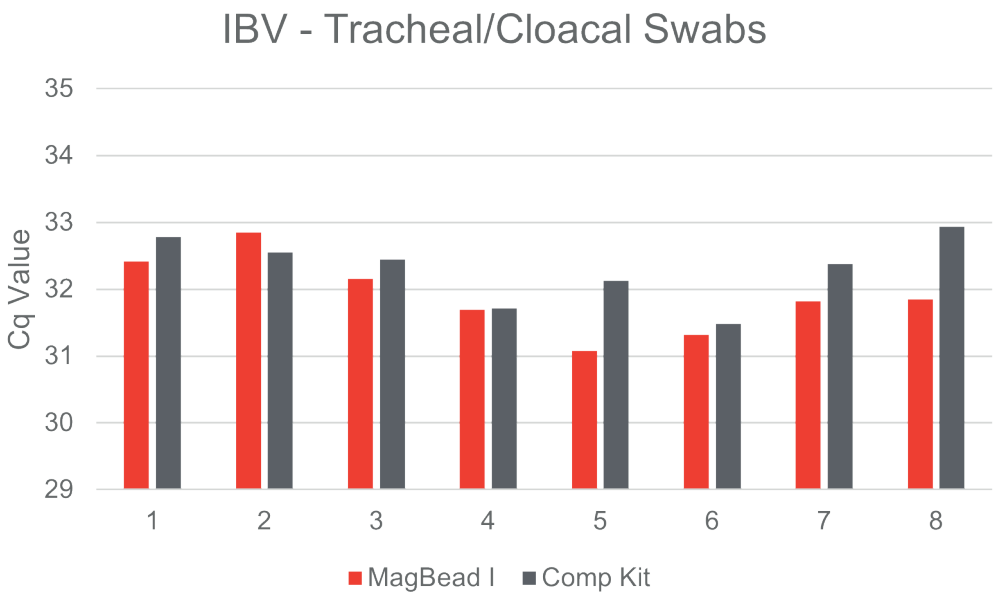



## RoboPrep® 32/96

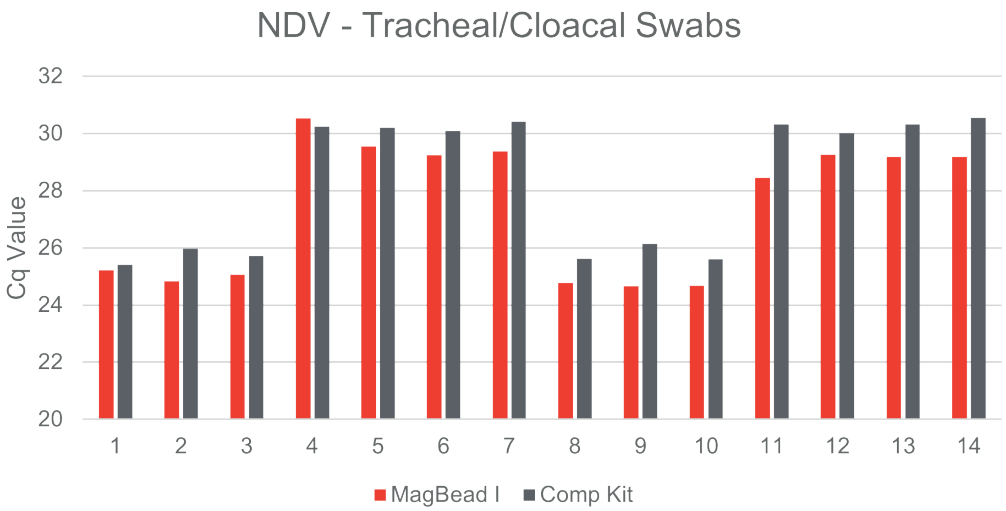
- Fully automated purification of nucleic acids
- Magnetic bead technology
- Low/Medium -High throughput
- Integrated UV light -Decontamination
- User-friendly interface & touchscreen
- Open platform -Flexibility
- Pre-programmed protocols



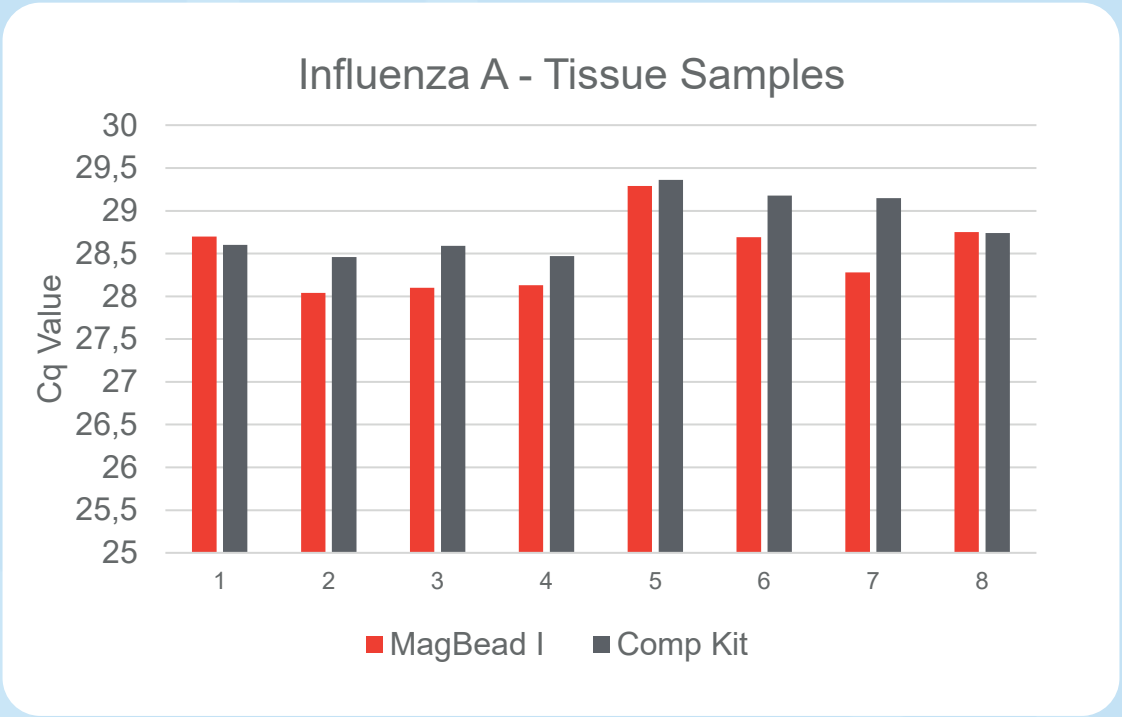
# PERFORMANCE OF ROBOPREP® + VETPROOF® MAGBEAD EXTRACTION KIT I



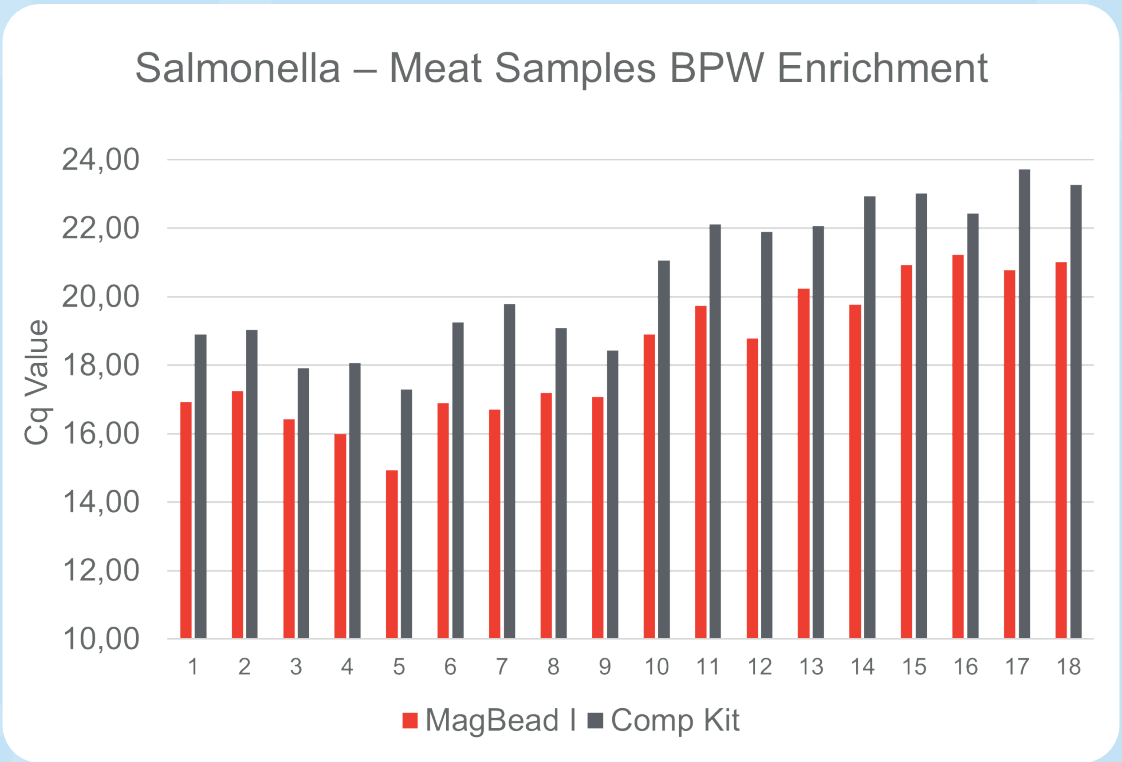

Performance of the **vet**proof® MagBead Extraction Kit I & RoboPrep vs. a Competitor Column Kit
Samples 1-4 Tracheal Swabs – Samples 5-8 Cloacal Swabs




Performance of the **vet**proof® MagBead Extraction Kit I & RoboPrep vs. a Competitor Column Kit
Samples 1-7 Tracheal Swabs – Samples 8-14 Cloacal Swabs




Performance of the **vet**proof® MagBead Extraction Kit I & RoboPrep
vs. a Competitor Column Kit




Performance of the **vet**proof® MagBead Extraction Kit I & RoboPrep
vs. a Competitor Magnetic Bead Extraction kit
specific for bacteria & competitor extraction robot

## UPCOMING EVENTS 2024

# WE LOOK FORWARD TO MEETING AT ONE OF THESE UPCOMING EVENTS.

## September

### WEEK 37

| SUN | MON | TUE | WED | THU | FRI | SAT |
|---|---|---|---|---|---|---|
| 8 | 9 | 10 | **11** | **12** | **13** | 14 |

**AVID Tagung**

13 Sep: Presentation Jantina De Vylder

*"Reliable Mg/Ms Detection: What to consider when implementing a PCR solution?"*

Badstaffelstein, Germany

### WEEK 38

| SUN | MON | TUE | WED | THU | FRI | SAT |
|---|---|---|---|---|---|---|
| 15 | 16 | **17** | **18** | **19** | 20 | 21 |

**Customer Lab Training**

The training is designed to equip laboratory technicians using BioChek ELISA and qPCR kits with a theoretical understanding of methodologies and equipment, the practical application of the BioChek ELISA and qPCR tests, and an understanding of the BioChek Software, the BioChek ELISA Assay Robot (B.E.A.R.) and the RoboPrep.

Reeuwijk, the Netherlands

## November

### WEEK 46

| SUN | MON | TUE | WED | THU | FRI | SAT |
|---|---|---|---|---|---|---|
| 10 | 11 | **12** | **13** | **14** | **15** | 16 |

**EuroTier 2024**

Visit the BioChek Team at our booth in hall 21 and learn more about the latest developments in our portfolio, new products or ask for a demonstration of our software.

Hanover, Germany

### WEEK 46

| SUN | MON | TUE | WED | THU | FRI | SAT |
|---|---|---|---|---|---|---|
| 10 | 11 | **12** | **13** | **14** | **15** | 16 |

**OVUM**

(Congreso Latinoamericano de Avicultura OVUM 2024)

Join us at OVUM 2024 and visit our booth **D45** in the main hall to catch up with the team and learn more about the latest developments in our portfolio.

Punta del Este, Uruguay

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BioChek BV (HQ) +31 (0)182 582 592
BioChek USA +01 (207) 883-3003
BioChek SA +27(0)21 565 0866

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