DESIGNED FOR YOU

FROM THE TRUSTED LEADER IN IBD VECTOR VACCINE TECHNOLOGY

Strong immune foundation and optimized protection against Marek’s, infectious bursal, and Newcastle diseases

PREVENTION WORKS
Shaping the future of poultry health
INTRODUCING VAXXITEK® HVT+IBD+ND

Developed by the trusted leader in IBD vector vaccine technology.

HISTORY OF LEADERSHIP: Boehringer Ingelheim introduced herpesvirus of turkeys (HVT) vector vaccines using one virus to control multiple diseases, providing game-changing solutions for the poultry industry.

TRUSTED PROTECTION: Launched in 2006, VAXXITEK® HVT+IBD was the first HVT+IBD vector vaccine on the market, making it the historic leader in infectious bursal disease (IBD) vaccination. Today it has protected more than 100 billion birds and is available in more than 75 countries around the world.

STRONG SCIENTIFIC BACKING: More than 90 publications report the benefits of using VAXXITEK® HVT+IBD.

An all-in-one hatchery solution to protect flocks against three diseases.

Building on the trusted vaccination platform used to develop VAXXITEK® HVT+IBD, our research and manufacturing experts successfully designed a 3-in-1 vaccine that provides a strong immune foundation and optimized protection against Marek’s disease (MD), IBD—and Newcastle disease (ND).

All the benefits of VAXXITEK® HVT+IBD, now designed with ND protection.

1. It all starts with the proven platform of the trusted HVT+IBD market leader.
2. The selected IBD genetic sequence provides efficient, broad protection against IBD classic, very virulent, and variant viruses.
3. A genetic sequence was selected from prevalent and virulent ND virus (NDV) to form an NDV fusion (NDV F) insert. This optimized genotype VII sequence enables broad and up-to-date protection against ND viruses.
4. The insertion site of the NDV F sequence is the same as the infectious bursal disease virus (IBDV) insert coding for the VP2 protein: Faragher strain.
   Furthermore, use of only one promoter allows proper gene expression of both viral genes, resulting in a field-proven mechanism of protection.
5. The result is the newest addition to the VAXXITEK® family of vaccines. Designed for you.

INTRODUCING VAXXITEK® HVT+IBD+ND

An all-in-one hatchery solution to protect flocks against three diseases.

Building on the trusted vaccination platform used to develop VAXXITEK® HVT+IBD, our research and manufacturing experts successfully designed a 3-in-1 vaccine that provides a strong immune foundation and optimized protection against Marek’s disease (MD), IBD—and Newcastle disease (ND).

All the benefits of VAXXITEK® HVT+IBD, now designed with ND protection.

- Strong immune foundation and optimized protection against MD, IBD, and ND, for a simplified vaccination protocol in 1 shot
- Early onset and long duration of immunity, for protection throughout susceptible periods
- Demonstrated safety by monitoring of body weight gain, for improved production performance
- Genotype VII ND insert, for universal protection
- Powered by the manufacturer of VAXXITEK® HVT+IBD, for field-tested know-how

Constructed using the same backbone as VAXXITEK® HVT+IBD.

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References:
**EFFICIENT PROTECTION AGAINST A VARIETY OF IBDV STRAINS**

**VAXXITEK® HVT+IBD+ND** is approved to provide IBD protection from day 28.

**STC classic IBDV challenge**:
- VAXXITEK® HVT+IBD+ND construct (vHVT310 IBD+ND) was administered subcutaneously to specific-pathogen-free (SPF) chickens that were then challenged at day 28 post-vaccination.
- 100% protection was demonstrated at day 28.

**IBDV VAR-E challenge**:
- VAXXITEK® HVT+IBD+ND construct (vHVT310 IBD+ND) was administered subcutaneously or in ovo to SPF chickens that were then challenged at 14 or 28 days of age.
- Vaccinated chickens showed significant differences in bursa-to-body weight (B/BW) ratio compared to positive control.
- Immunity was demonstrated from 14 days of age following subcutaneous administration. Additionally, protection was shown at 28 days of age following in ovo administration.

**Faragher classic IBDV challenge**:
- A European study was performed where day-old SPF chickens were vaccinated subcutaneously with VAXXITEK® HVT+IBD+ND construct (vHVT310 IBD+ND) and challenged at day 21 post-vaccination.
- 100% protection was demonstrated at day 21.

VAXXITEK® HVT+IBD+ND protects efficiently against both classic and variant E IBDV throughout the IBD susceptibility period and acts as the cornerstone of your hatchery vaccination program.

**PROVEN PROTECTION AGAINST VELOGENIC NDV**

**Designed to provide rapid and long-lasting protection.**

SPF chickens were vaccinated with VAXXITEK® HVT+IBD+ND construct (vHVT310 IBD+ND) subcutaneously at day 1 and then challenged with a velogenic GB Texas ND virus at 21, 28 and 84 days post-vaccination, or Herts 33 at day 21 post-vaccination. SPF chickens vaccinated in ovo were challenged at day 28 with velogenic GB Texas ND virus.

- Chickens vaccinated subcutaneously at 1 day of age showed clinical protection against velogenic ND virus from day 21: 85% of birds were protected against NDV GB Texas. In Europe, birds showed 100% against NDV Herts 33.
- In ovo and subcutaneous administration demonstrated protection against velogenic NDV GB Texas at day 28 post-vaccination.
- No level of protection was demonstrated in negative controls.

VAXXITEK® HVT+IBD+ND is approved to provide early onset of immunity against NDV from day 28.

<table>
<thead>
<tr>
<th>Vaccine Administration Challenge</th>
<th>Level of protection (Day 28)</th>
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<tbody>
<tr>
<td>VAXXITEK® HVT+IBD+ND subcutaneous (1 day old)</td>
<td>STC classic</td>
</tr>
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**Level of protection against STC classic IBDV following subcutaneous route at 1 day old**

**REFERENCES**


**IMMUNITY STARTS TO DEVELOP EARLY AND IS DEMONSTRATED AGAINST CLASSIC IBDV**

**Duration of immunity**

Protection against velogenic ND virus demonstrated at day 84 post-vaccination.
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**IMMUNITY STARTS TO DEVELOP EARLY AND IS DEMONSTRATED AGAINST CLASSIC IBDV**
Demonstrated onset of immunity to MD.

Label indication confirms that MD immunity has been demonstrated from 5 days of age by both in ovo and subcutaneous administration.

### Level of MD protection through in ovo and subcutaneous administration^{12,13}

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<th>Challenge</th>
<th>% Protection in ovo</th>
<th>% Protection subcutaneous</th>
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<tr>
<td>VAXXITEK® HVT+IBD+ND</td>
<td>vMDV* GA22</td>
<td>85.7%</td>
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<tr>
<td>Negative control</td>
<td></td>
<td>3.0%</td>
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* VMDV*: Marek's disease virus.

Safety comparable to existing HVT vector vaccines^{14}.

SPF chickens were vaccinated in ovo with a high dose of the VAXXITEK® HVT+IBD+ND.

- Vaccinated chickens showed no clinical signs throughout observation period.
- No significant difference in body weight was observed compared with negative controls.

VAXXITEK® HVT+IBD+ND has been proven to remain safe and stable, and to not revert to virulence after five passages in SPF chickens^{15}.

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* Virulent Marek’s disease virus.

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References:
15. Boehringer Ingelheim IBD, 2017, Report number 17.0107.R.
To learn more about VAXXITEK® HVT+IBD+ND, contact your Boehringer Ingelheim representative.