Venor® GeM Classic

Mycoplasma Detection Kit for conventional PCR

INSTRUCTIONS FOR USE

FOR USE IN RESEARCH AND QUALITY CONTROL

SYMBOLS

Lot No.

Cat. No.

Expiry date

Storage temperature

Number of reactions

Manufacturer

INDICATION

The Venor® GeM Classic kit is designed for the detection of *Mollicutes*, such as *Mycoplasma* (frequently used interchangeably with *Mollicutes*), *Acholeplasma*, and *Spiroplasma*, in cell cultures and other biological matrices.

The Venor® GeM Classic kit is based on conventional (or endpoint) PCR, as the established method of choice for rapid, robust, and sensitive detection of mycoplasma contamination. The assay targets a highly conserved region within the mycoplasma genome to detect all species included in the *European Pharmacopoeia* Chapter 2.6.7 (EP 2.6.7), in the *Japanese Pharmacopoeia* Chapter G3 (JP G3) and many more (see list in the section "Assay Characteristics").

The kit design meets the test criteria of the EP 2.6.7 and JP G3 with different kinds of sample material (e.g. cell culture supernatant, cell culture media, Tris buffer). The assay is suitable for direct mycoplasma detection in cell culture supernatants usually applicable in research, for the "cell culture enrichment" method, or after DNA extraction. The kit fully complies with the requirements of EP 2.6.7 and JP G3.

TEST PRINCIPLE

Mollicutes are specifically detected by amplifying the 16S rRNA coding region, whereas eukaryotic and other bacterial DNA (except those reported in the section "Assay Characteristics") are not amplified in the Venor® GeM Classic assay. Depending on the mycoplasma species, the amplicon is in the 265-278 bp size range. The kit contains lyophilized components such as Primer/Nucleotide Mix, Internal Control DNA, Positive Control DNA as well as 10x Reaction Buffer and PCR Grade Water. Taq polymerase needs to be supplied by the user.

The instructions for use include protocols for both screening of cell culture supernatants as well as EP- and JP-compliant testing with defined DNA extraction and sample volume specifications. The entire test requires less than 3 hours, and, in contrast to methods like luminescence-based enzyme assays, fluorescent staining, or culture methods, does not require viable mycoplasma cells. Notably, the detection of mycoplasma by PCR is considered to be superior in terms of sensitivity and precision in comparison to several biochemical and cellular approaches.

The Internal Control DNA as well as the Positive Control DNA are tools to assess the assay performance. The Internal Control DNA gives rise to a 191 bp amplicon.

The kit contains dUTP instead of dTTP to facilitate the degradation of amplicon carry-over by use of uracil-DNA glycosylase (UNG). Thus, the probability of false positive results is minimized.
Please note that UNG is not included in the Venor® GeM Classic kit.

CONTENT

Each kit contains reagents for 25, 100, or 250 reactions. The expiry date of the unopened package is marked on the package label. The kit components must be stored at +2 °C to +8 °C until use. The rehydrated components must be stored at ≤-18 °C until the expiry of the labelled shelf life.

Component	Quantity				Cap color
	25 Reactions Cat. No. 11-1025	50 Reactions Cat. No. 11-1050	100 Reactions Cat. No. 11-1100	250 Reactions Cat. No. 11-1250	
Primer/Nucleotide Mix	1 vial, lyophilized	2 vial, lyophilized	4 vials, lyophilized	10 vials, lyophilized	red
10x Reaction Buffer	1 vial, 0.5 ml	1 vial, 0.5 ml	1 vial, 0.5 ml	2 vials, 0.5 ml	blue
Positive Control DNA	1 vial, lyophilized	1 vial, lyophilized	1 vial, lyophilized	1 vial, lyophilized	green
Internal Control DNA	1 vial, lyophilized	1 vial, lyophilized	1 vial, lyophilized	3 vials, lyophilized	yellow
PCR grade Water	1 vial, 2.0 ml	1 vial, 2.0 ml	2 vials, 2.0 ml	4 vials, 2.0 ml	white

The lot-specific quality control certificate (Certificate of Analysis) can be downloaded from our website (www.minervabiolabs.us / www.minervabiolabs.us).

USER-SUPPLIED CONSUMABLES AND EQUIPMENT

The Venor® GeM Classic kit contains PCR reagents for the specific detection of mycoplasma. Additional PCR consumables and equipment are supplied by the user:

- PCR cycler and suitable PCR reaction tubes
- 1.5 ml reaction tubes, DNA-free
- Microcentrifuge for 1.5 ml and PCR reaction tubes
- Pipettes with corresponding filter tips (10 µl, 100 µl, and 1000 µl)
- Hot-start DNA Taq polymerase (1 unit/reaction) – This test provides excellent results with MB Taq DNA polymerase (Cat. No. 53-0050/100/200/250 or 53-1050/-1100/-1200/-1250). The performance with other Taq polymerases must be tested.
- Agarose gel electrophoresis system including dye, marker, and loading buffer
- Explicitly required for EP 2.6.7 / JP G3 compliant testing:
  - DNA extraction kit, e.g. Venor® GeM Sample Preparation Kit (Cat. No. 56-1010/50/200)
- Optional for process validation and EP 2.6.7 / JP G3 compliant testing:
  - Internal Control DNA extra (Cat. No. 11-1905)
  - 10CFU™ Sensitivity Standards (Cat. No. 102-XX02) and 100CFU™ Sensitivity Standards (Cat. No. 103-XX03) for all EP / JP listed mycoplasma species
  - 10 mM Tris-HCl, pH 8.4
- Optional for carry-over prevention: Uracil DNA glycosylase (UNG)

SAMPLES FOR CELL CULTURE SCREENING

Samples should be collected when cell cultures reach 80 to 90% confluence. Cell culture supernatants are very well suited for the mycoplasma test and do not require additional sample preparation. However, many PCR-inhibiting substances may accumulate in the cell culture medium. In this case, DNA extraction prior to PCR would be required (see "DNA extraction" below for further information). Note that penicillin or streptomycin in the culture media are not known to inhibit mycoplasma nor affect the the sensitivity of the test.

The average mycoplasma titer in cell culture is $\sim 10^6$ particles per ml, with a maximum of 10^8 particles per ml. Within this range, a sufficient amount of mycoplasma DNA is present in the supernatant for successful application of the PCR test. Prepare the PCR template as follows:

1.	Transfer 100 µl of the supernatant from the cell culture to a 1.5 ml reaction tube. Close the lid tightly.
2.	Incubate the sample supernatant at 95 °C for 10 min (at least 5 min).
3.	Centrifuge the sample at max. speed for 15 s to pellet cellular debris.
4.	Use 2 µl directly for PCR, or store the sample for up to 6 days at +2 °C to +8 °C or at ≤-18 °C for long-term storage.

Cell pellets cannot be used directly for the test due to the negative influence of cell debris on the PCR reaction. Cell pellets, higher PCR input volumes (> 2 µl), or other biological materials such as foetal calf serum (FCS, >5%), vaccines, cryo stocks, and paraffin-embedded samples require DNA extraction prior to PCR.
The Venor® GeM Classic kit was tested with Venor® GeM Sample Preparation Kit (Cat. No. 56-1010/-1050/-1200) for DNA extraction. Extracted DNA may be stored at +2 °C to +8 °C for up to 6 days. Long-term storage must be at ≤-18 °C.

SAMPLES FOR EP 2.6.7 /JP G3 COMPLIANT TESTING

EP- and JP-compliant testing require mycoplasma DNA extraction. The sample material or volume may vary. Follow the sample concentration protocol on the next page if the sample volume is > 200 µl. Specimen should be stabilized after sampling if DNA extraction cannot be done immediately.

Sample stabilization (optional)

Cell culture samples are likely to contain high concentrations of DNases, which will degrade mycoplasma DNA even at low temperatures. Therefore, we recommend the following steps to stabilize the sample. This step can be omitted if DNA extraction is performed immediately after sample collection.

1.	Transfer 500 µl of cell culture or cell culture supernatant to a 1.5 ml reaction tube. Close the lid tightly.
2.	Incubate the sample at 95 °C for 10 min.
3.	Centrifuge the sample at max. speed briefly (15 sec) to pellet cellular debris.
4.	Use the supernatant for DNA extraction. Store the sample for up to 6 days at +2 to 8 °C or at ≤-18 °C for long term storage.

DNA Extraction (required)

A substantial body of evidence shows that DNA extraction is required to achieve the highest level of sensitivity. Numerous DNA extraction methods are established for a vast variety of sample materials. However, the DNA extraction method must be compatible with the mycoplasma- and sample-specific characteristics. For EP- and JP-compliant testing, the DNA extraction method must be tested in combination with the PCR kit.

We recommend our Venor® GeM Sample Preparation Kit (Cat. No. 56-1010/-1050/-1200). This DNA extraction kit was extensively tested for this purpose. Please see the Instructions for Use of the Venor® GeM Sample Preparation Kit for the detailed protocol.

Sample concentration (optional)

For sample volumes >200 µl, a concentration step is recommended to achieve optimal sensitivity. Please note that the sample concentration protocol works only with intact mycoplasma cells. Therefore, any procedure disrupting the cells (e.g. by heat inactivation) prior to sample concentration must be avoided. Samples up to 200 µl volume can be processed directly without the sample concentration step.

1.	Transfer up to 1 ml supernatant of the sample into a 1.5 ml reaction tube.
2.	Centrifuge the sample at ≥10,000 × g for 15 min (or ≥13,000 × g for 6 min) to pellet mycoplasma particles.
3.	Discard the supernatant and re-suspend the pellet in 200 µl Tris buffer (10 mM Tris-HCl, pH 8.4).
4.	Vortex the sample briefly and proceed immediately with sample stabilization or DNA extraction.

RECOMMENDATIONS

According to EP 2.6.7 / JP G3 a sensitivity of 10 CFU/ml must be demonstrated. The sample material can be spiked with 10 CFU of inactivated mycoplasma by using special reference materials (10CFU™ Sensitivity Standards, Cat. No. 102-XX03) and processed in parallel.

Ideally, the Internal Control DNA of the Venor® GeM Classic kit is used to validate the DNA extraction step as well. Please note that the actual sample volume that will be spiked is not relevant for the required volume of Internal Control DNA. The volume of Internal Control DNA depends on the final elution volume (containing the DNA extract) of the DNA extraction step. In general, add 5 µl per 10 µl DNA extract directly to the sample, vortex briefly and proceed with the DNA extraction. (Example: add 30 µl Internal Control DNA to the original sample if the elution volume will be 60 µl Elution Buffer). Do not add further Internal Control DNA to the PCR master mix if the internal control was already added to the sample. The Internal Control DNA can be purchased separately (Internal Control DNA Extra, Cat. No. 11-1905).

Caution: Please note that the Positive Control DNA is not recommended for validation purposes or as extraction control.

REMARKS ON EP 2.6.7 / JP G3 COMPLIANT VALIDATION

Please note that validation data are provided for information purpose only, containing basic information on specificity and sensitivity. EP 2.6.7 clearly states “Where commercial kits are used […], documented validation points already covered by the kit manufacturer can replace validation by the user. Nevertheless, the performance of the kit with respect to its intended use has to be demonstrated by the user (e.g. detection limit, robustness, cross-detection of other classes of bacteria)“. A similar statement is included in the JP G3. Please contact us for further assistance.

PRECAUTIONS

The Venor® GeM Classic kit is intended for in vitro use only. The kit should be used by trained laboratory staff only.

All samples should be considered as potentially infectious and handled with all due care and attention. Always wear a suitable lab coat and disposable gloves.

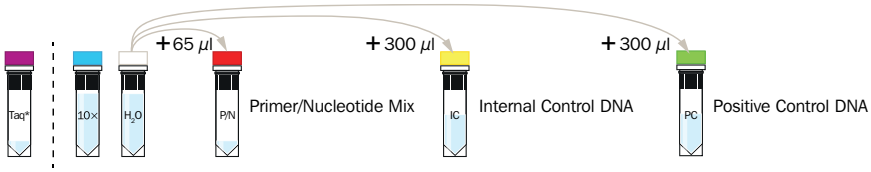
This kit does not contain hazardous substances. Remnants can be discarded according to local regulations.

IMPORTANT NOTES

- These instructions must be understood to successfully use the Venor® GeM Classic kit. The reagents supplied should not be mixed with reagents from different lots and used as an integral unit. The reagents of the kit must not be used beyond the expiry date.
- Follow the exact protocol. Any deviation may affect the test method and the results.
- It is important to include control samples on a regular basis to monitor the reliability of your results. Positive and negative controls are essential in case of troubleshooting. Use fresh cell culture medium or elution buffer for the negative controls in case of extracted DNA.
- Avoid carry-over contaminations by preparing the positive controls after the negative controls and test reactions and, whenever possible, in separated work areas.
- PCR inhibition is likely to be caused by the sample matrix, or, in case of extracted DNA, by the elution buffer. Thus, we recommend our Venor® GeM Sample Preparation Kit. Any other DNA extraction kit needs to be validated.

PROCEDURE - OVERVIEW

1. Reagent preparation



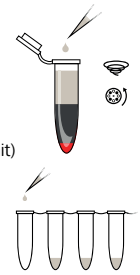
5 min briefly 5 sec

2. Reaction mix preparation

for cell culture screening

mix components**
- 14.5 µl H_2O
- 2.5 µl 10×
- 2.5 µl P/N
- 2.5 µl IC
- 1.0 µl Taq* (1 unit)

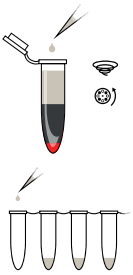
aliquot 23 µl



for EP/JP testing

mix components**
- 6.5 µl H_2O
- 2.5 µl 10×
- 2.5 µl P/N
- 2.5 µl IC
- 1.0 µl Taq* (1 unit)

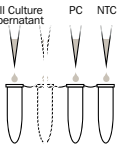
aliquot 15 µl



3. Add samples

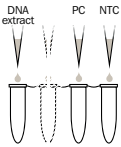
+ 2 µl Cell Culture supernatant, PC, NTC

briefly



+ 10 µl DNA extract, PC, NTC

briefly



4. PCR amplification

1 cycle	94 iC for 2 min
39 cycles	94 iC for 30 sec
	55 iC for 30 sec
	72 iC for 30 sec
hold	4 - 10 iC

5. Gel electrophoresis

+ add vortex incubate centrifuge * Taq Polymerase is not provided with this kit ** example composition

This procedure overview is not a substitute for the detailed manual.

PROCEDURE - STEP BY STEP

1. Reagent preparation

1.	Primer/Nucleotide Mix Internal Control DNA Positive Control DNA	red cap yellow cap green cap	Centrifuge all components at max. speed for 5 sec
2.	Primer/Nucleotide Mix	red cap	Add 65 µl PCR grade Water (white cap) For sample kit only: Add 15 µl PCR grade Water
3.	Internal Control DNA	yellow cap	Add 300 µl PCR grade Water (white cap)
4.	Positive Control DNA	green cap	Add 300 µl PCR grade Water (white cap)
5.	Primer/Nucleotide Mix Internal Control DNA Positive Control DNA	red cap yellow cap green cap	Incubate at room temperature for 5 min
6.	Primer/Nucleotide Mix Internal Control DNA Positive Control DNA	red cap yellow cap green cap	Vortex briefly and spin down for 5 sec

After reconstitution, the reagents must be stored at ≤-18 °C until the expiry of the labelled shelf life. Repeated freeze-thaw-cycles should be avoided. For small sample numbers, we recommend preparing aliquots of reconstituted Classic PCR Mix, the Positive Control DNA and the Internal Control DNA.

2. Reaction mix preparation

Prepare the required amount of reaction mix at room temperature in a 1.5 ml reaction tube for all control and test reactions.

2a) Reaction mix for cell culture screening (2 µl sample volume)

1. Pipetting scheme using a Taq polymerase with a concentration of 5 U/µl:

	for 1 reaction	for 25 reactions
PCR grade Water	15.3 µl	382.5 µl
10x Reaction Buffer	2.5 µl	62.5 µl
Primer/Nucleotide Mix	2.5 µl	62.5 µl
Internal Control DNA	2.5 µl	62.5 µl
Polymerase (5U/ µl)	0.2 µl	5.0 µl

Pipetting scheme using a Taq polymerase with a concentration of 1 U/µl:

	for 1 reaction	for 25 reactions
PCR grade Water	14.5 µl	362.5 µl
10x Reaction Buffer	2.5 µl	62.5 µl
Primer/Nucleotide Mix	2.5 µl	62.5 µl
Internal Control DNA	2.5 µl	62.5 µl
Polymerase (1U/ µl)	1.0 µl	25.0 µl

2. Vortex the reaction mix briefly and spin down for 5 s.

3. Pipet 23 µl to each PCR tube, discard remaining material.

2b) Reaction mix for EP- / JP- / USP-compliant testing (10 µl sample volume)

Pipetting scheme using a polymerase with a concentration of 5 U/µl:

	for 1 reaction	for 25 reactions
PCR grade Water	7.3 µl	182.5 µl
10x Reaction Buffer	2.5 µl	62.5 µl
Primer/Nucleotide Mix	2.5 µl	62.5 µl
Internal Control DNA*	2.5 µl	62.5 µl
Polymerase (5 U/µl)	0.2 µl	5.0 µl

1. Pipetting scheme using a polymerase with a concentration of 1 U/µl:

	for 1 reaction	for 25 reactions
PCR grade Water	6.5 µl	162.5 µl
10x Reaction Buffer	2.5 µl	62.5 µl
Primer/Nucleotide Mix	2.5 µl	62.5 µl
Internal Control DNA*	2.5 µl	62.5 µl
Polymerase (1 U/µl)	1.0 µl	25.0 µl

* Add water instead if the Internal Control DNA was added to the sample prior to DNA extraction.

2. Vortex the reaction mix briefly and spin down for 5 s.
3. Pipet 15 µl to each PCR tube, discard remaining material.

3. Add samples

Set up negative (no template controls, NTCs) and positive controls in each PCR.

3a) for cell culture screening (2 µl sample volume)

1. Negative Controls: add 2 µl PCR grade Water (white cap).
2. Samples: add 2 µl of cell culture supernatant or DNA extract.
3. Positive Control: add 2 µl Positive Control DNA (green cap).
4. Close and spin all PCR tubes briefly, load the PCR cycler and start the program.

3b) for EP-/JP-compliant testing (10 µl sample volume)

1. Negative Controls: add 10 µl elution buffer from DNA extraction kit.
2. Samples: add 10 µl DNA extract.
3. Positive Control: add 2 µl Positive Control DNA (green cap) and 8 µl of PCR Grade Water (white cap).
4. Close and spin all PCR tubes briefly, load the PCR cycler and start the program.

4. Start PCR amplification

1.	Place the PCR tubes in the cycler and close the lid tightly.		
2.	Program the PCR cycler or choose appropriate stored temperature profiles.		
	1 cycle	94 °C for 2 min	
	39 cycles	94 °C for 30 sec	
		55 °C for 30 sec	
		72 °C for 30 sec	
	Hold between	+4 °C to +10 °C	
3.	Start the program.		

5. Agarose gel electrophoresis

Use your established gel electrophoresis system, agarose gel and DNA stain if compatible with PCR products between 200 and 300 bp. Otherwise follow this example:

1.	Prepare a 1.5 to 2.0% agarose gel including DNA stain (~5 mm thick, 5 mm comb).		
2.	Mix 5 µl from each PCR reaction with a suitable loading buffer and load the mix. Note: Bromophenol blue will run similarly to ~270 bp PCR fragments and may therefore mask the PCR product. Make sure to use bromophenol blue in a low concentration or other dyes such as Orange G or Xylene Cyanol.		
3.	Perform the gel electrophoresis (e.g. 20 min at 100 V). Visualize the PCR results on a suitable transilluminator.		
4.	Expected amplicon sizes:	Internal control	191 bp
		Mycoplasma spp.	265-278 bp

DATA INTERPRETATION

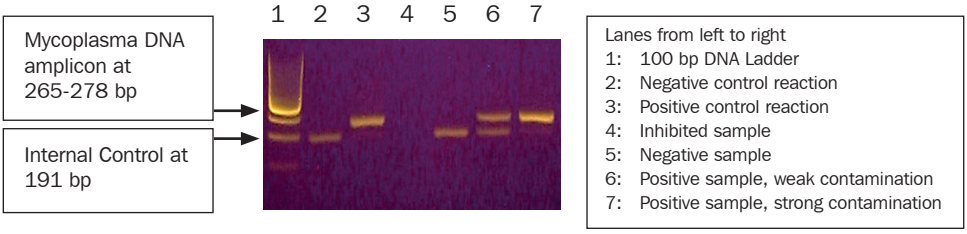
The Internal Control DNA gives rise to a distinct 191 bp band in every lane indicating a successfully performed PCR. Due to competition between the internal control and the target reaction, this band will fade out when large amounts of primary target are initially present (e.g. mycoplasma DNA input of $>10^3$ copies per PCR). Consequently, the internal control is usually not visible in the positive control reaction.

Other PCR products may be visible in the gel as faint, diffuse bands of unexpected sizes (neither 191 bp nor ~270 bp). These bands do not indicate positive results and may be due to considerable amount of background DNA (DNA input >100 µg/ml), leading to unspecific annealing reactions. Also, primer self-annealing may give rise to a band of 80-90 bp in size, which - again - does not affect the sensitivity, precision, or results of the test.

If the PCR test shows inhibition due to the characteristics of the sample (lower intensity of the Internal Control band compared to negative controls), DNA extraction needs to be performed prior to re-testing (see chapter “SAMPLES FOR EP 2.6.7 / JP G3 COMPLIANT TESTING”).

Detection of Mycoplasma band at 265-278 bp	Internal control band at 191 bp	Interpretation
Positive	Irrelevant	Mycoplasma present in the sample
Negative	Negative	PCR inhibition
Negative	Positive	No mycoplasma detectable in the sample

Fig. 1: A typical agarose gel image



ASSAY CHARACTERISTICS

An extensive validation study is available on request.

Sensitivity

The detection limit depends on the species and ranges from ≤5 to ≤10 CFU/ml using the EP- /JP-compliant protocol with 10 µl sample volume per PCR reaction. For all EP / JP listed mycoplasma species, the required detection limit of 10 CFU/ml was reached with a pre-analytical DNA extraction using the Venor® GeM Sample Preparation Kit.

Species	Detection limit LOD_{95} [CFU/ml]	Species	Detection limit LOD_{95} [CFU/ml]
Acholeplasma laidlawii	≤5	*Mycoplasma pneumoniae*	≤10
Mycoplasma hyorhinis	≤10	*Mycoplasma arginini*	≤10
Mycoplasma fermentans	≤10	*Mycoplasma gallisepticum*	≤10
Mycoplasma orale	≤10	*Spiroplasma citri*	≤10
Mycoplasma synoviae	≤10	*Mycoplasma salivarium*	≤10

Specificity

The specificity of the assay was assessed on DNA extracts of Mollicutes, non-Mollicutes bacteria, and eukaryotic cell/tissue samples. The table on the following page shows all positively tested species and those that were not detected. Cross-reactivity with eukaryotic DNA could not be observed. Unspecific PCR products such as faint, diffuse bands of different sizes are rarely observed (see chapter “Data Interpretation“). The kit does not detect any of the phylogenetically related microorganisms, such as *Clostridium*, *Lactobacillus,* and *Streptococcus*. Likewise, the waterborne germ *Burgholderia* is not detected. The test is positive for *Staphylococcus epidermidis* at concentrations above 10^4 genome copies/µl.

A substantial number of Mycoplasma sequences have been published. The primers of the kit were aligned against the NCBI data and scrutinized for homologies within the target region of the 16S rRNA.

Positive tested Mollicutes	Negative tested		
	EP listed bacteria	**Other microorganisms**	**Mammals**
Acholeplasma laidlawii	*Clostridium acetobutylicum*	*Chlamydia trachomatis*	Vero-B4
Mycoplasma arginini	*Lactobacillus acidophilus*	*Legionella pneumophila*	Per.C6
Mycoplasma arthritidis	*Streptococcus pneumoniae*	*Micrococcu luteus*	RK13
Mycoplasma fermentans		*Candida albicans*	CHO-K1
Mycoplasma gallisepticum		*Enterococcus faecalis*	Murine genomic DNA
Mycoplasma genitalium		*Enterobacter aerogenes*	Calf thymus DNA
Mycoplasma hominis		*Escherichia coli*	Foetal bovine serum
Mycoplasma hyorhinis		*Proteus mirabilis*	
Mycoplasma orale		*Bacillus cereus*	
Mycoplasma penetrans			
Mycoplasma pneumoniae			
Mycoplasma salivarium			
Mycoplasma synoviae			
Spiroplasma citri			
Ureaplasma urealyticum			

APPENDIX

Limited Product Warranty

This warranty limits our liability for replacement of this product. No warranties of any kind, express or implied, including, without limitation, implied warranties of merchantability or fitness for a particular purpose, are provided. Minerva Biolabs shall have no liability for any direct, indirect, consequential, or incidental damages arising from the use, the results of use, or the inability to use this product.

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Venor, Mynox, Onar, AquaScreen, and ZellShield are registered trademarks and 10CFU, 100CFU, PCR Clean, Mycoplasma Off, ConviFlex, SwabUp, Cycler Check, Food Control, Vegan Control, Meat ID and WaterShield are trademarks of Minerva Biolabs GmbH.

RELATED PRODUCTS

Contamination Control Kits for conventional PCR

11-8025/-8100/-8250	Venor® GeM OneStep Mycoplasma Detection Kit	25/100/250 reactions
12-1025/-1100/-1250	Onar® Bacteria Detection Kit	25/100/250 reactions

Contamination Control Kits for qPCR

11-9025/-9100/-9250	Venor® GeM qEP Mycoplasma Detection Kit	25/100/250 reactions
11-91025/-91100/-91250	Venor® GeM qOneStep Mycoplasma Detection Kit	25/100/250 reactions

Sample Preparation

56-1010/-1050/-1200	Venor® GeM Sample Preparation Kit	10/50/200 extractions

Mycoplasma Elimination

10-0200/-0500/-1000	Mynox® Mycoplasma Elimination Reagent	2/5/10 treatments
10-0201/-0501/-1001	Mynox® Gold Mycoplasma Elimination Reagent	2/5/10 treatments

10CFU™ Sensitivity Standards, 3 vials with 10 CFU each, 2 vials negative control

102-XXXX	Various mycoplasma species (See Minerva Biolabs website for available species)	
102-0002	Mycoplasma Set, all EP / JP listed species	2 vials per species, 10 CFU each

100CFU™ Sensitivity Standards, 3 vials with 100 CFU each, 2 vials negative control

103-XXXX	Various mycoplasma species (See Minerva Biolabs website for available species)	

PCR Cycler Validation

57-2102	PCR Cycler Check™ Advance	6 strips, 8 vials each
57-2103	PCR Cycler Check™ OneStep	100 reactions
57-2202	qPCR Cycler Check™	100 reactions

PCR Clean™

15-2025/15-2200	Decontamination Reagent, Spray bottles/canister	250 ml/4×500 ml/5 l
15-2001	Decontamination Reagent, Wipes in a dispenser box	50 wipes
15-2002	Decontamination Reagent, Wipes in refill packs	5×50 wipes

Mycoplasma Off™

15-1000/-5000	Surface Disinfectant Spray, Spray bottle/canister	1 l/5 l
15-1001	Surface disinfectant Wipes in dispenser box	50 wipes
15-5001	Surface Disinfectant Wipes in refill packs	5×50 wipes

ZellShield®

13-0050/-0150	Contamination Prevention Reagent 100× concentrate	50 ml/ 3×50 ml

WaterShield™

15-3015/3020/3050	Water Disinfection Additive for incubators	15×10 ml/ 3×50 ml/ 500 ml and water baths, 200× concentrate

PCR Quantification Standards, 10^8 genomes / vial

52-XXXX	Various genomes (See Minerva Biolabs website for available species)

Genomic DNA Extracts, 10 ± 2 ng / vial

51-XXXX	Various genomes (See Minerva Biolabs website for available species)

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