

Detects and Identifies:

Middle East Respiratory Syndrome Coronavirus (MERS-CoV)

## Rapid Detection and Identification of MERS-CoV

MERS is an illness caused by a virus called Middle East Respiratory Syndrome Coronavirus (MERS-CoV). MERS affects the respiratory system (lungs and breathing tubes), and most MERS patients will develop severe acute respiratory illness with symptoms of fever, cough and shortness of breath, with a death rate of 30%.

This virus is known to spread from ill people to others through close contact and all of the cases in South Korea have been linked to exposure to MERS-CoV in a hospital or clinic suggesting that there is no evidence of sustained community transmission. However, it is widely recognized that MERS-CoV has the potential to cause global outbreaks, and as such, the need for an accurate and reliable test for surveillance and detection is essential.

To meet this need, Veredus offers a new solution: VereMERS™. With the flexibility of updating our VereMERS™ chip to include the detection of newly mutated strains, this Lab-on-Chip application, together with the VerePLEX™ Lab-on-Chip platform, makes MERS surveillance and diagnostics possible with the right coverage of detection when mutation occurs.

### Specifications

#### Detects MERS-CoV

#### Multiple Probes (with duplicates) for:

- NS3 target genes
- S target genes

#### Process Controls on each chip:

- PCR: Positive Control
- Hybridization: Orientation Probes, Positive Control Probes, Negative Control

**Sample Types\*:** serum and respiratory swabs (nasopharyngeal, oropharyngeal, throat, nasal or throat aspirates)

Every chip is bar-coded and measures  
2.54cm x 7.62cm

\* As recommended by World Health Organization (WHO)



**Robust and Time-tested Technologies:**

Polymerase Chain Reaction (PCR) and microarray detection gives the VereMERS™ chip the accuracy and sensitivity needed to provide answers in the shortest possible time.

**Breakthrough Innovation:**

The integration of two powerful molecular biological technologies enables the development of the VereMERS™ chip into a fast PCR-microarray based diagnostic test using the VerePLEX™ Biosystem to detect and identify selected biological agents all in a single test. With the flexibility afforded by our customizable updates in our VereChip™ target panels, we are able to provide diagnostic and surveillance tools needed today and be ready for the next threat tomorrow.

**Veredus Laboratories, the future of diagnostics and surveillance, today.**

**Features**

- Multiplex amplification reactions
- Multiple probes per target ensures reliable detection
- Small sample volume requirement
- Fast and programmable temperature ramp rate
- Scalable for high throughput
- PCR yield is comparable to standard thermal cyclers
- Functional validation of hybridization for each assay is provided by an internal positive hybridization control
- Proprietary microfluidic interface: contact surfaces are biocompatible and do not inhibit the PCR reaction
- Short time required for fluidic operations

**Advantages****Speed**

- RNA samples to results in less than 2.5 hours

**Comprehensive**

- Detection of NS3 and S genes for MERS-CoV surveillance and enables prompt action by healthcare authorities to control MERS-CoV outbreaks

**Easy to use**

- Detects only MERS-CoV and no cross-reactivity with other coronaviruses such as OC43, 229E, KHU1, NL63

**Mobile**

- The VerePLEX™ Biosystem is designed to be portable for usage at areas such as checkpoints and borders.

**Easy to use**

- The simple workflow allows for minimally trained or non-scientific personnel to run tests

**Updates Available**

- Probes can be updated quickly to include new mutations of the evolving MERS-CoV and ensure the right coverage of detection

**VerePLEX™ Biosystem**

The VerePLEX™ Biosystem combines molecular biology, microfluidics and microelectronics to bring the future of diagnostics and surveillance to you today. The VerePLEX™ Biosystem, along with the VereChip™, is a breakthrough in innovation, integrating two powerful molecular biological technologies: PCR and Microarray.

VerePLEX™ Biosystem includes the following components:

- Temperature Control System (5 random access modules)
- Optical Reader
- Biosystem Software
- Barcode Reader