MEDIAN Diagnostics

VDx® PCR

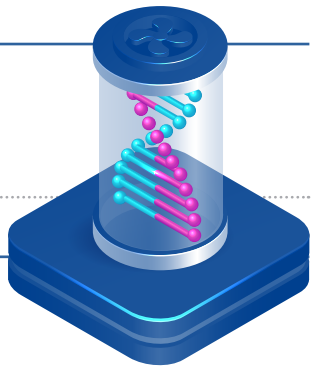
Product Catalog

- Real-time PCR (qPCR)
- Conventional PCR

For One Health

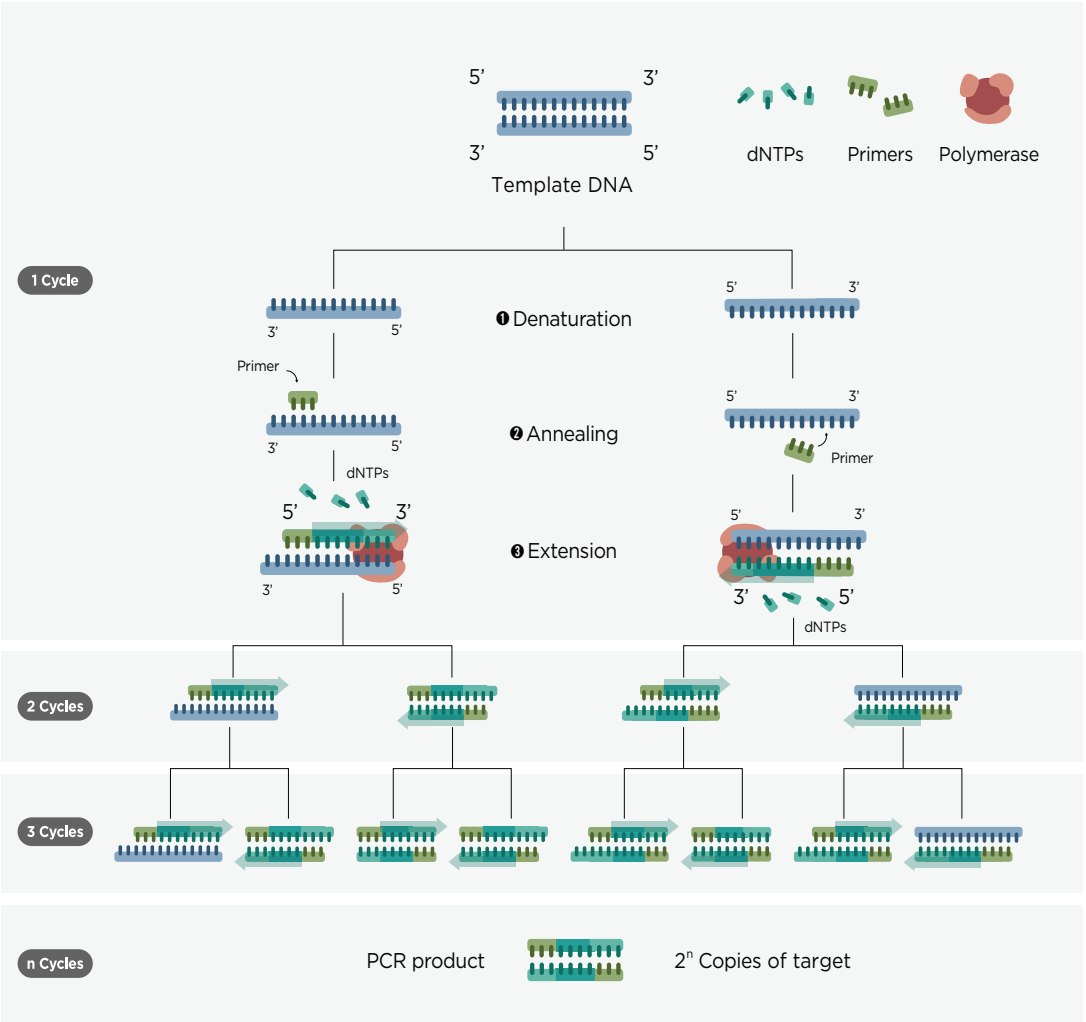
VDx® Conventional PCR

Conventional Polymerase Chain Reaction

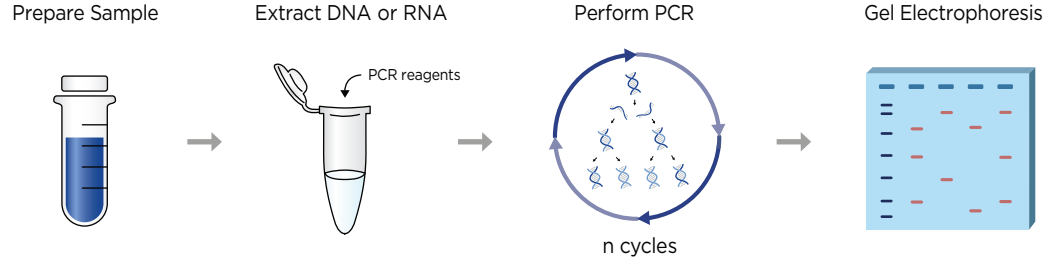


VDx® Conventional PCR is used to test the genes of pathogens prevailed in livestock with high sensitivity by using PCR or RT-PCR technology. This reagent is composed of a 1-step premix and can test by adding extracted samples directly into the premix. This can prevent the laboratory from cross-contamination. In addition, it consists of Multiplex PCR to enable the amplification of various genes at the same time in order to reduce the time and cost. The amplified gene may be checked by electrophoresis and the test reliability can be secured by offering different sizes of Control DNA for Validation.

Principle



Work Flow

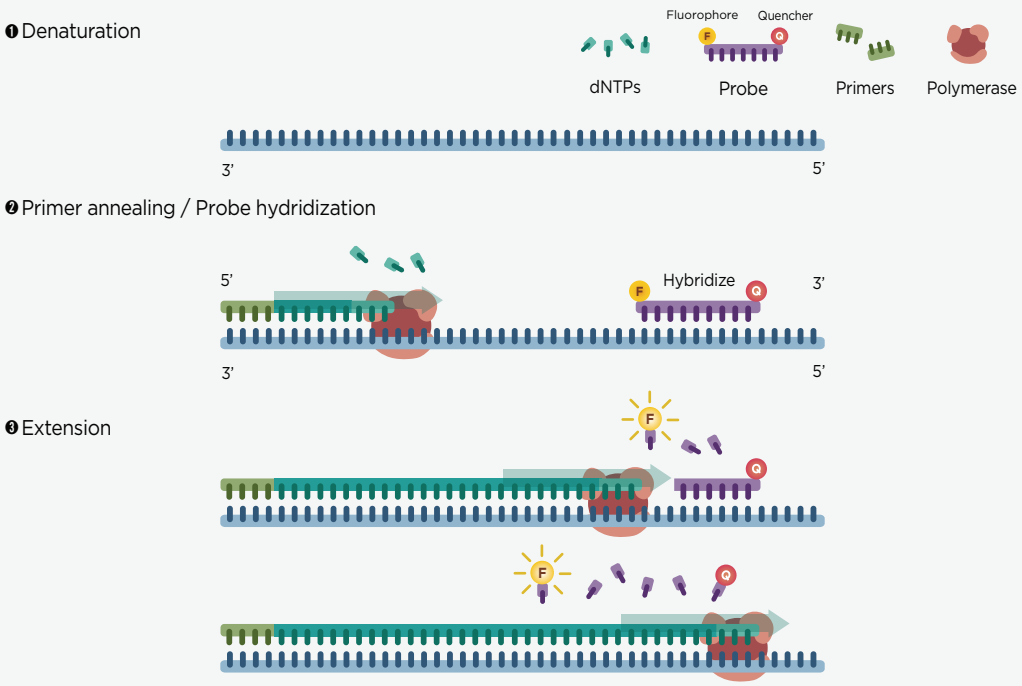


VDx® Real Time PCR (qPCR)

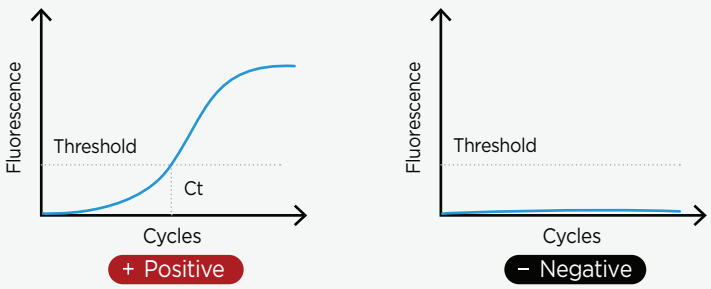
Real-time PCR (quantitative PCR)

VDx® Real-Time PCR (qPCR) is a reagent for high-sensitivity testing of the genes of pathogens in livestock using Taqman probe technology. This reagent is composed of 1-step premix, which can be directly added to the premix to prevent cross-contamination in the laboratory, and it is possible to check the reaction in real time. In addition, multiplex qPCR can be used to amplify multiple genes at the same time, saving time and money. In addition, since Taqman probe is used, the specificity is high and the reliability of the test can be secured.

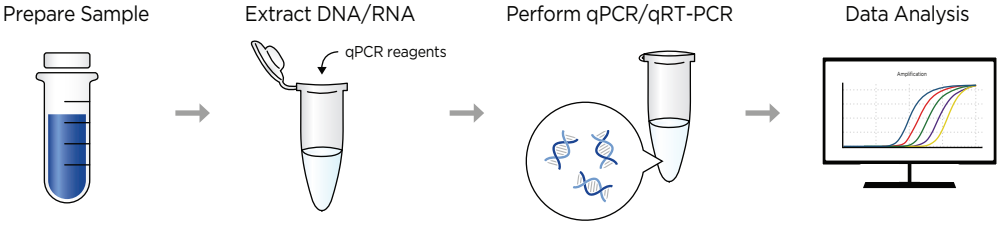
Principle



Results



Work Flow



MEDIAN Diagnostics

VDx® PCR

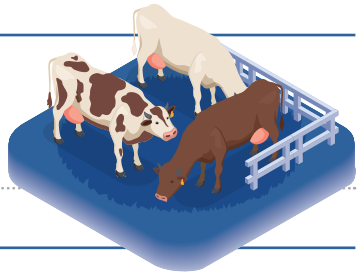
Product Catalog

For One Health

CONTENTS

VDx® BLV qPCR

Research Use Only



Bovine Leukosis

Bovine leukemia virus (BLV) is a retrovirus that may cause lymphosarcoma in cattle. The virus resides in blood lymphocytes where circulating antibodies are unable to neutralize it. Therefore, once an animal is infected with BLV, it is infected for life. BLV is economically significant to the producer because of premature culling or death as a result of lymphosarcoma.

Product

VDx® BLV qPCR

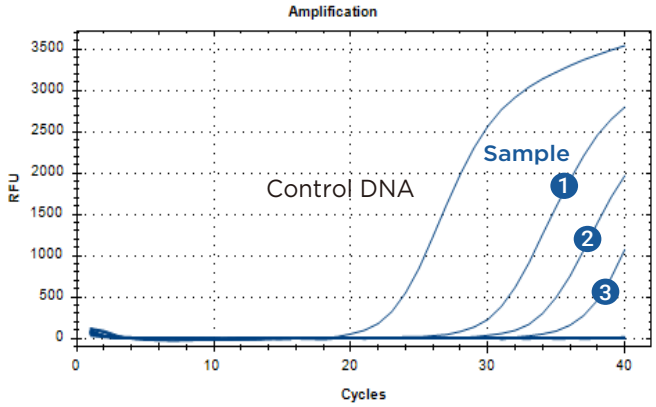
VDx® BLV qPCR is a real-time PCR based test for detection of Bovine Leukemia Virus (BLV) DNA.

Introduction

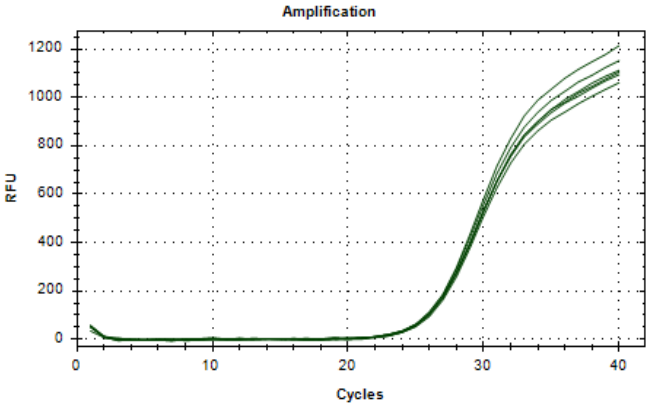
+ **Intended use** : Detection of Bovine leukemia virus DNA
+ **Species** : Cattle
+ **Specimens** : Whole blood, leukocyte and tissue homogenates

Technical Data

BLV (FAM)



IPC (HEX)



Product

VDx® BLV PCR/ nested PCR

VDx® BLV PCR / nested PCR are provide a range of testing for the detection of BLV by PCR method.

Introduction

+ **Intended use** : Detection of Bovine leukemia virus DNA
+ **Species** : Cattle
+ **Specimens** : Whole blood, leukocyte and tissue homogenates
+ **Method** : Polymerase chain reaction, PCR / Nested polymerase chain reaction, nested PCR

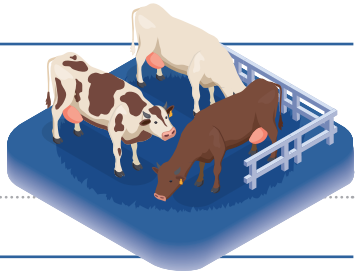
Feature

+ Samples that are blurred or not visible in positive samples by 1st BLV PCR (Cat No. NB-BLV-11) can be clearly identified in BLV nested PCR (Cat No. NB-BLV-12).

Order Information

Cat No.	Product Name	Quantity
NB-BLV-11	VDx® BLV PCR	50 Tests/Box
NB-BLV-12	VDx® BLV nested PCR	50 Tests/Box
NB-BLV-31	VDx® BLV qPCR	96 Tests/Box

VDx® BVDV qRT-PCR (type1,2 dual)



Bovine Viral Diarrhea

Bovine Viral Diarrhea (BVD) is a wasting disease of cattle that outbreaks worldwide and is the World Organization for Animal Health (WOAH) listed disease. There are two forms of infection: transiently infected (TI) cattle which is the most common infection after birth, and persistently infected (PI) cattle which is infected through placenta during early stage of gestation and shed the virus throughout their lifetime. **VDx® BVDV qRT-PCR** is a real-time RT-PCR test using primers and probes that target specific gene regions of suspected Bovine viral diarrhoea virus (BVD) infection samples to differentiate between two genotypes, BVDV Type 1 (BVDV-1) and BVDV Type 2 (BVDV-2). It is highly specific using TaqMan probe, and the endogenous IPC in the reaction can check the quality of nucleic acid extraction by specific fluorescence. In addition, the addition of exogenous IPC can check whether the PCR reaction is inhibited.

Introduction

+ **Intended use** : Detection of Bovine viral diarrhea virus (BVDV) type 1,2 RNA
+ **Species** : Cattle
+ **Specimens** : 10% dilution feces, blood, ear notch and tissue homogenates

Features

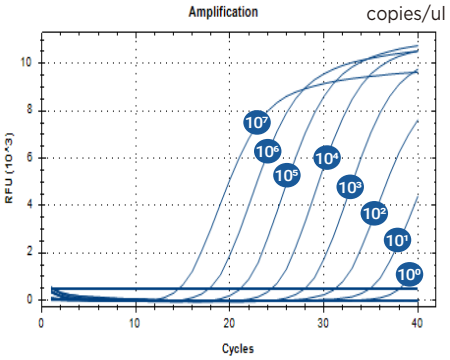
+ Differential diagnosis of BVDV type 1 and BVDV type 2
+ Applicable to various suspect specimens. (Feces, blood, ear notch etc.)
+ Endogenous IPC can identify the quality of extracted nucleic acids.
+ Exogenous IPC can check whether PCR reaction inhibited or not.

Performance

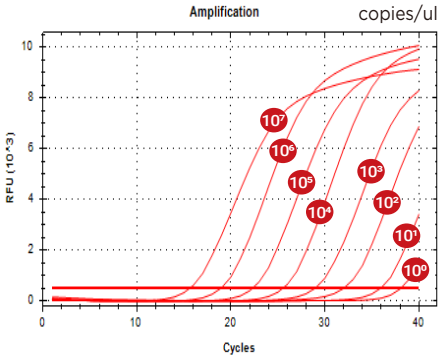
Test	Results
Analytical Sensitivity (Limit of Detection, LoD)	BVDV-1 (FAM) : 1 copy/ul BVDV-2 (TxR) : 1 copy/ul Endogenous IPC (Cy5) : 1 copy/ul
Analytical Specificity (Cross-reaction)	No Cross-reactivity with other pathogens (BCV, Rota, SPPV, GTPV, LSDV, BHV-1, PPRV I~IV, CSFV, BDV, etc.)
Clinical Sensitivity	Serum/Plasma : 100% (66/66) Feces : 100% (106/106) Ear notch : 100% (22/22)
Clinical Specificity	Serum/Plasma : 100% (2,680/2,680) Feces : 100% (236/236) Ear notch : 100% (71/71)

Technical Data

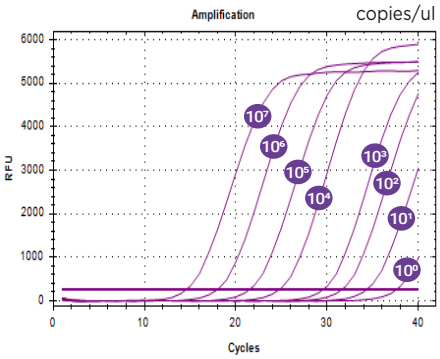
BVDV (FAM)



BVDV2 (TxR)



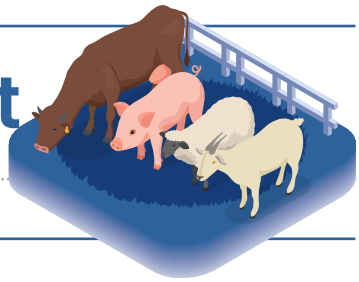
Endogenous IPC (Cy5)



Order Information

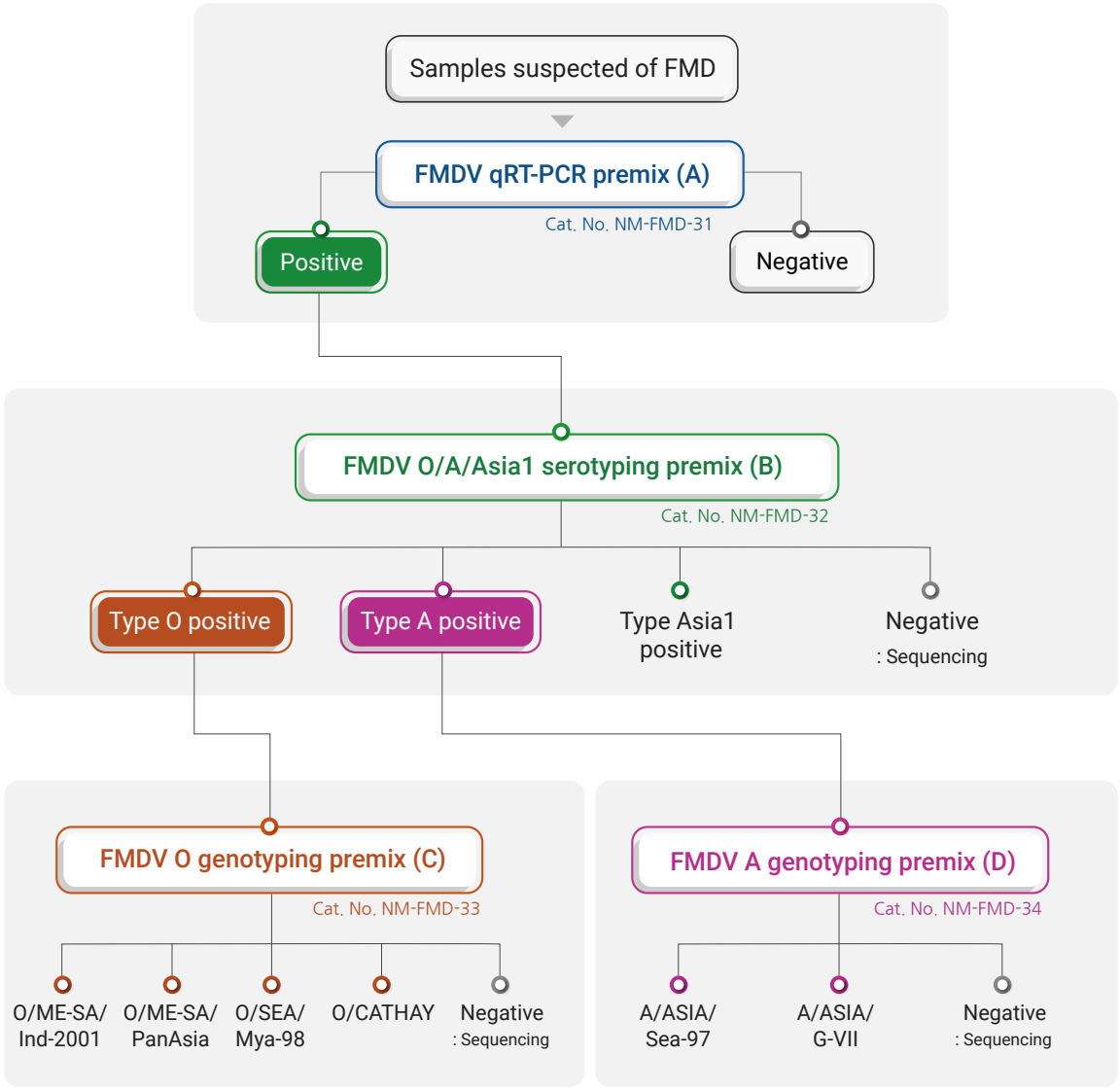
Cat No.	Product Name	Quantity
NB-BVD-31	VDx® BVDV qRT-PCR	96 Tests/Box

VDx® FMDV 3Diff/PAN qRT-PCR set



Diagnostics SOP of VDx® FMDV 3Diff/PAN qRT-PCR set

※ Reliable results can be obtained only by following the testing process for each premix, as shown in the diagnosis SOP below.

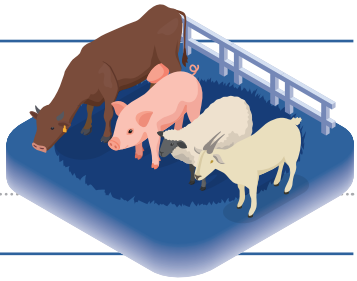


Common gene	FMDV qRT-PCR premix (A) *Shorter reaction time than version 1 (100 min → 70 min)
Serotyping	FMDV O/A/Asia1 serotyping premix (B) *World first!!
Type O genotyping	FMDV O genotyping premix (C)
Type A genotyping	FMDV A genotyping premix (D)

Order Information

Cat No.	Product Name	Quantity
NM-FMD-31~34	VDx® FMDV 3Diff/PAN qRT-PCR set	96 Tests x 4/Box

FMDV qRT-PCR premix (A)



VDx® FMDV 3Diff/PAN qRT-PCR set

Foot and Mouth Disease

Foot-and-Mouth Disease (FMD) is the most contagious disease of mammals and has a great potential for causing severe economic loss in susceptible cloven-hoofed animals. There are seven serotypes of Foot-and-Mouth Disease Virus (FMDV), namely, O, A, Asia1, SAT 1, SAT 2, SAT 3 and C.
FMDV qRT-PCR premix (A) is used for the detection of viral RNA of Foot and mouth disease Virus (FMDV) by real time PCR method. This kit can measure the 3D and 5'UTR gene of FMDV quantatively by using TapMan probe.

Introduction

+ **Intended use** : Detection of Foot-and-mouth disease virus (FMDV) RNA (common gene)
+ **Species** : Artiodactyla (Cattle, Swine, Sheep, Goat, etc.)
+ **Specimens** : Saliva, Vesicular fluid, lesion tissue homogenates, etc.

Features

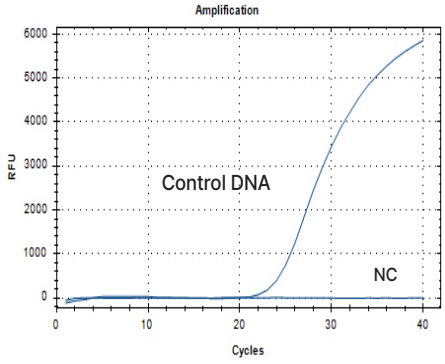
+ Shorter reaction time than version 1 : Reduced reaction time (100 mins → 70 mins)
+ Applicable to various suspect specimens. (Saliva, Tissue homogenates, etc.)
+ Provide reliable test results based on the WOAH manual.

Performance

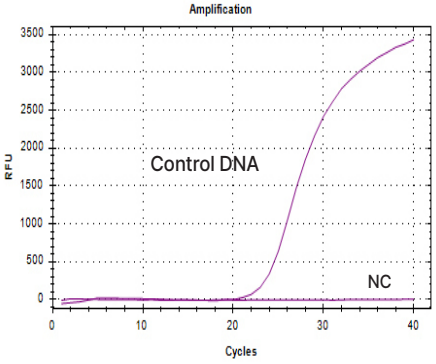
Test	Results
Analytical Sensitivity (Limit of Detection, LoD)	FMDV 3D gene: RNA 1 copy/ul FMDV 5'UTR gene: RNA 1 copy/ul
Analytical Specificity (Cross-reaction)	No Cross-reactivity with 14 other pathogens (PRRSV, EMCV, JEV, SIV, ADV, PPV, PCV2, BVDV1, BVDV2, BCV, Rota, Cryptosporidium, Giardia Lamblia, E-coli K99)
Clinical Sensitivity	100% (583/583)
Clinical Specificity	100% (100/100)

Target gene : FMDV 3D(FAM) & 5'UTR(Cy5) gene

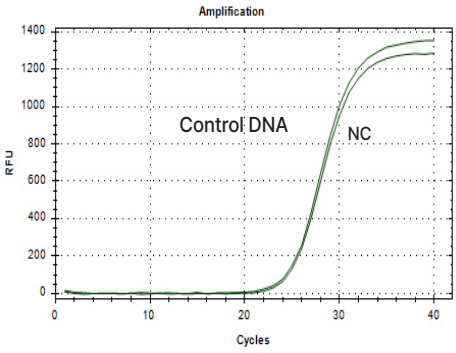
FMDV 3D (FAM)



FMDV 5'UTR (Cy5)



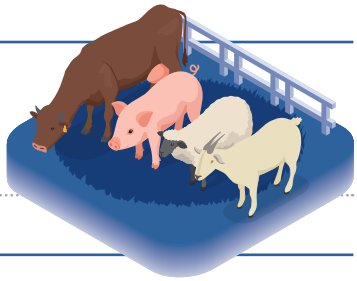
IPC (HEX)



Order Information

Cat No.	Product Name	Quantity
NM-FMD-31	VDx® FMDV 3Diff/PAN qRT-PCR set_FMDV qRT-PCR premix (A)	96 Tests/Box

FMDV O/A/Asia1 serotyping premix (B)



VDx® FMDV 3Diff/PAN qRT-PCR set

Foot and Mouth Disease

Foot-and-Mouth Disease (FMD) is the most contagious disease of mammals and has a great potential for causing severe economic loss in susceptible cloven-hoofed animals. There are seven serotypes of Foot-and-Mouth Disease Virus (FMDV), namely, O, A, Asia1, SAT 1, SAT 2, SAT 3 and C.
FMDV O/A/Asia1 serotyping premix (B) is a multiplex real-time RT-PCR based test for detection and identification of FMDV major serotypes (FMDV O, A, Asia1).

Introduction

+ **Intended use** : Differential diagnosis of FMD major serotypes (O, A, AIsa1)
+ **Species** : Artiodactyla (Cattle, Swine, Sheep, Goat, etc.)
+ **Specimens** : Saliva, Vesicular fluid, lesion tissue homogenates, etc.

Features

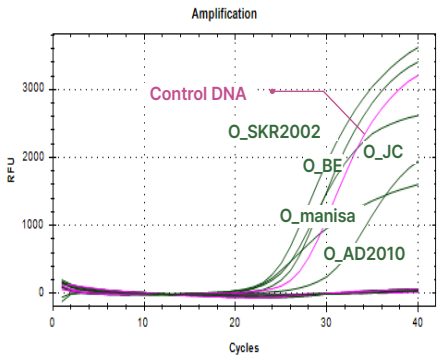
+ World's first! Differential diagnosis of major FMD serotypes (O, A, Asia1).
+ 100% identification of FMDV 3 major serotypes (O, A, Asia1)
+ Applicable to various suspect specimens. (Saliva, Tissue homogenates, etc.)

Performance

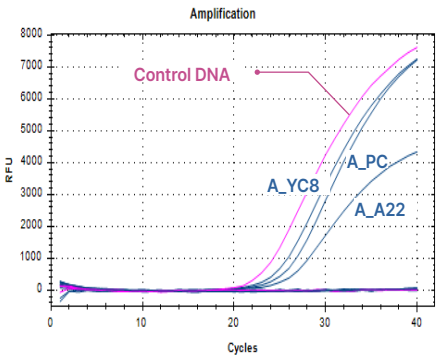
Test	Results
Analytical Sensitivity (Limit of Detection, LoD)	FMDV O: 10 copies/ul, FMDV A: 1 copy/ul, FMDV Asia1: 1copy/ul
Analytical Specificity (Cross-reaction)	No Cross-reactivity with other pathogens (PRRSV, EMCV, JEV, CSFV, SIV, ADV, PPV, PCV2, PEDV, Rota virus)
Clinical Sensitivity	100% (583/583)
Clinical Specificity	100% (100/100)

Technical Data

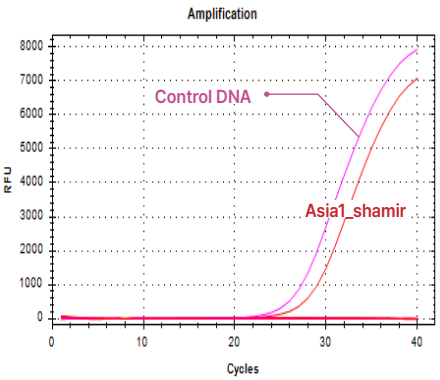
FMDV O (HEX)



FMDV A (FAM)



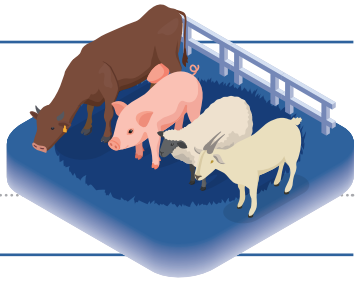
FMDV Asia1 (TxR)



Order Information

Cat No.	Product Name	Quantity
NM-FMD-32	VDx® FMDV 3Diff/PAN qRT-PCR set_FMDV O/A/Asia1 serotyping premix (B)	96 Tests/Box

FMDV O genotyping premix (C)



VDx® FMDV 3Diff/PAN qRT-PCR set

Foot and Mouth Disease

Foot-and-Mouth Disease (FMD) is the most contagious disease of mammals and has a great potential for causing severe economic loss in susceptible cloven-hoofed animals. There are seven serotypes of Foot-and-Mouth Disease Virus (FMDV), namely, O, A, Asia1, SAT 1, SAT 2, SAT 3 and C.
FMDV O genotyping premix (C) is a multiplex real-time RT-PCR based test for detection and identification of FMDV O genotypes (O/ME-SA/PanAsia, O/SEA/Mya-98, O/ME-SA/Ind-2001 and O/CATHAY).

Introduction

+ **Intended use** : Differential diagnosis of FMD Type O genotypes
+ **Species** : Artiodactyla (Cattle, Swine, Sheep, Goat, etc.)
+ **Specimens** : Saliva, Vesicular fluid, lesion tissue homogenates, etc.

Features

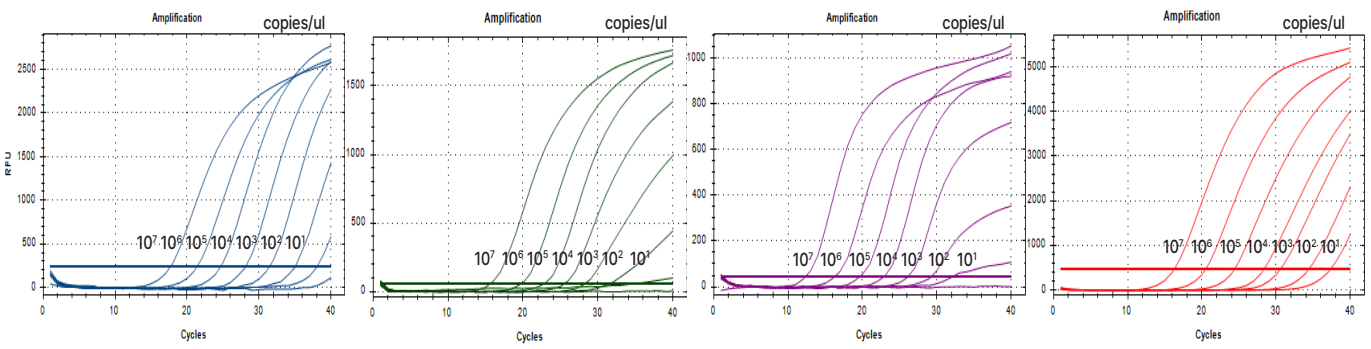
+ Applicable to various suspect specimens. (Saliva, Tissue homogenates, etc.)

Performance

Test	Results
Analytical Sensitivity (Limit of Detection, LoD)	FMDV/O/ME-SA/PanAsia: 10 copies/ul FMDV/O/ME-SA/Ind2001: 10 copies/ul FMDV/O/SEA/Mya-98: 10 copies/ul FMDV/O/Cathay: 10 copies/ul
Analytical Specificity (Cross-reaction)	No Cross-reactivity with other pathogens (PRRSV, EMCV, JEV, CSFV, SIV, ADV, PPV, PCV2, PEDV, Rotavirus)
Clinical Sensitivity	100% (279/279) FMDV O serotype samples were detected 100% exactly without cross reaction.
Clinical Specificity	100% (100/100)

Technical Data

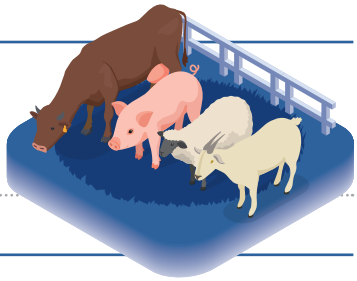
O/ME-SA/PanAsia (FAM) O/ME-SA/Ind2001 (HEX) O/SEA/Mya-98 (Cy5) O/Cathay (TxR)



Order Information

Cat No.	Product Name	Quantity
NM-FMD-33	VDx® FMDV 3Diff/PAN qRT-PCR set_FMDV O genotyping premix (C)	96 Tests/Box

FMDV A genotyping premix (D)



VDx® FMDV 3Diff/PAN qRT-PCR set

Foot and Mouth Disease

Foot-and-Mouth Disease (FMD) is the most contagious disease of mammals and has a great potential for causing severe economic loss in susceptible cloven-hoofed animals. There are seven serotypes of Foot-and-Mouth Disease Virus (FMDV), namely, O, A, Asia1, SAT 1, SAT 2, SAT 3 and C.
FMDV A genotyping premix (D) is a multiplex real-time RT-PCR based test for detection and identification of FMDV A genotypes (A/ASIA/G-VII and A/ASIA/Sea-97).

Introduction

+ **Intended use** : Differential diagnosis of FMD Type A genotypes
+ **Species** : Artiodactyla (Cattle, Swine, Sheep, Goat, etc.)
+ **Specimens** : Saliva, Vesicular fluid, lesion tissue homogenates, etc.

Features

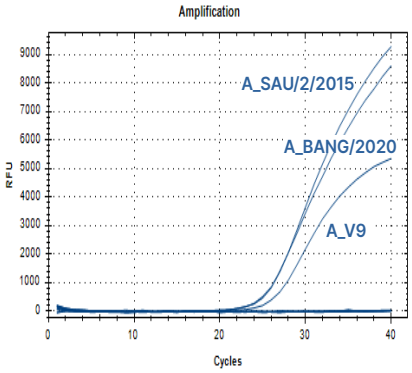
+ Applicable to various suspect specimens. (Saliva, Tissue homogenates, etc.)

Performance

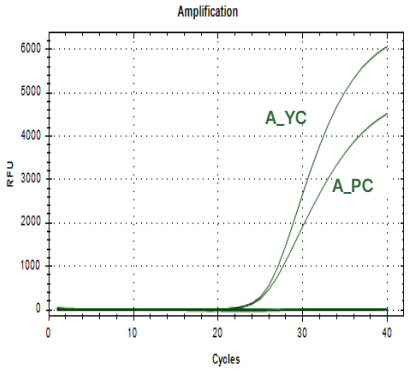
Test	Results
Analytical Sensitivity (Limit of Detection, LoD)	FMDV/A/ASIA/G-VII: 10 copies/ul FMDV/A/ASIA/Sea-97: 10 copies/ul
Analytical Specificity (Cross-reaction)	No Cross-reactivity with other pathogens (PRRSV, EMCV, JEV, CSFV, SIV, ADV, PPV, PCV2, PEDV, Rotavirus)
Clinical Sensitivity	100% (124/124) FMDV A serotype samples were detected 100% exactly without cross reaction.
Clinical Specificity	100% (100/100)

Technical Data

FMDV/A/Asia/G-VII (FAM)



FMDV A SEA-97 (HEX)

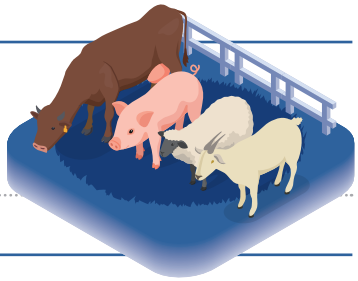


Name	Genotype	FAM	HEX
		ASIA/G-VII	SEA-97
A_YC	ASIA/Sea-97	-	+
A_PC	ASIA/Sea-97	-	+
A_V9	ASIA/G-VII	+	-
A_SAU/2/2015	ASIA/G-VII	+	-
A_BANG/2020	ASIA/G-VII	+	-
O_SKR2002	Me-SA/PanAsia	-	-
Asia1_shamir		-	-
Control DNA		+	+
NTC		-	-

Order Information

Cat No.	Product Name	Quantity
NM-FMD-34	VDx® FMDV 3Diff/PAN qRT-PCR set_FMDV A genotyping premix (D)	96 Tests/Box

VDx® LSDV qPCR set



Lumpy Skin Disease

VDx® LSDV qPCR set is used for the detection of viral DNA of Lumpy skin disease virus (LSDV) by real-time PCR method. This kit can distinguish common gene of the genus *capripoxvirus* (SPPV, GTPV, and LSDV), LSDV vaccine strain (Neethling vaccine strain), field strain and Vaccine-like Recombinant strains with Premix (A), (B), (C).

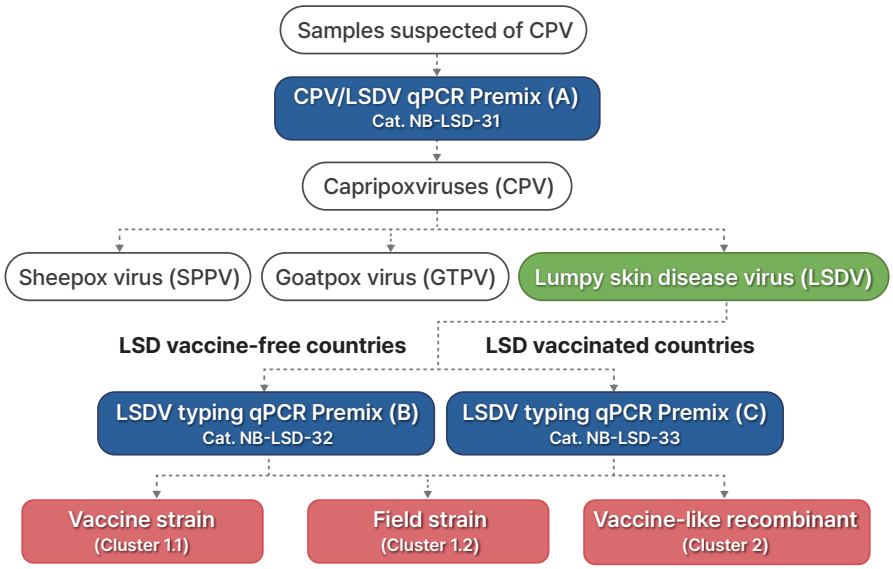
Introduction

+ **Intended use :**
  Premix (A) - Differential diagnosis of CPV and LSDV
  Premix (B), (C) - Differential diagnosis of LSDV vaccine strain, field strain and vaccine-like Recombinant strains
+ **Species :** Cattle
+ **Specimens :** Whole blood, serum, saliva, nasal or oral swab and tissue homogenates, etc.

Features

+ World first diagnostics kit to differentiate between LSDV vaccine strains, field strains, and vaccine-like recombinant strains after differentiating CPV and LSDV.
+ Fast results within 1 hour
+ Endogenous IPC can identify the quality of extracted nucleic acids.
+ Exogenous IPC can check whether PCR reaction is inhibited or not.

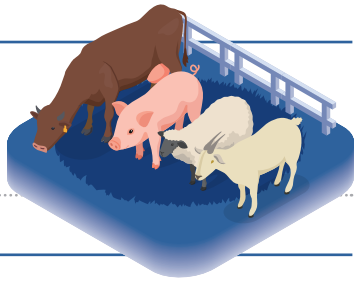
VDx® LSDV qPCR set_Test process



Order Information

Cat No.	Product Name	Quantity
NB-LSD-31	VDx® LSDV qPCR set_CPV/LSDV qPCR Premix (A)	96 Tests/Box
NB-LSD-32	VDx® LSDV qPCR set_LSDV typing qPCR Premix (B)	96 Tests/Box
NB-LSD-33	VDx® LSDV qPCR set_LSDV typing qPCR Premix (C)	96 Tests/Box

VDx® PPRV MP qRT-PCR



Peste des Petits Ruminants

Peste des Petits Ruminants is an acute contagious disease caused by a Morbillivirus in the family *Paramyxoviridae* that causes symptoms of nasal and ocular discharge, mouth erosions, pneumonia, and diarrhea in goats, sheep, and wild ruminants.
VDx® PPRV MP qRT-PCR detects and differentiates Peste des petits ruminants virus (PPRV) using real-time RT-PCR. This multiplex assay identifies PPRV common gene and lineage IV-specific gene.

Introduction

+ **Intended use** : Detection and identification of PPRV common gene and lineage IV-specific gene
+ **Species** : Ruminant (Cattle, Swine, Sheep, Goat, etc.)
+ **Specimens** : Whole blood, saliva, nasal swab, tissue homogenates

Features

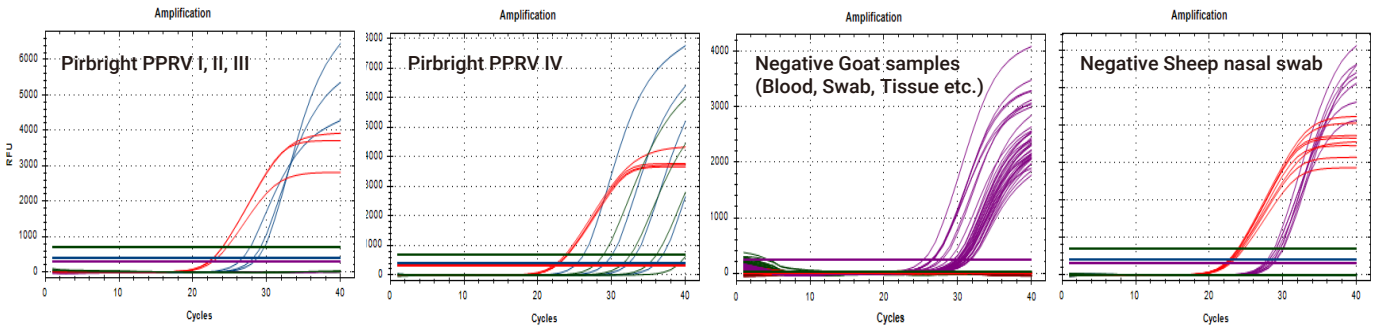
+ Simultaneous detection and differentiation of PPRV common gene and PPRV Lineage IV specific gene.
+ Endogenous IPC: Housekeeping gene shared by ruminants (sheep, goat, bovine) ensures the integrity of extracted nucleic acids.
+ Exogenous IPC: Detects potential PCR inhibition for reliable results.
+ Fast results within 60 minutes after RNA extraction

Performance

Test	Results
Analytical Sensitivity (Limit of Detection, LoD)	PPRV common : 1 copy/ul PPRV IV : 1 copy/ul
Analytical Specificity (Cross-reaction)	No Cross-reactivity with other pathogens (BVDV1, BVDV2, BCV, Rota, MeV, CDV, DMV, PMV, SPPV, GTPV, LSDV, BHV-1, Schmallenberg virus)
Clinical Sensitivity	100% (320/320) * Detected all 320 artificially spiked PPRV-positive samples (Sheep 160, Goat 160)
Clinical Specificity	100% (110/110) * Detected all 110 negative samples (Sheep 55, Goat 55)

Technical Data

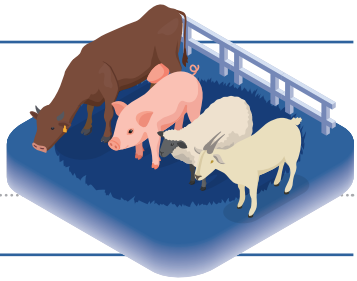
PPRV (FAM) | PPRV IV (HEX) | Endogenous IPC (Cy5) | Exogenous IPC (TxR)



Order Information

Cat No.	Product Name	Quantity
NM-PPR-31	VDx® PPRV MP qRT-PCR	96 Tests/Box

VDx® Rota A qRT-PCR



Research Use Only

Rotavirus

Rotavirus is an RNA virus with size of 80nm belonging to Reo virus. After being discovered for the first time in 1973, it occurs throughout the year as it is persistent in farms for the most part. Although the infection rate is high, the death rate is low (7~20%). It is characterized by diarrhea symptoms in three week old animals for the most part.

VDx® Rota A qRT-PCR is real-time RT-PCR based test for detection of Rotavirus A RNA.

Introduction

+ **Intended use** : Detection and Rotavirus A RNA
+ **Species** : Pig or Cattle
+ **Specimens** : Fecal supernatant (10%), tissue homogenates

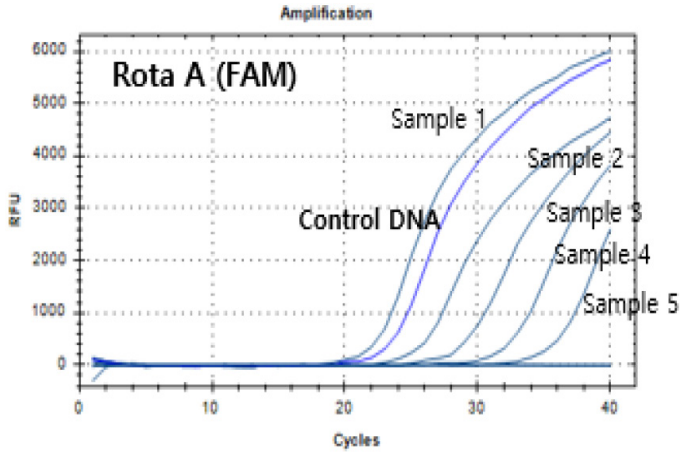
Target	Fluorophore	Quencher
Rota A	FAM	non-Fluorescent
IPC	HEX / VIC	non-Fluorescent

Features

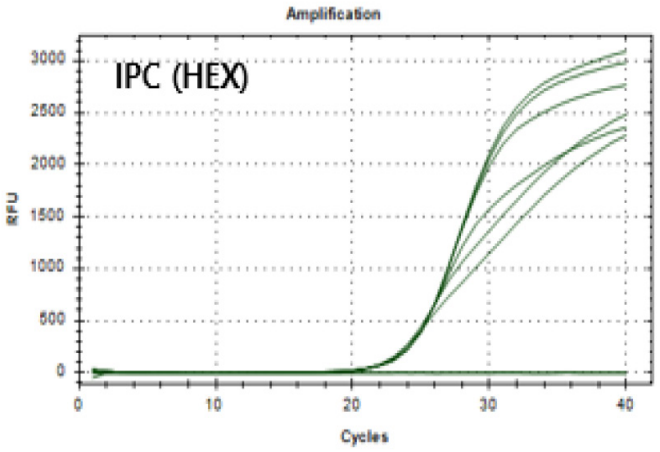
+ Rotavirus A detection within 100 minutes for fast decision.
+ Comfimatory diagnosis Rotavirus A

Technical Data

Rota A (FAM)



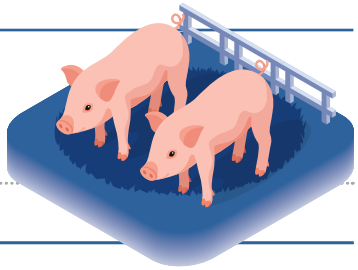
IPC (HEX)



Order Information

Cat No.	Product Name	Quantity
NM-ROT-31	VDx® Rota A qRT-PCR	96 Tests/Box

VDx® Abortion Multiplex qPCR



VDx® Abortion Multiplex real-time PCR

Abortion

Swine Viral Abortion is caused by several viral pathogens and occurs by a single or multiple infections. The antigen test to detect the abortion pathogens has limitation to use because antigen and antibody coexist. Therefore, a DNA test is the most accurate and appropriate test method.

Product

VDx® ADV/PPV MP qPCR

VDx® ADV/PPV MP qPCR is a multiplex real-time PCR based test for detection of ADV and PPV.

Introduction

+ **Target disease** : Porcine Parvovirus (PPV) and Aujeszky Disease virus (ADV)
+ **Species** : Pig
+ **Specimens** : Whole blood, Serum and Semen, tissue homogenates etc.

Target	Fluorophore	Quencher
ADV	FAM	non-Fluorescent
PPV	HEX	non-Fluorescent
IPC	Cy5	non-Fluorescent

Performance

Test	Results
Analytical Sensitivity (Limit of Detection, LoD)	ADV : 1 copy/ul PPV : 1 copy/ul
Analytical Specificity (Cross-reaction)	No Cross-reactivity with 21 other pathogens (CSFV, PRRSV, PCV2, PEDV, TGEV, PDCoV, PCV3, SIV, ST, SEP, Hps, Pm, App, S.suis, Cpa, Law, SD, SE, Cd, A.suis, S.hyicus)
Clinical Sensitivity	100%
Clinical Specificity	100% (75/75)

Product

VDx® EMCV/JEV MP qRT-PCR

VDx® EMCV/JEV MP qPCR is a multiplex real-time RT-PCR based test for detection of EMCV and JEV.

Introduction

+ **Target disease** : Encephalomyocarditis virus (EMCV) and Japanese encephalitis virus (JEV)
+ **Species** : Pig
+ **Specimens** : Whole blood, Serum and Semen, tissue homogenates etc.

Virus	Fluorophore	Quencher
EMCV	FAM	non-Fluorsecent
JEV	HEX	non-Fluorsecent
IPC	Cy5	non-Fluorsecent

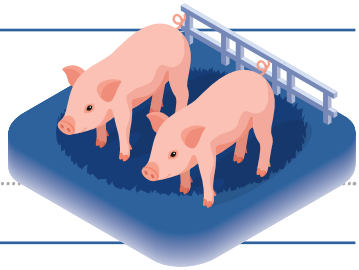
Performance

Test	Results
Analytical Sensitivity (Limit of Detection, LoD)	EMCV : 1 copy/ul JEV : 1 copy/ul
Analytical Specificity (Cross-reaction)	No Cross-reactivity with 21 other pathogens (CSFV, PRRSV, PCV2, PEDV, TGEV, PDCoV, PCV3, SIV, ST, SEP, Hps, Pm, App, S.suis, Cpa, Law, SD, SE, Cd, A.suis, S.hyicus)
Clinical Sensitivity	100%
Clinical Specificity	100% (142/142)

Order Information

Cat No.	Product Name	Quantity
NS-APV-31	VDx® ADV/PPV MP qPCR	96 Tests/Box
NS-EJV-31	VDx® EMCV/JEV MP qRT-PCR	96 Tests/Box

VDx® ADV qPCR



Research Use Only

Aujeszky's Disease

Swine Aujeszky's Disease is known as "Pseudorabies" and caused by **Aujeszky's Disease Virus (ADV)**. It belongs to the alphaherpesvirus and mainly infects the central nervous system and respiratory systems of animals.
VDx® ADV qPCR is used for the detection of viral DNA of Aujeszky's Disease Virus (ADV or pseudorabies virus) by real-time PCR method.

Introduction

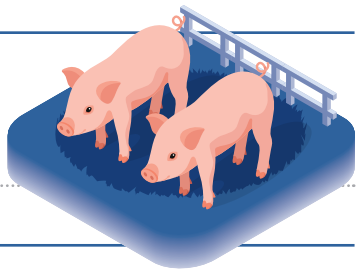
+ **Target disease** : Aujeszky's Disease Virus (ADV or pseudorabies virus)
+ **Specimens** : Whole blood, serum and tissue homogenates
+ **Species** : Pig

Target	Fluorophore	Quencher
ADV	FAM	non-Fluorescent
IPC	HEX / VIC	non-Fluorescent

Features

+ ADV detection within 90 minutes for fast decision
+ Suitable for screening of ADV outbreak

VDx® PPV qPCR



Research Use Only

Porcine Parvovirus

VDx® PPV qPCR is used for the detection of viral DNA of Porcine Parvovirus(PPV) by real-time PCR method.

Introduction

+ **Target disease** : Porcine Parvovirus (PPV)
+ **Species** : Pig
+ **Specimens** : Whole blood, serum and tissue homogenates

Target	Fluorophore	Quencher
PPV	FAM	non-Fluorescent
IPC	HEX / VIC	non-Fluorescent

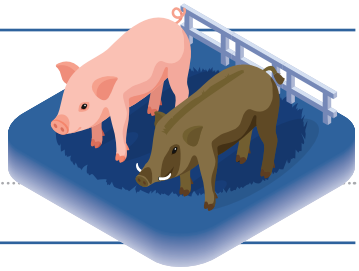
Features

+ Suitable for screening and confirmation of PPV infection.
+ High detection ability of PPV
+ Higher sensitivity than conventional PCR

Order Information

Cat No.	Product Name	Quantity
NS-ADV-31	VDx® ADV qPCR	96 Tests/Box
NS-PPV-31	VDx® PPV qPCR	96 Tests/Box

VDx® ASFV qPCR Ver 2.1



African Swine Fever

African Swine Fever (ASF) is an infectious disease of domestic and wild pigs of all breeds and ages, caused by African Swine Fever Virus (ASFV). The clinical signs vary from peracute, acute, subacute to chronic, depending on the virulence of the virus. Acute form is characterised by high fever, haemorrhages in the reticuloendothelial system, and a high lethality.

VDx® ASFV qPCR Ver 2.1 is a real-time PCR based test for detection of ASFV DNA.

Introduction

+ **Intended use** : Detection of African swine fever virus (ASFV) DNA
+ **Species** : Pigs (wild boar, farmed pig, etc.)
+ **Specimens** : Whole blood, serum and tissue sample, environmental samples, etc.

Target	Fluorophore	Quencher
ASFV p72	FAM	non-Fluorescent
Endogenous IPC	Cy5	non-Fluorescent
Exogenous IPC	HEX	non-Fluorescent

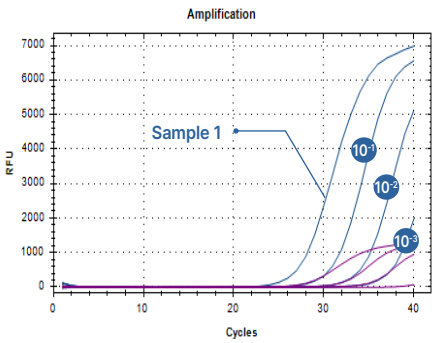
Features

+ Confirmatory diagnosis of ASFV
+ Applicable to all susapect specimens
+ Shorter reaction time than version 1 (94minutes → 60minutes)
+ Can detect a variety of ASFV genoptypes
+ Endogenous IPC can identify the quality of extracted nucleic acids.
+ Exogenous IPC can check whether PCR reaction is inhibited or not.

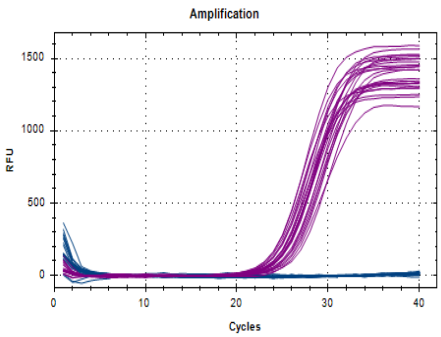
Test	Results
Analytical Sensitivity (LoD)	1 copy/ul of synthetic DNA ASFV Genotype 2 : 2.625 $log_{10}HAD_{50}$/mL
Analytical Specificity (Cross-reaction)	No Cross-reaction with other 18 pig pathogens No interference with other substances
Clinical Sensitivity	100% (146/146)
Clinical Specificity	100% (170/170)

Technical data

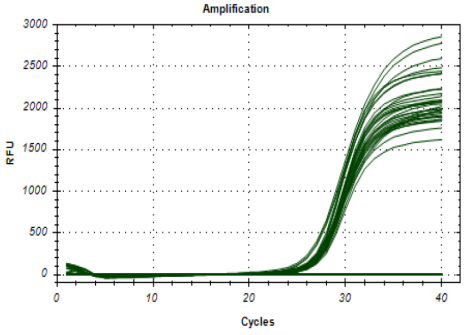
ASFV p72 (FAM)



Endogenous IPC (Cy5)



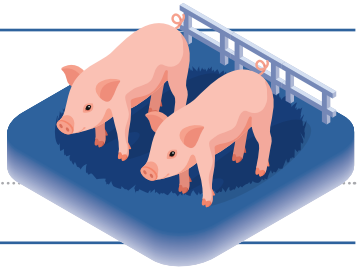
Exogenous IPC (HEX)



Order Information

Cat No.	Product Name	Quantity
NS-ASF-31	VDx® ASFV qPCR Ver 2.1	96 Tests/Box

VDx® ASFV/CSFV qRT-PCR



ASFV
CSFV

VDx® ASFV/CSFV qRT-PCR is a multiplex real-time RT-PCR based test for detection and identification of ASFV DNA and CSFV RNA.

Introduction

+ **Intended use** : Detection of African swine fever virus (ASFV) DNA & Classical swine fever virus (CSFV) RNA
+ **Species** : Pig
+ **Specimens** : Whole blood, serum and tissue homongenates

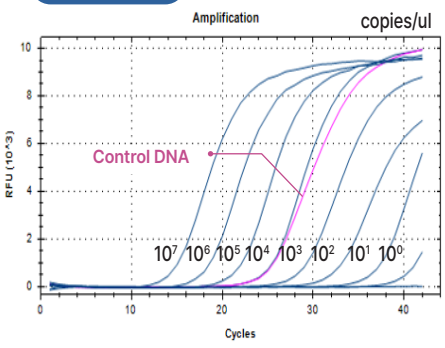
Target	Fluorophore	Quencher
CSFV	FAM	non-Fluorescent
ASFV	Texas Red	non-Fluorescent
IPC	HEX / VIC	non-Fluorescent

Performance

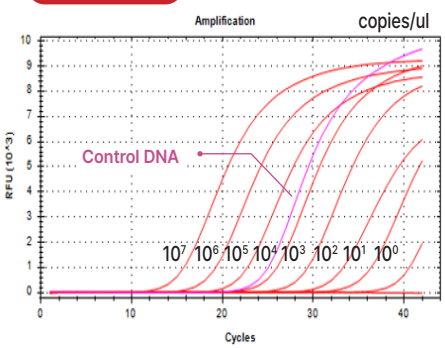
Test	Results
Analytical Sensitivity (LoD)	ASFV DNA : ≤ 10 copies/ul CSFV RNA : ≤ 10 copies/ul
Analytical Specificity (Cross-reaction)	No cross-reactivity with PRRSV, EMCV, JEV, SIV, ADV, PPV, PCV2, Mycoplasma hyopneumoniae, Actinobacillus pleuropneumoniae, Pasteurella multocida, Heamophilus parasuis, Salmonella typhimuium, Erysipelothrix rhusiopathiae, Sterptococcis suis, Staphlococcus aureus
Clinical Sensitivity	- ASFV : ASF-URL reference DNAs : 100% (21/21) Clinical field sample (positive 12ea, negative 4ea) : 100% (12/12) - CSFV : 100% (80/80)
Clinical Specificity	100% (90/90)

Technical data

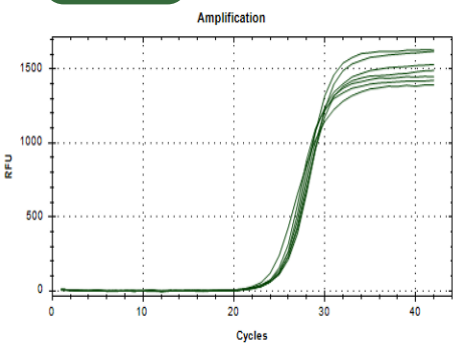
CSFV (FAM)



ASFV (TxR)



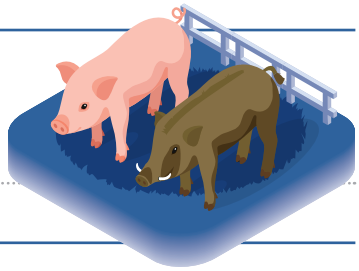
IPC (HEX)



Order Information

Cat No.	Product Name	Quantity
NS-ASF-32	VDx® ASFV/CSFV qRT-PCR	96 Tests/Box

VDx® ASFV 3Diff qPCR



Differential diagnosis of ASFV GI, GII and GI/GII recombinant strain

African Swine Fever

VDx® ASFV 3Diff qPCR Kit is used for the detection of viral DNA of African Swine Fever Virus (ASFV) genotype I and II and highly lethal recombinant strain first reported in China by real-time PCR method. This kit can differentiate the specific gene of ASFV genotype I and II by using TapMan probes. Additionally, it is possible to check whether the PCR reaction proceeded normally by adding Exogenous IPC.

Introduction

+ **Intended use** : Detection of African swine fever virus (ASFV) DNA
+ **Species** : Pigs (wild boar, farmed pig, etc.)
+ **Specimens** : Whole blood, serum and tissue sample, environmental samples, etc.

Target	Fluorophore	Quencher
ASFV genotype I	FAM	non-Fluorescent
ASFV genotype II	HEX	non-Fluorescent
Exogenous IPC	Cy5	non-Fluorescent

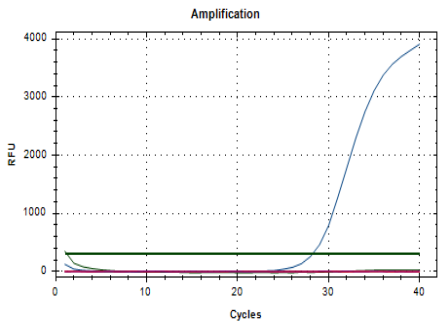
Features

+ Recently, there were several reports of GI/GII recombinant ASFV in Vietnam as well as China and GI ASFV in China.
  > No cross protection of GII-based ASFV vaccine from the GI/GII recombinant virus's infection.
  >> Need to differential diagnose ASFV G1, G2 and GI/GII recombinant strain
+ Differential diagnosis of ASFV genotype I, genotype II and highly lethal recombinant strain.
+ Exogenous IPC can check whether PCR reaction is inhibited or not.
+ Fast results within 1 hour after DNA extraction.

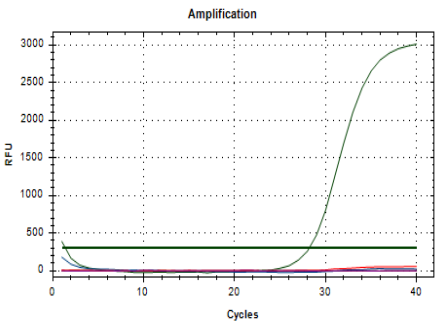
Test	Results
Analytical Sensitivity (LoD)	1copy/ul or less (ASFV genotype I, ASFV genotype II)
Analytical Specificity (Cross-reaction)	No Cross-reaction with other 17 pig pathogens No interference with other substances
Clinical Sensitivity	100% (Genotype II (42/42), Genotype I/II recombinant (14/14))

Technical data

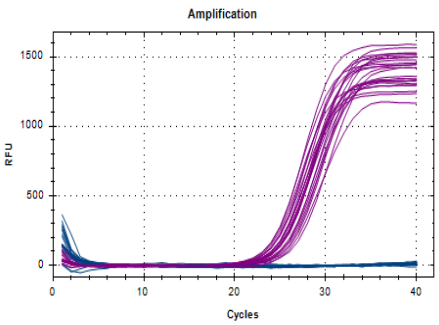
ASFV genotype I (FAM)



ASFV genotype II (HEX)



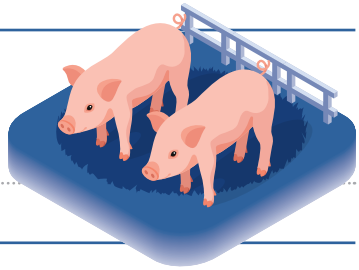
Exogenous IPC (Cy5)



Order Information

Cat No.	Product Name	Quantity
NS-ASF-33	VDx® ASFV 3Diff qPCR	96 Tests/Box

VDx® CSFV Gene Diagnosis



Classical Swine Fever

Classical Swine Fever (CSF) is the first class legal notifiable communicable disease and a list disease as determined by WOAH. It is highly infectious and also has a high fatality rate in swine. CSF is caused by Classical Swine Fever Virus (CSFV) and can be prevented through vaccination.

Product

VDx® CSFV 5'NCR RT - PCR

VDx® CSFV 5'NCR RT-PCR is a RT-PCR based test for detection of CSFV RNA.

Introduction

+ **Intended use** : Detection of CSFV RNA
+ **Species** : Pig
+ **Specimens** : Whole blood, serum, semen and tissue homogenates

Virus	Taget gene	Size
CSFV	5'NCR	421 bp
Control DNA	-	309 bp

Features

Test	Results
Analytical Sensitivity (LoD)	RNA : ≤ 10 copies/ul, Virus : ≤ 10 $TCID_{50}$/ml
Analytical Specificity (Cross-reaction)	No cross reactivity with PRRSV, EMDV, JEV, SIV, ADV, PPV, PCV2

Product

VDx® CSFV qRT - PCR

VDx® CSFV qRT PCR is a real-time RT-PCR based test for detection of CSFV RNA.

Introduction

+ **Intended use** : Detection of CSFV RNA
+ **Species** : Pig
+ **Specimens** : Whole blood, serum, semen and tissue homogenates

Target	Fluorophore	Quencher
CSFV	FAM	non-Fluorescent
IPC	HEX / VIC	non-Fluorescent

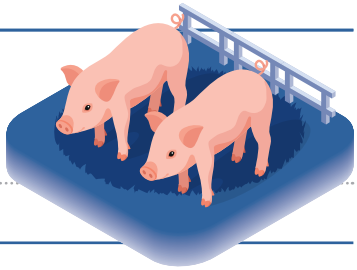
Performance

Test	Results
Analytical Sensitivity (Limit of Detection, LoD)	RNA : ≤ 10 copies/ul Virus : ≤ 10 $TCID_{50}$/ml
Analytical Specificity (Cross-reaction)	No Cross-reactivity with 7 other pathogens (PRRSV, EMCV, JEV, SIV, ADV, PPV, PCV2)
Clinical Sensitivity *Evaluation for CSF-APQA reference Lab	LOM strain (live vaccine) : 100% (186/186) Field isolate type2 (2016) : 100% (33/33)
Clinical Specificity	100% (90/90)

Order Information

Cat No.	Product Name	Quantity
NS-CSF-11	VDx® CSFV 5'NCR RT-PCR	50 Tests/Box
NS-CSF-31	VDx® CSFV qRT-PCR	96 Tests/Box

VDx® PCV2 Gene Diagnosis



Porcine Cirocovirus type 2 (PCV2)

Porcine Cirocovirus type 2 (PCV2) has been identified as the causal agent of post weaning multisystemic wasting syndrom (PMWS). PCV is a single-stranded DNA virus (class II), that is nonenveloped with an unsegmented circular genome.

Product

VDx® PCV2 ORF2 PCR

VDx® PCV2 ORF2 PCR is a PCR based test for detection of PCV2 DNA.

Introduction

+ **Intended use** : Detection of Porcine circovirus type 2 (PCV2) DNA
+ **Species** : Pig
+ **Specimens** : Whole blood, serum, semen and tissue homogenates

Virus	Taget gene	Size
PCV2	ORF2	493 bp
Control DNA	-	317 bp

Performance

Test	Results
Analytical Sensitivity (LoD)	Specimens : ≤ 0.1 $TCID_{50}$/ml, DNA : ≤ 10 copies/ul
Analytical Specificity (Cross-reaction)	No Cross-reactivity with PRRSV, EMCV, JEV, SIV, ADV, PPV

Product

VDx® PCV2 qPCR

VDx® PCV2 qPCR is a real-time PCR based test for detection of PCV2 DNA.

Introduction

+ **Intended use** : Detection of Porcine circovirus type 2 (PCV2) DNA
+ **Species** : Pig
+ **Specimens** : Whole blood, serum, semen and tissue homogenates

Target	Fluorophore	Quencher
PCV2	FAM	non-Fluorescent
IPC	HEX / VIC	non-Fluorescent

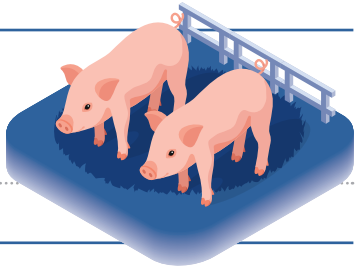
Performance

Test	Results
Analytical Sensitivity (LoD)	DNA : ≤ 10 copies/ul, Virus : ≤ 10^{-2} $TCID_{50}$/ml
Analytical Specificity (Cross-reaction)	No Cross-reactivity with PRRSV, EMCV, JEV, SIV, ADV, PPV, PCV2
Clinical Sensitivity	100% (187/187)
Clinical Specificity	100% (90/90)

Order Information

Cat No.	Product Name	Quantity
NS-PCV-11	VDx® PCV2 ORF2 PCR	50 Tests/Box
NS-PCV-31	VDx® PCV2 qPCR	96 Tests/Box

VDx® PCV2 MP qPCR



Porcine Cirocovirus type 2 (PCV2)

VDx® PCV2 MP qPCR Kit is used for the detection of viral DNA of Porcine circovirus type 2(PCV2) common and PCV2 type d by multiplex real-time PCR method.

Introduction

+ **Intended use** : Detection of Porcine circovirus type 2 (PCV2) DNA
+ **Species** : Pig
+ **Specimens** : Whole blood, plasma, serum, semen and tissue homongenates

Target	Fluorophore	Quencher
PCV2 ORF1	FAM	non-Fluorescent
PCV2d ORF2	HEX	non-Fluorescent
IPC	Cy5	non-Fluorescent

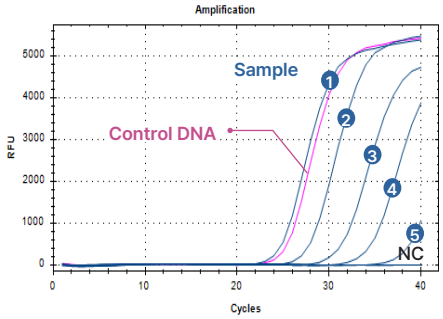
Performance

+ PCV2 and PCV2d detection within 60 minutes for fast decision.
+ This kit can detected of PCV2 and PCV2d
+ PCV2d is becoming the predominant strain the global pig population replacing PCV2a and PCV2b.

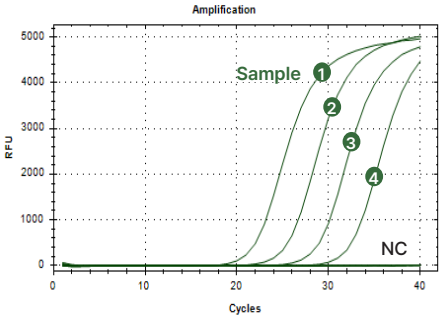
Test	Results
Analytical Sensitivity (LoD)	PCV2 common plasmid DNA : ≤ 1 copy/ul PCV2d plasmid DNA : ≤ 1 copy/ul
Analytical Specificity (Cross-reaction)	No cross-reactivity with PRRSV, EMCV, JEV, SIV, CSFV, PPV, PEDV, TGEV, Rota, APP, PM, MH, HP, Sal.typhimurium etc.
Clinical Sensitivity	- PCV2 : 100% (33/33) - PCV2d : 100% (27/27)
Clinical Specificity	100% (90/90)

Technical data

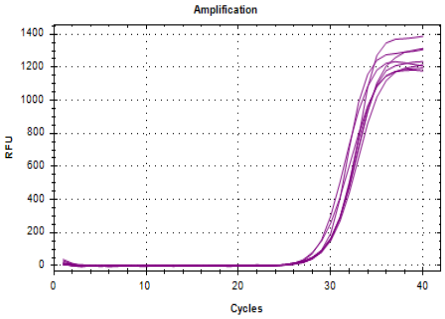
PCV2 (FAM)



PCV2d (HEX)



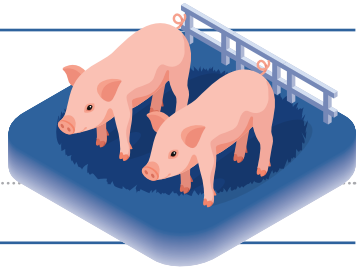
IPC (Cy5)



Order Information

Cat No.	Product Name	Quantity
NS-PCV-32	VDx® PCV2 MP qPCR	96 Tests/Box

VDx® PEDV qRT-PCR (group1,2 dual)



Porcine Epidemic Diarrhea

Porcine Epidemic Diarrhea Virus (PEDV) is an RNA virus belonging to corona virus. If acutely infected with PEDV, it is characterized by inducing vomiting and watery diarrhea regardless of the age of swine. Although the death rate is low as 1~3% range by recovering within one week after infection in case of grown swine, mortality is 50% in case of piglets and may be 100% in severe cases.

VDx® PEDV qRT-PCR is a multiplex real-time RT-PCR based test for detection and identification of PEDV RNA.

Introduction

+ **Intended use** : Detection of Porcine epidemic diarrhea virus (PEDV) RNA
+ **Species** : Pig
+ **Specimens** : Feces supernatant(10% dilution), tissue homogenates from pigs
+ **Target gene** : S gene

Target	Fluorophore	Quencher
PEDV group1	FAM	non-Fluorescent
PEDV group2	Texas Red/ROX	non-Fluorescent
IPC	HEX / VIC	non-Fluorescent

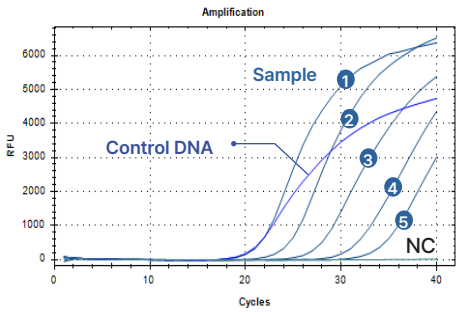
Features

+ Comfirmatory diagnosis of PED
+ Differential diagnosis of PEDV group1 and group2 strains

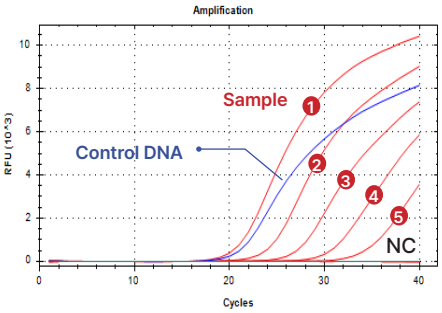
Test	Results
Analytical Sensitivity (LoD)	Group 1 RNA : 1 copy/ul, Group 2 RNA : 1 copy/ul PEDV group 1 : below 10^{-2} $TCID_{50}$/ml, PEDV group 2 : below 10^{-2} $TCID_{50}$/ml
Analytical Specificity (Cross-reaction)	No Cross-reactivity with PRRSV, EMCV, JEV, SIV, ADV, PPV, PCV2, TGEV, Rotavirus
Clinical Sensitivity	100% (94/94)
Clinical Specificity	100% (90/90)

Technical data

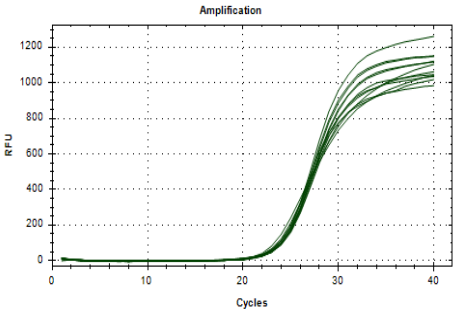
PEDV G1 (FAM)



PEDV G2 (TxR)



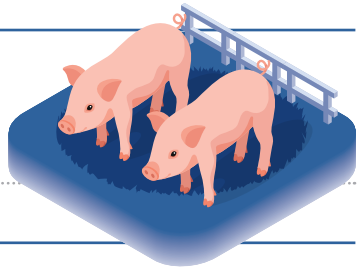
IPC (HEX)



Order Information

Cat No.	Product Name	Quantity
NS-PED-11	VDx® PEDV S RT-PCR	50 Tests/Box
NS-PED-31	VDx® PEDV qRT-PCR(group1, 2 dual)	96 Tests/Box

VDx® PEDV qRT-PCR Ver 2.0



Porcine Epidemic Diarrhea

VDx® PEDV qRT-PCR Ver 2.0 is used for the detection of Porcine Epidemic Diarrhea Virus (PEDV) RNA by Real-Time Reverse Transcription polymerse chain reaction(qRT-PCR) method.
This kit can measure the N gene of PEDV qualitatively by using TaqMan probe and contain the Endogenous IPC(HEX) that can detect the housekeeping gene of swine genome. In that reasons, it can measure the quality of extracted nucleic acids. Exogenous IPC(Cy5) is also included, it is possible to check whether PCR reaction is **inhibited.**

Introduction

+ **Intended use** : Detection of Porcine epidemic diarrhea virus (PEDV) RNA
+ **Species** : Pig
+ **Specimens** : Whole blood, serum, stool, tissue sample and etc.
+ **Target gene** : N gene

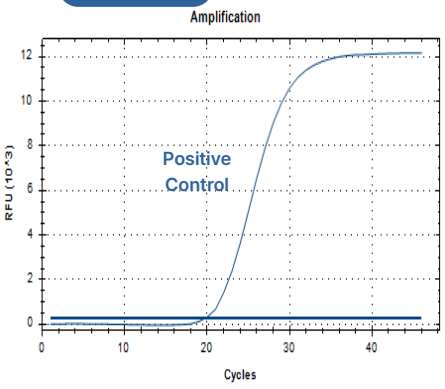
Target	Fluorophore	Quencher
PEDV	FAM	non-Fluorescent
Endogenous IPC	HEX / VIC	non-Fluorescent
Exogenous IPC	Cy5	non-Fluorescent

Features

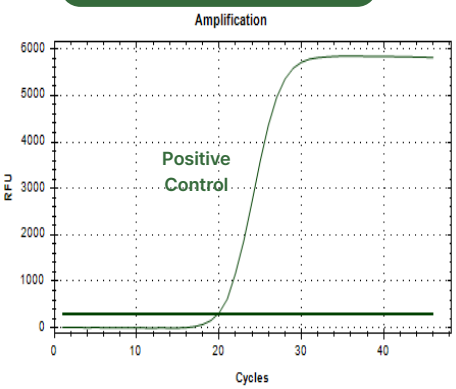
+ Comfirmatory diagnosis of PED
+ Endogenous IPC can identify the quality of extracted nucleic acids.
+ Exogenous IPC can check whether PCR reaction is inhibited or not.
+ Clinical Sensitivity: 100% (99/99)
+ Clinical Specificity: 100% (170/170)

Technical data

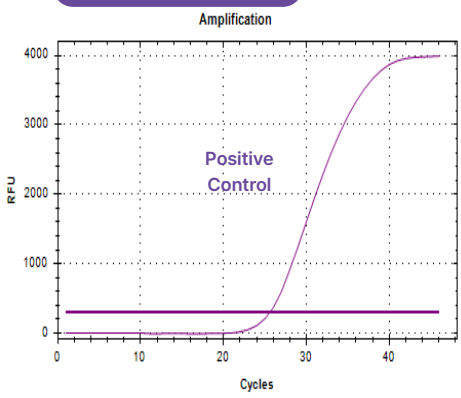
PEDV (FAM)



Endogenous IPC (HEX/VIC)



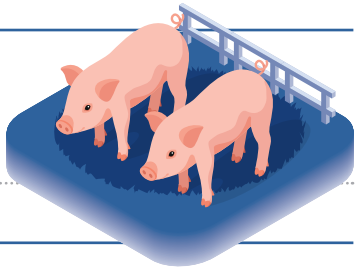
Exogenous IPC (Cy5)



Order Information

Cat No.	Product Name	Quantity
NS-PED-32	VDx® PEDV qRT-PCR Ver 2.0	96 Tests/Box

VDx® PRRSV Conventional RT- PCR



Porcine Reproductive Respiratory Syndrome

Porcine Reproductive and Respiratory Syndrome (PRRS) is a disease characterized by reproductive disorder in pregnant pig, and respiratory disease in weaning pig and growing pig.

Product

VDx® PRRSV ORF7 RT - PCR

VDx® PRRSV ORF7 RT-PCR simultaneously amplifies the North American and European ORF7 genes of PRRSV.

Introduction

+ **Intended use** : Detection of Porcine reproductive respiratory syndrome RNA
+ **Species** : Pig
+ **Specimens** : Whole blood, serum, plasma, semen and tissue

Virus	Taget gene	Size
PRRSV NA type	ORF7	433 bp
PRRSV EU type	ORF7	398 bp
Control DNA	-	756 bp

Performance

Test	Results
Analytical Sensitivity (LoD)	Specimens: ≤ 0.1 $TCID_{50}$/ml, RNA: ≤ 10 copies/ul
Analytical Specificity (Cross-reaction)	No Cross-reactivity with EMCV, JEV, CSFV, SIV, ADV, PPV, PCV2

Product

VDx® PRRSV HP MP RT-PCR

VDx® PRRSV HP MP RT-PCR simultaneously amplifies the North American and European ORF7 genes of PRRSV and specifically amplifies Chinese High Pathogen PRRSV.

Introduction

+ **Intended use** : Detection of PRRSV and Chinese High Pathogen PRRSV RNA
+ **Species** : Pig
+ **Specimens** : Whole blood, serum, plasma, semen and tissue

Virus	Taget gene	Size
PRRSV NA type	ORF7	433 bp
PRRSV EU type	ORF7	398 bp
Chinese High Pathogen types	ORF7	433 bp
	ORF1	273 bp
Control DNA	-	756 bp

Performance

Test	Results
Analytical Sensitivity (LoD)	Specimens : ≤ 0.1 $TCID_{50}$/ml, RNA : ≤ 10 copies/ul
Analytical Specificity (Cross-reaction)	No Cross-reactivity with EMCV, JEV, CSFV, SIV, ADV, PPV, PCV2

Product

VDx® PRRSV NA / EU Typing Nested PCR

When the amount of virus is small due to the characteristics of sample tests, **VDx® PRRSV NA/EU Typing Nested PCR** with superior sensitivity can be used to confirm and the test can be conducted by separating the two (NA/EU) genotypes of PRRSV on purpose.

Introduction

+ **Intended use** : Detection of PRRSV DNA
+ **Species** : Pig
+ **Sample** : 1st PRRSV RT-PCR product

Virus	Taget gene	Size
PRRSV NA type	ORF7	287 bp
PRRSV EU type	ORF7	184 bp

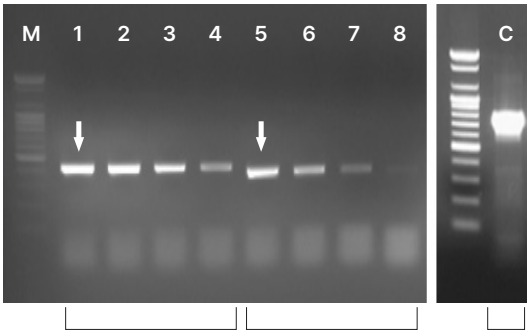
Performance

Test	Results
Analytical Sensitivity (LoD)	Specimens : ≤ 0.1 $TCID_{50}$/ml, RNA : ≤ 10 copies/ul
Analytical Specificity (Cross-reaction)	No Cross-reactivity with EMCV, JEV, CSFV, SIV, ADV, PPV, PCV2

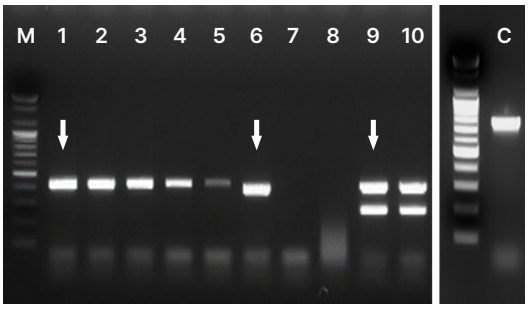
Technical Data

Samples that are blurred or not visible in positive samples by 1st PRRSV RT-PCR (Cat No. NS-PRR-11 & NS-PRR-13) can be clearly identified in nested PCR (Cat No. NS-PRR-12).
However, when the first PRRSV RT-PCR product is densed and reacted to nested PCR, the first RT-PCR product is partially re-PCRed and a nonspecific size band may be observed.

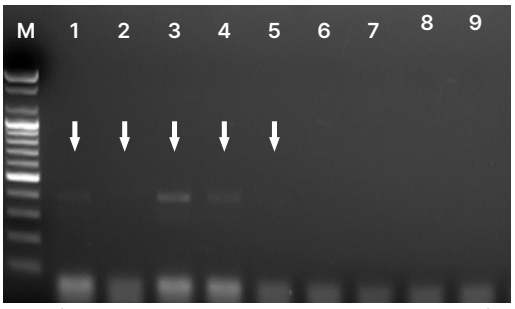
PRRSV ORF7 RT-PCR



PRRSV (HP) MP RT-PCR

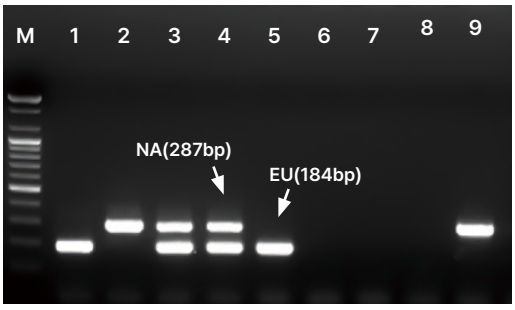


PRRSV RT-PCR (Cat No. NS-PRR-11 or NS PRR-13)



Nested PCR

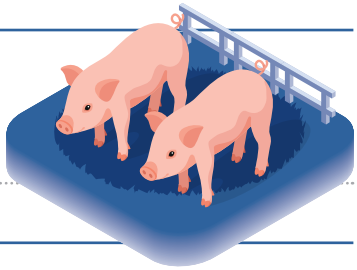
PRRSV NA/EU typing Nested PCR (Cat No. NS-PRR-12)



Order Information

Cat No.	Product Name	Quantity
NS-PRR-11	VDx® PRRSV ORF7 RT-PCR	50 Tests/Box
NS-PRR-13	VDx® PRRSV HP MP RT-PCR	50 Tests/Box
NS-PRR-12	VDx® PRRSV NA/EU Typing Nested PCR	50 Tests/Box

VDx® PRRSV Real-time RT-PCR



Porcine Reproductive Respiratory Syndrome

Porcine Reproductive and Respiratory Syndrome (PRRS) is a disease characterized by reproductive disorder in pregnant pig, and respiratory disease in weaning pig and growing pig.

Product

VDx® HP-PRRSV qRT-PCR Ver 1.1

VDx® HP-PRRSV qRT-PCR Ver 1.1 is used for the detection of viral RNA of Porcine Reproductive and Respiratory Syndrome Virus (PRRSV) by real-time PCR method.

Introduction

+ **Intended use** : Detection of PRRSV & Highly pathogenic (HP) PRRSV RNA
+ **Species** : Pig
+ **Specimens** : Whole blood, serum, and tissue sample, etc.

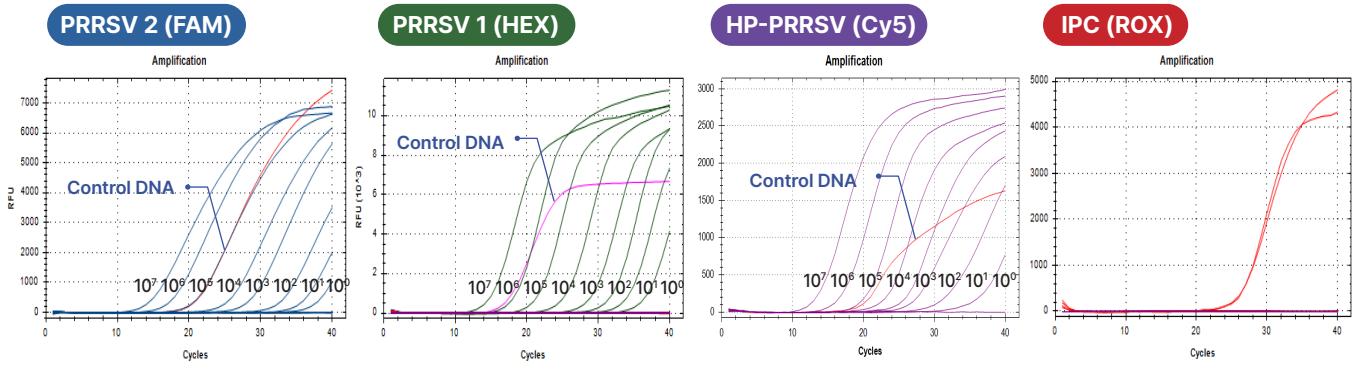
Features

+ This product can identify NA/EU serotypes and high pathogen (HP) PRRSV.

Performance

Test	Results
Analytical Sensitivity (Limit of Detection, LoD)	1 copy/ul of synthetic RNA
Analytical Specificity (Cross-reaction)	No Cross-reactivity with 20 other pig pathogens
Clinical Sensitivity	100% (94/94)
Clinical Specificity	100% (186/186)

Technical Data



Order Information

Cat No.	Product Name	Quantity
NS-PRP-32	VDx® HP-PRRSV qRT-PCR Ver 1.1	96 Tests/Box

Product

VDx® PRRSV qRT - PCR

VDx® PRRSV qRT-PCR is used for the detection and NA/EU strains identification of viral RNA of PRRSV by multiplex real time RT-PCR method.

Introduction

+ **Target disease** : PRRSV
+ **Species** : Pig
+ **Specimens** : Whole blood, serum, semen and tissue homogenates

Target	Fluorophore	Quencher
PRRSV_NA	FAM	non-Fluorescent
PRRSV_EU	Texas Red/ROX	non-Fluorescent
IPC	HEX / VIC	non-Fluorescent

Performance

Test	Results
Analytical Sensitivity (LoD)	RNA : ≤ 1 copies/ul, PRRSV NA strain virus : ≤ 10^{-2} $TCID_{50}$/ml PRRSV EU strain virus : ≤ 10^{-2} $TCID_{50}$/ml
Analytical Specificity (Cross-reaction)	No Cross-reactivity with EMCV, JEV, SIV, ADV, PPV, PCV2
Clinical Sensitivity	100% (94/94) vs PRRSV ORF7 RT-PCR
Clinical Specificity	100% (90/90)

Product

VDx® PRRSV / PCV2 qRT - PCR

VDx® PRRSV / PCV2 qRT-PCR is multiplex real-time PCR based test for the detection and NA/EU strains identification of PRRSV RNA and PCV2 DNA.

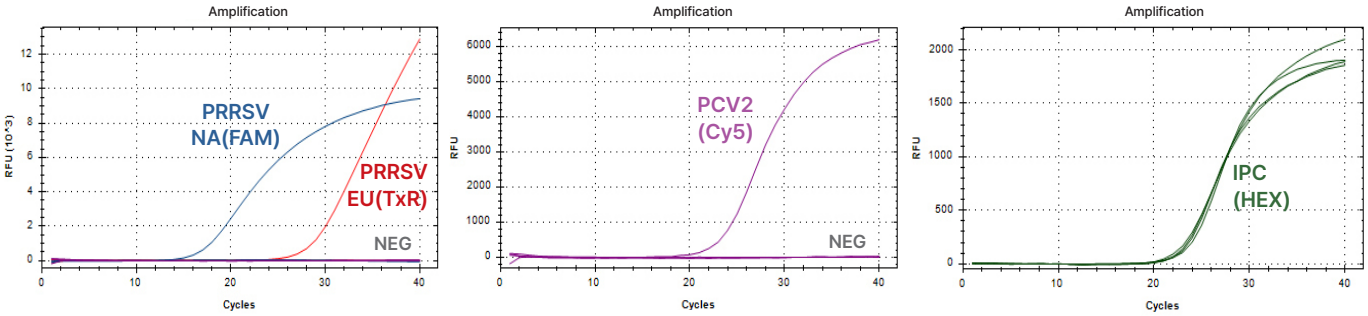
Introduction

+ **Target disease** : PRRSV and PCV2
+ **Species** : Pig
+ **Specimens** : Whole blood, serum, semen and tissue homogenates

Target	Fluorophore	Quencher
PRRSV_NA	FAM	non-Fluorescent
PRRSV_EU	Texas Red/ROX	non-Fluorescent
PCV2	Cy5	non-Fluorescent
IPC	HEX / VIC	non-Fluorescent

Performance

Test	Results
Analytical Sensitivity (LoD)	RNA : ≤ 10 copies/ul, DNA : ≤ 10 copies/ul PRRSV NA strain virus : ≤ 10^{-2} $TCID_{50}$/ml, PRRSV EU strain virus : ≤ 10^{-2} $TCID_{50}$/ml PCV2 virus : ≤ 10^{-2} $TCID_{50}$/ml
Analytical Specificity (Cross-reaction)	No Cross-reactivity with EMCV, JEV, SIV, ADV, PPV, PEDV, TGEV, Rota
Clinical Sensitivity	PRRSV NA strain : 94.3%, PRRSV EU starin : 92.3% PCV2 : 100%
Clinical Specificity	100% (90/90)

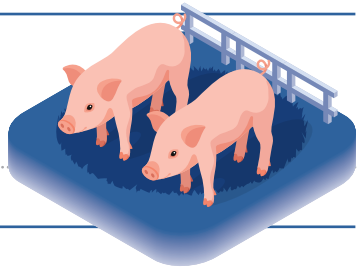


Order Information

Cat No.	Product Name	Quantity
NS-PRR-31	VDx® PRRSV qRT-PCR	96 Tests/Box
NS-PRP-31	VDx® PRRSV/PCV2 qRT-PCR	96 Tests/Box

VDx® SIV qRT-PCR set

Swine influenza virus (SIV) multiplex Real-time RT-PCR set



Swine Influenza

Swine Influenza is an infection caused by any one of several types of swine influenza viruses. In pigs, four influenza A virus subtypes (H1N1, H1N2, H3N2 and H7N9) are the most common strains worldwide. First described in April 2009, the 2009 swine flu pandemic virus appeared to be a new strain of H1N1 that resulted from a previous triple reassortment of bird, swine, and human flu viruses and that further combined with a Eurasian pig flu virus, leading to the term "Swine Flu".

VDx® SIV qRT-PCR set is a genetic testing reagent that amplifies specific gene regions from pigs suspected of swine influenza virus (SIV) infection by Real Time RT-PCR (qRT-PCR) to differentiate between SIV common genes, genotyping, Pandemic flu H1N1 and H1N1 G4 in five premixes.

Introduction

+ **Intended use** : Detection and subtype identification of swine influenza virus (SIV) RNA
+ **Species** : Pig
+ **Specimens** : Nasal fluid, lung, tissue samples, and cell cultures

Features

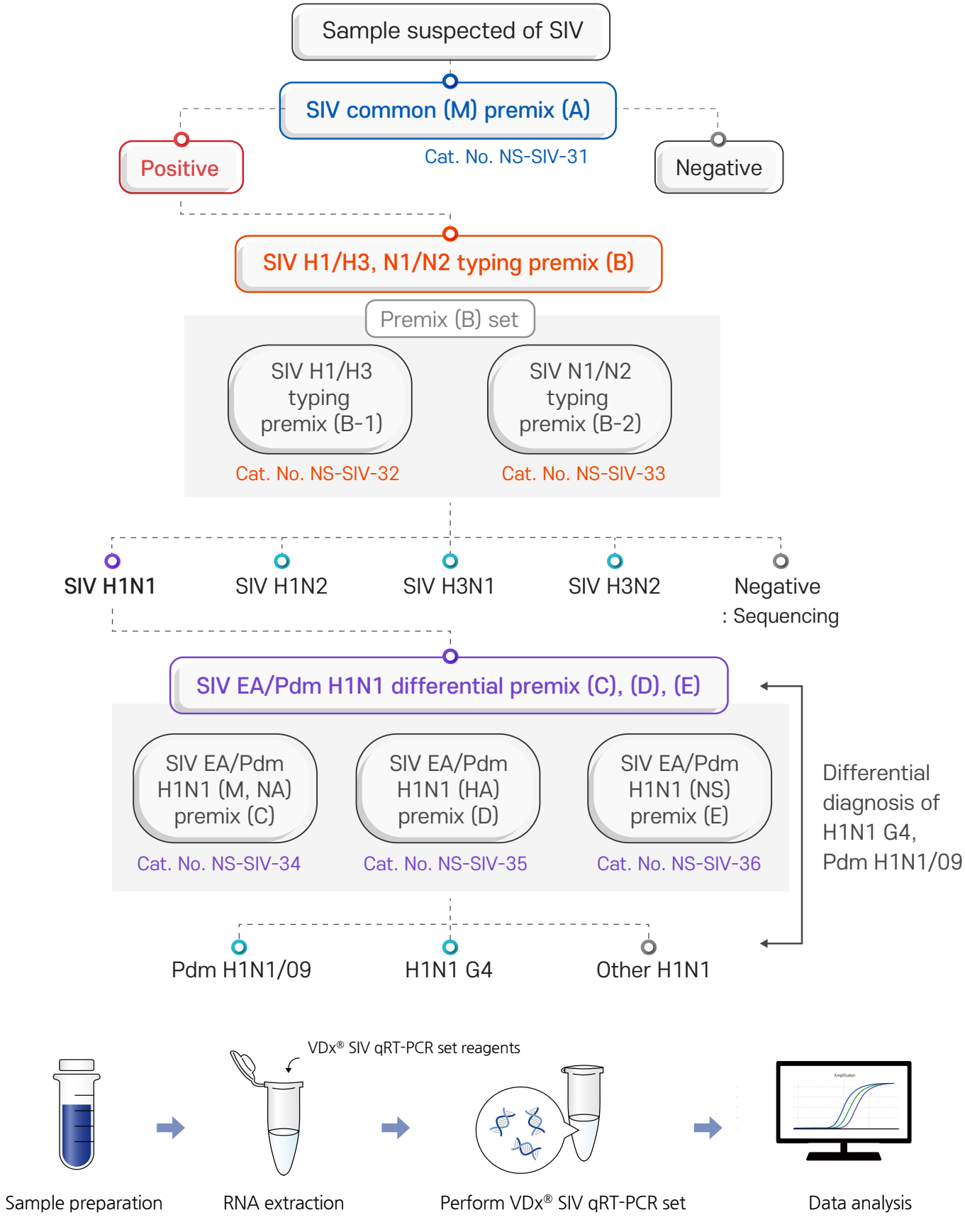
+ Differential diagnosis of Swine influenza 5 types.
+ Differential diagnosis of SIV subtypes (H1N1, H1N2, H3N2).
+ Can detect Pandemic flu H1N1 and Eurasian avian-like H1N1 genotype 4 reported as a dominant species in China.

Order Information

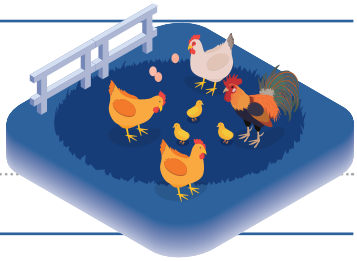
Cat No.	Product Name	Quantity
NS-SIV-31	VDx® SIV qRT-PCR set_SIV common (M) premix (A)	96 Tests/Box
NS-SIV-32	VDx® SIV qRT-PCR set_SIV H1/H3 typing premix (B-1)	96 Tests/Box
NS-SIV-33	VDx® SIV qRT-PCR set_SIV N1/N2 typing premix (B-2)	96 Tests/Box
NS-SIV-34	VDx® SIV qRT-PCR set_SIV EA/Pdm H1N1 (M,NA) premix (C)	96 Tests/Box
NS-SIV-35	VDx® SIV qRT-PCR set_SIV EA/Pdm H1N1 (HA) premix (D)	96 Tests/Box
NS-SIV-36	VDx® SIV qRT-PCR set_SIV EA/Pdm H1N1 (NS) premix (E)	96 Tests/Box
NS-SIV-31~36	VDx® SIV qRT-PCR set	96 Tests x 6/Box
NS-SIV-31,32,33	VDx® SIV qRT-PCR set_SIV common & typing premix set	96 Tests x 3/Box
NS-SIV-34,35,36	VDx® SIV qRT-PCR set_SIV EA/Pdm H1N1 premix set	96 Tests x 3/Box

Diagnostics SOP of VDx® SIV qRT-PCR set

Reliable results can be obtained only by following the testing process for each premix, as shown in the diagnosis SOP below.



VDx® Fowl Typhoid Typing PCR



Fowl Typhoid and Pullorum Disease

VDx® Fowl Typhoid Typing PCR is used for the detection and identification of *Salmonella enterica* serovar Gallinarum biovars Gallinarum and Pullorum and the biovar Gallinarum live vaccine strain 9R and SR2-N6 by multiplex PCR method.

Introduction

+ **Intended use** : Detection of Fowl typhoid and pullorum disease DNA
+ **Species** : Poultry
+ **Template preparation** : Several colonies of bacteria on agar plates, which originated from one single colony in the beginning, were picked with a sterile toothpick and inoculated into 100ul of TE buffer in a microcentrifuge tube. The cell suspension was boiled in a water bath for 5 min and then briefly centrifuged to pellet cell debris. The supernatant was transferred to a new tube and used as the PCR template.
+ **Target gene** : *Salmonella* Pullorum (SP), *Salmonella* Gallinarum (SG), *Salmonella* Gallinarum 9R, *Salmonella* Gallinarum SR2-N6

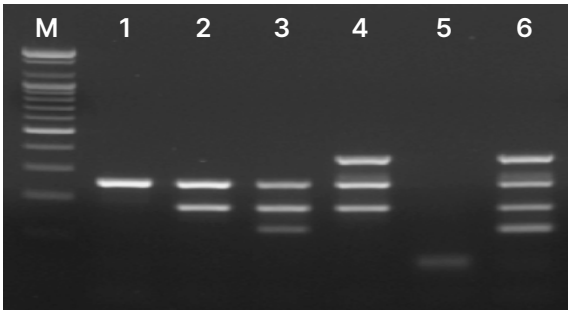
Virus	Band size			
SP	-	-	252 bp	-
SG	-	174 bp	252 bp	-
SG-9R	119 bp	174 bp	252 bp	-
SG-SR2-N6		174 bp	252 bp	361 bp
Control DNA	119 bp	174 bp	252 bp	361 bp

Performance

Test	Results
Analytical Sensitivity (LoD)	Purified plasmid DNA : ≤ 0.01 pg/ul (2.0 × 10^3 copies/ul), Specimens Total DNA : 100 pg/ul
Analytical Specificity (Cross-reaction)	No Cross-reactivity with *Sal. Typhimurium, Sal. Agona, Sal. Blockley, Sal. Heidelberg, Sal. Montevideo, Sal. Muenchen, Sal. Mbandaka, Sal. Newport, Sal. Senftenberg, Sal. Tennessee, Sal. Virchow, Sal. Enteritidis, E. coli*

Gel Electrophoresis

*2.0% Agarose gel

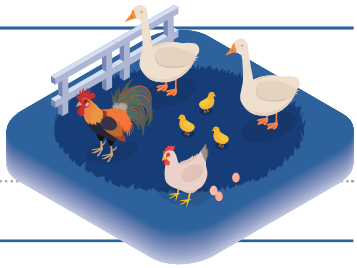


- M : Size Marker
- 1 : *Salmonella* Pullorum(SP)
- 2 : *Salmonella* Gallinarum(SG)
- 3 : *Salmonella* Gallinarum - 9R
- 4 : *Salmonella Gallinarum* SR2-N6
- 5 : Negative control
- 6 : Control DNA

Order Information

Cat No.	Product Name	Quantity
NP-FTI-11	VDx® Fowl Typhoid Typing PCR	50 Tests/Box

VDx® AIV Gene diagnosis



Avian Influenza

Avian Influenza Virus (AIV) is a disease caused by poultry, and it has various mortality rates depending on the pathogenicity. In the case of Highly Pathogenic Avian Influenza (HPAI), massive death occurs. Respiratory symptoms and neurological symptoms, egg laying rate in the laying hens, and symptoms of poor quality of the eggs, resulting in enormous economic damage. **VDx® AIV qRT-PCR products** are used for detection and identification of viral RNA of AIV by real-time PCR method.

Features

VDx® AIV qRT-PCR products

+ Target disease: Avian influenza
+ Confirmatory diagnosis of AIV
+ Suitable for screening of AIV outbreak
+ AIV detection within 120 minutes for fast decision
+ High sensitivity and specificity
+ High reproducibility and high repeatability

Product

VDx® AIV M qRT-PCR Ver 2.1

VDx® AIV M qRT-PCR is used for the detection of viral RNA of AIV by real-time PCR method.

Introduction

+ **Intended use** : Detection of Avian influenza virus (AIV) RNA
+ **Species** : Avian (chicken, duck)
+ **Specimens** : Stool, tissue homogenates (lung, spleen, tonsil), Oral swab, Virus culture
+ **Target gene** : AIV M gene (Common)

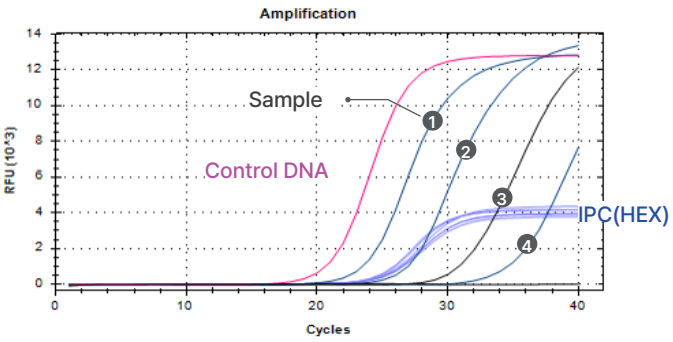
Target	Fluorophore	Quencher
AIV	FAM	non-Fluorescent
IPC	HEX / VIC	non-Fluorescent

Performance

+ Limit of Detection (LoD) : RNA 5 copies/ul
+ No-cross reactivity with other avian pathogens (NDV, IBV, IBDV, DHV, MG, MS, ST, SE, SG, SP etc.)
+ All 69 isolates of AIV H1~H11 serotypes confirmed positive
+ Clinical Sensitivity : 96.5%
+ Clinical Specificity : 99.6%

Technical Data

AIV M (FAM)



Product

VDx® AIV H9 qRT-PCR

*Research Use Only

VDx® AIV H9 qRT-PCR is used for the detection of viral RNA of AIV H9 type by real-time PCR method.

Introduction

+ **Intended use** : Detection of AIV H9 type RNA
+ **Species** : Avian (chicken, duck)
+ **Specimens** : Stool, tissue homogenates (lung, spleen, tonsil), Oral swab, Virus culture

Product

VDx® AIV H5 qRT - PCR Ver 2.1

VDx® AIV H5 qRT-PCR is used for the detection of viral RNA of AIV H5 type by real-time PCR method.

Introduction

+ **Intended use** : Detection of AIV H5 type RNA
+ **Species** : Avian (chicken, duck)
+ **Specimens** : Stool, tissue homogenates (lung, spleen, tonsil), Oral swab, Virus culture

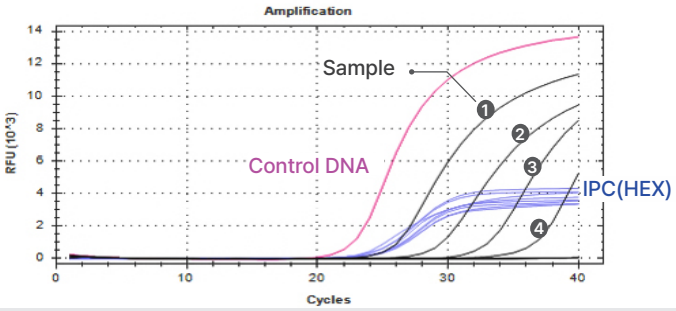
Target	Fluorophore	Quencher
AIV H5	FAM	non-Fluorescent
IPC	HEX / VIC	non-Fluorescent

Performance

+ Limit of Detection (LoD) : RNA 10 copies/ul
+ No-cross reactivity with other avian pathogens (NDV, IBV, IBDV, DHV, MG, MS, ST, SE, SG, SP etc.)
+ H5 serotype can specific detection
+ Clinical Sensitivity : 98.1%
+ Clinical Specificity : 99.8%

Technical Data

AIV H5 (FAM)



Product

VDx® AIV H7 qRT-PCR Ver 2.1

VDx® AIV H7 qRT-PCR is used for the detection of viral RNA of AIV H7 type by real-time PCR method.

Introduction

+ **Intended use** : Detection of AIV H7 type RNA
+ **Species** : Avian (chicken, duck)
+ **Specimens** : Stool, tissue homogenates (lung, spleen, tonsil), Oral swab, Virus culture

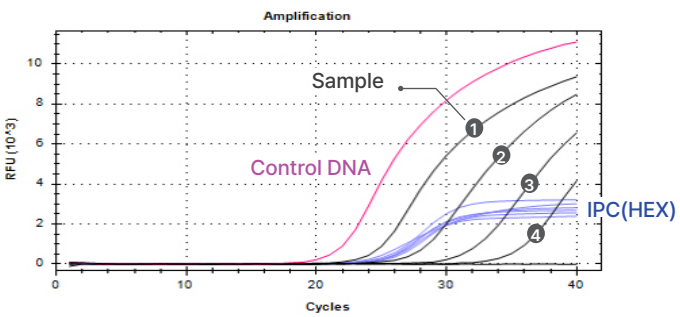
Target	Fluorophore	Quencher
AIV H7	FAM	non-Fluorescent
IPC	HEX / VIC	non-Fluorescent

Performance

+ Limit of Detection (LoD) : RNA 5 copies/ul
+ No-cross reactivity with other avian pathogens (NDV, IBV, IBDV, DHV, MG, MS, ST, SE, SG, SP etc.)
+ H7 serotype can specific detection
+ Clinical Sensitivity : 94.3%
+ Clinical Specificity : 100.0%

Technical Data

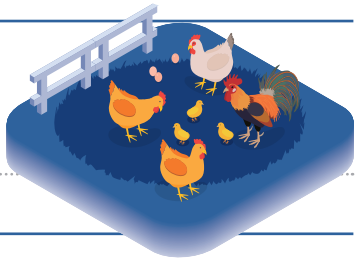
AIV H7 (FAM)



Order Information

Cat No.	Product Name	Quantity
NP-AIV-38	VDx® AIV M qRT-PCR Ver 2.1	96 Tests/Box
NP-AIV-39	VDx® AIV H5 qRT-PCR Ver 2.1	96 Tests/Box
NP-AIV-3A	VDx® AIV H7 qRT-PCR Ver 2.1	96 Tests/Box
NP-AIV-34	VDx® AIV H9 qRT-PCR	96 Tests/Box

VDx® AIV qRT-PCR set



Avian Influenza

VDx® AIV qRT-PCR set is used for the detection of Avian influenza virus (AIV) viral RNA by multiplex real-time RT-PCR method. This kit can differentiate between AIV H5, H7 and H9 subtypes after detection of the AIV common gene with Premix (A), (B).

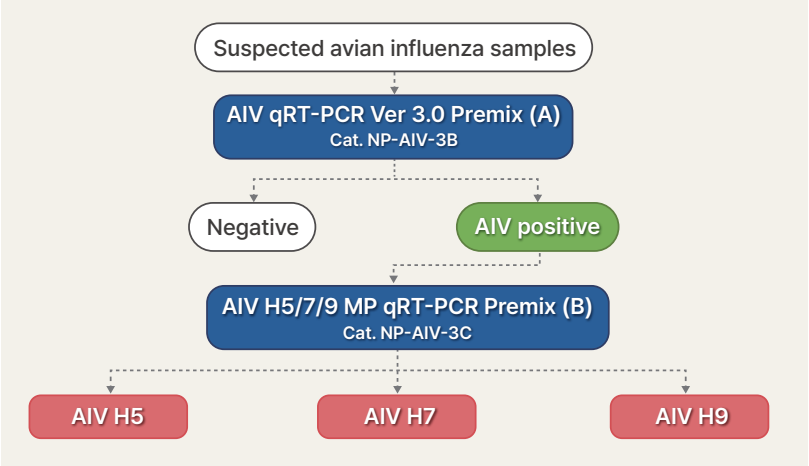
Introduction

+ **Intended use** : Differential diagnosis of AIV H5, H7, H9 after detection of the AIV common gene
+ **Species** : Avian (Duck, chicken and wild birld, etc.)
+ **Specimens** : Throat swab, cloacal swab and feces (supernatant after 10% PBS dilution)

Performance

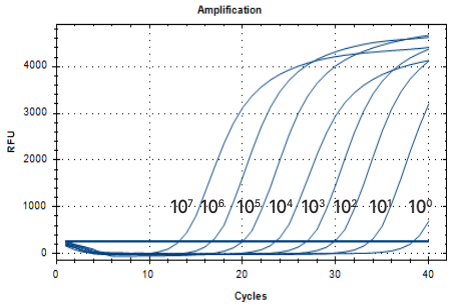
Test	Premix (A)	Premix (B)
Analytical Sensitivity (LoD)	1 copy/ul	AIV H5: 1 copy/ul, H7: 1 copy/ul, H9: 1 copy/ul
Clinical Sensitivity	100% (204/204)	100% (186/186)
Clinical Specificity	100% (180/180)	100% (198/198)

VDx® AIV qRT-PCR set Test process

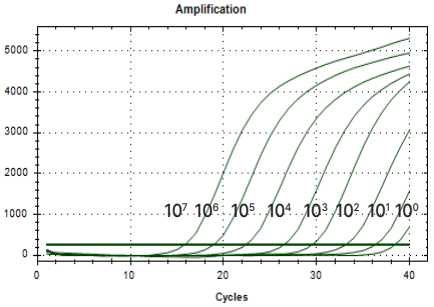


Premix (B) Technical Data: All-in-One Subtype System!

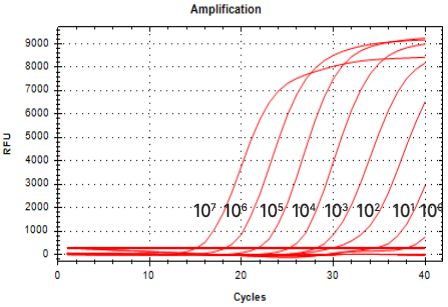
AIV H5 (FAM)



AIV H7 (HEX)



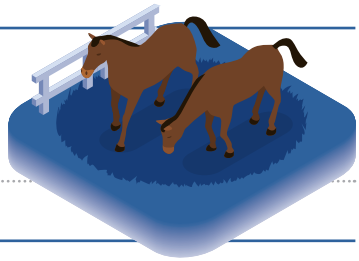
AIV H9 (TxR)



Order Information

Cat No.	Product Name	Quantity
NP-AIV-3B	VDx® AIV qRT-PCR set_AIV qRT-PCR Ver 3.0 Premix (A)	96 Tests/Box
NP-AIV-3C	VDx® AIV qRT-PCR set_AIV H5/7/9 MP qRT-PCR Premix (B)	96 Tests/Box

VDx® CEM qPCR



Contagious Equine Metritis(CEM)

Contagious Equine Metritis (CEM) is a type of metritis (uterine inflammation) in horses that is caused by a sexually transmitted infection. It is thus an equine venereal disease of the genital tract of horses, brought on by the *Taylorella equigenitalis* bacteria and spread through sexual contact.
VDx® CEM qPCR is used for the detection of *Taylorella equigenitalis* by real-time PCR method. *Taylorella equigenitalis* is the causative agent of CEM.

Introduction

+ **Intended use** : Detection of TE *(Taylorella equigenitalis) DNA*
+ **Species** : Equine
+ **Specimens** : Genital swab

Target	Fluorophore	Quencher
TE	FAM	non-Fluorescent
IPC	HEX / VIC	non-Fluorescent

Features

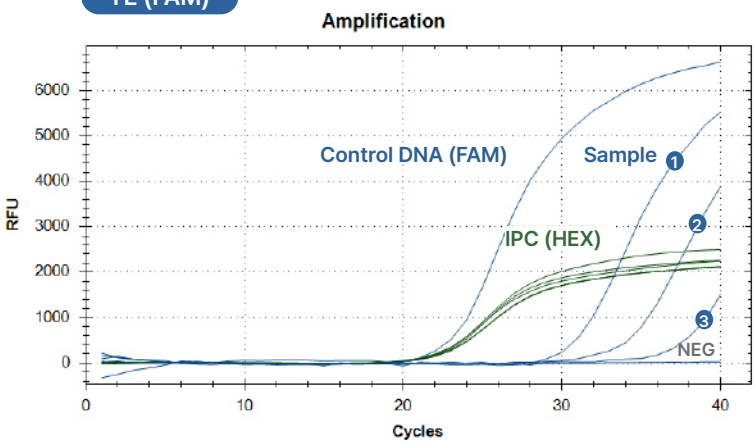
+ Comfirmatory diagnosis of CEM
+ Suitable for screening of CEM outbreak

Performance

Test	Results
Analytical Sensitivity (LoD)	DNA : ≤ 10 copies/ul
Analytical Specificity (Cross-reaction)	No Cross-reactivity with KP, PA, TA, SZ, JEV, Influenza etc.
Clinical Sensitivity	95.9% (71/74)
Clinical Specificity	94.9% (150/158)

Technical Data

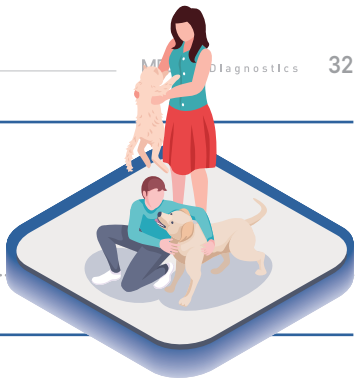
TE (FAM)



Order Information

Cat No.	Product Name	Quantity
NH-CEM-31	VDx® CEM qPCR	96 Tests/Box

VDx® COVID-19 qRT - PCR



COVID-19

A novel coronavirus infection was identified in December 2019, which confirmed as severe acute respiratory syndrome caused by infection with a new Betacoronavirus. The World Health Organization (WHO) named this new coronavirus as "SARS-CoV-2" and the disease as "COVID-19" that has been causing hundreds of thousands of confirmed human infections worldwide. In addition, the number of cases in which companion animals, including dogs and cats, are infected with COVID-19 is increasing.
VDx® COVID-19 qRT-PCR is a real-time RT-PCR based test for detection of COVID-19 RNA.

Introduction

+ **Intended use** : Detection of COVID-19 (SARS-CoV-2) RNA
+ **Species** : Dog and Cat
+ **Specimens** : Oral and nasal swabs
+ **Target gene** : SARS-CoV-2 ORF1b gene, RdRp gene

Features

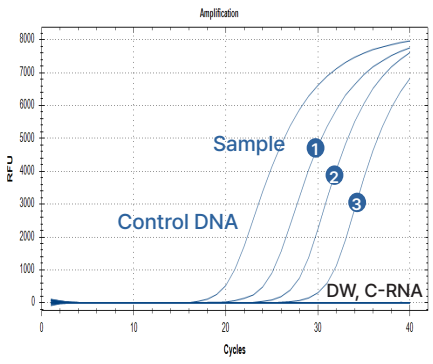
+ COVID-19 qRT-PCR kit for companion animals (Dog, Cat)

Performance

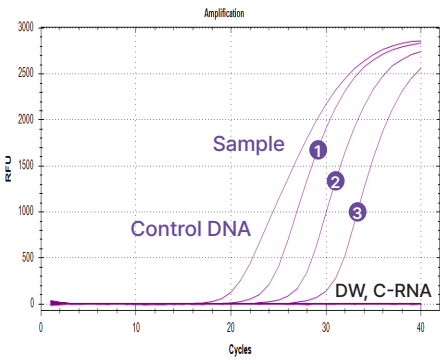
Test	Results
Analytical Sensitivity (Limit of Detection, LoD)	5 copies/ul
Analytical Specificity (Cross-reaction)	No Cross-reactivity with 7 other pathogens (Canine parvovirus, Canine distemper virus, Feline Leukemia virus, Canine influenza, Feline immunodeficiency virus, Canine coronavirus, Feline coronavirus)
Clinical Sensitivity	100% (140/140) Nasal swab 70ea, Oral swab 70ea of dog and cat
Clinical Specificity	100% (203/203)

Technical data

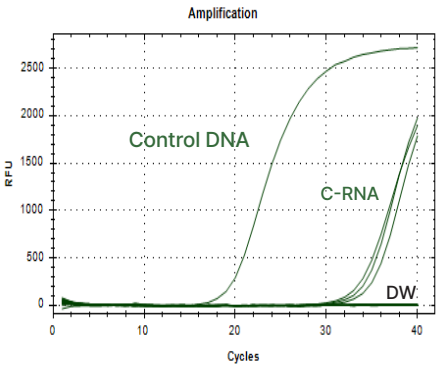
ORF1b (FAM)



RdRp (Cy5)



IPC (HEX)

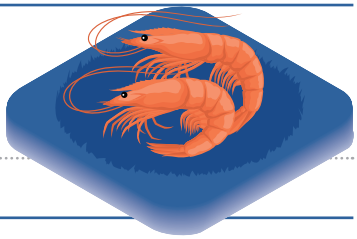


*C-RNA: COVID-19 negative canine sample

Order Information

Cat No.	Product Name	Quantity
NM-CVD-32	VDx® COVID-19 qRT-PCR	96 Tests/Box

VDx® Shrimp PCR products



Shrimp's disease conventional PCR

SHRIMP'S DISEASE

VDx® Shrimp PCR products are used for diagnosis of shrimp diseases by PCR method.

Introduction

+ **Intended use** : Detection of 11 types of Shrimp's diseases
+ **Target diseases** : AHPND, DIV-1, EHP, IHHNV, IMNV, MrNV, NHPB, PvNV, TSV, WSSV, YHV
+ **Method** : Conventional PCR or Nested PCR

Features

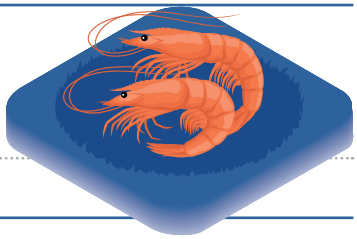
+ A total of 11 products provide various diagnostic solutions for 11 types of shrimp diseases.
+ Passed the Ring test in the WOAH Reference Lab.

Order Information

* Nested PCR
**Multiplex PCR

Cat.No.	Product name	Target disease
NPr-AHP-11*	VDx® AHPND nested PCR	Acute hepatopancreatic necrosis disease (AHPND)
NPr-DIV-11*	VDx® DIV1 nested PCR	Decapod iridescent virus 1 (DIV-1)
NPr-EHP-11	VDx® EHP PCR	*Enterocytozoon hepatopenaei* (EHP)
NPr-IHV-11**	VDx® IHHNV MP PCR	Infectious hypodermal and haematopoietic necrosis virus (IHHNV)
NPr-IMV-11*	VDx® IMNV nested RT-PCR	Infectious myonecrosis virus (IMNV)
NPr-MNV-11	VDx® MrNV RT-PCR	*Macrobrachium rosenbergii nodavirus* (MrNV)
NPr-NHP-11	VDx® NHPB PCR	Necrotizing hepatopancreatitis bacterium (NHPB)
NPr-PNV-11	VDx® PvNV RT-PCR	*Penaeus vannamei nodavirus* (PvNV)
NPr-TSV-11	VDx® TSV RT-PCR	Taura syndrome virus (TSV)
NPr-WSV-11*	VDx® WSSV nested PCR	White spot syndrome virus (WSSV)
NPr-YHV-11	VDx® YHV RT-PCR	Yellow Head Virus (YHV)

VDx® Shrimp qPCR products



Shrimp's disease real-time PCR

SHRIMP'S DISEASE

VDx® Shrimp qPCR products are used for diagnosis of shrimp diseases by real-time PCR method.

Introduction

+ **Intended use** : Detection of 11 types of Shrimp's diseases
+ **Target diseases** : AHPND, DIV-1, EHP, IHHNV, IMNV, MrNV, NHPB, PvNV, TSV, WSSV, YHV
+ **Method** : Real-time PCR (qPCR)

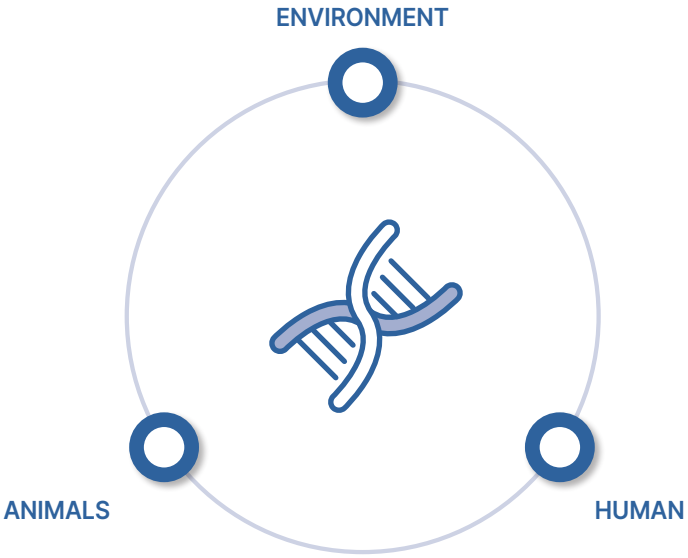
Features

+ A total of 11 products provide various diagnostic solutions for 11 types of shrimp diseases.
+ Shrimp disease-specific genes are detected with high sensitivity and specificity using TaqMan probes.
+ Passed the Ring test in the WOAH Reference Lab.

Order Information

Cat.No.	Product name	Target disease
NPr-AHP-31	VDx® AHPND qPCR	Acute hepatopancreatic necrosis disease (AHPND)
NPr-DIV-31	VDx® DIV1 qPCR	Decapod iridescent virus 1 (DIV-1)
NPr-EHP-31	VDx® EHP qPCR	*Enterocytozoon hepatopenaei* (EHP)
NPr-IHV-31	VDx® IHHNV qPCR	Infectious hypodermal and haematopoietic necrosis virus (IHHNV)
NPr-IMV-31	VDx® IMNV qRT-PCR	Infectious myonecrosis virus (IMNV)
NPr-MNV-31	VDx® MrNV qRT-PCR	*Macrobrachium rosenbergii nodavirus* (MrNV)
NPr-NHP-31	VDx® NHPB qPCR	Necrotizing hepatopancreatitis bacterium (NHPB)
NPr-PNV-31	VDx® PvNV qRT-PCR	*Penaeus vannamei nodavirus* (PvNV)
NPr-TSV-31	VDx® TSV qRT-PCR	Taura syndrome virus (TSV)
NPr-WSV-31	VDx® WSSV qPCR	White spot syndrome virus (WSSV)
NPr-YHV-31	VDx® YHV qRT-PCR	Yellow Head Virus (YHV)

2025-01E



"For One Health"

MEDIAN Diagnostics

HEAD OFFICE : 878, Sunhwan-daero, Dongnae-myeon, Chuncheon-si, Gangwon-do, KOREA
TEL. +82-33-244-0100 **FAX.** +82-33-244-4634
SEOUL OFFICE : C-1114, SK V1 GL Metrocity, 128, Beobwon-ro, Songpa-gu, Seoul, KOREA
TEL. +82-2-3401-0110 **FAX.** +82-2-3401-0112 **E-MAIL** median@mediandx.com **HOME PAGE** www.mediandiagnostics.com