

# Infectious Diseases

## PCR Pathogen Detection

valid from August 03, 2017

## Viruses - PCR single detection

Pathogen	Animal species	Sample material
Adenoviruses	reptile	swab (cloaca or pharynx), tracheal lavage, tissue (e.g. intestine or liver)
Adenoviruses	bird	swab (cloaca), faeces, tissue (e.g. intestine, liver, pancreas, or kidney)
Aleutian Mink Disease Virus	ferret, mink, other	EDTA blood (viraemia), swab (rectum), tissue (e.g. spleen, lymph node, or bone marrow)
Arenaviruses (IBD)	boa, python	EDTA blood, tissue (e.g. liver, pancreas, kidney, or brain), swab (oesophagus)
Avian Polyomavirus (APV)	psittacines, other	feather, blood, faeces
Avipoxvirus	bird	tissue (skin lesions, pigeon: small intestine, canary bird: oesophagus)
Bornaviruses bird	psittacines	swab (crop and cloaca), tissue (brain, gastro-intestinal tract)
Bornaviruses mammals	horse, cat, sheep	CSF, tissue (brain), EDTA blood (viraemia), horse: aqueous humour
Bovine Coronavirus (BCoV)	cattle	faeces, swab (nose), tissue (e.g. lung)
Bovine Herpesvirus 1 (BHV-1)*	cattle, other bovids	swab (eye, nose, or genital tract), tracheal lavage, tissue (e.g. abortion material, lung, brain, or tonsils)
Bovine Papillomavirus 1/2 (BPV-1/2)	horse (equine sarcoid)	skin lesions, hairs (hair roots), tissue (tumor)
Bovine Parainfluenzavirus 3 (BPIV-3)	cattle	swab (nose or pharynx), lavage, tissue (e.g. trachea or lung)
Bovine Respiratory Syncytial Virus (BRSV)	cattle	swab (nose or pharynx), lavage, tissue (e.g. trachea or lung)
Bovine Virus Diarrhea Virus (BVDV)	cattle	EDTA blood, milk, faeces, tissue (e.g. spleen, brain, or abortion material)
Canine Adenovirus 1 (CAV-1)	dog	EDTA blood, tissue (e.g. liver), urine, (faeces)
Canine Adenovirus 2 (CAV-2)	dog	swab (eye, nose, or pharynx), BAL
Canine Coronavirus (CCoV)	dog	faeces
Canine Distemper Virus (CDV)	dog, ferret, other	swab (eye, nose, pharynx, or tonsils), EDTA blood (viraemia), CSF, urine, faeces
Canine Herpesvirus 1 (CHV-1)	dog	swab (eye, nose, pharynx, or genital tract), EDTA blood (viraemia), tissue (e.g. abortion material, kidney, or liver)
Canine Parainfluenzavirus 2 (CPIV-2)	dog	swab (nose or pharynx), BAL
Canine Parvovirus 2 (CPV-2 ,2a, 2b, 2c)	dog	faeces, EDTA blood, tissue (e.g. intestine or heart)
Chronic-Bee-Paralysis-Virus	bee	bees
Cowpox Virus (Orthopox)	cat, other	skin lesions
Deforming-Wing-Virus	bee	bees
Dog Circovirus (DogCV)	dog	faeces, EDTA blood (viraemia), tissue (e.g. liver, intestine, or kidney)
Equine Arteritis Virus (EVA)	horse, donkey, other	swab (conjunctiva or pharynx), EDTA blood (viraemia), sperm, urine
Equine Coronavirus (ECoV)	horse	faeces
Equine Herpesvirus 1/4 (EHV-1/4)	horse	swab (nose or pharynx), BAL, CSF, tissue (e.g. abortion material), EDTA blood (viraemia)
Equine Herpesvirus 2/5 (EHV-2/5)	horse	swab (eye) / foal with respiratory symptoms: swab (nose or pharynx), BAL

\*patner lab

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Equine Herpesvirus 3 (EHV-3)	horse	swab (lesions on vaginal vestibule, penis, preputium, or perineal skin), tissue (lesions)
European Brown Hare Syndrome Virus (EBHSV)	hare	faeces, tissue (e.g. liver), (urine)
Feline Calicivirus (FCV)	cat	swab (conjunctiva, mouth, or pharynx), EDTA blood (viraemia)
Feline Coronavirus (FCoV)	cat	FECV: faeces / FIP: aspirate, CSF, aqueous humour, tissue (e.g. kidney or omentum)
Feline Herpesvirus 1 (FHV-1)	cat	swab (eye, mouth, pharynx, or genital tract), EDTA blood (viraemia), tissue (e.g. abortion material, kidney, or liver)
Feline Immunodeficiency Virus (FIV) - provirus	cat	EDTA blood
Feline Leukemia Virus (FeLV) - provirus	cat	EDTA blood, bone marrow
Feline Panleukopenia Virus (FPV)	cat	faeces, EDTA blood
Herpesviruses	reptile	swab (pharynx or lesions, tortoise: tongue), tissue (e.g. liver, tortoise: tongue, intestine, or brain)
Herpesviruses (e.g. Pacheco)	bird	feather, blood, swab (conjunctiva, pharynx, and cloaca), faeces, tissue (e.g. liver, kidney, spleen)
Influenza A virus	horse, dog, other	swab (respiratory tract), BAL
Iridovirus (IIV)	lizard, insect	tissue (e.g. skin, liver), swab (skin), feed insects
Koi Herpesvirus (KHV)	fish (cypriniforms)	tissue (e.g. gills, brain, liver, spleen, skin, or intestine), swab (gills or skin)
Myxoma virus	rabbit	swab (conjunctiva, nose, or pharynx), tissue (e.g. conjunctiva, lung, or kidney)
Nidoviruses	python, boa	swab (pharynx or trachea), tracheal lavage, tissue (e.g. lung or trachea)
Papillomavirus	dog, cat	tissue (skin)
Paramyxoviruses (Ferlaviruses)	reptile	swab (pharynx and cloaca), tracheal lavage, tissue (e.g. lung, liver, kidney, pancreas, intestine, or brain)
Picornavirus (Virus X)	tortoise	swab (pharynx), tissue (e.g. intestine, kidney, or tongue)
Pigeon Circovirus (PICV)	pigeon	feather, blood, swab (cloaca), faeces, tissue (e.g. bursa fabricii, liver, spleen)
Porcine Circovirus 2 (PCV-2)	swine	EDTA blood, swab (nose or pharynx), BAL, tissue (e.g. lung, trachea, abortion material, or fetal organs)
Porcine Coronavirus (Transmissible gastroenteritis)	swine	faeces, tissue (e.g. intestine)
Porcine Parvovirus (PPV)	swine	swab (genital tract), EDTA blood, tissue (e.g. abortion material)
Porcine Respiratory and Reproductive Syndrome Virus (PRRSV)	swine	swab (nose or pharynx), EDTA blood, tissue (e.g. abortion material, lung, trachea, or lymph node), BAL, sperm
Psittacine Beak and Feather Disease Virus (PBFDV)	psittacine	feather, blood, faeces
Rabbit Haemorrhagic Disease Virus 1/2 (RHDV-1/2)	rabbit	swab (conjunctiva), urine, faeces, EDTA blood, bone marrow, tissue (e.g. liver)
Ranaviruses	fish	biopsy (gills), blood, tissue (e.g. liver or kidney), swab (skin)
Ranaviruses	amphibian	biopsy (toes, tail tip), blood, tissue (e.g. liver, kidney), swab (skin)
Ranaviruses	reptile	swab (pharynx or cloaca), snake: lung lavage, tissue (e.g. liver; chelonian: liver, tongue, or kidney; snake: lung)
Reoviruses	reptile	swab (pharynx or cloaca), lung lavage, tissue (e.g. lung, intestine; tortoise: tongue)
Reoviruses	pet bird	swab (cloaca), faeces, tissue (e.g. intestine, liver, heart, kidney, or lung)

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Pathogen	Animal species	Sample material
Sacbrood-Virus	bee	bee larvae
Sunshinevirus	python	swab (pharynx or cloaca), tissue (e.g. lung or brain)
Tick-borne Encephalitis Virus (TBEV)	dog, horse, other	CSF, serum, tick

## Bacteria - PCR single detection

Pathogen	Animal species	Sample material
Actinobacillus pleuropneumoniae (APP)*	swine	swab (nose), BAL, tissue (e.g. lung)
Anaplasma phagocytophilum	dog, cat, horse, cattle	EDTA blood, bone marrow, CSF, synovia, tick
Anaplasma platys	dog	EDTA blood, tick
Bartonella henselae	cat	EDTA blood, CSF, swab (mouth), flea
Bordetella bronchiseptica	dog, cat, rabbit, other	swab (nose or pharynx), BAL
Borrelia spp.	dog, (horse, cat, cattle)	skin biopsies, synovia, CSF, tick
Brachyspira hyodysenteriae and B. pilosicoli	swine	faeces, tissue (colon)
Brucella canis	dog	swab (cervix or preputium), EDTA blood, sperm, urine, tissue (e.g. abortion material), (faeces, milk)
Campylobacter jejuni	dog, cat, other	faeces
Candidatus Neohrlichia mikurensis	dog	EDTA blood, tissue (e.g. spleen, kidney, liver), tick
Chlamydia spp.	dog, cat	swab (conjunctiva, nose, pharynx, or genital tract), tissue (e.g. abortion material)
Chlamydia spp.	swine	swab (conjunctiva, nose, or cervix), tracheal lavage, faeces, urine, tissue (e.g. lung or abortion material)
Chlamydia spp.	ruminants	swab (conjunctiva, nose, or cervix), tracheal lavage, milk, faeces, urine, tissue (e.g. lung, liver, or abortion material)
Chlamydia spp.	bird	swab (conjunctiva, pharynx, and cloaca), faeces, tissue (e.g. spleen or liver)
Chlamydia spp.	reptile, amphibian	tissue (e.g. lesions, lung, liver, spleen, intestine, or heart), chelonian: nasal wash
Coxiella burnetii	ruminants	swab (cervix or vagina), milk, faeces, urine, tissue (e.g. abortion material)
Ehrlichia canis	dog	EDTA blood, bone marrow, tick
Enteropathogenic E.coli (in addition to bacteriological testing)	dog	faeces
Francisella tularensis	rabbit, hare, other	tissue (e.g. spleen, liver, lung, or kidney), aspirate (lymph node), swab (pharynx or tonsils)
Helicobacter spp.	dog, cat, ferret, sheep	vomitus, gastric lavage, stomach biopsy, sheep: abortion material
Lawsonia intracellularis	horse, swine	faeces, tissue (e.g. ileum)
Leptospira spp.	dog, horse, other	urine, EDTA blood (bacteraemia), tissue (e.g. kidney or abortion material), horse: aqueous humour
Melissococcus plutonius	bee	bees, bee larvae

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Pathogen	Animal species	Sample material
Mycobacterium avium ssp. paratuberculosis	ruminants, other	faeces, tissue (intestine or lymph node), (milk)
Mycoplasma agassizii	tortoise	swab (conjunctiva or mouth), nasal wash
Mycoplasma bovis	cattle	swab (nose), BAL, milk, synovia, tissue (lung)
Mycoplasma felis	cat	swab (conjunctiva, mouth, pharynx, or genital tract), BAL, tissue (e.g. lung, or abortion material)
Mycoplasma gallisepticum and M. synoviae	poultry	swab (pharynx or cloaca), faeces, tissue (lung)
Mycoplasma haemolamae	alpaca, lama	EDTA blood
Mycoplasma haemosuis	swine	EDTA blood
Mycoplasma hyopneumoniae	swine	swab (nose), BAL, tissue (e.g. lung)
Mycoplasma pulmonis	rat, mouse	swab (respiratory tract), tissue (e.g. lung)
Mycoplasma spp.	dog	swab (conjunctiva, mouth, pharynx, or genital tract), BAL, sperm, tissue (e.g. lung, or abortion material)
Mycoplasma spp. (haemotropic)	dog, cat	EDTA blood, tissue (e.g. spleen)
Pasteurella multocida (toxigenic strains)	rabbit, swine	swab (conjunctiva, nose, or pharynx), BAL, tissue (lung)
Rhodococcus equi	horse	swab (nose), BAL, tracheal lavage, faeces
Salmonella spp.	dog, cat, horse, other	faeces
Salmonella spp.	reptile, amphibian	faeces
Salmonella spp.	bird	swab (cloaca), faeces, egg, tissue (lesions)
Streptococcus equi ssp. equi / zooepidemicus	horse	swab (nose), lavage (guttural pouch, trachea, or lung), tissue (lymph node)
Taylorella equigenitalis	horse	swab (genital tract), sperm
Treponema paraluis-cuniculi	rabbit, hare	tissue (skin lesions), swab (vagina or preputium)
Yersinia enterocolitica	dog, cat, other	faeces

## Fungi - PCR single detection

Pathogen	Animal species	Sample material
Batrachochytrium dendrobatidis	amphibian	swab (skin), tissue (skin)
Batrachochytrium salamandrivorans	salamander	swab (skin), tissue (skin)
Dermatophytes	dog, cat, other mammals	hairs (hair roots!), skin scrapings, skin scales
Ophidiomyces ophiodiicola	snake	swab (skin), tissue (skin)

## Parasites - PCR single detection

Pathogen	Animal species	Sample material
Angiostrongylus vasorum	dog	EDTA blood, BAL, faeces (sample from 3 days), tissue (e.g. lung or brain)
Babesia spp.	dog, horse, cattle, other	EDTA blood, tick
Cryptosporidia spp.	dog, cat, cattle, other	faeces
Cryptosporidia spp.	reptile	faeces, gastric lavage
Demodex spp.	dog, cat	deep skin scrapings
Encephalitozoon cuniculi	rabbit, other	urine, CSF, tissue (e.g. kidney, brain, eye/lens), (faeces)
Giardia spp.	dog, cat	faeces
Hepatozoon canis / felis	dog, cat	EDTA blood, tissue (liver), tick
Intranuclear coccidians (TINC)	tortoise, turtle	swab (nose or cloaca), nasal wash, tissue (e.g. intestine, pancreas, kidney, or liver)
Leishmania	dog, (cat, other)	swab (conjunctiva), bone marrow, tissue (skin, lymph node, or spleen), EDTA blood, (urine)
Microfilaria	dog, cat	EDTA blood
Neospora caninum	dog	faeces, CSF
Neospora caninum	ruminants	tissue (abortion material or brain)
Sarcoptes scabiei var. canis	dog, other	superficial skin scrapings
Toxoplasma gondii	cat	faeces, CSF
Toxoplasma gondii	dog, other	CSF, tissue (e.g. brain)
Toxoplasma gondii	ruminants, swine	tissue (e.g. brain or abortion material)
Trichomonas spp.	bird	swab (crop)
Tritrichomonas foetus	cat	faeces (sample from 3 days), swab (rectum)
Tritrichomonas foetus	cattle	swab (vagina, cervix), preputial wash