



Detecting Infectious Bursal Disease Virus (Gumboro) with AeroCollect® – quick, simple, and accurate

- **Simple sampling** – an air sample with AeroCollect® is simpler and considerably less time consuming compared to traditional bursa samples.
- **Testing of a whole flock** – with AeroCollect® there is no need to rely on a few samples from individuals. The whole flock is represented by a single air sample.
- **Quick test results** – the air sample from AeroCollect® can be processed within as little as 1-2 hours in a lab.
- **Closer monitoring of Gumboro in flocks** – with simple sampling and quick results comes the prospect of improved monitoring, quick detection, and improved production management.
- **Simple sample shipment** – the AeroCollect® samples may be shipped under ambient conditions with no restrictions on the transport conditions.

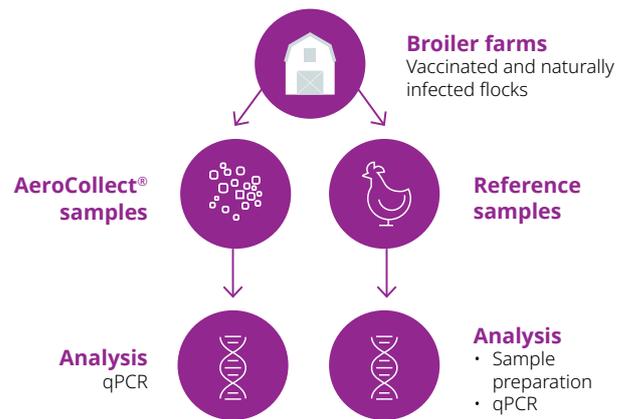
Detection of infectious bursal disease virus with AeroCollect® compared to traditional testing

The AeroCollect® system is validated for the detection of infectious bursal disease virus (IBDV) or Gumboro in poultry samples in accordance with the guidelines described in EN ISO 16140-02:2016. The study was carried out in both naturally infected and vaccinated flocks using bursa samples or vaccination status, respectively, as reference samples. The study demonstrated a sensitivity, specificity, and accuracy of 98.6, 97.1, and 100 %, respectively. The measure of agreement between the two methods, Cohen's kappa, was found to be 0.97 which constitutes a "Near perfect" agreement according to the ISO-standard.

Note that since the AeroCollect® method is also capable of detecting vaccine strains in the air samples the method can be used to verify the successful vaccination procedure by following the development of vaccine in the air samples over time.

Compared to reference samples

Sensitivity	SE	98.6 %
Specificity	SP	97.1 %
Accuracy	AC	100 %
Cohen's Kappa	κ	0.97 (Near perfect agreement)



Multiple pathogen testing

An additional benefit that is generic to the AeroCollect® system is that each sample contain enough material for several analyses. Therefore, it is possible to screen for the most common production related pathogens in your region (i.e. Avian influenza, IBV, APEC, mycoplasmosis, Marek's disease) on the same sample that are collected for the *Campylobacter* and *Salmonella* tests. Or the eluted samples may be stored centrally as a sample library of previous rotations should the need arise for further analysis of previous flocks. Note, that the AeroCollect® samples contain both respiratory and intestinal pathogens and may be analysed for both bacteria and virus.

The process from sample collection to result



When should testing with AeroCollect® take place?

As testing with AeroCollect® is simple and the analysis is quick, testing can be done often and easily. Frequent testing and quick results allow for improved monitoring for the presence of IBDV in flocks, which is the best foundation for timely detection of outbreaks. This increase the chance of successfully dealing with an outbreak with minimal consequence to the production and welfare of the flock. Furthermore, vaccination procedures can be arranged for the following rotations. The AeroCollect® samples can also be utilized to monitor the vaccination procedure as seen in the figure below. The course of virus development in the air is quite different for vaccine and wild strains.

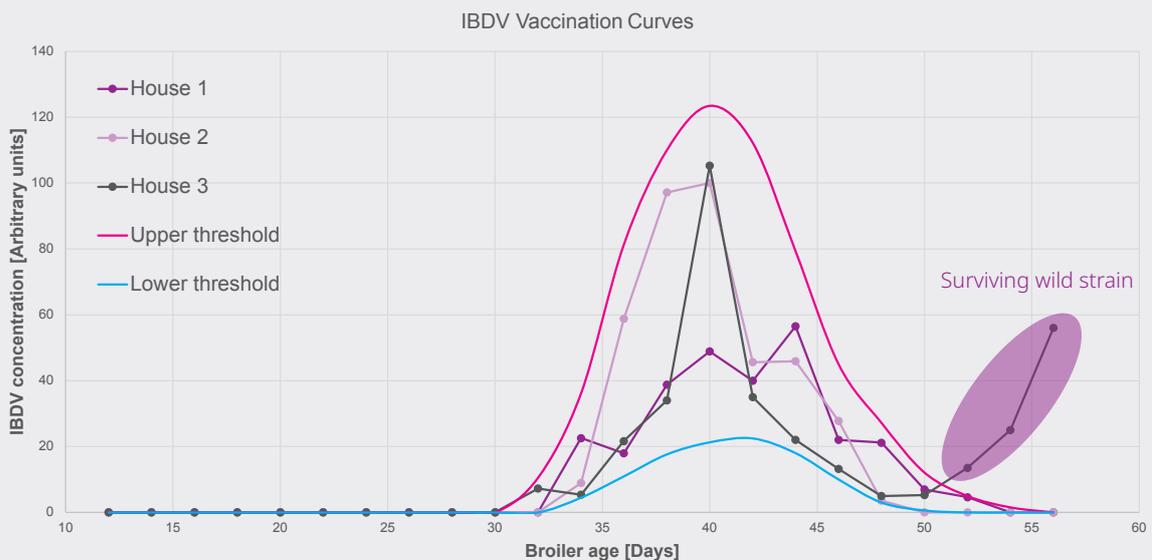
Comparison Study

Monitoring of IBDV in air samples after an IBDV vaccination procedure will reveal a lot of information on the success of the vaccination procedure.

In the figure below the concentration of IBDV in the air samples collected from three different rotations are shown as a function of the age of the chickens. In the figure an upper and lower threshold level of the vaccine concentrations (based on historical empirical data) is indicated by pink and blue lines respectively.

After a successful vaccination the concentration profile will fall between these threshold levels. If the concentration profile falls below the lower threshold limit the flock is probably not sufficiently covered and most likely only a fraction of the birds received the vaccine.

If the curve breaks through the upper threshold level in the later stages (as seen for the concentration profile of house 3) it shows that a wild strain is still present in the house and the vaccination procedure should be continued for the following rotation.



Would you like to learn more about what AeroCollect® can do for you and your company?

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