



VetMAX MAP IS900-F57 Kit

A rapid and specific diagnostic solution that combines screening and confirmation of *Mycobacterium avium* subsp. *paratuberculosis* (MAP) in one real-time PCR application

Features

The combined use of different diagnostic test methods, such as ELISA and real-time PCR tests, helps to identify and remove shedders earlier, thus helping to reduce the hazard of infection for other healthy animals.

The Applied Biosystems™ VetMAX™ MAP IS900-F57 Kit offers rapid and specific detection of MAP and is used for epidemiological surveillance and the identification of shedding animals. The test is part of a fully integrated, single-vendor workflow that includes the Applied Biosystems™ MagMAX™ system for sample preparation and extraction and the Applied Biosystems™ 7500 Real-Time PCR System.

Benefits

Confidence in results

- One PCR, two answers—screening and confirmation in one single PCR reaction
- Sample flexibility—use with a wide range of samples in the same workflow
- Improved sensitivity compared to culture, with faster results—from feces to PCR results in ~4 hours
- Earlier detection compared to ELISA
- Technical support and training from a dedicated animal health team

Paratuberculosis

Johne's disease, or paratuberculosis, is a worldwide animal health problem affecting ruminants that is caused by infection with MAP. The presence of the disease can have serious production-limiting consequences and may cause significant economic loss in herds. The disease is difficult to diagnose because of long incubation times. The identification of subclinical disease in animals, which can shed the organism over long periods and thus be the source of infection for other members of the herd, is crucial for disease control.

Results

As the most commonly used multiple locus, IS900 can also be found in other mycobacteria and is therefore less specific. Fragment F57, on the other hand, was found to be highly specific for MAP. Combining both targets in one PCR gives the benefits of a highly sensitive PCR with increased specificity. In a field study, 300 fecal samples were tested with the VetMAX MAP IS900-F57 Kit to evaluate the performance of the test. The samples had previously validated positive (150) or negative (150) with the culture method.

The VetMAX MAP IS900-F57 Kit demonstrated high reliability in identifying culture-positive fecal samples (high diagnostic sensitivity of 96%); however, a high number of culture-negative samples were positive in the triplex PCR (low diagnostic specificity). This is a consequence of the significant difference in sensitivities of culture and the PCR, which was reported to be 3 orders of magnitude in favor of the PCR test.*

Interpretation of results

The VetMAX MAP IS900-F57 Kit is designed to deliver highly specific results by combining screening and confirmation in one single PCR. Internal controls that prove correct extraction and amplification help prevent false-negative results.

IS900 target (FAM™ dye)	F57 target (VIC™ dye)	IPC target (Cyanine Red dye)	Interpretation
C _t <45	C _t <45	C _t <45 or C _t >45	<i>M. paratuberculosis</i> is detected.
C _t <33	C _t >45	C _t <45 or C _t >45	<i>Mycobacterium</i> detected is not <i>M. paratuberculosis</i> . IS900 target detected belongs to other mycobacteria.
C _t >33	C _t >45	C _t <45 or C _t >45	<i>M. paratuberculosis</i> is not confirmed.
C _t >45	C _t >45	C _t = C _t IPC of extraction control ±3 C _t	<i>M. paratuberculosis</i> is not detected.
C _t >45	C _t >45	C _t is outside this range: C _t IPC of extraction control ±3 C _t	Invalid result due to noncompliant result from the internal control.

Samples

Usable matrices

Validated for multiple matrices:

- Feces
- Bacterial colonies
- Organs
- Broth culture

Validated for multiple species:

- Cattle
- Goat
- Sheep

Workflow is optimized for 2 g feces, which helps increase probability of detection of MAP clusters

Nucleic acid extractions

Applied Biosystems™ MagMAX™ CORE solutions

- Designed to purify DNA away from PCR inhibitors in feces
- Optimize nucleic acid extraction for the lysis-resistant MAP bacteria
- Automate for higher-throughput sample processing using the Applied Biosystems™ MagMAX™ Express-96 Magnetic Particle Processor

Amplification

VetMAX MAP IS900-F57 Kit

- Double-check sample for combined high sensitivity and specificity
- Test with single-well triplex real-time PCR based on IS900 and F57 target genes
- Achieve diagnostic sensitivity of up to 96%
- Enable reliable results with optimized master mix that reduces PCR inhibitors
- Helps prevent false-negative results with controls that prove correct extraction and amplification

Ordering information

Product	Type	Quantity	Cat. No.
VetMAX MAP IS900-F57 Kit	Real-time PCR	100 tests	TMPT
Workflow products			
MagMAX CORE Nucleic Acid Purification Kit	Sample prep	100 reactions	A32700
MagMAX CORE Mechanical Lysis Module	Sample prep	192 preps	A32836
MagMAX CORE Glass Microbeads	Sample prep	100 reactions	A37489
KingFisher Flex Purification System with 96 Deep-Well Head	Sample prep	1 instrument	5400630
7500 Real-Time PCR System with Dell Notebook	Analysis	1 instrument	4363917
Related products			
VetMAX <i>M. paratuberculosis</i> 2.0 Kit	Real-time PCR	100 tests	MPTSA
VetMAX MAP Screening Kit	Real-time PCR	100 tests	4468847
PrioCHECK MAP Ab 2.0 Plate Kit	ELISA	5-plate kit (460 samples)	63325
		30-plate kit (2,760 samples)	63328
PrioCHECK Ruminant MAP Ab Serum Plate Kit	ELISA	480 tests (5 plates)	VETPTRS5

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