

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 is targeting 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 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, 50, 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 to +8 °C until use. The rehydrated components must be stored at ≤ -18 °C.

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 vials, 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.minerva-biolabs.com).

USER-SUPPLIED CONSUMABLES AND EQUIPMENT

The Venor®GeM Classic Kit contains PCR reagents for the specific detection of mycoplasma. Taq polymerase, 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, 100, 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
- Requirement 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 test’s sensitivity.

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 sec to pellet cellular debris.
 4. Use 2 μl directly for PCR, or store the sample for up to 6 days at +2 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 ($> 2 \mu\text{l}$), 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 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 $> 200 \mu\text{l}$. 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.

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1. Transfer 500 μl of the supernatant from the cell culture into 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 sample 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 μ l, 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 μ l 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 $\geq 10,000 \times g$ for 15 min (or $\geq 13,000 \times g$ for 6 min) to pellet mycoplasma particles.
 3. Discard the supernatant and resuspend the pellet in 200 μ l Tris buffer (10 mM Tris-HCl, pH 8.4).
 4. Vortex the sample briefly and proceed immediately with sample stabilization (Step 2.) or DNA extraction.
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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-XX02) and processed in parallel.

Ideally, the Internal Control DNA of 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 μ l per 10 μ l DNA extract directly to the sample, vortex briefly and proceed with the DNA extraction. (Example: add 30 μ l Internal Control DNA to the original sample if the elution volume will be 60 μ l 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).

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.

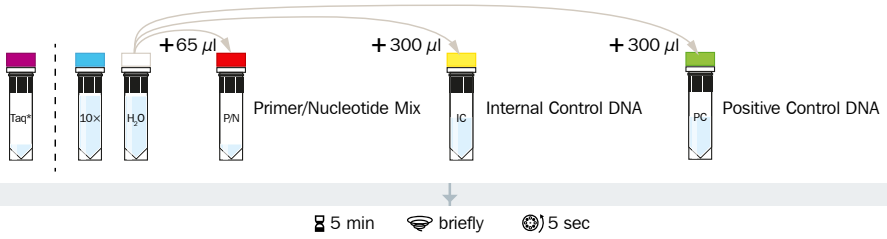
This kit does not contain hazardous substances. Remnants can be discarded according to local regulations.

ADDITIONAL 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 cross contamination by preparing the positive controls after the negative controls and test reactions
- ⇒ 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



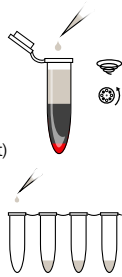
2. Reaction mix preparation

for cell culture screening

mix components**

- 14.5 μ l H₂O
- 2.5 μ l 10 \times
- 2.5 μ l P/N
- 2.5 μ l IC
- 1.0 μ l Taq* (1 unit)

aliquot 23 μ l

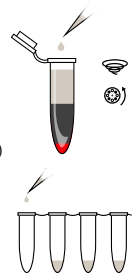


for EP/JP testing

mix components**

- 6.5 μ l H₂O
- 2.5 μ l 10 \times
- 2.5 μ l P/N
- 2.5 μ l IC
- 1.0 μ l Taq* (1 unit)

aliquot 15 μ l

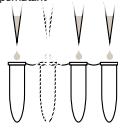


3. Add samples

+ 2 μ l

Cell Culture supernatant PC NTC

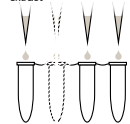
vortex briefly



+ 10 μ l

DNA extract PC NTC

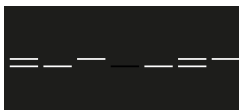
vortex briefly



4. PCR amplification

- 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 4 - 10 °C

5. Gel electrophoresis



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

PROCEDURE - STEP BY STEP

1. Reagent preparation

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

After reconstitution, the reagents must be stored at ≤ -18 °C. Repeated freeze-thaw cycles should be avoided. For small sample numbers, we recommend preparing aliquots of reconstituted Primer/Nucleotide 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 μ l sample volume)

Pipetting scheme using a Taq polymerase with a concentration of 5 U/ μ l:

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

1. Pipetting scheme using a Taq polymerase with a concentration of 1 U/ μ l:

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

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

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

2b) Reaction mix for EP- / JP-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 sec.

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 cyclers 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 cyclers and start the program.
-

4. Start PCR amplification

1. Place the PCR tubes in the cycler and close the lid tightly.
-

Program the PCR cycler or check stored temperature profiles.

- | | |
|--------------|------------------|
| 1 cycle | 94 °C for 2 min |
| 2. 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).
-

Mix 5 µl from each PCR reaction with a suitable loading buffer and load the mix.

2. 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 |
| | <i>Mycoplasma spp.</i> | 265-278 bp |
-

DATA INTERPRETATION

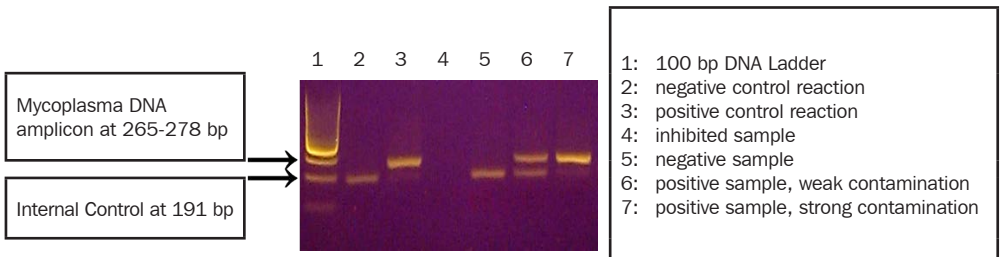
The Internal Control DNA gives rise to a distinct 191 bp band in every lane indicating a successfully performed PCR. Due to competition between the internal control and the target reaction, this band will fade out when large amounts of primary target are initially present (e.g. mycoplasma DNA input of $> 10^3$ 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 $> 100 \mu\text{g/ml}$), 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 $10 \mu\text{l}$ 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]
<i>Acholeplasma laidlawii</i>	≤ 5	<i>Mycoplasma pneumoniae</i>	≤ 10
<i>Mycoplasma hyorhinis</i>	≤ 10	<i>Mycoplasma arginini</i>	≤ 10
<i>Mycoplasma fermentans</i>	≤ 10	<i>Mycoplasma gallisepticum</i>	≤ 10
<i>Mycoplasma orale</i>	≤ 10	<i>Spiroplasma citri</i>	≤ 10
<i>Mycoplasma synoviae</i>	≤ 10	<i>Mycoplasma salivarium</i>	≤ 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 <i>Mollicutes</i>	Negative tested		
	EP-listed bacteria	Other microorganisms	Mammals
<i>Acholeplasma laidlawii</i>	<i>Clostridium acetobutylicum</i>	<i>Chlamydia trachomatis</i>	Vero-B4
<i>Mycoplasma arginini</i>	<i>Lactobacillus acidophilus</i>	<i>Legionella pneumophila</i>	Per.C6
<i>Mycoplasma arthritidis</i>	<i>Streptococcus pneumoniae</i>	<i>Micrococcus luteus</i>	RK13
<i>Mycoplasma fermentans</i>		<i>Candida albicans</i>	CHO-K1
<i>Mycoplasma gallisepticum</i>		<i>Enterococcus faecalis</i>	Murine genomic DNA
<i>Mycoplasma genitalium</i>		<i>Enterobacter aerogenes</i>	Calf thymus DNA
<i>Mycoplasma hominis</i>		<i>Escherichia coli</i>	Foetal bovine serum
<i>Mycoplasma hyorhinis</i>		<i>Proteus mirabilis</i>	
<i>Mycoplasma orale</i>		<i>Bacillus cereus</i>	
<i>Mycoplasma penetrans</i>			
<i>Mycoplasma pneumoniae</i>			
<i>Mycoplasma salivarium</i>			
<i>Mycoplasma synoviae</i>			
<i>Spiroplasma citri</i>			
<i>Ureaplasma urealyticum</i>			

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.

Trademarks

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

MB Taq Polymerase

53-0050/-0100/-0200/-0250	MB Taq DNA Polymerase (5 U/ μ l)	50/100/200/250 units
53-1050/-1100/-1200/-1250	MB Taq DNA Polymerase (1 U/ μ l)	50/100/200/250 units

Contamination Control Kits for conventional PCR

11-7024/-7048/-7096/-7240	Venor [®] GeM Advance Mycoplasma Detection Kit	24/48/96/240 reactions
11-8025/-8050/-8100/-8250	Venor [®] GeM OneStep Mycoplasma Detection Kit	25/50/100/250 reactions
12-1025/-1050/-1100/-1250	Onar [®] Bacteria Detection Kit	25/50/100/250 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
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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

PCR Quantification Standards, 1 x 10⁸ genomes / vial

52-0112	<i>Mycoplasma orale</i>
52-0115	<i>Mycoplasma gallisepticum</i>
52-0116	<i>Acholeplasma laidlawii</i>
52-0117	<i>Mycoplasma fermentans</i>
52-0119	<i>Mycoplasma pneumonia</i>
52-0103	<i>Mycoplasma salivarium</i>
52-0124	<i>Mycoplasma synoviae</i>
52-0129	<i>Mycoplasma arginini</i>
52-0130	<i>Mycoplasma hyorhinis</i>
52-0164	<i>Spiroplasma citri</i>

See Minerva homepage for further available species

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

102-1003	<i>Mycoplasma arginini</i>	
102-2003	<i>Mycoplasma orale</i>	
102-3003	<i>Mycoplasma gallisepticum</i>	
102-4003	<i>Mycoplasma pneumoniae</i>	
102-1103	<i>Mycoplasma salivarium</i>	
102-5003	<i>Mycoplasma synoviae</i>	
102-6003	<i>Mycoplasma fermentans</i>	
102-7003	<i>Mycoplasma hyorhinis</i>	
102-8003	<i>Acholeplasma laidlawii</i>	
102-9003	<i>Spiroplasma citri</i>	
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

103-1003	<i>Mycoplasma arginini</i>
103-2003	<i>Mycoplasma orale</i>
103-3003	<i>Mycoplasma gallisepticum</i>
103-4003	<i>Mycoplasma pneumoniae</i>
103-1103	<i>Mycoplasma salivarium</i>
103-5003	<i>Mycoplasma synoviae</i>
103-6003	<i>Mycoplasma fermentans</i>
103-7003	<i>Mycoplasma hyorhinis</i>
103-8003	<i>Acholeplasma laidlawii</i>

Food and Water Assays

11-02-XX-025	Food Control [™] qPCR	25 reactions
12-01-005/-020/-040	Meat ID [™] Screen	5/20/40 reactions
12-02-025/-100	Meat ID [™] Halal	25/100 reactions
12-05-025/-100	Vegan Control [™]	25/100 reactions
33-2025/-2100/-2250	AquaScreen [®] Legionella species	25/100/250 reactions
34-2025/-2100/-2250	AquaScreen [®] Legionella pneumophila	25/100/250 reactions

34-6025/-6100/-6250	AquaScreen® Pseudomonas aeruginosa	25/100/250 reactions
34-7025/-7100/-7250	AquaScreen® Escherichia coli	25/100/250 reactions
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
ConviFlex™ DNAmix		
191-025/-100/-250	PCR Mix with Taq polymerase for conventional and qPCR	25/100/250 reactions
SwabUp™ Lab Monitoring Kits		
181-0010/-0050	Sample collection and DNA extraction	10/50 samples
182-0010/-0050	Sample collection, DNA extraction and PCR system	10/50 samples
PCR Clean™		
15-2025/15-2200/15-2500	DNA Decontamination Reagent, spray bottle/refill bottles	250 ml/4×500 ml/5 l
15-2001	DNA Decontamination Reagent, Wipes in dispenser box	50 wipes
15-2002	DNA Decontamination Reagent, Wipes, refill pack	5×50 wipes
Mycoplasma Off™		
15-1000	Surface Disinfectant Spray, spray bottle	1000 ml
15-5000	Surface Disinfectant Spray, refill bottles	5 l
15-1001	Surface disinfectant Wipes in dispenser box	50 wipes
15-5001	Surface Disinfectant Wipes, refill pack	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 and water baths, 200× concentrate	15×10 ml/3×50 ml/500 ml



Mycoplasma Detection Kits

Minerva Biolabs offers several rapid assays and solutions to detect cell culture contaminations.

>Features	Conventional PCR	qPCR	Polymerase included	Internal Control	Process Control	Positive Control	EP 2.6.7/JP G3 conformity
Venor®GeM Classic	✓	✗	✓* ✗	✓	✓	✓	✓
Venor®GeM Advance	✓	✗	✓	✓	✗	✓	✗
Venor®GeM OneStep	✓	✗	✓	✓	✗	✓	✗
Venor®GeM qEP	✗	✓	✓	✓	✓	✓	✓
Venor®GeM qOneStep	✗	✓	✓	✓	✗	✓	✗

* available only in US or on request.

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Made in Germany

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