

# BIOMOLECULAR TYPING, DIVA & SEQUENCING SERVICES



**POULTRY**

**CONSULTING**

**Dr. Swaantje Rönchen**

Phone: +49 44 73 / 94 38 - 52  
roenchen@anicon.eu

**Dr. Diana Petzoldt**

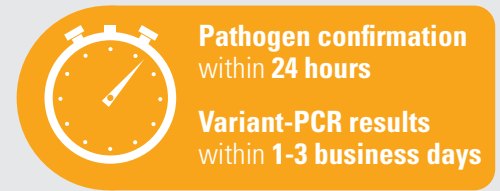
Phone: +49 44 73 / 94 38 - 786  
petzoldt@anicon.eu

---

**AniCon**

# VARIANT-PCR – AVIAN PATHOGENS

Variant PCRs allow to distinguish between different strains, variants or pathotypes.



**AniCon is currently providing the following variant-PCR-concepts for avian pathogens:**

| Disease/Pathogen  | Test system                 | Variants  |
|-------------------|-----------------------------|---|
| IBV               | ACoV Screening-PCR          | detects field and vaccine strains   |
|                   | 11-fold Variant-PCR         | 4/91 (793B)<br>Massachusetts<br>D274<br>Arkansas<br>Variant 2 (Israel 02/IS1494)<br>Italy 02<br>QX<br>Q1<br>D1466<br>IB80<br>D181 |
| TRT / ART / aMPV  | Variant-PCRs                | aMPV A & B (type specific)<br>aMPV C & D (type specific)  |
| NDV (PMV-1)       | Pathotype-PCR               | PMV-1 lentogenic<br>PMV-1 meso-/velogenic   |
| IBDV / Gumboro    | Screening-PCR               | IBDV  |
|                   | Pathotype-PCR (Serotype 1)  | wIBDV<br>nvIBDV   |
| Influenza A Virus | Screening-PCR               | Influenza Virus Type A  |
|                   | Influenza A H-Subtyping-PCR | H1<br>H3<br>H5<br>H6<br>H7<br>H9<br>further types on request  |
|                   | Influenza A N-Subtyping-PCR | N1<br>N2<br>N8<br>further types on request  |
|                   | Pathotyping (by sequencing) | H5 (LPAI, HPAI)<br>H7 (LPAI, HPAI)  |
| FAdV              | Screening-PCR               | Fowl Adenovirus   |
|                   | Typing (by sequencing)      | Species A-E<br>Serotype 1-7, 8a, 8b, 9-11   |
| E. coli           | 8-fold Virulence Gene-PCR   | APEC  |



**AniCon**

# DIVA PCR – AVIAN PATHOGENS

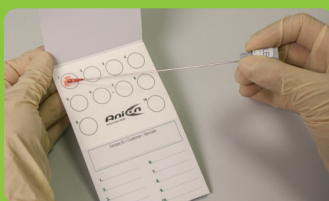
- DIVA PCRs allow the differentiation between live vaccine strains and field infections.
- AniCon provides a broad range of DIVA PCR-services to distinguish between field and vaccine strains.
- DIVA test results allow a very fast, clear and safe clinical interpretation.



| Pathogen                                 | DIVA-PCR Test System                | Vaccine Supplier *                             | Trade Name*  |
|--|-------------------------------------|--|--|
| Mycoplasma synoviae                      | MS-H DIVA                           | Bioproperties                                  | Vaxsafe® MS  |
|  | MS1 DIVA                            | MSD  | Nobilis® MS Live   |
| Mycoplasma gallisepticum                 | MG 6/85 like and F-strain like DIVA | MSD<br>Lohmann/Elanco<br>Ceva<br>Zoetis<br>MSD | Nobilis® MG 6/85<br>AviPro® MG F<br>CEVAC® MG F<br>Poulvac® Myco F<br>F VAX-MG®        |
|  | MG ts-11 DIVA                       | Boehringer Ingelheim<br>Bioproperties          | MG TS-11<br>Vaxsafe®MG (ts-11)   |
| Salmonella Enteritidis                   | SE DIVA 1                           | IDT/Ceva                                       | Salmovac® SE<br>Salmovac® 440  |
|  |                                     | Boehringer Ingelheim                           | Gallivac® SE   |
|  | SE DIVA 2                           | LAH/Elanco                                     | AviPro® Salmonella Vac E<br>AviPro®Salmonella Duo                                      |
|  |                                     | MSD  | Nobilis® SE Live   |
| Salmonella Gallinarum                    | SGP & 9R DIVA                       | MSD<br>Ceva                                    | Nobilis® SG 9R<br>CEVAC® SG-9R   |
| Salmonella Typhimurium                   | ST DIVA 1                           | IDT/Ceva                                       | Zoosaloral H & Zoosal T  |
| Avian Ortho-Reovirus                     | Reo S1133 DIVA                      | MSD<br>Ceva<br>Biovac                          | Nobilis® REO 1133<br>Cevac REOMUNE® 3<br>Biovac Vir 119                                |
| ILTV**                                   | ILT                                 | MSD  | Innovax®-ILT   |
| HVT + NDV (F-gene)<br>+ IBVD (VP2 gene)  | rechVT DIVA 1                       | MSD  | Innovax® ND IBD  |
| HVT + IBVD (VP2 gene)                    | rechVT DIVA 2                       | Boehringer Ingelheim                           | VAXXITEK® HVT + IBD  |
| HVT + ND                                 | rechVT DIVA 3                       | Ceva   | Vectormune® ND   |
| Marek's Disease Virus (MDV)              | MDV & Rispens DIVA                  | MSD<br>Ceva<br>Boehringer Ingelheim<br>Zoetis  | Nobilis Rismavac®<br>CEVAC® MD Rispens<br>BI Cryomarex Rispens<br>Poulvac® Ovoline CVI |
| Muscovy Duck/Goose Parvovirus (MDPV/GPV) | Parvo DIVA 1 Hoekstra               | Boehringer Ingelheim                           | Palmivax® and Parvokan® (strain Hoekstra)  |

\*Non-exhaustive list of products; the respective vaccine strain may also be available in your region in another product and/ or with another brand name.

\*\* Principle of exclusion: Innovax®-ILT is NOT detected by the ILT PCR.



**Samples easy to ship internationally on AniCards!**  
Please see our special info.

# SEQUENCING – AVIAN PATHOGENS

- AniCon provides a broad range of sequencing services as a useful addition to PCR
- Sequencing allows the differentiation of strains and shows gene sequence similarity to known field and vaccine strains
- Sequencing requires a certain amount and quality of genetic material. Therefore make sure to take samples in the acute phase of disease and ensure proper handling and shipment of samples
- Sequences may be provided in form of FASTA files upon request



Sequencing results  
within **10-14 days**

| Pathogen   | Sequenced Gene                     | Target Sequence                            |
|--|------------------------------------|--|
| Avian Influenza H- and/or N-gene (after consultation)                    | partial HA and/or N gene           | diverse                                    |
| Avian Influenza for HPAI/LPAI differentiation                            | partial HA gene                    | diverse                                    |
| Avian Ortho-Reovirus (ARV)   | partial NS gene (or sigma C gene)  | 1090bp (each)                              |
| Chicken Astrovirus (CAstV) for differentiation of group A & B            | partial Capsid protein coding gene | 680-1090bp                                 |
| Fowl Adenovirus (FAdV) for differentiation of species & serotype         | partial Hexon protein gene         | approx. 590-800bp                          |
| Gumboro Virus (IBDV)   | partial VP1 & VP2 genes            | VP1: approx. 690bp;<br>VP2: approx. 700 bp |
| Infectious Bronchitis Virus (IBV)  | partial S1 gene                    | approx. 540bp                              |
| Marek's Disease Virus (MDV)  | partial Meq protein coding gene    | 480-930bp                                  |
| Newcastle Disease Virus (PMV-1) assortment to lento-, meso- or velogenic | partial Fusion protein coding gene | approx. 360 (275)                          |
| Avibacterium paragallinarum  | partial HMTP210 gene               | approx. 1300bp                             |

Further sequencing services on request (e.g. Avian Nephritis Virus (ANV), Turkey Viral Hepatitis Virus (THV))



## AniCon

**AniCon Labor GmbH**

Muehlenstr 13 | 49685 Hoeltinghausen | Germany

Phone +49 44 73 94 38 - 0 | [info@anicon.eu](mailto:info@anicon.eu) | [www.anicon.eu](http://www.anicon.eu)