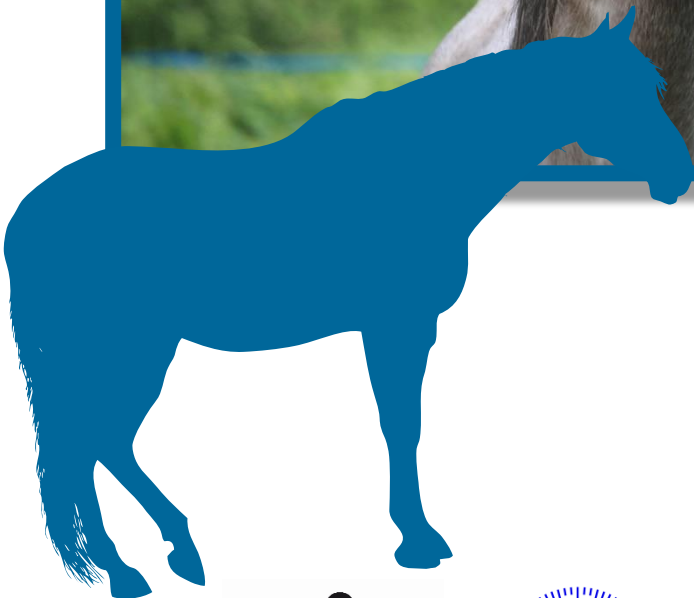


List of Products and Services

IVD GmbH

Analytical Laboratory accredited by the German Accreditation Authority (DAkks)
according to the European standard DIN EN ISO/IEC 17025

Hobby Animals: HORSE - CATS & DOGS- EXOTICS



IVD GmbH
Innovative Veterinary Diagnostics
Laboratory
Albert-Einstein-Str. 5
30926 Seelze-Letter
Germany



für *Leptospira* spp.



Deutsche
Akkreditierungsstelle
D-PL-18303-02-00



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General information

Samples are analysed individually. All prices listed are per sample and do not include statutory VAT. Please note that we do not accept payment via cheque.

Our General Terms and Conditions of Sale apply to all services; these can be viewed in our premises or on our homepage: <https://www.ivd-gmbh.de>.

Our privacy policy can be found at <https://www.ivd-gmbh.de/datenschutz>.

Please contact us in case of special diagnostic services, analyses or questions. We are prepared to answer any question and consider any request within the areas of our professional and technical expertise.

There is a surcharge for diagnostic services below a minimum charge of € 10.00.

A surcharge plus VAT will be assessed for retroactive modifications of orders authorised/requested/required by the customer.

Selection and submission of samples

The materials best suited for serological examinations are serum or blood without anticoagulants.

The use of plasma (addition of EDTA, Li-heparin, citrate) can cause artefacts in the complement fixation test (CFT) and in agglutination reactions (HI, MAT, RBT and others).

Tissue and swab samples collected immediately *post mortem* from typical lesions are often more suitable for the molecular biological and cultural detection of agents than samples which can be taken *intra vitam*.

For each test listed below, suitable samples from living animals are indicated by an asterisk (*), and suitable samples from dead animals, by a dagger (†). Potential, but not ideal samples indicated in brackets ().

Shipping recommendations

When pathogen levels are low, both analytical sensitivity and diagnostic certainty of molecular biological analyses are enhanced by immediate shipment of cooled samples, due to retardation of autolysis. Chill fresh tissues prior to shipment and include frozen gelpacks with the shipment; enclose paperwork in waterproof packaging. When shipping fresh tissues, consider the possibility of shipping delays due to weekends or holidays.

Information on regulations for the shipment of hazardous materials can be found on our home page: <https://www.ivd-gmbh.de>.

The IVD GmbH laboratory is accredited according to European standard DIN EN ISO /IEC 17025. IVD has performed diagnostic testing for infectious agents of farm animals, horses, dogs, cats and exotic animals since 1997.

Tests that do not conform to the regulations of the national accreditation body of Germany are marked with a superscript circle (°).

In test reports, only the method is reported, when using commercial test kits also the manufacturer is mentioned, not the batch number of the test kit or the version number of the manual (simplified report).

Your personal contact	Direct dial
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Pathology

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Administration

Central Office	-0
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MATERIAL FOR SAMPLING, PACKAGING AND TRANSMITTEL OF SPECIMEN

IVD GmbH provides its customers with material for taking samples of meat juice, oral fluid as well as sample containers for histological examination in smaller packaging units. The packaging corresponds to ADR regulation P650 for mail delivery to our laboratory.

	Minimum purchase / Packaging Unit (PU)	Price in € per PU
Suesse Post Box (suitable for 12-16 blood samples or 5 fecal samples) incl. 1 protective bag with absorbent insert	20 pc.	22.50
Suesse Post Box Maxi (suitable for 24-32 blood samples or 10 fecal samples) incl. 2 protective bags with absorbent insert	15 pc.	24.90
Protective Bag with absorbent insert (for 6-8 blood or 5 fecal samples)	50 pc.	19.20
Protective Bag LARGE with absorbent insert (for 3 fecal poaches)	25 pc.	14.10
Protective Container with absorbent insert and screw cap (only for single samples)	50 pc.	15.30
Fecal Tube with screw cap 76x20 mm	100 pc.	16.90
Formalin- filled sample tubes for histological examinations (100 ml urine cup with screw cap filled with 50 ml 4% Formalin)	40 pc.	16.90
FTA Cards (4 spots each)	1 pc.	6.10
DBS (Dried Blood spots - 5 Spots each)	5 pc.	9.60
Cold Pack (according to availability)	max. 1 pc. per box	free of charge
Fecal Sampling Horse & Small Animal Kit each shipping box (Suesse Post Box) contains		
<ul style="list-style-type: none"> • 1 sample collection guide for pet owners • 3 compostable feces bag • 1 protective bag large 	10 pc.	18.10

Samples should be send the same day (Monday to Thursday) so that they arrive at the testing laboratory on the following day.

If the shipment is only possible at a later point in time, the samples should be stored at 4-8 ° C (in the refrigerator).

Test methods offered for various pathogen detections in horses



Test methods / alphabetical list of pathogens	Indirekt pathogen detection (Antibodies)						Direkt Pathogen Detection							
	ELISA	Serotyp. ELISA	CFT	HI	MAT	RBT	PCR	qPCR	Differentiation	Typing	Sequencing	bact. culture	Parasitology	IHC
<i>Actinobacillus equuli subsp. equuli</i>							•					•		
<i>Actinobacillus equuli subsp. haemolyticus</i>							•					•		
<i>Borellia burgdorferi</i> sensu lato (incl. <i>B. burgdorferi</i> sensu stricto, <i>B. garinii</i> and <i>B. afzelli</i>)							•							
<i>Brachyspira</i> species							•		•			•		
<i>Brachyspira hyodysenteriae</i>							•					•		
<i>Brucella</i> , <i>Brucella abortus</i>			•											
<i>Chlamydia</i>			•				•							
Equine Herpes Virus 1 (EHV 1)	•						•							
Equine Herpes Virus 4 (EHV 4)	•						•							
<i>Clostridium perfringens</i>							•			•*		•		
<i>Clostridiodes difficile</i>										•*		•		
<i>Escherichia coli</i>										•*		•		
<i>Fusobacterium necrophorum</i>												•		
Influenza A-Virus							•							•
<i>Lawsonia intracellularis</i> (PIA)							•	•						•
<i>Leptospira</i> (pathogene serovar)						•	•	•						•
Parasite stages in feces													•	
Skin parasites (mites, lice)													•	
<i>Rhodococcus equi</i>	•						•					•		
<i>Salmonella</i>							•			•*		•		
<i>Staphylococcus aureus</i> (MRSA)										•*		•		
<i>Staphylococcus hyicus</i> (Toxin detection)										•*		•		


Test methods / alphabetical list of pathogens	Indirekt pathogen detection (Antibodies)						Direkt Pathogen Detection							
	ELISA	Serotyp. ELISA	CFT	HI	MAT	RBT	PCR	qPCR	Differentiation	Typing	Sequencing	bact. culture	Parasitology	IHC
<i>Streptococcus dysgalactiae</i>												●		
<i>Streptococcus equi</i> subsp. <i>equi</i>							●					●		
<i>Streptococcus equi</i> subsp. <i>zooepidemicus</i> (strangles)							●					●		
<i>Taylorella equigenitalis</i> (CEMO)							(●)							
<i>Trueperella pyogenes</i>												●		

*Detection only possible from bacterial isolates; () examinations only upon request

Suitable test materials for direct pathogen detection using PCR, bacteriology, histology and immunohistochemistry in horses

suitable material / alphabetical list of pathogens	Meninges / Liquor	Conjunctival swab	Blood / Milk ¹	Nasal swabs	BALF/ TBS	Bronchial swabs	Lung	Tonsils/ Lymphnode	Feces / (fecal swabs)	Small intestine	Caecum / Colon	Cervical swabs	Abortion (Fetus/Placenta)	Serosa swabs	Joint	others
	<i>Actinobacillus equuli</i> subsp. <i>equuli</i>				●	●	●	●					●			●
<i>Actinobacillus equuli</i> subsp. <i>haemolyticus</i>				●	●	●	●					●			●	
<i>Borellia burgdorferi</i> sensu lato	●														●	skin punch, tick
<i>Brachyspira species</i>									●	●						
<i>Brachyspira</i> <i>hyodysenteriae</i>									●	●						
Chlamydien		●											●			
Equines Herpes Virus 1 (EHV-1)	●		●	●								●	●			
Equines Herpes Virus 4 (EHV-4)	●		●	●								●	●			
<i>Clostridiodes difficile</i>								●								
<i>Escherichia coli</i>								●								



suitable material / alphabetical list of pathogens																
	Meninges / Liquor	Conjunctival swab	Blood / Milk ¹	Nasal swabs	BALF/ TBS	Bronchial swabs	Lung	Tonsills/ Lymphnode	Feces / (fecal swabs)	Small intestine	Caecum / Colon	Cervical swabs	Abortion (Fetus/Placenta)	Serosa swabs	Joint	others
<i>Fusobacterium necrophorum</i>																abscess, hoof
Influenza A-Virus				•	•		•									
<i>Lawsonia intracellularis</i>								•	•	(•)						
Leptospiren (pathogene Serovaren)											•	•				ERU: vitreous, aqueous humor, kidney, liver, internal genital organs, body fluids, urine
Parasitenstadien im Kot								•								
Parasiten der Haut (Milben, Läuse)																skin scrapings
<i>Rhodococcus equi</i>					•	•	•									abscess
Salmonellen								•				•				
<i>Staphylococcus aureus</i> (MRSA)	•		•	•	•	•	•				•	•		•		abscess, skin
<i>Streptococcus dysgalactiae</i>			• ¹	•	•	•					•					
<i>Streptococcus equi</i> subsp. <i>equi</i>				•	•		•									abscess, guttural pouch wash
<i>Sc. equi</i> subsp. <i>zooepidemicus</i> (strangles)				•	•		•				•	•				abscess
<i>Taylorella equigenitalis</i> (CEMO)											•	•				semen, presecret
<i>Trueperella pyogenes</i>			• ¹											•		abscess

Please note:

Swabs with medium are the most suitable for **cultural examination!**

Swabs without medium are the most suitable for direct detection by **PCR!**

**Combination culture & PCR „Strangles”**

Streptococcus equi subsp. *equi*; *Streptococcus equi* subsp. *zooepidemicus*
bacterial culture and PCR incl. differentiation

Material *: abscess material, nasopharyngeal swab (with and without medium),
guttural pouch wash

PCR Screening „Respiratory Tract”

Streptococcus equi subsp. *equi*; ; *Streptococcus equi* subsp. *zooepidemicus*;
Equine Herpes Virus 1/4 :Influenza A Virus

Material *: TBS, nasopharyngeal swab

PCR Screening „Respiratory Tract Plus”

plus: add. bacterial culture for other pathogenic bacteria, incl. differentiation
and resistogram

PCR-Screening „Gastrointestinal Tract“

Brachyspira spec., *Lawsonia intracellularis*, *Salmonella* spec..

Material*: feces

PCR-Screening „Gastrointestinal Tract Plus“

plus: add. bacterial culture for other pathogenic bacteria, incl. differentiation
and resistogram

Screening „Colitis X“

bacterial culture und PCR typing

Material*: feces

PCR-Screening „Reproductive Tract“ (PCR)

Chlamydien; Leptospiren, Equines Herpes Virus 1 and 4

Material*: genital swab, abortion material

Screening „Reproductive Tract“ (PCR & culture)

plus: add. bacterial culture for other pathogenic bacteria, incl. differentiation
and resistogram

PCR-Screening „Foal” (PCR)

Actinobacillus equuli subsp. *equuli*, *Actinobacillus equuli* subsp.
haemolyticus, *Rhodococcus equi* inkl. Nachweis des Virulenzplasmids,
Sc.equi subsp. *equi*, *Sc.equi* subsp. *zooepidemicus*

Material *: TBS, nasopharyngeal swab

Screening „Foal Plus“ (PCR & culture)

plus: add. bacterial culture for other pathogenic bacteria

***Actinobacillus equuli* PCR**Differentiation *A. equuli* subsp. *equuli* / *haemolyticus*Material: TBS, BALF, lung-/bronchial swab, nasal swab, synovial fluid, blood, urine, articular swab, kidney, lung***Borrelia burgdorferi sensu lato* PCR**(*Borrelia burgdorferi sensu stricto*, *B. garinii* und *B. afzelii*)Material: skin, tick, CSF, synovial fluid***Brachyspira pilosicoli* PCR**

Material: feces, rectal swab, small intestine

***Brachyspira spec.* multiplex PCR**Detection of *Brachyspira spec.*, *B. pilosicoli*, *B. hampsonii*, *B. intermedia*, *B. innocens*, *B. suanatina* und *B. murdochii*

Material: feces, rectal swab, small intestine

CEM, Contagious Equine Metritis s. *Taylorella equigenitalis****Chlamydia* PCR**Material: depending on the clinical symptoms e.g. conjunctival swab, genital swab, etc.**EHV (Equine Herpes Virus) multiplex PCR**

Differentiation (Equine Herpes Virus 1/4)

Material: nasal swab, genital swab, blood, placenta, fetal tissues, abortion material, brain, spinal cord**Equine Recurrent Uveitis / ERU s. *Leptospira*****Foal Paralysis**Actinobacillosis s. *Actinobacillus equuli*Classical Foal Paralysis s. *Streptococcus equi***Influenza A Virus (IAV) realtime PCR**Material: nasal swab, TBS, BALF, lung***Lawsonia intracellularis* realtime PCR**Material: feces, fecal swab, rectal swab***Lawsonia intracellularis* qPCR**Material: feces***Leptospira* (pathogenic serovars) - Equine Recurrent Uveitis (ERU) PCR**incl. differentiation of pathogenic *Leptospira* (subclades P1 and P2)Material: genital swab, urine, semen, intraocular fluid, vitreous body, abortion material, liver, kidney, genital tract, eye

HORSE

PCR tests - alphabetical directly from sample material



Rhodococcus equi multiplex PCR

Pneumonia in foals

Detection of species and virulence plasmid

Material: TBS, BALF, abscess material, lung

***Salmonella* species and *Salmonella* Typhimurium** PCR

after cultural enrichment

incl. Differentiation *Salmonella* Typhimurium

Material *: feces, fecal swab, rectal swab, caecum, colon

***Streptococcus equi* - Strangles or classical foal paralysis** multiplex PCR

after bacteriological culture,

incl. differentiation *Sc. equi* subsp. *equi* / *zooepidemicus*

Material: abscess material, nasopharyngeal swab, guttural pouch wash, (TBS, BALF); lung, lymph node

Streptococcus equi multiplex PCR

Differentiation *Sc. equi* subsp. *equi* / *zooepidemicus*

Material *: abscess material, nasopharyngeal swab, guttural pouch wash, TBS, BALF, lung, lymph node

Taylorella equigenitalis PCR- Contagious Equine Metritis/ CEM

Please note the breeding hygiene instructions for sampling

HORSE

SEROLOGICAL TESTS (Antibody detection) - alphabetical Material: serum or blood without anticoagulants



Brucella abortus CFT

EHV (Equine Herpes Virus) EHV-1 /4 ELISA

(only on request with a lead time of one week)

***Leptospira* (pathogenic serovars) - Equine Recurrent Uveitis (ERU)**

Leptospira MAT - Selected antigens of representative strains of different pathogenic serovars and serogroups

Material *: apart from serum, further body fluids are possible, please state it.

Material: ERU *: intraocular fluid, eye

Testing for individual strains or serovars is possible after consultation

***Rhodococcus equi* - Pneumonia in foals**

Rhodococcus equi ELISA



Examination by bacteriological culture, basic

Examination by bacteriological culture incl. anaerobes

by using selective culture media and enrichment culture

Examination by bacteriological culture incl. *Salmonella* from feces

Salmonella examination according to DIN EN ISO 6579-1:2017

by using selective culture media and enrichment culture

- obligatory: by suspicion of *Salmonella*, validation by agglutination

Examination by bacteriological culture incl. mycological culture from skin samples

using special culture medium

Additional selective culture medium

Please note that the identification of pathogenic bacteria species may incur **further costs** for diagnostic verification, e.g. for species identification by PCR or 16S rRNA typing (PCR and sequencing° (by external lab) including sequence analysis; (see below).

Identification of bacteria isolated at IVD as part of the cultural examination

Species identification by PCR of:

Actinobacillus equuli subsp. *equuli*

Actinobacillus equuli subsp. *haemolyticus*

Fusobacterium necrophorum

Rhodococcus equi

Streptococcus dysgalactiae

Streptococcus equi subsp. *equi*

Streptococcus equi subsp. *zooepidemicus*

Identification of submitted bacterial isolates

Additional subculture for submitted bacterial isolates

for further analysis

Identification of further pathogenic bacteria species by 16S rRNA

typing

Cultural biochemical or serological differentiation



Resistance / Susceptibility testing of bacterial isolates

- Agar diffusion test
- Microdilution technique
(determination of the minimal inhibitory concentrations (MICs))
- Microdilution technique anaerobes

Custodial storage of bacterial isolates

Delivery of characterised bacterial field isolates

e. g. *Streptococcus*, *Rhodococcus* et al.

Please note:

Swabs with medium are the most suitable for **cultural examination!**

Swabs without medium are the most suitable for direct detection by **PCR!**

Most suitable sample materials for cultural detection of bacterial pathogens of:

Arthritis	swab from joint capsule or joint cartilage, joint capsule, (synovia)
Atemwegsinfektionen	lung, lung and bronchial swab, bronchoalveolar lavage fluid (BALF)
Endometritis	cervical swab Please note: No detection of <i>Taylorella equigenitalis</i> (CEMO)
Enteritis, Durchfall	feces, fecal swab, rectal swab, small and large intestine
Hauterkrankungen	skin, deep skin scrapings
Meningitis	meningeal swab, CSF (liquor)
Rhinitis	nasal swab
Sepsis	kidney, spleen

Note: **swabs with medium** are most suitable for cultural examination



Typing of bacterial isolates

***Clostridioides difficile* (Colitis X) / *C. difficile* Typ-PCR**

Detection of the genes coding for toxin A and B as well as the binary toxins A and B by PCR

***Clostridium perfringens* (Colitis X)**

Determination of types A to E with/without β 2 toxin gene/enterotoxin gene by

- PCR and detection of α and β 2 toxin production by immunoblot
- PCR only

***Escherichia coli* “Virulence-Associated Factors”**

Detection of virulence-associated factor genes (fimbriae, adhesins, toxins, and other factors) by PCR

MRSA Methicillin-resistant *Staphylococcus aureus*

Detection of *mecA* gene by PCR and of expression of penicillin-binding protein 2 (PBP2) by agglutination

***Salmonella* Serotyping** (according to the Kauffmann-White scheme)

Classification into serogroups A-E and F-67 by agglutination

Staphylococcus aureus*, methicillin-resistant: **s. MRSA*



Detection of parasite stages in feces:

Helminth eggs and protozoa oocysts Sedimentation and flotation

(qualitative, semi-quantitative)

incl. liver fluke eggs, tapeworm (*Anoplocephala*), large and small strongyles (*Strongylidae*), large roundworm (*Parascaris equorum*), *Oxyuris equi*, threadworms (*Strongyloides westeri*), *Habronema*, lungworm (*Dictyocaulus arnfieldi*), *Coccidia* etc.

Material *: at least 10 g feces

It should be noted that larvae of worms that hatched after sampling can not be detected by the method. For the detection of the larvae, the larval migration technique is additionally recommended, s. below.

Nematode larvae Baermann-Wetzel migration technique

of lungworms (*Dictyocaulus arnfieldi*), threadworms (*Strongyloides westeri*), large and small strongyles (*Strongylidae*)

Material *: at least 10 g feces

Liver fluke eggs (*Fasciola*, *Dicrocoelium*) Sedimentation

Detection of eggs

Material *: at least 10 g feces

Cryptosporidia Staining according Heine

Semi-quantitative direct detection of *Cryptosporidium* oocysts

Material *: 2-5 g feces (if possible, fresh and cooled, but not frozen!) or fecal smear

Modified McMaster technique, quantitative

Determination of the egg number or oocyst number per gram of feces

Detection limit: 50 EPG/OPG

Material *: at least 10 g feces

Detection of other parasites:

***Oxyuris* (Oxyuriasis)** Microscopy

Detection of eggs

Material *: transparent adhesive film copy (on microscope slide)

Mites Microscopy, KOH procedure

Material *: deep skin scrapings

Fleas, Mallophaga, lice Microscopy

Material *: 3 transparent adhesive film copies per animal on microscope slides, combings and skin material



Removal of specimen from aborted fetuses

without pathomorphologic report per foal
disposal per kg body weight

Macroscopic examination with pathomorphologic report per organ

At the necropsy suitable sample material is taken specifically for further examinations on the basis of the clinical preliminary report and the macroscopic findings.

In consultation with the veterinarian, the samples are immediately subjected to the desired infectiological diagnostic and / or histological examinations.

For examinations, that are not offered by IVD GmbH itself, suitable samples can be forwarded to other institutes immediately upon request (e.g. for toxicological tests).

Animals for the necropsy are accepted from Monday to Thursday from 8 a.m. to 12 p.m.
In the case of a delivery after 12 p.m., a necropsy including further examinations on the same day cannot be guaranteed.

Advance registration by telephone on 0511 / 220029-0 and a preliminary report from the veterinarian are required.



Histological examination (standard staining)

Special stainings (Ziehl-Neelsen, Gram etc.)

IMMUNOHISTOLOGY (IHC)

Influenza A Virus IHC

Material †: lung (cranioventrale parts with bronchial sections), fixed in formalin

***Lawsonia intracellularis* IHC**

Material †: ileum, fixed in formalin

***Leptospira* (pathogenic serovars) IHC**

Material †: eye, fetal tissues (kidney, liver, lung), placenta, kidney, genital organs, fixed in formalin

EXPORT EXAMINATIONS

Individually combined according to your specifications, e.g.:

Brucellosis, Equine Herpes Virus Typ 1 EHV-1; EHV-4,
Leptospira, *Salmonella* Typhimurium, *Streptococcus equi* subsp. *equi*
(Strangles) and further

CAT AND DOG
SEROLOGICAL TESTS (Antibody Detection)
Material: Serum or blood without anticoagulants



***Leptospira* MAT**

Selected antigens of representative strains of different pathogenic serovars and serogroups

Testing for individual strains or serovars is possible after consultation

CAT AND DOG
PCR TESTS (Antigen-Detection)
directly from sample material



***Borrelia burgdorferi* s. l. PCR**

(*Borrelia burgdorferi sensu stricto*, *B. garinii* and *B. afzelii*)

Material: skin biopsy, tick, CSF (liquor)

***Chlamydia* PCR**

Material: conjunctival swabs, nasal swabs, lung

***Leptospira* realtime PCR**

incl. Differentiation of pathogenic *Leptospira* (subclades P1 and P2)

Material: urine, kidney, liver

***Salmonella spec.* PCR after cultural enrichment**

Material: feces

SARS-CoV-2 (COVID-19) realtime PCR

Material: nasal swabs, pharyngeal swabs, nasopharyngeal swabs, BALF, TBS
also in rabbits, golden hamsters, ferrets



Histological examination (standard staining)

Special stainings (Ziehl-Neelsen, Gram etc.)

IMMUNHISTOLOGY (IHC)

Leptospira IHC

Material: kidney, liver, formalin fixed

Information for sampling

Tissue samples for histological and immunohistological examinations should be sent in at least **10 times the volume** of 4 or 10% fixed formalin and should not be thicker than **1 cm** in at least one dimension to ensure a sufficiently rapid penetration with the fixing solution.

A cover letter with a clinical preliminary report is essential for the interpretation of the histological findings and the limitation of the deducible etiological differential diagnoses.

Immunohistological examinations for the specific detection of certain pathogens in the tissue are only useful, if a previous histological examination revealed morphological changes, which justify the suspicion of infection with the pathogen in question. Is the meaning, which a pathogen has played in a specific disease process, not of interest, but just the question, whether or not an animal was infected with the pathogen, a PCR analysis of unfixed tissue is preferable, due to its higher sensitivity.



Examination by bacteriological culture, basic

Examination by bacteriological culture of respiratory pathogens
(incl. necessary selective culture media)

Examination by bacteriological culture incl. anaerobes
by using selective culture media and enrichment culture

Examination by bacteriological culture incl. *Salmonella*
according to DIN EN ISO 6579 1:2017 by using selective culture media and enrichment culture

Additional selective culture medium

Custodial storage of bacterial isolates

Please note that the identification of pathogenic bacteria species may incur further costs for diagnostic verification, e.g. for species identification by PCR or 16S rRNA typing (PCR and sequencing° (by external lab) including sequence analysis).

Most suitable sample materials for cultural detection of bacterial pathogens of:

Arthritis	swab from joint capsule or joint cartilage, joint capsule, joint cartilage, (synovia)
Respiratory infections	lung, lung and bronchial swab, bronchoalveolar lavage fluid (BALF)
Enteritis, Diarrhea	feces, rectal swab, small and large intestine
Dermatitis	skin, deep skin scrapings
Meningitis	meningeal swab, CSF (liquor)
Rhinitis	nasal swab
Sepsis	kidney, spleen
infection of the genito-urinary system	urine, swab of the genital tract

Note: **swabs with medium** are most suitable for cultural examination.



Identification of isolated bacteria

Species identification by PCR

16S rRNA typing (for identification of any bacterial species)

Cultural biochemical or serological differentiation

Resistance / Susceptibility testing of bacterial isolates

Microdilution technique

(determination of the minimal inhibitory concentrations (MICs))

Microdilution technique anaerobes

Typing of bacterial isolates

MRSA Methicillin resistente *Staphylococcus aureus*

Detection of *mecA* gene by PCR and of expression of penicillin-binding protein 2 (PBP2) by agglutination



Detection of parasite stages in feces:

Helminth eggs and protozoan oocysts Sedimentation Flotation

Material: at least 10 g feces

Cryptosporidia Staining according to Heine

Semi-quantitative direct detection of *Cryptosporidium* oocysts

Material: 2-5 g feces (if possible, fresh and cooled, but not frozen!) or fecal smear

Detection of skin parasites:

Mites Mikroskopie, KOHprocedure

Sarcoptes (Scabies), Demodex (Demodicosis), *Cheyletiella* spp.

Material: deep skin scrapings

Fleas, Mallophaga, lice Mikroskopie

Material: 3 transparent adhesive film strips per animal on microscope slides, combings and skin material

We will be happy to send you a suitable set for collecting and sending fecal samples for parasitological testing.

You can find more information about the **horse & small animal feces sampling set** on our website at:

<https://www.ivd-gmbh.de/en/quicklinks/probennahme-und-versand>

EXOTICS (REPTILES AND AMPHIBIANS) PCR TESTS (Antigen detection)



Chelonid Herpes Virus PCR (turtle/ tortoise)

Material: pharyngeal/tongue swabs, brain

Chlamydia PCR (snakes, turtles/tortoises, lizards)

Material: cloacal swab, lung

„Chytrid“ *Batrachochytrium dendrobatidis* PCR (amphibians)

Material: skin swab, skin

Mycoplasma (*Mycoplasma*) *agassizii* PCR (tortoise)

Material: pharyngeal swab, lung

Paramyxovirus PCR (snakes)

Material: pharyngeal swab, brain, lung

Salmonella spec. PCR after cultural enrichment (snakes, turtles/tortoises, lizards)

Material: feces

EXOTICS (REPTILES AND AMPHIBIANS) HISTOLOGY



E.g. for detection of Inclusion Body Disease (IBD) in boas

Material: liver, kidney, lung, formalin fixed

LIST OF ABBREVIATIONS

BALF	broncho-alveolar lavage fluid
CFT	complement fixation test
CSF	cerebrospinal fluid, <i>Liquor cerebrospinalis</i>
EDTA	ethylene diamine tetraacetic acid sodium salt
ELISA	enzyme-linked immunosorbent assay
HI	hemagglutination inhibition test
IFAT	immunofluorescence antibody test
IHA	indirect hemagglutination assay
IHC	immunohistochemistry
MAT	microscopic agglutination test
PCR	Polymerase Chain Reaction
qPCR	quantitative Polymerase Chain Reaction
RBT	Rose Bengal test
rtPCR	realtime Polymerase Chain Reaction
TBS	tracheobronchial secretion
*	Material from living animals most suitable for PCR.
†	Material from dead animals most suitable for PCR.

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