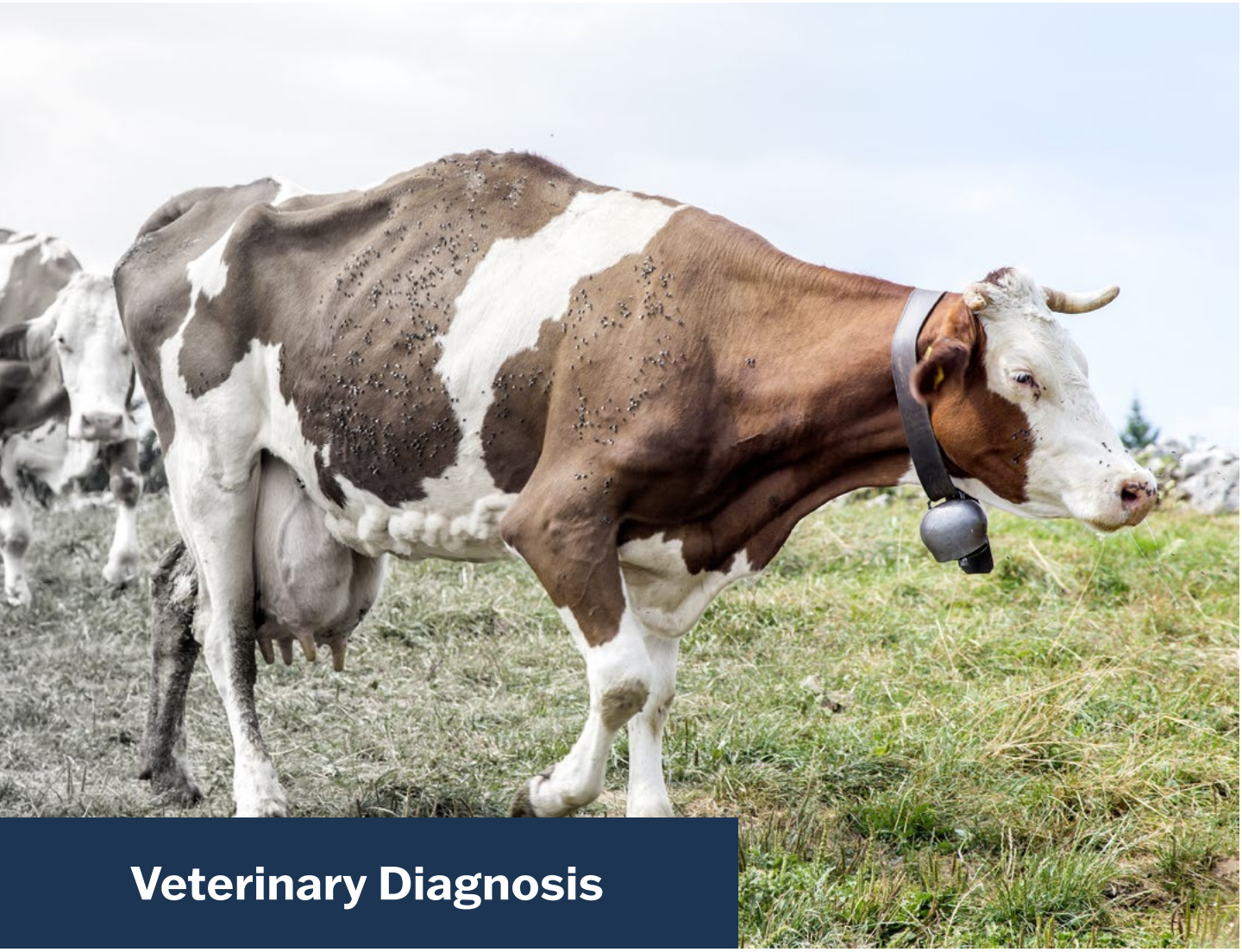

Veterinary Diagnosis

Immunoenzymatic kits to diagnosis for diseases animals

ELISA kits are intended for the determination of specific antibodies or antigens in animal plasma, serum, milk or tissue

Diagnostic kits are intended for professional use in the laboratory.

BioVendor Group®

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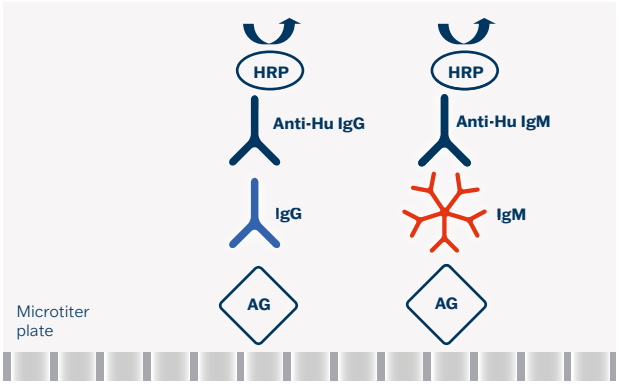
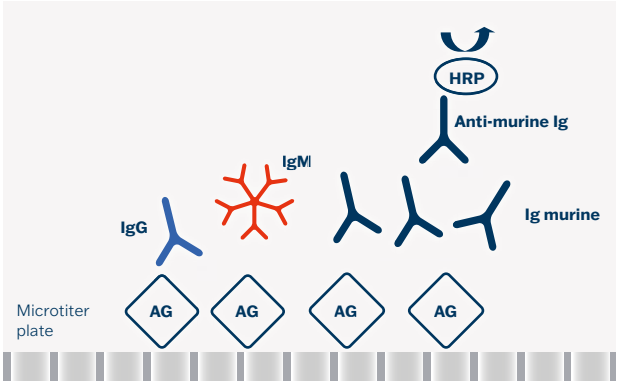
Sandwich ELISA principal



Kits: AD, BHV-1, BVD-MD, EBLV, PTB, Dog Borrelia

Competitive/blocking ELISA principal



Kits: IBR

Assay procedure

Step		Test steps
	1.	Dilution of samples – serum/plasma 1:101 (10 µl + 1 ml)
	2.	Pipette Controls and diluted samples 100 µl – Including blank
	3.	Incubate 30 (60) min. at 37 °C
	4.	Aspirate and wash the wells 4 times
	5.	Add Conjugate 100 µl – Including blank
	6.	Incubate 30 min. at 37 °C
	7.	Aspirate and wash the wells 4 times
	8.	Add 100 µl Substrate (TMB-Complete) – Including blank
	9.	Incubate 15 min. at laboratory temperature 37 °C
	10.	Add 100 µl Stopping solution – Including blank
	11.	Read colour intensity at 450 nm

User comfort

- Ready-to-use components
- Colour-coded components
- Interchangeable components
- Breakable colour-coded microplate strips
- Semiquantitative evaluation of results

Advantages

- High diagnostic specificity and sensitivity
- High reproducibility
- High dynamics of antibody response

AUTOMATION

AGILITY®

AGILITY® instrument represents a completely new concept of ELISA method automation, which enables processing of all types of assays across 12 different plates. Using SmartEIA kits uniquely designed for AGILITY® brings maximal automation and user comfort.

- Open system, compatible with all ELISA kits suitable for open platforms*
- SmartEIA – automatic recognition of assay type, batch, and expiry date
- 3 robotic arms (2 pipetting, 1 for transport of components) for maximal efficiency
- Simultaneous processing of up to 16 kits, capacity up to 200 samples ensuring high throughput
- Bidirectional LIS connectivity, consumable and reagent inventory
- Sample presence monitoring, barcodes identification, closed waste system
- On-line support

special racks and bottles required

DS2, DSX

DS2 2 – fully open 2-plate analyser
(up to 6 different assays)

DSX 4 – fully open 4-plate analyser
(up to 13 different assays)

- Open system, compatible with all ELISA kits suitable for open platforms
- Bidirectional communication interface, works with barcodes
- Easy operation and function settings
- Quick sample processing, optional two-step dilution
- On-line support
- Special TestLine racks included to achieve higher user comfort

AGILITY®

DS2, DSX

TestLine stojan pro reagencie rack DS2

TestLine stojan pro reagencie DSX

GEMINI

Gemini – 3-plates, fully opened system

- Open system, compatible with all ELISA kits suitable for open platforms
- Highly flexible time manager with LIS connectivity
- Easy installation and maintenance, high pipetting safety ensured by triple control
- Convenient programming of test protocols, easy operation
- On-line support

LEDETECT 96

Photometer **Ledetect 96** for easy and safe evaluation of ELISA method.

- 8-channel photometer with digitally operated LED lamps, detection system of 8 photodiodes
- Wavelength range 340-900 nm, selection using optical filters
- Reading speed – 5-10 seconds depending on plate type
- Four shaking regimes for complex mixing of solutions and better reproducibility

GEMINI

LEDETECT 96

Aujeszky's disease

Introduction

Aujeszky's disease (AD) is a contagious disease of pigs. The causative agent is swine herpes virus type 1 (SHV-1), a member of the family *Herpesviridae*. The disease is characterized by a two-phase course: the acute stage of infection is followed by a latent phase. In the acute stage, the affected pigs develop damage to the nervous system and the respiratory tract. The disease is usually fatal in piglets. In the latent stage, the pig as a natural host and reservoir of the virus serves as a carrier that spreads the virus to other susceptible animals, in which the disease is usually fatal.

The diagnosis is based on detection of antibodies against the AD virus in the blood serum and muscle fluid of the pigs. The kit is used to detect the disease in farm animals, to check the efficacy of protective vaccination and to certify an infection-free herd. The AD Ab ELISA kit detects antibodies against the complete set of viral antigens (not suitable for distinguishing infected animals from animals vaccinated with a gE-vaccine). The sensitivity of the kit is set according to the international standard serum ADV-1 at 1:8 dilution.

Antigens

Purified and inactivated Suid herpesvirus 1 antigen

Product Information

Cat. No.	Product	No. of wells	Type of sample	Incubation times	Evaluation	Diagnostic Sensitivity	Diagnostic Specificity
AD0480	AD Ab ELISA	480	S	30–30–45 min. / 37 °C	S/P	99.4%	99.0%

HOM – homogenates and infected cell culture media, M – milk, P – plasma, S – serum; Abs. – absorbance, IP – Index of Positivity, S/P – absorbance of the tested sample divided by the mean absorbance of the Positive Control Serum – limit; RT – room temperature

Infectious bovine rhinotracheitis

Introduction

Infectious bovine rhinotracheitis (IBR) is a bovine disease caused by the **BHV-1 virus** (bovineherpesvirus-1) from the family *Herpesviridae*. Only cattle are sensitive to the infection. The infection process is either completely asymptomatic or is manifested by various clinical forms, mostly as rhinotracheitis and vulvovaginitis, often causing reproductive disorders and abortion. The virus induces a latent infection in the animals and persists in their body without any clinical symptoms for the whole lifespan.

Infected animals thus become a permanent source of infection and a decisive factor enabling the spread of the disease. Reliable identification of these animals is essential for disease control and implementation of sanitation programmes.

Due to the absence of clinical symptoms in latently infected animals, the disease can only be diagnosed serologically based on positive detection of antiviral antibodies in the serum, plasma, or milk. In addition to the basic indication (screening for latently infected animals), the kit can also be used to confirm clinical suspicion of the infection, to examine the virus circulation in animal breeds and to check the efficacy of vaccination. The IBR-gB ELISA (192) based on blocking ELISA technique is used for this purpose.

Antigens

Purified and inactivated BHV-1 antigen

Product Information

Cat. No.	Product	No. of wells	Type of sample	Incubation times	Evaluation	Diagnostic Sensitivity	Diagnostic Specificity
BHd480	BHV-1 Ab ELISA	480	S, M	60–30–15 min. / 37 °C	S/P	99.4%	99.2%
IBR192	IBR-gB ELISA*	192	S, P, M	720–60–15 min. / 37 °C	% blocking	100.0%	99.6%

*The kit is calibrated to the European standard serum BHV-1 (EU2).

HOM – homogenates and infected cell culture media, M – milk, P – plasma, S – serum; Abs. – absorbance, IP – Index of Positivity, S/P – absorbance of the tested sample divided by the mean absorbance of the Positive Control Serum – limit; RT – room temperature

Bovine viral diarrhoea

Introduction

Bovine viral diarrhoea is a mucosal disease caused by the BVD virus (bovine viral diarrhoea virus, BVDV), a member of the genus *Pestivirus*, family *Flaviviridae*. BVDV is one of the most important viral pathogens of cattle. Typical symptoms of the disease include diarrhoea and fever. Serious consequences of the BVDV infection are compromised immunity (immunosuppression); which is a predisposing factor for infection with other pathogens, causing respiratory infections; reproductive disorders, mastitis, or other intestinal diseases. The virus has ability to penetrate the placenta and induces immune tolerance of the fetus infected in the first trimester of pregnancy. Immune tolerance results in a persistent form of the BVDV infection, during which the animals shed the virus and serve as the main source of infection in the herd (persistently infected animals). These animals are seronegative (immunotolerant). Management of the BVDV infection requires identification and removal of these animals, which results in great economic losses in cattle.

The diagnosis is based on detection of specific anti-BVDV antibodies in cattle sera. The kit is used to identify serologically negative („risk“) animals in herds with active BVDV infection. The serologically negative animals undergo additional virological tests to confirm persistent infection. In addition to the main indication (screening for persistently infected animals), the TestLine BVD-MD IgG ELISA kit is also used to confirm the clinical suspicion of the infection, to examine the virus circulation in animal farms and to check the efficacy of vaccination.

Antigens

Purified and inactivated BVDV antigen

Product Information

Cat. No.	Product	No. of wells	Type of sample	Incubation times	Evaluation	Diagnostic Sensitivity	Diagnostic Specificity
BVD480	BVD-MD IgG ELISA	480	S, P, M	60–30–15 min. / 37 °C	S/P	99.2%	99.3%

HOM – homogenates and infected cell culture media, M – milk, P – plasma, S – serum; Abs. – absorbance, IP – Index of Positivity,
S/P – absorbance of the tested sample divided by the mean absorbance of the Positive Control Serum – limit; RT – room temperature

Enzootic Bovine Leukosis Virus

Introduction

Enzootic Bovine Leukosis Virus (EBLV) belongs to the family *Retroviridae*. Enzootic bovine leukosis (EBL) is an infectious disease of cattle. The virus infects primarily B lymphocytes and elicits a persistent antibody response against five viral proteins. The strongest antibody response is elicited against the surface glycoprotein gp-51 and the inner protein p-24. Only about 11% of infected animals develop symptoms of persistent lymphocytosis and lymphosarcomatosis.

Current diagnostic techniques are based on the detection of specific antibodies. The routinely used methods are agar gel precipitation test (AGPT) to determine serum antibodies, ELISA, or RIA. Due to its high sensitivity and specificity, ELISA is used to detect antiviral antibodies in the sera evaluated as negative by AGPT. This technique meets the requirements for testing pooled samples of these materials with a sensitivity corresponding to the requirements of the O.I.E. (EU Directive 88/406). The kit is standardized according to international standards, including E05. The kit detects O.I.E standard serum named E05 in 1:100 dilution, allowing examination of ten pooled samples.

Antigens

Purified and inactivated BLV antigen containing p-24 (inner protein)

Product Information

Cat. No.	Product	No. of wells	Type of sample	Incubation times	Evaluation	Diagnostic Sensitivity	Diagnostic Specificity
EBL480	EBLV Ab ELISA	480	S, P	60–30–15 min. / 37 °C	S/P	99.9%	99.8%

HOM – homogenates and infected cell culture media, M – milk, P – plasma, S – serum; Abs. – absorbance, IP – Index of Positivity, S/P – absorbance of the tested sample divided by the mean absorbance of the Positive Control Serum – limit; RT – room temperature

Paratuberculosis

Introduction

Paratuberculosis (Johne's disease) is a disease of farm ruminants caused by *Mycobacterium avium subspecies paratuberculosis* (MAP). The disease is very costly, is incurable and has a very long incubation period (2 years and longer). The main clinical symptom is watery diarrhoea with major loss of weight although food intake is constant. The animal dies of exhaustion at an advance stage of the disease.

The animals start producing antibodies against the causative agent during MAP secretion at the clinical stage of the disease. The antibodies, however, cross-react with other mycobacteria. Such cross-reacting antibodies must be eliminated through absorption of serum/plasma and milk with *M. phlei* prior to the assay.

Antigens

Purified and inactivated secretion antigen of *M. avium spp. Paratuberculosis*

Product Information

Cat. No.	Product	No. of wells	Type of sample	Incubation times	Evaluation	Diagnostic Sensitivity	Diagnostic Specificity
PTB480	PTB Ab ELISA 480	480	S	60–60–15 min. / 37 °C	S/P	99.3%	99.4%

HOM – homogenates and infected cell culture media, M – milk, P – plasma, S – serum; Abs. – absorbance, IP – Index of Positivity, S/P – absorbance of the tested sample divided by the mean absorbance of the Positive Control Serum – limit; RT – room temperature

IPNV, SVCV, VHSV

Introduction

Infectious pancreatic necrosis virus (IPNV)

IPNV is a birnavirus, many types of which infect marine finfish and shellfish. The signs below are of the virulent disease in salmonids.

Clinical signs: fish lie still on bottom, fish swim with a spiralling motion, white faecal casts, swollen belly, darkening body colour, exophthalmus (pop eye), lesions and ulcers in pancreas, oesophagus and stomach, intestines empty or filled with clear mucus.

The diagnosis is based on the detection of the IPNV antigen in organ homogenates and in culture media of infected cell cultures. The sensitivity of the ELISA technique (10^2 $TCID_{50}$ per 0.1 ml fluid examined) is sufficient for routine testing of field samples.

Spring viraemia of carp virus (SVCV)

SVCV is a rhabdovirus closely related to the infectious haematopoietic necrosis virus and the haemorrhagic septicaemia virus. It is the cause of contagious infection seen in many species of cyprinids around 1 or 2 years of age, but other freshwater fishes are also susceptible. The disease is widespread in European countries but has more recently appeared in Asia and the Americas.

Clinical signs: exophthalmus (pop eye), swollen abdomen (dropsy), petechial (pinpoint) haemorrhages in the fatty tissue and muscle surrounding organs and stomach wall, haemorrhages on skin, haemorrhages in gills, abdominal tissue, swim bladder and other internal organs, ascites (abdominal cavity filled with fluid).

ELISA technique is used for the diagnosis, which is based on the detection of the SVCV antigen in organ homogenates and in culture media of infected cell cultures. The sensitivity of the ELISA technique ($10^{2.8}$ – $10^{3.5}$ $TCID_{50}$ per 0.1 ml fluid examined) is sufficient for routine testing of field samples.

Viral hemorrhagic septicaemia virus (VHSV)

VHSV is a rhabdovirus. Several genogroups/genotypes of the virus have been identified from different environments in different parts of the world.

Clinical signs: Some fish show no external symptoms, but others show signs of infection that include bulging eyes, bloated abdomens, bruised-looking reddish tints to the eyes, skin, gills, and fins. Internally, the virus can cause petechial haemorrhaging (tiny spots of blood) in internal muscle tissue, and petechial or severe haemorrhaging in internal organs and other tissues (liver, kidneys, spleen, and skeletal muscle). There may also be a nervous form of the disease where fish are constantly flashing and showing abnormal behaviour.

The ELISA technique is used for the diagnosis, which is based on the detection of the VHSV antigen in organ homogenates and in culture media of infected cell cultures. The sensitivity of the ELISA technique (10^3 $TCID_{50}$ per 0.1 ml fluid examined) is sufficient for routine testing of field samples.

Product Information

Cat. No.	Product	No. of wells	Type of sample	Incubation times	Evaluation	Diagnostic Sensitivity	Diagnostic Specificity
IPN096	IPNV Ag ELISA	96	HOM	60-60-10 min. / 37 °C	Abs. > 0.200	10^2 $TCID_{50}$ per 0.1 ml fluid examined	100.0%
SVC096	SVCV Ag ELISA	96	HOM	60-60-10 min. / 37 °C	Abs. > 0.200	10^3 $TCID_{50}$ per 0.1 ml fluid examined	100.0%
VHS096	VHSV Ag ELISA	96	HOM	60-60-10 min. / 37 °C	Abs. > 0.200	10^3 $TCID_{50}$ per 0.1 ml fluid examined	100.0%

HOM – homogenates and infected cell culture media, M – milk, P – plasma, S – serum; Abs. – absorbance, IP – Index of Positivity, S/P – absorbance of the tested sample divided by the mean absorbance of the Positive Control Serum – limit; RT – room temperature

PRODUCTS OVERVIEW

ELISA INSTRUMENTS

Cat. No.	Product
67000	Agility®
62010	DS2
65400	DSX
9162800000	Gemini
WR-302-02	Ledetect 96

ELISA INSTRUMENTS – CONSUMABLES

Cat. No.	Product	Number	Units
vp0025	Reservoir for 8 and 12-channel pipette	25	pcs
62910	Well Dilution Strips for Agility, DS2 and DSX	250	pcs
67910	Sample Tips for Agility	896	pcs
67920	Reagents Tips for Agility	490	pcs
67960	Bronze SmartKit Agility – Sample Dilution Container	50	pcs
65940	Bronze SmartKit Agility – Bottle for Controls	33	pcs
65950	Bronze SmartKit Agility – Bottle for Reagents	24	pcs
65910	Sample Tips for DS2, DSX	4x 108	pcs
65920	Reagent Tips for DS2, DSX	4x 108	pcs
89611	Gemini Sample Tips 300 µl	10x 96	pcs
89612	Gemini Reagent Tips 1100 µl	10x 96	pcs

Ordering Information

VETERINARY IMMUNODIAGNOSTIC KITS – LARGE ANIMALS

Cat. No.	Product	No. of Wells
AD0480	AD Ab ELISA	480
BHd480	BHV-1 Ab ELISA	480
IBR192	IBR-gB ELISA	192
BVD480	BVD-MD IgG ELISA	480
EBL480	EBLV Ab ELISA	480
PTB480	PTB Ab ELISA 480	480

VETERINARY IMMUNODIAGNOSTIC KITS – FISH

Cat. No.	Product	No. of Wells
IPN096	IPNV Ag ELISA	96
SVC096	SVCV Ag ELISA	96
VHS096	VHSV Ag ELISA	96

PRODUCER

TestLine Clinical Diagnostics s.r.o.
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Czech Republic

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