

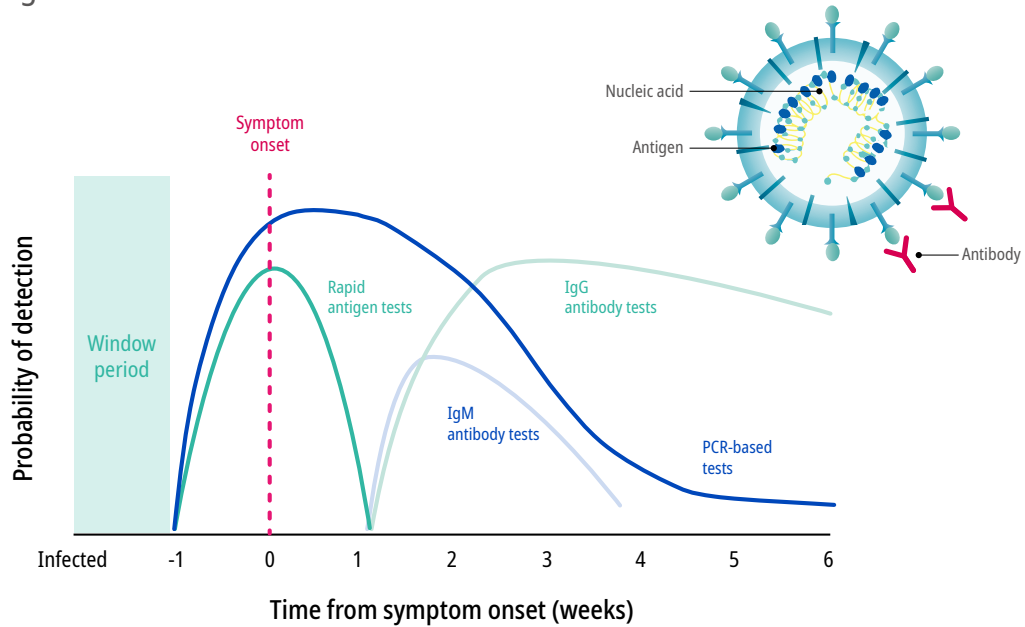
Vcheck M

State-of-the-art POC Molecular Diagnostic System



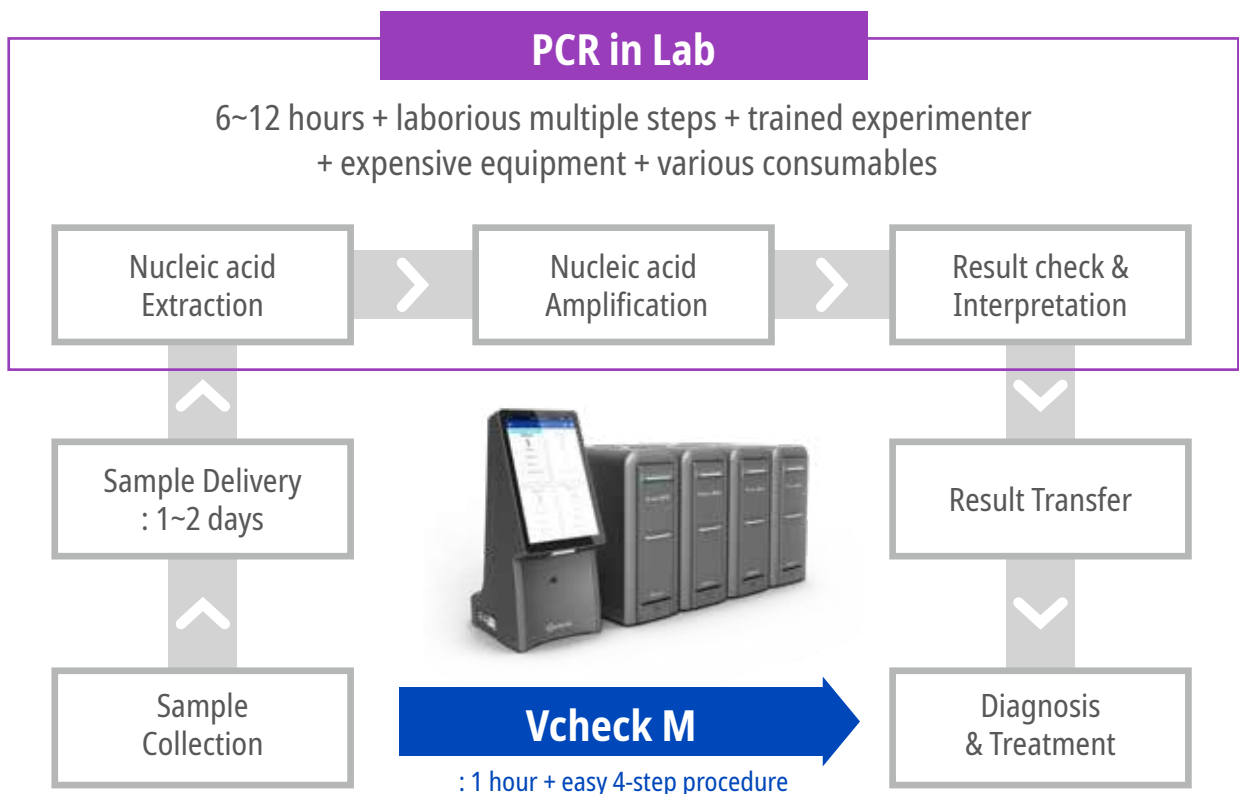
Why PCR?

- High sensitivity & specificity ▶ Accurate result
- Earlier diagnosis ▶ Effective treatment



* Reference: Giorgia Guglielmi, Fast coronavirus tests: what they can and can't do, Nature 585, 496-498 (2020)

Limitations of existing PCR



Vcheck M10 Analyzer

Fast Results

Sample in → Result out
in about 1 hour

Multiplex

Maximum 12 targets
in a cartridge

Various Setting

Applicable for various species,
sample types, pathogens



Simple Procedure

Automated extraction,
amplification,
and data analysis

Good Accuracy

High sensitivity
and specificity

Modular & Scalable

Scalable configuration with
up to 8 modules

**Vcheck M10 can be used anywhere diagnostics are needed,
from vet clinics to specialized laboratory**



Vet clinic



Laboratory

Vcheck M10



M10 Console

Simple & Easy Controller
Accurate Data Manager

- 10.1" touch screen
- Internal barcode scanner
- User friendly interface with animated guide
- Stored up to 5,000 results
- Seamless connectivity (LIS/HIS)
- Accurate data analysis algorithm

M10 Module

Randomly
Accessible Analyzer

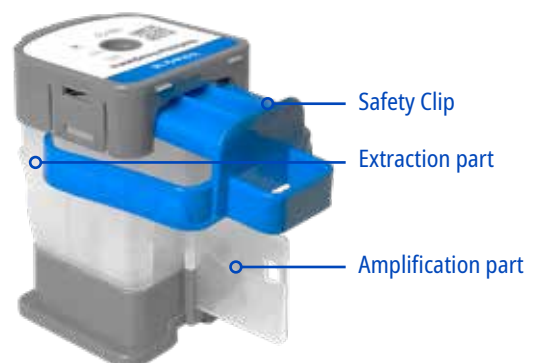
- Minimum maintenance requirements
- Intuitive status indicator
- Compact size
- Easy connection between Modules
- Customized configuration up to 8 modules



Vcheck M Cartridge

All-in-one Cartridge
Multiplex assay up to 12-Plex

- Simple 'Sample-in Result-out' workflow
- Result in an hour
- Reliable result by accumulated technologies
- Multiplex assay up to 12-plex including IC
- Room temperature storage
- Prevention of contamination & easy disposal



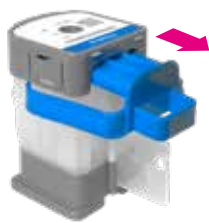
Easy 4-step test procedure

1 Scan the sample ID

2 Scan the cartridge code

3 Apply the sample & close the cartridge

4 Insert the cartridge



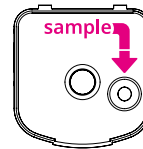
Remove the safety clip



Press down the lid



Dispense the sample



Close the lid

Automatic Result Reading

- No need to set threshold or read result according to cut-off
- Ct value and amplification curve can be checked

Summary



Amplification



Details



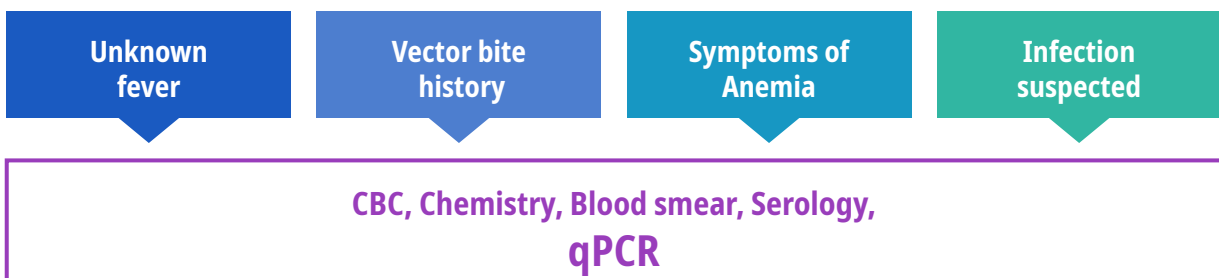
Canine Vector-borne/Anemia disease

Disease Summary

Vector	Disease	Pathogen	Clinical signs
Tick	Ehrlichiosis	<i>Ehrlichia</i> spp. <i>E. canis</i> , <i>E. ewingii</i> , <i>E. chaffeensis</i>	lymphadenopathy, cough, bleeding disorder
	Anaplasmosis	<i>Anaplasma</i> spp. <i>A. phagocytophilum</i> , <i>A. platys</i>	lameness, joint pain
	Babesiosis	<i>Babesia</i> spp. <i>B. gibsoni</i> , <i>B. canis canis</i> , <i>B. canis vogeli</i> , <i>B. canis rossii</i>	Hemolysis, red urine, splenomegaly, jaundice
	Rocky mountain spotted fever	<i>Rickettsia</i> sp. <i>R. rickettsii</i>	muscle/joint pain, cough, vomiting, diarrhea, edema
	Hepatozoonosis	<i>Hepatozoon</i> spp. <i>H. americanum</i> , <i>H. canis</i>	lymphadenopathy, muscle pain, eyes/nose discharge
	Lyme Borreliosis	<i>Borrelia</i> spp. <i>B. burgdorferi</i> , <i>B. afzelii</i> , <i>B. garinii</i>	lameness, renal disease, cardiac disease, hepatic disease
Flea	Hemoplasmosis	<i>Mycoplasma</i> spp. <i>M. hemocanis</i>	hemolysis, pallor
	Bartonellosis	<i>Bartonella</i> spp. <i>B. henselae</i> , <i>B. koehlerae</i>	lymphadenopathy, muscle pain, vomiting, diarrhea, cough
Sand fly	Leishmaniosis	<i>Leishmania</i> spp. <i>L. infantum</i> , <i>L. donovani</i> , <i>L. mexicana</i>	lymphadenopathy, diarrhea, vomiting, alopecia, skin lesions
-	Leptospirosis	<i>Leptospira</i> spp. <i>L. autumnalis</i> , <i>L. grippityphosa</i> , <i>L. bratislava</i> , <i>L. pomona</i> , <i>L. canicola</i> , <i>L. icterohaemorrhagiae</i>	bleeding, jaundice, vomiting, diarrhea, abdominal discomfort

Diagnosis

- Help confirm the pathogen causing clinical signs
- Selection of appropriate treatment regimen
- Early prevention of spread of pathogens
- Minimize human exposure to pathogens

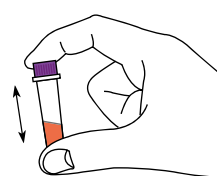


Vcheck M cartridge for Vector/Anemia panel

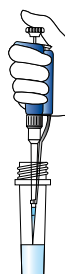
Specification

Product Name	Ehrlichia/ Anaplasma	Babesia gibsoni/canis	Canine Vector 8 Panel	Canine Anemia 8 Panel
Detection target	<i>Ehrlichia</i> spp., <i>Anaplasma</i> spp.	<i>Babesia gibsoni</i> , <i>Babesia canis</i>	<i>Ehrlichia</i> spp., <i>Hepatozoon</i> spp., Hemoplasma, <i>Anaplasma</i> spp., <i>Rickettsia rickettsii</i> , <i>Babesia</i> spp.	
			<i>Leishmania</i> spp., <i>Bartonella</i> spp.	<i>Borrelia</i> spp., <i>Leptospira</i> spp.
Species	Canine, Feline	Canine	Canine	Canine
Sample	Whole blood (EDTA) 100 µl			
Testing Time	70 min.	60 min.	70 min.	70 min.
Results	Qualitative & Semi-quantitative (Ct value, Amplification curve)			
Storage Temp.	2~28 °C			
Shelf life	12 months			
Packing Unit	5 Tests/Kit			

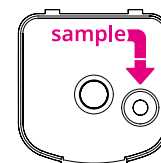
- Sample dilution : Blood 100 µl + Buffer 500 µl ► Dispense 600 µl



EDTA tube
(purple cap)



Buffer tube
(yellow cap)



Clinical Performance

Product	Test Category	Sen.	Spe.	Comparison test	Confirmation test
Ehrlichia/Anaplasma	<i>Ehrlichia</i> spp.	100%	100%	Real-time PCR ¹	Sequencing
	<i>Anaplasma</i> spp.	100%	100%	Real-time PCR ¹	Sequencing
Babesia gibsoni/canis	<i>Babesia gibsoni</i>	100%	100%	Real-time PCR ²	Sequencing
	<i>Babesia canis</i>	100%	100%	Nested PCR ³	Sequencing

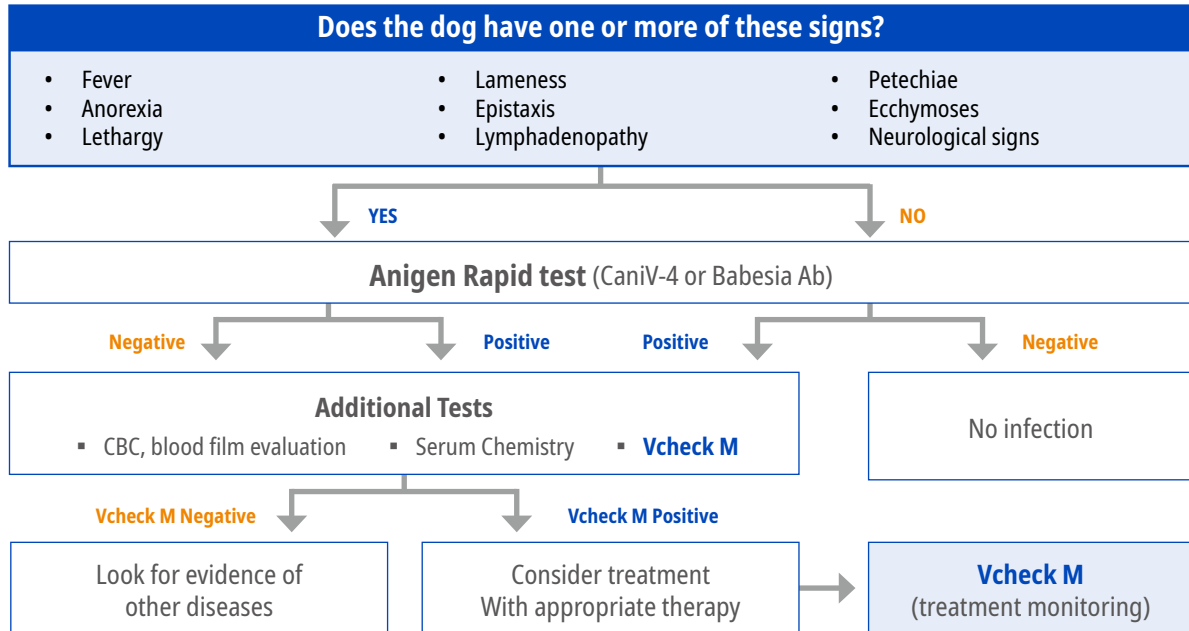
1. SD Biosensor, Inc. R&D department

2. Commercial laboratory in Korea

3. College of veterinary medicine in Poland

Vcheck M cartridge for Vector/Anemia panel

Diagnostic Algorithm



Ordering Information

Analyzer

Product	Contents	Cat No.
Vcheck M10 Console	M10 Console (Operational module)	VCM752EA
Vcheck M10 Module	M10 Module (Analytical module)	VCM753EA

Cartridge

Product	Pathogen	Cat No.
Vcheck M Ehrlichia/Anaplasma	<i>Ehrlichia</i> spp., <i>Anaplasma</i> spp.	VCM101AC
Vcheck M Babesia gibsoni/canis	<i>Babesia gibsoni</i> , <i>Babesia canis</i>	VCM102AC
Vcheck M Canine Vector 8 Panel	<i>Ehrlichia</i> spp., <i>Hepatozoon</i> spp., Hemoplasma, <i>Anaplasma</i> spp., <i>Rickettsia rickettsii</i> , <i>Babesia</i> spp., <i>Leishmania</i> spp., <i>Bartonella</i> spp.	VCM104AC
Vcheck M Canine Anemia 8 Panel	<i>Ehrlichia</i> spp., <i>Hepatozoon</i> spp., Hemoplasma, <i>Anaplasma</i> spp., <i>Rickettsia rickettsii</i> , <i>Babesia</i> spp., <i>Borrelia</i> spp., <i>Leptospira</i> spp.	VCM105AC
Vcheck M FIV/FeLV	FIV, FeLV	VCM109AC
Vcheck M Canine Diarrhea 8 Panel	Canine parvovirus type 2 (CPV-2), Enteric coronavirus (CECoV), Canine distemper virus (CDV), <i>Giardia</i> spp., <i>Cryptosporidium</i> spp., <i>Salmonella</i> spp., <i>Clostridium perfringens</i> , <i>Campylobacter</i> spp.	VCM107AC
Vcheck M Feline Diarrhea 8 Panel	Feline panleukopenia virus (FPV), Feline coronavirus (FCoV), <i>Giardia</i> spp., <i>Trichostrongylus axei</i> , <i>Toxoplasma gondii</i> , <i>Salmonella</i> spp., <i>Campylobacter</i> spp., <i>Cryptosporidium</i> spp.	VCM108AC