



Monitor Avian Influenza

with the most complete range of diagnostic tests

- Disease diagnosis
- Monitoring of conventional and recombinant vaccines
- DIVA strategies



Disease diagnosis & serotyping with Competitive ELISAs

Vaccination monitoring with Indirect quantitative ELISAs

DIVA testing



Direct detection (screening or subtyping)
with the ID Gene™ RT-qPCR kits

With you at every step



COMPETITIVE ELISAs

→ Qualitative testing for **diagnosis & serotyping** in multiple species

ID Screen® Influenza A Antibody Competition

Product code - **FLUACA**

- + Detects all Influenza A serotypes
- + Use to monitor disease in non-vaccinated birds and SPF⁽¹⁾ animals

ID Screen® Influenza H5 Antibody Competition

Product code - **FLUACH5**

- + Extensively validated by European reference laboratories
- + Detects all H5 clades

ID Screen® Influenza H7 Antibody Competition

Product code - **FLUACH7**

- + Unique on the market

ID Screen® Influenza H9 Antibody Competition

Product code - **FLUACH9**

- + Unique on the market

⁽¹⁾Specific pathogen Free



→ Advantages

■ Flexible

May be used for all domestic and wild birds

■ Reliable

More robust and rapid than the HI test

- Detect **IgG and IgM antibodies**, allowing for early and long-term antibody detection and high sensitivity

- Test of sample: **serum, plasma** or **egg yolk** samples

→ Control the quality of your results

Reference material for use as internal controls:

- Ready-to-use pool of chicken serum containing significant and known antibody levels against the Avian Influenza virus (A, H5, H7 and H9).

Product code - **MRI-FLUC-RTU**

- Ready-to-use pool of specific pathogen free (SPF) chicken serum.

Product code - **MRINEG-BIRD-RTU**



→ Quantitative testing for **vaccine monitoring**

ID Screen® Influenza A Nucleoprotein Indirect

Product code - **FLUNPS**

- + High sensitivity, early detection of antibodies as of 7 days post-infection
- + Use as a **DIVA*** test to detect natural infection in animals vaccinated with recombinant vaccines

ID Screen® Influenza H9 Indirect

Product code - **FLUH9S**

- + Use to monitor recombinant or conventional H9 vaccines
- + Detects all H9 lineages

ID Screen® Influenza H5 Indirect

Product code - **FLUH5S**

- + Use to monitor recombinant or conventional H5 vaccines
- + Detects all H5 clades



→ Advantages

■ Reliable

100% correlation with the HI test

■ Flexible

May be used for a wide range of species, including Galliformes and Anseriformes

DIVA TESTING*

(rHVT-HX vaccines | X: H5 / H7 / H9)

Flock status	Expected results with FLUHXS	Expected results with FLUNPS
Unvaccinated, uninfected	NEG	NEG
Vaccinated (rHVT-HX), uninfected	POS	NEG
Vaccinated (rHVT-HX), infected	POS	POS

→ Control the quality of your results

Reference material for use as internal control:

- Ready-to-use pool of chicken serum containing significant and known antibody levels against the Avian Influenza virus (H5, H9 and NP).

Product code - **MRI-FLUS-RTU**

- Ready-to-use pool of specific pathogen free (SPF) chicken serum.

Product code - **MRINEG-BIRD-RTU**



→ Highly sensitive RT-qPCR kits for **direct detection** (screening or subtyping)

These qualitative tests simultaneously amplify target RNA and an endogenous internal control. May be used to test avian tracheal, oropharyngeal or cloacal swabs, organs and FTA® cards (individual samples or pools of up to 5).

ID Gene® Influenza A Duplex

Product code - **IDFLUA** (FR) and **IDFLUA-MS** (outside)

- + Detects all Influenza A viruses
- + Validated by reference laboratories (ANSES, France-FLI, Germany-PIWET, Poland-ONSSA, Morocco)

ID Gene® Influenza H5/H7 Triplex

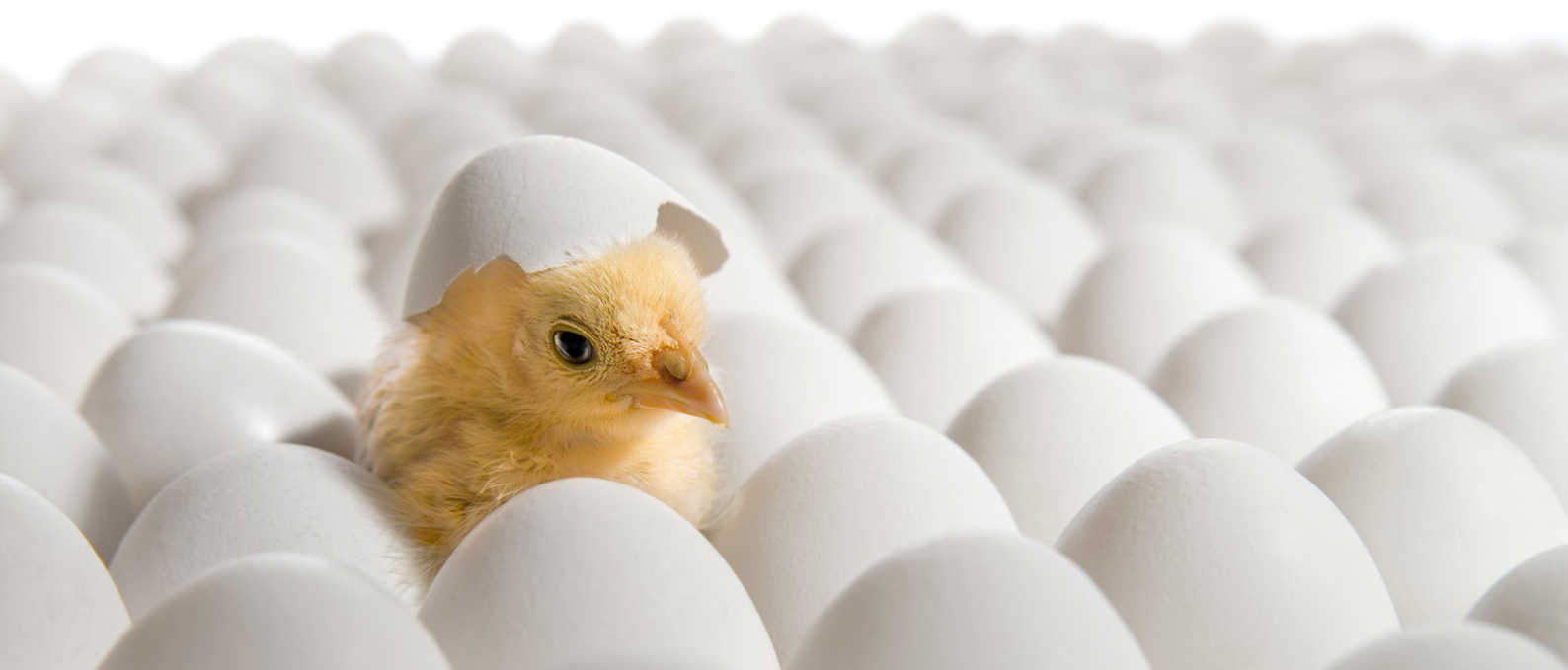
Product code - **IDFLUH5H7**

- + Detects all H5 and H7 subtype strains

ID Screen® Influenza H9 Lineage G1-like Duplex

Product code - **IDFLUH9G1**

- + Detects all H9 strains belonging to the G1 lineage





→ Advantages



■ **Rapid amplification protocol**

Results in under one hour



■ **Reliable**

Highly sensitive, with positive controls to validate the efficiency of the extraction and amplification steps.

The endogenous internal control validates sample presence.

The calibrated positive extraction control monitors variations in analytical sensitivity (sold separately).



■ **Convenient**

All kits from this range use the same extraction and amplification protocol.

The same extracts can be tested several times on a single plate using the different kit reagents.



■ **Practical**

Ready-to-use reagents facilitate testing

→ **Control the quality of your results**

Reference material for use as internal control:

- Freeze-dried control consisting of inactivated Influenza A virus subtype H5, diluted into tracheal and oropharyngeal swab supernatants from negative birds.

Product code - **PEC-FLUA**

- Freeze-dried control consisting of inactivated Influenza A virus subtype H5 and H7 diluted into tracheal and oropharyngeal swab supernatants from negative birds.

Product code - **PEC-FLUH5H7**

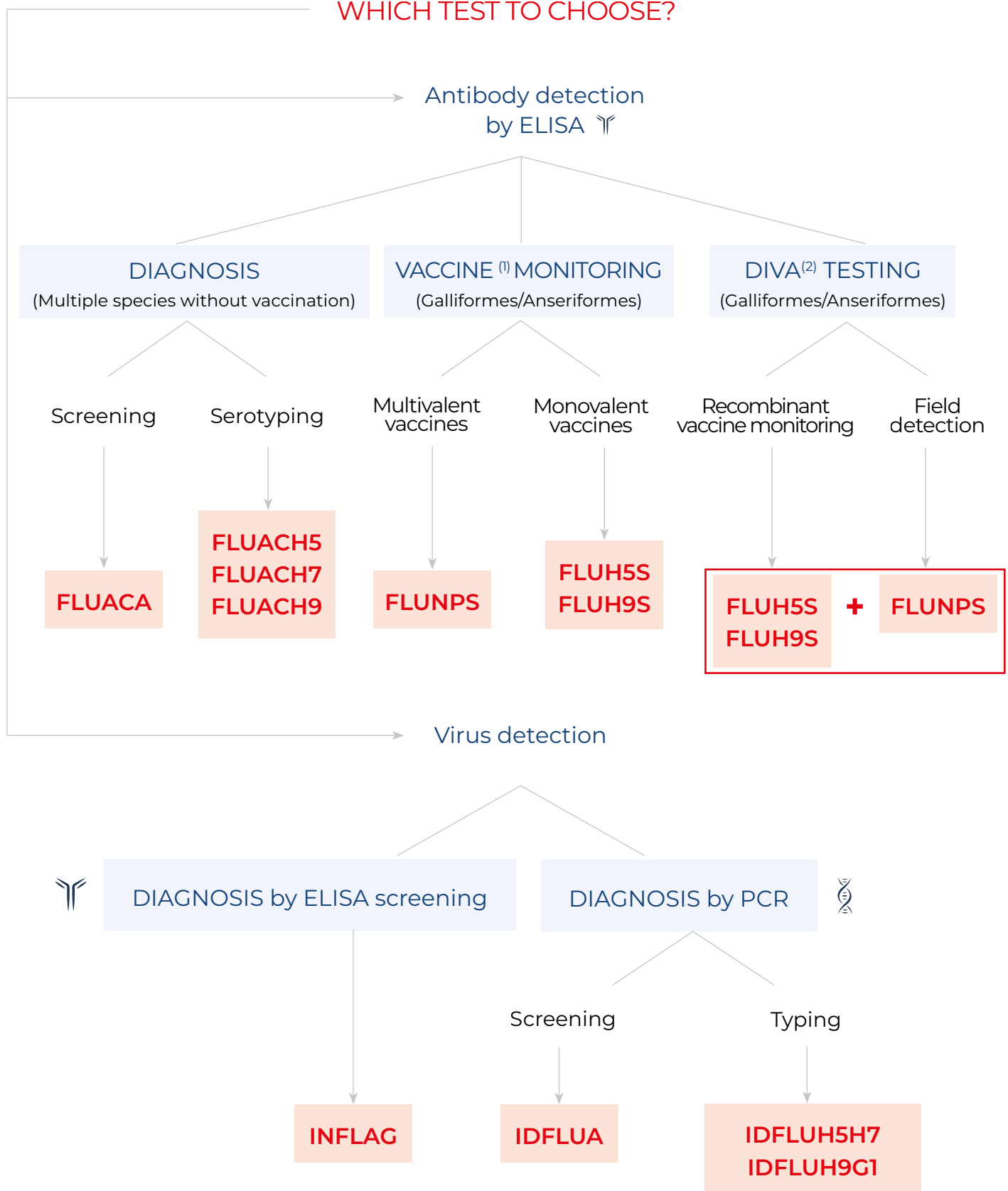
- Freeze dried preparation of an inactivated strain of the Influenza A virus H9 subtype, diluted into tracheal and oropharyngeal swabs supernatants from negative birds.

Product code - **PEC-FLUH9**



THE IDVET INFLUENZA DIAGNOSTIC RANGE

WHICH TEST TO CHOOSE?



(1) All Influenza vaccines (killed + recombinant)

(2) Differentiation of Infected and Vaccinated Animals (recombinant vaccines only)
See table on page 3 on how to implement the DIVA strategy.



KIT SPECIFICATIONS

PRODUCT CODE	PRODUCT NAME	METHOD	FORMAT	REACTIONS
FLUACA-2P	ID Screen® Influenza A Antibody Competition Multi-species	Competitive ELISA	2 plates	192
FLUACA-5P			5 plates	480
FLUACA-10P			10 plates	960
FLUACH5-2P	ID Screen® Influenza H5 Antibody Competition	Competitive ELISA	2 plates	192
FLUACH5-5P			5 plates	480
FLUACH7-2P	ID Screen® Influenza H7 Antibody Competition	Competitive ELISA	2 plates	192
FLUACH7-5P			5 plates	480
FLUACH9-2P	ID Screen® Influenza H9 Antibody Competition	Competitive ELISA	2 plates	192
FLUACH9-5P			5 plates	480
FLUNPS-5P	ID Screen® Influenza A Nucleoprotein Indirect	Indirect ELISA	5 plates	480
FLUNPS-10P			10 plates	960
FLUH5S-5P	ID Screen® Influenza H5 Indirect	Indirect ELISA	5 plates	480
FLUH5S-10P			10 plates	960
FLUH9S-5P	ID Screen® Influenza H9 Indirect	Indirect ELISA	5 plates	480
FLUH9S-10P			10 plates	960
INFLAG-2P	ID Screen® Influenza A Antigen Capture	Sandwich ELISA	2 plates	192
IDFLUA-50	ID Gene™ Influenza A Duplex	RT-qPCR - Duplex	-	50
IDFLUA-100			-	100
IDFLUA-MS-50	ID Gene™ Influenza A Multispecies Duplex	RT-qPCR-Duplex	-	50
IDFLUA-MS-100			-	100
IDFLUH5H7-50	ID Gene™ Influenza H5/H7 Triplex	RT-qPCR - Duplex	-	50
IDFLUH5H7-100			-	100
IDFLUH9G1-50	ID Gene™ Influenza H9 Lineage G1-like Duplex	RT-qPCR - Duplex	-	50
IDFLUH9G1-100			-	100

ASSOCIATED PRODUCTS

PRODUCT CODE	PRODUCT NAME	METHOD	FORMAT	REACTIONS	USE WITH
MRI-FLUC-RTU	Ready-to-use pool of positive chicken serum		2 ml	-	FLUACA, H5, H7, H9
MRI-FLUS-RTU	Ready-to-use pool of positive chicken serum		2 ml	-	FLUNPS, H5S, H9S
MRINEG-BIRD-RTU	Ready-to-use pool of SPF chicken serum		5 ml	50	ELISA, RSA
PEC-FLUA	Freeze-dried positive extraction control	To be extracted	550 µL	10	IDFLUA IDFLUA-MS
PEC-FLUH5H7	Freeze-dried positive extraction control	To be extracted	550 µL	10	IDFLUH5H7
PEC-FLUH9	Freeze-dried positive extraction control	To be extracted	550 µL	50	IDFLUH9G1

EXTERNAL REFERENCES



ID Screen® Influenza A Antibody Competition (Product code - FLUACA)

- Bertran, K *et al.* **Pathogenesis and transmissibility of highly (H7N1) and low (H7N9) pathogenic avian influenza virus infection in red-legged partridge (*Alectoris rufa*).** Veterinary Research 2011, 42:24.
- Dundon, W.G., Terregino, C., Tuttoilmondo V., Pizzuto, M., Busani, L., Mancin, M., Cattoli, G., Capau I. **Preliminary validation of a commercial Avian Influenza NI antibody competitive ELISA kit that can be used as part of a DIVA strategy.** Epizone 2007, Poland
- Molia, S. *et al.* **Avian influenza in backyard poultry of the Mopti region, Mali.** Trop Anim Health Prod. 2009
- Terregino, C. **Evaluation of sensitivity and specificity of a commercial competitive avian influenza type A antibody ELISA kit,** the OIE-FAO and National Reference Laboratory for Newcastle Disease and Avian Influenza, IZS delle Venezie, Legnaro (Padova), Italy
- Lebarbenchon, C. *et al.* **Influenza A virus on Oceanic Islands: host and viral diversity in seabirds in the Western Indian Ocean.** PLOS Pathogens. DOI: 10.1371/journal.PPAT.1004925. May 21, 2015

ID Screen® Influenza H5 Antibody Competition (Product code - FLUACH5)

- Bötcher, L., Schöttker-Wegner, H. H., Nöcker, A. Summary of the German presentation at the AVID meeting (September 15-17, 2010). **Use of an H5-antibody ELISAs for the serological differentiation of AIV-antibodies.** Niedersächsisches Landesamt für Verbraucherschutz und Lebensmittelsicherheit. Veterinärinstitut, Oldenburg, Germany.
- Robles, F. *et al.* **Implementation of "DIVA" Concept with specific ELISA kits; When Submit H5 Avian Influenza Vaccine is Used.** World Academy of Science, Engineering and Technology 65 2010.
- Schmitz, A. *et al.* **Evaluation of a commercial ELISA for H5 low pathogenic avian influenza virus antibody detection in duck sera using Bayesian methods.** Journal of Virological Methods 193 (2013) 197-204.

ID Screen® Influenza A Nucleoprotein Indirect (Product code - FLUNPS)

- Gardin, Y. *et al.* **Investigation on the possible application of a serological DIVA monitoring strategy when a rHVT-H5 vaccine is used to control Avian Influenza.** Oral presentation given at the AVMA – AAAP convention, San Antonio, USA, August 2016. External study performed by CEVA Animal Health.



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